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September 30, 2022

Via Messenger & CD-ROM

Dr. Susan Carlson
Director, Division of Biotechnology and GRAS Notice Review
Office of Food Additive Safety (HFS-200)
Center for Food Safety and Applied Nutrition
Food and Drug Administration
5100 Paint Branch Parkway
College Park, MD 20740-3835

Re: GRAS Notification for The Better Meat Co. for *Neurospora crassa*

Dear Dr. Carlson:

We respectfully submit the attached Generally Recognized As Safe (GRAS) Notification on behalf of our client, The Better Meat Co. (BMC), for its biomass of a wild-type isolate of *Neurospora crassa* to be used as an enhancer and substitute for meat (including pork), poultry, dairy, and seafood ingredients. More detailed information regarding product identification, intended use levels, the manufacturing process, and safety of the ingredient is set forth in the attached GRAS Notification.

BMC has determined that its *N. crassa* biomass is GRAS for its intended uses based on scientific procedures in accordance with 21 C.F.R. § 170.30(b) and in conformance with the guidance issued by the Food and Drug Administration (FDA) under 21 C.F.R. § 170.36 (81 *Fed. Reg.* 54960 (Aug. 17, 2016)). Therefore, the use of the *N. crassa* biomass as described in this GRAS Notification is exempt from the requirement of premarket approval as set forth in the Federal Food, Drug, and Cosmetic Act.

The analytical data, published studies, and information that are the basis for this GRAS Notification are available for FDA review and copying at reasonable times at Keller and Heckman LLP, 1001 G Street, NW, Suite 500W, Washington, DC 20001, or will be sent to the FDA upon request.

The messenger package includes printed copies of this cover letter, the GRAS Notification, and the Attachments and Appendix cited in Part 7, along with a CD-ROM with .pdf versions of the



Dr. Susan Carlson
September 30, 2022
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same documents. We certify that the electronic files were scanned for viruses prior to submission and are virus-free using appropriate commercial computer software.

We look forward to the Agency's review of this submission and would be happy to provide Agency officials with any information they may need to complete their assessment. Thank you for your attention to this matter.

Sincerely yours,

A solid gray rectangular box redacting the signature of Frederick A. Stearns.

Frederick A. Stearns

Enclosures

GRAS Notification for *Neurospora crassa*

Prepared for: U.S. Food and Drug Administration
Office of Food Additive Safety (HFS-200)
Center for Food Safety and Applied Nutrition
5100 Paint Branch Parkway
College Park, MD 20740-3835

Prepared by: Keller and Heckman LLP
1001 G Street, NW
Suite 500W
Washington, DC 20001

On behalf of our client:

The Better Meat Co.
2939 Promenade St.
West Sacramento, CA 95691

Date: September 30, 2022

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Part 1. Signed Statements and Certification

1. Applicability of 21 C.F.R. part 170, subpart E

In accordance with Subpart E (“Generally Recognized as Safe (GRAS) Notice”) of 21 C.F.R. Part 170 (“Food additives”), Keller and Heckman LLP submits the enclosed information on behalf of our client, The Better Meat Co. (BMC).

The analytical data, published studies, and information that are the basis for this GRAS determination are available for FDA review and copying at reasonable times at Keller and Heckman LLP, 1001 G Street, NW, Suite 500 West, Washington, DC 20001, or will be sent to FDA upon request.

2. Name and Address of Notifier

The Better Meat Co.
2939 Promenade St
West Sacramento, CA 95691

All communications on this matter are to be sent to Counsel for the Notifier:

Frederick A. Stearns
Keller and Heckman LLP
1001 G St. NW, Suite 500 West
Washington, DC 20001
Telephone: (202) 434-4288
Email: stearns@khlaw.com

3. Name of the notified substance

Rhiza

N. crassa

Rhiza Mycoprotein

Rhiza Mycelium

N. crassa Mycelium

4. Applicable conditions of use of the notified substance

BMC intends to market Rhiza mycoprotein as a food ingredient in meat (including pork), poultry, and seafood, as well as in animal-free meat/poultry/seafood/dairy alternative products, and as a source of protein.

5. Basis for the GRAS determination

Keller and Heckman LLP, on behalf of BMC, hereby notifies the Agency of its determination that *Neurospora crassa* is GRAS for its intended use based on scientific procedures, in accordance with 21 C.F.R. § 170.30(b).

6. Exclusion from premarket approval

The notified substance is not subject to the premarket approval requirements of the FD&C Act based on our conclusion that the notified substance is GRAS under the conditions of its intended use.

7. Availability of data

The information for this GRAS conclusion—including analytical data, published studies, and information that are the basis for this GRAS determination—are available to FDA upon request as required by 21 C.F.R. § 170.225(c)(7)(ii)(A) or (B) by contacting Keller and Heckman LLP at the below address.

Frederick A. Stearns
Keller and Heckman LLP
1001 G St. NW, Suite 500 W
Washington, DC 20001
Telephone: (202) 434-4288
Email: stearns@khlaw.com

8. Applicability of FOIA exemptions

BMC is not claiming any information in parts 2 through 7 of this document as trade secret, confidential, or financial information that is privileged or confidential. Thus, all information and data in this submission are not exempt from the Freedom of Information Act (FOIA), 5 U.S.C. Section 552.

9. Certification

I hereby certify that, to the best of my knowledge, this GRAS notice is a complete, representative, and balanced submission that includes unfavorable information, as well as favorable information, known to us and pertinent to the evaluation of the safety and GRAS status of the use of the substance

Signature:



Frederick A. Stearns
Counsel to BMC

September 30, 2022

Date

10. FSIS/USDA – Use Meat and Poultry

BMC wishes to add Rhiza mycoprotein to meat (including pork) and poultry products that come under the jurisdiction of the U.S. Department of Agriculture's (USDA's) Food Safety Inspection Service (FSIS). This GRAS Notice includes Appendix 1 presenting data on the suitability of the ingredient for use in meat and poultry applications. BMC authorizes FDA to send to USDA/FSIS any portion of this GRAS Notice (including Appendix 1), which does not include any discussion of trade secrets.

Part 2. Identity, method of manufacture, specifications, and physical or technical effect

1. Identity

The food ingredient of interest is the biomass of a wild-type isolate of *Neurospora crassa*. Its taxonomy is as follows:¹

Kingdom: *Fungi*
Phylum: *Ascomycota*
Class: *Sordariomycetes*
Order: *Sordariales*
Family: *Sordariaceae*
Genus: *Neurospora*
Species: *crassa*

The production strain has been submitted to the International Depository Authority and has been assigned the identifier NRRL 68076. The ingredient of interest is the whole biomass of the BMC production strain of *N. crassa* in its dried or hydrated state, hereafter referred to as Rhiza mycoprotein. Rhiza mycoprotein is grown through fermentation on a food-grade substrate. Like other GRAS fungi-derived biomass ingredients, Rhiza mycoprotein consists of mycelium, a filamentous mass comprising the vegetative part of the fungus. The submerged fermentation process results in the production of a nutrient-rich material that is approximately 30% solids and approximately 70% water. Rhiza mycoprotein can be dehydrated and rehydrated to the same 30% solid/70% water state. As described below, Rhiza mycoprotein contains a high concentration of digestible, high-quality protein (approximately 45-50% on a dry basis) and dietary fiber (approximately 25% on a dry basis). The ingredient has a neutral taste and meat-like texture, making it an ideal substitute for meat, poultry, dairy and seafood ingredients.

a. DNA Sequence Alignment

Precise validation of the identity of the BMC production strain (Bstr 26) was initially conducted by analysis of the universal fungal barcode of the nuclear ribosomal internal transcribed spacer (ITS). The analysis was conducted by Genewiz (Azenta Life Sciences) and the obtained sequences were queried using Basic Local Alignment Search Tool (BLAST) against the ITS Genebank database. This identified Bstr26 as part of the *Neurospora* complex of fungi.

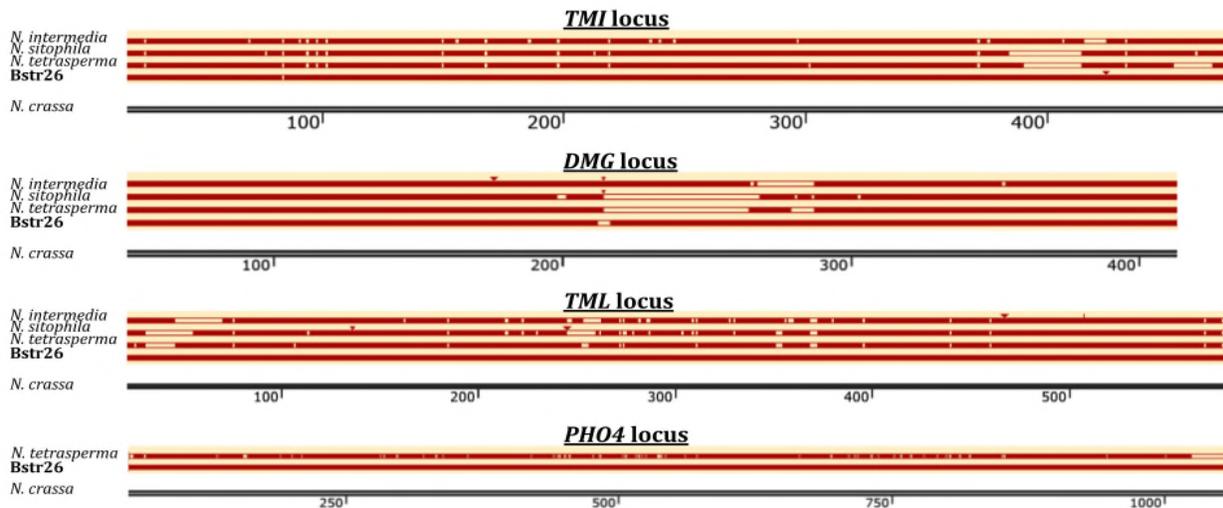
Precise genetic identification within the *Neurospora* genus is performed by targeted sequencing of genetic loci with known sequence variability across related species (Dettman et al., 2003; Luque et al., 2012). Established PCR primers were used to amplify the TMI, DMG, TML, and PHO4 loci from genomic DNA extracted from Bstr26. Sangar sequencing (at x4) was used to determine the sequence of these loci. Sequences were compared to *Neurospora* sequences that are available in the nonredundant Genebank database using BLAST to identify the most likely species. Next, the sequences were compared to the reference sequences of *N. crassa* and the closest related species (**Figure 1**). Sequence alignment unequivocally identifies

¹ See Biosafety Clearing-house, *N. crassa*, Organism Information, at <https://bch.cbd.int/en/database/104624> (accessed May 20, 2022).

Bstr26 as an *N. crassa* - there is a complete match to the sequence of known *N. crassa* and sequence variations compared to the most closely related species of *N. tetrasperma*, *N. sitophila*, and *N. intermedia*.

Figure 1 below provides the schematic representation of DNA sequence alignment of 4 genetic loci. The black bars at the bottom represent the reference *N. crassa* sequence and the red represent the aligned sequences. As a reference and for comparison, the species closest to *N. crassa* are shown (the PHO4 sequence is not available for *N. intermedia* and *N. sitophila*). Spaces and errors in the bars represent deletions and insertions compared to the *N. crassa* sequence. The numbers at the bottom are base pair positions along the *N. crassa* reference sequence.

Figure 1: Sequence Alignment of Various *Neurospora* Species



b. Composition and Nutrition Information

Below we discuss the composition and nutrition profile for Rhiza mycoprotein (Table 1).

The nutrition and heavy metal analyses were performed by Medallion Labs in a nonconsecutive 3-batch analysis. The results of the testing are provided in Table 7.

Table 1. Nutrition Information (per 100 g)

| Category | Method | Three Lot Average |
|---------------|---------------------------------------|-------------------|
| Calories | Internal Calculation | 366 |
| | Calories, 2020 | 251 |
| | Calories (Insoluble Fiber Subtracted) | 257 |
| Carbohydrates | Internal Calculation | 38.00% |

| | | |
|------------------------------|------------------------------------|----------|
| Cholesterol | AOAC: 976.26 | <1.0 mg |
| Fat | Gas Chromatography, AOAC 996.06 | 3.64 g |
| -Saturated Fat | Gas Chromatography, AOAC 996.06 | 0.68 g |
| -Monounsaturated Fat | Gas Chromatography, AOAC 996.06 | 0.85 g |
| -cis-cis Polyunsaturated Fat | Gas Chromatography, AOAC 996.06 | 1.95 g |
| Total Dietary Fiber | AOAC 991.43 | 30.00 g |
| Insoluble Dietary Fiber | AOAC 991.43 | 27.17 g |
| Soluble Dietary Fiber | AOAC 991.43 | 2.83 g |
| Protein | AACC 46-30. AOAC 992.15 | 45.27 g |
| Sodium | AOAC 2011.14 | 57.93 mg |
| Calcium | AOAC 2011.14 | 57.2 mg |
| Iron | AOAC 2011.14 | 9.99 mg |
| Potassium | AOAC 2011.14 | 1660 mg |
| Vitamin D (D2+D3) | AOAC 995.05, 992.26, 2002.05 | <0.7 µg |

As noted above, Rhiza mycoprotein contains approximately 30% fiber on a dried basis (as measured using AOAC Method 991.43) and approximately 45% protein on a dried basis (as measured using AOAC Method 992.15).

Rhiza mycoprotein also has the following micronutrient content:

Table 2. Micronutrient Analysis

| Vitamin | Amount | Measurement | Method |
|--|---------------|--------------------|----------------------------------|
| Vitamin K | <1 | µg/100g | JOFCA #42 Modified |
| Vitamin C | <0.1 | mg/100g | AOAC 984.26/WRE017 |
| Vitamin B12 | 0.8 | µg/100g | IJCPS-0976-9390 |
| Total Vitamin D (D2+D3) | <0.7 | µg/100g | LC-MS/MS |
| Riboflavin (Vitamin B2) | 0.59 | mg/100g | JOAC Vol 76, No 5, 1156, 1993 |
| Niacin | 66.3 | mg/100g | AOAC-944.13 |
| Biotin | 12 | µg/100g | USFDA-400 Modified |
| Vitamin E | <0.5 | mg/100g | AACC-86.06 Modified |
| Vitamin B6 Pyridoxine Hydrochloride | 13.2 | mg/100g | AOAC-942.23 |
| Vitamin A (Total) | <50 | I.U./100g | WRE 054 |
| Thiamin (B1) | <0.1 | mg/100g | JOAC Vol76, No 5, 1156, 1993 |
| Pantothenic Acid – B5 | 31.4 | mg/100g | AOAC-960.46 |
| Folic Acid | 165 | µg/100g | AOAC-944.12 |

BMC has evaluated the protein portion of Rhiza mycoprotein to assess its quality. In this regard, the following table summarizes the results of an amino acid analysis of three non-consecutive production batches of Rhiza mycoprotein:

Table 3. Percent Amino Acid Profile

| Component | Sample 1 Lot 210322.250L | Sample 2 Lot 210503.250L | Sample 3 Lot 210510.250L | Average |
|------------------|---|---|---|----------------|
| Alanine | 1.915 | 1.835 | 2.106 | 1.95 |
| Arginine | 1.928 | 2.080 | 2.250 | 2.09 |
| Aspartic Acid | 3.416 | 3.303 | 3.640 | 3.45 |
| Cystine | 0.349 | 0.374 | 0.485 | 0.40 |
| Glutamic Acid | 5.397 | 5.687 | 6.406 | 5.83 |
| Glycine | 1.467 | 1.406 | 1.573 | 1.48 |
| Histidine | 0.831 | 0.822 | 0.928 | 0.86 |
| Isoleucine | 1.501 | 1.389 | 1.415 | 1.44 |
| Leucine | 2.364 | 2.252 | 2.347 | 2.32 |
| Lysine | 2.227 | 2.367 | 2.736 | 2.44 |
| Methionine | 0.554 | 0.580 | 0.598 | 0.58 |

| | | | | |
|---------------|-------|-------|-------|------|
| Phenylalanine | 1.417 | 1.319 | 1.363 | 1.37 |
| Proline | 1.333 | 1.291 | 1.434 | 1.35 |
| Serine | 1.467 | 1.409 | 1.599 | 1.49 |
| Threonine | 1.570 | 1.587 | 1.791 | 1.65 |
| Tryptophan | 0.501 | 0.538 | 0.538 | 0.53 |
| Tyrosine | 0.883 | 0.892 | 0.829 | 0.87 |
| Valine | 2.149 | 1.735 | 2.403 | 2.10 |

Protein quality is based on its capacity to provide nitrogen and amino acids in amounts sufficient to meet human needs. The protein digestibility-corrected amino score (PDCAAS) is a method for evaluating the quality of a protein in the diet, based on human needs for amino acids and their digestibility. PDCAAS is the method referenced for assessing protein quality in FDA’s nutrition labeling regulation at 21 C.F.R. 101.9(c)(7). Accordingly, to assess the quality of the protein in Rhiza mycoprotein, BMC obtained *in vitro* PDCAAS analyses of three non-consecutive batches of dry Rhiza mycoprotein, as summarized below:

Table 4. PDCAAS Analysis

| Sample 1: 210322 | Sample 2: 210503 | Sample 3: 2022040609 kLB | Average |
|-----------------------------|-----------------------------|---|----------------|
| 0.96 | 0.87 | 0.89 | 0.91 |

A PDCAAS score in the range of 0.87-0.96 is on par with animal-derived proteins, as described in the table below, which is adapted from Table 5 in GRAS Notice 904:

Table 5: PDCAAS Comparison

| Protein Source | PDCAAS Score⁵ |
|--------------------------|-------------------------------------|
| Casein | 1.00 ^{ac} |
| Whey protein isolate | 1.00 ^{bc} |
| Whey protein concentrate | 1.00 ^{bc} |
| Egg | 1.00 ^{bc} |
| Beef | 0.92 ^{ac} |
| Rhiza mycoprotein | 0.91 |
| Soy protein | 0.91 ^c |
| Pea protein concentrate | 0.89 ^b |
| Pea | 0.67 ^a |
| Cooked kidney beans | 0.65 ^b |

| | |
|-----------------|-------------------|
| Cooked rice | 0.62 ^b |
| Cooked peas | 0.60 ^b |
| Roasted peanuts | 0.51 ^b |
| Whole wheat | 0.45 ^a |

Notes: ^a—Scores annotated “a” were identified in van Vliet, S *et al.*, *The Skeletal Muscle Anabolic Response to Plant-Versus Animal-Based Protein Consumption*, The Journal of Nutrition, 145(9): 1981-1991 (2015)

^b—Scores annotated “b” were identified in Rutherford, SM *et al.*, *Protein Digestibility-Corrected Amino Acid Scores and Digestible Indispensable Amino Acid Scores Differentially Describe Protein Quality in Growing Male Rats*, Journal of Nutrition, 145(2): 372-379 (Feb. 2015).

^c Scores annotated “c” were identified in Schaafsma G, *The Protein Digestibility-Corrected Amino Acid Score*, The Journal of Nutrition, 130(7): 1865S-1867S (2000).

As is apparent from the comparative PDCAAS scores in the table above, Rhiza mycoprotein is a high quality source of protein in the human diet.

2. Manufacturing Process

BMC produces Rhiza mycoprotein through fermentation of a wild-type, unmodified, strain (Bstr26) using food-grade ingredients. The proprietary substrate includes carbon sources, nitrogen sources, and trace elements to promote rapid, healthy growth of *N. crassa*. The fermentation ingredients introduced are all free of the major allergens as identified by FALCPA and the FASTER Act. The fermentation media is maintained and cultured under good laboratory practices, and all components of the media are safe and suitable for human food. A sterile, controlled submerged fermentation process is utilized to propagate mycelial biomass.

Master and working cell banks of BMC’s proprietary production strain are maintained in single-use sterile vials, following strict quality programs for culture purity and identity.

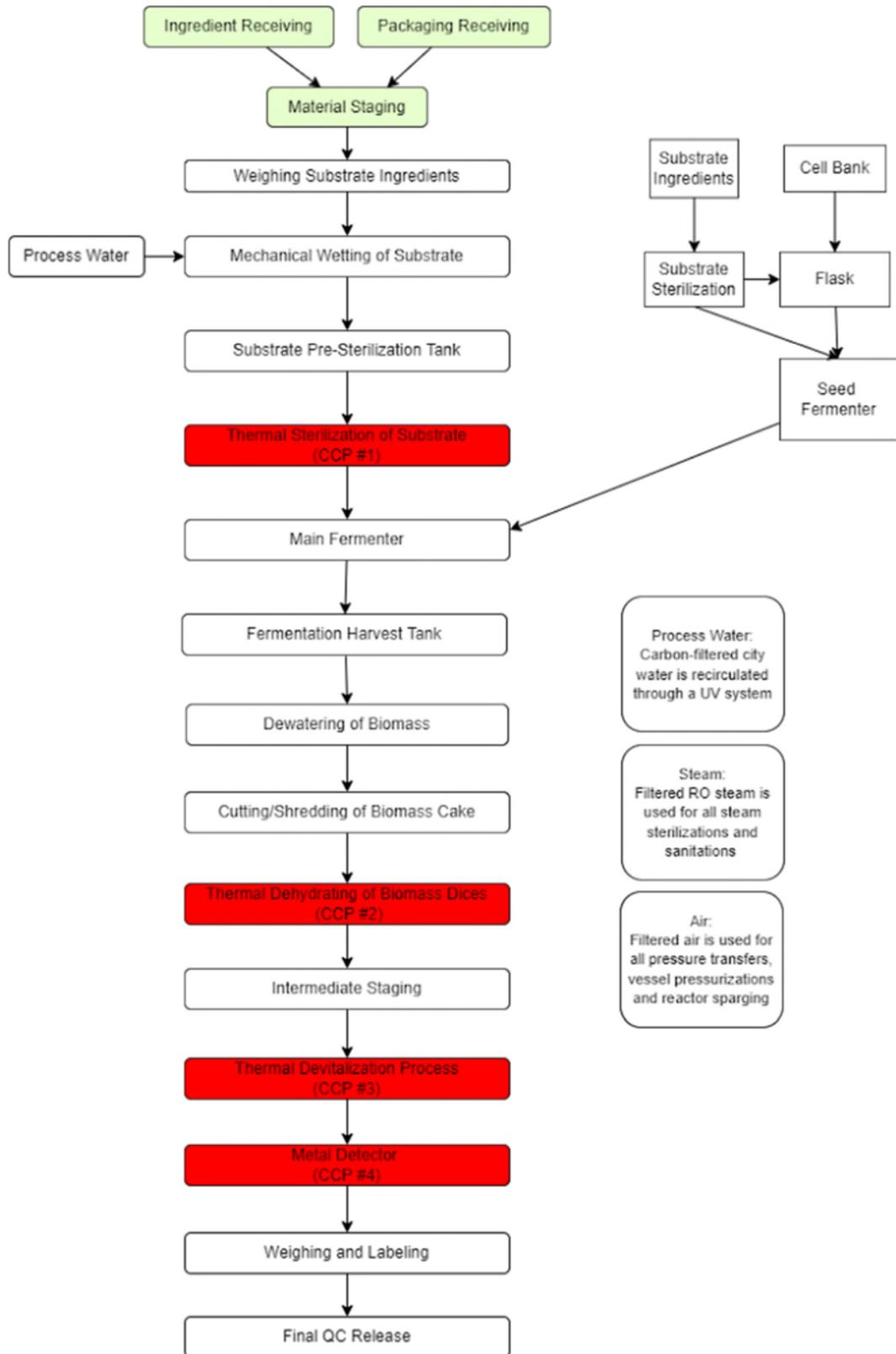
An individual vial is used to inoculate a production seed flask of sterilized liquid substrate. The flask culture is grown to the appropriate cell density under controlled conditions of temperature and agitation. Next, the seed flask culture is used to inoculate a seed fermenter, which is 1-5% volume of the main fermenter. The seed fermentation is routinely monitored for proper growth conditions and for culture purity. At the completion of the seed fermentation, the culture is transferred to the pre-sterilized main fermenter that is filled with sterilized media.

The main fermentation is frequently monitored for proper growth conditions, substrate utilization, mycelium density, and culture purity.

At harvest, the fermentation cell slurry is dewatered through a standard dewatering process, such as a belt press, screw press, or centrifuge, to a moist cake format, then diced to a particle size of 5 – 50 mm. The mycelium dices are then dehydrated under controlled conditions of temperature and humidity, ranging from 55 - 75°C for 20 – 90 minutes, until the water activity (a_w) is < 0.65.

The dehydrated mycelium is collected in food-grade bins and subjected to a validated thermal inactivation step, involving temperatures of 80-120°C for 15-120 minutes. These conditions act as a hazard control in the process to completely remove the viability of the production organism. These conditions also sufficiently reduce remaining viable microorganisms in terms of potential contaminating microbes. Each lot of finished product is analyzed and confirmed to meet the final product specifications outlined in Table 6. **Figure 2** below is a generalized flow diagram showing the manufacturing process for the biomass.

Figure 2: Rhiza Mycoprotein Production Flow Chart



3. Intended Use/Physical and Technical Effect

Rhiza mycoprotein is intended to be used as a meat replacer and a source of protein in a variety of foods, including meat and poultry. The filamentous nature of Rhiza mycoprotein sets it apart from many other plant-based meat alternatives (*e.g.*, soy, wheat, and pea protein isolates) in that the product is not a protein isolate but a whole biomass ingredient; accordingly, it offers a wider range of nutrients in addition to merely protein and retains the native whole food matrix. See Table 2 above, which summarizes nutrition information.

Rhiza mycoprotein has a firm, meat-like texture and mouthfeel. When used in meat alternative products, the rehydrated Rhiza mycoprotein will be used at levels ranging from 30-90%; when used in meat and poultry products, it will be used at levels in the range of 10-50%. Suitability data for Rhiza mycoprotein as a meat and poultry extender is provided in Appendix 1.

In addition to functioning as an extender and meat analog, Rhiza mycoprotein is a source of protein, containing approximately 45-50% crude protein on a dried basis and having a Protein Digestibility-Corrected Amino Acid Score (PDCAAS) of 0.87-0.96, with leucine being the limiting amino acid (see amino acid analysis and PDCAAS information above).

4. Specifications

BMC has set the following specifications for the finished product.

Table 6. Compositional Specifications

| Analyte | Specification | Method | Instrument |
|-------------------------------|-------------------|-------------------------|--|
| Ash | <10% | AOAC 923.03 | Furnace |
| Moisture | <11% in dry form | AOAC 945.45, 934.01 | Vacuum Oven |
| Protein | >40% | AACC 46-30, AOAC 992.15 | Combustion |
| Total Coliform | <10 CFU/g | AOAC 991.14 | Petrifilm |
| <i>E. coli</i> | <10 CFU/g | AOAC 991.14 | Petrifilm |
| <i>Enterobacteriaceae</i> | <10 CFU/g | Compendium 8.631 | Incubation |
| <i>Listeria monocytogenes</i> | Negative/25 grams | AOAC 2013.11 | Enzyme-linked fluorescent assay (ELFA) |
| Mold | <10 CFU/g | FDA BAM Ch. 18 | Plate Culture |
| <i>Salmonella</i> | Negative/25 grams | AOAC 2013.01 | ELFA |
| Yeast | <10 CFU/g | FDA BAM Ch. 18 | Plate Culture |
| Arsenic | <0.1 ppm | AOAC 993.14 and 2015.06 | ICP-MS |

| | | | |
|---------|----------|-------------------------|--|
| Lead | <0.1ppm | AOAC 993.14 and 2015.06 | ICP-MS |
| Mercury | <0.1 ppm | EPA 7473 | Milestone DMA-80 Direct Mercy Analyzer |
| Cadmium | <0.1 ppm | AOAC 993.14 and 2015.06 | ICP-MS |

The following table summarizes batch analyses from three non-consecutive batches of Rhiza mycoprotein:

Table 7. Batch Analyses

| Analyte | Typical Value | Lot 2021081009kLB | Lot 202110309kLB | Lot 2021111709kLB |
|-------------------------------|-------------------|-------------------|-------------------|-------------------|
| Ash | <10% | 6.88% | 6.48% | 7.07% |
| Moisture | <11% in dry form | 6.36% | 5.48% | 7.07% |
| Protein | >40% | 41.80% | 46.20% | 47.80% |
| Total Coliform | <10 CFU/g | <10 CFU/g | <10 CFU/g | <10 CFU/g |
| <i>E. coli</i> | <10 CFU/g | <10 CFU/g | <10 CFU/g | <10 CFU/g |
| <i>Enterobacteriaceae</i> | <10 CFU/g | <10 CFU/g | <10 CFU/g | <10 CFU/g |
| <i>Listeria monocytogenes</i> | Negative/25 grams | Negative/25 grams | Negative/25 grams | Negative/25 grams |
| Mold | <10 CFU/g | <10 CFU/g | <10 CFU/g | <10 CFU/g |
| <i>Salmonella</i> | Negative/25 grams | Negative/25 grams | Negative/25 grams | Negative/25 grams |
| Yeast | <10 CFU/g | <10 CFU/g | <10 CFU/g | <10 CFU/g |
| Arsenic | <0.1 ppm | 0.0193 ppm | 0.0211 ppm | 0.0145 ppm |
| Lead | <0.1 ppm | 0.0149 ppm | 0.0119 ppm | 0.0141 ppm |
| Mercury | <0.1 ppm | <0.00001 ppm | <0.01 ppm | <0.004 ppm |
| Cadmium | <0.1 ppm | 0.0368 ppm | 0.045 ppm | 0.044 ppm |

5. Absence of Mycotoxins

N. crassa has never been reported to produce mycotoxins. Extensive genetic information is available from 80 years of research of this fungus and there are no known mycotoxin coding

genes in this genome. Furthermore, BMC undertook additional genetic analyses using a third party, which also demonstrated that the species does not produce mycotoxins; the genome does not have any known toxin coding genes and a targeted genomic analysis of toxins did not detect genetic potential to produce toxins (Part 6.5).

To further confirm the absence of mycotoxins in the final Rhiza mycoprotein product, BMC tested three non-consecutive batches of Rhiza mycoprotein for the potential presence of various mycotoxins. The following mycotoxins were not detected (ND) in the samples; limits of detection are indicated in parenthesis: aflatoxin B1 (ND at 1.3 ppb), aflatoxin B2 (ND at 1.2 ppb), aflatoxin G1 (ND at 1.1 ppb), aflatoxin G2 (ND at 1.6 ppb), fumonisin B1 and B2 (ND at 0.1 ppm), ochratoxin (ND at 1.1 ppb), tricothecene (ND at 0.2 ppm), deoxynivalenol (ND at 0.2 ppm), acetyldeoxynivalenol (ND at 0.1 ppm), and zearalenone (ND at 51.7 ppb).

Part 3. Estimated Consumption of *N. crassa* biomass

Rhiza mycoprotein is intended to be used as a food ingredient in meat, poultry, seafood and meat/poultry/seafood alternative products. It may also be used in dairy analog products. The proposed uses and their corresponding use levels are provided in **Table 8** below on a dry weight basis.

Table 8. Proposed Food Uses of Rhiza Mycoprotein

| Food Category | Max use level (Rehydrated basis) |
|---|----------------------------------|
| Plant based meat analogs | 90% |
| Meat extenders | 50% |
| Dairy analogs (<i>e.g.</i> , milk alternatives, cheese, cream cheese, coffee creamer, frozen dessert, yogurt, whipped topping) | 15% |

To determine the estimated consumption of the product, BMC commissioned Exponent, Inc (Exponent) to conduct a dietary intake assessment. Specifically, Exponent’s report analyzed the total daily intake of Rhiza mycoprotein for use in three categories: plant-based meat analogs, ground/minced/chopped meats, and dairy analogs (including milk alternatives, cheese, cream cheese, coffee creamer, frozen dessert, yogurt and whipped topping).

The estimated daily intake (EDI) was based on food consumption records collected in the What We Eat in America (WWEIA) component from the 2015-2018 National Health and Nutrition Examination Survey (NHANES).

We note that the inclusion rates for the dietary exposure analysis are based on rehydrated Rhiza mycoprotein, which is approximately 2.5 times the mass of dry Rhiza mycoprotein by weight. Accordingly (as shown in **Table 9** below), the average and 90th percentile estimated daily intake for users from all proposed food uses among the U.S. population at or over 2 years old is 18.5 and 40.2 g/day on a dry basis (mean $46.2/2.5 = 18.5$ g/day; 90th $100.4/2.5 = 40.2$ g/day dietary exposure on a dry basis).

**Table 9: Two-day Average EDI from All Proposed Food Uses
among the U.S. Population 2+ y and Subpopulations**

| Population | N | % User | Per User (g/day) | | | |
|--------------------|--------|--------|----------------------------------|---|-----------------------------|--|
| | | | Mean (hydrated ingredient basis) | 90 th Percentile (hydrated ingredient basis) | Mean (dry ingredient basis) | 90 th Percentile (dry ingredient basis) |
| U.S. 2+ years (y) | 10,730 | 86 | 46.2 | 100.4 | 18.5 | 40.2 |
| Children 2-6y | 1,056 | 86 | 35.3 | 75.4 | 14.1 | 30.2 |
| Children 7-12y | 1,342 | 89 | 43.4 | 88.2 | 17.4 | 35.3 |
| Adolescents 13-18y | 1,218 | 88 | 46.9 | 102.6 | 18.8 | 41.0 |
| Adults 19+y | 7,114 | 86 | 47.3 | 103.8 | 18.9 | 41.5 |

Part 4. Self-Limiting Levels of Use (21 C.F.R. § 170.240)

The use of the Rhiza mycoprotein as a food is not limited by the level that can technically be added to a given food without jeopardizing its quality and consumer acceptability.

Part 5. Experience based on common use in food before 1958

While the basis for this GRAS Notice is scientific procedures, rather than common use in food, we note that *Neurospora*, and *N. crassa* in particular, has an extensive history of use in food that is corroborative of its safety.

A. Indonesia

Oncom (also spelled as onchom or ontjom) is a traditional West Javanese fermented food that has been consumed for centuries. Oncom is largely made from peanut presscake or okara and inoculated with *Neurospora* conidia (Shurtleff and Aoyagi, 1979). Various published works have reported isolating mainly *N. crassa*, *N. intermedia*, and/or *N. sitophila* from oncom, underlining the similarity of these *Neurospora* species and the safety of the *Neurospora* genus as a whole (Starznska-Janiszewska *et al.*, 2017; Djuhdiya *et al.*, 2002; Owens, 2015). Specifically, after peanuts are pressed to produce peanut oil, the remaining defatted solids offer potential nutrition (*i.e.*, protein, fiber); however, the taste of the defatted peanut solids is unappealing. The West Javanese developed a method of fermenting the presscake with *Neurospora* to produce a more appealing, digestible, and flavorful food product (Winarno, 1979). In the traditional process, the substrate is incubated for several days and inverted after 24 hours to promote thorough infiltration of the mycelium (Owens, 2015). *Neurospora* binds the plant fiber together and grows through the press cake, covering the press cake and resulting in a spongy texture. Indeed, *Neurospora* is a large component of the oncom product (Owens, 2015). The Dutch researcher F.A. Went, noted above as having identified the organism as *M. sitophila*, described oncom in his writings as early as 1901 (Perkins, 1992).

Today oncom has evolved from a food consumed out of necessity to a staple in the West Java region, consumed in the daily diet of approximately 25 million people according to one estimate (Winarno, 1979). Oncom today is generally purchased fresh at a marketplace and then deep fried and served as a meat analogue (Winarno, 1979). It may also be served as chips, topped with a sauce, or put in soups.

B. China

Soybean dregs that are fermented with *N. crassa* are a traditional food in the Gannan district of China (Zhou *et al.*, 2019). Soybean dregs are a cheap by-product of the soybean milk and bean curd manufacturing industry. Soybean dregs are widely available and are estimated to be approximately 20 million tons annually in China (Zhou *et al.*, 2019). Most soybean dregs are used directly as animal feed, however, in the Gannan district of China, fermented soybean dregs with *N. crassa* are widely consumed by humans. The fermented soybean dregs are traditionally fried with or without pork. When fermented by *N. crassa*, the soybean dregs soften and the nutrient content changes to increase the relative amount of protein, lower the fat, and increase the soluble saccharides (Zhou *et al.*, 2019).

C. Brazil

Neurospora has also been used by indigenous people in Brazil to process cassava in preparing a traditional fermented beverage (Perkins *et al.*, 2000). Specifically, *Neurospora* is a

fermentation organism in beiju, a naturally fermented cassava starter mass used to make a fermented alcoholic beverage known as tiquira (Marney *et al.*, 2014).

Tiquira is a traditional cassava beverage from the Brazilian state of Maranhão. During its preparation, beiju is sprinkled with water and coated with leaves to maintain adequate moisture and encourage the growth of microorganisms. The mass is used as the starter to ferment the finished beverage. The fungi that develop on beiju have been extensively studied and include *N. crassa*, which is responsible for starch saccharification. *Neurospora* is credited with providing the finished beverage a pleasant and fruity aroma (Marney *et al.*, 2014).

D. France

Neurospora has been identified as one of the organisms regularly present in Roquefort cheese when prepared by traditional methods in Southern France (Perkins *et al.*, 2000). Roquefort, which has been produced in Southern France for hundreds of years, is a cave-aged blue cheese produced with sheep's milk and known for its pungent flavor. While *Penicillium roqueforti* is the mold that is understood to provide Roquefort with its distinctive aroma, traditional production processes are known to have included other microorganisms in the fermentation process.

Part 6. GRAS Notice Narrative

1. Overview

BMC's Rhiza mycoprotein is intended for use as an ingredient in meat alternative products and as an extender and replacer in meat, poultry, and seafood products. It may also be used in dairy analog products. The ingredient is composed of pasteurized mycelial biomass of *N. crassa* and is expected to be marketed in both hydrated and dehydrated forms (differing only in relative moisture content).

We are not aware of any adverse effects associated with the consumption of *N. crassa*. In fact, data demonstrates that Rhiza mycoprotein is not only safe, but also a good source of protein and dietary fiber.

2. Animal Data

Several studies have investigated the effects of introducing *N. crassa*-fermented plant-based food by-product substrates in the feed of egg laying hens, and found it to be safe and beneficial (Latif, 2009; Liu *et al.*, 2016; Rizal *et al.*, 2015; Ternak, 2008). Given the nature of how *N. crassa* grows by breaking down plant material to build its own mass, and physically within the plant substrate, these products contain significant amounts of *N. crassa* biomass. The use of *N. crassa* fermented foods generally improved the nutritional profile of the layer feed. Importantly, no deleterious side effects to the health of the hens were detected. In one case, reduction of cholesterol in the eggs produced was documented (Ternak, 2008).

An additional study in dwarf goats tracked blood chemistry after feeding the animals a *N. crassa*-fermented maize cob and husk-based diet (Ibhaze *et al.*, 2021). Again, no adverse health effects were observed. Conversely, a diet of *N. crassa* cultivated on maize supported erythropoiesis (red blood cell production) and improved serum electrolytes.

Soy is a globally important crop with about 77% being used for animal feed (Ritchie and Roser, 2021). Fermentation of soybean meal with *N. crassa* has been shown to increase free amino acids in the foodstuff 13-fold and improve its digestibility by 37.97% (Li *et al.*, 2019). In the same study, soy allergens, which are known to affect humans and animals, were decreased to an undetectable level. Additional studies on *N. crassa* fermented soy by-products have been carried out to investigate the effects of the fermented foods on rat and mice digestive systems (Huang *et al.*, 2022; Yu *et al.*, 2020). Soluble dietary fiber from *N. crassa* fermented soybean residue was fed to rats and found to positively alter the intestinal microbiome of the animals, increasing the prevalence of beneficial species such as Prevotellaceae and Lactobacillales (Yu *et al.*, 2020). This work was extended to mice to investigate a potential therapeutic use for these polysaccharides against colitis. The mice were subjected to dextran sulfate sodium (DSS) induced colitis and treated with *N. crassa* fermented soy residue fiber. As a result of this treatment, the health of the gut barrier, colon, liver, spleen, and kidney of the mice was restored. A decrease in pro-inflammatory cytokines was observed in the treated mice, as well as an increase in inflammatory repressors. Tight junction associated proteins were also upregulated in the mice, facilitating the repair of damaged gut barrier endothelial cells. Detailed taxonomic analysis of the gut flora was carried out and revealed that DSS-induced colitis led to a dramatic

increase in opportunistic pathogens in the gut which was restored by treatment with *N. crassa* fermented soy residue fiber (Huang *et al.*, 2022).

3. Digestibility

The digestibility of Rhiza mycoprotein was determined through a human digestion simulation. The testing was performed by Medallion Labs, following the method reference described in *US Patent Application No. 14/599,050: Method for Estimating In Vivo Protein Digestibility*, Plank, DW. This method involved enzymatically digesting a sample of Rhiza mycoprotein to simulate both gastric and intestinal digestion. The enzyme pepsin was used to simulate the gastric phase, and trypsin/chymotrypsin was used for the intestinal phase. Once the sample proteins were broken down into amino acids, they were reacted with Ninhydrin and measured to determine digestibility. A score of 1.00 indicates the highest digestibility score possible. A score of 0.99-1.00 was measured for Rhiza mycoprotein on the three tests performed on nonconsecutive batches.

4. Published Safety Assessment of BMC *N. Crassa*

There is a long history of human consumption of *Neurospora* cultivated on plant solids, or in fermented foods, and the use of similar foodstuff in research. However, to our knowledge, no studies have been conducted to establish safety of *Neurospora* isolated mycelium as a stand-alone food product. To address this a series of analyses of *N. crassa* were conducted. The results of these allergenicity and toxigenicity studies were published in a peer reviewed publication (Bartholomai *et al.*, 2022). All analyses indicate that *N. crassa* mycoprotein should be generally regarded as a safe, common allergen-free, and nutritious foodstuff. These analyses are summarized below.

a. Allergenicity

To investigate the potential of *N. crassa* food ingredients to elicit allergic reactions, the *N. crassa* genomic protein coding sequences were interrogated to detect signatures of proteins that may induce an allergic reaction. Two independent analyses were conducted using the gold standard collection of allergens curated by Food Allergy Research and Resource Program (FARRP) AllergenOnline database (Goodman *et al.*, 2016). The first method employed a stepwise bioinformatics approach incorporating machine-learning methods (including support vector machine (SVM)-based methods), and sequence homology-based methods. The second method compared all predicted protein sequences in the *N. crassa* reference genome to the AllergenOnline database. Those sequences were then manually compared to the public version of the AllergenOnline database to identify the individual potential allergens of interest. To judge potential risks, sequence homology searches were also conducted against the NCBI non-redundant protein database. The published *N. crassa* genome (NCBI RefSeq: GCF_000182925.2) was used to assess allergenic potential.

The peptides encoded by the predicted coding regions of the *N. crassa* genome were assessed for potential allergenicity using a stepwise approach in which allergenic protein prediction was accomplished using the hybrid model of Allpred 2.0. Of the 10,813 total proteins,

3,033 were predicted to be allergenic using Algpred 2.0. To refine the allergenic protein predictions from Algpred 2.0 and eliminate potential false positive results, the 3,033 predicted allergenic proteins were further evaluated using sequence homology searches against manually annotated non-allergens from the UniprotKB/Swiss-Prot database. 940 of the 3,033 predicted allergenic proteins shared significant sequence homology with non-allergens from the UniprotKB/Swiss-Prot database. The remaining 2,093 predicted allergenic proteins were further evaluated using sequence alignment searches against allergenic proteins from the AllergenOnline database (Version 21) using the 80-amino acid sliding window approach. Of the remaining 2,093 predicted allergenic proteins, 52 were identified that shared >35% identity over 80 amino acids with at least 1 allergen from AllergenOnline. Twenty-two of these 52 proteins shared >35% identity over 80 amino acids with at least 1 allergen derived from wheat, however no exact matches were reported over 9 amino acids and no full-length alignments meeting the criteria for a significant hit (>45% identity, ≥50% query coverage, and an E-value <1 x 10⁻¹⁶) were identified. As such, these findings indicate *N. crassa* is unlikely to pose a risk of eliciting an immunological response in consumers with celiac disease.

Five unique proteins found in the *N. crassa* genome shared significant sequence homology (proteins sharing >50% identity over the full sequence with E-values <1x10⁻⁷ with a known allergen) with at least 1 allergen from AllergenOnline. Each of these five unique predicted proteins found in the *N. crassa* genome was subjected to sequence homology searches against the non-redundant protein database maintained by the NCBI. Four of the unique proteins from *N. crassa*, two hypothetical proteins (EAA31448 and EAA29172), a predicted pectate lyase enzyme (ESA42917), and a heat shock protein (ESA43073) shared significant sequence homology with minor allergens (*i.e.*, not one of the 9 major sources of food allergens) but also shared significant sequence homology with proteins from many other species (at least 100 different taxa, each). As such, these proteins would be considered evolutionarily conserved and are therefore unlikely to pose a significant risk of allergenicity.

The last unique protein, another hypothetical protein (ESA43431), shared significant sequence homology with 3 allergens from wheat. Although wheat is a source of major allergens, the sequence alignments were only considered borderline matches as they did not meet the significance criteria of E-values <1 x 10⁻⁷. Significant sequence homology was not identified with proteins from other taxa from the non-redundant protein search; however, upon review of the actual alignments between the hypothetical protein found in *N. crassa* (ESA43431) and the matched wheat allergens, the alignments were mainly due to a lengthy poly-Q (glutamine) domain on the hypothetical protein consisting of 93 contiguous glutamine residues. However, the hypothetical protein from *N. crassa* did not contain the key allergenic motif found in wheat allergens of repetitive sequences of 6 to 8 amino acid residues consisting of both proline and glutamine. Therefore, it is unlikely that this protein would pose an allergenicity risk.

In addition to the stepwise approach for assessing allergenicity in which 2,093 proteins were compared to the AllergenOnline database, all of the peptides encoded by the predicted coding regions of the *N. crassa* genome were examined using sequence alignment searches against the AllergenOnline database (Version 21). These searches were employed to determine whether any of the matched allergens would truly constitute a realistic allergenic risk for *N. crassa* mycoprotein as a food ingredient. Of the 10,813 proteins from the *N. crassa* genome, 192

proteins scored matches greater than 35% identity over 80 amino acids to one or more allergens in the database. Many of the potential allergens of interest from the AllergenOnline database were enzymes, the listing criteria for which was limited to *in vitro* IgE binding without evidence of clinical allergic reactions or reactivity in human basophils or skin prick tests. In addition, the identified proteins from *N. crassa* that shared sequence homology with proteins from the AllergenOnline database generally shared significant sequence homology with many other proteins derived from diverse sources. In all cases, either the matched allergen from AllergenOnline has not been demonstrated to elicit clinically relevant allergenicity or shares significant sequence homology with proteins across a diverse range of species. Taken together, no evidence was identified which suggests that proteins from *N. crassa* represent any risk to consumers that is not matched by the equal low-level identity matches from widely diverse taxa of divergent organisms.

b. Toxigenicity

N. crassa has been cultivated for food and used extensively as a model organism without any reported cases of toxigenicity or pathogenicity to humans, animals or plants. To further substantiate this information and investigate the safety profile of *N. crassa* mycoprotein as a food ingredient, comprehensive *in silico* and *in vitro* analyses of the organism were conducted. First, samples of dried *N. crassa* mycoprotein were analyzed for the presence of known mycotoxins. Next, extensive bioinformatics analyses were employed, using a weight-of-evidence approach to interrogate the *N. crassa* genome for the presence of potential toxin-coding genes. These analyses incorporated sequence homology searches, phenotype prediction tools from Center for Genomic Epidemiology (National Food Institute, Technical University of Denmark, CGE), proteome comparisons with GRAS strains, and a search of the publicly available scientific literature.

N. crassa mycoprotein samples were tested for the presence of the most common food-borne mycotoxins Aflatoxin, Fumonisin, Ochratoxin, Tricothecene, Vomitoxin, Zearalenone using specific immunoassays for each molecule (Medallion Labs). These toxins are produced by members of the *Aspergillus*, *Fusarium*, *Gibberella*, *Myrothecium*, *Trichoderma*, *Trichothecium*, *Cephalosporium*, *Verticimonosporium*, and *Stachybotrys* genera. As indicated, production of mycotoxins has not been reported in any *Neurospora* species; therefore, this analysis was conducted out of an abundance of caution. As expected, none of three independent samples, from three different batches, had detectable levels of any of the toxins.

The *N. crassa* genome was published in 2003 (Galagan *et al.*, 2003) and is one of the most well-studied and thoroughly annotated fungal genomes. The reference genome for *in silico* analysis was used to assess the toxicological potential of *N. crassa* food ingredients. The reference genome for *N. crassa* contains approximately 41 million base pairs with 10,813 protein coding regions. The peptides encoded by the predicted protein coding regions of the *N. crassa* genome were assessed for potential toxigenicity using sequence homology searches of annotated protein toxins from the UniProt database of animal venom proteins and toxins, followed by phenotype prediction tools (ToxFinder 1.0, VirulenceFinder 2.0, and PathogenFinder 1.1) hosted by the CGE, and a proteome sequence-based genome comparison with 10 GRAS strains (9 bacterial strains and the filamentous fungus *F. venenatum*). Of the 10,813 proteins encoded by predicted coding regions from the *N. crassa* genome, 5 proteins were identified that shared

significant sequence homology with documented protein toxins from the UniProtKB/Swiss-Prot database were identified using BLASTP. The matched venom proteins or protein toxins included delta-latroinsectotoxin Lt1a from *Latrodectus tredecimguttatus*, several calglandulin proteins derived from multiple organisms, disintegrin-like proteins (disintegrin-like halysetin and zinc-metalloproteinase disintegrin) from *Gloydius halys* and *Gloydius brevicaudus*, and several translationally controlled tumor protein (TCTP) homologs derived from multiple organisms.

Although delta-latroinsectotoxin Lt1a is a known neurotoxin, it selectively affects insect neurons which is not relevant for the safety of humans (Garb and Hayashi, 2013). In addition, the shared sequence homology between delta-latroinsectotoxin Lt1a and the ankyrin repeat protein (EAA34799) and hypothetical protein (EAA27407) from *N. crassa* had low query coverage and narrowly exceeded the percent identity threshold of 40% established by Pearson (2013). Given that this toxin has not been shown to exhibit effects on vertebrate neurons and the degree of sequence homology between the proteins from *N. crassa* was low, it should not be considered to pose a safety concern to humans.

Calglandulins and calglandulin-like proteins are implicated in the secretion of other toxins from the glands of venomous snakes but have not been found in the crude venom, suggesting that they are used in the production of venoms and likely play a role in the secretion of toxins from the venom glands (Junqueira-de-Azevedo Ide *et al.*, 2003; St Pierre *et al.*, 2005). As such, they are unlikely to elicit any toxic action when produced outside of venom glands. Therefore, the calmodulin A (EAA32040) from *N. crassa* that shares significant sequence homology with calglandulin proteins derived from multiple organisms is unlikely to pose a safety concern for humans.

The family of related disintegrin proteins (broadly categorized as the disintegrin and metalloproteinase family) can inhibit the action of the human integrin family of proteins which play a role in cell migration and adhesion (Liu *et al.*, 2000; Selistre-de-Araujo *et al.*, 2010). Disintegrins are functionally characterized based on their ability to bind specific integrins and are categorized based on specific motifs indicative of their integrin binding activity (Arruda Macêdo *et al.*, 2015; David *et al.*, 2018). Although the ADAM protease ADM-B (EAA34439) from *N. crassa* does contain the KTS motif, one of the defining features of R/KTS disintegrins, these disintegrins are short, monomeric peptides of approximately 41 amino acids in length. When compared to the length of the ADAM protease ADM-B from *N. crassa* of 841 amino acids, it is unlikely that this protein would be functionally categorized as a disintegrin. This is further supported by the low query coverage (15% each) between the ADAM protease ADM-B and the disintegrin-like halysetin and zinc metalloproteinase/disintegrin. Overall, this protein found in the *N. crassa* genome is unlikely to pose a safety concern to humans.

TCTP homologs are a family of proteins with histaminergic activity and have been found in the crude venom of brown spiders (*Loxosceles intermedia*) (Sade *et al.*, 2012). When administered subcutaneously, TCTP homologs may contribute to edema, increased vascular permeability, and inflammatory responses (Sade *et al.*, 2012); however, TCTP and its homologs are highly conserved housekeeping proteins present in eukaryotic organisms (Thaw *et al.*, 2001; Li *et al.*, 2016). Although TCTP homologs may elicit inflammatory responses upon subcutaneous injection, this is unlikely to pose a safety concern for *N. crassa* mycoprotein which is intended for consumption as a food ingredient. In addition, the highly conserved nature of this

protein among eukaryotic species suggests that it does not pose a significant safety concern to humans. This is further supported by the significant sequence homology identified between this hypothetical protein (EAA28119) from *N. crassa* with an unnamed protein product from *F. venenatum*.

Finally, to further explore the potential for the 5 identified proteins from *N. crassa* that share significant sequence homology with documented toxins to pose a safety concern for humans, the digestibility of these proteins was investigated using PeptideCutter. The full-length peptide sequences of the Ankyrin repeat protein (EAA34799), Calmodulin A (EAA32040), Hypothetical protein (EAA27407), ADAM protease ADM-B (EAA34439), and Hypothetical protein (EAA28119) were searched with PeptideCutter for pepsin (pH >2.0) and trypsin digestions. Overall, these results demonstrate that each of these proteins from *N. crassa* are extensively digested by pepsin and trypsin with average lengths of the resulting cleaved peptides ranging from 2.83 to 4.73 amino acid residues. As such, this provides evidence to suggest that these proteins would be readily digested by gastric enzymes upon ingestion and would therefore be unlikely to pose a toxigenic risk to consumers of *N. crassa* mycoprotein.

To further assess digestibility, *N. crassa* mycoprotein was subjected to in vitro mammalian digestion simulation using the method described in US Patent No. 9,738,920 (Medallion Labs). This method utilizes pepsin and trypsin to digest samples, which simulates gastric and intestinal digestion, respectively. The hydrolyzed protein is spectroscopically analyzed to measure the proportion of free amino acids released from the protein containing sample. These values were measured for three independent mycoprotein production batches and compared to the total amount of protein in the samples, which showed in vitro digestibility scores of 1, 1, and 0.99. As such, both the in silico and in vitro analysis suggest that, along with other *N. crassa* proteins, the 5 proteins described above would be readily digested upon ingestion and would therefore be unlikely to pose a toxigenic risk to consumers of *N. crassa* mycoprotein.

Table 10: Digestibility Analysis

| Lot Number | Digestibility Score |
|-------------|---------------------|
| 210322.250L | 1.00 |
| 210503.250L | 1.00 |
| 210510.250L | 0.99 |

In addition to the low toxigenic risk indicated by in vitro and in silico analyses, no evidence was identified in the publicly available scientific literature suggesting that *N. crassa* poses a risk of toxigenicity (i.e., produces mycotoxins, secondary metabolites, or documented toxins). Similar analysis has been performed for the filamentous fungi *F. venenatum* and *Fusarium str. flavolapis* which are both organisms that have been notified to the U.S. FDA as GRAS for their intended uses in food and are broadly available to consumers as whole mycelial biomasses. Despite the propensity of *Fusarium* species to produce toxins, unlike *Neurospora*, these species did not produce toxins at levels high enough to have any deleterious effects in preclinical studies. *F. venenatum*, which has been part of the food system in the United States

since 2002, has not been reported in any mycotoxin related food poisoning instances. Interestingly another fungal species known to be both a human pathogen and producer of mycotoxins, *Aspergillus fumigatus* was tested as a mycoprotein food product on rats and despite some flaws in experimental design related to apparent palatability of the feed, there was no histopathology observed in any of the subjects (Khor *et al.*, 1977). In general, data from studies of several species of filamentous fungi used as mycoprotein in foods suggest that they are safe for consumption and free of toxins at concentrations high enough to have adverse health effects.

5. Summary of Basis for GRAS Determination

BMC's conclusion as to Rhiza mycoprotein is that there is general recognition of safety for the intended uses based on the information summarized above. Specifically, Rhiza mycoprotein is a nutritious food with high digestibility that does not pose a risk of allergenicity nor toxicity. *N. crassa* is akin to other common fungi in the human diet. The long history of safe consumption of *Neurospora* as food in other countries serves as corroboration of the GRAS position based on scientific procedures.

* * *

Based on the documentation provided in this GRAS Notice, and as discussed above, The Better Meat Co. has concluded that its Rhiza mycoprotein is GRAS based on scientific procedures for use as a meat analog and as an extender and replacer in meat (including pork), poultry, seafood, and dairy products.

Part 7. List of supporting data and information

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b. Attachments

- 1-Medallion Labs: Analytical Compositional Testing Report
- 2-Food Allergy Research and Resource Program at University of Nebraska – Lincoln: Allergenicity Report
- 3-E^xponent: Estimated Daily Intake Report
- 4-Medallion Labs: Digestibility Study and PDCAAS Study
- 5-IEH Laboratories & Consulting Group: Certificate of Vitamin Analysis

c. Appendix 1

Suitability Data for use of *Neurospora crassa* in Meat and Poultry Products (for FSIS)



Medallion Labs

www.medallionlabs.com 800-245-5615 info@medlabs.com

Order Number: 2021-011794 **Completed Date:** 03-Dec-2021
Submitted Date: 18-Nov-2021

Submitter: Katherine Ruwe

Company: The Better Meat Co.
Company Address: 2939 Promenade St
West Sacramento, CA 95691

Results Email: katherine.ruwe@bettermeat.co
Invoice Email: accounting@bettermeat.co
Purchase Order: 211111DC04

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Order # Sample ID: 2021-011794-01 **Company:** The Better Meat Co.
Customer Sample ID: 202110309kLB
Sample Description: Dried protein ingredient.

Analytical Testing

| <u>Method:</u> | <u>Component:</u> | <u>Result:</u> | <u>Test Date:</u> |
|-------------------------------|---------------------------------------|--------------------|-------------------|
| ^{1 2} Aflatoxin LCMS | Aflatoxin B1 | <1.3 ppb | 03-Dec-2021 |
| | Aflatoxin B2 | <1.2 ppb | 03-Dec-2021 |
| | Aflatoxin G1 | <1.1 ppb | 03-Dec-2021 |
| | Aflatoxin G2 | <1.6 ppb | 03-Dec-2021 |
| Ash | Ash | 6.478 % | 01-Dec-2021 |
| ² Calories | Calories | 369 Calories/100 g | 01-Dec-2021 |
| | Calories, 2020 | 241 Calories/100 g | 01-Dec-2021 |
| | Calories from Fat | 30 Calories/100 g | 01-Dec-2021 |
| | Calories from Saturated Fat | 6 Calories/100 g | 01-Dec-2021 |
| | Calories (Insoluble Fiber Subtracted) | 246 Calories/100 g | 01-Dec-2021 |
| ² Carbohydrates | Carbohydrates | 38.5 % | 01-Dec-2021 |
| Cholesterol | Total Cholesterol | <1.0 mg/100g | 24-Nov-2021 |
| Fat (Gas Chromatography) | Total Fat | 3.32 % | 24-Nov-2021 |
| | Saturated Fat | 0.65 % | 24-Nov-2021 |
| | Monounsaturated Fat | 0.76 % | 24-Nov-2021 |
| | cis-cis Polyunsaturated Fat | 1.78 % | 24-Nov-2021 |
| | trans Fat | <LOQ % | 24-Nov-2021 |
| Fiber (AOAC 991.43) | Insoluble Dietary Fiber | 30.7 % | 30-Nov-2021 |
| | Soluble Dietary Fiber | 2.4 % | 30-Nov-2021 |
| | Total Dietary Fiber | 33.1 % | 30-Nov-2021 |
| ^{1 2} Fumonisin LCMS | Fumonisin B1 | <0.1 ppm | 03-Dec-2021 |
| | Fumonisin B2 | <0.1 ppm | 03-Dec-2021 |

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¹ This analysis is performed by a partner lab.

² This test is not considered in-scope of our current A2LA accreditation. For a listing of in-scope tests, please visit www.medallionlabs.com.



Order # Sample ID: 2021-011794-01 **Company:** The Better Meat Co.
Customer Sample ID: 202110309kLB
Sample Description: Dried protein ingredient.

Analytical Testing

| <u>Method:</u> | <u>Component:</u> | <u>Result:</u> | <u>Test Date:</u> |
|----------------------------------|----------------------------|----------------|-------------------|
| ^{1 2} Fumonisin LCMS | Fumonisin B3 | <0.1 ppm | 03-Dec-2021 |
| ^{1 2} Mercury | Mercury | <10 ppb | 29-Nov-2021 |
| Metals (ICP-MS) | Arsenic | 21.1 ppb | 01-Dec-2021 |
| Metals (ICP-MS) | Cadmium | 45.0 ppb | 01-Dec-2021 |
| Metals (ICP-MS) | Lead | 11.9 ppb | 01-Dec-2021 |
| Metals (ICP-OES) | Calcium | 73.0 mg/100g | 01-Dec-2021 |
| Metals (ICP-OES) | Iron | 10.8 mg/100g | 02-Dec-2021 |
| Metals (ICP-OES) | Potassium | 1470 mg/100g | 01-Dec-2021 |
| Metals (ICP-OES) | Sodium | 53.3 mg/100g | 01-Dec-2021 |
| Moisture by Vacuum Oven | Moisture | 5.483 % | 23-Nov-2021 |
| ^{1 2} Ochratoxin LCMS | Ochratoxin A | <1.1 ppb | 03-Dec-2021 |
| Protein | Protein Factor | 6.25 | 23-Nov-2021 |
| | Protein | 46.2 % | 23-Nov-2021 |
| ^{1 2} T2/HT2 Toxin LCMS | T-2 Toxin | <25.0 ppb | 03-Dec-2021 |
| | HT-2 Toxin | <25.0 ppb | 03-Dec-2021 |
| ^{1 2} Vomitoxin LCMS | Deoxynivalenol (Vomitoxin) | <0.1 ppm | 03-Dec-2021 |
| | Acetyldeoxynivalenol | <0.1 ppm | 03-Dec-2021 |
| ^{1 2} Zearalenone LCMS | Zearalenone | <51.7 ppb | 03-Dec-2021 |

Micro Testing

| <u>Method:</u> | <u>Component:</u> | <u>Result:</u> | <u>Test Date:</u> |
|-------------------------------|---------------------|-----------------|-------------------|
| Aerobic Plate Count using PCA | Aerobic Plate Count | 10 est. CFU / g | 22-Nov-2021 |
| Coliform using Petrifilm | Coliform count | <10 CFU / g | 19-Nov-2021 |
| E. coli using Petrifilm | E. coli | <10 CFU / g | 24-Nov-2021 |

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¹ This analysis is performed by a partner lab.

² This test is not considered in-scope of our current A2LA accreditation. For a listing of in-scope tests, please visit www.medallionlabs.com.



Order # Sample ID: 2021-011794-01 **Company:** The Better Meat Co.
Customer Sample ID: 202110309kLB
Sample Description: Dried protein ingredient.

Micro Testing

| <u>Method:</u> | <u>Component:</u> | <u>Result:</u> | <u>Test Date:</u> |
|--------------------------------|--------------------------|---------------------|-------------------|
| Enterobacteriaceae | Enterobacteriaceae count | <10 CFU / g | 19-Nov-2021 |
| Lactic acid bacteria | Lactic acid bacteria | <10 CFU / g | 22-Nov-2021 |
| Listeria monocytogenes by ELFA | Listeria monocytogenes | Negative / 25 grams | 23-Nov-2021 |
| Mold using DRBC | Mold | <10 CFU / g | 23-Nov-2021 |
| Salmonella by ELFA | Salmonella | Negative / 25 grams | 19-Nov-2021 |
| Yeast using DRBC | Yeast | <10 CFU / g | 23-Nov-2021 |

Results Approved By: Jamie Reese
(Authorized Reviewer)

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¹ This analysis is performed by a partner lab.

² This test is not considered in-scope of our current A2LA accreditation. For a listing of in-scope tests, please visit www.medallionlabs.com.



Analytical Method References:

| <u>Method Name</u> | <u>Method Reference</u> |
|--------------------------|---|
| Aflatoxin LCMS | Please contact for Method Details |
| Ash | AOAC: 923.03* |
| Calories | Internal Calculation |
| Carbohydrates | Internal Calculation |
| Cholesterol | AOAC: 976.26* |
| Fat (Gas Chromatography) | AOAC: 996.06* |
| Fiber (AOAC 991.43) | AOAC: 991.43* |
| Fumonisin LCMS | Please contact for Method Details |
| Mercury | Please contact for Method Details |
| Metals (ICP-MS) | AOAC: 993.14*, AOAC: 2015.06* |
| Metals (ICP-OES) | AOAC: 975.03*, 985.01*, 984.27*, 2011.14* |
| Moisture by Vacuum Oven | AOAC: 945.43*, 934.01* |
| Ochratoxin LCMS | Please contact for Method Details |
| Protein | AACC 46-30*; AOAC 992.15* |
| T2/HT2 Toxin LCMS | Please contact for Method Details |
| Vomitoxin LCMS | Please contact for Method Details |
| Zearalenone LCMS | Please contact for Method Details |

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¹ This analysis is performed by a partner lab.

² This test is not considered in-scope of our current A2LA accreditation. For a listing of in-scope tests, please visit www.medallionlabs.com.



Micro Method References:

Method Name

Method Reference

Aerobic Plate Count using PCA

FDA BAM CH 3*

Coliform using Petrifilm

AOAC 991.14

E. coli using Petrifilm

AOAC 991.14

Enterobacteriaceae

Compendium

Lactic acid bacteria

Compendium*

Listeria monocytogenes by ELFA

AOAC 2013.11*

Mold using DRBC

FDA BAM CH 18*, Compendium*

Salmonella by ELFA

AOAC 2013.01*

Yeast using DRBC

FDA BAM CH 18*, Compendium*

* This method has been modified.

Medallion Labs maintains A2LA accreditation to ISO/IEC 17025 for the specific tests listed in certificates # 2769.01 and 2769.02.

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² This test is not considered in-scope of our current A2LA accreditation. For a listing of in-scope tests, please visit www.medallionlabs.com.



Medallion Labs

www.medallionlabs.com 800-245-5615 info@medlabs.com

Order Number: 2021-012659 **Completed Date:** 28-Dec-2021
Submitted Date: 15-Dec-2021

Submitter: Katherine Ruwe

Company: The Better Meat Co.
Company Address: 2939 Promenade St
West Sacramento, CA 95691

Results Email: katherine.ruwe@bettermeat.co
Invoice Email: accounting@bettermeat.co
Purchase Order: 211130DC07

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Order # Sample ID: 2021-012659-01 **Company:** The Better Meat Co.
Customer Sample ID: 2021111709kL2
Sample Description: Dried protein ingredient

Analytical Testing

| <u>Method:</u> | <u>Component:</u> | <u>Result:</u> | <u>Test Date:</u> |
|-------------------------------|---------------------------------------|--------------------|-------------------|
| ^{1 2} Aflatoxin LCMS | Aflatoxin B1 | <1.3 ppb | 28-Dec-2021 |
| | Aflatoxin B2 | <1.2 ppb | 28-Dec-2021 |
| | Aflatoxin G1 | <1.1 ppb | 28-Dec-2021 |
| | Aflatoxin G2 | <1.6 ppb | 28-Dec-2021 |
| Ash | Ash | 7.068 % | 22-Dec-2021 |
| ² Calories | Calories | 361 Calories/100 g | 28-Dec-2021 |
| | Calories, 2020 | 253 Calories/100 g | 28-Dec-2021 |
| | Calories from Fat | 32 Calories/100 g | 28-Dec-2021 |
| | Calories from Saturated Fat | 5 Calories/100 g | 28-Dec-2021 |
| | Calories (Insoluble Fiber Subtracted) | 260 Calories/100 g | 28-Dec-2021 |
| ² Carbohydrates | Carbohydrates | 34.6 % | 28-Dec-2021 |
| Cholesterol | Total Cholesterol | <1.0 mg/100g | 22-Dec-2021 |
| Fat (Gas Chromatography) | Total Fat | 3.50 % | 22-Dec-2021 |
| | Saturated Fat | 0.61 % | 22-Dec-2021 |
| | Monounsaturated Fat | 0.71 % | 22-Dec-2021 |
| | cis-cis Polyunsaturated Fat | 2.02 % | 22-Dec-2021 |
| | trans Fat | <LOQ % | 22-Dec-2021 |
| Fiber (AOAC 991.43) | Insoluble Dietary Fiber | 25.2 % | 28-Dec-2021 |
| | Soluble Dietary Fiber | 3.6 % | 28-Dec-2021 |
| | Total Dietary Fiber | 28.8 % | 28-Dec-2021 |
| ^{1 2} Fumonisin LCMS | Fumonisin B1 | <0.1 ppm | 28-Dec-2021 |
| | Fumonisin B2 | <0.1 ppm | 28-Dec-2021 |

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¹ This analysis is performed by a partner lab.

² This test is not considered in-scope of our current A2LA accreditation. For a listing of in-scope tests, please visit www.medallionlabs.com.



Order # Sample ID: 2021-012659-01 **Company:** The Better Meat Co.
Customer Sample ID: 2021111709kL2
Sample Description: Dried protein ingredient

Analytical Testing

| <u>Method:</u> | <u>Component:</u> | <u>Result:</u> | <u>Test Date:</u> |
|----------------------------------|----------------------------|----------------|-------------------|
| ^{1 2} Fumonisin LCMS | Fumonisin B3 | <0.1 ppm | 28-Dec-2021 |
| Metals (DMA) | Mercury | <4.00 ppb | 20-Dec-2021 |
| Metals (ICP-MS) | Arsenic | 14.5 ppb | 17-Dec-2021 |
| Metals (ICP-MS) | Cadmium | 44.0 ppb | 17-Dec-2021 |
| Metals (ICP-MS) | Lead | 14.1 ppb | 17-Dec-2021 |
| Metals (ICP-OES) | Calcium | 47.7 mg/100g | 22-Dec-2021 |
| Metals (ICP-OES) | Iron | 10.4 mg/100g | 22-Dec-2021 |
| Metals (ICP-OES) | Potassium | 1620 mg/100g | 22-Dec-2021 |
| Metals (ICP-OES) | Sodium | 43.9 mg/100g | 22-Dec-2021 |
| Moisture by Vacuum Oven | Moisture | 7.068 % | 23-Dec-2021 |
| ^{1 2} Ochratoxin LCMS | Ochratoxin A | <1.1 ppb | 28-Dec-2021 |
| Protein | Protein Factor | 6.25 | 22-Dec-2021 |
| | Protein | 47.8 % | 22-Dec-2021 |
| ^{1 2} T2/HT2 Toxin LCMS | T-2 Toxin | <0.2 ppm | 28-Dec-2021 |
| | HT-2 Toxin | <0.2 ppm | 28-Dec-2021 |
| ^{1 2} Vomitoxin LCMS | Deoxynivalenol (Vomitoxin) | <0.1 ppm | 28-Dec-2021 |
| | Acetyldeoxynivalenol | <0.1 ppm | 28-Dec-2021 |
| ^{1 2} Zearalenone LCMS | Zearalenone | <51.7 ppb | 28-Dec-2021 |

Micro Testing

| <u>Method:</u> | <u>Component:</u> | <u>Result:</u> | <u>Test Date:</u> |
|-------------------------------|---------------------|----------------|-------------------|
| Aerobic Plate Count using PCA | Aerobic Plate Count | 1.1E3 CFU / g | 17-Dec-2021 |
| Coliform using Petrifilm | Coliform count | <10 CFU / g | 16-Dec-2021 |
| E. coli using Petrifilm | E. coli | <10 CFU / g | 17-Dec-2021 |

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¹ This analysis is performed by a partner lab.

² This test is not considered in-scope of our current A2LA accreditation. For a listing of in-scope tests, please visit www.medallionlabs.com.



Order # Sample ID: 2021-012659-01 **Company:** The Better Meat Co.
Customer Sample ID: 2021111709kL2
Sample Description: Dried protein ingredient

Micro Testing

| <u>Method:</u> | <u>Component:</u> | <u>Result:</u> | <u>Test Date:</u> |
|--------------------------------|--------------------------|---------------------|-------------------|
| Enterobacteriaceae | Enterobacteriaceae count | <10 CFU / g | 16-Dec-2021 |
| Lactic acid bacteria | Lactic acid bacteria | <10 CFU / g | 20-Dec-2021 |
| Listeria monocytogenes by ELFA | Listeria monocytogenes | Negative / 25 grams | 20-Dec-2021 |
| Mold using DRBC | Mold | <10 CFU / g | 21-Dec-2021 |
| Salmonella by ELFA | Salmonella | Negative / 25 grams | 16-Dec-2021 |
| Yeast using DRBC | Yeast | <10 CFU / g | 21-Dec-2021 |

Results Approved By: Emily Franks
(Authorized Reviewer)

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¹ This analysis is performed by a partner lab.

² This test is not considered in-scope of our current A2LA accreditation. For a listing of in-scope tests, please visit www.medallionlabs.com.



Analytical Method References:

Method Name

Method Reference

| | |
|--------------------------|---|
| Aflatoxin LCMS | Please contact for Method Details |
| Ash | AOAC: 923.03* |
| Calories | Internal Calculation |
| Carbohydrates | Internal Calculation |
| Cholesterol | AOAC: 976.26* |
| Fat (Gas Chromatography) | AOAC: 996.06* |
| Fiber (AOAC 991.43) | AOAC: 991.43* |
| Fumonisin LCMS | Please contact for Method Details |
| Metals (DMA) | EPA 7473 |
| Metals (ICP-MS) | AOAC: 993.14*, AOAC: 2015.06* |
| Metals (ICP-OES) | AOAC: 975.03*, 985.01*, 984.27*, 2011.14* |
| Moisture by Vacuum Oven | AOAC: 945.43*, 934.01* |
| Ochratoxin LCMS | Please contact for Method Details |
| Protein | AACC 46-30*; AOAC 992.15* |
| T2/HT2 Toxin LCMS | Please contact for Method Details |
| Vomitoxin LCMS | Please contact for Method Details |
| Zearalenone LCMS | Please contact for Method Details |

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¹ This analysis is performed by a partner lab.

² This test is not considered in-scope of our current A2LA accreditation. For a listing of in-scope tests, please visit www.medallionlabs.com.



Micro Method References:

Method Name

Method Reference

Aerobic Plate Count using PCA

FDA BAM CH 3*

Coliform using Petrifilm

AOAC 991.14

E. coli using Petrifilm

AOAC 991.14

Enterobacteriaceae

Compendium

Lactic acid bacteria

Compendium*

Listeria monocytogenes by ELFA

AOAC 2013.11*

Mold using DRBC

FDA BAM CH 18*, Compendium*

Salmonella by ELFA

AOAC 2013.01*

Yeast using DRBC

FDA BAM CH 18*, Compendium*

* This method has been modified.

Medallion Labs maintains A2LA accreditation to ISO/IEC 17025 for the specific tests listed in certificates # 2769.01 and 2769.02.

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¹ This analysis is performed by a partner lab.

² This test is not considered in-scope of our current A2LA accreditation. For a listing of in-scope tests, please visit www.medallionlabs.com.



Medallion Labs

www.medallionlabs.com 800-245-5615 info@medlabs.com

Order Number: 2021-011123 **Completed Date:** 10-Nov-2021
Submitted Date: 29-Oct-2021

Submitter: Katherine Ruwe

Company: The Better Meat Co.
Company Address: 2939 Promenade St
West Sacramento, CA 95691

Results Email: katherine.ruwe@bettermeat.co
Invoice Email: accounting@bettermeat.co
Purchase Order: 211025DT03

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Order # Sample ID: 2021-011123-01 **Company:** The Better Meat Co.
Customer Sample ID: 2021081009kLB
Sample Description: Dried protein ingredient

Analytical Testing

| <u>Method:</u> | <u>Component:</u> | <u>Result:</u> | <u>Test Date:</u> |
|-------------------------------|---------------------------------------|--------------------|-------------------|
| ^{1 2} Aflatoxin LCMS | Aflatoxin B1 | <1.3 ppb | 10-Nov-2021 |
| | Aflatoxin B2 | <1.2 ppb | 10-Nov-2021 |
| | Aflatoxin G1 | <1.1 ppb | 10-Nov-2021 |
| | Aflatoxin G2 | <1.6 ppb | 10-Nov-2021 |
| Ash | Ash | 6.882 % | 03-Nov-2021 |
| ² Calories | Calories | 367 Calories/100 g | 08-Nov-2021 |
| | Calories, 2020 | 260 Calories/100 g | 08-Nov-2021 |
| | Calories from Fat | 37 Calories/100 g | 08-Nov-2021 |
| | Calories from Saturated Fat | 7 Calories/100 g | 08-Nov-2021 |
| | Calories (Insoluble Fiber Subtracted) | 265 Calories/100 g | 08-Nov-2021 |
| ² Carbohydrates | Carbohydrates | 40.9 % | 08-Nov-2021 |
| Cholesterol | Total Cholesterol | <1.0 mg/100g | 08-Nov-2021 |
| Fat (Gas Chromatography) | Total Fat | 4.09 % | 08-Nov-2021 |
| | Saturated Fat | 0.78 % | 08-Nov-2021 |
| | Monounsaturated Fat | 1.07 % | 08-Nov-2021 |
| | cis-cis Polyunsaturated Fat | 2.06 % | 08-Nov-2021 |
| | trans Fat | <LOQ % | 08-Nov-2021 |
| Fiber (AOAC 991.43) | Insoluble Dietary Fiber | 25.6 % | 04-Nov-2021 |
| | Soluble Dietary Fiber | 2.5 % | 04-Nov-2021 |
| | Total Dietary Fiber | 28.1 % | 04-Nov-2021 |
| ^{1 2} Fumonisin LCMS | Fumonisin B1 | <0.1 ppm | 10-Nov-2021 |
| | Fumonisin B2 | <0.1 ppm | 10-Nov-2021 |

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¹ This analysis is performed by a partner lab.

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Order # Sample ID: 2021-011123-01 **Company:** The Better Meat Co.
Customer Sample ID: 2021081009kLB
Sample Description: Dried protein ingredient

Analytical Testing

| <u>Method:</u> | <u>Component:</u> | <u>Result:</u> | <u>Test Date:</u> |
|----------------------------------|----------------------------|----------------|-------------------|
| ^{1 2} Fumonisin LCMS | Fumonisin B3 | <0.1 ppm | 10-Nov-2021 |
| ^{1 2} Mercury | Mercury | <0.010 mg/kg | 08-Nov-2021 |
| Metals (ICP-MS) | Arsenic | 19.3 ppb | 08-Nov-2021 |
| Metals (ICP-MS) | Cadmium | 36.8 ppb | 08-Nov-2021 |
| Metals (ICP-MS) | Lead | 14.9 ppb | 08-Nov-2021 |
| Metals (ICP-OES) | Calcium | 50.9 mg/100g | 03-Nov-2021 |
| Metals (ICP-OES) | Iron | 8.77 mg/100g | 03-Nov-2021 |
| Metals (ICP-OES) | Potassium | 1890 mg/100g | 09-Nov-2021 |
| Metals (ICP-OES) | Sodium | 76.6 mg/100g | 03-Nov-2021 |
| Moisture by Vacuum Oven | Moisture | 6.361 % | 03-Nov-2021 |
| ^{1 2} Ochratoxin LCMS | Ochratoxin A | <1.1 ppb | 10-Nov-2021 |
| Protein | Protein Factor | 6.25 | 03-Nov-2021 |
| | Protein | 41.8 % | 03-Nov-2021 |
| ^{1 2} T2/HT2 Toxin LCMS | T-2 Toxin | <0.2 ppm | 10-Nov-2021 |
| | HT-2 Toxin | <0.2 ppm | 10-Nov-2021 |
| ^{1 2} Vomitoxin LCMS | Deoxynivalenol (Vomitoxin) | <0.1 ppm | 10-Nov-2021 |
| | Acetyldeoxynivalenol | <0.1 ppm | 10-Nov-2021 |
| ^{1 2} Zearalenone LCMS | Zearalenone | <51.7 ppb | 10-Nov-2021 |

Micro Testing

| <u>Method:</u> | <u>Component:</u> | <u>Result:</u> | <u>Test Date:</u> |
|--------------------------|--------------------------|----------------|-------------------|
| Coliform using Petrifilm | Coliform count | <10 CFU / g | 01-Nov-2021 |
| E. coli using Petrifilm | E. coli | <10 CFU / g | 01-Nov-2021 |
| Enterobacteriaceae | Enterobacteriaceae count | <10 CFU / g | 01-Nov-2021 |

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Order # Sample ID: 2021-011123-01 **Company:** The Better Meat Co.
Customer Sample ID: 2021081009kLB
Sample Description: Dried protein ingredient

Micro Testing

| <u>Method:</u> | <u>Component:</u> | <u>Result:</u> | <u>Test Date:</u> |
|--------------------------------|------------------------|---------------------|-------------------|
| Lactic acid bacteria | Lactic acid bacteria | <10 CFU / g | 05-Nov-2021 |
| Listeria monocytogenes by ELFA | Listeria monocytogenes | Negative / 25 grams | 04-Nov-2021 |
| Mold using DRBC | Mold | <10 CFU / g | 03-Nov-2021 |
| Salmonella by ELFA | Salmonella | Negative / 25 grams | 02-Nov-2021 |
| Yeast using DRBC | Yeast | <10 CFU / g | 03-Nov-2021 |

Results Approved By: Randy Vados
(Authorized Reviewer)

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Analytical Method References:

Method Name

Method Reference

| | |
|--------------------------|---|
| Aflatoxin LCMS | Please contact for Method Details |
| Ash | AOAC: 923.03* |
| Calories | Internal Calculation |
| Carbohydrates | Internal Calculation |
| Cholesterol | AOAC: 976.26* |
| Fat (Gas Chromatography) | AOAC: 996.06* |
| Fiber (AOAC 991.43) | AOAC: 991.43* |
| Fumonisin LCMS | Please contact for Method Details |
| Mercury | Please contact for Method Details |
| Metals (ICP-MS) | AOAC: 993.14*, AOAC: 2015.06* |
| Metals (ICP-OES) | AOAC: 975.03*, 985.01*, 984.27*, 2011.14* |
| Moisture by Vacuum Oven | AOAC: 945.43*, 934.01* |
| Ochratoxin LCMS | Please contact for Method Details |
| Protein | AACC 46-30*; AOAC 992.15* |
| T2/HT2 Toxin LCMS | Please contact for Method Details |
| Vomitoxin LCMS | Please contact for Method Details |
| Zearalenone LCMS | Please contact for Method Details |

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Micro Method References:

Method Name

Method Reference

| | |
|--------------------------------|-----------------------------|
| Coliform using Petrifilm | AOAC 991.14 |
| E. coli using Petrifilm | AOAC 991.14 |
| Enterobacteriaceae | Compendium |
| Lactic acid bacteria | Compendium* |
| Listeria monocytogenes by ELFA | AOAC 2013.11* |
| Mold using DRBC | FDA BAM CH 18*, Compendium* |
| Salmonella by ELFA | AOAC 2013.01* |
| Yeast using DRBC | FDA BAM CH 18*, Compendium* |

* This method has been modified.

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Study Title

**Bioinformatics analysis for potential risks of food allergy from of predicted proteins of
*Neurospora crassa***

Authors

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Study Completed On

9 March 2022

Performing Laboratory

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Laboratory Project ID

Study Number: REG_BetterMeat1

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Principle Investigator Bio:

Rick Goodman, PhD is research professor at the Food Allergy Research and Resource Program (FARRP) at University of Nebraska-Lincoln, where he's served as a leading allergen expert since 2004. In addition to his extensive research and teaching experience on allergens and food safety of common foods, he has conducted pioneering research into novel food products to evaluate potential allergenicity risks, too.

Summary:

The Better Meat Co. is developing food materials made from whole mycelia of *Neurospora crassa*. The product is intended to replace meat in some foods. The mycelium of this organism is haploid for most of the life cycle. It is classified as being a member of the Sordariaceae family within the order Sordariales of the phylum Ascomycota. *Neurospora* is the most studied and characterized filamentous fungi and the genome was published in 2003 by Galagan et al. (Nature, 2003). There is not an extensive history of food use of this organism in the United States, Europe or Japan. There are published uses of fermented foods using this fungus in Java in Indonesia and in Brazil (Perkins and Davis, 2000). The species has long been known as a bread mold and something that has been avoided in modern industrial food for aesthetic reasons by temperature controls and the use of preservatives in foods. However, we did not find records of toxicity or documented cases of food allergy caused by this species. It is an obligate aerobic organism capable of rapid growth on very simple media. A search of the NCBI PubMed identified only one abstract of possible allergy from 2013 (Khurana et al., 2013) that suggested a possible allergenic single protein could be produced and secreted to the medium of cultures of the fungus, but it did not provide evidence of allergic reactions. No other claims of allergy were found.

Proteins predicted from the 10,000 coding genes of this species, originally published by Galagan et al (Nature 2003), were evaluated in our bioinformatics searches of the www.AllergenOnline.org database, version 21. The primary comparison was performed on the Holland Computing Center (HCC) at the University of Nebraska-Lincoln by FASTA against the database to identify sequence matches of high amino acid identity to the version 21 putative and proven allergens. One hundred and ninety-two sequences scored matches greater than 35% identity to one or more allergens in the database. Those sequences were then manually compared to the public version of the AllergenOnline.org database to identify the individual potential allergens of interest. To judge potential risks, the sequences were also compared to the public version of the NCBI Protein database by BLASTP. Each sequence was evaluated to consider how common similar or higher identity matches occur from a variety of organisms that are not known to cause allergies. As performed by us, FASTA comparisons were used to search for full-length alignments as well as our sliding 80 amino acid alignment methods to identify matches with high matches or identities down to 35% over 80 amino acids. The higher the identity, the greater possibility of potential IgE cross-reactivity and allergy. Since allergens are not equal in potency and biological relevance, the matches were compared to proteins of other species including humans and other organisms. Finding high identities to proteins from diverse sources suggests a low likelihood of risk since few people have diverse cross-reactive or co-reactive responses. The proteins identified in this study were primarily from enzymes and protein types

that are not major allergens. The conclusion of this study is that the *Neurospora crassa* proteins are unlikely to cause risks of food allergy if processed and used in foods.

STUDY NUMBER: REG _ BetterMeat I

Title: Bioinformatics analysis for potential risks of food allergy from of predicted proteins of *Neurospora crassa*

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Study Start Date: 10 November 2021

Study Completion Date: 22 January 2022

Records Retention:

Study specific raw data and a copy of the final report will be retained by Richard Goodman and a copy to The Better Meat Co. , 2939 Promenade St. West Sacramento, CA 95691.

Signature of Final Report Approval:



Principle Investigator: Richard E. Goodman



Date

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| APPENDIX 1 AllergenOnline.org version 21..... | 43 pg |
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ABBREVIATIONS

| | |
|--------|--|
| aa | Amino acid |
| BLASTP | Amino acid search algorithm version 2.0.1+ n the NCBI Protein database |
| FASTA | Local search alignment for protein sequences developed by William Pearson version 35.04 |
| HCC | Holland Computing Center at the University of Nebraska |

1.0 Introduction

The Better Meat Co. is developing cultured food products containing whole mycelia from *N. crassa*. This fungus is from a species that has been extensively studied in genetics, protein composition and metabolites over decades. It is a haploid organism for most of the life-cycle and has a very rapid growth rate. The genome was completed in 2003 (Galagan et al., Nature, volume 422). And it has approximately 10,000 protein coding genes. The hyphal mass of this organism is harvested from known culture conditions. The company that developed the product contacted us to evaluate potential risks of food allergy based on literature searches and bioinformatics searches using our www.AllergenOnline.org database, version 21 of the AllergenOnline.org database (Goodman et al., 2016) and to perform a comparison of the sequences of expected proteins to all proteins in the NCBI Protein database using BLASTP. The genomic sequences and RNA sequences of the species are public from wild-type strain N150 (74-OR23-1VA; Fungal Genetics Stock Center 2489) as described in Galagan et al., (2003, Nature). The search comparison for matches to allergens was accomplished by FASTA version 36 on the HCC supercomputer using version 21 of the AllergenOnline.org database with default *E* score. The results were compiled in an EXCEL sheet with the highest identity matches and best protein alignments at the top. Then the individual proteins were compared again to the AllergenOnline.org database using the public website (www.AllergenOnline.org) using FASTA 35 using full-length FASTA and sliding 80mer algorithms. The same sequences were compared to the public NCBI Protein database of all proteins using BLASTP.

The CODEX criteria of >35% identity over 80 amino acids (AA) is a bit arbitrary and for most protein types is overly conservative for judging potential risks of cross-reactivity. This can introduce the risk of false positive results. We described previously that cutting the alignments off at 80 AA can miss important matches that might represent a serious risk such as a segment of 74 AA of peanut allergen Ara h 2, with 100% match to Ara h 2 is recalculated to be equivalent to 94% identity over an 80 AA protein. That segment would contain two to three IgE binding epitopes that have been shown to be clinically important. If such a protein were transferred into rice, someone with peanut allergy could suffer severe anaphylaxis. At the opposite end of the scale, proteins from many diverse species share >35% identity due to evolutionary conservation and when evaluated for clinical allergy in the population, do not share histories of allergy (Abdelmoteleb et al., 2021). In the current study, all proteins predicted from the genome and transcriptome of *N. crassa* were compared to the AllergenOnline.org database and sorted by sequence identity, alignment length using batch comparison, then the highest scoring apparent matches were individually compared to the public website on www.AllergenOnline.org. In addition, a scientific literature review was conducted using NCBI PubMed to identify peer reviewed papers that contain relevant information about allergy of the organism and proteins.

The recommended criteria for potential cross-reactivity is that proteins with >35% sequence identity over 80 or more amino acids could represent proteins that might lead to IgE cross-reactivity and potential allergic reactions for those with significant pre-existing allergies. It is important to note that thirty-five percent identity is much lower than that noted as causing significant IgE cross-reactivity and clinical allergy for most proteins (Aalberse, 2000).

It is also important to note that many of the sequences in the www.Allergenonline.org database have only been demonstrated to show IgE binding from people reported to have allergies and have not been clearly proven to be the cause of clinically defined food allergy. When considering the allergenicity of a single or a few proteins in a genetically engineered organism, it is generally possible to find appropriate sera and to perform laboratory serum IgE tests, and if positive IgE binding is found, to test for biological activity using basophil activation tests or possibly skin prick tests. However, eukaryotic organisms have hundreds to thousands of proteins, many of which are highly conserved across species. The www.AllergenOnline.org database (and other allergen databases) contain a number of sequences, which are members of highly conserved protein groups, and thus it was expected that a number of potentially false positive sequence alignments would be identified as the result of a full-genomics screen. We therefore planned to screen identified alignments over the recommended criteria of >35% identity over 80 amino acids against the full-NCBI Protein database using BLASTP to consider the relevance of matches. The results and conclusions of this study are reported here.

2.0 Purpose

The purpose of this study was to consider the potential allergenicity of the proteins that might be produced from the cultured filamentous fungus *N. crassa*, wild-type strain N150 (74-OR23-1VA; Fungal Genetics Stock Center 2489) as representative for the species and for the Better Meat Co's product. It is the strain that was used to sequence and annotate the *N. crassa* genome by Galagan et al., (2003). Based on predictions from genomic and transcriptomic sequences of the whole organism we expect to find many high identity matches to proteins that are highly conserved through evolution including many in the www.AllergenOnline.org database. Interpretation of the results would require using our experiences with other whole organism predictions (Abdelmoteleb et al., 2021). Due to the high likelihood of false-positive matches, we have included evaluation of sequence identities of *N. crassa* proteins to all proteins in the NCBI Protein database. If sequence identity matches were found to be clearly important allergenic proteins based on the AllergenOnline.org annotation and on literature information, we intend to identify the type of allergic subjects that would be at risk and consider the characteristics of allergic subjects that would be relevant for serum IgE binding studies. If no such apparent risky matches are found, we would suggest there are no populations of allergic subjects to test for possible cross-reactivity.

3.0 Methods.

The Better Meat Co provided the reference of the genomic DNA sequences and proteins for *N. crassa* from the updated annotation of the data from Galagan et al., (2003) as an appropriate reference for their wild-type production strain. We have used that assembled data to compare to the AllergenOnline.org database version 21 in the University of Nebraska-Lincoln Holland Computing Center supercomputer, against version 21 of www.AllergenOnline.org using FASTA version 36. The output was collected in Excel format with information of the Accession number of individual *N. crassa* proteins with the highest protein identity match from version 21 of the

database, the *E*-score, the percent identity, the length of the alignments. Individual protein sequences suspected as having high identities were then compared to the public database of AllergenOnline.org using FASTA 35 and also to the NCBI Protein database using BLASTP.

3.1 Prediction of proteins based on genomic and transcriptomic DNA sequences of *N. crassa*. The DNA sequences of *N. crassa* were described including the assembly from whole shotgun sequencing and targeted sequencing of multiple clones shown in their supplementary information (Galagan et al., 2003). The assembly included 20-fold sequence coverage and 98-fold physical coverage of the genome. The paper described the methods and software used in the assembly with 38.6 Mb total length. The accuracy and extent of the genome coverage was described (Galagan et al., 2003). A total of 10,082 protein-coding genes larger than 100 amino acids were described. At that time 41% of the predicted proteins lack significant matches to other eukaryotic genes. Many publications are available before and after the Galagan 2003 Nature article that have contributed to or built on their seminal work. A literature search was performed for the species and DNA predictions and it is clear the Galagan study provides a solid basis for genomic work. The report by Dreyfuss et al. (2014) confirms the overall validity of their genome prediction by modeling for metabolic processes using a variety of techniques. No studies were found that suggest major flaws in their 2003 genomic structure. The genomic annotation data of *N. crassa* was recently updated in 2014 and is currently in version 3. Thus, we feel confident in using their data to predict the most likely protein products from this species. The bioinformatics pipeline has been completed using our lab cluster on the Holland Computer Center server at the University of Nebraska. The predicted protein sequences are shown in Annex 2.

3.2 Predicted protein sequences compared to Allergenonline.org version 21. The predicted protein sequences from the updated annotation of the Galagan dataset (Nature, 2003) were compared to AllergenOnline.org by FASTA 36 as a batch alignment on the HCC. Data of highest identity matches of *N. crassa* proteins to allergens and putative allergens in version 21 of AllergenOnline database are summarized in the table in Annex 2. All of the *N. crassa* proteins from the annotated genome were tested against the HCC AllergenOnline version 21 dataset and positive matches were recorded. The individual proteins from *N. crassa* were also compared to the NCBI protein database on HCC. Then the individual proteins that matched on HCC were manually compared to the public www.AllergenOnline.org database site using FASTA 35.

3.3 BLASTP of NCBI Entrez without any keyword limit. The BLASTP is available on the NCBI Entrez website (<http://www.ncbi.nlm.nih.gov/BLAST/>). The version of BLASTP loaded on the HCC and used for the alignments was BLAST+ 2.10.0, December 2019. Default scoring criteria were used: The *E* score threshold of 0.05 was used with a word size of 6. The BLOSUM62 scoring matrix was used with Gap Costs (existence 11, extension 1) were used. The public website that was used to repeat the BLASTP search was on 19 January 2022 uses BLASTP version 2.13.0+. The update of the NCBI Protein on the public website was 19 January 2022.

3.4 Compilation of results. The results of bioinformatics (sequence searches) were summarized in an Excel file (Annex 2) showing the best FASTA match to an allergen in AllergenOnline.org version 21 with the sequence identity, alignment length and *E* score as well as results from the BLASTP of the highest scoring allergen to NCBI Protein, showing the number of high scoring alignments and minimum scores. The overall results for the predicted proteins from *N. crassa*, as well as the best identity match to a protein source that should be commonly encountered by humans are included.

4.0 Results. The 191 protein sequences identified by AllergenOnline.org version 21 from the predicted genomic sequences of strain *N. crassa* using the HCC supercomputer are presented in Annex 2. The *E* score of the best identity match is listed in column E. The NCBI Protein Accession number and amino acid sequences are listed in column F. These sequences were manually compared to the AllergenOnline.org database using full-length FASTA and for some, sliding window of 80 AA for others with the best allergen alignment shown in column G. Some entries include one or two best matches, others include multiple best matches. The output is shown by GI number, brief protein description, and on the right side of the row, alignment length, the number left of that is the fractional similarity and to the left of that is the fractional identity match. Multiplying the fractional identity by 100 yields the percent identity. Identities greater than 35% over 80 amino acids are considered marginally significant. Numbers with 100% are much more significant. Column H of Annex 2 provides a brief description of overall protein identity to NCBI Protein based on the results of FASTA and BLAST alignments. The comment for each *N. crassa* protein entry describes the likelihood of the protein posing a significant risk of potential allergic cross-reactivity, or not, based in part on the uniqueness of the proteins across-taxa.

4.1 Literature. A search of the PubMed database on 19 January 2022 did not identify clear cases of allergy caused by proteins from *N. crassa* or other *Neurospora* species. There was only one publication that suggested that a secreted protein from this species might be associated with allergy, (Khurana et al., 2013) and that publication did not provide clear evidence of IgE binding or allergy from any individual with proven allergy to the source. Some publications did identify spores of *Neurospora* spp. in samples collected from areas with fungal allergy. But there was no proof of IgE binding to proteins from this species.

5.0 Discussion. Search comparisons to allergens were also compared to BLASTP searches to all proteins. For sequences that are conserved extensively in evolution with high identity matches across broad taxonomic groups, it is highly unlikely that these would represent potentially cross-reactive proteins as few patients have very broad causes of allergy. People are not allergic to many taxonomically diverse species. Often the identities are across proteins that are very similar because they represent needed biological functions. Many are enzymes and the tests are usually in vitro IgE binding without demonstration of reactivity by basophils or in skin tests with pure proteins. The highest scoring protein was an enolase with high identity to enolase of *Aspergillus fumigatus* (Asp f 22). Very high identity matches for that *N. crassa* protein include matches to a

number of fungal species enolases. It is also high in identity to fish enolases from diverse species. Some publications claim enolases are broadly cross-reactive allergens (Hilger et al., 2017). A recent review on enolase activity comparing fungal plant and animal enolases suggest that identity matches > 60% may represent some clinical cross-reactivity, but among organism types >70% to >80% identity is likely to indicate possible clinical reactivity (Morales-Amparano et al., 2021). The 60S ribosomal protein is >90% identical to two allergens from fungi, but it is a very abundant and conserved protein and unlikely to be a cross-reactive allergen. Heat shock proteins are highly conserved and common. They are not important allergens and are unlikely to be cross-reactive across broad taxa. Cytochrome c is highly conserved over evolution and at 85% identity is unlikely to represent a cross-reactive allergen. Transaldolase is highly conserved across fungal proteins and grasses. At 80% identity it is unlikely to be cross-reactive. Similar findings are common for the other proteins identified by FASTA and BLASTP as being homologues. Again, *N. crassa* has been extensively studied for taxonomy, genetics and fermentation. It is in a group of organisms in the order Sordariales that does not have allergenic organisms. While some fungi within the Ascomycota are known to have common and strong histories of allergy, such as *Aspergillus* and *Penicillium*, they are not closely related to *Neurospora* or Sordariales.

6.0 Conclusions. Based on the total protein identity matches of predicted proteins from *Neurospora crassa* to the proteins of AllergenOnline.org version 21, the common proteins are highly conserved in evolution and these do not correlate with known allergy risks for food. Due to relatively low sequence identity matches to known allergens this analysis indicates that food produced from *N. crassa* is not likely to pose a realistic risk of food allergy to consumers. Based on diverse sequence identities of the matched proteins from highly diverse sources, there is no reason to suggest a risk that would require serum IgE binding studies or in vivo reactivity tests. No evidence was found to suggest that matches in this bioinformatics study represent any risk to consumers that is not matched by the equal low-level identity matches from widely diverse taxa of divergent organisms.

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Appendix 1: AllergenOnline Database, version 21. (attached PDF, 43 pages).

Appendix 2: Bioinformatics results from searches of the *Neurospora crassa* proteins identified by Galagan et al., 2003 and those in AllergenOnline.org and the FASTA version 35 searches to the Protein database. (attached PDF, 35 pages).

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stÅ Version |
|----------------------|-----------------------|----------------|-------------------|--|----------------------------|--------|----------------|------------|--------------|
| Acarus siro | Mite | Aca s 13 | Aero Mite | Acarus Aca s 13 | IgE but no biological test | 131 | ABL09307.1 | 118638268 | 9 |
| Acarus siro | Mite | Unassigned | Aero Insect | Acarus siro Group 4 allergen | IgE but no biological test | 517 | ABL09312.1 | 118638278 | 9 |
| Actinidia arguta | Hardy Kiwi | Unassigned | Food Plant | Actinidia arguta kiwellin | IgE but no biological test | 213 | AGC39172.1 | 441482362 | 14 |
| Actinidia arguta | Hardy Kiwi | Unassigned | Food Plant | Actinidia arguta kiwellin | IgE but no biological test | 213 | AGC39173.1 | 441482364 | 14 |
| Actinidia arguta | Hardy Kiwi | Unassigned | Food Plant | Actinidia arguta kiwellin | IgE but no biological test | 213 | AGC39174.1 | 441482366 | 14 |
| Actinidia chinensis | Kiwi | Unassigned | Food Plant | Actinidia Act c 1 Act d 1 Actinidin | IgE plus basophil+ or SPT+ | 380 | P00785.4 | 190358935 | 9 |
| Actinidia chinensis | Kiwi | Unassigned | Food Plant | Actinidia Act c 1 Act d 1 Actinidin | IgE plus basophil+ or SPT+ | 380 | BBAA83994.1 | 1373811525 | 19 |
| Actinidia chinensis | Kiwi | Act c 10 | Food Plant | Actinidia Act c 10 LTP | IgE plus basophil+ or SPT+ | 15 | P85204.1 | 378548410 | 13 |
| Actinidia chinensis | Kiwi | Act c 5.0102 | Food Plant | Actinidia Act c 5 kiwellin | IgE but no biological test | 213 | AGC39168.1 | 441482354 | 14 |
| Actinidia chinensis | Kiwi | Act c 8.0101 | Food Plant | Actinidia Act c 8 Act d 8 PR-10 | IgE but no biological test | 159 | CAM31908.1 | 281552896 | 11 |
| Actinidia chinensis | Kiwi | Act d 12.0102 | Food Plant | Actinidia Act d 12 | IgE plus basophil+ or SPT+ | 462 | ABB77213.1 | 82469930 | 16 |
| Actinidia chinensis | Kiwi | Unassigned | Food Plant | Actinidia Act d 2 thaumatin like protein | IgE plus basophil+ or SPT+ | 20 | P83958.1 | 68064399 | 7 |
| Actinidia chinensis | Kiwi | Unassigned | Food Plant | Actinidia Act d 2 thaumatin like protein | IgE plus basophil+ or SPT+ | 225 | AGC39176.1 | 441482370 | 14 |
| Actinidia deliciosa | Kiwi | Act d 1.0101 | Food Plant | Actinidia Act c 1 Act d 1 Actinidin | IgE plus basophil+ or SPT+ | 380 | CAA34486.1 | 15984 | 7 |
| Actinidia deliciosa | Kiwi | Unassigned | Food Plant | Actinidia Act c 1 Act d 1 Actinidin | IgE plus basophil+ or SPT+ | 380 | AAA32629.1 | 166317 | 7 |
| Actinidia deliciosa | Kiwi | Unassigned | Food Plant | Actinidia Act c 1 Act d 1 Actinidin | IgE plus basophil+ or SPT+ | 380 | ASHI1.1 | 193806686 | 12 |
| Actinidia deliciosa | Kiwi | Act d 8.0101 | Food Plant | Actinidia Act c 8 Act d 8 PR-10 | IgE but no biological test | 157 | CAM31909.1 | 281552898 | 11 |
| Actinidia deliciosa | Kiwi | Act d 10.0201 | Food Plant | Actinidia Act d 10 LTP | IgE plus basophil+ or SPT+ | 92 | P85206.1 | 378548411 | 13 |
| Actinidia deliciosa | Kiwi | Act d 10.0101 | Food Plant | Actinidia Act d 10 LTP | IgE plus basophil+ or SPT+ | 92 | P86137.2 | 378405189 | 13 |
| Actinidia deliciosa | Kiwi | Act d 11.0101 | Food Plant | Actinidia Act d 11 Kirola MLP | IgE but no biological test | 150 | P85524.1 | 332319679 | 12 |
| Actinidia deliciosa | Kiwi | Act d 2.0101 | Food Plant | Actinidia Act d 2 thaumatin like protein | IgE plus basophil+ or SPT+ | 225 | CAI38795.2 | 71057064 | 7 |
| Actinidia deliciosa | Kiwi | Unassigned | Food Plant | Actinidia Act d 2 thaumatin like protein | IgE plus basophil+ or SPT+ | 201 | ABQ42566.1 | 146737976 | 9 |
| Actinidia deliciosa | Kiwi | Act d 4.0101 | Food Plant | Actinidia Act d 4 Phytocystatin | IgE plus basophil+ or SPT+ | 116 | AAR92223.1 | 40807635 | 7 |
| Actinidia deliciosa | Kiwi | Act d 5.0101 | Food Plant | Actinidia Act d 5 kiwellin | IgE plus basophil+ or SPT+ | 189 | P84527.1 | 85701136 | 7 |
| Actinidia deliciosa | Kiwi | Unassigned | Food Plant | Actinidia Act d 5 kiwellin | IgE plus basophil+ or SPT+ | 213 | AGC39164.1 | 441482346 | 14 |
| Actinidia deliciosa | Kiwi | Unassigned | Food Plant | Actinidia Act d 5 kiwellin | IgE plus basophil+ or SPT+ | 213 | AGC39165.1 | 441482348 | 14 |
| Actinidia deliciosa | Kiwi | Unassigned | Food Plant | Actinidia Act d 5 kiwellin | IgE plus basophil+ or SPT+ | 213 | AGC39166.1 | 441482350 | 14 |
| Actinidia deliciosa | Kiwi | Unassigned | Food Plant | Actinidia Act d 5 kiwellin | IgE plus basophil+ or SPT+ | 213 | AGC39167.1 | 441482352 | 14 |
| Actinidia deliciosa | Kiwi | Unassigned | Food Plant | Actinidia Act d 5 kiwellin | IgE plus basophil+ or SPT+ | 189 | 4X9U_B | 906848988 | 17 |
| Actinidia deliciosa | Kiwi | Act d 9.0101 | Food Plant | Actinidia Act d 9, profilin | IgE but no biological test | 109 | COHL99.1 | 1407892581 | 19 |
| Actinidia eriantha | Climber (plant) | Unassigned | Food Plant | Actinidia eriantha kiwellin | IgE but no biological test | 213 | AGC39169.1 | 441482356 | 14 |
| Actinidia eriantha | Climber (plant) | Unassigned | Food Plant | Actinidia eriantha kiwellin | IgE but no biological test | 213 | AGC39170.1 | 441482358 | 14 |
| Actinidia eriantha | Climber (plant) | Unassigned | Food Plant | Actinidia eriantha kiwellin | IgE but no biological test | 213 | AGC39171.1 | 441482360 | 14 |
| Aedes aegypti | Yellow fever mosquito | Aed a 1.0101 | Venom or Salivary | Aedes Aed a 1 apyrase | IgE plus basophil+ or SPT+ | 562 | AAC37218.1 | 556272 | 7 |
| Aedes aegypti | Yellow fever mosquito | Unassigned | Venom or Salivary | Aedes Aed a 1 apyrase | IgE plus basophil+ or SPT+ | 562 | P50635.2 | 193806340 | 10 |
| Aedes aegypti | Yellow fever mosquito | Aed a 11 | Venom or Salivary | Aedes Aed a 11 Lysosomal protease | IgE but no biological test | 387 | XP_001657556.2 | 1218215869 | 18 |
| Aedes aegypti | Yellow fever mosquito | Aed a 2 | Venom or Salivary | Aedes Aed a 2 | IgE plus basophil+ or SPT+ | 321 | P18153.2 | 205525919 | 9 |
| Aedes aegypti | Yellow fever mosquito | Aed a 3.0101 | Venom or Salivary | Aedes Aed a 3 | IgE plus basophil+ or SPT+ | 253 | AAB58417.1 | 2114497 | 7 |
| Aedes aegypti | Yellow fever mosquito | Unassigned | Venom or Salivary | Aedes Aed a 3 | IgE plus basophil+ or SPT+ | 273 | ABF18122.1 | 94468546 | 7 |
| Aedes aegypti | Yellow fever mosquito | Aed a 5.0101 | Venom or Salivary | Aedes Aed a 5 Sarcoplasmic Ca+ bind | IgE but no biological test | 191 | XP_001653462.1 | 157119961 | 17 |
| Aedes aegypti | Yellow fever mosquito | Aed a 7.0101 | Venom or Salivary | Aedes Aed a 7 | IgE but no biological test | 204 | XP_001654291.1 | 157125324 | 17 |
| Aedes aegypti | Yellow fever mosquito | Aed a 8.0101 | Venom or Salivary | Aedes Aed a 8 HSP70 | IgE but no biological test | 655 | ABF18258.1 | 94468818 | 17 |
| Aedes aegypti | Yellow fever mosquito | Aed a 10.0201 | Venom or Salivary | Aedes aegypti Aed a 10 | IgE but no biological test | 284 | XP_001655948.1 | 157131813 | 16 |
| Aedes aegypti | Yellow fever mosquito | Aed a 10.0101 | Venom or Salivary | Aedes aegypti Aed a 10 | IgE but no biological test | 285 | XP_001655954.1 | 157131825 | 16 |
| Aedes aegypti | Yellow fever mosquito | Aed a 4.0101 | Venom or Salivary | Aedes aegypti Aed a 4 alpha glucosidase | IgE but no biological test | 579 | P13080.1 | 126713 | 17 |
| Agrostis alba | Bent grass | Unassigned | Aero Plant | Agrostis Agr a 1 | IgE but no biological test | 26 | E37396 | 320606 | 7 |
| Agrostis alba | Bent grass | Unassigned | Aero Plant | Agrostis Agr a 1 | IgE but no biological test | 35 | Q7M1X7 | 75139987 | 7 |
| Agrostis alba | Bent grass | Unassigned | Aero Plant | Agrostis Agr a 1 | IgE but no biological test | 35 | Q7M1X9 | 75139989 | 7 |
| Alnus glutinosa | Alder | Aln g 1.0101 | Aero Plant | Alnus Aln g 1 | IgE but no biological test | 160 | AAB24432.1 | 261407 | 7 |
| Alnus glutinosa | Alder | Aln g 4.0101 | Aero Plant | Alnus Aln g 4 | IgE plus basophil+ or SPT+ | 85 | CAA76831.1 | 3319651 | 7 |
| Alternaria alternata | Fungus | Alt a 1.0101 | Aero Fungi | Alternaria Alt a 1 | IgE plus basophil+ or SPT+ | 157 | AAB47552.1 | 1842045 | 7 |
| Alternaria alternata | Fungus | Unassigned | Aero Fungi | Alternaria Alt a 1 | IgE plus basophil+ or SPT+ | 115 | AAM77471.1 | 21913174 | 7 |
| Alternaria alternata | Fungus | Alt a 1.0102 | Aero Fungi | Alternaria Alt a 1 | IgE plus basophil+ or SPT+ | 157 | AA575297.1 | 45680856 | 7 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stÅ Version |
|-------------------------|-----------------|----------------|------------|---|----------------------------|--------|------------|------------|--------------|
| Alternaria alternata | Fungus | Unassigned | Aero Fungi | Alternaria Alt a 1 | IgE plus basophil+ or SPT+ | 133 | 3V0R_A | 390980892 | 13 |
| Alternaria alternata | Fungus | Unassigned | Aero Fungi | Alternaria Alt a 1 | IgE plus basophil+ or SPT+ | 130 | 4AUD_B | 508123617 | 15 |
| Alternaria alternata | Fungus | Alt a 10.01 | Aero Fungi | Alternaria Alt a 10 ADH | IgE but no biological test | 497 | CAA55071.2 | 76666767 | 7 |
| Alternaria alternata | Fungus | Alt a 12.0101 | Aero Fungi | Alternaria Alt a 12 Ribosomal BP P1 | IgE but no biological test | 110 | P49148.1 | 1350779 | 7 |
| Alternaria alternata | Fungus | Alt a 13.0101 | Aero Fungi | Alternaria Alt a 13 | IgE plus basophil+ or SPT+ | 231 | Q6R4B4.1 | 74611808 | 10 |
| Alternaria alternata | Fungus | Unassigned | Aero Fungi | Alternaria Alt a 15 | IgE but no biological test | 507 | AH297469.1 | 636530596 | 17 |
| Alternaria alternata | Fungus | Alt a 3.0101 | Aero Fungi | Alternaria Alt a 3 HSP | IgE but no biological test | 152 | P78983.2 | 14423730 | 7 |
| Alternaria alternata | Fungus | Alt a 4.0101 | Aero Fungi | Alternaria Alt a 4 thioredoxin | IgE but no biological test | 436 | Q00002.2 | 85701160 | 7 |
| Alternaria alternata | Fungus | Alt a 5.0101 | Aero Fungi | Alternaria Alt a 5 ribosomal P2 | IgE but no biological test | 113 | AAB48041.1 | 1850540 | 7 |
| Alternaria alternata | Fungus | Unassigned | Aero Fungi | Alternaria Alt a 5 ribosomal P2 | IgE but no biological test | 113 | P42037.1 | 1173071 | 10 |
| Alternaria alternata | Fungus | Alt a 6.0101 | Aero Fungi | Alternaria Alt a 6 enolase | IgE but no biological test | 438 | Q9HDT3.2 | 14423684 | 7 |
| Alternaria alternata | Fungus | Alt a 7.0101 | Aero Fungi | Alternaria Alt a 7 flavodoxin | IgE but no biological test | 204 | P42058.1 | 1168402 | 9 |
| Alternaria alternata | Fungus | Unassigned | Aero Fungi | Alternaria Alt a 7 flavodoxin | IgE but no biological test | 261 | OWY50380.1 | 1213711549 | 18 |
| Alternaria alternata | Fungus | Alt a 8.0101 | Aero Fungi | Alternaria Alt a 8 (mannitol dehydrogenase) | IgE plus basophil+ or SPT+ | 266 | AAO91800.1 | 37780013 | 8 |
| Alternaria alternata | Fungus | Unassigned | Aero Fungi | Alternaria Alt a 8 (mannitol dehydrogenase) | IgE plus basophil+ or SPT+ | 266 | POC0Y4.2 | 118595439 | 8 |
| Alternaria alternata | Fungus | Alt a 14.0101 | Aero Fungi | Alternaria MnSOD Alt a 14 | IgE but no biological test | 191 | AGS80276.1 | 529279957 | 15 |
| Alternaria alternata | Fungus | Unassigned | Aero Fungi | Alternaria Nuc Transport 2 | IgE plus basophil+ or SPT+ | 124 | CAD38167.1 | 21748153 | 7 |
| Alternaria alternata | Fungus | Unassigned | Aero Fungi | Alternaria TCTP IgE binding | IgE but no biological test | 169 | ABI26088.1 | 112824341 | 11 |
| Amaranthus retroflexus | Common Amaranth | Ama r 2.0101 | Aero Plant | Amaranthus Ama r 2 Profilin | IgE plus basophil+ or SPT+ | 133 | ACP43298.1 | 227937304 | 10 |
| Amaranthus retroflexus | Common Amaranth | Ama r 1.0101 | Aero Plant | Amaranthus retroflexus Ama r 1 | IgE but no biological test | 168 | AKV72168.1 | 914410010 | 16 |
| Ambrosia artemisiifolia | Short ragweed | Amb a 1.0101 | Aero Plant | Ambrosia Amb a 1 | IgE plus basophil+ or SPT+ | 396 | P27759.1 | 113475 | 7 |
| Ambrosia artemisiifolia | Short ragweed | Amb a 1.0201 | Aero Plant | Ambrosia Amb a 1 | IgE plus basophil+ or SPT+ | 398 | P27760.1 | 113476 | 7 |
| Ambrosia artemisiifolia | Short ragweed | Amb a 1.0301 | Aero Plant | Ambrosia Amb a 1 | IgE plus basophil+ or SPT+ | 397 | P27761.1 | 113477 | 7 |
| Ambrosia artemisiifolia | Short ragweed | Amb a 1.0401 | Aero Plant | Ambrosia Amb a 1 | IgE plus basophil+ or SPT+ | 392 | P28744.1 | 113478 | 7 |
| Ambrosia artemisiifolia | Short ragweed | Amb a 1.0303 | Aero Plant | Ambrosia Amb a 1 | IgE plus basophil+ or SPT+ | 397 | AAA32669.1 | 166443 | 7 |
| Ambrosia artemisiifolia | Short ragweed | Amb a 1.0501 | Aero Plant | Ambrosia Amb a 1 | IgE plus basophil+ or SPT+ | 397 | AAA32671.1 | 166447 | 11 |
| Ambrosia artemisiifolia | Short ragweed | Unassigned | Aero Plant | Ambrosia Amb a 1 | IgE plus basophil+ or SPT+ | 396 | CBW30986.1 | 302127810 | 12 |
| Ambrosia artemisiifolia | Short ragweed | Amb a 1.0202 | Aero Plant | Ambrosia Amb a 1 | IgE plus basophil+ or SPT+ | 398 | CBW30987.1 | 302127812 | 12 |
| Ambrosia artemisiifolia | Short ragweed | Amb a 1.0304 | Aero Plant | Ambrosia Amb a 1 | IgE plus basophil+ or SPT+ | 397 | CBW30988.1 | 302127814 | 12 |
| Ambrosia artemisiifolia | Short ragweed | Amb a 1.0305 | Aero Plant | Ambrosia Amb a 1 | IgE plus basophil+ or SPT+ | 397 | CBW30989.1 | 302127816 | 12 |
| Ambrosia artemisiifolia | Short ragweed | Unassigned | Aero Plant | Ambrosia Amb a 1 | IgE plus basophil+ or SPT+ | 397 | CBW30990.1 | 302127818 | 12 |
| Ambrosia artemisiifolia | Short ragweed | Unassigned | Aero Plant | Ambrosia Amb a 1 | IgE plus basophil+ or SPT+ | 397 | CBW30991.1 | 302127820 | 12 |
| Ambrosia artemisiifolia | Short ragweed | Unassigned | Aero Plant | Ambrosia Amb a 1 | IgE plus basophil+ or SPT+ | 397 | CBW30992.1 | 302127822 | 12 |
| Ambrosia artemisiifolia | Short ragweed | Amb a 1.0402 | Aero Plant | Ambrosia Amb a 1 | IgE plus basophil+ or SPT+ | 387 | CBW30993.1 | 302127824 | 12 |
| Ambrosia artemisiifolia | Short ragweed | Unassigned | Aero Plant | Ambrosia Amb a 1 | IgE plus basophil+ or SPT+ | 397 | CBW30994.1 | 302127826 | 12 |
| Ambrosia artemisiifolia | Short ragweed | Amb a 1.0502 | Aero Plant | Ambrosia Amb a 1 | IgE plus basophil+ or SPT+ | 397 | CBW30995.1 | 302127828 | 12 |
| Ambrosia artemisiifolia | Short ragweed | Amb a 10.0101 | Aero Plant | Ambrosia Amb a 10 | IgE but no biological test | 160 | AAX7686.1 | 62249491 | 7 |
| Ambrosia artemisiifolia | Short ragweed | Unassigned | Aero Plant | Ambrosia Amb a 4 | IgE but no biological test | 164 | CBJ24286.1 | 285005079 | 11 |
| Ambrosia artemisiifolia | Short ragweed | Amb a 4.0101 | Aero Plant | Ambrosia Amb a 4 | IgE but no biological test | 164 | CBK52317.1 | 291197394 | 12 |
| Ambrosia artemisiifolia | Short ragweed | Unassigned | Aero Plant | Ambrosia Amb a 4 | IgE but no biological test | 111 | CBK62693.1 | 291482306 | 12 |
| Ambrosia artemisiifolia | Short ragweed | Unassigned | Aero Plant | Ambrosia Amb a 4 | IgE but no biological test | 140 | CBK62694.1 | 291482308 | 12 |
| Ambrosia artemisiifolia | Short ragweed | Unassigned | Aero Plant | Ambrosia Amb a 4 | IgE but no biological test | 134 | CBK62695.1 | 291482310 | 12 |
| Ambrosia artemisiifolia | Short ragweed | Unassigned | Aero Plant | Ambrosia Amb a 4 | IgE but no biological test | 96 | CBK62697.1 | 291482314 | 12 |
| Ambrosia artemisiifolia | Short ragweed | Unassigned | Aero Plant | Ambrosia Amb a 4 | IgE but no biological test | 110 | CBK62698.1 | 291482316 | 12 |
| Ambrosia artemisiifolia | Short ragweed | Unassigned | Aero Plant | Ambrosia Amb a 4 | IgE but no biological test | 116 | CBK62699.1 | 291482318 | 12 |
| Ambrosia artemisiifolia | Short ragweed | Amb a 6.0101 | Aero Plant | Ambrosia Amb a 6 | IgE but no biological test | 118 | O04004.1 | 14285595 | 7 |
| Ambrosia artemisiifolia | Short ragweed | Unassigned | Aero Plant | Ambrosia Amb a 8 profilin | IgE plus basophil+ or SPT+ | 133 | AAP15203.1 | 34851182 | 7 |
| Ambrosia artemisiifolia | Short ragweed | Unassigned | Aero Plant | Ambrosia Amb a 8 profilin | IgE plus basophil+ or SPT+ | 131 | AAP15202.1 | 34851180 | 7 |
| Ambrosia artemisiifolia | Short ragweed | Unassigned | Aero Plant | Ambrosia Amb a 8 profilin | IgE plus basophil+ or SPT+ | 131 | AAP15201.1 | 34851178 | 7 |
| Ambrosia artemisiifolia | Short ragweed | Amb a 8.0101 | Aero Plant | Ambrosia Amb a 8 profilin | IgE plus basophil+ or SPT+ | 133 | AAX77687.1 | 62249502 | 7 |
| Ambrosia artemisiifolia | Short ragweed | Amb a 8.0102 | Aero Plant | Ambrosia Amb a 8 profilin | IgE plus basophil+ or SPT+ | 133 | AAX77688.1 | 62249512 | 7 |
| Ambrosia artemisiifolia | Short ragweed | Unassigned | Aero Plant | Ambrosia Amb a 8 profilin | IgE plus basophil+ or SPT+ | 135 | 5EM1_A | 1035439203 | 18 |
| Ambrosia artemisiifolia | Short ragweed | Unassigned | Aero Plant | Ambrosia Amb a 8 profilin | IgE plus basophil+ or SPT+ | 134 | 5EVO_B | 1035439209 | 18 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stA Version |
|-----------------------------------|---------------------|----------------|---------------------------|---|----------------------------|--------|------------|------------|--------------|
| Ambrosia artemisiifolia | Short ragweed | Amb a 9.0101 | Aero Plant | Ambrosia Amb a 9 | IgE plus basophil+ or SPT+ | 83 | AAX77684.1 | 62249470 | 7 |
| Ambrosia artemisiifolia | Short ragweed | Amb a 9.0102 | Aero Plant | Ambrosia Amb a 9 | IgE plus basophil+ or SPT+ | 83 | AAX77685.1 | 62249481 | 7 |
| Ambrosia artemisiifolia | Short ragweed | Amb a 11.0101 | Aero Plant | Ambrosia artemisiifolia Amb a 11 | IgE plus basophil+ or SPT+ | 386 | AHA56102.1 | 558482540 | 15 |
| Ambrosia artemisiifolia | Short ragweed | Unassigned | Aero Plant | Ambrosia artemisiifolia Amb a 11 | IgE plus basophil+ or SPT+ | 385 | 5EGW_B | 1023176264 | 17 |
| Ambrosia artemisiifolia (elatior) | Short ragweed | Amb a 3.0101 | Aero Plant | Ambrosia Amb a 3 | IgE plus basophil+ or SPT+ | 101 | P00304.2 | 416636 | 7 |
| Ambrosia artemisiifolia (elatior) | Short ragweed | Amb a 5.0101 | Aero Plant | Ambrosia Amb a 5 Ra5 Amb p 5 | IgE plus basophil+ or SPT+ | 45 | P02878.1 | 114090 | 7 |
| Ambrosia psilostachya | Western ragweed | Amb p 5.0101 | Aero Plant | Ambrosia Amb a 5 Ra5 Amb p 5 | IgE plus basophil+ or SPT+ | 77 | AAA20065.1 | 515953 | 7 |
| Ambrosia psilostachya | Western ragweed | Unassigned | Aero Plant | Ambrosia Amb a 5 Ra5 Amb p 5 | IgE plus basophil+ or SPT+ | 77 | AAA20067.1 | 515954 | 7 |
| Ambrosia psilostachya | Western ragweed | Amb p 5.0201 | Aero Plant | Ambrosia Amb a 5 Ra5 Amb p 5 | IgE plus basophil+ or SPT+ | 77 | AAA20064.1 | 515955 | 7 |
| Ambrosia psilostachya | Western ragweed | Unassigned | Aero Plant | Ambrosia Amb a 5 Ra5 Amb p 5 | IgE plus basophil+ or SPT+ | 77 | AAA20066.1 | 515956 | 7 |
| Ambrosia psilostachya | Western ragweed | Unassigned | Aero Plant | Ambrosia Amb a 5 Ra5 Amb p 5 | IgE plus basophil+ or SPT+ | 77 | AAA20068.1 | 515957 | 7 |
| Ambrosia trifida | Giant ragweed | Amb t 5.0101 | Aero Plant | Ambrosia Amb t 5 Ra5G | IgE but no biological test | 73 | P10414.2 | 114091 | 7 |
| Amphioctopus fangsiao | Octopus | Unassigned | Food Animal | Amphioctopus arginine kinase | IgE but no biological test | 348 | AEK65120.1 | 340742817 | 12 |
| Anacardium occidentale | Cashew | Ana 0.1.0102 | Food Plant | Anacardium Ana o 1 | IgE plus basophil+ or SPT+ | 536 | AAM73729.1 | 21666498 | 7 |
| Anacardium occidentale | Cashew | Ana 0.1.0101 | Food Plant | Anacardium Ana o 1 | IgE plus basophil+ or SPT+ | 538 | AAM73730.2 | 21914823 | 7 |
| Anacardium occidentale | Cashew | Ana o 2.0101 | Food Plant | Anacardium Ana o 2 | IgE plus basophil+ or SPT+ | 457 | AAN76862.1 | 25991543 | 7 |
| Anacardium occidentale | Cashew | Ana o 3.0101 | Food Plant | Anacardium Ana o 3 | IgE plus basophil+ or SPT+ | 138 | AAL91665.1 | 24473800 | 7 |
| Ananas comosus | Pineapple | Ana c 2.0101 | Aero Plant | Ananas Ana c 2 Bromelain precursor | IgE plus basophil+ or SPT+ | 351 | O23791.1 | 75277440 | 7 |
| Ananas comosus | Pineapple | Ana c 1.0101 | Food Plant | Ananas profilin Ana c 1 | IgE but no biological test | 131 | Q94JN2.1 | 75306610 | 10 |
| Anisakis pegreffii | Parasitic fish worm | Ani s 13.0101 | Worm (parasite) | Anisakis Ani s 13 | IgE but no biological test | 309 | AFY98826.1 | 428230092 | 15 |
| Anisakis pegreffii | Parasitic fish worm | Unassigned | Food Animal | Anisakis Ani s 12 | IgE but no biological test | 264 | AGC60026.1 | 442577845 | 14 |
| Anisakis pegreffii | Parasitic fish worm | Unassigned | Food Animal | Anisakis Ani s 12 | IgE but no biological test | 264 | AGC60027.1 | 442577847 | 14 |
| Anisakis pegreffii | Parasitic fish worm | Unassigned | Food Animal | Anisakis Ani s 12 | IgE but no biological test | 264 | AGC60028.1 | 442577849 | 14 |
| Anisakis pegreffii | Parasitic fish worm | Unassigned | Important Worm (parasite) | Anisakis Ani s 2 paramyosin | IgE but no biological test | 869 | AGC60020.1 | 442577833 | 14 |
| Anisakis simplex | Parasitic fish worm | Unassigned | Worm (parasite) | Anisakis Ani s 13 | IgE but no biological test | 332 | ASL68918.2 | 1236364983 | 19 |
| Anisakis simplex | Parasitic fish worm | Ani s 1.0101 | Food Animal | Anisakis Ani s 1 protease inhibitor | IgE plus basophil+ or SPT+ | 194 | Q7Z1K3.1 | 47605452 | 7 |
| Anisakis simplex | Parasitic fish worm | Unassigned | Food Animal | Anisakis Ani s 1 protease inhibitor | IgE plus basophil+ or SPT+ | 163 | AGC60035.1 | 442577863 | 14 |
| Anisakis simplex | Parasitic fish worm | Unassigned | Food Animal | Anisakis Ani s 1 protease inhibitor | IgE plus basophil+ or SPT+ | 163 | AGC60036.1 | 442577865 | 14 |
| Anisakis simplex | Parasitic fish worm | Ani s 10.0101 | Food Animal | Anisakis Ani s 10 | IgE but no biological test | 231 | ACZ95445.1 | 272574378 | 11 |
| Anisakis simplex | Parasitic fish worm | Ani s 11.0101 | Food Animal | Anisakis Ani s 11 | IgE but no biological test | 307 | BAJ78220.1 | 323575361 | 12 |
| Anisakis simplex | Parasitic fish worm | Unassigned | Food Animal | Anisakis Ani s 11 | IgE but no biological test | 160 | BAJ78221.1 | 323575363 | 12 |
| Anisakis simplex | Parasitic fish worm | Unassigned | Food Animal | Anisakis Ani s 11 | IgE but no biological test | 287 | BAJ78222.1 | 323575365 | 12 |
| Anisakis simplex | Parasitic fish worm | Ani s 12.0101 | Food Animal | Anisakis Ani s 12 | IgE but no biological test | 295 | BAJ78223.1 | 323575367 | 12 |
| Anisakis simplex | Parasitic fish worm | Unassigned | Food Animal | Anisakis Ani s 12 | IgE but no biological test | 264 | AGC60029.1 | 442577851 | 14 |
| Anisakis simplex | Parasitic fish worm | Unassigned | Food Animal | Anisakis Ani s 12 | IgE but no biological test | 264 | AGC60030.1 | 442577853 | 14 |
| Anisakis simplex | Parasitic fish worm | Unassigned | Food Animal | Anisakis Ani s 12 | IgE but no biological test | 264 | AGC60031.1 | 442577855 | 14 |
| Anisakis simplex | Parasitic fish worm | Ani s 14.0101 | Food Animal | Anisakis Ani s 14 | IgE but no biological test | 217 | BAT62430.1 | 957554293 | 17 |
| Anisakis simplex | Parasitic fish worm | Ani s 2.0101 | Food Animal | Anisakis Ani s 2 paramyosin | IgE but no biological test | 473 | AAF75225.1 | 8453086 | 7 |
| Anisakis simplex | Parasitic fish worm | Unassigned | Food Animal | Anisakis Ani s 2 paramyosin | IgE but no biological test | 869 | Q9NJA9.1 | 42559536 | 9 |
| Anisakis simplex | Parasitic fish worm | Ani s 3.0101 | Food Animal | Anisakis Ani s 3 tropomyosin | IgE plus basophil+ or SPT+ | 284 | Q9NASS.1 | 14423976 | 7 |
| Anisakis simplex | Parasitic fish worm | Unassigned | Food Animal | Anisakis Ani s 3 tropomyosin | IgE plus basophil+ or SPT+ | 284 | AEQ28167.1 | 350285785 | 13 |
| Anisakis simplex | Parasitic fish worm | Ani s 4.0101 | Food Animal | Anisakis Ani s 4 | IgE plus basophil+ or SPT+ | 14 | P83885.1 | 47605398 | 7 |
| Anisakis simplex | Parasitic fish worm | Unassigned | Food Animal | Anisakis Ani s 4 | IgE plus basophil+ or SPT+ | 115 | CAK50389.1 | 110346534 | 8 |
| Anisakis simplex | Parasitic fish worm | Ani s 5.0101 | Food Animal | Anisakis Ani s 5 SXP/RAL-2 family protein | IgE but no biological test | 152 | BAF43534.1 | 121308878 | 8 |
| Anisakis simplex | Parasitic fish worm | Ani s 7.0101 | Food Animal | Anisakis Ani s 7 UA3-recognized allergen | IgE but no biological test | 1096 | ABL77410.1 | 119524036 | 9 |
| Anisakis simplex | Parasitic fish worm | Ani s 8.0101 | Food Animal | Anisakis Ani s 8 SXP/RAL-2 family protein 2 | IgE but no biological test | 150 | BAF75681.1 | 155676636 | 9 |
| Anisakis simplex | Parasitic fish worm | Unassigned | Food Animal | Anisakis Ani s 8 SXP/RAL-2 family protein 2 | IgE but no biological test | 150 | BAF75704.1 | 155676682 | 9 |
| Anisakis simplex | Parasitic fish worm | Unassigned | Food Animal | Anisakis Ani s 8 SXP/RAL-2 family protein 2 | IgE but no biological test | 150 | BAF75705.1 | 155676684 | 9 |
| Anisakis simplex | Parasitic fish worm | Unassigned | Food Animal | Anisakis Ani s 8 SXP/RAL-2 family protein 2 | IgE but no biological test | 150 | BAF75706.1 | 155676686 | 9 |
| Anisakis simplex | Parasitic fish worm | Unassigned | Food Animal | Anisakis Ani s 8 SXP/RAL-2 family protein 2 | IgE but no biological test | 150 | BAF75707.1 | 155676688 | 9 |
| Anisakis simplex | Parasitic fish worm | Unassigned | Food Animal | Anisakis Ani s 8 SXP/RAL-2 family protein 2 | IgE but no biological test | 150 | BAF75708.1 | 155676690 | 9 |
| Anisakis simplex | Parasitic fish worm | Unassigned | Food Animal | Anisakis Ani s 8 SXP/RAL-2 family protein 2 | IgE but no biological test | 150 | BAF75709.1 | 155676692 | 9 |
| Anisakis simplex | Parasitic fish worm | Unassigned | Food Animal | Anisakis Ani s 8 SXP/RAL-2 family protein 2 | IgE but no biological test | 150 | BAF75710.1 | 155676694 | 9 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stA Version |
|-------------------------------|---------------------|----------------|-------------------|---|----------------------------|--------|----------------|------------|--------------|
| Anisakis simplex | Parasitic fish worm | Unassigned | Food Animal | Anisakis Ani s 8 SXP/RAL-2 family protein 2 | IgE but no biological test | 150 | BAF75711.1 | 155676696 | 9 |
| Anisakis simplex | Parasitic fish worm | Unassigned | Food Animal | Anisakis Ani s 8 SXP/RAL-2 family protein 2 | IgE but no biological test | 150 | BAF75712.1 | 155676698 | 9 |
| Anisakis simplex | Parasitic fish worm | Ani s 9.0101 | Food Animal | Anisakis Ani s 9 | IgE but no biological test | 147 | ABV55106.1 | 157418806 | 9 |
| Anisakis simplex | Parasitic fish worm | Unassigned | Food Animal | Anisakis simplex troponin-like | IgE but no biological test | 161 | CAB58171.1 | 6065738 | 7 |
| Anthoxanthum odoratum | Sweet vernal grass | Unassigned | Aero Plant | Anthoxanthum Ant o 1 | IgE but no biological test | 26 | G37396 | 320607 | 7 |
| Anthoxanthum odoratum | Sweet vernal grass | Ant o 1.0101 | Aero Plant | Anthoxanthum Ant o 1 | IgE but no biological test | 32 | Q7M1X6 | 75139986 | 7 |
| Anthoxanthum odoratum | Sweet vernal grass | Unassigned | Aero Plant | Anthoxanthum Ant o 1 | IgE but no biological test | 32 | Q7M1Y0 | 75139990 | 7 |
| Apis cerana | Indian honeybee | Unassigned | Venom or Salivary | Apis Api m 1 Api d 1 Api c 1 | IgE plus basophil+ or SPT+ | 134 | A59055 | 7435005 | 7 |
| Apis cerana cerana | Indian honeybee | Api d 1 | Venom or Salivary | Apis Api m 1 Api d 1 Api c 1 | IgE plus basophil+ or SPT+ | 134 | AAK09361.1 | 12958583 | 15 |
| Apis dorsata | Giant honeybee | Unassigned | Venom or Salivary | Apis Api m 4 Mellittin | IgE but no biological test | 26 | P01502.1 | 126955 | 7 |
| Apis mellifera | Honeybee | Api m 1.0101 | Venom or Salivary | Apis Api m 1 Api d 1 Api c 1 | IgE plus basophil+ or SPT+ | 167 | P00630.3 | 24418862 | 7 |
| Apis mellifera | Honeybee | Unassigned | Venom or Salivary | Apis Api m 10 icarapin | IgE but no biological test | 223 | ABF21077.1 | 94471622 | 7 |
| Apis mellifera | Honeybee | Api m 10.0101 | Venom or Salivary | Apis Api m 10 icarapin | IgE but no biological test | 175 | ABF21078.1 | 94471624 | 7 |
| Apis mellifera | Honeybee | Api m 2.0101 | Venom or Salivary | Apis Api m 2 | IgE plus basophil+ or SPT+ | 382 | Q08169.1 | 585279 | 7 |
| Apis mellifera | Honeybee | Unassigned | Venom or Salivary | Apis Api m 3 acid phosphatase | IgE but no biological test | 388 | ACI25605.1 | 208342441 | 10 |
| Apis mellifera | Honeybee | Api m 3.0101 | Venom or Salivary | Apis Api m 3 acid phosphatase | IgE but no biological test | 388 | Q5BLV5.1 | 74835477 | 12 |
| Apis mellifera | Honeybee | Api m 4.0101 | Venom or Salivary | Apis Api m 4 Mellittin | IgE but no biological test | 70 | CAA26308.1 | 5622 | 7 |
| Apis mellifera | Honeybee | Unassigned | Venom or Salivary | Apis Api m 4 Mellittin | IgE but no biological test | 27 | MEHB2 | 69552 | 7 |
| Apis mellifera | Honeybee | Api m 5.0101 | Venom or Salivary | Apis Api m 5 dipeptidylpeptidase | IgE plus basophil+ or SPT+ | 775 | NP_001119715.1 | 187281543 | 15 |
| Apis mellifera | Honeybee | Api m 6.01 | Venom or Salivary | Apis Api m 6 | IgE but no biological test | 92 | NP_001035360.1 | 94400907 | 7 |
| Apis mellifera | Honeybee | Unassigned | Venom or Salivary | Apis Api m 6 | IgE but no biological test | 94 | ABD51779.1 | 88770352 | 10 |
| Apis mellifera | Honeybee | Api m 11.0101 | Venom or Salivary | Apis mellifera Api m 11 | IgE but no biological test | 416 | NP_001011564.1 | 58585070 | 15 |
| Apis mellifera | Honeybee | Api m 11.0201 | Venom or Salivary | Apis mellifera Api m 11 | IgE but no biological test | 423 | AAV21180.1 | 62910925 | 15 |
| Apis mellifera | Honeybee | Api m 12.0101 | Venom or Salivary | Apis mellifera Api m 12 | IgE but no biological test | 1770 | CAD56944.1 | 29329817 | 15 |
| Apis mellifera carnica | Honeybee | Unassigned | Venom or Salivary | Apis Api m 10 icarapin | IgE but no biological test | 12 | AHM25038.1 | 594708629 | 16 |
| Apis mellifera carnica | Honeybee | Unassigned | Venom or Salivary | Apis Api m 10 icarapin | IgE but no biological test | 19 | AHM25037.1 | 594708627 | 16 |
| Apis mellifera carnica | Honeybee | Unassigned | Venom or Salivary | Apis Api m 10 icarapin | IgE but no biological test | 25 | AHM25036.1 | 594708625 | 16 |
| Apis mellifera carnica | Honeybee | Unassigned | Venom or Salivary | Apis Api m 10 icarapin | IgE but no biological test | 41 | AHM25035.1 | 594708623 | 16 |
| Apium graveolens | Celery | Api g 1.0101 | Food Plant | Apium Api g 1 | IgE plus basophil+ or SPT+ | 154 | P49372.1 | 1346568 | 7 |
| Apium graveolens | Celery | Api g 1.0201 | Food Plant | Apium Api g 1 | IgE plus basophil+ or SPT+ | 159 | P92918.1 | 14423646 | 9 |
| Apium graveolens | Celery | Api g 2.0101 | Food Plant | Apium Api g 2 | IgE plus basophil+ or SPT+ | 118 | ACV04796.1 | 256600126 | 12 |
| Apium graveolens | Celery | Api g 4.0101 | Food Plant | Apium Api g 4 | IgE plus basophil+ or SPT+ | 134 | AAD29409.1 | 4761578 | 7 |
| Apium graveolens | Celery | Api g 5.0101 | Food Plant | Apium Api g 5 | IgE but no biological test | 86 | P81943.3 | 33300920 | 10 |
| Apium graveolens Rapaceum Gro | Celery | Api g 6.0101 | Food Plant | Apium graveolens Api g 6 LTP 2 | IgE but no biological test | 67 | P86809.1 | 550540827 | 15 |
| Arachis hypogaea | Peanut | Unassigned | Food Plant | Arachis Agglutinin (lectin) | IgE but no biological test | 273 | AAB22817.1 | 253289 | 7 |
| Arachis hypogaea | Peanut | Ara h 1 | Food Plant | Arachis Ara h 1 | IgE plus basophil+ or SPT+ | 614 | P43237.1 | 1168390 | 7 |
| Arachis hypogaea | Peanut | Ara h 1.0101 | Food Plant | Arachis Ara h 1 | IgE plus basophil+ or SPT+ | 626 | P43238.1 | 1168391 | 7 |
| Arachis hypogaea | Peanut | Unassigned | Food Plant | Arachis Ara h 1 | IgE plus basophil+ or SPT+ | 299 | AAT00595.1 | 46560474 | 7 |
| Arachis hypogaea | Peanut | Unassigned | Food Plant | Arachis Ara h 1 | IgE plus basophil+ or SPT+ | 303 | AAT00594.1 | 46560472 | 7 |
| Arachis hypogaea | Peanut | Unassigned | Food Plant | Arachis Ara h 1 | IgE plus basophil+ or SPT+ | 428 | AAT00596.1 | 46560476 | 7 |
| Arachis hypogaea | Peanut | Unassigned | Food Plant | Arachis Ara h 1 | IgE plus basophil+ or SPT+ | 619 | ADQ53858.1 | 312233063 | 12 |
| Arachis hypogaea | Peanut | Unassigned | Food Plant | Arachis Ara h 1 | IgE plus basophil+ or SPT+ | 418 | 35MH_A | 375332427 | 13 |
| Arachis hypogaea | Peanut | Unassigned | Food Plant | Arachis Ara h 1 | IgE plus basophil+ or SPT+ | 418 | 357E_A | 347447588 | 13 |
| Arachis hypogaea | Peanut | Ara h 12.0101 | Food Plant | Arachis Ara h 12 | IgE but no biological test | 71 | B3EWP3.1 | 1018736824 | 17 |
| Arachis hypogaea | Peanut | Ara h 13.0102 | Food Plant | Arachis Ara h 13 defensin | IgE but no biological test | 72 | COHJ21.1 | 1018736837 | 17 |
| Arachis hypogaea | Peanut | Ara h 13.0101 | Food Plant | Arachis Ara h 13 defensin | IgE but no biological test | 79 | B3EWP4.1 | 1018736830 | 17 |
| Arachis hypogaea | Peanut | Ara h 2.0201 | Food Plant | Arachis Ara h 2 | IgE plus basophil+ or SPT+ | 172 | AAN77576.1 | 26245447 | 7 |
| Arachis hypogaea | Peanut | Ara a 2 | Food Plant | Arachis Ara h 2 | IgE plus basophil+ or SPT+ | 169 | AAM78596.1 | 31322017 | 7 |
| Arachis hypogaea | Peanut | Ara h 2.0101 | Food Plant | Arachis Ara h 2 | IgE plus basophil+ or SPT+ | 156 | AAK96887.1 | 15418705 | 10 |
| Arachis hypogaea | Peanut | Unassigned | Food Plant | Arachis Ara h 2 | IgE plus basophil+ or SPT+ | 158 | ACN62248.1 | 224747150 | 10 |
| Arachis hypogaea | Peanut | Ara h 3.0101 | Food Plant | Arachis Ara h 3 Glycinin | IgE plus basophil+ or SPT+ | 507 | AAC63045.1 | 3703107 | 7 |
| Arachis hypogaea | Peanut | Ara h 3.0201 | Food Plant | Arachis Ara h 3 Glycinin | IgE plus basophil+ or SPT+ | 530 | AAD47382.1 | 5712199 | 7 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stA Version |
|--------------------------|----------------------|----------------|-------------------|-------------------------------------|----------------------------|--------|------------|------------|--------------|
| Arachis hypogaea | Peanut | Unassigned | Food Plant | Arachis Ara h 3 Glycinin | IgE plus basophil+ or SPT+ | 538 | AAM46958.1 | 21314465 | 7 |
| Arachis hypogaea | Peanut | Unassigned | Food Plant | Arachis Ara h 3 Glycinin | IgE plus basophil+ or SPT+ | 219 | AAM93157.1 | 22135348 | 7 |
| Arachis hypogaea | Peanut | Unassigned | Food Plant | Arachis Ara h 3 Glycinin | IgE plus basophil+ or SPT+ | 512 | ABI17154.1 | 112380623 | 8 |
| Arachis hypogaea | Peanut | Unassigned | Food Plant | Arachis Ara h 3 Glycinin | IgE plus basophil+ or SPT+ | 530 | ACH91862.1 | 199732457 | 10 |
| Arachis hypogaea | Peanut | Unassigned | Food Plant | Arachis Ara h 3 Glycinin | IgE plus basophil+ or SPT+ | 510 | 3C3V_A | 224036293 | 10 |
| Arachis hypogaea | Peanut | Unassigned | Food Plant | Arachis Ara h 3 Glycinin | IgE plus basophil+ or SPT+ | 512 | ADQ53859.1 | 312233065 | 12 |
| Arachis hypogaea | Peanut | Ara h 5.0101 | Food Plant | Arachis Ara h 5 | IgE plus basophil+ or SPT+ | 131 | AAD55587.1 | 5902968 | 7 |
| Arachis hypogaea | Peanut | Unassigned | Food Plant | Arachis Ara h 5 | IgE plus basophil+ or SPT+ | 131 | ADB96066.1 | 284810529 | 11 |
| Arachis hypogaea | Peanut | Unassigned | Food Plant | Arachis Ara h 5 | IgE plus basophil+ or SPT+ | 131 | AGA84056.1 | 431812555 | 14 |
| Arachis hypogaea | Peanut | Ara h 6.0101 | Food Plant | Arachis Ara h 6 | IgE plus basophil+ or SPT+ | 129 | AAD56337.1 | 5923742 | 7 |
| Arachis hypogaea | Peanut | Unassigned | Food Plant | Arachis Ara h 6 | IgE plus basophil+ or SPT+ | 144 | AAL37561.1 | 17225991 | 7 |
| Arachis hypogaea | Peanut | Unassigned | Food Plant | Arachis Ara h 6 | IgE plus basophil+ or SPT+ | 127 | 1W2Q_A | 159163254 | 9 |
| Arachis hypogaea | Peanut | Unassigned | Food Plant | Arachis Ara h 6 | IgE plus basophil+ or SPT+ | 145 | Q647G9.1 | 75114094 | 10 |
| Arachis hypogaea | Peanut | Ara h 7.0201 | Food Plant | Arachis Ara h 7 | IgE but no biological test | 164 | ABW17159.1 | 158121995 | 10 |
| Arachis hypogaea | Peanut | Ara h 8.0101 | Food Plant | Arachis Ara h 8 | IgE plus basophil+ or SPT+ | 157 | AAQ91847.1 | 37499626 | 7 |
| Arachis hypogaea | Peanut | Ara h 8.0201 | Food Plant | Arachis Ara h 8 | IgE plus basophil+ or SPT+ | 153 | ABP97433.1 | 145904610 | 9 |
| Arachis hypogaea | Peanut | Unassigned | Food Plant | Arachis Ara h 8 | IgE plus basophil+ or SPT+ | 157 | ACA79908.1 | 169786740 | 9 |
| Arachis hypogaea | Peanut | Unassigned | Food Plant | Arachis Ara h 8 | IgE plus basophil+ or SPT+ | 157 | ABG85155.1 | 110676574 | 12 |
| Arachis hypogaea | Peanut | Ara h 9.0101 | Food Plant | Arachis Ara h 9 LTP isoallergens | IgE but no biological test | 116 | ABX56711.1 | 161087230 | 10 |
| Arachis hypogaea | Peanut | Ara h 9.0201 | Food Plant | Arachis Ara h 9 LTP isoallergens | IgE but no biological test | 92 | ABX75045.1 | 161610580 | 10 |
| Arachis hypogaea | Peanut | Ara h 10.0101 | Food Plant | Arachis hypogaea Ara h 10 | IgE but no biological test | 169 | AAU21499.2 | 113200509 | 15 |
| Arachis hypogaea | Peanut | Ara h 10.0102 | Food Plant | Arachis hypogaea Ara h 10 | IgE but no biological test | 150 | AAU21500.1 | 52001239 | 15 |
| Arachis hypogaea | Peanut | Ara h 11.0101 | Food Plant | Arachis hypogaea Ara h 11 | IgE but no biological test | 137 | AAZ20276.1 | 71040655 | 15 |
| Arachis hypogaea | Peanut | Ara h 11.0102 | Food Plant | Arachis hypogaea Ara h 11 | IgE but no biological test | 137 | Q45W86 | 122218540 | 16 |
| Arachis hypogaea | Peanut | Ara h 15.0101 | Food Plant | Arachis hypogaea oleosin Ara h 15 | IgE plus basophil+ or SPT+ | 166 | AAU21501.1 | 52001241 | 15 |
| Argas reflexus | European pigeon tick | Arg r 1.0101 | Venom or Salivary | Argas Arg r 1 | IgE plus basophil+ or SPT+ | 159 | CAG26895.1 | 58371884 | 7 |
| Argas reflexus | European pigeon tick | Unassigned | Venom or Salivary | Argas Arg r 1 | IgE plus basophil+ or SPT+ | 144 | 2X45_A | 322812205 | 12 |
| Artemisia absinthium | | Unassigned | Aero Plant | Artemisia vulgaris like Art v 1 | IgE but no biological test | 108 | AHF71021.1 | 573005946 | 17 |
| Artemisia annua | | Unassigned | Aero Plant | Art an 7 putative galactose oxidase | IgE but no biological test | 594 | ARQ16437.1 | 1190354092 | 19 |
| Artemisia annua | | Unassigned | Aero Plant | Artemisia vulgaris like Art v 1 | IgE but no biological test | 132 | ANC85007.1 | 1026259951 | 18 |
| Artemisia annua | | Unassigned | Aero Plant | Artemisia vulgaris like Art v 1 | IgE but no biological test | 132 | ANC85006.1 | 1026259949 | 18 |
| Artemisia argyi | | Unassigned | Aero Plant | Art an 7 putative galactose oxidase | IgE but no biological test | 594 | ARQ16438.1 | 1190354094 | 19 |
| Artemisia capillaris | | Unassigned | Aero Plant | Art an 7 putative galactose oxidase | IgE but no biological test | 594 | ARQ16439.1 | 1190354096 | 19 |
| Artemisia capillaris | | Unassigned | Aero Plant | Art v 1 homologues | IgE but no biological test | 132 | ANC85010.1 | 1026259957 | 18 |
| Artemisia capillaris | | Unassigned | Aero Plant | Art v 2 homologues | IgE but no biological test | 163 | AVD29824.1 | 1343071174 | 19 |
| Artemisia gmelinii | | Unassigned | Aero Plant | Art an 7 putative galactose oxidase | IgE but no biological test | 594 | ARQ16440.1 | 1190354098 | 19 |
| Artemisia gmelinii | | Unassigned | Aero Plant | Art v 1 homologues | IgE but no biological test | 132 | ANC85012.1 | 1026259961 | 18 |
| Artemisia gmelinii | | Unassigned | Aero Plant | Art v 1 homologues | IgE but no biological test | 132 | ANC85011.1 | 1026259959 | 18 |
| Artemisia gmelinii | | Unassigned | Aero Plant | Art v 2 homologues | IgE but no biological test | 163 | AVD29825.1 | 1343071177 | 19 |
| Artemisia lavandulifolia | | Unassigned | Aero Plant | Art an 7 putative galactose oxidase | IgE but no biological test | 594 | ARQ16441.1 | 1190354100 | 19 |
| Artemisia lavandulifolia | | Unassigned | Aero Plant | Art v 1 homologues | IgE but no biological test | 132 | ANC85014.1 | 1026259965 | 18 |
| Artemisia lavandulifolia | | Unassigned | Aero Plant | Art v 1 homologues | IgE but no biological test | 132 | ANC85013.1 | 1026259963 | 18 |
| Artemisia lavandulifolia | | Unassigned | Aero Plant | Art v 2 homologues | IgE but no biological test | 163 | AVD29826.1 | 1343071179 | 19 |
| Artemisia ludoviciana | | Unassigned | Aero Plant | Artemisia vulgaris like Art v 1 | IgE but no biological test | 108 | AHF71025.1 | 573005954 | 17 |
| Artemisia sieversiana | | Unassigned | Aero Plant | Art an 7 putative galactose oxidase | IgE but no biological test | 595 | ARQ16442.1 | 1190354102 | 19 |
| Artemisia sieversiana | | Unassigned | Aero Plant | Art v 1 homologues | IgE but no biological test | 132 | ANC85016.1 | 1026259969 | 18 |
| Artemisia sieversiana | | Unassigned | Aero Plant | Art v 2 homologues | IgE but no biological test | 163 | AVD29827.1 | 1343071181 | 19 |
| Artemisia tridentata | | Unassigned | Aero Plant | Artemisia vulgaris like Art v 1 | IgE but no biological test | 108 | AHF71026.1 | 573005956 | 17 |
| Artemisia vulgaris | Mugwort | Unassigned | Aero Plant | Art an 7 putative galactose oxidase | IgE but no biological test | 594 | ARQ16443.1 | 1190354104 | 19 |
| Artemisia vulgaris | Mugwort | Unassigned | Aero Plant | Art v 2 homologues | IgE but no biological test | 163 | AVD29828.1 | 1343071183 | 19 |
| Artemisia vulgaris | Mugwort | Art v 1.0101 | Aero Plant | Artemisia Art v 1 | IgE plus basophil+ or SPT+ | 132 | AAO24900.1 | 27818335 | 7 |
| Artemisia vulgaris | Mugwort | Art v 2.0101 | Aero Plant | Artemisia Art v 2 | IgE but no biological test | 162 | CAK50834.1 | 148887203 | 9 |
| Artemisia vulgaris | Mugwort | Art v 3.0101 | Aero Plant | Artemisia Art v 3 | IgE plus basophil+ or SPT+ | 37 | POC088.1 | 73621307 | 7 |

| Species | Common | IUIS4 Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stÅ Version |
|-----------------------------|---------------------|----------------|-----------------|---|----------------------------|--------|------------|------------|--------------|
| Artemisia vulgaris | Mugwort | Art v 3.0201 | Aero Plant | Artemisia Art v 3 | IgE plus basophil+ or SPT+ | 114 | ACE07186.1 | 189544578 | 11 |
| Artemisia vulgaris | Mugwort | Art v 3.0202 | Aero Plant | Artemisia Art v 3 | IgE plus basophil+ or SPT+ | 116 | ACE07187.1 | 189544584 | 11 |
| Artemisia vulgaris | Mugwort | Art v 3.0301 | Aero Plant | Artemisia Art v 3 | IgE plus basophil+ or SPT+ | 117 | ACE07188.1 | 189544590 | 11 |
| Artemisia vulgaris | Mugwort | Unassigned | Aero Plant | Artemisia Art v 3 | IgE plus basophil+ or SPT+ | 117 | ACE07189.1 | 189544595 | 11 |
| Artemisia vulgaris | Mugwort | Unassigned | Aero Plant | Artemisia Art v 3 | IgE plus basophil+ or SPT+ | 92 | 6FRR_A | 1595430506 | 20 |
| Artemisia vulgaris | Mugwort | Art v 4.0101 | Aero Plant | Artemisia Art v 4 | IgE but no biological test | 133 | CAD12861.1 | 25955969 | 15 |
| Artemisia vulgaris | Mugwort | Art v 4.0201 | Aero Plant | Artemisia Art v 4 | IgE but no biological test | 133 | CAD12862.1 | 25955971 | 15 |
| Artemisia vulgaris | Mugwort | Unassigned | Aero Plant | Artemisia Art v 4 | IgE but no biological test | 135 | 5EMO_A | 1035439202 | 18 |
| Artemisia vulgaris | Mugwort | Unassigned | Aero Plant | Artemisia Art v 4 | IgE but no biological test | 136 | 6B6I_A | 1486941866 | 20 |
| Artemisia vulgaris | Mugwort | Art v 6.0101 | Aero Plant | Artemisia Art v 6 pectate lyase | IgE but no biological test | 396 | AAX85388.1 | 62530263 | 8 |
| Artemisia vulgaris | Mugwort | Art v 5.0101 | Aero Plant | Artemisia mugwort Art v 5 | IgE plus basophil+ or SPT+ | 82 | AAX85389.1 | 62530265 | 15 |
| Arthroderma benhamiae | Fungus | Unassigned | Contact | Trichophyton (Arthroderma) Tri m 4 | IgE plus basophil+ or SPT+ | 726 | CAD23611.1 | 23894232 | 7 |
| Arthroderma benhamiae | Fungus | Unassigned | Contact | Trichophyton (Arthroderma) Tri r 2 | IgE plus basophil+ or SPT+ | 292 | CAD23613.1 | 23894240 | 7 |
| Arthroderma benhamiae | Fungus | Unassigned | Contact | Trichophyton (Arthroderma) Tri r 2 | IgE plus basophil+ or SPT+ | 404 | CAD23614.1 | 23894244 | 7 |
| Arthroderma vanbreuseghemii | Fungus | Unassigned | Contact | Trichophyton (Arthroderma) Tri m 4 | IgE plus basophil+ or SPT+ | 726 | BAH09387.1 | 219687753 | 10 |
| Ascaris lumbricoides | Parasitic roundworm | Unassigned | Worm (parasite) | Ascaris Asc s 1 | IgE but no biological test | 134 | AAD13644.1 | 2735096 | 7 |
| Ascaris lumbricoides | Parasitic roundworm | Unassigned | Worm (parasite) | Ascaris Asc s 1 | IgE but no biological test | 134 | AAD13645.1 | 2735098 | 7 |
| Ascaris lumbricoides | Parasitic roundworm | Unassigned | Worm (parasite) | Ascaris Asc s 1 | IgE but no biological test | 133 | AAD13647.1 | 2735102 | 7 |
| Ascaris lumbricoides | Parasitic roundworm | Unassigned | Worm (parasite) | Ascaris Asc s 1 | IgE but no biological test | 133 | AAD13649.1 | 2735106 | 7 |
| Ascaris lumbricoides | Parasitic roundworm | Unassigned | Worm (parasite) | Ascaris Asc s 1 | IgE but no biological test | 267 | AAD13650.1 | 2735108 | 7 |
| Ascaris lumbricoides | Parasitic roundworm | Unassigned | Worm (parasite) | Ascaris Asc s 1 | IgE but no biological test | 267 | AAD13651.1 | 2735110 | 7 |
| Ascaris lumbricoides | Parasitic roundworm | Unassigned | Worm (parasite) | Ascaris Asc s 1 | IgE but no biological test | 267 | AAD13652.1 | 2735112 | 7 |
| Ascaris lumbricoides | Parasitic roundworm | Unassigned | Worm (parasite) | Ascaris Asc s 1 | IgE but no biological test | 134 | AAB93837.1 | 2735114 | 7 |
| Ascaris lumbricoides | Parasitic roundworm | Unassigned | Worm (parasite) | Ascaris Asc s 1 | IgE but no biological test | 134 | AAB93839.1 | 2735118 | 7 |
| Ascaris lumbricoides | Parasitic roundworm | Unassigned | Worm (parasite) | Ascaris Asc s 1 | IgE but no biological test | 134 | AAD13646.1 | 2735100 | 7 |
| Ascaris lumbricoides | Parasitic roundworm | Asc s 3.0101 | Worm (parasite) | Ascaris tropomyosin Asc l 3 | IgE but no biological test | 287 | ACN32322.1 | 224016002 | 10 |
| Ascaris suum | Parasitic roundworm | Asc s 1 | Worm (parasite) | Ascaris Asc s 1 | IgE but no biological test | 68 | AAB26195.1 | 299550 | 7 |
| Ascaris suum | Parasitic roundworm | Asc s 1.0101 | Worm (parasite) | Ascaris Asc s 1 | IgE but no biological test | 1365 | Q06811.2 | 77416849 | 7 |
| Ascaris suum | Parasitic roundworm | Unassigned | Worm (parasite) | Ascaris Asc s 1 | IgE but no biological test | 134 | 2XV9_A | 343197079 | 12 |
| Ascaris suum | Parasitic roundworm | Asc s 13.0101 | Worm (parasite) | Ascaris lumbricoides/suum Glutathione S-transfera | IgE plus basophil+ or SPT+ | 206 | P46436.3 | 1170109 | 15 |
| Aspergillus flavus | Fungus | Unassigned | Aero Fungi | Aspergillus Oryzin Asp o 13, fl 13 | IgE but no biological test | 403 | Q9UVU3 | 74665726 | 7 |
| Aspergillus fumigatus | Fungus | Asp f 1 | Aero Fungi | Aspergillus Asp f 1 | IgE plus basophil+ or SPT+ | 125 | CAA06305.1 | 3021324 | 7 |
| Aspergillus fumigatus | Fungus | Asp f 1 | Aero Fungi | Aspergillus Asp f 1 | IgE plus basophil+ or SPT+ | 150 | AAF86369.1 | 9280360 | 7 |
| Aspergillus fumigatus | Fungus | Unassigned | Aero Fungi | Aspergillus Asp f 1 | IgE plus basophil+ or SPT+ | 176 | P67875.1 | 54039254 | 7 |
| Aspergillus fumigatus | Fungus | Asp f 10.0101 | Aero Fungi | Aspergillus Asp f 10 | IgE but no biological test | 395 | CAA59419.1 | 963013 | 7 |
| Aspergillus fumigatus | Fungus | Asp f 11.0101 | Aero Fungi | Aspergillus Asp f 11 | IgE plus basophil+ or SPT+ | 178 | CAB44442.1 | 5019414 | 7 |
| Aspergillus fumigatus | Fungus | Asp f 18.0101 | Aero Fungi | Aspergillus Asp f 18 and Asp n 18 | IgE but no biological test | 495 | CAA73782.1 | 2143220 | 7 |
| Aspergillus fumigatus | Fungus | Asp f 2 | Aero Fungi | Aspergillus Asp f 2 | IgE but no biological test | 250 | AAB07620.1 | 664852 | 7 |
| Aspergillus fumigatus | Fungus | Asp f 2.0101 | Aero Fungi | Aspergillus Asp f 2 | IgE but no biological test | 310 | P79017.2 | 83300352 | 7 |
| Aspergillus fumigatus | Fungus | Asp f 22.0101 | Aero Fungi | Aspergillus Asp f 22 | IgE but no biological test | 438 | AAK49451.1 | 13925873 | 7 |
| Aspergillus fumigatus | Fungus | Unassigned | Aero Fungi | Aspergillus Asp f 22 | IgE but no biological test | 438 | Q96X30.3 | 83288046 | 7 |
| Aspergillus fumigatus | Fungus | Asp f 23.0101 | Aero Fungi | Aspergillus Asp f 23 | IgE but no biological test | 392 | AAM43909.1 | 21215170 | 7 |
| Aspergillus fumigatus | Fungus | Unassigned | Aero Fungi | Aspergillus Asp f 23 | IgE but no biological test | 392 | Q8NKF4.2 | 83305621 | 7 |
| Aspergillus fumigatus | Fungus | Asp f 27.0101 | Aero Fungi | Aspergillus Asp f 27 | IgE but no biological test | 163 | CAI78448.1 | 91680605 | 7 |
| Aspergillus fumigatus | Fungus | Asp f 28.0101 | Aero Fungi | Aspergillus Asp f 28 | IgE but no biological test | 108 | CAI78449.1 | 91680607 | 7 |
| Aspergillus fumigatus | Fungus | Asp f 29.0101 | Aero Fungi | Aspergillus Asp f 29 | IgE but no biological test | 110 | CAI78450.1 | 91680609 | 7 |
| Aspergillus fumigatus | Fungus | Asp f 3.0101 | Aero Fungi | Aspergillus Asp f 3 | IgE plus basophil+ or SPT+ | 168 | AAB95638.1 | 2769700 | 7 |
| Aspergillus fumigatus | Fungus | Asp f 34.0101 | Aero Fungi | Aspergillus Asp f 34 | IgE plus basophil+ or SPT+ | 185 | CAM54066.1 | 133920236 | 8 |
| Aspergillus fumigatus | Fungus | Asp f 4.0101 | Aero Fungi | Aspergillus Asp f 4 | IgE plus basophil+ or SPT+ | 286 | CAA04959.1 | 3005839 | 7 |
| Aspergillus fumigatus | Fungus | Unassigned | Aero Fungi | Aspergillus Asp f 4 | IgE plus basophil+ or SPT+ | 322 | O60024.2 | 83300369 | 7 |
| Aspergillus fumigatus | Fungus | Asp f 5.0101 | Aero Fungi | Aspergillus Asp f 5 | IgE but no biological test | 634 | CAA83015.1 | 3776613 | 7 |
| Aspergillus fumigatus | Fungus | Unassigned | Aero Fungi | Aspergillus Asp f 5 | IgE but no biological test | 634 | P46075.3 | 85541646 | 11 |

| Species | Common | IUIS4 Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stÅ Version |
|-----------------------------------|-----------------------|-----------------|-----------------|--|----------------------------|--------|------------|------------|--------------|
| Aspergillus fumigatus | Fungus | Asp f 6.0101 | Aero Fungi | Aspergillus Asp f 6 | IgE plus basophil+ or SPT+ | 221 | AAB60779.1 | 1648970 | 7 |
| Aspergillus fumigatus | Fungus | Unassigned | Aero Fungi | Aspergillus Asp f 6 | IgE plus basophil+ or SPT+ | 210 | Q92450.3 | 83305645 | 7 |
| Aspergillus fumigatus | Fungus | Asp f 7.0101 | Aero Fungi | Aspergillus Asp f 7 | IgE but no biological test | 270 | Q42799.2 | 83300389 | 7 |
| Aspergillus fumigatus | Fungus | Asp f 8.0101 | Aero Fungi | Aspergillus Asp f 8 | IgE plus basophil+ or SPT+ | 111 | CAB64688.1 | 6686524 | 7 |
| Aspergillus fumigatus | Fungus | Unassigned | Aero Fungi | Aspergillus Asp f 8 | IgE plus basophil+ or SPT+ | 111 | Q9UUZ6.2 | 83305635 | 7 |
| Aspergillus fumigatus | Fungus | Asp f 9.0101 | Aero Fungi | Aspergillus Asp f 9 | IgE but no biological test | 302 | CAA11266.1 | 2879890 | 7 |
| Aspergillus fumigatus | Fungus | Unassigned | Aero Fungi | Aspergillus Endo-chitosanase | IgE but no biological test | 238 | Q87519.1 | 74629604 | 16 |
| Aspergillus fumigatus | Fungus | Unassigned | Aero Fungi | Aspergillus fumigatus Asp f 13 | IgE but no biological test | 403 | CAA7666.1 | 2295 | 15 |
| Aspergillus fumigatus | Fungus | Unassigned | Aero Fungi | Aspergillus fumigatus Asp f 13 | IgE but no biological test | 341 | CAA75805.1 | 3549630 | 16 |
| Aspergillus fumigatus AF293 | Fungus | Unassigned | Aero Fungi | Aspergillus Asp f 2 | IgE but no biological test | 304 | EAL89830.1 | 66849502 | 7 |
| Aspergillus fumigatus AF293 | Fungus | Unassigned | Aero Fungi | Aspergillus Endo-chitosanase | IgE but no biological test | 242 | Q4WB37.1 | 74666748 | 16 |
| Aspergillus fumigatus var. RP-201 | Fungus | Unassigned | Aero Fungi | Aspergillus Asp f 4 | IgE plus basophil+ or SPT+ | 322 | KEY81716.1 | 666431194 | 16 |
| Aspergillus fumigatus var. RP-201 | Fungus | Unassigned | Aero Fungi | Aspergillus Asp f 7 | IgE but no biological test | 270 | KEY78748.1 | 666431137 | 16 |
| Aspergillus niger | Fungus | Unassigned | Aero Fungi | Aspergillus Asp f 18 and Asp n 18 | IgE but no biological test | 533 | AAA32702.1 | 289172 | 7 |
| Aspergillus niger | Fungus | Asp n 14 | Aero Fungi | Aspergillus Asp n 14 | IgE but no biological test | 804 | CAB06417.1 | 2181180 | 7 |
| Aspergillus niger | Fungus | Asp n 14.0101 | Aero Fungi | Aspergillus Asp n 14 | IgE but no biological test | 804 | AAD13106.1 | 4235093 | 7 |
| Aspergillus oryzae | Fungus | Asp o 21 | Aero Fungi | Aspergillus Asp o 21 | IgE plus basophil+ or SPT+ | 499 | POC183.1 | 94706935 | 7 |
| Aspergillus oryzae | Fungus | Asp o 21.0101 | Aero Fungi | Aspergillus Asp o 21 | IgE plus basophil+ or SPT+ | 499 | AAA32708.1 | 166531 | 15 |
| Aspergillus oryzae | Fungus | Asp f o 13.0101 | Aero Fungi | Aspergillus Oryzin Asp o 13, fl 13 | IgE but no biological test | 403 | P12547.2 | 129235 | 7 |
| Aspergillus versicolor | Fungus | Asp v 13.0101 | Aero Fungi | Aspergillus versicolor serine protease | IgE but no biological test | 403 | ADE74975.1 | 294441150 | 16 |
| Bacillus lentus | Bacteria | Unassigned | Bacteria airway | Bacillus lentus subtilisin | IgE but no biological test | 269 | P29600.1 | 267048 | 9 |
| Bacillus licheniformis | Bacteria | Unassigned | Bacteria airway | Bacillus licheniformis subtilisin | IgE plus basophil+ or SPT+ | 379 | P00780.1 | 135016 | 9 |
| Bacillus licheniformis | Bacteria | Unassigned | Bacteria airway | Bacillus licheniformis subtilisin | IgE plus basophil+ or SPT+ | 374 | AAG31026.1 | 11127680 | 9 |
| Bacillus sp. | Bacteria | Unassigned | Bacteria airway | Bacillus lentus Esperase | IgE but no biological test | 361 | BAA05540.1 | 1225905 | 9 |
| Balanus rostratus | Crustacean | Unassigned | Food Animal | Balanus r tropomyosin | IgE but no biological test | 284 | BAF46896.1 | 125659386 | 9 |
| Bassia scoparia | summer cypress | Koc s 1.0101 | Aero Plant | Kochia scoparia Koc s 1 | IgE but no biological test | 167 | AKV72169.1 | 914410012 | 16 |
| Bassia scoparia | summer cypress | Koc s 2.0101 | Aero Plant | Kochia scoparia Koc s 2.01 | IgE but no biological test | 133 | AIV43661.1 | 701225194 | 17 |
| Batillus cornutus | Japanese turban shell | Unassigned | Food Animal | Batillus Tur c1 | IgE but no biological test | 284 | BAH10149.1 | 219806588 | 10 |
| Bertholletia excelsa | Brazil nut | Ber e 1.0101 | Food Plant | Bertholletia Ber e 1 | IgE plus basophil+ or SPT+ | 146 | P04403.2 | 112754 | 7 |
| Bertholletia excelsa | Brazil nut | Ber e 2.0101 | Food Plant | Bertholletia Ber e 2 | IgE but no biological test | 465 | AAO38859.1 | 30313867 | 7 |
| Bertholletia excelsa | Brazil nut | Unassigned | Food Plant | Bertholletia Ber e 2 | IgE but no biological test | 426 | 6B45_A | 1534918238 | 20 |
| Betula pendula | European white birch | Unassigned | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 51 | A45786 | 20545 | 7 |
| Betula pendula | European white birch | Bet v 1.0301 | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAA54696.1 | 534898 | 7 |
| Betula pendula | European white birch | Unassigned | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 159 | CAA54695.1 | 534900 | 7 |
| Betula pendula | European white birch | Unassigned | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAA54694.1 | 534910 | 7 |
| Betula pendula | European white birch | Unassigned | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAA96546.1 | 1321714 | 7 |
| Betula pendula | European white birch | Unassigned | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAA96539.1 | 1321716 | 7 |
| Betula pendula | European white birch | Unassigned | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAA96540.1 | 1321718 | 7 |
| Betula pendula | European white birch | Bet v 1.0205 | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAA96541.1 | 1321720 | 7 |
| Betula pendula | European white birch | Unassigned | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAA96542.1 | 1321722 | 7 |
| Betula pendula | European white birch | Unassigned | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAA96543.1 | 1321724 | 7 |
| Betula pendula | European white birch | Unassigned | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAA96544.1 | 1321726 | 7 |
| Betula pendula | European white birch | Bet v 1.0115 | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAA96547.1 | 1321728 | 7 |
| Betula pendula | European white birch | Unassigned | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | P43186.2 | 1168710 | 7 |
| Betula pendula | European white birch | Bet v 1.0108 | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAB02155.1 | 1542861 | 7 |
| Betula pendula | European white birch | Bet v 1.0109 | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAB02156.1 | 1542863 | 7 |
| Betula pendula | European white birch | Bet v 1.0110 | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAB02157.1 | 1542865 | 7 |
| Betula pendula | European white birch | Bet v 1.0111 | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAB02158.1 | 1542867 | 7 |
| Betula pendula | European white birch | Bet v 1.0117 | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAB02159.1 | 1542869 | 7 |
| Betula pendula | European white birch | Bet v 1.0113 | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAB02160.1 | 1542871 | 7 |
| Betula pendula | European white birch | Bet v 1.0114 | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAB02161.1 | 1542873 | 7 |
| Betula pendula | European white birch | Unassigned | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAA96545.1 | 2414158 | 7 |
| Betula pendula | European white birch | Unassigned | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAA05186.1 | 2564220 | 7 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stA Version |
|----------------|----------------------|----------------|------------|-----------------|----------------------------|--------|------------|-----------|--------------|
| Betula pendula | European white birch | | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAA05187.1 | 2564222 | 7 |
| Betula pendula | European white birch | | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAA05188.1 | 2564224 | 7 |
| Betula pendula | European white birch | | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAA05190.1 | 2564228 | 7 |
| Betula pendula | European white birch | | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAA07318.1 | 4006928 | 7 |
| Betula pendula | European white birch | | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAA07319.1 | 4006945 | 7 |
| Betula pendula | European white birch | Bet v 1.0117 | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAA07323.1 | 4006953 | 7 |
| Betula pendula | European white birch | | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAA07324.1 | 4006955 | 7 |
| Betula pendula | European white birch | | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAA07325.1 | 4006957 | 7 |
| Betula pendula | European white birch | | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAA07326.1 | 4006959 | 7 |
| Betula pendula | European white birch | | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAA07327.1 | 4006961 | 7 |
| Betula pendula | European white birch | Bet v 1.0118 | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAA07329.1 | 4006965 | 7 |
| Betula pendula | European white birch | | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAA07330.1 | 4006967 | 7 |
| Betula pendula | European white birch | | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 159 | CAA04823.1 | 4376216 | 7 |
| Betula pendula | European white birch | | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 159 | CAA04826.1 | 4376219 | 7 |
| Betula pendula | European white birch | Bet v 1.0116 | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 159 | CAA04827.1 | 4376220 | 7 |
| Betula pendula | European white birch | Bet v 1.0206 | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 159 | CAA04828.1 | 4376221 | 7 |
| Betula pendula | European white birch | | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 159 | CAA04829.1 | 4376222 | 7 |
| Betula pendula | European white birch | | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | AAD26560.1 | 4590392 | 7 |
| Betula pendula | European white birch | | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | AAD26561.1 | 4590394 | 7 |
| Betula pendula | European white birch | | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | AAD26562.1 | 4590396 | 7 |
| Betula pendula | European white birch | | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | P43180.2 | 1168706 | 7 |
| Betula pendula | European white birch | | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 159 | 1QMR_A | 11514622 | 7 |
| Betula pendula | European white birch | | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 21 | AAP37482.1 | 30908931 | 7 |
| Betula pendula | European white birch | | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 159 | 1LLT_A | 38492423 | 7 |
| Betula pendula | European white birch | Unassigned | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 43 | AAB20452.1 | 239734 | 7 |
| Betula pendula | European white birch | Unassigned | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 120 | CAA07328.1 | 4006963 | 7 |
| Betula pendula | European white birch | Unassigned | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 120 | CAA07320.1 | 4006947 | 7 |
| Betula pendula | European white birch | Bet v 1.0203 | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAAS4488.1 | 452742 | 8 |
| Betula pendula | European white birch | Bet v 1.0207 | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 150 | ABC41592.1 | 83722317 | 8 |
| Betula pendula | European white birch | Bet v 1.0119 | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 150 | ABC41615.1 | 83722364 | 8 |
| Betula pendula | European white birch | | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 159 | 1B6F_A | 159162097 | 9 |
| Betula pendula | European white birch | Unassigned | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 159 | 4BK7_A | 560188693 | 15 |
| Betula pendula | European white birch | Unassigned | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 159 | 4B9R_A | 550544347 | 15 |
| Betula pendula | European white birch | Unassigned | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | 4BKC_A | 565807648 | 15 |
| Betula pendula | European white birch | Unassigned | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 159 | 4BKD_A | 560188694 | 15 |
| Betula pendula | European white birch | Unassigned | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 159 | 4BK6_B | 560188692 | 15 |
| Betula pendula | European white birch | Bet v 1.0101 | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAA33887.1 | 17938 | 15 |
| Betula pendula | European white birch | Bet v 1.0102 | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAAS4482.1 | 452732 | 15 |
| Betula pendula | European white birch | Bet v 1.0103 | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAAS4483.1 | 452734 | 15 |
| Betula pendula | European white birch | Bet v 1.0104 | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAAS4484.1 | 452736 | 15 |
| Betula pendula | European white birch | Bet v 1.0106 | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAAS4487.1 | 452740 | 15 |
| Betula pendula | European white birch | Bet v 1.0107 | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAAS4489.1 | 452744 | 15 |
| Betula pendula | European white birch | Bet v 1.0201 | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAAS4421.1 | 450885 | 15 |
| Betula pendula | European white birch | Bet v 1.0202 | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | CAAS4481.1 | 452730 | 15 |
| Betula pendula | European white birch | Unassigned | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 159 | 4BTZ_A | 661918055 | 16 |
| Betula pendula | European white birch | Unassigned | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 159 | 4Z3L_D | 955264732 | 17 |
| Betula pendula | European white birch | Unassigned | Aero Plant | Betula Bet v 1b | IgE plus basophil+ or SPT+ | 51 | B45786 | 320546 | 7 |
| Betula pendula | European white birch | Unassigned | Aero Plant | Betula Bet v 2 | IgE plus basophil+ or SPT+ | 133 | 1CQA_A | 157830684 | 9 |
| Betula pendula | European white birch | Bet v 2.0101 | Aero Plant | Betula Bet v 2 | IgE plus basophil+ or SPT+ | 133 | AAA16522.1 | 166953 | 11 |
| Betula pendula | European white birch | Unassigned | Aero Plant | Betula Bet v 2 | IgE plus basophil+ or SPT+ | 133 | A4K9Z8.1 | 576017922 | 15 |
| Betula pendula | European white birch | Bet v 3.0101 | Aero Plant | Betula Bet v 3 | IgE but no biological test | 203 | CAAS5854.1 | 488605 | 15 |
| Betula pendula | European white birch | Bet v 4.0101 | Aero Plant | Betula Bet v 4 | IgE but no biological test | 85 | CAA60628.1 | 809536 | 15 |
| Betula pendula | European white birch | Bet v 6.0102 | Aero Plant | Betula Bet v 6 | IgE but no biological test | 308 | AAG22740.1 | 10764491 | 7 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stA Version |
|---------------------|----------------------|----------------|-------------|--|----------------------------|--------|------------|------------|--------------|
| Betula pendula | European white birch | Bet v 7.0101 | Aero Plant | Betula Bet v 7 | IgE but no biological test | 173 | CAC84116.1 | 21886603 | 7 |
| Betula pendula | European white birch | Bet v 8.0101 | Aero Plant | Betula Bet v 8 glutathione S-transferase | IgE plus basophil+ or SPT+ | 237 | AHF71027.1 | 573005958 | 16 |
| Betula platyphylla | Japanese white birch | Unassigned | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | BAB21489.1 | 12583681 | 7 |
| Betula platyphylla | Japanese white birch | Unassigned | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | BAB21490.1 | 12583683 | 7 |
| Betula platyphylla | Japanese white birch | Unassigned | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 160 | BAB21491.1 | 12583685 | 7 |
| Betula sp. | Birch | Unassigned | Aero Plant | Betula Bet v 1 | IgE plus basophil+ or SPT+ | 51 | AAB25850.1 | 298736 | 7 |
| Betula sp. | Birch | Unassigned | Aero Plant | Betula Bet v 1b | IgE plus basophil+ or SPT+ | 51 | AAB25851.1 | 298737 | 7 |
| Blattella germanica | German cockroach | Unassigned | Aero Insect | Blattella chymotrypsin-like | IgE but no biological test | 252 | AJOS3282.1 | 757943154 | 16 |
| Blattella germanica | German cockroach | Unassigned | Aero Insect | Blattella 36 kDa allergen | IgE but no biological test | 20 | AAB29344.1 | 544618 | 7 |
| Blattella germanica | German cockroach | Unassigned | Aero Insect | Blattella 36 kDa allergen | IgE but no biological test | 25 | AAB29345.1 | 544619 | 7 |
| Blattella germanica | German cockroach | Unassigned | Aero Insect | Blattella arginine kinase Bla g 9 | IgE but no biological test | 356 | ACM24358.1 | 221602737 | 10 |
| Blattella germanica | German cockroach | Bla g 9.0101 | Aero Insect | Blattella arginine kinase Bla g 9 | IgE but no biological test | 356 | ABC86902.1 | 86160922 | 18 |
| Blattella germanica | German cockroach | Bla g 1.0201 | Aero Insect | Blattella Bla g 1 | IgE plus basophil+ or SPT+ | 492 | AA013531.1 | 4240395 | 7 |
| Blattella germanica | German cockroach | Bla g 1.0101 | Aero Insect | Blattella Bla g 1 | IgE plus basophil+ or SPT+ | 412 | AA013530.2 | 4572592 | 7 |
| Blattella germanica | German cockroach | Bla g 11.0101 | Aero Insect | Blattella Bla g 11 alpha Amylase | IgE but no biological test | 515 | ABC68516.1 | 85002763 | 15 |
| Blattella germanica | German cockroach | Unassigned | Aero Insect | Blattella Bla g 2 | IgE plus basophil+ or SPT+ | 330 | 1YG9_A | 62738637 | 7 |
| Blattella germanica | German cockroach | Unassigned | Aero Insect | Blattella Bla g 2 | IgE plus basophil+ or SPT+ | 352 | ABP35603.1 | 145105726 | 9 |
| Blattella germanica | German cockroach | Bla g 2.0101 | Aero Insect | Blattella Bla g 2 | IgE plus basophil+ or SPT+ | 352 | AAA86744.1 | 1176397 | 11 |
| Blattella germanica | German cockroach | Unassigned | Aero Insect | Blattella Bla g 2 | IgE plus basophil+ or SPT+ | 334 | 3LIZ_A | 315113421 | 12 |
| Blattella germanica | German cockroach | Unassigned | Aero Insect | Blattella Bla g 3 | IgE but no biological test | 657 | ACY40650.1 | 262272875 | 11 |
| Blattella germanica | German cockroach | Bla g 3.0101 | Aero Insect | Blattella Bla g 3 | IgE but no biological test | 657 | ACY40651.1 | 262272877 | 11 |
| Blattella germanica | German cockroach | Bla g 4.0101 | Aero Insect | Blattella Bla g 4 | IgE plus basophil+ or SPT+ | 182 | AAA87851.1 | 1166573 | 7 |
| Blattella germanica | German cockroach | Unassigned | Aero Insect | Blattella Bla g 4 | IgE plus basophil+ or SPT+ | 182 | ABP04043.1 | 144952778 | 9 |
| Blattella germanica | German cockroach | Unassigned | Aero Insect | Blattella Bla g 4 | IgE plus basophil+ or SPT+ | 181 | ACJ37389.1 | 212675308 | 10 |
| Blattella germanica | German cockroach | Unassigned | Aero Insect | Blattella Bla g 4 | IgE plus basophil+ or SPT+ | 191 | ACF53836.1 | 194350815 | 11 |
| Blattella germanica | German cockroach | Unassigned | Aero Insect | Blattella Bla g 4 | IgE plus basophil+ or SPT+ | 190 | ACF53837.1 | 194350817 | 11 |
| Blattella germanica | German cockroach | Unassigned | Aero Insect | Blattella Bla g 5 | IgE plus basophil+ or SPT+ | 200 | ABP04044.1 | 144952780 | 9 |
| Blattella germanica | German cockroach | Bla g 5.0101 | Aero Insect | Blattella Bla g 5 | IgE plus basophil+ or SPT+ | 200 | AAB72147.1 | 2326190 | 11 |
| Blattella germanica | German cockroach | Bla g 6.0101 | Aero Insect | Blattella Bla g 6 | IgE but no biological test | 151 | ABB89296.1 | 82704032 | 8 |
| Blattella germanica | German cockroach | Bla g 6.0201 | Aero Insect | Blattella Bla g 6 | IgE but no biological test | 151 | ABB89297.1 | 82704034 | 8 |
| Blattella germanica | German cockroach | Bla g 6.0301 | Aero Insect | Blattella Bla g 6 | IgE but no biological test | 154 | ABB89298.1 | 82704036 | 8 |
| Blattella germanica | German cockroach | Bla g 7.0101 | Aero Insect | Blattella Bla g 7 | IgE but no biological test | 284 | AAF72534.1 | 8101069 | 7 |
| Blattella germanica | German cockroach | Unassigned | Aero Insect | Blattella delta GST | IgE but no biological test | 216 | ABX57814.1 | 161137518 | 11 |
| Blomia tropicalis | Mite | Blo t 2.0103 | Aero Mite | Blo t 2 type 2 *ver 10 | IgE plus basophil+ or SPT+ | 141 | AAQ73481.1 | 34495268 | 7 |
| Blomia tropicalis | Mite | Blo t 2.0102 | Aero Mite | Blo t 2 type 2 *ver 10 | IgE plus basophil+ or SPT+ | 142 | AAQ73482.1 | 34495270 | 7 |
| Blomia tropicalis | Mite | Blo t 2.0101 | Aero Mite | Blo t 2 type 2 *ver 10 | IgE plus basophil+ or SPT+ | 144 | AAQ73483.1 | 34495272 | 7 |
| Blomia tropicalis | Mite | Unassigned | Aero Mite | Blo t 2 type 2 *ver 10 | IgE plus basophil+ or SPT+ | 142 | ABG76185.1 | 110560724 | 9 |
| Blomia tropicalis | Mite | Unassigned | Aero Mite | Blo t 2 type 2 *ver 10 | IgE plus basophil+ or SPT+ | 142 | ABG76186.1 | 110560726 | 9 |
| Blomia tropicalis | Mite | Unassigned | Aero Mite | Blo t 2 type 2 *ver 10 | IgE plus basophil+ or SPT+ | 142 | ABG76187.1 | 110560728 | 9 |
| Blomia tropicalis | Mite | Unassigned | Aero Mite | Blo t 2 type 2 *ver 10 | IgE plus basophil+ or SPT+ | 142 | ABG76189.1 | 110560858 | 9 |
| Blomia tropicalis | Mite | Unassigned | Aero Mite | Blo t 2 type 2 *ver 10 | IgE plus basophil+ or SPT+ | 142 | ABG76190.1 | 110560860 | 9 |
| Blomia tropicalis | Mite | Unassigned | Aero Mite | Blo t 2 type 2 *ver 10 | IgE plus basophil+ or SPT+ | 142 | ABG76191.1 | 110560862 | 9 |
| Blomia tropicalis | Mite | Unassigned | Aero Mite | Blo t 2 type 2 *ver 10 | IgE plus basophil+ or SPT+ | 142 | ABG76192.1 | 110560864 | 9 |
| Blomia tropicalis | Mite | Unassigned | Aero Mite | Blo t 2 type 2 *ver 10 | IgE plus basophil+ or SPT+ | 142 | ABG76193.1 | 110560866 | 9 |
| Blomia tropicalis | Mite | Blo t 1.0101 | Aero Mite | Blomia Blo t 1.01 | IgE but no biological test | 221 | AAK58415.1 | 14276828 | 7 |
| Blomia tropicalis | Mite | Blo t 1.0201 | Aero Mite | Blomia Blo t 1.02 | IgE but no biological test | 333 | AAQ24541.1 | 33667928 | 8 |
| Blomia tropicalis | Mite | Unassigned | Aero Mite | Blomia Blo t 1.02 | IgE but no biological test | 333 | 5JTB_B | 1199299190 | 18 |
| Blomia tropicalis | Mite | Blo t 10.0101 | Aero Mite | Blomia Blo t 10 | IgE plus basophil+ or SPT+ | 284 | ABU97466.1 | 156938889 | 9 |
| Blomia tropicalis | Mite | Blo t 11.0101 | Aero Mite | Blomia Blo t 11 | IgE plus basophil+ or SPT+ | 875 | AAM83103.1 | 21954740 | 7 |
| Blomia tropicalis | Mite | Blo t 12.0101 | Aero Mite | Blomia Blo t 12 | IgE plus basophil+ or SPT+ | 144 | AAA78904.1 | 902012 | 7 |
| Blomia tropicalis | Mite | Unassigned | Aero Insect | Blomia Blo t 12 | IgE plus basophil+ or SPT+ | 69 | 2MFK_A | 723586656 | 16 |
| Blomia tropicalis | Mite | Blo t 13.0101 | Aero Mite | Blomia Blo t 13.01 | IgE but no biological test | 130 | AAC80579.1 | 1377859 | 7 |
| Blomia tropicalis | Mite | Unassigned | Aero Mite | Blomia Blo t 21 | IgE plus basophil+ or SPT+ | 129 | ABH06350.1 | 111120432 | 8 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stA Version |
|-----------------------|-----------|----------------|-------------------|------------------------------|----------------------------|--------|----------------|------------|--------------|
| Blomia tropicalis | Mite | Unassigned | Aero Mite | Blomia Blo t 21 | IgE plus basophil+ or SPT+ | 129 | ABH06347.1 | 111494253 | 8 |
| Blomia tropicalis | Mite | Unassigned | Aero Mite | Blomia Blo t 21 | IgE plus basophil+ or SPT+ | 129 | ABH06346.1 | 111120424 | 8 |
| Blomia tropicalis | Mite | Unassigned | Aero Mite | Blomia Blo t 21 | IgE plus basophil+ or SPT+ | 129 | ABH06348.1 | 111120428 | 8 |
| Blomia tropicalis | Mite | Blo t 21.0101 | Aero Insect | Blomia Blo t 21 | IgE plus basophil+ or SPT+ | 129 | AAX34047.1 | 60679570 | 9 |
| Blomia tropicalis | Mite | Blo t 3.0101 | Aero Mite | Blomia Blo t 3 | IgE but no biological test | 266 | AAM10779.1 | 25989482 | 7 |
| Blomia tropicalis | Mite | Unassigned | Aero Mite | Blomia Blo t 3 | IgE but no biological test | 266 | AAQ24542.1 | 33667930 | 8 |
| Blomia tropicalis | Mite | Blo t 4.0101 | Aero Insect | Blomia Blo t 4 alpha amylase | IgE plus basophil+ or SPT+ | 506 | AAQ24543.1 | 33667932 | 8 |
| Blomia tropicalis | Mite | Blo t 5.0101 | Aero Mite | Blomia Blo t 5 | IgE plus basophil+ or SPT+ | 134 | AAD10850.1 | 4204917 | 7 |
| Blomia tropicalis | Mite | Unassigned | Aero Mite | Blomia Blo t 5 | IgE plus basophil+ or SPT+ | 134 | ABH06352.1 | 111120436 | 9 |
| Blomia tropicalis | Mite | Unassigned | Aero Mite | Blomia Blo t 5 | IgE plus basophil+ or SPT+ | 134 | ABH06359.1 | 111120450 | 9 |
| Blomia tropicalis | Mite | Unassigned | Aero Mite | Blomia Blo t 5 | IgE plus basophil+ or SPT+ | 119 | 2JMH_A | 160285626 | 9 |
| Blomia tropicalis | Mite | Unassigned | Aero Mite | Blomia Blo t 5 | IgE plus basophil+ or SPT+ | 135 | APU87558.1 | 1131385191 | 18 |
| Blomia tropicalis | Mite | Unassigned | Aero Mite | Blomia Blo t 5 | IgE plus basophil+ or SPT+ | 133 | APU87557.1 | 1131385189 | 18 |
| Blomia tropicalis | Mite | Unassigned | Aero Mite | Blomia Blo t 5 | IgE plus basophil+ or SPT+ | 135 | APU87556.1 | 1131385187 | 18 |
| Blomia tropicalis | Mite | Unassigned | Aero Mite | Blomia Blo t 5 | IgE plus basophil+ or SPT+ | 134 | APU87554.1 | 1131385183 | 18 |
| Blomia tropicalis | Mite | Unassigned | Aero Insect | Blomia Blo t 7 | IgE but no biological test | 192 | AAQ24545.1 | 33667936 | 8 |
| Blomia tropicalis | Mite | Blo t 7.0101 | Aero Mite | Blomia Blo t 7 | IgE but no biological test | 195 | ASX95438.1 | 1241067909 | 18 |
| Blomia tropicalis | Mite | Unassigned | Aero Insect | Blomia Blo t 8 | IgE but no biological test | 236 | AAP35069.1 | 37958149 | 8 |
| Blomia tropicalis | Mite | Blo t 8.0101 | Aero Insect | Blomia Blo t 8 | IgE but no biological test | 236 | ACV04860.1 | 256665455 | 11 |
| Bombus pennsylvanicus | Bumblebee | Bom p 1.0101 | Venom or Salivary | Bombus Bom p 1 | IgE but no biological test | 136 | Q7M416.1 | 47117013 | 12 |
| Bombus pennsylvanicus | Bumblebee | Bom p 4.0101 | Venom or Salivary | Bombus Bom p 4 protease | IgE but no biological test | 243 | Q7M413.1 | 75009997 | 12 |
| Bombus terrestris | Bumblebee | Bom t 1.0101 | Venom or Salivary | Bombus Bom t 1 | IgE but no biological test | 136 | P82971.1 | 14423832 | 7 |
| Bombus terrestris | Bumblebee | Bom t 4.0101 | Venom or Salivary | Bombus Bom t 4 protease | IgE but no biological test | 20 | POCH88.1 | 313471465 | 12 |
| Bombyx mori | Silkworm | Bomb m 1.0101 | Aero Insect | Bombyx Bomb m 1 | IgE but no biological test | 355 | ABB88514.1 | 82658675 | 15 |
| Bos grunniens mutus | Yak | Bos d 11.0101 | Food Animal | Bos Bos d 11 beta casein | IgE plus basophil+ or SPT+ | 259 | XP_005902099.2 | 942073448 | 16 |
| Bos taurus | Bovine | Unassigned | Food Animal | Bos Alpha-s1 casein | IgE plus basophil+ or SPT+ | 93 | AAA62707.1 | 162650 | 7 |
| Bos taurus | Bovine | Unassigned | Food Animal | Bos Alpha-s1 casein | IgE plus basophil+ or SPT+ | 214 | AAA30429.1 | 162794 | 7 |
| Bos taurus | Bovine | Unassigned | Food Animal | Bos Alpha-s1 casein | IgE plus basophil+ or SPT+ | 76 | AAA30478.1 | 162927 | 7 |
| Bos taurus | Bovine | Bos d 9.0101 | Food Animal | Bos Alpha-s1 casein | IgE plus basophil+ or SPT+ | 214 | NP_851372.1 | 30794348 | 8 |
| Bos taurus | Bovine | Unassigned | Food Animal | Bos Alpha-s1 casein | IgE plus basophil+ or SPT+ | 205 | ABW98943.1 | 159793197 | 9 |
| Bos taurus | Bovine | Unassigned | Food Animal | Bos Alpha-s1 casein | IgE plus basophil+ or SPT+ | 172 | ABW98945.1 | 159793201 | 9 |
| Bos taurus | Bovine | Unassigned | Food Animal | Bos Alpha-s1 casein | IgE plus basophil+ or SPT+ | 129 | ABW98953.1 | 159793217 | 9 |
| Bos taurus | Bovine | Bos d 10.0101 | Food Animal | Bos Bos d 10 | IgE plus basophil+ or SPT+ | 222 | NP_776953.1 | 27806963 | 15 |
| Bos taurus | Bovine | Unassigned | Food Animal | Bos Bos d 11 beta casein | IgE plus basophil+ or SPT+ | 224 | AAA30430.1 | 162797 | 7 |
| Bos taurus | Bovine | Bos d 11.0101 | Food Animal | Bos Bos d 11 beta casein | IgE plus basophil+ or SPT+ | 224 | AAA30431.1 | 162805 | 7 |
| Bos taurus | Bovine | Unassigned | Food Animal | Bos Bos d 11 beta casein | IgE plus basophil+ or SPT+ | 224 | AAB29137.1 | 459292 | 7 |
| Bos taurus | Bovine | Unassigned | Food Animal | Bos Bos d 12 | IgE plus basophil+ or SPT+ | 190 | AAA30433.1 | 162811 | 7 |
| Bos taurus | Bovine | Bos d 12.0101 | Food Animal | Bos Bos d 12 | IgE plus basophil+ or SPT+ | 190 | NP_776719.1 | 27881412 | 15 |
| Bos taurus | Bovine | Bos d 2.0101 | Aero Animal | Bos Bos d 2 | IgE but no biological test | 172 | AAB08720.1 | 886215 | 7 |
| Bos taurus | Bovine | Bos d 3.0101 | Aero Animal | Bos Bos d 3 | IgE but no biological test | 101 | Q28050.1 | 2493414 | 7 |
| Bos taurus | Bovine | Unassigned | Food Animal | Bos Bos d 4 | IgE plus basophil+ or SPT+ | 142 | CAA29664.1 | 295774 | 7 |
| Bos taurus | Bovine | Bos d 4.0101 | Food Animal | Bos Bos d 4 | IgE plus basophil+ or SPT+ | 142 | AAA30615.1 | 163283 | 15 |
| Bos taurus | Bovine | Bos d 5.0101 | Food Animal | Bos Bos d 5 | IgE plus basophil+ or SPT+ | 178 | CAA32835.1 | 520 | 7 |
| Bos taurus | Bovine | Unassigned | Food Animal | Bos Bos d 5 | IgE plus basophil+ or SPT+ | 178 | P02754.3 | 125910 | 9 |
| Bos taurus | Bovine | Unassigned | Food Animal | Bos Bos d 5 | IgE plus basophil+ or SPT+ | 178 | ACG59280.1 | 195957138 | 10 |
| Bos taurus | Bovine | Bos d 6.0101 | Food Animal | Bos Bos d 6 | IgE plus basophil+ or SPT+ | 607 | AAA51411.1 | 162648 | 7 |
| Bos taurus | Bovine | Unassigned | Food Animal | Bos Bos d 6 | IgE plus basophil+ or SPT+ | 607 | CAA76847.1 | 3336842 | 7 |
| Bos taurus | Bovine | Unassigned | Vaccine | Bos collagen alpha2 | IgE plus basophil+ or SPT+ | 1364 | NP_776945.1 | 27806257 | 11 |
| Bos taurus | Bovine | Unassigned | Food Animal | Bos lactotransferrin | IgE but no biological test | 708 | NP_851341.1 | 30794292 | 8 |
| Brassica juncea | Mustard | Bra j 1.0101 | Food Plant | Brassica Bra j 1 2S albumin | IgE but no biological test | 129 | P80207.1 | 32363444 | 9 |
| Brassica napus | Rape | Bra n 1.0101 | Food Plant | Bra n 1 | IgE but no biological test | 125 | P80208.1 | 75107016 | 9 |
| Brassica napus | Rape | Unassigned | Aero Plant | Bra n Bra r 2 | IgE but no biological test | 83 | S65144 | 2129801 | 7 |
| Brassica napus | Rape | Unassigned | Aero Plant | Bra n Bra r 2 | IgE but no biological test | 83 | S65145 | 2129802 | 7 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stA Version |
|---------------------------------|--------------|----------------|-------------|---|----------------------------|--------|----------------|------------|--------------|
| Brassica napus | Rape | Unassigned | Food Plant | Brassica napus 2S albumin | IgE but no biological test | 109 | AAN86249.1 | 26985163 | 7 |
| Brassica oleracea var. oleracea | Wild cabbage | Bra o 3.0101 | Aero Plant | Brassica Bra o 3 LTP full length | IgE plus basophil+ or SPT+ | 112 | XP_013623213.1 | 922434456 | 16 |
| Brassica rapa | Turnip | Unassigned | Aero Plant | Bra n Bra r 2 | IgE but no biological test | 80 | S65143 | 2129805 | 7 |
| Brassica rapa | Turnip | Bra r 1.0101 | Food Plant | Brassica Bra r 1 | IgE but no biological test | 178 | CAA46782.1 | 17697 | 9 |
| Brassica rapa | Turnip | Bra r 5.0101 | Food Plant | Brassica Calcim binding protein Group I | IgE but no biological test | 79 | BAA09634.1 | 1255540 | 15 |
| Brassica rapa subsp. rapa | Turnip | Unassigned | Aero Plant | Bra n Bra r 2 | IgE but no biological test | 83 | P69199.1 | 59800146 | 7 |
| Brassica rapa subsp. rapa | Turnip | Bra r 2.0101 | Contact | Brassica Bra r 2 | IgE but no biological test | 91 | P81729.1 | 32363456 | 9 |
| Candida albicans | Yeast | Cand a 1.0101 | Contact | Candida Cand a 1 Alcohol dehydrogenase | IgE but no biological test | 350 | CAA57342.1 | 608690 | 15 |
| Candida albicans | Yeast | Cand a 3.0101 | Contact | Candida Cand a 3 Peroxisomal protein | IgE but no biological test | 236 | AAN11300.1 | 37548637 | 7 |
| Candida albicans | Yeast | Unassigned | Contact | Candida Enolase 1 | IgE plus basophil+ or SPT+ | 440 | P30575.1 | 232054 | 7 |
| Canis familiaris | Dog | Can f 1.0101 | Aero Animal | Canis Can f 1 Lipocalin | IgE plus basophil+ or SPT+ | 174 | AAC48794.1 | 2598974 | 11 |
| Canis familiaris | Dog | Can f 2 | Aero Animal | Canis Can f 2 Lipocalin | IgE plus basophil+ or SPT+ | 177 | CAD82911.1 | 29292272 | 7 |
| Canis familiaris | Dog | Can f 2 | Aero Animal | Canis Can f 2 Lipocalin | IgE plus basophil+ or SPT+ | 179 | CAD82912.1 | 29292274 | 7 |
| Canis familiaris | Dog | Can f 2.0101 | Aero Animal | Canis Can f 2 Lipocalin | IgE plus basophil+ or SPT+ | 180 | AAC48795.1 | 2598976 | 11 |
| Canis familiaris | Dog | Can f 3 | Aero Animal | Canis Can f 3 Serum albumin | IgE plus basophil+ or SPT+ | 265 | AAB30434.1 | 633938 | 7 |
| Canis familiaris | Dog | Can f 3 | Aero Animal | Canis Can f 3 Serum albumin | IgE plus basophil+ or SPT+ | 585 | CAA76841.1 | 3319897 | 7 |
| Canis familiaris | Dog | Can f 3.0101 | Aero Animal | Canis Can f 3 Serum albumin | IgE plus basophil+ or SPT+ | 608 | BAC10663.1 | 22531688 | 15 |
| Canis familiaris | Dog | Can f 4.0101 | Aero Animal | Canis Can f 4 epithelial 18 kDa | IgE but no biological test | 174 | ACY3825.1 | 262232390 | 12 |
| Canis familiaris | Dog | Unassigned | Aero Animal | Canis Can f 4 epithelial 18 kDa | IgE but no biological test | 174 | AHY24648.1 | 625295108 | 16 |
| Canis familiaris | Dog | Can f 5.0101 | Aero Animal | Canis Can f 5 | IgE but no biological test | 260 | CAA68720.1 | 868 | 15 |
| Canis familiaris | Dog | Can f 6.0101 | Aero Animal | Canis Can f 6 Lipocalin | IgE but no biological test | 190 | CCF72371.1 | 374092884 | 13 |
| Canis familiaris | Dog | Unassigned | Aero Animal | Canis Can f 6 Lipocalin | IgE but no biological test | 177 | 5X7Y_D | 1374502923 | 19 |
| Canis familiaris | Dog | Can f 7.0101 | Aero Animal | Canis familiarisCan f 7 | IgE but no biological test | 149 | AAB34263.1 | 945179 | 16 |
| Cannabis sativa | Hemp | Can s 3.0101 | Aero Plant | Cannabis LTP Can s 3 | IgE plus basophil+ or SPT+ | 91 | CKC33472.1 | 571256597 | 15 |
| Capsicum annuum | Bell pepper | Cap a 1.0101 | Food Plant | Capsicum Cap a 1 | IgE but no biological test | 246 | CAC34055.2 | 16609959 | 7 |
| Capsicum annuum | Bell pepper | Cap a 2.0101 | Food Plant | Capsicum Cap a 2 | IgE but no biological test | 131 | CAD10376.1 | 16555785 | 7 |
| Carica papaya | Papaya | Cari p 1.0101 | Food Plant | Cari p 1.0101 endo polygalacturonase | IgE plus basophil+ or SPT+ | 494 | ACV85695.1 | 258640138 | 18 |
| Carica papaya | Papaya | Unassigned | Aero Plant | Carica papain (Car p 1 not IUIS) | IgE plus basophil+ or SPT+ | 345 | AAB02650.1 | 167391 | 7 |
| Carpinus betulus | Hornbeam | Car b 1.0102 | Aero Plant | Carpinus Car b 1 | IgE plus basophil+ or SPT+ | 159 | CAA47357.1 | 402745 | 7 |
| Carpinus betulus | Hornbeam | Car b 1.0103 | Aero Plant | Carpinus Car b 1 | IgE plus basophil+ or SPT+ | 160 | CAB02206.1 | 1545875 | 7 |
| Carpinus betulus | Hornbeam | Car b 1.0104 | Aero Plant | Carpinus Car b 1 | IgE plus basophil+ or SPT+ | 160 | CAB02207.1 | 1545877 | 7 |
| Carpinus betulus | Hornbeam | Car b 1.0105 | Aero Plant | Carpinus Car b 1 | IgE plus basophil+ or SPT+ | 160 | CAB02208.1 | 1545879 | 7 |
| Carpinus betulus | Hornbeam | Car b 1.0108 | Aero Plant | Carpinus Car b 1 | IgE plus basophil+ or SPT+ | 160 | CAB02215.1 | 1545893 | 7 |
| Carpinus betulus | Hornbeam | Car b 1.0301 | Aero Plant | Carpinus Car b 1 | IgE plus basophil+ or SPT+ | 161 | CAB02216.1 | 1545895 | 7 |
| Carpinus betulus | Hornbeam | Car b 1.0302 | Aero Plant | Carpinus Car b 1 | IgE plus basophil+ or SPT+ | 161 | CAB02217.1 | 1545897 | 7 |
| Carpinus betulus | Hornbeam | Unassigned | Aero Plant | Carpinus Car b 1 | IgE plus basophil+ or SPT+ | 40 | AAB20453.1 | 239735 | 7 |
| Carpinus betulus | Hornbeam | Car b 1.0113 | Aero Plant | Carpinus Car b 1 | IgE plus basophil+ or SPT+ | 160 | ABZ81044.1 | 167472845 | 10 |
| Carpinus betulus | Hornbeam | Car b 1.0109 | Aero Plant | Carpinus Car b 1 | IgE plus basophil+ or SPT+ | 160 | ABZ81040.1 | 167472837 | 10 |
| Carpinus betulus | Hornbeam | Car b 1.0112 | Aero Plant | Carpinus Car b 1 | IgE plus basophil+ or SPT+ | 160 | ABZ81043.1 | 167472843 | 10 |
| Carpinus betulus | Hornbeam | Car b 1.0111 | Aero Plant | Carpinus Car b 1 | IgE plus basophil+ or SPT+ | 160 | ABZ81042.1 | 167472841 | 10 |
| Carpinus betulus | Hornbeam | Car b 1.0110 | Aero Plant | Carpinus Car b 1 | IgE plus basophil+ or SPT+ | 160 | ABZ81041.1 | 167472839 | 10 |
| Carpinus betulus | Hornbeam | Unassigned | Aero Plant | Carpinus Car b 1 | IgE plus basophil+ or SPT+ | 80 | AAB34907.1 | 1008578 | 12 |
| Carpinus betulus | Hornbeam | Unassigned | Aero Plant | Carpinus Car b 1 | IgE plus basophil+ or SPT+ | 80 | AAB34908.1 | 1008579 | 12 |
| Carpinus betulus | Hornbeam | Unassigned | Aero Plant | Carpinus Car b 1 | IgE plus basophil+ or SPT+ | 80 | AAB34909.1 | 1008580 | 12 |
| Carpinus betulus | Hornbeam | Car b 1.0101 | Aero Plant | Carpinus Car b 1 | IgE plus basophil+ or SPT+ | 159 | CAA47366.1 | 402743 | 15 |
| Carpinus betulus | Hornbeam | Car b 1.0106 | Aero Plant | Carpinus Car b 1 | IgE plus basophil+ or SPT+ | 160 | CAB02209.1 | 1545881 | 15 |
| Carpinus betulus | Hornbeam | Car b 1.0107 | Aero Plant | Carpinus Car b 1 | IgE plus basophil+ or SPT+ | 160 | CAB02213.1 | 1545889 | 15 |
| Carpinus betulus | Hornbeam | Car b 1.0201 | Aero Plant | Carpinus Car b 1 | IgE plus basophil+ or SPT+ | 159 | CAA47367.1 | 402747 | 15 |
| Carya illinoensis | Pecan | Cari i 1.0101 | Food Plant | Carya Cari i 1 Seed storage protein | IgE but no biological test | 143 | AAO32314.1 | 28207731 | 7 |
| Carya illinoensis | Pecan | Car i 4.0101 | Food Plant | Carya Cari i 4 11s legumin | IgE but no biological test | 505 | ABW86978.1 | 158998780 | 14 |
| Carya illinoensis | Pecan | Unassigned | Food Plant | Carya Cari i 4 11s legumin | IgE but no biological test | 505 | ABW86979.1 | 158998782 | 14 |
| Carya illinoensis | Pecan | Car i 2.0101 | Food Plant | Carya i Car i 2.0101 vicilin | IgE but no biological test | 792 | ABV49590.1 | 157384600 | 15 |
| Carya illinoensis | Pecan | Unassigned | Food Plant | Carya i Car i 2.0101 vicilin | IgE but no biological test | 426 | 5E1R_F | 1052244924 | 18 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stÅ Version |
|------------------------------|-----------------------|----------------|-------------|--|----------------------------|--------|----------------|------------|--------------|
| Caryota mitis | Fishtail Palm | Unassigned | Aero Plant | Caryota profilin | IgE but no biological test | 131 | ABM53030.1 | 121277849 | 8 |
| Castanea sativa | European chestnut | Unassigned | Aero Plant | Castanea Cas s 1 | IgE but no biological test | 160 | CAD10374.1 | 16555781 | 7 |
| Castanea sativa | European chestnut | Unassigned | Aero Plant | Castanea Cas s 1 | IgE but no biological test | 159 | ACJ23862.1 | 212291466 | 10 |
| Castanea sativa | European chestnut | Cas s 1.0101 | Aero Plant | Castanea Cas s 1 | IgE but no biological test | 159 | ACJ23861.1 | 212291464 | 10 |
| Castanea sativa | European chestnut | Unassigned | Aero Plant | Castanea Cas s 1 | IgE but no biological test | 159 | ACJ23863.1 | 212291468 | 10 |
| Castanea sativa | European chestnut | Cas s 5.0101 | Food Plant | Castanea Cas s 5 | IgE plus basophil+ or SPT+ | 316 | CAA64868.1 | 1359600 | 7 |
| Castanea sativa | European chestnut | Unassigned | Food Plant | Castanea Cas s 5 | IgE plus basophil+ or SPT+ | 298 | ADN39439.1 | 307159110 | 12 |
| Catharanthus roseus | Madagascar periwinkle | Cat r 1.0101 | Aero Plant | Catharanthus cyclophilin | IgE plus basophil+ or SPT+ | 172 | CAA59468.1 | 1220142 | 13 |
| Cavia porcellus | Domestic guinea pig | Cav p 1.0101 | Aero Animal | Cavia Cav p 1 | IgE but no biological test | 166 | VEV85353.1 | 1604536255 | 20 |
| Cavia porcellus | Domestic guinea pig | Cav p 1.0102 | Aero Animal | Cavia Cav p 1 | IgE but no biological test | 166 | VEV85354.1 | 1604536257 | 20 |
| Cavia porcellus | Domestic guinea pig | Cav p 2.0101 | Aero Animal | Cavia Cav p 2 | IgE plus basophil+ or SPT+ | 170 | CAX62129.1 | 325910590 | 12 |
| Cavia porcellus | Domestic guinea pig | Cav p 3.0101 | Aero Animal | Cavia Cav p 3 lipocalin | IgE plus basophil+ or SPT+ | 170 | CAX62130.1 | 325910592 | 12 |
| Chamaecyparis obtusa | Japanese cypress | Cha o 1.0101 | Aero Plant | Chamaecyparis Cha o 1 | IgE but no biological test | 375 | BAA08246.1 | 1514943 | 7 |
| Chamaecyparis obtusa | Japanese cypress | Cha o 2.0101 | Aero Plant | Chamaecyparis Cha o 2 | IgE but no biological test | 514 | Q7M1E7.1 | 47606004 | 7 |
| Chamaecyparis obtusa | Japanese cypress | Unassigned | Aero Plant | Chamaecyparis Cha o 2 | IgE but no biological test | 419 | BAF32143.1 | 114841683 | 8 |
| Chamaecyparis obtusa | Japanese cypress | Cha o 3.0101 | Aero Plant | Chamaecyparis obtusa Cha o 3 | IgE plus basophil+ or SPT+ | 556 | COHLA0.1 | 1407868342 | 19 |
| Charybdis feriatius | Crab | Cha f 1.0101 | Food Animal | Charybdis Cha f 1 | IgE but no biological test | 264 | AAF35431.1 | 7024506 | 7 |
| Chenopodium album | Pigweed | Che a 1.0101 | Aero Plant | Chenopodium Che a 1 | IgE but no biological test | 168 | AAL07319.1 | 22074346 | 7 |
| Chenopodium album | Pigweed | Che a 2.0101 | Aero Plant | Chenopodium Che a 2 | IgE plus basophil+ or SPT+ | 131 | AAL92870.1 | 29465666 | 7 |
| Chenopodium album | Pigweed | Unassigned | Aero Plant | Chenopodium Che a 2 | IgE plus basophil+ or SPT+ | 133 | ACR77509.1 | 238886048 | 11 |
| Chenopodium album | Pigweed | Che a 3.0101 | Aero Plant | Chenopodium Che a 3 | IgE but no biological test | 86 | AAL92871.1 | 29465668 | 7 |
| Chionoecetes opilio | Snow Crab | Unassigned | Food Animal | Chionoecetes tropomyosin | IgE but no biological test | 284 | A2V735.1 | 308191588 | 12 |
| Chironomus kienis | Midge | Chi k 10.0101 | Aero Insect | Chironomus Chi k 10 | IgE but no biological test | 285 | CAA09938.2 | 7321108 | 7 |
| Chironomus thummi thummi | Midge | Chi t 1.0101 | Aero Insect | Chironomus Chi t 1 | IgE but no biological test | 151 | P02229.2 | 1212119 | 7 |
| Chironomus thummi thummi | Midge | Chi t 1.0201 | Aero Insect | Chironomus Chi t 1 | IgE but no biological test | 151 | P02230.1 | 121227 | 7 |
| Chironomus thummi thummi | Midge | Chi t 2.0101 | Aero Insect | Chironomus Chi t 2 | IgE but no biological test | 158 | P02221.2 | 2506460 | 7 |
| Chironomus thummi thummi | Midge | Chi t 3.0601 | Aero Insect | Chironomus Chi t 3 | IgE but no biological test | 161 | P84296.1 | 56405052 | 7 |
| Chironomus thummi thummi | Midge | Chi t 3.0901 | Aero Insect | Chironomus Chi t 3 | IgE but no biological test | 151 | P02227.1 | 121237 | 7 |
| Chironomus thummi thummi | Midge | Chi t 3.0501 | Aero Insect | Chironomus Chi t 3 | IgE but no biological test | 161 | P12548.1 | 121244 | 7 |
| Chironomus thummi thummi | Midge | Chi t 3.0701 | Aero Insect | Chironomus Chi t 3 | IgE but no biological test | 161 | P84298.1 | 56405054 | 7 |
| Chironomus thummi thummi | Midge | Chi t 3.0702 | Aero Insect | Chironomus Chi t 3 | IgE but no biological test | 161 | P12549.1 | 121248 | 7 |
| Chironomus thummi thummi | Midge | Chi t 3.0801 | Aero Insect | Chironomus Chi t 3 | IgE but no biological test | 162 | P12550.1 | 121249 | 7 |
| Chironomus thummi thummi | Midge | Chi t 3.0301 | Aero Insect | Chironomus Chi t 3 | IgE but no biological test | 161 | P02226.2 | 56405306 | 7 |
| Chironomus thummi thummi | Midge | Chi t 3.0101 | Aero Insect | Chironomus Chi t 3 | IgE but no biological test | 160 | P02222.2 | 1707908 | 7 |
| Chironomus thummi thummi | Midge | Chi t 3.0401 | Aero Insect | Chironomus Chi t 3 | IgE but no biological test | 161 | P02223.2 | 1707911 | 7 |
| Chironomus thummi thummi | Midge | Chi t 3.0201 | Aero Insect | Chironomus Chi t 3 | IgE but no biological test | 162 | P02224.2 | 2506461 | 7 |
| Chironomus thummi thummi | Midge | Chi t 4.0101 | Aero Insect | Chironomus Chi t 4 | IgE but no biological test | 151 | P02231.1 | 121256 | 7 |
| Chironomus thummi thummi | Midge | Chi t 9.0101 | Aero Insect | Chironomus Chi t 9 | IgE but no biological test | 151 | P02228.1 | 121259 | 7 |
| Chortoglyphus arcuatus | Unassigned | Unassigned | Aero Mite | Cho a 10.0101 | IgE but no biological test | 284 | AEX31649.1 | 371500880 | 13 |
| Citrus limon | Lemon | Cit l 2.0101 | Food Plant | Citrus limon Cit l 2 | IgE plus basophil+ or SPT+ | 131 | AAU43733.1 | 52352489 | 17 |
| Citrus limon | Lemon | Cit l 3.0101 | Food Plant | Citrus LTP Cit s 3/Cit l 3 | IgE plus basophil+ or SPT+ | 20 | P84160.1 | 52783176 | 7 |
| Citrus sinensis | Navel orange | Cit s 1.0101 | Food Plant | Citrus Cit s 1 | IgE plus basophil+ or SPT+ | 25 | P84159.1 | 52782810 | 7 |
| Citrus sinensis | Navel orange | Cit s 2.0101 | Food Plant | Citrus Cit s 2 | IgE plus basophil+ or SPT+ | 131 | CAI23765.1 | 56000996 | 7 |
| Citrus sinensis | Navel orange | Cit s 3.0101 | Food Plant | Citrus LTP Cit s 3/Cit l 3 | IgE plus basophil+ or SPT+ | 20 | P84161.1 | 52783177 | 7 |
| Citrus sinensis | Navel orange | Cit s 3.0102 | Food Plant | Citrus LTP Cit s 3/Cit l 3 | IgE plus basophil+ or SPT+ | 91 | CAH03799.1 | 50199132 | 7 |
| Citrus sinensis | Navel orange | Cit s 7 | Food Plant | Citrus sinensis Cit s 7 | IgE plus basophil+ or SPT+ | 88 | XP_006472264.1 | 568836465 | 20 |
| Cladosporium cladosporioides | Fungus | Cla c 14.0101 | Aero Fungi | Cladosporium Cla c 14 | IgE but no biological test | 325 | ADK47394.1 | 301015198 | 15 |
| Cladosporium cladosporioides | Fungus | Cla c 9.0101 | Aero Fungi | Cladosporium Cla c 9 Davidiella | IgE but no biological test | 388 | ABC059329.1 | 148361511 | 11 |
| Clupea harengus | Atlantic herring | Clu h 1.0101 | Food Animal | Clupea Clu h 1 | IgE but no biological test | 109 | CAQ72970.1 | 242253963 | 11 |
| Clupea harengus | Atlantic herring | Clu h 1.0201 | Food Animal | Clupea Clu h 1 | IgE but no biological test | 110 | CAQ72971.1 | 242253965 | 11 |
| Clupea harengus | Atlantic herring | Clu h 1.0301 | Food Animal | Clupea Clu h 1 | IgE but no biological test | 109 | CAQ72972.1 | 242253967 | 11 |
| Cochliobolus lanatus | Fungus | Cur l 2.0101 | Aero Fungi | Curvularia lanata enolase Cur l 2.01 Cochliobolus | IgE but no biological test | 440 | AAK67491.1 | 14585753 | 8 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stA Version |
|------------------------|-------------------|----------------|-------------|--|----------------------------|--------|------------|------------|--------------|
| Cochliobolus lunatus | Fungus | Cur l 3.0101 | Aero Fungi | Curvularia lunata Cur l 3 Cochliobolus | IgE plus basophil+ or SPT+ | 108 | AAK67492.1 | 14585755 | 15 |
| Cochliobolus lunatus | Fungus | Cur l 4.0101 | Aero Fungi | Curvularia Cur l 4 | IgE plus basophil+ or SPT+ | 506 | ACF19589.1 | 193507493 | 15 |
| Cochliobolus lunatus | Fungus | Unassigned | Aero Fungi | Curvularia lunata alcohol dehydrogenase | IgE but no biological test | 352 | ABC88428.1 | 86278351 | 17 |
| Coffea arabica | Coffee | Cof a 3.0101 | Food Plant | Coffea Cof a 3 | IgE but no biological test | 65 | AGL34968.1 | 494319676 | 15 |
| Coffea arabica | Coffee | Cof a 1.0101 | Food Plant | Coffea Cof a 1 | IgE but no biological test | 263 | ADH10372.1 | 296399179 | 15 |
| Coffea arabica | Coffee | Cof a 2.0101 | Food Plant | Coffea Cof a 2 | IgE but no biological test | 80 | AGL34967.1 | 494319674 | 15 |
| Coprinus comatus | Shaggy mane | Cop c 1.0101 | Food Fungi | Coprinus Cop c 1 | IgE but no biological test | 81 | CAB39376.1 | 4538529 | 7 |
| Coptotermes formosanus | | Unassigned | Food Animal | Coptotermes Copt f 7 | IgE but no biological test | 256 | AGM32377.1 | 506968067 | 19 |
| Corylus avellana | European hazelnut | Cor a 1.0103 | Aero Plant | Corylus Cor a 1 | IgE plus basophil+ or SPT+ | 160 | CAA50325.1 | 22684 | 7 |
| Corylus avellana | European hazelnut | Cor a 1.0104 | Aero Plant | Corylus Cor a 1 | IgE plus basophil+ or SPT+ | 160 | CAA50326.1 | 22686 | 7 |
| Corylus avellana | European hazelnut | Cor a 1.0102 | Aero Plant | Corylus Cor a 1 | IgE plus basophil+ or SPT+ | 160 | CAA50328.1 | 22690 | 7 |
| Corylus avellana | European hazelnut | Cor a 1.0201 | Aero Plant | Corylus Cor a 1 | IgE plus basophil+ or SPT+ | 160 | CAA96548.1 | 1321731 | 7 |
| Corylus avellana | European hazelnut | Cor a 1.0301 | Aero Plant | Corylus Cor a 1 | IgE plus basophil+ or SPT+ | 160 | CAA96549.1 | 1321733 | 7 |
| Corylus avellana | European hazelnut | Cor a 1.0401 | Food Plant | Corylus Cor a 1 | IgE plus basophil+ or SPT+ | 161 | AAD48405.1 | 5726304 | 7 |
| Corylus avellana | European hazelnut | Cor a 1.0402 | Food Plant | Corylus Cor a 1 | IgE plus basophil+ or SPT+ | 161 | AAG40329.1 | 11762102 | 7 |
| Corylus avellana | European hazelnut | Cor a 1.0403 | Food Plant | Corylus Cor a 1 | IgE plus basophil+ or SPT+ | 161 | AAG40330.1 | 11762104 | 7 |
| Corylus avellana | European hazelnut | Cor a 1.0404 | Food Plant | Corylus Cor a 1 | IgE plus basophil+ or SPT+ | 161 | AAG40331.1 | 11762106 | 7 |
| Corylus avellana | European hazelnut | Cor a 1.0101 | Food Plant | Corylus Cor a 1 | IgE plus basophil+ or SPT+ | 160 | CAA50327.1 | 22688 | 15 |
| Corylus avellana | European hazelnut | Cor a 11.0101 | Food Plant | Corylus Cor a 11 | IgE plus basophil+ or SPT+ | 448 | AAL86739.1 | 19338630 | 7 |
| Corylus avellana | European hazelnut | Cor a 12.0101 | Food Plant | Corylus Cor a 12 | IgE plus basophil+ or SPT+ | 159 | AAO67349.2 | 49617323 | 15 |
| Corylus avellana | European hazelnut | Cor a 13.0101 | Food Plant | Corylus Cor a 13 Oleosin | IgE but no biological test | 140 | AAO65960.1 | 29170509 | 7 |
| Corylus avellana | European hazelnut | Cor a 14.0101 | Food Plant | Corylus Cor a 14 2S albumin | IgE plus basophil+ or SPT+ | 147 | AC056333.1 | 226437844 | 11 |
| Corylus avellana | European hazelnut | Cor a 2.0101 | Aero Plant | Corylus Cor a 2 profilins | IgE but no biological test | 131 | AAK01235.1 | 12659206 | 7 |
| Corylus avellana | European hazelnut | Cor a 2.0102 | Aero Plant | Corylus Cor a 2 profilins | IgE but no biological test | 131 | AAK01236.1 | 12659208 | 7 |
| Corylus avellana | European hazelnut | Unassigned | Food Plant | Corylus Cor a 2 profilins | IgE but no biological test | 131 | A4KA41.1 | 576017879 | 15 |
| Corylus avellana | European hazelnut | Unassigned | Food Plant | Corylus Cor a 2 profilins | IgE but no biological test | 133 | A4KA40.1 | 576017878 | 15 |
| Corylus avellana | European hazelnut | Unassigned | Food Plant | Corylus Cor a 2 profilins | IgE but no biological test | 133 | A4KA44.1 | 576017819 | 15 |
| Corylus avellana | European hazelnut | Unassigned | Food Plant | Corylus Cor a 2 profilins | IgE but no biological test | 131 | A4KA43.1 | 576017779 | 15 |
| Corylus avellana | European hazelnut | Unassigned | Food Plant | Corylus Cor a 2 profilins | IgE but no biological test | 133 | A4KA45.1 | 576017777 | 15 |
| Corylus avellana | European hazelnut | Unassigned | Food Plant | Corylus Cor a 2 profilins | IgE but no biological test | 133 | A4KA39.1 | 576017776 | 15 |
| Corylus avellana | European hazelnut | Cor a 8.0101 | Food Plant | Corylus Cor a 8 | IgE but no biological test | 115 | AAK28533.1 | 13507262 | 7 |
| Corylus avellana | European hazelnut | Cor 1 9.0101 | Food Plant | Corylus Cor a 9 | IgE plus basophil+ or SPT+ | 515 | AAL73404.1 | 18479082 | 7 |
| Corylus avellana | European hazelnut | Unassigned | Aero Plant | Corylus Cor a 9 | IgE plus basophil+ or SPT+ | 514 | AHA36627.1 | 557792009 | 16 |
| Crangon crangon | Shrimp | Cra c 1.0101 | Food Animal | Crangon Cra c 1 tropomyosin | IgE but no biological test | 284 | ACR43473.1 | 238477263 | 12 |
| Crangon crangon | Shrimp | Cra c 2.0101 | Food Animal | Crangon Cra c 2 arginine kinase | IgE but no biological test | 356 | ACR43474.1 | 238477265 | 12 |
| Crangon crangon | Shrimp | Cra c 4.0101 | Food Animal | Crangon Cra c 4 sarcoplasmic calcium-binding prote | IgE but no biological test | 193 | ACR43475.1 | 238477327 | 12 |
| Crangon crangon | Shrimp | Cra c 5.0101 | Food Animal | Crangon Cra c 5 myosin light chain | IgE but no biological test | 153 | ACR43477.1 | 238477331 | 12 |
| Crangon crangon | Shrimp | Cra c 6.0101 | Food Animal | Crangon Cra c 6 troponin C | IgE but no biological test | 150 | ACR43478.1 | 238477333 | 12 |
| Crangon crangon | Shrimp | Cra c 8.0101 | Food Animal | Crangon Cra c 8 triosephosphate isomerase | IgE but no biological test | 249 | ACR43476.1 | 238477329 | 12 |
| Crassostrea gigas | American oyster | Cra g 1.0102 | Food Animal | Crassostrea Tropomyosin Cra g 1 | IgE but no biological test | 284 | BAH10152.1 | 219806594 | 10 |
| Crassostrea gigas | American oyster | Cra g 1.0101 | Food Animal | Crassostrea Tropomyosin Cra g 1 | IgE but no biological test | 284 | ARX70262.1 | 1203820203 | 18 |
| Crassostrea virginica | Eastern oyster | Unassigned | Food Animal | Crassostrea Tropomyosin Cra g 1 | IgE but no biological test | 160 | AAC61869.1 | 3668408 | 7 |
| Crocus sativus | Saffron crocus | Cro s 1.0101 | Aero Plant | Crocus Cro s 1 | IgE but no biological test | 168 | AAX93750.1 | 62720370 | 7 |
| Crocus sativus | Saffron crocus | Cro s 2.0101 | Aero Plant | Crocus profilin Cro s 2 | IgE but no biological test | 131 | AAW81034.1 | 58700651 | 7 |
| Cryptomeria japonica | Japanese cedar | Unassigned | Aero Plant | Cryptomeria class IV chitinase | IgE but no biological test | 281 | BAD77932.1 | 56550550 | 7 |
| Cryptomeria japonica | Japanese cedar | Cry j 1.0102 | Aero Plant | Cryptomeria Cry j 1 | IgE but no biological test | 374 | BAA05543.1 | 493634 | 8 |
| Cryptomeria japonica | Japanese cedar | Cry j 1.0101 | Aero Plant | Cryptomeria Cry j 1 | IgE but no biological test | 374 | BAA05542.1 | 493632 | 15 |
| Cryptomeria japonica | Japanese cedar | Cry j 1.0103 | Aero Plant | Cryptomeria Cry j 1 | IgE but no biological test | 374 | BAA07020.1 | 516728 | 15 |
| Cryptomeria japonica | Japanese cedar | | Aero Plant | Cryptomeria Cry j 2 | IgE plus basophil+ or SPT+ | 514 | P43212.1 | 1171004 | 7 |
| Cryptomeria japonica | Japanese cedar | | Aero Plant | Cryptomeria Cry j 2 | IgE plus basophil+ or SPT+ | 514 | BAC23082.1 | 24898904 | 7 |
| Cryptomeria japonica | Japanese cedar | | Aero Plant | Cryptomeria Cry j 2 | IgE plus basophil+ or SPT+ | 514 | BAC23083.1 | 24898906 | 7 |
| Cryptomeria japonica | Japanese cedar | | Aero Plant | Cryptomeria Cry j 2 | IgE plus basophil+ or SPT+ | 514 | BAC23084.1 | 24898908 | 7 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stA Version |
|-------------------------------|-----------------------|----------------|-------------------|--|----------------------------|--------|------------|------------|--------------|
| Cryptomeria japonica | Japanese cedar | Unassigned | Aero Plant | Cryptomeria Cry j 2 | IgE plus basophil+ or SPT+ | 514 | BAF32105.1 | 114841607 | 8 |
| Cryptomeria japonica | Japanese cedar | Unassigned | Aero Plant | Cryptomeria Cry j 2 | IgE plus basophil+ or SPT+ | 514 | BAF32110.1 | 114841617 | 8 |
| Cryptomeria japonica | Japanese cedar | Unassigned | Aero Plant | Cryptomeria Cry j 2 | IgE plus basophil+ or SPT+ | 514 | BAF32116.1 | 114841629 | 8 |
| Cryptomeria japonica | Japanese cedar | Unassigned | Aero Plant | Cryptomeria Cry j 2 | IgE plus basophil+ or SPT+ | 514 | BAF32119.1 | 114841635 | 8 |
| Cryptomeria japonica | Japanese cedar | Unassigned | Aero Plant | Cryptomeria Cry j 2 | IgE plus basophil+ or SPT+ | 514 | BAF32122.1 | 114841641 | 8 |
| Cryptomeria japonica | Japanese cedar | Unassigned | Aero Plant | Cryptomeria Cry j 2 | IgE plus basophil+ or SPT+ | 514 | BAF32128.1 | 114841653 | 8 |
| Cryptomeria japonica | Japanese cedar | Unassigned | Aero Plant | Cryptomeria Cry j 2 | IgE plus basophil+ or SPT+ | 514 | BAF32130.1 | 114841657 | 8 |
| Cryptomeria japonica | Japanese cedar | Unassigned | Aero Plant | Cryptomeria Cry j 2 | IgE plus basophil+ or SPT+ | 514 | BAF32133.1 | 114841663 | 8 |
| Cryptomeria japonica | Japanese cedar | Unassigned | Aero Plant | Cryptomeria Cry j 2 | IgE plus basophil+ or SPT+ | 514 | BAF32134.1 | 114841665 | 8 |
| Cryptomeria japonica | Japanese cedar | Cry j 2.0101 | Aero Plant | Cryptomeria Cry j 2 | IgE plus basophil+ or SPT+ | 514 | BAA06172.1 | 506858 | 9 |
| Cryptomeria japonica | Japanese cedar | Unassigned | Aero Plant | Cryptomeria Cry j 2 | IgE plus basophil+ or SPT+ | 65 | BAF45320.1 | 123299282 | 9 |
| Cryptomeria japonica | Japanese cedar | Unassigned | Aero Plant | Cryptomeria Isoflavone reductase-like protein | IgE but no biological test | 306 | AAK27264.1 | 19847822 | 7 |
| Cryptomeria japonica | Japanese cedar | Unassigned | Aero Plant | Cryptomeria pollen allergen CIP-8 | IgE but no biological test | 165 | BAI94503.1 | 291621332 | 12 |
| Cryptomeria japonica | Japanese cedar | Unassigned | Aero Plant | Cryptomeria pollen allergen CPA63 | IgE but no biological test | 472 | BAJ04354.1 | 293329689 | 12 |
| Cryptomeria japonica | Japanese cedar | Unassigned | Venom or Salivary | Cryptomeria thaumatin like Cry j 3.8 | IgE plus basophil+ or SPT+ | 225 | BAF51970.1 | 139002766 | 8 |
| Ctenopharyngodon idella | | Unassigned | Food Animal | Cten i 1 parvalbumin | IgE but no biological test | 109 | QCY53440.1 | 1679379623 | 20 |
| Cucumis melo | Muskmelon | Cuc m 1.0101 | Food Plant | Cucumis Cuc m 1 | IgE but no biological test | 731 | BAA06905.1 | 807698 | 7 |
| Cucumis melo | Muskmelon | Unassigned | Food Plant | Cucumis Cuc m 2 | IgE plus basophil+ or SPT+ | 131 | CAD92666.1 | 31559374 | 7 |
| Cucumis melo | Muskmelon | Cuc m 2.0101 | Food Plant | Cucumis Cuc m 2 | IgE plus basophil+ or SPT+ | 131 | AAW69549.1 | 58263793 | 7 |
| Cucumis melo | Muskmelon | Cuc m 3.0101 | Food Plant | Cucumis Cuc m 3 | IgE plus basophil+ or SPT+ | 41 | P83834.1 | 46396595 | 9 |
| Cucumis melo var. inodorus | Muskmelon | Unassigned | Food Plant | Cucumis Cuc m 3 | IgE plus basophil+ or SPT+ | 151 | ACB45874.1 | 171464770 | 9 |
| Cucumis melo var. reticulatus | Netted muskmelon | Unassigned | Food Plant | Cucumis Cuc m 2 | IgE plus basophil+ or SPT+ | 131 | AAP13533.2 | 57021110 | 7 |
| Cucurbita maxima | | Unassigned | Food Plant | Cuc ma 4 | IgE but no biological test | 480 | P13744.1 | 112677 | 20 |
| Cucurbita maxima | | Unassigned | Food Plant | Cuc ma 5 | IgE but no biological test | 141 | Q39649.1 | 68564970 | 20 |
| Culicoides nubeculosus | Farmyard midge | Unassigned | Venom or Salivary | Culicoides antigen 5 by similarity | IgE but no biological test | 263 | ACM40909.1 | 221768795 | 10 |
| Culicoides nubeculosus | Farmyard midge | Unassigned | Venom or Salivary | Culicoides antigen 5 by similarity | IgE but no biological test | 219 | ACM40888.1 | 221768626 | 10 |
| Cupressus arizonica | Arizona Cypress | Cup a 1.0101 | Aero Plant | Cupressus Cup a 1/Cup s 1 | IgE plus basophil+ or SPT+ | 346 | CAB62551.1 | 6562326 | 7 |
| Cupressus arizonica | Arizona Cypress | Unassigned | Aero Plant | Cupressus Cup a 1/Cup s 1 | IgE plus basophil+ or SPT+ | 367 | CAC37790.2 | 19069497 | 7 |
| Cupressus arizonica | Arizona Cypress | Unassigned | Aero Plant | Cupressus Cup a 1/Cup s 1 | IgE plus basophil+ or SPT+ | 347 | ABK78766.1 | 118197955 | 8 |
| Cupressus arizonica | Arizona Cypress | Unassigned | Aero Plant | Cupressus Cup a 4 | IgE but no biological test | 165 | ACY01951.1 | 261865475 | 11 |
| Cupressus arizonica | Arizona Cypress | Unassigned | Aero Plant | Cupressus Cup s 3 | IgE but no biological test | 199 | CAC05258.1 | 9929163 | 7 |
| Cupressus sempervirens | Mediterranean Cypress | Cup s 1.0101 | Aero Plant | Cupressus Cup a 1/Cup s 1 | IgE plus basophil+ or SPT+ | 367 | AAF72625.1 | 8101711 | 7 |
| Cupressus sempervirens | Mediterranean Cypress | Cup s 1.0102 | Aero Plant | Cupressus Cup a 1/Cup s 1 | IgE plus basophil+ or SPT+ | 367 | AAF72626.1 | 8101713 | 7 |
| Cupressus sempervirens | Mediterranean Cypress | Cup s 1.0103 | Aero Plant | Cupressus Cup a 1/Cup s 1 | IgE plus basophil+ or SPT+ | 367 | AAF72627.1 | 8101715 | 7 |
| Cupressus sempervirens | Mediterranean Cypress | Cup s 1.0104 | Aero Plant | Cupressus Cup a 1/Cup s 1 | IgE plus basophil+ or SPT+ | 367 | AAF72628.1 | 8101717 | 7 |
| Cupressus sempervirens | Mediterranean Cypress | Cup s 1.0105 | Aero Plant | Cupressus Cup a 1/Cup s 1 | IgE plus basophil+ or SPT+ | 367 | AAF72629.1 | 8101719 | 7 |
| Cupressus sempervirens | Mediterranean Cypress | Cup s 3.0102 | Aero Plant | Cupressus Cup s 3 | IgE but no biological test | 225 | AAR21074.1 | 38456228 | 7 |
| Cupressus sempervirens | Mediterranean Cypress | Cup s 3.0101 | Aero Plant | Cupressus Cup s 3 | IgE but no biological test | 225 | AAR21073.1 | 38456226 | 11 |
| Cynodon dactylon | Bermuda grass | Unassigned | Aero Plant | Cynodon Cyn d 1 | IgE plus basophil+ or SPT+ | 25 | AAB28566.1 | 451274 | 7 |
| Cynodon dactylon | Bermuda grass | Unassigned | Aero Plant | Cynodon Cyn d 1 | IgE plus basophil+ or SPT+ | 38 | AAB28567.1 | 451275 | 7 |
| Cynodon dactylon | Bermuda grass | Unassigned | Aero Plant | Cynodon Cyn d 1 | IgE plus basophil+ or SPT+ | 34 | AAB32317.1 | 691726 | 7 |
| Cynodon dactylon | Bermuda grass | Cyn d 1.0204 | Aero Plant | Cynodon Cyn d 1 | IgE plus basophil+ or SPT+ | 244 | AAF80379.2 | 10314021 | 7 |
| Cynodon dactylon | Bermuda grass | Cyn d 1.0201 | Aero Plant | Cynodon Cyn d 1 | IgE plus basophil+ or SPT+ | 244 | AAK96255.1 | 15384338 | 7 |
| Cynodon dactylon | Bermuda grass | Cyn d 1.0202 | Aero Plant | Cynodon Cyn d 1 | IgE plus basophil+ or SPT+ | 262 | AAL14077.1 | 16076693 | 7 |
| Cynodon dactylon | Bermuda grass | Unassigned | Aero Plant | Cynodon Cyn d 1 | IgE plus basophil+ or SPT+ | 262 | AAL14078.1 | 16076695 | 7 |
| Cynodon dactylon | Bermuda grass | Cyn d 1.0203 | Aero Plant | Cynodon Cyn d 1 | IgE plus basophil+ or SPT+ | 262 | AAL14079.1 | 16076697 | 7 |
| Cynodon dactylon | Bermuda grass | Cyn d 1.0101 | Aero Plant | Cynodon Cyn d 1 | IgE plus basophil+ or SPT+ | 246 | AAB50734.2 | 7687901 | 10 |
| Cynodon dactylon | Bermuda grass | Cyn d 12.0101 | Aero Plant | Cynodon Cyn d 12 | IgE but no biological test | 131 | CAA69670.1 | 2154730 | 7 |
| Cynodon dactylon | Bermuda grass | Unassigned | Aero Plant | Cynodon Cyn d 7 | IgE but no biological test | 71 | CAA01909.1 | 1247373 | 7 |
| Cynodon dactylon | Bermuda grass | Unassigned | Aero Plant | Cynodon Cyn d 7 | IgE but no biological test | 73 | CAA01910.1 | 1247375 | 7 |
| Cynodon dactylon | Bermuda grass | Cyn d 7.0101 | Aero Plant | Cynodon Cyn d 7 | IgE but no biological test | 82 | CAA62634.1 | 1871507 | 7 |
| Cynodon dactylon | Bermuda grass | Unassigned | Aero Plant | Cynodon Group 4 like-allergen FAD-linked oxidoredu | IgE but no biological test | 522 | AAS02108.1 | 41393750 | 7 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stA Version |
|--------------------------|-----------------|----------------|-------------|--|----------------------------|--------|------------|------------|--------------|
| Cyprinus carpio | Carp | Cyp c 1.0101 | Food Animal | Cyprinus Cyp c 1 Parvalbumin | IgE plus basophil+ or SPT+ | 109 | CAC83658.1 | 17977825 | 7 |
| Cyprinus carpio | Carp | Cyp c 1.0201 | Food Animal | Cyprinus Cyp c 1 Parvalbumin | IgE plus basophil+ or SPT+ | 109 | CAC83659.1 | 17977827 | 7 |
| Dactylis glomerata | Orchard grass | | Aero Plant | Dactylis Dac g 1 | IgE plus basophil+ or SPT+ | 264 | CAD20406.1 | 18093991 | 7 |
| Dactylis glomerata | Orchard grass | Dac g 1.0101 | Aero Plant | Dactylis Dac g 1 | IgE plus basophil+ or SPT+ | 240 | AAP96759.1 | 33149333 | 7 |
| Dactylis glomerata | Orchard grass | Dac g 2.0101 | Aero Plant | Dactylis Dac g 2 | IgE but no biological test | 196 | 2103117A | 1093120 | 7 |
| Dactylis glomerata | Orchard grass | | Aero Plant | Dactylis Dac g 2 | IgE but no biological test | 122 | CAA10345.1 | 4007040 | 7 |
| Dactylis glomerata | Orchard grass | Dac g 3.0101 | Aero Plant | Dactylis Dac g 3 | IgE but no biological test | 96 | AAB42200.1 | 1825459 | 7 |
| Dactylis glomerata | Orchard grass | Dac g 4.0101 | Aero Plant | Dactylis Dac g 4 | IgE but no biological test | 55 | P82946.1 | 32363463 | 9 |
| Dactylis glomerata | Orchard grass | | Aero Plant | Dactylis Dac g 5 | IgE but no biological test | 290 | AAK62278.1 | 14423124 | 7 |
| Dactylis glomerata | Orchard grass | | Aero Plant | Dactylis Dac g 5 | IgE but no biological test | 265 | CAD20405.1 | 18093971 | 7 |
| Daucus carota | Carrot | Unassigned | Food Plant | Daucus cyclophilin | IgE but no biological test | 171 | AEY79726.1 | 373939374 | 13 |
| Daucus carota | Carrot | Dau c 1.0101 | Food Plant | Daucus Dau c 1 | IgE plus basophil+ or SPT+ | 168 | AAB01092.1 | 1335877 | 7 |
| Daucus carota | Carrot | Dau c 1.0102 | Food Plant | Daucus Dau c 1 | IgE plus basophil+ or SPT+ | 154 | BAA13604.1 | 1663522 | 7 |
| Daucus carota | Carrot | Dau c 1.0103 | Food Plant | Daucus Dau c 1 | IgE plus basophil+ or SPT+ | 154 | CAB03715.1 | 2154732 | 7 |
| Daucus carota | Carrot | Dau c 1.0104 | Food Plant | Daucus Dau c 1 | IgE plus basophil+ or SPT+ | 154 | CAB03716.1 | 2154734 | 7 |
| Daucus carota | Carrot | Dau c 1.0105 | Food Plant | Daucus Dau c 1 | IgE plus basophil+ or SPT+ | 154 | CAB06416.1 | 2154736 | 7 |
| Daucus carota | Carrot | Dau c 1.0201 | Food Plant | Daucus Dau c 1 | IgE plus basophil+ or SPT+ | 154 | AAL76932.1 | 18652047 | 7 |
| Daucus carota | Carrot | Unassigned | Food Plant | Daucus Dau c 1 | IgE plus basophil+ or SPT+ | 154 | BAB88129.1 | 19912791 | 7 |
| Daucus carota | Carrot | Dau c 1.0301 | Food Plant | Daucus Dau c 1 | IgE plus basophil+ or SPT+ | 154 | ADL32660.1 | 302379147 | 12 |
| Daucus carota | Carrot | Unassigned | Food Plant | Daucus Dau c 1 | IgE plus basophil+ or SPT+ | 154 | ADL32661.1 | 302379149 | 12 |
| Daucus carota | Carrot | Unassigned | Food Plant | Daucus Dau c 1 | IgE plus basophil+ or SPT+ | 154 | ADL32662.1 | 302379151 | 12 |
| Daucus carota | Carrot | Unassigned | Food Plant | Daucus Dau c 1 | IgE plus basophil+ or SPT+ | 154 | ADL32663.1 | 302379153 | 12 |
| Daucus carota | Carrot | Unassigned | Food Plant | Daucus Dau c 1 | IgE plus basophil+ or SPT+ | 154 | ADL32664.1 | 302379155 | 12 |
| Daucus carota | Carrot | Unassigned | Food Plant | Daucus Dau c 1 | IgE plus basophil+ or SPT+ | 154 | ADL32665.1 | 302379157 | 12 |
| Daucus carota | Carrot | Unassigned | Food Plant | Daucus Dau c 1 | IgE plus basophil+ or SPT+ | 154 | ADL32666.1 | 302379159 | 12 |
| Daucus carota | Carrot | Dau c 4.0101 | Food Plant | Daucus Dau c 4 | IgE plus basophil+ or SPT+ | 134 | AAL76933.1 | 18652049 | 7 |
| Daucus carota | Carrot | Dau c 5.0101 | Food Plant | Daucus Dau c 5 isoflavone reductase | IgE but no biological test | 306 | AEY79728.1 | 373939378 | 13 |
| Daucus carota | Carrot | Unassigned | Food Plant | Daucus Dau c 5 isoflavone reductase | IgE but no biological test | 306 | AEY79727.1 | 373939376 | 13 |
| Davidiella tassiana | Fungus | Cla h 10.0101 | Aero Fungi | Cladosporium / Davidiella Cla h 10 | IgE but no biological test | 496 | CAA55072.2 | 76666769 | 7 |
| Davidiella tassiana | Fungus | Cla h 5.0101 | Aero Fungi | Cladosporium / Davidiella Cla h 5 | IgE but no biological test | 111 | CAA55067.2 | 577795 | 10 |
| Davidiella tassiana | Fungus | Cla h 6.0101 | Aero Fungi | Cladosporium / Davidiella Cla h 6 | IgE but no biological test | 440 | CAA55070.1 | 467660 | 7 |
| Davidiella tassiana | Fungus | | Aero Fungi | Cladosporium / Davidiella Cla h 6 | IgE but no biological test | 440 | P42040.2 | 6015094 | 7 |
| Davidiella tassiana | Fungus | Cla h 7.0101 | Aero Fungi | Cladosporium / Davidiella Cla h 7 | IgE but no biological test | 204 | CAA55068.1 | 467629 | 10 |
| Davidiella tassiana | Fungus | Cla h 8.0101 | Aero Fungi | Cladosporium / Davidiella Cla h 8 | IgE plus basophil+ or SPT+ | 267 | AAO91801.1 | 37780015 | 8 |
| Davidiella tassiana | Fungus | Cla h 9.0101 | Aero Fungi | Cladosporium / Davidiella Cla h 9 vacuolar serine | IgE but no biological test | 518 | AAX14379.1 | 60116876 | 10 |
| Davidiella tassiana | Fungus | Unassigned | Aero Fungi | Cladosporium / Davidiella Heat shock 70 kDa protei | IgE but no biological test | 643 | P40918.1 | 729764 | 7 |
| Davidiella tassiana | Fungus | Unassigned | Aero Fungi | Cladosporium / Davidiella Hydrophobin | IgE plus basophil+ or SPT+ | 105 | CAD42710.1 | 22796153 | 7 |
| Davidiella tassiana | Fungus | Unassigned | Aero Fungi | Cladosporium / Davidiella putative hydrolase | IgE but no biological test | 274 | ABA42918.1 | 76446100 | 10 |
| Davidiella tassiana | Fungus | Unassigned | Aero Fungi | Cladosporium / Davidiella Putative nuclear transpo | IgE plus basophil+ or SPT+ | 125 | CAD38166.1 | 21748151 | 7 |
| Davidiella tassiana | Fungus | Unassigned | Aero Fungi | Cladosporium Davidiella TCTP | IgE but no biological test | 169 | A1KXP4.1 | 1679357707 | 20 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Der f 21 | IgE but no biological test | 136 | ABO84963.1 | 140089314 | 9 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Der f 21 | IgE but no biological test | 136 | ABO84964.1 | 140089316 | 9 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Der f 21 | IgE but no biological test | 136 | ABO84966.1 | 140089320 | 9 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Der f 21 | IgE but no biological test | 136 | ABO84967.1 | 140089322 | 9 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Der f 21 | IgE but no biological test | 136 | ABO84968.1 | 140089324 | 9 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Der f 21 | IgE but no biological test | 136 | ABO84969.1 | 140089326 | 9 |
| Dermatophagoides farinae | House dust mite | Der f 21.0101 | Aero Mite | Der f 21 | IgE but no biological test | 136 | AHC94806.1 | 567768173 | 15 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Der f 21 | IgE but no biological test | 118 | 5YNX_A | 1595430102 | 20 |
| Dermatophagoides farinae | House dust mite | Der f 30.0101 | Aero Mite | Der f 30 | IgE plus basophil+ or SPT+ | 171 | AGC56219.1 | 442565878 | 14 |
| Dermatophagoides farinae | House dust mite | Der f 32.0101 | Aero Mite | Der f 32 | IgE but no biological test | 296 | AIO08849.1 | 685432790 | 15 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Der f 36 from Proteome | IgE but no biological test | 229 | ATI08931.1 | 1250175279 | 18 |

| Species | Common | IUIS Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stÅ Version |
|--------------------------|-----------------|---------------|-----------|--|----------------------------|--------|------------|------------|--------------|
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Der f alpha actinin | IgE plus basophil+ or SPT+ | 885 | L7U285.1 | 1160577980 | 18 |
| Dermatophagoides farinae | House dust mite | Der f 13.0101 | Aero Mite | Dermatophagoides Der f 13 | IgE plus basophil+ or SPT+ | 131 | AAP35078.1 | 37958167 | 11 |
| Dermatophagoides farinae | House dust mite | Der f 15.0101 | Aero Mite | Dermatophagoides Der f 15 Der p 15 | IgE but no biological test | 555 | AAD52672.1 | 5815436 | 7 |
| Dermatophagoides farinae | House dust mite | Der f 16.0101 | Aero Mite | Dermatophagoides Der f 16 | IgE but no biological test | 480 | AAM64112.1 | 21591547 | 7 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der f 20 / Der p 20 | IgE but no biological test | 356 | AAP57094.1 | 37785884 | 8 |
| Dermatophagoides farinae | House dust mite | Der f 20.0201 | Aero Mite | Dermatophagoides Der f 20 / Der p 20 | IgE but no biological test | 356 | ABU97470.1 | 156938897 | 9 |
| Dermatophagoides farinae | House dust mite | Der f 20.0101 | Aero Mite | Dermatophagoides Der f 20 / Der p 20 | IgE but no biological test | 356 | AIO08850.1 | 685432792 | 15 |
| Dermatophagoides farinae | House dust mite | Der f 22.0101 | Aero Mite | Dermatophagoides Der f 22 | IgE but no biological test | 155 | ABG35122.1 | 109629736 | 9 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der f 23 like | IgE plus basophil+ or SPT+ | 174 | ALU66112.1 | 970836006 | 17 |
| Dermatophagoides farinae | House dust mite | Der f 24.0101 | Aero Mite | Dermatophagoides Der f 24 and Der p 24 Ubiquinol | IgE but no biological test | 118 | AGI78542.1 | 477541860 | 14 |
| Dermatophagoides farinae | House dust mite | Der f 25.0101 | Aero Mite | Dermatophagoides Der f 25 | IgE but no biological test | 247 | AGC56216.1 | 442565872 | 14 |
| Dermatophagoides farinae | House dust mite | Der f 25.0201 | Aero Mite | Dermatophagoides Der f 25 | IgE but no biological test | 247 | AIO08860.1 | 685432812 | 15 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der f 27 | IgE plus basophil+ or SPT+ | 427 | AAP35082.1 | 37958175 | 8 |
| Dermatophagoides farinae | House dust mite | Der p 1.0102 | Aero Mite | Dermatophagoides Der f 27 | IgE plus basophil+ or SPT+ | 427 | AIO08851.1 | 685432794 | 15 |
| Dermatophagoides farinae | House dust mite | Der f 28.0101 | Aero Mite | Dermatophagoides Der f 28 | IgE but no biological test | 659 | AGC56218.1 | 442565876 | 14 |
| Dermatophagoides farinae | House dust mite | Der f 28.0201 | Aero Mite | Dermatophagoides Der f 28 | IgE but no biological test | 654 | AIO08848.1 | 685432788 | 15 |
| Dermatophagoides farinae | House dust mite | Der f 29.0101 | Aero Mite | Dermatophagoides Der f 29 | IgE plus basophil+ or SPT+ | 164 | AAP35065.1 | 37958141 | 8 |
| Dermatophagoides farinae | House dust mite | Der f 31.0101 | Aero Mite | Dermatophagoides Der f 31 | IgE plus basophil+ or SPT+ | 148 | AIO08870.1 | 685432832 | 15 |
| Dermatophagoides farinae | House dust mite | Der f 33.0101 | Aero Mite | Dermatophagoides Der f 33 | IgE but no biological test | 461 | AIO08861.1 | 685432814 | 15 |
| Dermatophagoides farinae | House dust mite | Der f 35.0101 | Aero Mite | Dermatophagoides Der f 35 | IgE but no biological test | 143 | BAX34757.1 | 1187443130 | 18 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der f 5-like | IgE but no biological test | 132 | BAE45865.1 | 76880188 | 7 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der f 5-like | IgE but no biological test | 132 | AAP35068.1 | 37958147 | 8 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der f 5-like | IgE but no biological test | 132 | ABO84970.1 | 140089345 | 9 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der f 5-like | IgE but no biological test | 132 | ABO84971.1 | 140089347 | 9 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der f 5-like | IgE but no biological test | 132 | ABO84972.1 | 140089349 | 9 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der f 5-like | IgE but no biological test | 132 | ABO84973.1 | 140089351 | 9 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 1 Der f 1 Der m 1 | IgE plus basophil+ or SPT+ | 321 | P16311.2 | 730035 | 7 |
| Dermatophagoides farinae | House dust mite | Der f 1.0101 | Aero Mite | Dermatophagoides Der p 1 Der f 1 Der m 1 | IgE plus basophil+ or SPT+ | 321 | BAC53948.1 | 27530349 | 7 |
| Dermatophagoides farinae | House dust mite | Der f 1.0102 | Aero Mite | Dermatophagoides Der p 1 Der f 1 Der m 1 | IgE plus basophil+ or SPT+ | 276 | ABA39436.1 | 76097507 | 7 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 1 Der f 1 Der m 1 | IgE plus basophil+ or SPT+ | 321 | ABU49605.1 | 156106765 | 9 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 1 Der f 1 Der m 1 | IgE plus basophil+ or SPT+ | 263 | AAP35075.1 | 37958161 | 12 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 1 Der f 1 Der m 1 | IgE plus basophil+ or SPT+ | 305 | AFJ68066.1 | 387178006 | 13 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 1 Der f 1 Der m 1 | IgE plus basophil+ or SPT+ | 303 | ADM52184.1 | 305387429 | 15 |
| Dermatophagoides farinae | House dust mite | Der f 1.0108 | Aero Mite | Dermatophagoides Der p 1 Der f 1 Der m 1 | IgE plus basophil+ or SPT+ | 321 | ABL84749.1 | 119633260 | 15 |
| Dermatophagoides farinae | House dust mite | Der f 1.0109 | Aero Mite | Dermatophagoides Der p 1 Der f 1 Der m 1 | IgE plus basophil+ or SPT+ | 321 | ABL84750.1 | 119633262 | 15 |
| Dermatophagoides farinae | House dust mite | Der f 1.0110 | Aero Mite | Dermatophagoides Der p 1 Der f 1 Der m 1 | IgE plus basophil+ or SPT+ | 321 | ABL84751.1 | 119633264 | 15 |
| Dermatophagoides farinae | House dust mite | Der f 10.0101 | Aero Mite | Dermatophagoides Der p 10 / Der f 10 | IgE plus basophil+ or SPT+ | 299 | BAA04557.1 | 1359436 | 7 |
| Dermatophagoides farinae | House dust mite | Der f 11.0101 | Aero Mite | Dermatophagoides Der p 11 / Der f 11 | IgE plus basophil+ or SPT+ | 692 | AAK39511.1 | 13785807 | 7 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 11 / Der f 11 | IgE plus basophil+ or SPT+ | 876 | AIO08864.1 | 685432820 | 16 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 14 / Der f 14 | IgE but no biological test | 349 | P39673.1 | 729979 | 7 |
| Dermatophagoides farinae | House dust mite | Der f 14.0101 | Aero Mite | Dermatophagoides Der p 14 / Der f 14 | IgE but no biological test | 341 | BAA04558.1 | 1545803 | 7 |
| Dermatophagoides farinae | House dust mite | Der f 2.0102 | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 146 | BAA01240.1 | 217306 | 7 |
| Dermatophagoides farinae | House dust mite | Der f 2.0103 | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 138 | BAA01241.1 | 217308 | 7 |
| Dermatophagoides farinae | House dust mite | Der f 2.0105 | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 129 | AAL47677.1 | 17978844 | 7 |
| Dermatophagoides farinae | House dust mite | Der f 2.0108 | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 146 | CAI05850.1 | 55859470 | 7 |
| Dermatophagoides farinae | House dust mite | Der f 2.0107 | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 146 | CAI05849.1 | 55859468 | 7 |
| Dermatophagoides farinae | House dust mite | Der f 2.0106 | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 146 | CAI05848.1 | 55859466 | 7 |
| Dermatophagoides farinae | House dust mite | Der f 2.0109 | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 129 | ABA39438.1 | 76097511 | 7 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 146 | BAD74060.2 | 256631558 | 11 |
| Dermatophagoides farinae | House dust mite | Der f 2.0112 | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 140 | AAP35073.1 | 37958157 | 12 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 129 | AFJ68072.1 | 387178018 | 13 |
| Dermatophagoides farinae | House dust mite | Der f 2.0101 | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 138 | BAA01239.1 | 217304 | 15 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stA Version |
|--------------------------------|-----------------|----------------|-----------|--|----------------------------|--------|-------------|------------|--------------|
| Dermatophagoides farinae | House dust mite | Der f 2.0116 | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 146 | ABN14313.1 | 124696217 | 15 |
| Dermatophagoides farinae | House dust mite | | Aero Mite | Dermatophagoides Der p 3 / Der f 3 | IgE but no biological test | 232 | AAA99805.1 | 1314736 | 7 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 3 / Der f 3 | IgE but no biological test | 259 | ABY28115.1 | 163638970 | 9 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 3 / Der f 3 | IgE but no biological test | 259 | ACK76291.1 | 218203816 | 10 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 3 / Der f 3 | IgE but no biological test | 259 | ACK76292.1 | 218203818 | 10 |
| Dermatophagoides farinae | House dust mite | Der f 3.0101 | Aero Mite | Dermatophagoides Der p 3 / Der f 3 | IgE but no biological test | 259 | BAA09920.1 | 1311457 | 15 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 6 / Der f 6 | IgE but no biological test | 20 | AA827594.1 | 404371 | 7 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 6 / Der f 6 | IgE but no biological test | 279 | ACK76296.1 | 218203826 | 10 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 6 / Der f 6 | IgE but no biological test | 279 | ACK76297.1 | 218203828 | 10 |
| Dermatophagoides farinae | House dust mite | Der f 6.0101 | Aero Mite | Dermatophagoides Der p 6 / Der f 6 | IgE but no biological test | 279 | AAF28423.1 | 6808530 | 11 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 7 / Der f 7 | IgE plus basophil+ or SPT+ | 213 | AAP35077.1 | 37958165 | 8 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 7 / Der f 7 | IgE plus basophil+ or SPT+ | 213 | ACK76299.1 | 218203832 | 10 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 7 / Der f 7 | IgE plus basophil+ or SPT+ | 213 | AIO08853.1 | 685432798 | 16 |
| Dermatophagoides farinae | House dust mite | Der f 18.0101 | Aero Mite | Dermatophagoides farinae Der f 18 Der p 18 | IgE but no biological test | 462 | AAM19082.1 | 27550039 | 7 |
| Dermatophagoides farinae | House dust mite | Der f 34.0101 | Aero Mite | Dermatophagoides farinae Der f 34 | IgE but no biological test | 128 | BAV90601.1 | 1098871171 | 17 |
| Dermatophagoides farinae | House dust mite | Der f 4.0101 | Aero Mite | Dermatophagoides farinae Der f 4 | IgE but no biological test | 525 | AHX03180.1 | 612487835 | 15 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides farinae Der f 4 | IgE but no biological test | 525 | AIP86946.1 | 685848330 | 16 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides farinae Der f 4 | IgE but no biological test | 525 | AIP86945.1 | 685848328 | 16 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides farinae Der f 4 | IgE but no biological test | 525 | AIP86944.1 | 685848326 | 16 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides farinae Der f 4 | IgE but no biological test | 525 | AIP86943.1 | 685848324 | 16 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides farinae Der f 4 | IgE but no biological test | 525 | AIP86942.1 | 685848322 | 16 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides farinae Der f 4 | IgE but no biological test | 525 | AIP86941.1 | 685848320 | 16 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides farinae Der f 4 | IgE but no biological test | 525 | AIP86940.1 | 685848318 | 16 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides farinae Der f 4 | IgE but no biological test | 525 | AIP86939.1 | 685848316 | 16 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides farinae Der f 4 | IgE but no biological test | 525 | AIF93907.1 | 751425403 | 16 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides farinae Pseudo-Der f 8 | IgE but no biological test | 219 | AAF35080.1 | 37958171 | 12 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides farinae Pseudo-Der f 8 | IgE but no biological test | 221 | AIO08867.1 | 685432826 | 16 |
| Dermatophagoides farinae | House dust mite | Unassigned | Aero Mite | Dermatophagoides Profilin | IgE but no biological test | 130 | AIO08866.1 | 685432824 | 16 |
| Dermatophagoides microceras | House dust mite | Der m 1.0101 | Aero Mite | Dermatophagoides Der p 1 Der f 1 Der m 1 | IgE plus basophil+ or SPT+ | 30 | P16312.1 | 127205 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | Unassigned | Aero Mite | Der f 30 | IgE plus basophil+ or SPT+ | 180 | AAG02250.1 | 15072346 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | Unassigned | Aero Mite | Der p 26 | IgE but no biological test | 121 | QAT18638.1 | 1561006359 | 20 |
| Dermatophagoides pteronyssinus | House dust mite | Unassigned | Aero Mite | Der p 28 | IgE but no biological test | 655 | QAT18639.1 | 1561006361 | 20 |
| Dermatophagoides pteronyssinus | House dust mite | Unassigned | Aero Mite | Der p 32 | IgE but no biological test | 391 | QAT18643.1 | 1561006369 | 20 |
| Dermatophagoides pteronyssinus | House dust mite | Unassigned | Aero Mite | Der p 33 | IgE but no biological test | 396 | QAT18644.1 | 1561006371 | 20 |
| Dermatophagoides pteronyssinus | House dust mite | Unassigned | Aero Mite | Der p 36 | IgE but no biological test | 227 | ATI08932.1 | 1250175281 | 18 |
| Dermatophagoides pteronyssinus | House dust mite | Der p 15.0101 | Aero Mite | Dermatophagoides Der f 15 Der p 15 | IgE but no biological test | 532 | AAAY84565.1 | 67957089 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | Der p 15.0102 | Aero Mite | Dermatophagoides Der f 15 Der p 15 | IgE but no biological test | 558 | AAAY84564.2 | 78128018 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | Der p 20.0101 | Aero Mite | Dermatophagoides Der f 20 / Der p 20 | IgE but no biological test | 356 | ACD50950.1 | 188485735 | 10 |
| Dermatophagoides pteronyssinus | House dust mite | Der p 24.0101 | Aero Mite | Dermatophagoides Der f 24 and Der p 24 Ubiquinol | IgE but no biological test | 118 | ALA65345.1 | 922664427 | 16 |
| Dermatophagoides pteronyssinus | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der f 33 | IgE but no biological test | 460 | AUX14773.1 | 1338184716 | 19 |
| Dermatophagoides pteronyssinus | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der f 35 | IgE but no biological test | 143 | ATI08948.1 | 1250329008 | 19 |
| Dermatophagoides pteronyssinus | House dust mite | | Aero Mite | Dermatophagoides Der p 1 Der f 1 Der m 1 | IgE plus basophil+ or SPT+ | 222 | CAD38361.1 | 21725560 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | | Aero Mite | Dermatophagoides Der p 1 Der f 1 Der m 1 | IgE plus basophil+ or SPT+ | 222 | CAD38362.1 | 21725562 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | | Aero Mite | Dermatophagoides Der p 1 Der f 1 Der m 1 | IgE plus basophil+ or SPT+ | 222 | CAD38363.1 | 21725564 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | | Aero Mite | Dermatophagoides Der p 1 Der f 1 Der m 1 | IgE plus basophil+ or SPT+ | 222 | CAD38364.1 | 21725566 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | | Aero Mite | Dermatophagoides Der p 1 Der f 1 Der m 1 | IgE plus basophil+ or SPT+ | 222 | CAD38365.1 | 21725568 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | | Aero Mite | Dermatophagoides Der p 1 Der f 1 Der m 1 | IgE plus basophil+ or SPT+ | 222 | CAD38366.1 | 21725570 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | | Aero Mite | Dermatophagoides Der p 1 Der f 1 Der m 1 | IgE plus basophil+ or SPT+ | 222 | CAD38367.1 | 21725572 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | | Aero Mite | Dermatophagoides Der p 1 Der f 1 Der m 1 | IgE plus basophil+ or SPT+ | 222 | CAD38368.1 | 21725574 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | | Aero Mite | Dermatophagoides Der p 1 Der f 1 Der m 1 | IgE plus basophil+ or SPT+ | 222 | CAD38369.1 | 21725576 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | | Aero Mite | Dermatophagoides Der p 1 Der f 1 Der m 1 | IgE plus basophil+ or SPT+ | 222 | CAD38370.1 | 21725578 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | | Aero Mite | Dermatophagoides Der p 1 Der f 1 Der m 1 | IgE plus basophil+ or SPT+ | 222 | CAD38371.1 | 21725580 | 7 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stA Version |
|--------------------------------|-----------------|----------------|-----------|--|----------------------------|--------|------------|-----------|--------------|
| Dermatophagoides pteronyssinus | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 1 Der f 1 Der m 1 | IgE plus basophil+ or SPT+ | 216 | AAX47076.1 | 61608445 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 1 Der f 1 Der m 1 | IgE plus basophil+ or SPT+ | 222 | 2AS8_B | 83754033 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 1 Der f 1 Der m 1 | IgE plus basophil+ or SPT+ | 223 | ABV66255.1 | 157696052 | 9 |
| Dermatophagoides pteronyssinus | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 1 Der f 1 Der m 1 | IgE plus basophil+ or SPT+ | 222 | 3F5V_B | 223365887 | 10 |
| Dermatophagoides pteronyssinus | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 1 Der f 1 Der m 1 | IgE plus basophil+ or SPT+ | 320 | ACG58378.1 | 195933901 | 10 |
| Dermatophagoides pteronyssinus | House dust mite | Der p 1.0124 | Aero Mite | Dermatophagoides Der p 1 Der f 1 Der m 1 | IgE plus basophil+ or SPT+ | 302 | CAQ68250.1 | 256095986 | 11 |
| Dermatophagoides pteronyssinus | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 1 Der f 1 Der m 1 | IgE plus basophil+ or SPT+ | 96 | AAA28296.1 | 387592 | 11 |
| Dermatophagoides pteronyssinus | House dust mite | Der p 13.0101 | Aero Mite | Dermatophagoides Der p 1 Der f 1 Der m 1 | IgE plus basophil+ or SPT+ | 320 | AAB60215.1 | 511953 | 12 |
| Dermatophagoides pteronyssinus | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 1 Der f 1 Der m 1 | IgE plus basophil+ or SPT+ | 304 | AFJ68065.1 | 387178004 | 13 |
| Dermatophagoides pteronyssinus | House dust mite | Der p 1.0113 | Aero Mite | Dermatophagoides Der p 1 Der f 1 Der m 1 | IgE plus basophil+ or SPT+ | 302 | ABA39435.1 | 76097505 | 15 |
| Dermatophagoides pteronyssinus | House dust mite | | Aero Mite | Dermatophagoides Der p 10 / Der f 10 | IgE plus basophil+ or SPT+ | 284 | AAB69424.1 | 2353266 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | Der p 10.0101 | Aero Mite | Dermatophagoides Der p 10 / Der f 10 | IgE plus basophil+ or SPT+ | 284 | CAA75141.1 | 2440053 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 10 / Der f 10 | IgE plus basophil+ or SPT+ | 281 | ABB52642.1 | 80553470 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 10 / Der f 10 | IgE plus basophil+ or SPT+ | 284 | ACI32128.1 | 208970286 | 10 |
| Dermatophagoides pteronyssinus | House dust mite | Der p 11.0101 | Aero Mite | Dermatophagoides Der p 11 / Der f 11 | IgE plus basophil+ or SPT+ | 875 | AAO73464.1 | 37778944 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | Der p 13.0101 | Aero Mite | Dermatophagoides Der p 13 | IgE but no biological test | 131 | ADK92390.1 | 302035350 | 12 |
| Dermatophagoides pteronyssinus | House dust mite | Der p 14.0101 | Aero Mite | Dermatophagoides Der p 14 / Der f 14 | IgE but no biological test | 1662 | AAM21322.1 | 20385544 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 129 | 1KTJ_A | 21465915 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 129 | CAD38372.1 | 21725582 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 129 | CAD38373.1 | 21725584 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 129 | CAD38374.1 | 21725586 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 129 | CAD38375.1 | 21725588 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 129 | CAD38376.1 | 21725590 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 129 | CAD38377.1 | 21725592 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 129 | CAD38378.1 | 21725594 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 129 | CAD38379.1 | 21725596 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 129 | CAD38381.1 | 21725600 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 129 | CAD38382.1 | 21725602 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 129 | CAD38383.1 | 21725604 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 129 | ABA39437.1 | 76097509 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | Der p 2.0114 | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 146 | CAK22338.1 | 99644635 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 130 | ABG76196.1 | 110560872 | 9 |
| Dermatophagoides pteronyssinus | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 129 | 1A9V_A | 157829757 | 9 |
| Dermatophagoides pteronyssinus | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 145 | ABY53034.1 | 164415595 | 9 |
| Dermatophagoides pteronyssinus | House dust mite | Der p 2.0101 | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 145 | AAF86462.1 | 9280543 | 10 |
| Dermatophagoides pteronyssinus | House dust mite | Der p 2.0110 | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 129 | CAQ68249.1 | 256095984 | 11 |
| Dermatophagoides pteronyssinus | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 129 | AFJ68070.1 | 387178014 | 13 |
| Dermatophagoides pteronyssinus | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 129 | AFJ68067.1 | 387178008 | 13 |
| Dermatophagoides pteronyssinus | House dust mite | Der p 21.0101 | Aero Mite | Dermatophagoides Der p 21 | IgE plus basophil+ or SPT+ | 140 | ABC73706.1 | 85687540 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | Der p 23.0101 | Aero Mite | Dermatophagoides Der p 23 Peritrophin-like protein | IgE plus basophil+ or SPT+ | 90 | ACB46292.1 | 171466145 | 14 |
| Dermatophagoides pteronyssinus | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 23 Peritrophin-like protein | IgE plus basophil+ or SPT+ | 50 | 4ZCE_A | 955264737 | 17 |
| Dermatophagoides pteronyssinus | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 23 Peritrophin-like protein | IgE plus basophil+ or SPT+ | 99 | ALA22869.1 | 920684621 | 17 |
| Dermatophagoides pteronyssinus | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 23 Peritrophin-like protein | IgE plus basophil+ or SPT+ | 98 | ALA22868.1 | 920684619 | 17 |
| Dermatophagoides pteronyssinus | House dust mite | Der p 3.0101 | Aero Mite | Dermatophagoides Der p 3 / Der f 3 | IgE but no biological test | 261 | AAA19973.1 | 511476 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | Der p 4.0101 | Aero Mite | Dermatophagoides Der p 4 | IgE but no biological test | 496 | AAD38942.1 | 5059162 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 4 | IgE but no biological test | 19 | P49274.1 | 1351935 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | Der p 5.0102 | Aero Mite | Dermatophagoides Der p 5 | IgE plus basophil+ or SPT+ | 132 | AAB32842.1 | 913285 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | | Aero Mite | Dermatophagoides Der p 5 | IgE plus basophil+ or SPT+ | 132 | CAD69036.1 | 28798085 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | Der p 5.0101 | Aero Mite | Dermatophagoides Der p 5 | IgE plus basophil+ or SPT+ | 148 | CAA35692.1 | 9072 | 15 |
| Dermatophagoides pteronyssinus | House dust mite | | Aero Mite | Dermatophagoides Der p 6 / Der f 6 | IgE but no biological test | 20 | P49277.1 | 1352239 | 7 |
| Dermatophagoides pteronyssinus | House dust mite | Der p 7.0101 | Aero Mite | Dermatophagoides Der p 7 / Der f 7 | IgE plus basophil+ or SPT+ | 215 | AAA80264.1 | 1045602 | 7 |

| Species | Common | IUIS4 Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stÅ Version |
|---------------------------------------|---------------------|----------------|-------------------|--|----------------------------|--------|----------------|------------|--------------|
| <i>Dermatophagoides pteronyssinus</i> | House dust mite | | Aero Mite | Dermatophagoides Der p 7 / Der f 7 | IgE plus basophil+ or SPT+ | 215 | CAC09234.1 | 10189811 | 7 |
| <i>Dermatophagoides pteronyssinus</i> | House dust mite | Der f 7.0101 | Aero Mite | Dermatophagoides Der p 7 / Der f 7 | IgE plus basophil+ or SPT+ | 213 | AAB35977.1 | 1311689 | 10 |
| <i>Dermatophagoides pteronyssinus</i> | House dust mite | Der p 8.0101 | Aero Mite | Dermatophagoides Der p 8 | IgE but no biological test | 219 | AAB32224.1 | 807138 | 7 |
| <i>Dermatophagoides pteronyssinus</i> | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 8 | IgE but no biological test | 219 | AAx37326.1 | 60920878 | 7 |
| <i>Dermatophagoides pteronyssinus</i> | House dust mite | Der p 18.0101 | Aero Mite | Dermatophagoides farinae Der f 18 Der p 18 | IgE but no biological test | 462 | AAy84563.1 | 67975085 | 7 |
| <i>Dermatophagoides pteronyssinus</i> | House dust mite | Unassigned | Aero Mite | Dermatophagoides Profilin | IgE but no biological test | 130 | AUX14776.1 | 1338184722 | 19 |
| <i>Dermatophagoides siboney</i> | House dust mite | Unassigned | Aero Mite | Dermatophagoides Der p 2 / Der f 2 | IgE plus basophil+ or SPT+ | 146 | ABC96702.1 | 86450747 | 7 |
| <i>Dolichovespula arenaria</i> | Yellow jacket | | Venom or Salivary | Dolichovespula Venom allergen 5 | IgE plus basophil+ or SPT+ | 203 | AAA28303.1 | 156719 | 11 |
| <i>Dolichovespula maculata</i> | Whiteface hornet | Dol m 1.02 | Venom or Salivary | Dolichovespula Dol m 1 Phospholipase A1B | IgE plus basophil+ or SPT+ | 303 | P53357.1 | 1709542 | 7 |
| <i>Dolichovespula maculata</i> | Whiteface hornet | Dol m 1.0101 | Venom or Salivary | Dolichovespula Dol m 1 Phospholipase A1B | IgE plus basophil+ or SPT+ | 317 | CAA47341.1 | 288917 | 8 |
| <i>Dolichovespula maculata</i> | Whiteface hornet | Dol m 2.0101 | Venom or Salivary | Dolichovespula Dol m 2 Hyaluronidase | IgE plus basophil+ or SPT+ | 331 | AAA68279.1 | 511604 | 11 |
| <i>Dolichovespula maculata</i> | Whiteface hornet | Dol m 5.0101 | Venom or Salivary | Dolichovespula Venom allergen 5 | IgE plus basophil+ or SPT+ | 227 | AAA28301.1 | 156715 | 11 |
| <i>Dolichovespula maculata</i> | Whiteface hornet | Dol m 5.02 | Venom or Salivary | Dolichovespula Venom allergen 5 | IgE plus basophil+ or SPT+ | 212 | AAA28302.1 | 552080 | 11 |
| <i>Epicoccum nigrum</i> | Fungus | Epi p 1.0101 | Aero Fungi | Epicoccum Epi p 1 | IgE plus basophil+ or SPT+ | 18 | P83340.1 | 24636820 | 9 |
| <i>Equus asinus</i> | | Equ a 6 | Food Animal | Equus asinus / caballas Equ a 6 Equ c 6 lysozyme | IgE plus basophil+ or SPT+ | 148 | XP_014705584.1 | 958727973 | 18 |
| <i>Equus caballus</i> | Horse | Equ c 6 | Food Animal | Equus asinus / caballas Equ a 6 Equ c 6 lysozyme | IgE plus basophil+ or SPT+ | 129 | P11376.1 | 126614 | 18 |
| <i>Equus caballus</i> | Horse | Equ c 1.0101 | Aero Animal | Equus Equ c 1 | IgE but no biological test | 187 | AAc48691.1 | 1575778 | 11 |
| <i>Equus caballus</i> | Horse | Equ c 2.0101 | Aero Animal | Equus Equ c 2 | IgE but no biological test | 29 | P81216.1 | 3121755 | 7 |
| <i>Equus caballus</i> | Horse | Equ c 2.0102 | Aero Animal | Equus Equ c 2 | IgE but no biological test | 19 | P81217.1 | 3121756 | 7 |
| <i>Equus caballus</i> | Horse | Unassigned | Aero Animal | Equus Equ c 2 | IgE but no biological test | 174 | AYL64456.1 | 1492010380 | 20 |
| <i>Equus caballus</i> | Horse | Equ c 3.0101 | Aero Animal | Equus Equ c 3 | IgE plus basophil+ or SPT+ | 607 | CAA52194.1 | 399672 | 7 |
| <i>Equus caballus</i> | Horse | Equ c 4.0101 | Aero Animal | Equus Equ c 4 and Equ c 5 | IgE but no biological test | 228 | AAM09530.3 | 126514234 | 8 |
| <i>Erimacrus isenbeckii</i> | Horsehair crab | Unassigned | Food Animal | Erimacrus tropomyosin | IgE but no biological test | 284 | BAF47268.1 | 125995169 | 8 |
| <i>Erimacrus isenbeckii</i> | Horsehair crab | Unassigned | Food Animal | Erimacrus tropomyosin | IgE but no biological test | 284 | BAF47269.1 | 125995171 | 8 |
| <i>Eriocheir sinensis</i> | Chinese mitten crab | Eri s 2.0101 | Food Animal | Eriocheir sinensis Eri s 2 | IgE plus basophil+ or SPT+ | 252 | AAO73305.1 | 37778438 | 16 |
| <i>Eriocheir sinensis</i> | Chinese mitten crab | Unassigned | Food Animal | Eriocheir tropomyosin | IgE but no biological test | 284 | ABO71783.1 | 134305330 | 8 |
| <i>Euphausia pacifica</i> | North Pacific Krill | Unassigned | Food Animal | Euphausia | IgE plus basophil+ or SPT+ | 284 | BAF76431.1 | 156712754 | 9 |
| <i>Euphausia superba</i> | Krill | Unassigned | Food Animal | Euphausia | IgE plus basophil+ or SPT+ | 284 | BAF76430.1 | 156712752 | 9 |
| <i>Euroglyphus maynei</i> | House dust mite | Eur m 1.0101 | Aero Mite | Euroglyphus Eur m 1 | IgE but no biological test | 321 | AAc82351.1 | 3941388 | 7 |
| <i>Euroglyphus maynei</i> | House dust mite | Unassigned | Aero Mite | Euroglyphus Eur m 1 | IgE but no biological test | 327 | AAc82352.1 | 3941390 | 7 |
| <i>Euroglyphus maynei</i> | House dust mite | Eur m 2.0102 | Aero Mite | Euroglyphus Eur m 2 | IgE but no biological test | 135 | AAc82350.1 | 3941386 | 7 |
| <i>Euroglyphus maynei</i> | House dust mite | Eur m 2.0101 | Aero Mite | Euroglyphus Eur m 2 | IgE but no biological test | 145 | AAc82349.1 | 3941384 | 11 |
| <i>Evyynnus japonica</i> | Crimson seabream | Unassigned | Food Animal | Evyynnus parvalbumin | IgE but no biological test | 109 | BAK09233.1 | 327342663 | 12 |
| <i>Evyynnus japonica</i> | Crimson seabream | Unassigned | Food Animal | Evyynnus parvalbumin | IgE but no biological test | 108 | BAK09232.1 | 327342661 | 12 |
| <i>Fagopyrum esculentum</i> | Buckwheat | Unassigned | Food Plant | Fagopyrum BW 8 kDa protein | IgE but no biological test | 133 | BAB79444.1 | 17907758 | 7 |
| <i>Fagopyrum esculentum</i> | Buckwheat | Unassigned | Food Plant | Fagopyrum esculentum 13S globulins IgE binding | IgE but no biological test | 453 | BAO50872.1 | 584592120 | 15 |
| <i>Fagopyrum esculentum</i> | Buckwheat | Unassigned | Food Plant | Fagopyrum esculentum 13S globulins IgE binding | IgE but no biological test | 453 | BAO50870.1 | 584592116 | 15 |
| <i>Fagopyrum esculentum</i> | Buckwheat | Unassigned | Food Plant | Fagopyrum Fag e 2 Fag t 2 | IgE but no biological test | 127 | AAx57578.1 | 61970231 | 7 |
| <i>Fagopyrum esculentum</i> | Buckwheat | Fag e 2.0101 | Food Plant | Fagopyrum Fag e 2 Fag t 2 | IgE but no biological test | 149 | ABC18306.1 | 83416591 | 7 |
| <i>Fagopyrum esculentum</i> | Buckwheat | Unassigned | Food Plant | Fagopyrum Legumin-like protein | IgE but no biological test | 565 | O23878.1 | 29839254 | 9 |
| <i>Fagopyrum esculentum</i> | Buckwheat | Unassigned | Food Plant | Fagopyrum Legumin-like protein | IgE but no biological test | 504 | O23880.1 | 29839255 | 9 |
| <i>Fagopyrum esculentum</i> | Buckwheat | Unassigned | Food Plant | Fagopyrum Legumin-like protein | IgE but no biological test | 538 | Q9XFM4.1 | 29839419 | 9 |
| <i>Fagopyrum esculentum</i> | Buckwheat | Fag e 3.0101 | Food Plant | Fagopyrum vicilin-like Fag e 3 | IgE but no biological test | 136 | ABQ10638.1 | 146217148 | 9 |
| <i>Fagopyrum esculentum</i> | Buckwheat | Unassigned | Food Plant | Fagopyrum vicilin-like Fag e 3 | IgE but no biological test | 136 | BAT21117.1 | 939106201 | 17 |
| <i>Fagopyrum tataricum</i> | Buckwheat | Unassigned | Food Plant | Fagopyrum BW 8 kDa protein | IgE but no biological test | 133 | ABO93594.1 | 144228127 | 8 |
| <i>Fagopyrum tataricum</i> | Buckwheat | Fag t 2.0101 | Food Plant | Fagopyrum Fag e 2 Fag t 2 | IgE but no biological test | 149 | ADW27428.1 | 320445237 | 12 |
| <i>Fagopyrum tataricum</i> | Buckwheat | Unassigned | Food Plant | Fagopyrum Legumin-like protein | IgE but no biological test | 515 | ABI32184.1 | 113200131 | 9 |
| <i>Fagus sylvatica</i> | European Beech | Unassigned | Aero Plant | Fagus Fag s 1 | IgE plus basophil+ or SPT+ | 160 | ACJ23865.1 | 212291472 | 10 |
| <i>Fagus sylvatica</i> | European Beech | Fag s 1.0101 | Aero Plant | Fagus Fag s 1 | IgE plus basophil+ or SPT+ | 160 | ACJ23864.1 | 212291470 | 10 |
| <i>Fagus sylvatica</i> | European Beech | Unassigned | Aero Plant | Fagus Fag s 1 | IgE plus basophil+ or SPT+ | 160 | ACJ23866.1 | 212291474 | 10 |
| <i>Farfantepenaeus aztecus</i> | Brown shrimp | Pen a 1.0101 | Food Animal | Farfantepenaeus Pen a 1 | IgE plus basophil+ or SPT+ | 284 | AAZ76743.1 | 73532979 | 7 |

| Species | Common | IUIS Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stÅ Version |
|---------------------------|----------------------|---------------|-------------------|---|----------------------------|--------|----------------|------------|--------------|
| Felis catus | Cat | | Aero Animal | Felis Fel d 1 Chain 1 | IgE plus basophil+ or SPT+ | 88 | CAA44343.1 | 1364212 | 7 |
| Felis catus | Cat | | Aero Animal | Felis Fel d 1 Chain 1 | IgE plus basophil+ or SPT+ | 92 | CAA44344.1 | 1364213 | 7 |
| Felis catus | Cat | | Aero Animal | Felis Fel d 1 Chain 1 | IgE plus basophil+ or SPT+ | 92 | P30438.2 | 1169665 | 7 |
| Felis catus | Cat | Fel d 1.0101 | Aero Animal | Felis Fel d 1 Chain 1 | IgE plus basophil+ or SPT+ | 92 | AAC37318.1 | 163825 | 7 |
| Felis catus | Cat | Unassigned | Aero Animal | Felis Fel d 1 Chain 1 | IgE plus basophil+ or SPT+ | 88 | NP_001041618.1 | 114326420 | 8 |
| Felis catus | Cat | Unassigned | Aero Animal | Felis Fel d 1 chain 2 | IgE plus basophil+ or SPT+ | 107 | CAA44345.1 | 395407 | 8 |
| Felis catus | Cat | Fel d 1.0101 | Aero Animal | Felis Fel d 1 chain 2 | IgE plus basophil+ or SPT+ | 109 | AAC41616.1 | 163823 | 12 |
| Felis catus | Cat | Fel d 2.0101 | Aero Animal | Felis Fel d 2 | IgE but no biological test | 608 | CAA59279.1 | 886485 | 7 |
| Felis catus | Cat | Fel d 3.0101 | Aero Animal | Felis Fel d 3 | IgE but no biological test | 98 | AAL49391.1 | 17939981 | 7 |
| Felis catus | Cat | Fel d 4.0101 | Aero Animal | Felis Fel d 4 | IgE but no biological test | 186 | AA577253.1 | 45775300 | 7 |
| Felis catus | Cat | Fel d 7.0101 | Aero Animal | Felis Fel d 7 | IgE but no biological test | 180 | ADK56160.1 | 301072397 | 12 |
| Felis catus | Cat | Fel d 8.0101 | Aero Animal | Felis Fel d 8 latherin-like | IgE but no biological test | 228 | ADM15668.1 | 303387468 | 12 |
| Fenneropenaeus chinensis | Chinese white shrimp | Unassigned | Food Animal | Fenneropenaeus Arginine kinase | IgE but no biological test | 53 | AA598889.1 | 46486948 | 9 |
| Fenneropenaeus chinensis | Chinese white shrimp | Unassigned | Food Animal | Fenneropenaeus Arginine kinase | IgE but no biological test | 53 | AA598890.1 | 46486951 | 9 |
| Fenneropenaeus chinensis | Chinese white shrimp | Unassigned | Food Animal | Penaeus chinensis allergen | IgE plus basophil+ or SPT+ | 365 | QB059887.1 | 1595306268 | 20 |
| Fenneropenaeus chinensis | Chinese white shrimp | Unassigned | Food Animal | Penaeus chinensis arginine kinase | IgE plus basophil+ or SPT+ | 356 | AAV83993.1 | 56182374 | 20 |
| Fenneropenaeus merguensis | Banana Prawn | Unassigned | Food Animal | Fenneropenaeus hemocyanin banana shrimp | IgE but no biological test | 661 | AGT20779.1 | 530340505 | 15 |
| Fenneropenaeus merguensis | Banana Prawn | Unassigned | Food Animal | Fenneropenaeus enolase | IgE but no biological test | 117 | AEM89226.1 | 344049993 | 15 |
| Forcipomyia taiwana | biting midges | For t 1.0101 | Venom or Salivary | Forcipomyia For t 1 | IgE but no biological test | 118 | ACD65080.1 | 188572341 | 10 |
| Forcipomyia taiwana | biting midges | For t 1.0101 | Venom or Salivary | Forcipomyia For t 2 | IgE but no biological test | 325 | ACD65081.1 | 188572343 | 10 |
| Fragaria x ananassa | Strawberry | | Food Plant | Fragaria Fra a 1 | IgE plus basophil+ or SPT+ | 160 | CAJ85646.1 | 90185692 | 7 |
| Fragaria x ananassa | Strawberry | | Food Plant | Fragaria Fra a 1 | IgE plus basophil+ or SPT+ | 159 | CAJ85644.1 | 90185688 | 7 |
| Fragaria x ananassa | Strawberry | Fra a 1 | Food Plant | Fragaria Fra a 1 | IgE plus basophil+ or SPT+ | 160 | CAJ85642.1 | 90185684 | 7 |
| Fragaria x ananassa | Strawberry | | Food Plant | Fragaria Fra a 1 | IgE plus basophil+ or SPT+ | 160 | CAJ85641.1 | 90185682 | 7 |
| Fragaria x ananassa | Strawberry | Fra a 1.0102 | Food Plant | Fragaria Fra a 1 | IgE plus basophil+ or SPT+ | 160 | ABD39049.1 | 88082485 | 7 |
| Fragaria x ananassa | Strawberry | Unassigned | Food Plant | Fragaria Fra a 1 | IgE plus basophil+ or SPT+ | 160 | ACX47057.1 | 260600660 | 11 |
| Fragaria x ananassa | Strawberry | Unassigned | Food Plant | Fragaria Fra a 1 | IgE plus basophil+ or SPT+ | 159 | ACX47058.1 | 260600662 | 11 |
| Fragaria x ananassa | Strawberry | Unassigned | Food Plant | Fragaria Fra a 1 | IgE plus basophil+ or SPT+ | 160 | B8E27860.1 | 1394298081 | 19 |
| Fragaria x ananassa | Strawberry | Fra a 3.0101 | Food Plant | Fragaria Fra a 3 | IgE plus basophil+ or SPT+ | 117 | CAC86258.1 | 18477856 | 15 |
| Fragaria x ananassa | Strawberry | Fra a 3.0102 | Food Plant | Fragaria Fra a 3 | IgE plus basophil+ or SPT+ | 117 | AAV83342.1 | 67937767 | 15 |
| Fragaria x ananassa | Strawberry | Fra a 3.0201 | Food Plant | Fragaria Fra a 3 | IgE plus basophil+ or SPT+ | 117 | AAV83341.1 | 67937765 | 15 |
| Fragaria x ananassa | Strawberry | Fra a 3.0202 | Food Plant | Fragaria Fra a 3 | IgE plus basophil+ or SPT+ | 117 | AAV83345.1 | 67937773 | 15 |
| Fraxinus excelsior | European ash | Unassigned | Aero Plant | Fraxinus excelsior polcalcinot WHO IUIS | IgE but no biological test | 84 | AHL24661.1 | 589912891 | 15 |
| Fraxinus excelsior | European ash | Unassigned | Aero Plant | Fraxinus excelsior profilin not in WHO IUIS | IgE but no biological test | 134 | AHL24660.1 | 589912889 | 15 |
| Fraxinus excelsior | European ash | Fra e 1.0201 | Aero Plant | Fraxinus Fra e 1 | IgE plus basophil+ or SPT+ | 146 | AAQ83588.1 | 34978692 | 7 |
| Fraxinus excelsior | European ash | Fra e 1.0102 | Aero Plant | Fraxinus Fra e 1 | IgE plus basophil+ or SPT+ | 145 | AAV74343.1 | 56122438 | 7 |
| Fraxinus excelsior | European ash | Fra e 1.0101 | Aero Plant | Fraxinus Fra e 1 | IgE plus basophil+ or SPT+ | 145 | AAQ08947.1 | 33327133 | 7 |
| Fulvia mutica | Mollusc | Unassigned | Food Animal | Fulvia tropomyosin | IgE but no biological test | 284 | BAH10153.1 | 219806596 | 10 |
| Fusarium culmorum | Fungus | Unassigned | Aero Fungi | Fusarium claimed Fus c 3 | IgE but no biological test | 450 | AAN73248.1 | 25361513 | 7 |
| Fusarium culmorum | Fungus | Fus c 1.0101 | Aero Fungi | Fusarium Fus c 1 | IgE plus basophil+ or SPT+ | 109 | AAL79930.1 | 19879657 | 7 |
| Fusarium culmorum | Fungus | Fus c 2.0101 | Aero Fungi | Fusarium Fus c 2 | IgE but no biological test | 121 | AAL79931.1 | 19879659 | 7 |
| Fusarium proliferatum | Fungus | Fus p 4.0101 | Aero Fungi | Fusarium Fus p 4 | IgE but no biological test | 323 | AHY02994.1 | 619498167 | 15 |
| Fusarium proliferatum | Fungus | Fus p 9 | Aero Fungi | Fusarium proliferatum Fus p 9 | IgE but no biological test | 386 | AJA79001.1 | 739057410 | 17 |
| Gadus callarias | Baltic cod | Gad c 1.0101 | Food Animal | Gadus Gad c 1 Gad m 1 | IgE plus basophil+ or SPT+ | 113 | P02622.1 | 131112 | 7 |
| Gadus morhua | Atlantic cod | Gad m 1.0101 | Food Animal | Gadus Gad c 1 Gad m 1 | IgE plus basophil+ or SPT+ | 109 | AAK63086.1 | 14531014 | 7 |
| Gadus morhua | Atlantic cod | Gad m 1.0201 | Food Animal | Gadus Gad c 1 Gad m 1 | IgE plus basophil+ or SPT+ | 109 | AAK63087.1 | 14531016 | 7 |
| Gadus morhua | Atlantic cod | Gad m 1.0102 | Food Animal | Gadus Gad c 1 Gad m 1 | IgE plus basophil+ or SPT+ | 109 | CAM56785.1 | 148356691 | 9 |
| Gadus morhua | Atlantic cod | Gad m 1.0202 | Food Animal | Gadus Gad c 1 Gad m 1 | IgE plus basophil+ or SPT+ | 109 | CAM56786.1 | 148356693 | 9 |
| Gadus morhua | Atlantic cod | Gad m 2.0101 | Food Animal | Gadus Morhua Gad m 2 | IgE but no biological test | 11 | B3A0L6.1 | 576011130 | 15 |
| Gadus morhua | Atlantic cod | | Food Animal | Gadus morhua Gad m 3 | IgE but no biological test | 15 | P86980.1 | 576011086 | 15 |
| Gallus gallus | Chicken | Gal d 9.0101 | Food Animal | Gallus enolase Gal d 9 | IgE plus basophil+ or SPT+ | 434 | NP_990450.1 | 46048765 | 18 |
| Gallus gallus | Chicken | Gal d 1.0101 | Food Animal | Gallus Gal d 1 | IgE plus basophil+ or SPT+ | 210 | P01005.1 | 124757 | 7 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stA Version |
|------------------------------|------------|----------------|-------------------|---|----------------------------|--------|----------------|------------|--------------|
| Gallus gallus | Chicken | Unassigned | Food Animal | Gallus Gal d 1 | IgE plus basophil+ or SPT+ | 210 | ACJ04729.1 | 209979542 | 10 |
| Gallus gallus | Chicken | | Food Animal | Gallus Gal d 2 | IgE plus basophil+ or SPT+ | 155 | CAA23681.1 | 63052 | 7 |
| Gallus gallus | Chicken | Gal d 2.0101 | Food Animal | Gallus Gal d 2 | IgE plus basophil+ or SPT+ | 386 | P01012.2 | 129293 | 7 |
| Gallus gallus | Chicken | | Food Animal | Gallus Gal d 2 | IgE plus basophil+ or SPT+ | 386 | CAA23682.1 | 808969 | 7 |
| Gallus gallus | Chicken | | Food Animal | Gallus Gal d 2 | IgE plus basophil+ or SPT+ | 385 | 1JTI_A | 15826578 | 7 |
| Gallus gallus | Chicken | Unassigned | Food Animal | Gallus Gal d 2 | IgE plus basophil+ or SPT+ | 385 | 1UHG_D | 34811333 | 7 |
| Gallus gallus | Chicken | Gal d 3.0101 | Food Animal | Gallus Gal d 3 | IgE plus basophil+ or SPT+ | 705 | CAA26040.1 | 757851 | 7 |
| Gallus gallus | Chicken | | Food Animal | Gallus Gal d 3 | IgE plus basophil+ or SPT+ | 705 | P02789.2 | 1351295 | 7 |
| Gallus gallus | Chicken | | Food Animal | Gallus Gal d 4 | IgE plus basophil+ or SPT+ | 147 | P00698.1 | 126608 | 7 |
| Gallus gallus | Chicken | | Food Animal | Gallus Gal d 4 | IgE plus basophil+ or SPT+ | 24 | AAA48944.1 | 212279 | 7 |
| Gallus gallus | Chicken | Gal d 4.0101 | Food Animal | Gallus Gal d 4 | IgE plus basophil+ or SPT+ | 147 | CAA23711.1 | 63581 | 15 |
| Gallus gallus | Chicken | Gal d 5.0101 | Food Animal | Gallus Gal d 5 | IgE plus basophil+ or SPT+ | 615 | CAA43098.1 | 63748 | 7 |
| Gallus gallus | Chicken | Unassigned | Food Animal | Gallus Gal d 6 YG42 | IgE but no biological test | 284 | BAA13973.1 | 3 | 14 |
| Gallus gallus | Chicken | | Food Animal | Gallus gallus Gal d 7 | IgE but no biological test | 192 | P02604.3 | 5584149 | 16 |
| Gallus gallus | Chicken | Gal d 8.0101 | Food Animal | Gallus parvalbumin Gal d 8 | IgE plus basophil+ or SPT+ | 110 | CAX32963.1 | 225877920 | 10 |
| Glossina morsitans morsitans | Tsetse fly | Unassigned | Venom or Salivary | Glossina Glo m 5 | IgE but no biological test | 258 | ADD18879.1 | 289740263 | 11 |
| Glossina morsitans morsitans | Tsetse fly | Unassigned | Venom or Salivary | Glossina Glo m 5 | IgE but no biological test | 259 | ADD19985.1 | 289742475 | 11 |
| Glossina morsitans morsitans | Tsetse fly | Unassigned | Venom or Salivary | Glossina Glo m 5 | IgE but no biological test | 222 | ADD19989.1 | 289742483 | 11 |
| Glossina morsitans morsitans | Tsetse fly | Glo m 5.0101 | Venom or Salivary | Glossina Glo m 5 | IgE but no biological test | 259 | AAF82096.1 | 8927462 | 11 |
| Glycine max | Soybean | Gly m 7.0101 | Food Plant | Glycine 68kDa biotinylated protein | IgE plus basophil+ or SPT+ | 643 | ACS49840.1 | 240254706 | 11 |
| Glycine max | Soybean | Gly m 1.0101 | Aero Plant | Glycine Gly m 1 | IgE but no biological test | 80 | P24337.1 | 123506 | 12 |
| Glycine max | Soybean | Gly m 3.0102 | Food Plant | Glycine Gly m 3 | IgE but no biological test | 131 | CAA11755.1 | 3021373 | 7 |
| Glycine max | Soybean | Unassigned | Food Plant | Glycine Gly m 3 | IgE but no biological test | 131 | ABU97472.1 | 156938901 | 9 |
| Glycine max | Soybean | Gly m 3.0101 | Food Plant | Glycine Gly m 3 | IgE but no biological test | 131 | CAA11756.1 | 3021375 | 15 |
| Glycine max | Soybean | Gly m 4.0101 | Food Plant | Glycine Gly m 4 | IgE plus basophil+ or SPT+ | 158 | CAA42646.1 | 18744 | 7 |
| Glycine max | Soybean | Unassigned | Food Plant | Glycine Gly m 5.0101 alpha subunit beta congl | IgE but no biological test | 605 | CAA35691.1 | 18536 | 7 |
| Glycine max | Soybean | Unassigned | Food Plant | Glycine Gly m 5.0101 alpha subunit beta congl | IgE but no biological test | 218 | AAA33947.1 | 169927 | 7 |
| Glycine max | Soybean | Gly m 5.0101 | Food Plant | Glycine Gly m 5.0101 alpha subunit beta congl | IgE but no biological test | 543 | BAA23360.2 | 9967357 | 15 |
| Glycine max | Soybean | Unassigned | Food Plant | Glycine Gly m 5.0201 alpha prime beta congl | IgE but no biological test | 639 | AAB01374.1 | 169929 | 7 |
| Glycine max | Soybean | Unassigned | Food Plant | Glycine Gly m 5.0201 alpha prime beta congl | IgE but no biological test | 621 | BAB64303.1 | 15425631 | 15 |
| Glycine max | Soybean | Gly m 5.0201 | Food Plant | Glycine Gly m 5.0201 alpha prime beta congl | IgE but no biological test | 559 | BAA74452.2 | 9967361 | 15 |
| Glycine max | Soybean | Unassigned | Food Plant | Glycine Gly m 5.0301 beta sub unit beta congl | IgE but no biological test | 439 | BAB64306.1 | 15425637 | 15 |
| Glycine max | Soybean | Gly m 5.0301 | Food Plant | Glycine Gly m 5.0301 beta sub unit beta congl | IgE but no biological test | 439 | P25974.1 | 121282 | 15 |
| Glycine max | Soybean | Unassigned | Food Plant | Glycine Gly m 5.0301 beta sub unit beta congl | IgE but no biological test | 439 | F7J077.1 | 1559988709 | 20 |
| Glycine max | Soybean | Unassigned | Food Plant | Glycine Gly m 6.0101 | IgE but no biological test | 495 | CAA26723.1 | 18615 | 7 |
| Glycine max | Soybean | Gly m 6.0101 | Food Plant | Glycine Gly m 6.0101 | IgE but no biological test | 495 | AAA33966.1 | 169973 | 15 |
| Glycine max | Soybean | Unassigned | Food Plant | Glycine Gly m 6.0201 | IgE but no biological test | 485 | CAA26575.1 | 18609 | 7 |
| Glycine max | Soybean | Gly m 6.0201 | Food Plant | Glycine Gly m 6.0201 | IgE but no biological test | 485 | BAA00154.1 | 218265 | 15 |
| Glycine max | Soybean | Gly m 6.0301 | Food Plant | Glycine Gly m 6.0301 | IgE but no biological test | 481 | CAA33217.1 | 18639 | 7 |
| Glycine max | Soybean | Unassigned | Food Plant | Glycine Gly m 6.0401 | IgE but no biological test | 562 | CAA37044.1 | 18641 | 7 |
| Glycine max | Soybean | Unassigned | Food Plant | Glycine Gly m 6.0401 | IgE but no biological test | 562 | CAA26478.1 | 732706 | 7 |
| Glycine max | Soybean | Gly m 6.0401 | Food Plant | Glycine Gly m 6.0401 | IgE but no biological test | 563 | BAA74953.1 | 4249568 | 15 |
| Glycine max | Soybean | Unassigned | Food Plant | Glycine Gly m 6.0501 | IgE but no biological test | 516 | AAA33964.1 | 169969 | 7 |
| Glycine max | Soybean | Unassigned | Food Plant | Glycine Gly m 6.0501 | IgE but no biological test | 240 | AAA33965.1 | 169971 | 7 |
| Glycine max | Soybean | Gly m 6.0501 | Food Plant | Glycine Gly m 6.0501 | IgE but no biological test | 517 | BAB15802.1 | 10566449 | 15 |
| Glycine max | Soybean | Unassigned | Food Plant | Glycine Gly m 8 2s albumin | IgE but no biological test | 155 | AAD09630.1 | 4097894 | 14 |
| Glycine max | Soybean | Gly m 8.0101 | Food Plant | Glycine Gly m 8 2s albumin | IgE but no biological test | 158 | NP_001238443.1 | 351727517 | 15 |
| Glycine max | Soybean | Unassigned | Food Plant | Glycine Gly m Bd 28K | IgE but no biological test | 373 | ACD36976.1 | 187766751 | 10 |
| Glycine max | Soybean | Unassigned | Food Plant | Glycine Gly m Bd 28K | IgE but no biological test | 373 | ACD36975.1 | 187766749 | 10 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stA Version |
|-------------------------------------|--------------------|----------------|-------------|-----------------------------------|----------------------------|--------|------------|------------|--------------|
| Glycine max | Soybean | Unassigned | Food Plant | Glycine Gly m Bd 28K | IgE but no biological test | 373 | ACD36974.1 | 187766747 | 10 |
| Glycine max | Soybean | Unassigned | Food Plant | Glycine Gly m Bd 28K | IgE but no biological test | 455 | ACD36975.1 | 187766755 | 10 |
| Glycine max | Soybean | Unassigned | Food Plant | Glycine Gly m Bd 28K | IgE but no biological test | 476 | BAB21619.2 | 410067729 | 15 |
| Glycine max | Soybean | Unassigned | Food Plant | Glycine Gly m Bd 30 kDa | IgE but no biological test | 379 | P22895.1 | 129353 | 7 |
| Glycine max | Soybean | Unassigned | Food Plant | Glycine Gly m Bd 30 kDa | IgE but no biological test | 379 | AAB09252.1 | 1199563 | 7 |
| Glycine max | Soybean | Unassigned | Food Plant | Glycine Gly m Bd 30 kDa | IgE but no biological test | 379 | BAA25899.1 | 3097321 | 7 |
| Glycine max | Soybean | Unassigned | Food Plant | Glycine Major Gly 50 kDa allergen | IgE but no biological test | 17 | P82947.1 | 85681057 | 7 |
| Glycine max | Soybean | Unassigned | Food Plant | Glycine Trypsin inhibitor | IgE but no biological test | 217 | CAA45777.1 | 18770 | 7 |
| Glycine max | Soybean | Unassigned | Food Plant | Glycine Trypsin inhibitor | IgE but no biological test | 217 | CAA45778.1 | 18772 | 7 |
| Glycine max | Soybean | Unassigned | Food Plant | Glycine Trypsin inhibitor | IgE but no biological test | 216 | AAB23464.1 | 256429 | 7 |
| Glycine max | Soybean | Unassigned | Food Plant | Glycine Trypsin inhibitor | IgE but no biological test | 203 | AAB23482.1 | 256635 | 7 |
| Glycine max | Soybean | Unassigned | Food Plant | Glycine Trypsin inhibitor | IgE but no biological test | 204 | AAB23483.1 | 256636 | 7 |
| Glycine max | Soybean | Unassigned | Food Plant | Glycine Trypsin inhibitor | IgE but no biological test | 208 | CAA56343.1 | 510515 | 7 |
| Glycine soja | Soybean | Unassigned | Food Plant | Glycine Gly m 6.0401 | IgE but no biological test | 563 | CAA60533.1 | 806556 | 7 |
| Glycyphagus domesticus | Storage mite | Gly d 2.0101 | Aero Mite | Glycyphagus Gly d 2 | IgE but no biological test | 128 | CAB59976.1 | 6179520 | 7 |
| Glycyphagus domesticus | Storage mite | Gly d 2.0201 | Aero Mite | Glycyphagus Gly d 2 | IgE but no biological test | 125 | CAB76459.1 | 7160811 | 7 |
| Glycyphagus domesticus | Storage mite | Unassigned | Aero Mite | Glycyphagus Gly d 2 | IgE but no biological test | 141 | AAQ54603.1 | 33772588 | 7 |
| Haliotis discus discus | Disk abalone | Unassigned | Food Animal | Haliotis Hal m 1 tropomyosin | IgE but no biological test | 284 | BAH10148.1 | 219806586 | 10 |
| Haliotis discus discus | Disk abalone | Unassigned | Food Animal | Haliotis paramyosin | IgE but no biological test | 860 | BAJ61596.1 | 318609972 | 12 |
| Haliotis diversicolor | Abalone | Unassigned | Food Animal | Haliotis Hal m 1 tropomyosin | IgE but no biological test | 284 | AAG08987.1 | 9954249 | 7 |
| Haliotis laevigata x Haliotis rubra | | Hal l 1.0101 | Food Animal | Haliotis Hal m 1 tropomyosin | IgE but no biological test | 284 | APG42675.1 | 1109557549 | 18 |
| Helianthus annuus | Sunflower | Hel a 2.0101 | Aero Plant | Hel a 2 | IgE but no biological test | 133 | CAA75506.1 | 3581965 | 7 |
| Helianthus annuus | Sunflower | Hel a 3.0101 | Food Plant | Hel a 3 | IgE but no biological test | 116 | AAP47226.1 | 31324341 | 15 |
| Helianthus annuus | Sunflower | Unassigned | Food Plant | Hel a 6 | IgE but no biological test | 141 | P23110.1 | 112745 | 9 |
| Helianthus annuus | Sunflower | Hel a 6 | Aero Plant | Hel a 6 | IgE plus basophil+ or SPT+ | 394 | OTF85892.1 | 1191633749 | 18 |
| Helix aspersa | Brown garden snail | Hel as 1.0101 | Food Animal | Helix Hel as 1 tropomyosin | IgE but no biological test | 284 | CAB38044.1 | 4468224 | 7 |
| Hevea brasiliensis | Para rubber tree | Hev b 1.0101 | Contact | Hevea Hev b 1 | IgE plus basophil+ or SPT+ | 138 | CAA39880.1 | 18839 | 15 |
| Hevea brasiliensis | Para rubber tree | Hev b 10.0101 | Contact | Hevea Hev b 10 | IgE but no biological test | 233 | AAA16792.1 | 348137 | 7 |
| Hevea brasiliensis | Para rubber tree | Hev b 10.0102 | Contact | Hevea Hev b 10 | IgE but no biological test | 205 | CAB53458.1 | 5777414 | 7 |
| Hevea brasiliensis | Para rubber tree | Hev b 10.0103 | Contact | Hevea Hev b 10 | IgE but no biological test | 205 | CAC13961.1 | 10862818 | 7 |
| Hevea brasiliensis | Para rubber tree | Hev b 11.0101 | Contact | Hevea Hev b 11 | IgE but no biological test | 295 | CAC42881.1 | 14575525 | 7 |
| Hevea brasiliensis | Para rubber tree | Hev b 12.0101 | Contact | Hevea Hev b 12 | IgE but no biological test | 116 | AAL25839.1 | 20135538 | 7 |
| Hevea brasiliensis | Para rubber tree | Hev b 13.0101 | Contact | Hevea Hev b 13 | IgE but no biological test | 391 | AAP37470.1 | 30909057 | 7 |
| Hevea brasiliensis | Para rubber tree | Hev b 14.0101 | Contact | Hevea Hev b 14 heveamine | IgE but no biological test | 208 | ADR82196.1 | 313870530 | 12 |
| Hevea brasiliensis | Para rubber tree | Hev b 15.0101 | Contact | Hevea Hev b 15 | IgE but no biological test | 70 | CCW27997.1 | 571257122 | 15 |
| Hevea brasiliensis | Para rubber tree | Hev b 2.0101 | Contact | Hevea Hev b 2 | IgE plus basophil+ or SPT+ | 374 | AAA87456.1 | 1184668 | 7 |
| Hevea brasiliensis | Para rubber tree | | Contact | Hevea Hev b 2 | IgE plus basophil+ or SPT+ | 374 | AAP87281.1 | 32765543 | 7 |
| Hevea brasiliensis | Para rubber tree | Unassigned | Contact | Hevea Hev b 2 | IgE plus basophil+ or SPT+ | 374 | ABN03965.1 | 124294783 | 8 |
| Hevea brasiliensis | Para rubber tree | Unassigned | Contact | Hevea Hev b 2 | IgE plus basophil+ or SPT+ | 374 | ABN03966.1 | 124294785 | 8 |
| Hevea brasiliensis | Para rubber tree | Unassigned | Contact | Hevea Hev b 2 | IgE plus basophil+ or SPT+ | 374 | ABN09653.1 | 124365249 | 8 |
| Hevea brasiliensis | Para rubber tree | Unassigned | Contact | Hevea Hev b 2 | IgE plus basophil+ or SPT+ | 374 | ABN09654.1 | 124365251 | 8 |
| Hevea brasiliensis | Para rubber tree | Unassigned | Contact | Hevea Hev b 2 | IgE plus basophil+ or SPT+ | 374 | ABN09655.1 | 124365253 | 8 |
| Hevea brasiliensis | Para rubber tree | Unassigned | Contact | Hevea Hev b 2 | IgE plus basophil+ or SPT+ | 374 | ACY91851.1 | 268037674 | 11 |
| Hevea brasiliensis | Para rubber tree | Unassigned | Contact | Hevea Hev b 2 | IgE plus basophil+ or SPT+ | 374 | AC274626.1 | 270315180 | 11 |
| Hevea brasiliensis | Para rubber tree | Unassigned | Contact | Hevea Hev b 2 | IgE plus basophil+ or SPT+ | 373 | AEV41413.1 | 359359690 | 13 |
| Hevea brasiliensis | Para rubber tree | Unassigned | Contact | Hevea Hev b 2 | IgE plus basophil+ or SPT+ | 374 | AFJ97275.1 | 387778882 | 13 |
| Hevea brasiliensis | Para rubber tree | Unassigned | Contact | Hevea Hev b 2 | IgE plus basophil+ or SPT+ | 374 | AFJ97274.1 | 387778880 | 13 |
| Hevea brasiliensis | Para rubber tree | Hev b 3.0101 | Contact | Hevea Hev b 3 | IgE plus basophil+ or SPT+ | 204 | AAC82355.1 | 3818475 | 11 |
| Hevea brasiliensis | Para rubber tree | Hev b 4.0101 | Contact | Hevea Hev b 4 | IgE but no biological test | 366 | AAR98518.1 | 46410859 | 7 |
| Hevea brasiliensis | Para rubber tree | Hev b 5.0101 | Contact | Hevea Hev b 5 | IgE plus basophil+ or SPT+ | 151 | AAC49447.1 | 1480457 | 7 |
| Hevea brasiliensis | Para rubber tree | | Contact | Hevea Hev b 6 | IgE plus basophil+ or SPT+ | 187 | CAA05978.1 | 2832430 | 7 |
| Hevea brasiliensis | Para rubber tree | Unassigned | Contact | Hevea Hev b 6 | IgE plus basophil+ or SPT+ | 43 | 1WKX_A | 73535415 | 7 |
| Hevea brasiliensis | Para rubber tree | Unassigned | Contact | Hevea Hev b 6 | IgE plus basophil+ or SPT+ | 204 | ABW34946.1 | 158342650 | 9 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stA Version |
|--|------------------|----------------|-------------|---|----------------------------|--------|----------------|------------|--------------|
| Hevea brasiliensis | Para rubber tree | Hev b 7.01 | Contact | Hevea Hev b 7 | IgE plus basophil+ or SPT+ | 388 | AAC27724.1 | 1916805 | 7 |
| Hevea brasiliensis | Para rubber tree | Hev b 7.02 | Contact | Hevea Hev b 7 | IgE plus basophil+ or SPT+ | 388 | CAA11041.1 | 3087805 | 7 |
| Hevea brasiliensis | Para rubber tree | Unassigned | Contact | Hevea Hev b 7 | IgE plus basophil+ or SPT+ | 388 | CAA11042.1 | 3288200 | 7 |
| Hevea brasiliensis | Para rubber tree | Unassigned | Contact | Hevea Hev b 7 | IgE plus basophil+ or SPT+ | 388 | AAF25553.1 | 6707018 | 7 |
| Hevea brasiliensis | Para rubber tree | Unassigned | Contact | Hevea Hev b 7 | IgE plus basophil+ or SPT+ | 387 | CAE85467.1 | 41581137 | 7 |
| Hevea brasiliensis | Para rubber tree | Hev b 8.0101 | Contact | Hevea Hev b 8 | IgE plus basophil+ or SPT+ | 131 | CAA75312.1 | 3183706 | 7 |
| Hevea brasiliensis | Para rubber tree | Unassigned | Contact | Hevea Hev b 8 | IgE plus basophil+ or SPT+ | 131 | IGSU_A | 11513601 | 7 |
| Hevea brasiliensis | Para rubber tree | Hev b 8.0201 | Contact | Hevea Hev b 8 | IgE plus basophil+ or SPT+ | 131 | AAF34341.1 | 6979167 | 11 |
| Hevea brasiliensis | Para rubber tree | Hev a 9.0101 | Contact | Hevea Hev b 8 | IgE plus basophil+ or SPT+ | 131 | AAF34342.1 | 6979169 | 11 |
| Hevea brasiliensis | Para rubber tree | Hev b 8.0203 | Aero Mite | Hevea Hev b 8 | IgE plus basophil+ or SPT+ | 131 | AAF34343.1 | 6979171 | 11 |
| Hevea brasiliensis | Para rubber tree | Hev b 8.0102 | Contact | Hevea Hev b 8 | IgE plus basophil+ or SPT+ | 131 | CAB51914.1 | 5689740 | 15 |
| Hevea brasiliensis | Para rubber tree | Hev b 8.0204 | Contact | Hevea Hev b 8 | IgE plus basophil+ or SPT+ | 131 | CAB96215.1 | 8919948 | 15 |
| Hevea brasiliensis | Para rubber tree | Hev a 9.0101 | Contact | Hevea Hev b 9 | IgE but no biological test | 445 | CAC00532.1 | 9581744 | 7 |
| Hevea brasiliensis | Para rubber tree | Unassigned | Contact | Hevea Hev b 9 | IgE but no biological test | 445 | Q9LEI9.1 | 14423687 | 9 |
| Hevea brasiliensis subsp. brasiliensis | Para rubber tree | Hev b 11.0102 | Contact | Hevea Hev b 11 | IgE but no biological test | 295 | CAD24068.1 | 27526732 | 7 |
| Holcus lanatus | Velvet grass | Hol l 1.0101 | Aero Plant | Holcus Hol l 1 | IgE but no biological test | 265 | CAA81610.1 | 414703 | 7 |
| Holcus lanatus | Velvet grass | Hol l 1.0102 | Aero Plant | Holcus Hol l 1 | IgE but no biological test | 248 | CAA93121.1 | 1167836 | 7 |
| Holcus lanatus | Velvet grass | Unassigned | Aero Plant | Holcus Hol l 1 | IgE but no biological test | 263 | CAA10140.1 | 3860384 | 7 |
| Holcus lanatus | Velvet grass | Unassigned | Aero Plant | Holcus Hol l 5 | IgE plus basophil+ or SPT+ | 20 | Q7M262 | 75140046 | 7 |
| Holcus lanatus | Velvet grass | Hol l 5.0201 | Aero Plant | Holcus Hol l 5 | IgE plus basophil+ or SPT+ | 240 | CAB10766.1 | 2266623 | 7 |
| Holcus lanatus | Velvet grass | Hol l 5.0101 | Aero Plant | Holcus Hol l 5 | IgE plus basophil+ or SPT+ | 264 | CAB10765.1 | 2266625 | 7 |
| Holcus lanatus | Velvet grass | Unassigned | Aero Plant | Holcus Hol l 5 | IgE plus basophil+ or SPT+ | 296 | AAG42255.1 | 11991229 | 7 |
| Homarus americanus | American lobster | Hom a 1.0102 | Food Animal | Homarus Hom a 1 | IgE plus basophil+ or SPT+ | 284 | AAC48288.1 | 2660868 | 7 |
| Homarus americanus | American lobster | Hom a 1.0101 | Food Animal | Homarus Hom a 1 | IgE plus basophil+ or SPT+ | 284 | AAC48287.1 | 2660866 | 15 |
| Hordeum vulgare | Barley | Unassigned | Aero Plant | Hordeum Alpha-amylase inhibitor component CMB | IgE plus basophil+ or SPT+ | 149 | P32936.2 | 585290 | 7 |
| Hordeum vulgare | Barley | Unassigned | Food Plant | Hordeum Hor v 20 | IgE plus basophil+ or SPT+ | 289 | P80198.1 | 1708280 | 15 |
| Hordeum vulgare | Barley | Hor v 20.0101 | Food Plant | Hordeum Hor v 20 | IgE plus basophil+ or SPT+ | 286 | CAA51204.1 | 288709 | 15 |
| Hordeum vulgare | Barley | Unassigned | Food Plant | Hordeum LTP 1 | IgE but no biological test | 134 | CAA42832.1 | 19039 | 7 |
| Hordeum vulgare | Barley | Unassigned | Aero Plant | Hordeum LTP 1 | IgE but no biological test | 117 | AAA32970.1 | 167077 | 7 |
| Hordeum vulgare | Barley | Unassigned | Aero Plant | Hordeum Trypsin inhibitor CMe | IgE plus basophil+ or SPT+ | 144 | CAA35188.1 | 1405736 | 7 |
| Hordeum vulgare subsp. vulgare | Barley | Unassigned | Aero Plant | Hordeum Alpha-amylase inhibitor BDAI-1 | IgE plus basophil+ or SPT+ | 152 | CAA08836.1 | 3367714 | 7 |
| Hordeum vulgare subsp. vulgare | Barley | Unassigned | Aero Plant | Hordeum Alpha-amylase inhibitor component Cma | IgE plus basophil+ or SPT+ | 144 | CAA41956.1 | 18955 | 7 |
| Hordeum vulgare subsp. vulgare | Barley | Unassigned | Aero Plant | Hordeum Alpha-amylase inhibitor component Cma | IgE plus basophil+ or SPT+ | 145 | CAA49555.1 | 439275 | 7 |
| Hordeum vulgare subsp. vulgare | Barley | Hor v 15.0101 | Food Plant | Hordeum Hor v 15 | IgE plus basophil+ or SPT+ | 146 | CAA45085.1 | 19003 | 15 |
| Hordeum vulgare subsp. vulgare | Barley | Unassigned | Aero Plant | Hordeum Trypsin inhibitor CMe | IgE plus basophil+ or SPT+ | 148 | CAA46705.1 | 19009 | 7 |
| Humulus japonicus | Japanese hop | Hum j 1.0101 | Aero Plant | Humulus Humj1 | IgE but no biological test | 155 | AAF94213.1 | 33113263 | 7 |
| Humulus scandens | Japanese hop | Unassigned | Aero Plant | Humulus profilin-like protein | IgE but no biological test | 131 | AAP15200.1 | 34851176 | 7 |
| Humulus scandens | Japanese hop | Unassigned | Aero Plant | Humulus profilin-like protein | IgE but no biological test | 131 | AAP15199.1 | 34851174 | 7 |
| Juglans nigra | Black walnut | Jug n 4.0101 | Food Plant | Jug n 4 | IgE but no biological test | 510 | APR62629.1 | 1126299828 | 18 |
| Juglans nigra | Black walnut | Jug n 1.0101 | Food Plant | Jug r 1 Jug n 1 | IgE but no biological test | 161 | AAM54365.1 | 31321942 | 7 |
| Juglans nigra | Black walnut | Jug n 2.0101 | Food Plant | Jug r 2 | IgE but no biological test | 481 | AAM54366.1 | 31321944 | 7 |
| Juglans regia | English walnut | Jug r 1.0101 | Food Plant | Jug r 1 Jug n 1 | IgE but no biological test | 139 | AAB41308.1 | 1794252 | 7 |
| Juglans regia | English walnut | Unassigned | Food Plant | Jug r 2 | IgE but no biological test | 593 | AAF18269.1 | 6580762 | 7 |
| Juglans regia | English walnut | Jug r 3.0101 | Food Plant | Jug r 3 | IgE but no biological test | 119 | ACI47547.1 | 209484145 | 11 |
| Juglans regia | English walnut | Jug r 4.0101 | Food Plant | Jug r 4 | IgE but no biological test | 507 | AAW29810.1 | 56788031 | 7 |
| Juglans regia | English walnut | Jug r 5.0101 | Food Plant | Jug r 5 | IgE plus basophil+ or SPT+ | 160 | APD76154.1 | 1104688661 | 17 |
| Juglans regia | English walnut | Jug r 6.0101 | Food Plant | Jug r 6 | IgE but no biological test | 502 | XP_018814692.1 | 1098817075 | 19 |
| Juglans regia | English walnut | Unassigned | Food Plant | Jug r 7 | IgE but no biological test | 131 | AVD53651.1 | 1343184140 | 20 |
| Juniperus ashei | Mountain cedar | Jun a 2.0101 | Aero Plant | Juniperus Jun a 2 | IgE but no biological test | 507 | CAC05582.1 | 9955725 | 7 |
| Juniperus ashei | Mountain cedar | Jun a 3.0101 | Aero Plant | Juniperus Jun a 3 | IgE but no biological test | 225 | P81295.1 | 9087177 | 8 |
| Juniperus ashei | Mountain cedar | Jun a 1.0101 | Aero Plant | Juniperus Jun a/v 1 | IgE but no biological test | 367 | AAD03608.1 | 4138877 | 7 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stÅ Version |
|----------------------------|-----------------|----------------|-------------|--|----------------------------|--------|----------------|------------|--------------|
| Juniperus oxycedrus | Juniper | Unassigned | Aero Plant | Juniperus Jun a/v 1 | IgE but no biological test | 367 | CAC48400.1 | 15139849 | 7 |
| Juniperus oxycedrus | Juniper | Jun o 4.0101 | Aero Plant | Juniperus Jun o 4 | IgE but no biological test | 165 | AAC15474.2 | 5391446 | 7 |
| Juniperus rigida | Cedar | Unassigned | Aero Plant | Juniperus Jun a 3 | IgE but no biological test | 225 | AAR21072.1 | 38456224 | 7 |
| Juniperus rigida | Cedar | Unassigned | Aero Plant | Juniperus Jun a 3 | IgE but no biological test | 225 | AAR21071.1 | 38456222 | 7 |
| Juniperus virginiana | Red cedar | Unassigned | Aero Plant | Juniperus Jun a 3 | IgE but no biological test | 110 | Q9LD79.2 | 51316532 | 7 |
| Juniperus virginiana | Red cedar | Jun v 1.0102 | Aero Plant | Juniperus Jun a/v 1 | IgE but no biological test | 367 | AAF80164.1 | 8843917 | 7 |
| Juniperus virginiana | Red cedar | Jun v 1.0101 | Aero Plant | Juniperus Jun a/v 1 | IgE but no biological test | 367 | AAF80166.1 | 8843921 | 7 |
| Lactuca sativa | Garden lettuce | Lac s 1 | Food Plant | Lactuca sativa LTP | IgE plus basophil+ or SPT+ | 117 | A0A2J6KL39.1 | 1559988728 | 20 |
| Lates calcarifer | Asian Seabass | Unassigned | Food Animal | Lat c 6 | IgE plus basophil+ or SPT+ | 1449 | XP_018521723.1 | 1079717864 | 20 |
| Lates calcarifer | Asian Seabass | Unassigned | Food Animal | Lat c 6 | IgE plus basophil+ or SPT+ | 1355 | XP_018522130.1 | 1079717942 | 21 |
| Lates calcarifer | Asian Seabass | Unassigned | Food Animal | Lat c 6 | IgE plus basophil+ or SPT+ | 729 | XP_018558992.1 | 1079777957 | 21 |
| Lates calcarifer | Asian Seabass | Lat c 1.0101 | Food Animal | Lates Lat c 1 | IgE but no biological test | 109 | AAV97933.1 | 56553743 | 15 |
| Lates calcarifer | Asian Seabass | Lat c 1.0201 | Food Animal | Lates Lat c 1 | IgE but no biological test | 109 | AAT45383.1 | 48526356 | 15 |
| Lens culinaris | Lentil | Len c 3.0101 | Food Plant | Lens Len c 3 | IgE but no biological test | 118 | AAX35807.1 | 60735410 | 15 |
| Lens culinaris | Lentil | Len c 1.0101 | Food Plant | Lens Len c 1 | IgE but no biological test | 418 | CAD87730.1 | 29539109 | 7 |
| Lens culinaris | Lentil | Len c 1.0102 | Food Plant | Lens Len c 1 | IgE but no biological test | 415 | CAD87731.1 | 29539111 | 7 |
| Lepidoglyphus destructor | Storage mite | Unassigned | Aero Mite | Blomia Blo t 12 | IgE plus basophil+ or SPT+ | 143 | AAQ55550.1 | 33943777 | 7 |
| Lepidoglyphus destructor | Storage mite | Lep d 10.0101 | Aero Mite | Lepidoglyphus Lep d 10 | IgE but no biological test | 284 | CAB71342.1 | 6900304 | 15 |
| Lepidoglyphus destructor | Storage mite | Lep d 13.0101 | Aero Mite | Lepidoglyphus Lep d 13 | IgE but no biological test | 131 | CAB62213.1 | 6523380 | 15 |
| Lepidoglyphus destructor | Storage mite | Lep d 2.0102 | Aero Mite | Lepidoglyphus Lep d 2 | IgE but no biological test | 141 | CAD32313.1 | 21213898 | 7 |
| Lepidoglyphus destructor | Storage mite | Lep d 2.0202 | Aero Mite | Lepidoglyphus Lep d 2 | IgE but no biological test | 141 | CAD32314.1 | 21213900 | 7 |
| Lepidoglyphus destructor | Storage mite | | Aero Mite | Lepidoglyphus Lep d 2 | IgE but no biological test | 141 | 2118249B | 1582223 | 7 |
| Lepidoglyphus destructor | Storage mite | | Aero Mite | Lepidoglyphus Lep d 2 | IgE but no biological test | 141 | 2118249A | 1582222 | 7 |
| Lepidoglyphus destructor | Storage mite | Unassigned | Aero Mite | Lepidoglyphus Lep d 2 | IgE but no biological test | 141 | AAQ73484.1 | 34495274 | 7 |
| Lepidoglyphus destructor | Storage mite | Unassigned | Aero Mite | Lepidoglyphus Lep d 2 | IgE but no biological test | 141 | AAQ73486.1 | 34495278 | 7 |
| Lepidoglyphus destructor | Storage mite | Unassigned | Aero Mite | Lepidoglyphus Lep d 2 | IgE but no biological test | 140 | AAQ73487.1 | 34495280 | 7 |
| Lepidoglyphus destructor | Storage mite | Unassigned | Aero Mite | Lepidoglyphus Lep d 2 | IgE but no biological test | 141 | AAQ73488.1 | 34495282 | 7 |
| Lepidoglyphus destructor | Storage mite | Unassigned | Aero Mite | Lepidoglyphus Lep d 2 | IgE but no biological test | 141 | AAQ73489.1 | 34495284 | 7 |
| Lepidoglyphus destructor | Storage mite | Unassigned | Aero Mite | Lepidoglyphus Lep d 2 | IgE but no biological test | 141 | AAQ73490.1 | 34495286 | 7 |
| Lepidoglyphus destructor | Storage mite | Unassigned | Aero Mite | Lepidoglyphus Lep d 2 | IgE but no biological test | 141 | AAQ73491.1 | 34495288 | 7 |
| Lepidoglyphus destructor | Storage mite | Unassigned | Aero Mite | Lepidoglyphus Lep d 2 | IgE but no biological test | 141 | AAQ73492.1 | 34495290 | 7 |
| Lepidoglyphus destructor | Storage mite | Lep d 2.0101 | Aero Mite | Lepidoglyphus Lep d 2 | IgE but no biological test | 98 | CAAS7160.1 | 587450 | 15 |
| Lepidoglyphus destructor | Storage mite | Lep d 2.0201 | Aero Mite | Lepidoglyphus Lep d 2 | IgE but no biological test | 141 | CAA58755.1 | 999458 | 15 |
| Lepidoglyphus destructor | Storage mite | Lep d 5.0102 | Aero Mite | Lepidoglyphus Lep d 5 | IgE but no biological test | 171 | AAQ73493.1 | 34495292 | 7 |
| Lepidoglyphus destructor | Storage mite | Lep d 5.0103 | Aero Mite | Lepidoglyphus Lep d 5 | IgE but no biological test | 169 | AAQ73494.1 | 34495294 | 7 |
| Lepidoglyphus destructor | Storage mite | Lep d 5.0101 | Aero Mite | Lepidoglyphus Lep d 5 | IgE but no biological test | 110 | CAB62212.1 | 6523378 | 15 |
| Lepidoglyphus destructor | Storage mite | Lep d 7.0101 | Aero Mite | Lepidoglyphus Lep d 7 | IgE but no biological test | 216 | CAB65963.1 | 6706282 | 15 |
| Lepidorhombus whiffiagonis | Flat fish | Lep w 1.0101 | Food Animal | Lepidorhombus Lep w 1 parvalbumin | IgE but no biological test | 109 | CAP17694.1 | 208608078 | 10 |
| Lepisma saccharina | Silverfish | Lep s 1.0101 | Aero Insect | Lepisma Tropomyosin | IgE plus basophil+ or SPT+ | 284 | CAC84590.2 | 20387027 | 7 |
| Lepisma saccharina | Silverfish | Unassigned | Aero Insect | Lepisma Tropomyosin | IgE plus basophil+ or SPT+ | 243 | CAC84593.2 | 20387029 | 7 |
| Ligustrum vulgare | Privet | Lig v 1.0101 | Aero Plant | Ligustrum Lig v 1 | IgE but no biological test | 145 | CAAS4818.1 | 3256210 | 7 |
| Ligustrum vulgare | Privet | Lig v 1.0102 | Aero Plant | Ligustrum Lig v 1 | IgE but no biological test | 145 | CAAS4819.1 | 3256212 | 7 |
| Lilium longiflorum | Trumpet lily | Unassigned | Aero Plant | Lilium polygalacturonase | IgE but no biological test | 413 | AAZ91659.1 | 73913442 | 8 |
| Liposcelis bostrychophila | booklice | Lip b 1.0101 | Aero Insect | Liposcelis Lip b 1 Fragments | IgE but no biological test | 254 | BAW03243.1 | 1109516247 | 18 |
| Liposcelis bostrychophila | booklice | Lip b 1.0102 | Aero Insect | Liposcelis Lip b 1 Fragments | IgE but no biological test | 254 | BAW03242.1 | 1109516245 | 18 |
| Litchi chinensis | Lychee nut | Lit c 1.0101 | Food Plant | Litchi Lit c 1 | IgE but no biological test | 131 | AAO7320.1 | 15809696 | 7 |
| Litchi chinensis | Lychee nut | Unassigned | Food Plant | Litchi Lit c 1 | IgE but no biological test | 131 | ABC02750.1 | 83317152 | 7 |
| Litopenaeus vannamei | Whiteleg Shrimp | Lit v 4.0101 | Food Animal | Litopenaeus Lit v 4 sarcoplasmic Ca+ binding | IgE plus basophil+ or SPT+ | 193 | ACM89179.1 | 223403273 | 11 |
| Litopenaeus vannamei | Whiteleg Shrimp | Lit v 1.0101 | Food Animal | Litopenaeus Lit v 1 tropomyosin | IgE but no biological test | 284 | ACB38288.1 | 170791252 | 10 |
| Litopenaeus vannamei | Whiteleg Shrimp | Lit v 2.0101 | Food Animal | Litopenaeus Lit v 2 | IgE but no biological test | 356 | ABI98020.1 | 115492980 | 8 |
| Litopenaeus vannamei | Whiteleg Shrimp | Unassigned | Food Animal | Litopenaeus Lit v 2 | IgE but no biological test | 356 | BOFRF9.1 | 1679377515 | 20 |
| Litopenaeus vannamei | Whiteleg Shrimp | Lit v 3.0101 | Food Animal | Litopenaeus Lit v 3 myosin | IgE but no biological test | 177 | ACC76803.1 | 184198734 | 10 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stA Version |
|----------------------------------|----------------------|----------------|-------------|--|----------------------------|--------|------------|------------|--------------|
| Lolium perenne | Perennial ryegrass | | Aero Plant | Lolium Lol p 1 | IgE plus basophil+ or SPT+ | 263 | P14946.2 | 126385 | 7 |
| Lolium perenne | Perennial ryegrass | Lol p 1.0102 | Aero Plant | Lolium Lol p 1 | IgE plus basophil+ or SPT+ | 252 | AAA63278.1 | 168314 | 7 |
| Lolium perenne | Perennial ryegrass | Lol p 1.0101 | Aero Plant | Lolium Lol p 1 | IgE plus basophil+ or SPT+ | 263 | AAA63279.1 | 168316 | 10 |
| Lolium perenne | Perennial ryegrass | Lol p 1.0103 | Aero Plant | Lolium Lol p 1 | IgE plus basophil+ or SPT+ | 263 | CAB63699.1 | 6599300 | 10 |
| Lolium perenne | Perennial ryegrass | Lol p 11.0101 | Aero Plant | Lolium Lol p 11 | IgE plus basophil+ or SPT+ | 134 | Q7M1X5.1 | 47605808 | 7 |
| Lolium perenne | Perennial ryegrass | Lol p 2.0101 | Aero Plant | Lolium Lol p 2 | IgE plus basophil+ or SPT+ | 97 | P14947.1 | 126386 | 7 |
| Lolium perenne | Perennial ryegrass | | Aero Plant | Lolium Lol p 2 | IgE plus basophil+ or SPT+ | 88 | CAA51775.1 | 939932 | 7 |
| Lolium perenne | Perennial ryegrass | Lol p 3.0101 | Aero Plant | Lolium Lol p 3 | IgE but no biological test | 97 | P14948.1 | 126387 | 7 |
| Lolium perenne | Perennial ryegrass | Lol p 4.0101 | Aero Plant | Lolium Lol p 4 | IgE plus basophil+ or SPT+ | 423 | CAH92637.1 | 55859464 | 7 |
| Lolium perenne | Perennial ryegrass | | Aero Plant | Lolium Lol p 5 | IgE plus basophil+ or SPT+ | 301 | AAD20386.1 | 4416516 | 7 |
| Lolium perenne | Perennial ryegrass | | Aero Plant | Lolium Lol p 5 | IgE plus basophil+ or SPT+ | 301 | CAB64344.1 | 6634467 | 7 |
| Lolium perenne | Perennial ryegrass | Lol p 5.0101 | Aero Plant | Lolium Lol p 5 | IgE plus basophil+ or SPT+ | 339 | AAA33405.1 | 455288 | 10 |
| Lolium perenne | Perennial ryegrass | Lol p 5.0102 | Aero Plant | Lolium Lol p 5 | IgE plus basophil+ or SPT+ | 307 | Q40240.2 | 332278195 | 12 |
| Lupinus albus | white lupine | Unassigned | Food Plant | Lupinus albus congluten beta | IgE but no biological test | 531 | CAI84850.2 | 89994190 | 14 |
| Lupinus albus | white lupine | Unassigned | Food Plant | Lupinus albus congluten beta | IgE but no biological test | 533 | Q6EBC1.1 | 75121065 | 17 |
| Lupinus angustifolius | blue lupin | Unassigned | Food Plant | Lupinus Lup an 1 conglutin beta | IgE but no biological test | 521 | ABR21771.1 | 149208401 | 9 |
| Lupinus angustifolius | blue lupin | Unassigned | Food Plant | Lupinus Lup an 1 conglutin beta | IgE but no biological test | 455 | ABR21772.1 | 149208403 | 9 |
| Lupinus angustifolius | blue lupin | Lup an 1.0101 | Food Plant | Lupinus Lup an 1 conglutin beta | IgE but no biological test | 611 | ACB05815.1 | 169950562 | 10 |
| Lupinus angustifolius | blue lupin | Unassigned | Food Plant | Lupinus Lup an 1 conglutin beta | IgE but no biological test | 605 | F5B8W5.1 | 980951568 | 17 |
| Lupinus angustifolius | blue lupin | Unassigned | Food Plant | Lupinus Lup an 1 conglutin beta | IgE but no biological test | 593 | F5B8W4.1 | 980951565 | 17 |
| Lupinus angustifolius | blue lupin | Unassigned | Food Plant | Lupinus Lup an 1 conglutin beta | IgE but no biological test | 637 | F5B8W3.1 | 980951561 | 17 |
| Lupinus angustifolius | blue lupin | Unassigned | Food Plant | Lupinus Lup an 1 conglutin beta | IgE but no biological test | 590 | F5B8W2.1 | 980951555 | 17 |
| Lupinus angustifolius | blue lupin | Unassigned | Food Plant | Lupinus Lup an 1 conglutin beta | IgE but no biological test | 580 | F5B8W1.1 | 980951550 | 17 |
| Lupinus angustifolius | blue lupin | Unassigned | Food Plant | Lupinus Lup an 1 conglutin beta | IgE but no biological test | 603 | F5B8W0.1 | 980951548 | 17 |
| Lupinus angustifolius | blue lupin | Unassigned | Food Plant | Lupinus Lup an 1 conglutin beta | IgE but no biological test | 611 | F5B8V9.1 | 980951518 | 17 |
| Lycium barbarum | wolfberry | Unassigned | Food Plant | Lycium ltp | IgE but no biological test | 51 | B3A0N2.1 | 363805423 | 13 |
| Macrobrachium rosenbergii | Giant River Prawn | Mac r 1.0101 | Food Animal | Macrobrachium rosenbergii shrimp tropomyosin | IgE but no biological test | 284 | ADC55380.1 | 288819271 | 11 |
| Macrobrachium rosenbergii | Giant River Prawn | Unassigned | Food Animal | Macrobrachium rosenbergii shrimp tropomyosin | IgE but no biological test | 284 | AHA85706.1 | 558698675 | 15 |
| Macruronus magellanicus | Patagonian Grenadier | Unassigned | Food Animal | Merluccius sp. Macruronus sp. Parvalbumin Hake | IgE but no biological test | 98 | P86739.1 | 308191450 | 12 |
| Macruronus magellanicus | Patagonian Grenadier | Unassigned | Food Animal | Merluccius sp. Macruronus sp. Parvalbumin Hake | IgE but no biological test | 108 | P86741.1 | 308191461 | 12 |
| Macruronus magellanicus | Patagonian Grenadier | Unassigned | Food Animal | Merluccius sp. Macruronus sp. Parvalbumin Hake | IgE but no biological test | 74 | P86740.1 | 308191474 | 12 |
| Macruronus novaezelandiae | Blue hake | Unassigned | Food Animal | Merluccius sp. Macruronus sp. Parvalbumin Hake | IgE but no biological test | 83 | P86742.1 | 308191475 | 12 |
| Malassezia furfur | Yeast | Mala f 2.0101 | Contact | Malassezia Mala f 2 | IgE but no biological test | 177 | BAA32435.1 | 3445490 | 7 |
| Malassezia furfur | Yeast | Mala f 3.0101 | Contact | Malassezia Mala f 3 | IgE but no biological test | 166 | BAA32436.1 | 3445492 | 7 |
| Malassezia furfur | Yeast | Mala f 4.0101 | Contact | Malassezia Mala f 4 | IgE but no biological test | 342 | AAD25927.1 | 4587985 | 7 |
| Malassezia sympodialis | Yeast | Mala s 1.0101 | Contact | Malassezia Mala s 1 | IgE plus basophil+ or SPT+ | 350 | CAA65341.1 | 1261972 | 7 |
| Malassezia sympodialis | Yeast | Mala s 10.0101 | Contact | Malassezia Mala s 10 heat shock protein | IgE but no biological test | 773 | CAD20981.3 | 28564467 | 14 |
| Malassezia sympodialis | Yeast | Mala s 11.0101 | Contact | Malassezia Mala s 11 first 38 aa signal | IgE but no biological test | 237 | CAD68071.1 | 28569698 | 7 |
| Malassezia sympodialis | Yeast | Mala s 12.0101 | Contact | Malassezia Mala s 12 | IgE but no biological test | 618 | CAI43283.4 | 78038796 | 7 |
| Malassezia sympodialis | Yeast | Mala s 5.0101 | Contact | Malassezia Mala s 5 | IgE but no biological test | 172 | CAA09883.1 | 4138171 | 7 |
| Malassezia sympodialis | Yeast | Mala s 6.0101 | Contact | Malassezia Mala s 6 | IgE but no biological test | 162 | CAA09884.1 | 4138173 | 7 |
| Malassezia sympodialis | Yeast | Mala s 7.0101 | Contact | Malassezia Mala s 7 | IgE but no biological test | 187 | CAA09885.1 | 4138175 | 7 |
| Malassezia sympodialis | Yeast | Mala s 8.0101 | Contact | Malassezia Mala s 8 | IgE but no biological test | 179 | CAA09886.2 | 7271239 | 7 |
| Malassezia sympodialis | Yeast | Mala s 9.0101 | Contact | Malassezia Mala s 9 | IgE but no biological test | 342 | CAA09887.4 | 19069920 | 7 |
| Malassezia sympodialis ATCC 4211 | Yeast | Unassigned | Contact | Malassezia Mala s 10 heat shock protein | IgE but no biological test | 773 | CCU97864.1 | 465797105 | 14 |
| Malassezia sympodialis ATCC 4211 | Yeast | Unassigned | Contact | Malassezia Mala s 11 first 38 aa signal | IgE but no biological test | 202 | CCV00099.1 | 465795607 | 14 |
| Malassezia sympodialis ATCC 4211 | Yeast | Mala s 13 | Contact | Malassezia Mala s 13 Thioredoxin Rev | IgE plus basophil+ or SPT+ | 107 | CCU98198.1 | 465793078 | 14 |
| Malassezia sympodialis ATCC 4211 | Yeast | Unassigned | Contact | Malassezia Mala s 5 | IgE but no biological test | 172 | CCU99457.1 | 465794772 | 14 |
| Malassezia sympodialis ATCC 4211 | Yeast | Unassigned | Contact | Malassezia Mala s 7 | IgE but no biological test | 200 | SHO79205.1 | 1129841119 | 18 |
| Malassezia sympodialis ATCC 4211 | Yeast | Unassigned | Contact | Malassezia Mala s 9 | IgE but no biological test | 342 | CCU99206.1 | 465794420 | 14 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stÅ Version |
|-------------------|--------|----------------|------------|---------------|----------------------------|--------|------------|------------|--------------|
| Malus x domestica | Apple | Mal d 1.0301 | Food Plant | Malus Mal d 1 | IgE plus basophil+ or SPT+ | 159 | CAA96534.1 | 1313966 | 7 |
| Malus x domestica | Apple | Mal d 1.0401 | Food Plant | Malus Mal d 1 | IgE plus basophil+ or SPT+ | 160 | CAA96535.1 | 1313968 | 7 |
| Malus x domestica | Apple | Mal d 1.0402 | Food Plant | Malus Mal d 1 | IgE plus basophil+ or SPT+ | 160 | CAA96536.1 | 1313970 | 7 |
| Malus x domestica | Apple | Mal d 1.0403 | Food Plant | Malus Mal d 1 | IgE plus basophil+ or SPT+ | 160 | CAA96537.1 | 1313972 | 7 |
| Malus x domestica | Apple | Mal d 1.0206 | Food Plant | Malus Mal d 1 | IgE plus basophil+ or SPT+ | 159 | AAD13683.1 | 2443824 | 7 |
| Malus x domestica | Apple | Mal d 1.0103 | Food Plant | Malus Mal d 1 | IgE plus basophil+ or SPT+ | 159 | AAD26546.1 | 4590364 | 7 |
| Malus x domestica | Apple | Mal d 1.0203 | Food Plant | Malus Mal d 1 | IgE plus basophil+ or SPT+ | 159 | AAD26547.1 | 4590366 | 7 |
| Malus x domestica | Apple | Mal d 1.0204 | Food Plant | Malus Mal d 1 | IgE plus basophil+ or SPT+ | 159 | AAD26548.1 | 4590368 | 7 |
| Malus x domestica | Apple | Mal d 1.0104 | Food Plant | Malus Mal d 1 | IgE plus basophil+ or SPT+ | 159 | AAD26552.1 | 4590376 | 7 |
| Malus x domestica | Apple | Mal d 1.0105 | Food Plant | Malus Mal d 1 | IgE plus basophil+ or SPT+ | 159 | AAD26553.1 | 4590378 | 7 |
| Malus x domestica | Apple | Mal d 1.0106 | Food Plant | Malus Mal d 1 | IgE plus basophil+ or SPT+ | 159 | AAD26554.1 | 4590380 | 7 |
| Malus x domestica | Apple | Mal d 1.0107 | Food Plant | Malus Mal d 1 | IgE plus basophil+ or SPT+ | 159 | AAD26555.1 | 4590382 | 7 |
| Malus x domestica | Apple | Mal d 1.0205 | Food Plant | Malus Mal d 1 | IgE plus basophil+ or SPT+ | 159 | AAD26558.1 | 4590388 | 7 |
| Malus x domestica | Apple | Mal d 1.0208 | Food Plant | Malus Mal d 1 | IgE plus basophil+ or SPT+ | 158 | CAD32318.1 | 21685277 | 7 |
| Malus x domestica | Apple | Mal d 1.0304 | Food Plant | Malus Mal d 1 | IgE plus basophil+ or SPT+ | 159 | AAO25113.1 | 27922941 | 7 |
| Malus x domestica | Apple | Mal d 1.0108 | Food Plant | Malus Mal d 1 | IgE plus basophil+ or SPT+ | 159 | AAD29671.1 | 4768879 | 11 |
| Malus x domestica | Apple | Mal d 1.0201 | Food Plant | Malus Mal d 1 | IgE plus basophil+ or SPT+ | 159 | AAB01362.1 | 862307 | 11 |
| Malus x domestica | Apple | Mal d 1.0102 | Food Plant | Malus Mal d 1 | IgE plus basophil+ or SPT+ | 159 | CAA88833.1 | 886683 | 11 |
| Malus x domestica | Apple | Mal d 1.0101 | Food Plant | Malus Mal d 1 | IgE plus basophil+ or SPT+ | 159 | CAA58646.1 | 747852 | 15 |
| Malus x domestica | Apple | Mal d 1.0109 | Food Plant | Malus Mal d 1 | IgE plus basophil+ or SPT+ | 159 | AAK13029.1 | 15418742 | 15 |
| Malus x domestica | Apple | Mal d 1.0207 | Food Plant | Malus Mal d 1 | IgE plus basophil+ or SPT+ | 159 | AAK13030.1 | 15418744 | 15 |
| Malus x domestica | Apple | Mal d 1.0302 | Food Plant | Malus Mal d 1 | IgE plus basophil+ or SPT+ | 159 | AAK13027.1 | 15418738 | 15 |
| Malus x domestica | Apple | Unassigned | Food Plant | Malus Mal d 2 | IgE but no biological test | 26 | AAB35897.1 | 1478293 | 7 |
| Malus x domestica | Apple | Unassigned | Food Plant | Malus Mal d 2 | IgE but no biological test | 246 | AAX19848.1 | 60418842 | 7 |
| Malus x domestica | Apple | Unassigned | Food Plant | Malus Mal d 2 | IgE but no biological test | 246 | AAX19851.1 | 60418848 | 7 |
| Malus x domestica | Apple | Unassigned | Food Plant | Malus Mal d 2 | IgE but no biological test | 246 | Q9FSG7.1 | 30316292 | 8 |
| Malus x domestica | Apple | Unassigned | Food Plant | Malus Mal d 2 | IgE but no biological test | 158 | CAT99612.1 | 218059718 | 10 |
| Malus x domestica | Apple | Unassigned | Food Plant | Malus Mal d 2 | IgE but no biological test | 158 | CAT99611.1 | 218059715 | 10 |
| Malus x domestica | Apple | Unassigned | Food Plant | Malus Mal d 2 | IgE but no biological test | 193 | AFM77001.1 | 392507603 | 13 |
| Malus x domestica | Apple | Mal d 2.0101 | Food Plant | Malus Mal d 2 | IgE but no biological test | 245 | AAC36740.1 | 3643249 | 15 |
| Malus x domestica | Apple | Unassigned | Food Plant | Malus Mal d 2 | IgE but no biological test | 159 | APG29330.1 | 1109403341 | 18 |
| Malus x domestica | Apple | Mal d 3.0201 | Food Plant | Malus Mal d 3 | IgE plus basophil+ or SPT+ | 115 | AAF26450.1 | 6715522 | 7 |
| Malus x domestica | Apple | Mal d 3.0203 | Food Plant | Malus Mal d 3 | IgE plus basophil+ or SPT+ | 115 | AAT80665.1 | 50659891 | 7 |
| Malus x domestica | Apple | Mal d 3.0202 | Food Plant | Malus Mal d 3 | IgE plus basophil+ or SPT+ | 115 | AAT80664.1 | 50659889 | 7 |
| Malus x domestica | Apple | Unassigned | Food Plant | Malus Mal d 3 | IgE plus basophil+ or SPT+ | 115 | AAT80662.1 | 50659885 | 7 |
| Malus x domestica | Apple | Unassigned | Food Plant | Malus Mal d 3 | IgE plus basophil+ or SPT+ | 115 | AAT80659.1 | 50659879 | 7 |
| Malus x domestica | Apple | Mal d 3.0102 | Food Plant | Malus Mal d 3 | IgE plus basophil+ or SPT+ | 115 | AAT80649.1 | 50659859 | 7 |
| Malus x domestica | Apple | Unassigned | Food Plant | Malus Mal d 3 | IgE plus basophil+ or SPT+ | 115 | AAR22488.1 | 38492338 | 7 |
| Malus x domestica | Apple | Mal d 4.0302 | Food Plant | Malus Mal d 4 | IgE plus basophil+ or SPT+ | 131 | CAD46559.1 | 28881453 | 7 |
| Malus x domestica | Apple | Mal d 4.0102 | Food Plant | Malus Mal d 4 | IgE plus basophil+ or SPT+ | 131 | CAD46561.1 | 28881457 | 7 |
| Malus x domestica | Apple | Mal d 4.0202 | Food Plant | Malus Mal d 4 | IgE plus basophil+ or SPT+ | 131 | CAD46560.1 | 28881455 | 7 |
| Malus x domestica | Apple | Unassigned | Food Plant | Malus Mal d 4 | IgE plus basophil+ or SPT+ | 131 | AAX19854.1 | 60418854 | 7 |
| Malus x domestica | Apple | Unassigned | Food Plant | Malus Mal d 4 | IgE plus basophil+ or SPT+ | 131 | AAX19856.1 | 60418858 | 7 |
| Malus x domestica | Apple | Unassigned | Food Plant | Malus Mal d 4 | IgE plus basophil+ or SPT+ | 131 | AAX19858.1 | 60418862 | 7 |
| Malus x domestica | Apple | Unassigned | Food Plant | Malus Mal d 4 | IgE plus basophil+ or SPT+ | 131 | AAX19860.1 | 60418866 | 7 |
| Malus x domestica | Apple | Unassigned | Food Plant | Malus Mal d 4 | IgE plus basophil+ or SPT+ | 131 | CAK93713.1 | 164510842 | 9 |
| Malus x domestica | Apple | Unassigned | Food Plant | Malus Mal d 4 | IgE plus basophil+ or SPT+ | 131 | CAK93753.1 | 164510858 | 9 |
| Malus x domestica | Apple | Unassigned | Food Plant | Malus Mal d 4 | IgE plus basophil+ or SPT+ | 131 | CAK93757.1 | 164510860 | 9 |
| Malus x domestica | Apple | Unassigned | Food Plant | Malus Mal d 4 | IgE plus basophil+ or SPT+ | 77 | CAT99618.1 | 218059730 | 10 |
| Malus x domestica | Apple | Unassigned | Food Plant | Malus Mal d 4 | IgE plus basophil+ or SPT+ | 115 | CAT99619.1 | 218059733 | 10 |
| Malus x domestica | Apple | Unassigned | Food Plant | Malus Mal d 4 | IgE plus basophil+ or SPT+ | 131 | CAT99617.1 | 218059728 | 10 |
| Malus x domestica | Apple | Mal d 4.0301 | Food Plant | Malus Mal d 4 | IgE plus basophil+ or SPT+ | 131 | AAD29412.1 | 4761584 | 11 |
| Malus x domestica | Apple | Mal d 4.0201 | Food Plant | Malus Mal d 4 | IgE plus basophil+ or SPT+ | 131 | AAD29413.1 | 4761586 | 11 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stA Version |
|--------------------------------|-------------------------|----------------|-------------|--|----------------------------|--------|------------|-----------|--------------|
| Malus x domestica | Apple | Mal d 4.0101 | Food Plant | Malus Mal d 4 | IgE plus basophil+ or SPT+ | 131 | AAD29414.1 | 4761588 | 11 |
| Manihot esculenta | Cassava | Unassigned | Food Plant | Manihot Man e 5.0101 | IgE but no biological test | 177 | AAM55492.1 | 21585695 | 7 |
| Manihot esculenta | Cassava | Man e 5.0101 | Food Plant | Manihot Man e 5.0101 | IgE but no biological test | 177 | AEE98392.1 | 332713934 | 14 |
| Manilkara zapota | Sapodilla plum | Unassigned | Food Plant | Manilkara Thaumatin like protein 1 | IgE but no biological test | 12 | B3EW50.1 | 442580988 | 14 |
| Manilkara zapota | Sapodilla plum | Unassigned | Food Plant | Manilkara Thaumatin like protein 1 | IgE but no biological test | 9 | B3EW5E.3 | 442570282 | 14 |
| Manilkara zapota | Sapodilla plum | Unassigned | Food Plant | Manilkara Thaumatin like protein 1 | IgE but no biological test | 207 | GSDC91.2 | 663434113 | 15 |
| Marsupenaeus japonicus | Kuruma Shrimp | Unassigned | Food Animal | Marsupenaeus tropomyosin | IgE but no biological test | 284 | BAF47263.1 | 125995159 | 8 |
| Melicertus latisulcatus | King Prawn | Mel I 1.0101 | Food Animal | Melicertus tropomyosin | IgE but no biological test | 284 | AGF86397.1 | 451935062 | 14 |
| Mercurialis annua | Annual mercury grass | Mer a 1.0101 | Aero Plant | Mercurialis Mer a 1 | IgE but no biological test | 133 | CAA73720.1 | 2959898 | 7 |
| Merluccius australis australis | southern hake | Unassigned | Food Animal | Merluccius sp. Macruronus sp. Parvalbumin Hake | IgE but no biological test | 108 | P86745.1 | 308191452 | 12 |
| Merluccius australis polylepis | Southern hake | Unassigned | Food Animal | Merluccius sp. Macruronus sp. Parvalbumin Hake | IgE but no biological test | 108 | P86749.1 | 308191453 | 12 |
| Merluccius australis polylepis | Southern hake | Unassigned | Food Animal | Merluccius sp. Macruronus sp. Parvalbumin Hake | IgE but no biological test | 108 | P86750.1 | 308191464 | 12 |
| Merluccius bilinearis | Silver hake | Unassigned | Food Animal | Merluccius sp. Macruronus sp. Parvalbumin Hake | IgE but no biological test | 108 | P86752.1 | 308191465 | 12 |
| Merluccius bilinearis | Silver hake | Unassigned | Food Animal | Merluccius sp. Macruronus sp. Parvalbumin Hake | IgE but no biological test | 108 | P86753.1 | 308191478 | 12 |
| Merluccius bilinearis | Silver hake | Unassigned | Food Animal | Merluccius sp. Macruronus sp. Parvalbumin Hake | IgE but no biological test | 94 | P86754.1 | 308191488 | 12 |
| Merluccius capensis | Shallow-water cape hake | Unassigned | Food Animal | Merluccius sp. Macruronus sp. Parvalbumin Hake | IgE but no biological test | 108 | P86757.1 | 308191466 | 12 |
| Merluccius gayi | Southern Pacific hake | Unassigned | Food Animal | Merluccius sp. Macruronus sp. Parvalbumin Hake | IgE but no biological test | 108 | P86761.1 | 308191455 | 12 |
| Merluccius gayi | Southern Pacific hake | Unassigned | Food Animal | Merluccius sp. Macruronus sp. Parvalbumin Hake | IgE but no biological test | 91 | P86760.1 | 308191489 | 12 |
| Merluccius merluccius | European hake | Unassigned | Food Animal | Merluccius sp. Macruronus sp. Parvalbumin Hake | IgE but no biological test | 108 | P02620.1 | 131116 | 12 |
| Merluccius merluccius | European hake | Unassigned | Food Animal | Merluccius sp. Macruronus sp. Parvalbumin Hake | IgE but no biological test | 108 | P86765.1 | 308191469 | 12 |
| Merluccius paradoxus | Deep-water cape hake | Unassigned | Food Animal | Merluccius sp. Macruronus sp. Parvalbumin Hake | IgE but no biological test | 108 | P86768.1 | 308191457 | 12 |
| Merluccius paradoxus | Deep-water cape hake | Unassigned | Food Animal | Merluccius sp. Macruronus sp. Parvalbumin Hake | IgE but no biological test | 108 | P86769.1 | 308191470 | 12 |
| Merluccius paradoxus | Deep-water cape hake | Unassigned | Food Animal | Merluccius sp. Macruronus sp. Parvalbumin Hake | IgE but no biological test | 95 | P86770.1 | 308191483 | 12 |
| Merluccius polli | Benguela hake | Unassigned | Food Animal | Merluccius sp. Macruronus sp. Parvalbumin Hake | IgE but no biological test | 108 | P86771.1 | 308191471 | 12 |
| Merluccius polli | Benguela hake | Unassigned | Food Animal | Merluccius sp. Macruronus sp. Parvalbumin Hake | IgE but no biological test | 69 | P86772.1 | 308191484 | 12 |
| Merluccius productus | North Pacific hake | Unassigned | Food Animal | Merluccius sp. Macruronus sp. Parvalbumin Hake | IgE but no biological test | 108 | P86774.1 | 308191459 | 12 |
| Merluccius productus | North Pacific hake | Unassigned | Food Animal | Merluccius sp. Macruronus sp. Parvalbumin Hake | IgE but no biological test | 108 | P86775.1 | 308191472 | 12 |
| Mesocricetus auratus | Golden hamster | Mes a 1.0101 | Aero Animal | Mesocricetus auratus Mes a 1 | IgE but no biological test | 172 | AAD55792.2 | 13124669 | 16 |
| Mesocricetus auratus | Golden hamster | Unassigned | Aero Animal | Mesocricetus auratus Mes a 1 | IgE but no biological test | 172 | Q99MG7.1 | 81916647 | 17 |
| Metapenaeus ensis | Greasyback shrimp | Met e 1.0101 | Food Animal | Metapenaeus Met e 1 Tropomyosin | IgE but no biological test | 274 | AAA60330.1 | 607633 | 7 |
| Mimachlamys nobilis | Noble scallop | Unassigned | Food Animal | Mimachlamys Tropomyosin | IgE plus basophil+ or SPT+ | 284 | AAG08989.1 | 9954253 | 7 |
| Morus alba var. atropurpurea | White Mulberry | Unassigned | Food Plant | Morus winter accumulating protein | IgE but no biological test | 157 | AHW81906.1 | 610664572 | 15 |
| Morus bombycis | Mulberry | Unassigned | Food Plant | Morus winter accumulating protein | IgE but no biological test | 157 | AAV33670.1 | 54311115 | 12 |
| Morus bombycis | Mulberry | Unassigned | Food Plant | Morus winter accumulating protein | IgE but no biological test | 157 | AAV33672.1 | 54311119 | 12 |
| Morus nigra | Black mulberry | Mor n 3.0101 | Food Plant | Morus Mor n 3 mulberry LTP | IgE plus basophil+ or SPT+ | 91 | P85894.1 | 28856193 | 11 |
| Mus musculus | Mouse | Unassigned | Aero Animal | Mus Mus m 1 | IgE plus basophil+ or SPT+ | 180 | P02762.2 | 20178291 | 7 |
| Mus musculus | Mouse | Mus m 1.0101 | Aero Animal | Mus Mus m 1 | IgE plus basophil+ or SPT+ | 180 | CAA26953.1 | 295910 | 15 |
| Mus musculus | Mouse | Unassigned | Aero Animal | Mus Mus m 1 | IgE plus basophil+ or SPT+ | 181 | A2BIM8.1 | 980952242 | 17 |
| Mus musculus domesticus | Mouse | Mus m 1.0102 | Aero Animal | Mus Mus m 1 | IgE plus basophil+ or SPT+ | 180 | AAA39768.1 | 199881 | 15 |
| Musa acuminata | Banana | Mus a 1.0101 | Food Plant | Musa acuminata Mus a 1 profilin banana | IgE but no biological test | 131 | AAK54834.1 | 14161635 | 7 |
| Musa acuminata | Banana | Unassigned | Food Plant | Musa acuminata Mus a 5 Endo-Beta-1,3-Glucanase | IgE plus basophil+ or SPT+ | 312 | 2CYG_A | 83754908 | 7 |
| Musa acuminata | Banana | Mus a 4.0101 | Food Plant | Musa Mus a 4 | IgE plus basophil+ or SPT+ | 200 | 123Q_A | 88191901 | 7 |
| Musa acuminata | Banana | Mus a 2.0101 | Food Plant | Musa Mus s 2 | IgE but no biological test | 318 | CAC81811.1 | 17932710 | 15 |
| Musa acuminata AAA Group | Banana | Unassigned | Food Plant | Musa acuminata Mus a 5 Endo-Beta-1,3-Glucanase | IgE plus basophil+ or SPT+ | 340 | AAB82772.2 | 6073860 | 14 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stA Version |
|----------------------|------------------|----------------|-------------------|--|----------------------------|--------|------------|------------|--------------|
| Mustelus griseus | | Unassigned | Food Animal | Mustelus griseus parvalbumin | IgE but no biological test | 110 | 5ZGM_A | 1446210823 | 20 |
| Mustelus griseus | | Unassigned | Food Animal | Mustelus griseus parvalbumin | IgE but no biological test | 107 | 5ZH6_A | 1446210825 | 20 |
| Myrmecia banksi | Giant Bull Ant | Myr p 3.0101 | Venom or Salivary | Myrmecia Myr p 3 listed as Myrmecia banksi | IgE but no biological test | 84 | BAD36780.1 | 51241753 | 15 |
| Myrmecia pilosula | Jumper ant | Unassigned | Venom or Salivary | Myrmecia Myr p 1 | IgE but no biological test | 112 | AAB50883.1 | 1911819 | 7 |
| Myrmecia pilosula | Jumper ant | Myr p 1.0101 | Venom or Salivary | Myrmecia Myr p 1 | IgE but no biological test | 112 | CAA49760.1 | 312284 | 15 |
| Myrmecia pilosula | Jumper ant | Unassigned | Venom or Salivary | Myrmecia Myr p 2 | IgE but no biological test | 75 | 2206305A | 1587177 | 7 |
| Myrmecia pilosula | Jumper ant | Myr p 2.0101 | Venom or Salivary | Myrmecia Myr p 2 | IgE but no biological test | 75 | AAB36316.1 | 1438761 | 10 |
| Neptunea polycostata | Wrinkled Neptune | Unassigned | Food Animal | Neptunea tropomyosin | IgE but no biological test | 284 | BAH10150.1 | 219806590 | 10 |
| Nicotiana tabacum | Tobacco | Unassigned | Aero Plant | Nicotiana villin | IgE but no biological test | 520 | CAE17317.1 | 57283139 | 7 |
| Nicotiana tabacum | Tobacco | Unassigned | Aero Plant | Nicotiana villin | IgE but no biological test | 559 | CAE17316.1 | 57283137 | 7 |
| Octopus vulgaris | Octopus | Unassigned | Food Animal | Octopus tropomyosin | IgE but no biological test | 284 | BAE54433.1 | 83715936 | 7 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Ole e 14 Olea europea polygalacturonase | IgE but no biological test | 379 | AHL24656.1 | 589912881 | 15 |
| Olea europaea | Olive tree | Ole e 13.0101 | Aero Plant | Olea e 13 in WHO IUIS | IgE but no biological test | 226 | E3SU11.1 | 449061783 | 14 |
| Olea europaea | Olive tree | Ole e 1.0102 | Aero Plant | Olea Ole e 1 | IgE plus basophil+ or SPT+ | 145 | P19963.2 | 14424429 | 7 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 1 | IgE plus basophil+ or SPT+ | 137 | I53806 | 1362128 | 7 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 1 | IgE plus basophil+ or SPT+ | 136 | E53806 | 1362129 | 7 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 1 | IgE plus basophil+ or SPT+ | 136 | F53806 | 1362130 | 7 |
| Olea europaea | Olive tree | Ole e 1.0104 | Aero Plant | Olea Ole e 1 | IgE plus basophil+ or SPT+ | 145 | C53806 | 1362131 | 7 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 1 | IgE plus basophil+ or SPT+ | 137 | A38968 | 1362132 | 7 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 1 | IgE plus basophil+ or SPT+ | 136 | G53806 | 1362133 | 7 |
| Olea europaea | Olive tree | Ole e 1.0103 | Aero Plant | Olea Ole e 1 | IgE plus basophil+ or SPT+ | 145 | B53806 | 1362136 | 7 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 1 | IgE plus basophil+ or SPT+ | 136 | H53806 | 1362137 | 7 |
| Olea europaea | Olive tree | Ole e 1.0105 | Aero Plant | Olea Ole e 1 | IgE plus basophil+ or SPT+ | 146 | CAA73038.1 | 2465127 | 7 |
| Olea europaea | Olive tree | Ole e 1.0106 | Aero Plant | Olea Ole e 1 | IgE plus basophil+ or SPT+ | 146 | CAA73037.1 | 2465129 | 7 |
| Olea europaea | Olive tree | Ole e 1.0107 | Aero Plant | Olea Ole e 1 | IgE plus basophil+ or SPT+ | 146 | CAA73036.1 | 2465131 | 7 |
| Olea europaea | Olive tree | Ole e 1.0101 | Aero Plant | Olea Ole e 1 | IgE plus basophil+ or SPT+ | 130 | AAB32652.2 | 13195753 | 7 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 1 | IgE plus basophil+ or SPT+ | 134 | AAQ22133.1 | 37724597 | 7 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 1 | IgE plus basophil+ or SPT+ | 135 | AAQ22132.1 | 37724593 | 7 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 1 | IgE plus basophil+ or SPT+ | 132 | AAN18044.1 | 37548753 | 7 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 1 | IgE plus basophil+ or SPT+ | 131 | AAQ10281.1 | 33329758 | 7 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 1 | IgE plus basophil+ or SPT+ | 132 | AAQ10280.1 | 33329756 | 7 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 1 | IgE plus basophil+ or SPT+ | 132 | AAQ10279.1 | 33329754 | 7 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 1 | IgE plus basophil+ or SPT+ | 131 | AAQ10278.1 | 33329752 | 7 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 1 | IgE plus basophil+ or SPT+ | 131 | AAQ10277.1 | 33329750 | 7 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 1 | IgE plus basophil+ or SPT+ | 129 | AAQ10276.1 | 33329748 | 7 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 1 | IgE plus basophil+ or SPT+ | 131 | AAQ10274.1 | 33329744 | 7 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 1 | IgE plus basophil+ or SPT+ | 132 | AAQ10271.1 | 33329738 | 7 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 1 | IgE plus basophil+ or SPT+ | 132 | AAQ10268.1 | 33329732 | 7 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 1 | IgE plus basophil+ or SPT+ | 132 | AAQ08190.1 | 33325115 | 7 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 1 | IgE plus basophil+ or SPT+ | 140 | ABP58632.1 | 145313982 | 9 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 1 | IgE plus basophil+ or SPT+ | 140 | ABP58633.1 | 145313984 | 9 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 1 | IgE plus basophil+ or SPT+ | 140 | ABP58635.1 | 145313988 | 9 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 1 | IgE plus basophil+ or SPT+ | 140 | ABP58636.1 | 145313990 | 9 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 1 | IgE plus basophil+ or SPT+ | 140 | ABP58637.1 | 145313992 | 9 |
| Olea europaea | Olive tree | Ole e 10.0101 | Aero Plant | Olea Ole e 10 | IgE plus basophil+ or SPT+ | 123 | AAL92578.1 | 29465664 | 7 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 11.0101 and 0102 | IgE but no biological test | 364 | AAY88919.1 | 68270856 | 11 |
| Olea europaea | Olive tree | Ole e 11.0101 | Aero Plant | Olea Ole e 11.0101 and 0102 | IgE but no biological test | 364 | ACZ57582.1 | 269996495 | 11 |
| Olea europaea | Olive tree | Ole e 12.0101 | Aero Plant | olea Ole e 12 in WHO IUIS | IgE but no biological test | 308 | E1U332.1 | 449061782 | 14 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 15 cyclophilin | IgE but no biological test | 172 | AVV30163.1 | 1373739558 | 20 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 2 | IgE but no biological test | 134 | O24170.1 | 3914427 | 7 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 2 | IgE but no biological test | 134 | O24171.1 | 3914428 | 7 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 2 | IgE but no biological test | 131 | A4GFC0.1 | 576017874 | 15 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stA Version |
|-------------------------------------|--------------------|----------------|-----------------|---|----------------------------|--------|------------|------------|--------------|
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 2 | IgE but no biological test | 131 | A4GFC3.1 | 576017774 | 15 |
| Olea europaea | Olive tree | Ole e 2.0101 | Aero Plant | Olea Ole e 2 | IgE but no biological test | 134 | CAA73035.1 | 2465133 | 15 |
| Olea europaea | Olive tree | Ole e 3.0101 | Aero Plant | Olea Ole e 3 | IgE plus basophil+ or SPT+ | 84 | AAD05375.1 | 3337403 | 7 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 3 | IgE plus basophil+ or SPT+ | 52 | AAO33897.1 | 37725377 | 7 |
| Olea europaea | Olive tree | Ole e 5.0101 | Aero Plant | Olea Ole e 5 | IgE but no biological test | 30 | P80740.2 | 122064581 | 8 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 5 | IgE but no biological test | 152 | CAD21706.2 | 39840779 | 7 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 5 | IgE but no biological test | 152 | ABP58627.1 | 145313972 | 9 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 5 | IgE but no biological test | 152 | ABX26131.1 | 160347106 | 9 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 5 | IgE but no biological test | 144 | ABX26132.1 | 160347108 | 9 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 5 | IgE but no biological test | 152 | ABX26134.1 | 160347112 | 9 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 5 | IgE but no biological test | 152 | ABX26138.1 | 160347120 | 9 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 5 | IgE but no biological test | 152 | ABX26139.1 | 160347122 | 9 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 5 | IgE but no biological test | 152 | ABX26140.1 | 160347124 | 9 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 5 | IgE but no biological test | 152 | ABX26141.1 | 160347126 | 9 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 5 | IgE but no biological test | 152 | ABX26143.1 | 160347130 | 9 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 5 | IgE but no biological test | 152 | ABX26145.1 | 160347134 | 9 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 5 | IgE but no biological test | 152 | ABX26147.1 | 160347138 | 9 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 5 | IgE but no biological test | 152 | ABX54842.1 | 160962543 | 9 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 5 | IgE but no biological test | 152 | ABX54844.1 | 160962547 | 9 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 5 | IgE but no biological test | 152 | ABX54849.1 | 160962557 | 9 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 5 | IgE but no biological test | 152 | ABX54855.1 | 160962569 | 9 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 5 | IgE but no biological test | 152 | ABX54859.1 | 160962577 | 9 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 5 | IgE but no biological test | 152 | ABX54862.1 | 160962583 | 9 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 5 | IgE but no biological test | 144 | ABX54864.1 | 160962587 | 9 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 5 | IgE but no biological test | 152 | ABX54866.1 | 160962591 | 9 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 5 | IgE but no biological test | 152 | ABX54869.1 | 160962597 | 9 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 5 | IgE but no biological test | 152 | ABX54876.1 | 160962611 | 9 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 5 | IgE but no biological test | 152 | ABX54877.1 | 160962613 | 9 |
| Olea europaea | Olive tree | Ole e 6.0101 | Aero Plant | Olea Ole e 6 | IgE but no biological test | 50 | AAB66909.1 | 2276458 | 11 |
| Olea europaea | Olive tree | Ole e 7.0101 | Aero Plant | Olea Ole e 7 | IgE but no biological test | 21 | P81430.2 | 22002032 | 7 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 8 | IgE but no biological test | 171 | AAF31152.1 | 6901654 | 7 |
| Olea europaea | Olive tree | Ole e 8.0101 | Aero Plant | Olea Ole e 8 | IgE but no biological test | 171 | AAF31151.1 | 6901652 | 11 |
| Olea europaea | Olive tree | Ole e 9.0101 | Aero Plant | Olea Ole e 9 | IgE plus basophil+ or SPT+ | 460 | AAK58515.1 | 14279169 | 7 |
| Olea europaea | Olive tree | Unassigned | Aero Plant | Olea Ole e 9 | IgE plus basophil+ or SPT+ | 101 | 2ION_A | 166235350 | 9 |
| Ommastrephes bartramii | red squid | Unassigned | Food Animal | Ommastrephes tropomyosin | IgE but no biological test | 284 | BAE54432.1 | 83715934 | 7 |
| Onchocerca volvulus | Parasitic nematode | Unassigned | Worm (parasite) | Onchocerca tropomyosin | IgE plus basophil+ or SPT+ | 284 | Q25632.1 | 42559586 | 12 |
| Oncorhynchus keta | chum salmon | Onc k 5.0101 | Food Animal | Oncorhynchus Onc k 5 | IgE but no biological test | 193 | BAJ07603.1 | 296040357 | 15 |
| Oncorhynchus mykiss | rainbow trout | Onc m 1.0101 | Food Animal | Oncorhynchus Rainbow trout parv Onc m 1 | IgE but no biological test | 108 | P86431.1 | 288559139 | 11 |
| Oncorhynchus mykiss | rainbow trout | Onc m 1.0201 | Food Animal | Oncorhynchus Rainbow trout parv Onc m 1 | IgE but no biological test | 107 | P86432.1 | 288559140 | 11 |
| Oncorhynchus mykiss | rainbow trout | Unassigned | Food Animal | Oncorhynchus Rainbow trout parv Onc m 1 | IgE but no biological test | 97 | AOO96842.1 | 1064270801 | 19 |
| Oratosquilla oratoria | mantis shrimp | Unassigned | Food Animal | Oratosquilla tropomyosin | IgE plus basophil+ or SPT+ | 284 | BAF95206.1 | 162286975 | 9 |
| Oreochromis mossambicus | Mozambique tilapia | Ore m 4.0101 | Food Animal | Oreochromis Ore m 4 tropomyosin | IgE but no biological test | 284 | AFV53352.1 | 410060781 | 14 |
| Oryctolagus cuniculus | European rabbit | Ory c 3.A.0101 | Aero Animal | Oryctolagus Ory c 3 | IgE plus basophil+ or SPT+ | 93 | AAG42806.1 | 11993600 | 15 |
| Oryctolagus cuniculus | European rabbit | Ory c 3.B.0101 | Aero Animal | Oryctolagus Ory c 3 | IgE plus basophil+ or SPT+ | 90 | AAG42802.1 | 11993592 | 15 |
| Oryctolagus cuniculus | European rabbit | Ory c 4.0101 | Aero Animal | Oryctolagus Ory c 4 | IgE but no biological test | 172 | CCC15303.1 | 557943216 | 15 |
| Oryza sativa | Rice | Unassigned | Food Plant | Oryza Glyoxalase I | IgE but no biological test | 291 | Q94876.2 | 84029333 | 7 |
| Oryza sativa | Rice | Ory s 1.0101 | Aero Plant | Oryza Ory s 1 | IgE but no biological test | 263 | AAA86533.1 | 1173557 | 8 |
| Oryza sativa | Rice | Unassigned | Aero Plant | Oryza Ory s 1 | IgE but no biological test | 267 | AAF72991.1 | 8118439 | 7 |
| Oryza sativa (japonica cultivar-gr) | Rice | Unassigned | Food Plant | Oryza Glyoxalase I | IgE but no biological test | 291 | BAB71741.1 | 16580747 | 7 |
| Oryza sativa (japonica cultivar-gr) | Rice | Unassigned | Aero Plant | Oryza Ory s 1 | IgE but no biological test | 267 | Q40638.2 | 109913547 | 8 |
| Oryza sativa (japonica cultivar-gr) | Rice | Unassigned | Aero Plant | Oryza putative polcalcin Phl p 7 | IgE but no biological test | 82 | BAD13150.1 | 45736119 | 7 |
| Oryza sativa (japonica cultivar-gr) | Rice | Unassigned | Food Plant | Oryza Trypsin alpha-amylase inhibitor | IgE but no biological test | 157 | BAC20657.1 | 23616954 | 8 |
| Oryza sativa (japonica cultivar-gr) | Rice | Unassigned | Food Plant | Oryza Trypsin alpha-amylase inhibitor | IgE but no biological test | 165 | BAA01998.1 | 218193 | 7 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stA Version |
|-------------------------------------|-----------------------|----------------|-------------------|---------------------------------------|----------------------------|--------|----------------|------------|--------------|
| Oryza sativa (japonica cultivar-gr) | Rice | Unassigned | Food Plant | Oryza Trypsin alpha-amylase inhibitor | IgE but no biological test | 157 | BAA01996.1 | 218197 | 7 |
| Oryza sativa (japonica cultivar-gr) | Rice | Unassigned | Food Plant | Oryza Trypsin alpha-amylase inhibitor | IgE but no biological test | 111 | BAA07772.1 | 1304216 | 7 |
| Oryza sativa (japonica cultivar-gr) | Rice | Unassigned | Food Plant | Oryza Trypsin alpha-amylase inhibitor | IgE but no biological test | 109 | BAA07773.1 | 1304217 | 7 |
| Oryza sativa (japonica cultivar-gr) | Rice | Unassigned | Food Plant | Oryza Trypsin alpha-amylase inhibitor | IgE but no biological test | 113 | BAA07774.1 | 1304218 | 7 |
| Oryza sativa (japonica cultivar-gr) | Rice | Unassigned | Food Plant | Oryza Trypsin alpha-amylase inhibitor | IgE but no biological test | 166 | BAA07710.1 | 1398913 | 7 |
| Oryza sativa (japonica cultivar-gr) | Rice | Unassigned | Food Plant | Oryza Trypsin alpha-amylase inhibitor | IgE but no biological test | 160 | BAA07711.1 | 1398915 | 7 |
| Oryza sativa (japonica cultivar-gr) | Rice | Unassigned | Food Plant | Oryza Trypsin alpha-amylase inhibitor | IgE but no biological test | 157 | BAA07712.1 | 1398916 | 7 |
| Oryza sativa (japonica cultivar-gr) | Rice | Unassigned | Food Plant | Oryza Trypsin alpha-amylase inhibitor | IgE but no biological test | 160 | BAA07713.1 | 1398918 | 7 |
| Oryza sativa (japonica cultivar-gr) | Rice | Unassigned | Food Plant | Oryza Trypsin alpha-amylase inhibitor | IgE but no biological test | 157 | AAB99797.1 | 2827316 | 7 |
| Oryza sativa (japonica cultivar-gr) | Rice | Unassigned | Food Plant | Oryza Trypsin alpha-amylase inhibitor | IgE but no biological test | 166 | Q01882.2 | 114152865 | 8 |
| Oryza sativa (japonica cultivar-gr) | Rice | Unassigned | Food Plant | Oryza Trypsin alpha-amylase inhibitor | IgE but no biological test | 163 | Q01883.2 | 114152864 | 8 |
| Oryza sativa (japonica cultivar-gr) | Rice | Unassigned | Food Plant | Oryza Trypsin alpha-amylase inhibitor | IgE but no biological test | 160 | BAC19997.1 | 23495787 | 8 |
| Oryza sativa (japonica cultivar-gr) | Rice | Unassigned | Food Plant | Oryza Trypsin alpha-amylase inhibitor | IgE but no biological test | 160 | BAC20650.1 | 23616947 | 7 |
| Ostrya carpinifolia | European hop hornbeam | Ost c 1.0101 | Aero Plant | Ostrya Ost c 1pollen allergen | IgE plus basophil+ or SPT+ | 160 | ADK39021.1 | 300872535 | 12 |
| Pachycondyla chinensis | Asian needle ant | Pac c 3.0101 | Venom or Salivary | Pachycondyla Pac c 3 allergen | IgE but no biological test | 199 | ACA96507.1 | 169822894 | 10 |
| Pandalus borealis | caribbean shrimp | Pan b 1.0101 | Food Animal | Pandalus Pan b 1 | IgE but no biological test | 284 | CBY17558.1 | 312831088 | 12 |
| Pangasianodon hypophthalmus | | Unassigned | Food Animal | Pan h 13 | IgE but no biological test | 333 | XP_026782131.1 | 1503232071 | 21 |
| Pangasianodon hypophthalmus | | Unassigned | Food Animal | Pan h 2 | IgE but no biological test | 341 | XP_026777250.1 | 1503219495 | 21 |
| Pangasianodon hypophthalmus | | Unassigned | Food Animal | Pan h 3 | IgE but no biological test | 364 | XP_026771637.1 | 1503205716 | 21 |
| Pangasianodon hypophthalmus | | Unassigned | Food Animal | Pan h 4 | IgE but no biological test | 284 | XP_026781482.1 | 1503230610 | 21 |
| Pangasianodon hypophthalmus | | Unassigned | Food Animal | Pan h 4 | IgE but no biological test | 284 | XP_026775428.1 | 1503215309 | 21 |
| Pangasianodon hypophthalmus | | Unassigned | Food Animal | Pan h 7 | IgE but no biological test | 380 | XP_026780620.1 | 1503229023 | 21 |
| Pangasianodon hypophthalmus | | Unassigned | Food Animal | Pan h 8 | IgE but no biological test | 248 | XP_026795867.1 | 1503267586 | 21 |
| Pangasianodon hypophthalmus | | Unassigned | Food Animal | Pan h 9 | IgE but no biological test | 530 | XP_026775867.1 | 1503216605 | 21 |
| Pangasianodon hypophthalmus | | Unassigned | Food Animal | Pangasianodon hypophthalmus Pan h 1 | IgE but no biological test | 109 | XP_026772003.1 | 1503206382 | 20 |
| Pangasianodon hypophthalmus | | Unassigned | Food Animal | Pangasianodon hypophthalmus Pan h 1 | IgE but no biological test | 109 | XP_026803769.1 | 1503286187 | 20 |
| Pangasianodon hypophthalmus | | Unassigned | Food Animal | Pangasianodon hypophthalmus Pan h 11 | IgE but no biological test | 553 | XP_026782721.1 | 1503233516 | 21 |
| Pangasianodon hypophthalmus | | Unassigned | Food Animal | Pangasianodon Pan h 10 | IgE but no biological test | 333 | XP_026774991.1 | 1503214048 | 21 |
| Panulirus stimpsoni | Lobster | Pan s 1.0101 | Food Animal | Panulirus Pan s 1 | IgE plus basophil+ or SPT+ | 274 | AAC38996.1 | 3080761 | 11 |
| Paralithodes camtschaticus | Kamchatka crab | Unassigned | Food Animal | Paralithodes tropomyosin | IgE but no biological test | 284 | BAF47265.1 | 125995163 | 8 |
| Paralithodes camtschaticus | Kamchatka crab | Unassigned | Food Animal | Paralithodes tropomyosin | IgE but no biological test | 284 | BAF47266.1 | 125995165 | 8 |
| Parietaria judaica | Weed | Unassigned | Aero Plant | Parietaria Par j 1 | IgE plus basophil+ or SPT+ | 143 | 2008179A | 741844 | 7 |
| Parietaria judaica | Weed | Par j 1.0102 | Aero Plant | Parietaria Par j 1 | IgE plus basophil+ or SPT+ | 176 | CAA65123.1 | 1532058 | 7 |
| Parietaria judaica | Weed | Par j 1.0101 | Aero Plant | Parietaria Par j 1 | IgE plus basophil+ or SPT+ | 133 | CAA54587.1 | 992612 | 15 |
| Parietaria judaica | Weed | Par j 1.0103 | Aero Plant | Parietaria Par j 1 | IgE plus basophil+ or SPT+ | 139 | CAI94601.1 | 95007033 | 15 |
| Parietaria judaica | Weed | Unassigned | Aero Plant | Parietaria Par j 1 | IgE plus basophil+ or SPT+ | 138 | CAA59370.1 | 706811 | 15 |
| Parietaria judaica | Weed | Par j 2.0102 | Aero Plant | Parietaria Par j 2 | IgE plus basophil+ or SPT+ | 133 | CAA65122.1 | 1532056 | 7 |
| Parietaria judaica | Weed | Par j 2.0101 | Aero Plant | Parietaria Par j 2 | IgE plus basophil+ or SPT+ | 133 | P55958.1 | 2497750 | 7 |
| Parietaria judaica | Weed | Par j 3.0102 | Aero Plant | Parietaria Par j 3 profilin | IgE plus basophil+ or SPT+ | 131 | Q9TOM8.1 | 14423869 | 7 |
| Parietaria judaica | Weed | Par j 3.0101 | Aero Plant | Parietaria Par j 3 profilin | IgE plus basophil+ or SPT+ | 132 | Q9XG85.1 | 14423876 | 7 |
| Parietaria judaica | Weed | Par j 3.0201 | Aero Plant | Parietaria Par j 3 profilin | IgE plus basophil+ or SPT+ | 131 | CCP19647.1 | 444175753 | 14 |
| Parietaria judaica | Weed | Par j 4.0101 | Aero Plant | Parietaria Par j 4 | IgE plus basophil+ or SPT+ | 84 | CAP05019.1 | 201071363 | 15 |
| Parietaria officinalis | Weed | Par o 1.0101 | Aero Plant | Parietaria Par o 1 | IgE but no biological test | 12 | Q7M1E8 | 75139847 | 7 |
| Parietaria officinalis | Weed | Unassigned | Aero Plant | Parietaria Par o 1 | IgE but no biological test | 17 | AAB36008.1 | 1311509 | 7 |
| Parietaria officinalis | Weed | Unassigned | Aero Plant | Parietaria Par o 1 | IgE but no biological test | 15 | AAB36009.1 | 1311510 | 7 |
| Parietaria officinalis | Weed | Unassigned | Aero Plant | Parietaria Par o 1 | IgE but no biological test | 15 | AAB36010.1 | 1311511 | 7 |
| Parietaria officinalis | Weed | Unassigned | Aero Plant | Parietaria Par o 1 | IgE but no biological test | 15 | AAB36011.1 | 1311512 | 7 |
| Parietaria officinalis | Weed | Unassigned | Aero Plant | Parietaria Par o 1 | IgE but no biological test | 30 | AAB36012.1 | 1311513 | 7 |
| Parietaria officinalis | Weed | Unassigned | Aero Plant | Parietaria Par o 1 | IgE but no biological test | 24 | AAB46820.1 | 1836011 | 7 |
| Parietaria officinalis | Weed | Unassigned | Aero Plant | Parietaria Par o 1 | IgE but no biological test | 25 | AAB46819.1 | 1836010 | 7 |
| Parthenium hysterophorus | | Par h 1.0101 | Aero Plant | Parthenium hysterophorus Par h 1 | IgE but no biological test | 156 | AKF12278.1 | 817033923 | 17 |
| Paspalum notatum | Bahia grass | Unassigned | Aero Plant | Paspalum group 13 pollen allergen | IgE plus basophil+ or SPT+ | 169 | CBM42667.1 | 338930686 | 12 |
| Paspalum notatum | Bahia grass | Unassigned | Aero Plant | Paspalum group 13 pollen allergen | IgE plus basophil+ or SPT+ | 169 | CBM42666.1 | 338930684 | 12 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stA Version |
|----------------------------|--------------------|----------------|-------------|--|----------------------------|--------|------------|------------|--------------|
| Paspalum notatum | Bahia grass | Unassigned | Aero Plant | Paspalum group 13 pollen allergen | IgE plus basophil+ or SPT+ | 169 | CBM42665.1 | 338930682 | 12 |
| Paspalum notatum | Bahia grass | Unassigned | Aero Plant | Paspalum group 13 pollen allergen | IgE plus basophil+ or SPT+ | 169 | CBM42664.1 | 338930680 | 12 |
| Paspalum notatum | Bahia grass | Unassigned | Aero Plant | Paspalum group 13 pollen allergen | IgE plus basophil+ or SPT+ | 393 | CBM42663.1 | 338930678 | 12 |
| Paspalum notatum | Bahia grass | Unassigned | Aero Plant | Paspalum group 13 pollen allergen | IgE plus basophil+ or SPT+ | 393 | CBM42662.1 | 338930676 | 12 |
| Paspalum notatum | Bahia grass | Unassigned | Aero Plant | Paspalum group 13 pollen allergen | IgE plus basophil+ or SPT+ | 391 | CBM42661.1 | 338930674 | 12 |
| Paspalum notatum | Bahia grass | Unassigned | Aero Plant | Paspalum group 13 pollen allergen | IgE plus basophil+ or SPT+ | 395 | CBM42660.1 | 338930672 | 12 |
| Paspalum notatum | Bahia grass | Pas n 1.0101 | Aero Plant | Paspalum Pas n 1 beta expansin | IgE plus basophil+ or SPT+ | 265 | ACA23876.1 | 168419914 | 10 |
| Penaeus monodon | Black tiger shrimp | Pen m 3.0101 | Food Animal | Pen m 3 myosin light chain | IgE but no biological test | 177 | ADV17342.1 | 317383196 | 12 |
| Penaeus monodon | Black tiger shrimp | Pen m 1.0101 | Food Animal | Penaeus Pen m 1 tropomyosin | IgE but no biological test | 284 | AAX37288.1 | 60892782 | 15 |
| Penaeus monodon | Black tiger shrimp | Pen m 2.0101 | Food Animal | Penaeus Pen m 2 | IgE plus basophil+ or SPT+ | 356 | AAO15713.1 | 27463265 | 7 |
| Penaeus monodon | Black tiger shrimp | Unassigned | Food Animal | Penaeus Pen m 2 | IgE plus basophil+ or SPT+ | 356 | C7E3T4.1 | 308154236 | 12 |
| Penaeus monodon | Black tiger shrimp | Pen m 4.0101 | Food Animal | Penaeus Pen m 4 sarcoplasmic calcium binding | IgE but no biological test | 193 | ADV17343.1 | 317383198 | 12 |
| Penicillium brevicompactum | Fungus | Pen b 26.0101 | Aero Fungi | Penicillium Pen b 26 | IgE but no biological test | 107 | AAX11194.1 | 59894749 | 7 |
| Penicillium chrysogenum | Fungus | Pen ch 18.0101 | Aero Fungi | Penicillium Pen 18 | IgE but no biological test | 494 | AAF71379.1 | 7963902 | 7 |
| Penicillium chrysogenum | Fungus | Unassigned | Aero Fungi | Penicillium Pen 18 | IgE but no biological test | 494 | AAG44693.2 | 14215732 | 7 |
| Penicillium chrysogenum | Fungus | Pen ch 13.0101 | Aero Fungi | Penicillium Pen ch 13 | IgE plus basophil+ or SPT+ | 397 | AAF23726.1 | 6684758 | 7 |
| Penicillium chrysogenum | Fungus | Unassigned | Aero Fungi | Penicillium Pen ch 13 | IgE plus basophil+ or SPT+ | 398 | AAM33821.1 | 21069093 | 7 |
| Penicillium chrysogenum | Fungus | Pen ch 20.0101 | Aero Fungi | Penicillium Pen ch 20 | IgE but no biological test | 117 | AAB34785.1 | 999009 | 7 |
| Penicillium chrysogenum | Fungus | Pen ch 35.0101 | Aero Fungi | Penicillium Pen ch 35 | IgE but no biological test | 324 | ADK27483.1 | 300679427 | 15 |
| Penicillium citrinum | Fungus | Unassigned | Aero Fungi | Penicillium Pen 18 | IgE but no biological test | 457 | AAD25995.1 | 4588118 | 7 |
| Penicillium citrinum | Fungus | Unassigned | Aero Fungi | Penicillium Pen 18 | IgE but no biological test | 358 | AAG44480.1 | 12005501 | 7 |
| Penicillium citrinum | Fungus | Pen c 19.0101 | Aero Fungi | Penicillium Pen c 19 | IgE but no biological test | 503 | Q92260.1 | 14423733 | 7 |
| Penicillium citrinum | Fungus | Pen c 22.0101 | Aero Fungi | Penicillium Pen c 22 | IgE but no biological test | 438 | AAK51201.1 | 13991101 | 7 |
| Penicillium citrinum | Fungus | Pen c 24.0101 | Aero Fungi | Penicillium Pen c 24 | IgE but no biological test | 228 | AAR17475.1 | 38326693 | 7 |
| Penicillium citrinum | Fungus | Pen c 3.0101 | Aero Fungi | Penicillium Pen c 3 | IgE but no biological test | 167 | AAD42074.1 | 5326864 | 7 |
| Penicillium citrinum | Fungus | Pen c 30.0101 | Aero Fungi | Penicillium Pen c 30 | IgE but no biological test | 733 | ABB89950.1 | 82754305 | 7 |
| Penicillium citrinum | Fungus | Pen c 32.0101 | Aero Fungi | Penicillium Pen c 32 | IgE but no biological test | 290 | ABM60783.1 | 121584258 | 8 |
| Penicillium citrinum | Fungus | Pen c 3.0101 | Aero Fungi | Penicillium Pen ch 13 | IgE plus basophil+ or SPT+ | 397 | AAD25926.1 | 4587983 | 7 |
| Penicillium crustosum | Fungus | Pen cr 26.0101 | Aero Fungi | Penicillium crustosum Pen cr 26 60s P1 | IgE but no biological test | 107 | AEX34122.1 | 371537645 | 13 |
| Penicillium oxalicum | Fungus | Pen o 18.0101 | Aero Fungi | Penicillium Pen 18 | IgE but no biological test | 503 | AAG44478.1 | 12005497 | 7 |
| Periplaneta americana | American cockroach | Per a 5.0101 | Aero Insect | Per a 5 Periplaneta GST | IgE plus basophil+ or SPT+ | 216 | AAX33729.1 | 60678789 | 7 |
| Periplaneta americana | American cockroach | Per a 5.0102 | Aero Insect | Per a 5 Periplaneta GST | IgE plus basophil+ or SPT+ | 216 | AEV23867.1 | 359326557 | 15 |
| Periplaneta americana | American cockroach | Unassigned | Aero Insect | Per a 5 Periplaneta GST | IgE plus basophil+ or SPT+ | 216 | AUW37958.1 | 1337340498 | 19 |
| Periplaneta americana | American cockroach | Per a 11.0101 | Aero Insect | Periplaneta americana Per a 11 | IgE plus basophil+ or SPT+ | 494 | AKH04310.1 | 821092692 | 16 |
| Periplaneta americana | American cockroach | Per a 12.0101 | Aero Insect | Periplaneta americana Per a 12 | IgE plus basophil+ or SPT+ | 407 | AKH04311.1 | 821092694 | 16 |
| Periplaneta americana | American cockroach | Unassigned | Aero Insect | Periplaneta Not in IUIS Per a 4 | IgE but no biological test | 183 | AAX33728.1 | 60678787 | 7 |
| Periplaneta americana | American cockroach | Unassigned | Aero Insect | Periplaneta Not in IUIS Per a 4 | IgE but no biological test | 163 | 3EBW_A | 215794707 | 10 |
| Periplaneta americana | American cockroach | Per a 11.0101 | Aero Insect | Periplaneta Not in IUIS Per a 4 | IgE but no biological test | 167 | ACJ37391.1 | 212675312 | 10 |
| Periplaneta americana | American cockroach | Per a 1.0201 | Aero Insect | Periplaneta Per a 1 | IgE plus basophil+ or SPT+ | 446 | AAC34736.1 | 2231297 | 7 |
| Periplaneta americana | American cockroach | Per a 1.0104 | Aero Insect | Periplaneta Per a 1 | IgE plus basophil+ or SPT+ | 274 | AAC34737.1 | 2253610 | 7 |
| Periplaneta americana | American cockroach | Per a 1.0103 | Aero Insect | Periplaneta Per a 1 | IgE plus basophil+ or SPT+ | 395 | AAB82404.1 | 2580504 | 7 |
| Periplaneta americana | American cockroach | Per a 1.0102 | Aero Insect | Periplaneta Per a 1 | IgE plus basophil+ or SPT+ | 228 | AAC34312.1 | 2897849 | 7 |
| Periplaneta americana | American cockroach | Per a 1.0101 | Aero Insect | Periplaneta Per a 1 | IgE plus basophil+ or SPT+ | 231 | AAD13533.1 | 4240399 | 7 |
| Periplaneta americana | American cockroach | Unassigned | Aero Insect | Periplaneta Per a 1 | IgE plus basophil+ or SPT+ | 124 | AAP13554.1 | 30144660 | 7 |
| Periplaneta americana | American cockroach | Unassigned | Aero Insect | Periplaneta Per a 1 | IgE plus basophil+ or SPT+ | 395 | ADB92492.1 | 284518361 | 11 |
| Periplaneta americana | American cockroach | Per a 10.0101 | Aero Insect | Periplaneta Per a 10 ser protease | IgE plus basophil+ or SPT+ | 256 | AAX33734.1 | 60678799 | 7 |
| Periplaneta americana | American cockroach | Unassigned | Aero Insect | Periplaneta Per a 2 | IgE but no biological test | 351 | AAX33727.1 | 60678785 | 7 |
| Periplaneta americana | American cockroach | Per a 2.0101 | Aero Insect | Periplaneta Per a 2 | IgE but no biological test | 351 | ADR82198.1 | 313870534 | 12 |
| Periplaneta americana | American cockroach | Per a 3.0201 | Aero Insect | Periplaneta Per a 3 | IgE plus basophil+ or SPT+ | 631 | AAB09632.1 | 1531589 | 7 |
| Periplaneta americana | American cockroach | Per a 3.0202 | Aero Insect | Periplaneta Per a 3 | IgE plus basophil+ or SPT+ | 470 | AAB62731.1 | 1580794 | 7 |
| Periplaneta americana | American cockroach | Per a 3.0203 | Aero Insect | Periplaneta Per a 3 | IgE plus basophil+ or SPT+ | 393 | AAB63595.1 | 1580797 | 7 |
| Periplaneta americana | American cockroach | Per a 3.0101 | Aero Insect | Periplaneta Per a 3 | IgE plus basophil+ or SPT+ | 685 | Q25641.1 | 2833325 | 9 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stA Version |
|------------------------|----------------------|----------------|-------------|---------------------|----------------------------|--------|------------|------------|--------------|
| Periplaneta americana | American cockroach | Unassigned | Aero Insect | Periplaneta Per a 3 | IgE plus basophil+ or SPT+ | 688 | ADB92493.1 | 284518363 | 11 |
| Periplaneta americana | American cockroach | Unassigned | Aero Insect | Periplaneta Per a 3 | IgE plus basophil+ or SPT+ | 685 | ADD17628.1 | 289721058 | 11 |
| Periplaneta americana | American cockroach | Per a 6.0101 | Aero Insect | Periplaneta Per a 6 | IgE but no biological test | 151 | AAX33730.1 | 60678791 | 8 |
| Periplaneta americana | American cockroach | Per a 7.0102 | Aero Insect | Periplaneta Per a 7 | IgE plus basophil+ or SPT+ | 284 | AAD19606.1 | 4378573 | 7 |
| Periplaneta americana | American cockroach | Per a 7.0101 | Aero Insect | Periplaneta Per a 7 | IgE plus basophil+ or SPT+ | 284 | CAB38086.1 | 4468639 | 7 |
| Periplaneta americana | American cockroach | Per a 6.0101 | Aero Insect | Periplaneta Per a 7 | IgE plus basophil+ or SPT+ | 284 | ACS14052.1 | 239740599 | 11 |
| Periplaneta americana | American cockroach | Unassigned | Aero Insect | Periplaneta Per a 7 | IgE plus basophil+ or SPT+ | 284 | PODSM7.1 | 1679373733 | 20 |
| Periplaneta americana | American cockroach | Unassigned | Aero Insect | Periplaneta Per a 9 | IgE but no biological test | 356 | AAT77152.1 | 50428904 | 8 |
| Periplaneta americana | American cockroach | Per a 9.0101 | Aero Insect | Periplaneta Per a 9 | IgE but no biological test | 356 | ACA00204.1 | 167782135 | 9 |
| Periplaneta fuliginosa | Smokybrown cockroach | Unassigned | Aero Insect | Periplaneta Per a 7 | IgE plus basophil+ or SPT+ | 284 | AAL86701.1 | 19310971 | 7 |
| Perna viridis | Asian green mussell | Unassigned | Food Animal | Perna Tropomyosin | IgE but no biological test | 284 | AAG08988.1 | 9954251 | 7 |
| Persea americana | Avocado | Pers a 1.0101 | Food Plant | Persea Pers a 1 | IgE but no biological test | 326 | CAB01591.1 | 3201547 | 7 |
| Phalaris aquatica | Canary grass | Unassigned | Aero Plant | Phalaris Pha a 1 | IgE but no biological test | 20 | AAB27445.1 | 409328 | 7 |
| Phalaris aquatica | Canary grass | Pha a 1.0101 | Aero Plant | Phalaris Pha a 1 | IgE but no biological test | 269 | Q41260.1 | 2498576 | 7 |
| Phalaris aquatica | Canary grass | Pha a 5.0101 | Aero Plant | Phalaris Pha a 5 | IgE but no biological test | 320 | P56164.1 | 2498577 | 7 |
| Phalaris aquatica | Canary grass | Unassigned | Aero Plant | Phalaris Pha a 5 | IgE but no biological test | 305 | P56165.1 | 2498578 | 7 |
| Phalaris aquatica | Canary grass | Unassigned | Aero Plant | Phalaris Pha a 5 | IgE but no biological test | 294 | P56166.1 | 2498579 | 7 |
| Phalaris aquatica | Canary grass | Unassigned | Aero Plant | Phalaris Pha a 5 | IgE but no biological test | 175 | P56167.1 | 2498580 | 7 |
| Phaseolus vulgaris | Kidney bean | Pha v 3.0101 | Food Plant | Phaseolus Pha v 3 | IgE plus basophil+ or SPT+ | 115 | ADC80502.1 | 289064177 | 11 |
| Phaseolus vulgaris | Kidney bean | Pha v 3.0201 | Food Plant | Phaseolus Pha v 3 | IgE plus basophil+ or SPT+ | 118 | ADC80503.1 | 289064179 | 11 |
| Phleum pratense | Common timothy | Phl p 1.0102 | Aero Plant | Phleum Phl p 1 | IgE plus basophil+ or SPT+ | 263 | CAA55390.1 | 473360 | 7 |
| Phleum pratense | Common timothy | Phl p 1.0101 | Aero Plant | Phleum Phl p 1 | IgE plus basophil+ or SPT+ | 263 | CAA81613.1 | 3901094 | 7 |
| Phleum pratense | Common timothy | Phl p 2.0101 | Aero Plant | Phleum Phl p 1 | IgE plus basophil+ or SPT+ | 241 | 1N10_A | 28373838 | 7 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 1 | IgE plus basophil+ or SPT+ | 240 | CAG24374.1 | 45823012 | 7 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 1 | IgE plus basophil+ or SPT+ | 262 | 2118271A | 1582250 | 10 |
| Phleum pratense | Common timothy | Phl p 11.0101 | Aero Plant | Phleum Phl p 11 | IgE plus basophil+ or SPT+ | 143 | AAN32987.1 | 23452313 | 7 |
| Phleum pratense | Common timothy | Phl p 12.0103 | Aero Plant | Phleum Phl p 12 | IgE but no biological test | 131 | CAA70609.1 | 2415700 | 7 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 12 | IgE but no biological test | 131 | ABG81289.1 | 11064906 | 8 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 12 | IgE but no biological test | 131 | ABG81290.1 | 110644908 | 8 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 12 | IgE but no biological test | 131 | ABG81291.1 | 110644910 | 8 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 12 | IgE but no biological test | 131 | ABG81292.1 | 110644912 | 8 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 12 | IgE but no biological test | 131 | ABG81293.1 | 110644914 | 8 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 12 | IgE but no biological test | 131 | ABG81294.1 | 110644916 | 8 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 12 | IgE but no biological test | 131 | ABG81295.1 | 110644918 | 8 |
| Phleum pratense | Common timothy | Phl p 12.0102 | Aero Plant | Phleum Phl p 12 | IgE but no biological test | 131 | CAA70608.1 | 2415698 | 10 |
| Phleum pratense | Common timothy | Phl p 12.0101 | Aero Plant | Phleum Phl p 12 | IgE but no biological test | 131 | CAA54686.1 | 453976 | 15 |
| Phleum pratense | Common timothy | Phl p 13.0101 | Aero Plant | Phleum Phl p 13 | IgE plus basophil+ or SPT+ | 394 | CAB42886.1 | 4826572 | 7 |
| Phleum pratense | Common timothy | Phl p 2.0101 | Aero Plant | Phleum Phl p 2 | IgE but no biological test | 122 | CAA53529.1 | 415896 | 7 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 3 | IgE plus basophil+ or SPT+ | 100 | 3FT1_A | 283806867 | 11 |
| Phleum pratense | Common timothy | Phl p 4.0101 | Aero Plant | Phleum Phl p 4 | IgE plus basophil+ or SPT+ | 508 | CAD54670.2 | 54144332 | 7 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 4 | IgE plus basophil+ or SPT+ | 500 | CAF32567.2 | 45108973 | 7 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 4 | IgE plus basophil+ or SPT+ | 500 | CAF32566.2 | 45108967 | 7 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 4 | IgE plus basophil+ or SPT+ | 500 | CAQ55938.1 | 189014266 | 10 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 4 | IgE plus basophil+ or SPT+ | 500 | CAQ55939.1 | 189014268 | 10 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 4 | IgE plus basophil+ or SPT+ | 500 | CAQ55940.1 | 189014270 | 10 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 4 | IgE plus basophil+ or SPT+ | 500 | CAQ55941.1 | 189014272 | 10 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 4 | IgE plus basophil+ or SPT+ | 500 | 3TSH_A | 405944794 | 14 |
| Phleum pratense | Common timothy | Phl p 4.0201 | Aero Plant | Phleum Phl p 4 | IgE plus basophil+ or SPT+ | 508 | CAD54671.2 | 54144334 | 15 |
| Phleum pratense | Common timothy | Phl p 5.0101 | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 312 | CAA52753.1 | 398830 | 7 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 257 | S32101 | 422005 | 7 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 280 | S38584 | 481397 | 7 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 24 | Q7M1L8 | 75139900 | 7 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 285 | 2023228A | 1092249 | 7 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stA Version |
|---------------------|------------------|----------------|------------|---------------------------------------|----------------------------|--------|--------------|------------|--------------|
| Phleum pratense | Common timothy | Phl p 5.0202 | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 281 | CAB05371.1 | 1684718 | 7 |
| Phleum pratense | Common timothy | Phl p 5.0104 | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 276 | CAB05372.1 | 1684720 | 7 |
| Phleum pratense | Common timothy | Phl p 5.0102 | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 286 | CAA50281.1 | 2398757 | 7 |
| Phleum pratense | Common timothy | Phl p 5.0105 | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 276 | AAC16525.1 | 3135497 | 7 |
| Phleum pratense | Common timothy | Phl p 5.0106 | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 276 | AAC16526.1 | 3135499 | 7 |
| Phleum pratense | Common timothy | Phl p 5.0107 | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 276 | AAC16527.1 | 3135501 | 7 |
| Phleum pratense | Common timothy | Phl p 5.0108 | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 276 | AAC16528.1 | 3135503 | 7 |
| Phleum pratense | Common timothy | | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 312 | AAC25994.1 | 3309039 | 7 |
| Phleum pratense | Common timothy | Phl p 5.0203 | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 295 | AAC25995.1 | 3309041 | 7 |
| Phleum pratense | Common timothy | Phl p 5.0206 | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 290 | AAC25997.1 | 3309045 | 7 |
| Phleum pratense | Common timothy | Phl p 5.0207 | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 287 | AAC25998.1 | 3309047 | 7 |
| Phleum pratense | Common timothy | | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 275 | AAK25823.1 | 13430402 | 7 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 287 | CAD38384.1 | 21725606 | 7 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 287 | CAD38385.1 | 21725608 | 7 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 287 | CAD38386.1 | 21725610 | 7 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 287 | CAD38387.1 | 21725612 | 7 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 287 | CAD38388.1 | 21725614 | 7 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 287 | CAD38389.1 | 21725616 | 7 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 287 | CAD38390.1 | 21725618 | 7 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 287 | CAD38391.1 | 21725620 | 7 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 287 | CAD38392.1 | 21725622 | 7 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 287 | CAD38393.1 | 21725624 | 7 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 287 | CAD38394.1 | 21725626 | 7 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 287 | CAD38395.1 | 21725628 | 7 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 287 | CAD38396.1 | 21725630 | 7 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 287 | CAD38397.1 | 21725632 | 7 |
| Phleum pratense | Common timothy | | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 102 | 1L3P_A | 28948464 | 7 |
| Phleum pratense | Common timothy | Phl p 5.0109 | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 284 | CAD87529.1 | 29500897 | 7 |
| Phleum pratense | Common timothy | Phl p 5.0201 | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 284 | CAA81609.1 | 2398759 | 10 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 5 | IgE plus basophil+ or SPT+ | 309 | CCD28287.1 | 345108717 | 13 |
| Phleum pratense | Common timothy | Phl p 6.0102 | Aero Plant | Phleum Phl p 6 | IgE plus basophil+ or SPT+ | 138 | CAA76556.1 | 3004465 | 7 |
| Phleum pratense | Common timothy | Phl p 6.0101 | Aero Plant | Phleum Phl p 6 | IgE plus basophil+ or SPT+ | 138 | CAA76557.1 | 3004467 | 7 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 6 | IgE plus basophil+ or SPT+ | 106 | CAA76558.1 | 3004469 | 7 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 6 | IgE plus basophil+ or SPT+ | 111 | 1NLX_N | 28374072 | 7 |
| Phleum pratense | Common timothy | Unassigned | Aero Plant | Phleum Phl p 6 | IgE plus basophil+ or SPT+ | 110 | 6TRK_A | 1890508764 | 21 |
| Phleum pratense | Common timothy | Phl p 7.0101 | Aero Plant | Phleum Polcalin (Phl p 7) | IgE plus basophil+ or SPT+ | 78 | CAA76887.1 | 3367732 | 10 |
| Phodopus sungorus | Siberian hamster | Phod s 1.0101 | Aero Plant | Phodopus sungorus lipocalin | IgE plus basophil+ or SPT+ | 151 | AGT28425.1 | 530376029 | 16 |
| Phoenix dactylifera | Date palm | Phl p 2.0101 | Aero Plant | Phoenix Pho d 2 | IgE but no biological test | 131 | CAD10390.1 | 21322677 | 7 |
| Pinus koraiensis | | Pin k 2.0101 | Food Plant | Pinus koraiensis vicilin Pin k 2.0101 | IgE but no biological test | 463 | AHC94918.1 | 567773309 | 15 |
| Pinus pinea | Pine | Unassigned | Food Plant | Pinus pinea albumin AAI | IgE but no biological test | 110 | CEJ95862.1 | 749495809 | 16 |
| Pinus pinea | Pine | Pin p 1.0101 | Food Plant | Pinus pinea Pin p 1 25 | IgE plus basophil+ or SPT+ | 164 | CTQ87571.1 | 916237486 | 16 |
| Pistacia vera | pistachio | Unassigned | Food Plant | Pistacia 115 globulin | IgE but no biological test | 472 | ABU42022.1 | 156001070 | 9 |
| Pistacia vera | pistachio | Pis v 2.0101 | Food Plant | Pistacia 115 globulin | IgE but no biological test | 496 | ABG73109.1 | 110349083 | 10 |
| Pistacia vera | pistachio | Pis v 2.0201 | Food Plant | Pistacia 115 globulin | IgE but no biological test | 472 | ABG73110.1 | 110349085 | 10 |
| Pistacia vera | pistachio | Pis v 1.0101 | Food Plant | Pistacia Pis v 1 25 albumin | IgE but no biological test | 149 | ABG73108.1 | 110349081 | 10 |
| Pistacia vera | pistachio | Pis v 3.0101 | Food Plant | Pistacia Pis v 3 vicilin | IgE but no biological test | 519 | ABO36677.1 | 133711974 | 10 |
| Pistacia vera | pistachio | Pis v 4.0101 | Food Plant | Pistacia Pis v 4 | IgE but no biological test | 230 | ABR29644.1 | 149786150 | 9 |
| Pisum sativum | Pea | Pis s 1.0102 | Food Plant | Pisum Pis s 1 | IgE but no biological test | 415 | CAF25233.1 | 42414629 | 7 |
| Pisum sativum | Pea | Pis s 1.0101 | Food Plant | Pisum Pis s 1 | IgE but no biological test | 415 | CAF25232.1 | 42414627 | 7 |
| Pisum sativum | Pea | Pis s 2.0101 | Food Plant | Pisum Pis s 2 | IgE but no biological test | 613 | CAB82855.1 | 7339551 | 15 |
| Pisum sativum | Pea | Pis s 3.0101 | Food Plant | Pisum sativum Pis s 3 | IgE but no biological test | 120 | AIG44053.1 | 752855036 | 17 |
| Pisum sativum | Pea | Unassigned | Food Plant | Pisum sativum Pis s 3 | IgE but no biological test | 120 | AOA158V755.1 | 1064302992 | 18 |
| Pisum sativum | Pea | Unassigned | Food Plant | Pisum sativum Pis s 3 | IgE but no biological test | 119 | AOA158V976.1 | 1064302965 | 18 |

| Species | Common | IUIS# Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stÅ Version |
|---|------------------------|---------------------|-------------------|--|----------------------------|--------|----------------|------------|--------------|
| <i>Pisum sativum</i> | Pea | Unassigned | Food Plant | <i>Pisum sativum</i> Pis s 3 | IgE but no biological test | 95 | 2N81_A | 1026943499 | 18 |
| <i>Plantago lanceolata</i> | Narrow-leaved plantain | Pla l 1.0101 | Aero Plant | <i>Plantago</i> Pla l 1 | IgE but no biological test | 131 | CAC41633.1 | 14422359 | 7 |
| <i>Plantago lanceolata</i> | Narrow-leaved plantain | Pla l 1.0102 | Aero Plant | <i>Plantago</i> Pla l 1 | IgE but no biological test | 131 | CAC41634.1 | 14422361 | 7 |
| <i>Plantago lanceolata</i> | Narrow-leaved plantain | Pla l 1.0103 | Aero Plant | <i>Plantago</i> Pla l 1 | IgE but no biological test | 131 | CAC41635.1 | 14422363 | 7 |
| <i>Plantago lanceolata</i> | Narrow-leaved plantain | Unassigned | Aero Plant | <i>Plantago</i> Pla l 1 | IgE but no biological test | 65 | CAD80019.1 | 29163773 | 7 |
| <i>Platanus orientalis</i> | oriental plane | Pla or 1.0101 | Aero Plant | <i>Platanus</i> Pla or 1 | IgE but no biological test | 170 | ABY21305.1 | 162949336 | 9 |
| <i>Platanus orientalis</i> | oriental plane | Pla or 2.0101 | Aero Plant | <i>Platanus</i> Pla or 2 | IgE but no biological test | 378 | ABY21306.1 | 162949338 | 9 |
| <i>Platanus x acerifolia</i> | London plane tree | Pla a 3.0101 | Aero Plant | <i>Platanus acerifolia</i> Pla a 3 | IgE plus basophil+ or SPT+ | 93 | ALF39466.1 | 930156468 | 16 |
| <i>Platanus x acerifolia</i> | London plane tree | Pla a 3.0201 | Aero Plant | <i>Platanus acerifolia</i> Pla a 3 | IgE plus basophil+ or SPT+ | 118 | ALF00099.1 | 928541035 | 17 |
| <i>Platanus x acerifolia</i> | London plane tree | Pla a 1.0101 | Aero Plant | <i>Platanus</i> Pla a 1 | IgE plus basophil+ or SPT+ | 179 | CAD20556.1 | 26190140 | 7 |
| <i>Platanus x acerifolia</i> | London plane tree | Pla a 2.0101 | Aero Plant | <i>Platanus</i> Pla a 2 | IgE plus basophil+ or SPT+ | 377 | CAE52833.1 | 49523394 | 7 |
| <i>Plodia interpunctella</i> | Indian meal moth | Plo i 1.0101 | Aero Insect | <i>Plodia</i> Plo i 1 Arginine kinase | IgE plus basophil+ or SPT+ | 355 | CAC85911.1 | 15886861 | 7 |
| <i>Plodia interpunctella</i> | Indian meal moth | Plo i 2.0101 | Aero Insect | <i>Plodia</i> Plo i 2 thioredoxin | IgE but no biological test | 106 | CBW45298.1 | 308193268 | 12 |
| <i>Poa pratensis</i> | Kentucky bluegrass | Unassigned | Aero Plant | <i>Poa</i> not IUIS <i>Poa</i> p 9 like <i>Poa</i> p 5 | IgE but no biological test | 373 | P22284.1 | 113560 | 7 |
| <i>Poa pratensis</i> | Kentucky bluegrass | Unassigned | Aero Plant | <i>Poa</i> not IUIS <i>Poa</i> p 9 like <i>Poa</i> p 5 | IgE but no biological test | 307 | P22286.1 | 113562 | 7 |
| <i>Poa pratensis</i> | Kentucky bluegrass | Unassigned | Aero Plant | <i>Poa</i> not IUIS <i>Poa</i> p 9 like <i>Poa</i> p 5 | IgE but no biological test | 131 | A60373 | 539056 | 7 |
| <i>Poa pratensis</i> | Kentucky bluegrass | Unassigned | Aero Plant | <i>Poa</i> not IUIS <i>Poa</i> p 9 like <i>Poa</i> p 5 | IgE but no biological test | 333 | P22285.1 | 113561 | 7 |
| <i>Poa pratensis</i> | Kentucky bluegrass | | Aero Plant | <i>Poa</i> <i>Poa</i> p 1 | IgE but no biological test | 20 | A60372 | 280414 | 7 |
| <i>Poa pratensis</i> | Kentucky bluegrass | | Aero Plant | <i>Poa</i> <i>Poa</i> p 1 | IgE but no biological test | 26 | F37396 | 320620 | 7 |
| <i>Poa pratensis</i> | Kentucky bluegrass | <i>Poa</i> p 1.0101 | Aero Plant | <i>Poa</i> <i>Poa</i> p 1 | IgE but no biological test | 263 | CAA10520.1 | 4090265 | 7 |
| <i>Poa pratensis</i> | Kentucky bluegrass | <i>Poa</i> p 5.0101 | Aero Plant | <i>Poa</i> <i>Poa</i> p 5 | IgE but no biological test | 303 | AAG42254.1 | 11991227 | 7 |
| <i>Polistes annularis</i> | Paper wasp | Pol a 5.0101 | Venom or Salivary | <i>Polistes</i> Pol 5 | IgE plus basophil+ or SPT+ | 209 | AAA29793.1 | 160780 | 7 |
| <i>Polistes annularis</i> | Paper wasp | Pol a 1.0101 | Venom or Salivary | <i>Polistes</i> Pol a 1 Pol d 1 | IgE but no biological test | 301 | AAD52615.1 | 5815249 | 11 |
| <i>Polistes annularis</i> | Paper wasp | Pol a 2.0101 | Venom or Salivary | <i>Polistes</i> Pol a 2 | IgE but no biological test | 367 | AAD52616.1 | 5815251 | 11 |
| <i>Polistes dominula</i> | | Unassigned | Venom or Salivary | <i>Polistes</i> Pol d 3 | IgE plus basophil+ or SPT+ | 775 | XP_015174445.1 | 972185860 | 19 |
| <i>Polistes dominulus</i> | Paper wasp | Pol d 5.0101 | Venom or Salivary | <i>Polistes</i> Pol 5 | IgE plus basophil+ or SPT+ | 227 | AAT95010.1 | 5109377 | 7 |
| <i>Polistes dominulus</i> | Paper wasp | Pol d 1.0104 | Venom or Salivary | <i>Polistes</i> Pol a 1 Pol d 1 | IgE but no biological test | 316 | AAS67044.1 | 45510893 | 7 |
| <i>Polistes dominulus</i> | Paper wasp | Pol d 1.0103 | Venom or Salivary | <i>Polistes</i> Pol a 1 Pol d 1 | IgE but no biological test | 316 | AAS67043.1 | 45510891 | 7 |
| <i>Polistes dominulus</i> | Paper wasp | Pol d 1.0102 | Venom or Salivary | <i>Polistes</i> Pol a 1 Pol d 1 | IgE but no biological test | 316 | AAS67042.1 | 45510889 | 7 |
| <i>Polistes dominulus</i> | Paper wasp | Pol d 1.0101 | Venom or Salivary | <i>Polistes</i> Pol a 1 Pol d 1 | IgE but no biological test | 337 | AAS67041.1 | 45510887 | 7 |
| <i>Polistes dominulus</i> | Paper wasp | Pol d 4.0101 | Venom or Salivary | <i>Polistes</i> Venom serine protease | IgE but no biological test | 277 | AAP37412.1 | 30909091 | 7 |
| <i>Polistes exclamans</i> | Paper wasp | Pol e 5.0101 | Venom or Salivary | <i>Polistes</i> Pol 5 | IgE plus basophil+ or SPT+ | 226 | AAT95009.1 | 51093375 | 7 |
| <i>Polistes fuscatus</i> | Paper wasp | Pol f 5.0101 | Venom or Salivary | <i>Polistes</i> Pol 5 | IgE plus basophil+ or SPT+ | 205 | P35780.1 | 549188 | 7 |
| <i>Polistes gallicus</i> | Paper wasp | Pol g 5.0101 | Venom or Salivary | <i>Polistes</i> Pol 5 | IgE plus basophil+ or SPT+ | 206 | P83377.1 | 25091511 | 7 |
| <i>Polistes gallicus</i> | Paper wasp | Pol g 1.0101 | Venom or Salivary | <i>Polistes</i> Pol a 1 Pol d 1 | IgE but no biological test | 42 | P83542.1 | 41017429 | 7 |
| <i>Polybia paulista</i> | wasp | Poly p 1.0101 | Venom or Salivary | <i>Polybia</i> Pol p 1.0101 phospholipase | IgE but no biological test | 322 | A2VBC4.1 | 166216292 | 9 |
| <i>Polybia paulista</i> | wasp | Poly p 5.0101 | Venom or Salivary | <i>Polybia</i> Pol p 1.0101 phospholipase | IgE but no biological test | 302 | ADT89774.1 | 315190620 | 12 |
| <i>Polybia paulista</i> | wasp | Unassigned | Venom or Salivary | <i>Polybia</i> Poly p 2 hyaluronidase | IgE but no biological test | 345 | ADL09135.1 | 302201583 | 12 |
| <i>Polybia paulista</i> | wasp | Poly p 2.0101 | Venom or Salivary | <i>Polybia</i> Poly p 2 hyaluronidase | IgE but no biological test | 288 | P86687.1 | 302425085 | 12 |
| <i>Polybia paulista</i> | wasp | Unassigned | Venom or Salivary | <i>Polybia</i> Poly p 5, Poly s 5 venom allergen | IgE but no biological test | 141 | ADD63684.1 | 290792375 | 11 |
| <i>Polybia paulista</i> | wasp | Poly p 5.0102 | Venom or Salivary | <i>Polybia</i> Poly p 5, Poly s 5 venom allergen | IgE but no biological test | 207 | P86686.1 | 302595972 | 12 |
| <i>Polybia scutellaris rioplatensis</i> | Wasp | Unassigned | Venom or Salivary | <i>Polybia</i> Poly p 5, Poly s 5 venom allergen | IgE but no biological test | 207 | Q71556.2 | 47117356 | 7 |
| <i>Pontastacus leptodactylus</i> | Danube crayfish | Pon l 4.0101 | Food Animal | <i>Pontastacus</i> Pon l 4 | IgE but no biological test | 192 | P05946.1 | 134309 | 15 |
| <i>Populus nigra</i> | black poplar | Unassigned | Aero Plant | Pop n 2 profilin | IgE but no biological test | 131 | QID21357.1 | 1812187307 | 21 |
| <i>Portunus pelagicus</i> | blue swimmer crab | Por p 1.0101 | Food Animal | <i>Portunus</i> Por p 1 tropomyosin | IgE plus basophil+ or SPT+ | 284 | AGE44125.1 | 448278534 | 14 |
| <i>Portunus sanguinolentus</i> | Crab | Unassigned | Food Animal | <i>Portunus</i> Por s and t tropomyosin | IgE but no biological test | 284 | ABL89183.1 | 119674937 | 8 |
| <i>Portunus trituberculatus</i> | Crab | Unassigned | Food Animal | <i>Portunus</i> Por s and t tropomyosin | IgE but no biological test | 284 | ABS12234.1 | 151505281 | 9 |
| <i>Procambarus clarkii</i> | red swamp crayfish | Pro c 1.0101 | Food Animal | Pro c 1 tropomyosin | IgE but no biological test | 284 | ACN87223.1 | 225348412 | 10 |
| <i>Procambarus clarkii</i> | red swamp crayfish | Pro c 2.0101 | Food Animal | Pro c 2 arginine kinase | IgE but no biological test | 357 | AFA45339.1 | 375298901 | 13 |
| <i>Procambarus clarkii</i> | red swamp crayfish | Pro c 5.0101 | Food Animal | Pro c 5 myosin | IgE but no biological test | 153 | AFP95338.1 | 401606251 | 19 |
| <i>Procambarus clarkii</i> | red swamp crayfish | Pro c 8.0101 | Food Animal | Pro c 8 TPI | IgE but no biological test | 248 | AEB54655.1 | 328900101 | 19 |
| <i>Prosopis juliflora</i> | mesquite | Pro j 1.0101 | Aero Plant | <i>Prosopis juliflora</i> Pro j 1.0101 | IgE but no biological test | 150 | AKV72167.1 | 914410008 | 16 |
| <i>Prosopis juliflora</i> | mesquite | Pro j 2.0101 | Aero Plant | <i>Prosopis</i> Pro j 2 | IgE but no biological test | 133 | AHY24177.1 | 625293889 | 15 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stA Version |
|--------------------------------|--------------|----------------|-------------|--|----------------------------|--------|----------------|------------|--------------|
| Protortonia cacti | Arthropod | Unassigned | Food Animal | Protortonia | IgE but no biological test | 335 | BAH59276.1 | 237769615 | 11 |
| Prunus armeniaca | Apricot | Unassigned | Food Plant | Pru ar 5 | IgE but no biological test | 168 | AAD32205.1 | 4887129 | 7 |
| Prunus armeniaca | Apricot | Pru ar 1.0101 | Food Plant | Pru av 1 Pru a 1 | IgE plus basophil+ or SPT+ | 160 | AAB97141.1 | 2677826 | 7 |
| Prunus armeniaca | Apricot | Unassigned | Food Plant | Prunus Pru 3 | IgE plus basophil+ or SPT+ | 119 | ADR66945.1 | 313575730 | 12 |
| Prunus armeniaca | Apricot | Unassigned | Food Plant | Prunus Pru 3 | IgE plus basophil+ or SPT+ | 117 | ADR66946.1 | 313575732 | 12 |
| Prunus armeniaca | Apricot | Pru ar 3.0101 | Food Plant | Prunus Pru 3 | IgE plus basophil+ or SPT+ | 117 | ADR66947.1 | 313575734 | 12 |
| Prunus armeniaca | Apricot | Unassigned | Food Plant | Prunus Pru 3 | IgE plus basophil+ or SPT+ | 117 | ADR66948.1 | 313575736 | 12 |
| Prunus avium | Cherry | Pru av 1.0101 | Food Plant | Pru av 1 Pru a 1 | IgE plus basophil+ or SPT+ | 160 | AAC02632.1 | 1513216 | 7 |
| Prunus avium | Cherry | Pru av 1.0203 | Food Plant | Pru av 1 Pru a 1 | IgE plus basophil+ or SPT+ | 160 | AAS47037.1 | 44409496 | 7 |
| Prunus avium | Cherry | Pru av 1.0202 | Food Plant | Pru av 1 Pru a 1 | IgE plus basophil+ or SPT+ | 160 | AAS47036.1 | 44409474 | 7 |
| Prunus avium | Cherry | Pru av 1.0201 | Food Plant | Pru av 1 Pru a 1 | IgE plus basophil+ or SPT+ | 160 | AAS47035.1 | 44409451 | 7 |
| Prunus avium | Cherry | Unassigned | Food Plant | Pru av 1 Pru a 1 | IgE plus basophil+ or SPT+ | 159 | 1H2O_A | 159162378 | 9 |
| Prunus avium | Cherry | Unassigned | Food Plant | Prunus avium Pru av 7.01 Gibberellin | IgE but no biological test | 88 | XP_021820299.1 | 1220067778 | 20 |
| Prunus avium | Cherry | Pru av 3.0101 | Food Plant | Prunus Pru 3 | IgE plus basophil+ or SPT+ | 117 | AAF26449.1 | 6715520 | 7 |
| Prunus avium | Cherry | Unassigned | Food Plant | Prunus Pru 3 | IgE plus basophil+ or SPT+ | 117 | ADR66943.1 | 313575726 | 12 |
| Prunus avium | Cherry | Unassigned | Food Plant | Prunus Pru 3 | IgE plus basophil+ or SPT+ | 117 | ADR66944.1 | 313575728 | 12 |
| Prunus avium | Cherry | Pru av 4.0101 | Food Plant | Prunus Pru 4 Profilin peach cherry almond | IgE plus basophil+ or SPT+ | 131 | AAD29411.1 | 4761582 | 7 |
| Prunus avium | Cherry | Pru av 2.0101 | Food Plant | Prunus Pru av 2 | IgE but no biological test | 245 | AAB38064.1 | 1144346 | 7 |
| Prunus domestica | Plum | Pru d 3.0101 | Food Plant | Prunus Pru 3 | IgE plus basophil+ or SPT+ | 91 | P82534.1 | 9297015 | 7 |
| Prunus dulcis | Almond | Unassigned | Food Plant | Pru du 10 | IgE but no biological test | 563 | Q945K2.1 | 75331901 | 20 |
| Prunus dulcis | Almond | Unassigned | Food Plant | Pru du 8 Antimicrobial protein | IgE but no biological test | 264 | QD073345.1 | 1706883247 | 20 |
| Prunus dulcis | Almond | Unassigned | Food Plant | Pru du x Prunus dulcis vicilin | IgE but no biological test | 547 | QFG58557.1 | 1757285428 | 20 |
| Prunus dulcis | Almond | Unassigned | Food Plant | Prunus persica Pru p 2 IUIS | IgE plus basophil+ or SPT+ | 241 | ACE80974.1 | 190613941 | 10 |
| Prunus dulcis | Almond | Pru du 4.0101 | Food Plant | Prunus Pru 4 Profilin peach cherry almond | IgE plus basophil+ or SPT+ | 131 | AAL91662.1 | 24473794 | 7 |
| Prunus dulcis | Almond | Unassigned | Food Plant | Prunus Pru du 6 Amandin | IgE but no biological test | 531 | 3EHK_A | 258588247 | 11 |
| Prunus dulcis | Almond | Unassigned | Food Plant | Prunus Pru du 6 Amandin | IgE but no biological test | 178 | AGR27935.1 | 523916668 | 15 |
| Prunus dulcis | Almond | Pru du 6.0101 | Food Plant | Prunus Pru du 6 Amandin | IgE but no biological test | 551 | ADN39440.1 | 307159112 | 15 |
| Prunus dulcis | Almond | Pru du 6.0201 | Food Plant | Prunus Pru du 6 Amandin | IgE but no biological test | 504 | ADN39441.1 | 307159114 | 15 |
| Prunus dulcis | Almond | Unassigned | Food Plant | Prunus Seed allergenic protein 2 (Conglutin gamma) | IgE but no biological test | 25 | P82952.1 | 75107131 | 8 |
| Prunus dulcis x Prunus persica | Plant hybrid | Unassigned | Food Plant | Prunus persica Pru p 2 IUIS | IgE plus basophil+ or SPT+ | 160 | ACE80939.1 | 190613871 | 10 |
| Prunus dulcis x Prunus persica | Plant hybrid | Unassigned | Food Plant | Prunus persica Pru p 2 IUIS | IgE plus basophil+ or SPT+ | 246 | ACE80956.1 | 190613905 | 10 |
| Prunus dulcis x Prunus persica | Plant hybrid | Unassigned | Food Plant | Prunus persica Pru p 2 IUIS | IgE plus basophil+ or SPT+ | 246 | ACE80958.1 | 190613909 | 10 |
| Prunus dulcis x Prunus persica | Plant hybrid | Pru p 2.0201 | Food Plant | Prunus persica Pru p 2 IUIS | IgE plus basophil+ or SPT+ | 246 | ACE80957.1 | 190613907 | 10 |
| Prunus dulcis x Prunus persica | Plant hybrid | Pru p 2.0101 | Food Plant | Prunus persica Pru p 2 IUIS | IgE plus basophil+ or SPT+ | 246 | ACE80959.1 | 190613911 | 10 |
| Prunus dulcis x Prunus persica | Plant hybrid | Pru p 2.0301 | Food Plant | Prunus persica Pru p 2 IUIS | IgE plus basophil+ or SPT+ | 242 | ACE80955.1 | 190613903 | 10 |
| Prunus dulcis x Prunus persica | Plant hybrid | Unassigned | Food Plant | Prunus Pru 4 Profilin peach cherry almond | IgE plus basophil+ or SPT+ | 131 | ACE80972.1 | 190613937 | 10 |
| Prunus persica | Peach | Pru p 1.0101 | Food Plant | Pru av 1 Pru a 1 | IgE plus basophil+ or SPT+ | 160 | ABB78006.1 | 82492265 | 7 |
| Prunus persica | Peach | Pru p 1.0301 | Food Plant | Pru av 1 Pru a 1 | IgE plus basophil+ or SPT+ | 160 | AJE61291.1 | 748758672 | 16 |
| Prunus persica | Peach | Pru p 1.0201 | Food Plant | Pru av 1 Pru a 1 | IgE plus basophil+ or SPT+ | 160 | AJE61290.1 | 748758670 | 16 |
| Prunus persica | Peach | Unassigned | Food Plant | Pru p 9 peach a PR-1 protein Cys rich | IgE plus basophil+ or SPT+ | 161 | XP_007199020.1 | 595790543 | 20 |
| Prunus persica | Peach | Unassigned | Food Plant | Prunus persica Pru p 2 IUIS | IgE plus basophil+ or SPT+ | 246 | P83332.1 | 25091405 | 12 |
| Prunus persica | Peach | Unassigned | Food Plant | Prunus persica Pru p 2 IUIS | IgE plus basophil+ or SPT+ | 242 | P83335.1 | 25091406 | 12 |
| Prunus persica | Peach | Unassigned | Food Plant | Prunus persica Pru p 2 IUIS | IgE plus basophil+ or SPT+ | 246 | AEV57471.1 | 359744030 | 13 |
| Prunus persica | Peach | Pru p 3.0101 | Food Plant | Prunus Pru 3 | IgE plus basophil+ or SPT+ | 91 | P81402.1 | 3287877 | 7 |
| Prunus persica | Peach | Unassigned | Food Plant | Prunus Pru 3 | IgE plus basophil+ or SPT+ | 117 | AAV40850.1 | 54793477 | 7 |
| Prunus persica | Peach | Unassigned | Food Plant | Prunus Pru 3 | IgE plus basophil+ or SPT+ | 117 | ADR66939.1 | 313575718 | 12 |
| Prunus persica | Peach | Unassigned | Food Plant | Prunus Pru 3 | IgE plus basophil+ or SPT+ | 117 | AGW21344.1 | 544369592 | 15 |
| Prunus persica | Peach | Pru p 4.0101 | Food Plant | Prunus Pru 4 Profilin peach cherry almond | IgE plus basophil+ or SPT+ | 131 | CAD37201.1 | 27528310 | 7 |
| Prunus persica | Peach | Pru p 4.0201 | Food Plant | Prunus Pru 4 Profilin peach cherry almond | IgE plus basophil+ or SPT+ | 131 | CAD37202.1 | 27528312 | 7 |
| Prunus persica | Peach | Pru p 7.0101 | Food Plant | Prunus Pru p 7 Pru m 7 Peamaclein | IgE plus basophil+ or SPT+ | 63 | P86888.1 | 408407790 | 14 |
| Pseudocardium sachalinensis | Mollusc | Unassigned | Food Animal | Pseudocardium tropomyosin | IgE but no biological test | 284 | BAH10154.1 | 219806598 | 10 |
| Punica granatum | Pomegranate | Unassigned | Food Plant | Punica chitinase putative Put g 14 | IgE but no biological test | 299 | G1UH28.1 | 1679362782 | 20 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stA Version |
|---------------------------------|-------------|----------------|-------------|---|----------------------------|--------|----------------|------------|--------------|
| <i>Punica granatum</i> | Pomegranate | Pun g 7 | Food Plant | Punica peptide Pommaclein Pun g 7 | IgE but no biological test | 20 | COHKC0.1 | 1179881437 | 18 |
| <i>Punica granatum</i> | Pomegranate | Pun g 1.0101 | Food Plant | Punica Pun g 1 | IgE but no biological test | 120 | AHB19227.1 | 559797765 | 15 |
| <i>Punica granatum</i> | Pomegranate | Pun g 1.0201 | Food Plant | Punica Pun g 1 | IgE but no biological test | 120 | AHB19226.1 | 559797765 | 15 |
| <i>Punica granatum</i> | Pomegranate | Pun g 1.0301 | Food Plant | Punica Pun g 1 | IgE but no biological test | 120 | AHB19225.1 | 559797763 | 15 |
| <i>Pyrus communis</i> | Pear | Pyr c 3.0101 | Food Plant | Pyrus LTP Pyr c 3 IUIS | IgE but no biological test | 115 | AAF2645.1 | 6715524 | 11 |
| <i>Pyrus communis</i> | Pear | Unassigned | Food Plant | Pyrus LTP Pyr c 3 IUIS | IgE but no biological test | 94 | AET05733.1 | 355525862 | 13 |
| <i>Pyrus communis</i> | Pear | Unassigned | Food Plant | Pyrus LTP Pyr c 3 IUIS | IgE but no biological test | 94 | AET05732.1 | 355525860 | 13 |
| <i>Pyrus communis</i> | Pear | Unassigned | Food Plant | Pyrus LTP Pyr c 3 IUIS | IgE but no biological test | 94 | AET05730.1 | 355525856 | 13 |
| <i>Pyrus communis</i> | Pear | Pyr c 1.0101 | Food Plant | Pyrus Pyr c 1 | IgE plus basophil+ or SPT+ | 159 | O65200.1 | 14423877 | 9 |
| <i>Pyrus communis</i> | Pear | Pyr c 4.0101 | Food Plant | Pyrus Pyr c 4 | IgE plus basophil+ or SPT+ | 131 | AAD29410.1 | 4761580 | 7 |
| <i>Pyrus communis</i> | Pear | Pyr c 5.0101 | Food Plant | Pyrus Pyr c 5 | IgE plus basophil+ or SPT+ | 308 | AAC24001.1 | 3243234 | 7 |
| <i>Quercus alba</i> | Oak | Que a 1.0201 | Aero Plant | Quercus Que a 1 Que m 1 | IgE plus basophil+ or SPT+ | 159 | AB281045.1 | 167472847 | 10 |
| <i>Quercus alba</i> | Oak | Que a 1.0401 | Aero Plant | Quercus Que a 1 Que m 1 | IgE plus basophil+ or SPT+ | 160 | AB281047.1 | 167472851 | 10 |
| <i>Quercus alba</i> | Oak | Que a 1.0301 | Aero Plant | Quercus Que a 1 Que m 1 | IgE plus basophil+ or SPT+ | 160 | AB281046.1 | 167472849 | 10 |
| <i>Quercus ilex</i> | holly oak | Unassigned | Aero Plant | Que i 1 | IgE but no biological test | 159 | QGS84240.1 | 1780564817 | 21 |
| <i>Quercus mongolica</i> | | Unassigned | Aero Plant | Quercus Que a 1 Que m 1 | IgE plus basophil+ or SPT+ | 160 | AUH28179.1 | 1316209040 | 19 |
| <i>Rana esculenta</i> | Frog | Ran e 1.0101 | Food Animal | Rana Ran e 1 | IgE but no biological test | 110 | CAC83046.1 | 20796729 | 7 |
| <i>Rana esculenta</i> | Frog | Ran e 2.0101 | Food Animal | Rana Ran e 2 | IgE but no biological test | 109 | CAC95152.1 | 20797081 | 7 |
| <i>Rana sp. CH-2001</i> | Frog | Unassigned | Food Animal | Rana Ran e 1 | IgE but no biological test | 110 | CAC83047.1 | 20796733 | 7 |
| <i>Rana sp. CH-2001</i> | Frog | Unassigned | Food Animal | Rana Ran e 2 | IgE but no biological test | 109 | CAC95153.1 | 20797085 | 7 |
| <i>Rastrelliger kanagurta</i> | | Ras k 1.0101 | Food Animal | Rastrelliger Ras k 1 parvalbumin | IgE but no biological test | 109 | ANW10058.1 | 1046811129 | 18 |
| <i>Rattus norvegicus</i> | Rat | | Aero Animal | Rattus Rat n 1 | IgE but no biological test | 181 | P02761.1 | 127533 | 7 |
| <i>Rattus norvegicus</i> | Rat | | Aero Animal | Rattus Rat n 1 | IgE but no biological test | 181 | Q63213 | 81890324 | 7 |
| <i>Rattus norvegicus</i> | Rat | Rat n 1.0101 | Aero Animal | Rattus Rat n 1 | IgE but no biological test | 177 | AAA41198.1 | 204261 | 15 |
| <i>Rhizopus oryzae</i> | Fungus | Unassigned | Aero Fungi | Rhizopus Rhi o 1.0101 | IgE plus basophil+ or SPT+ | 401 | AIS82657.1 | 695094784 | 16 |
| <i>Rhodotorula mucilaginosa</i> | Fungus | Rho m 1.0101 | Aero Fungi | Rhodotorula Rho m 1 | IgE but no biological test | 439 | AAF30720.1 | 30314940 | 11 |
| <i>Rhodotorula mucilaginosa</i> | Fungus | Rho m 2.0101 | Aero Fungi | Rhodotorula Rho m 2 | IgE but no biological test | 342 | AAT37679.1 | 54654335 | 7 |
| <i>Ricinus communis</i> | Castor bean | Ric c 1.0101 | Food Plant | Ricinus Ric c 1 | IgE plus basophil+ or SPT+ | 258 | CAA38097.1 | 21068 | 15 |
| <i>Rubus idaeus</i> | raspberry | Rub i 1.0101 | Food Plant | Rubus Rub i 1 | IgE but no biological test | 137 | ABG54495.1 | 110180525 | 8 |
| <i>Rubus idaeus</i> | raspberry | Rub i 3.0101 | Food Plant | Rubus Rub i 3 | IgE but no biological test | 117 | ABG54494.1 | 110180523 | 8 |
| <i>Saccostrea glomerata</i> | | Sac g 1 | Food Animal | Saccostrea glomerata Sac g 1 | IgE but no biological test | 284 | AVD53650.1 | 1343184138 | 19 |
| <i>Salmo salar</i> | Salmon | Unassigned | Food Animal | Sal s 4 | IgE but no biological test | 284 | NP_001117128.1 | 185132405 | 20 |
| <i>Salmo salar</i> | Salmon | Unassigned | Food Animal | Sal s 6 | IgE plus basophil+ or SPT+ | 1449 | XP_014059932.1 | 929097893 | 21 |
| <i>Salmo salar</i> | Salmon | Unassigned | Food Animal | Sal s 6 | IgE plus basophil+ or SPT+ | 1449 | XP_014048044.1 | 929075511 | 21 |
| <i>Salmo salar</i> | Salmon | Unassigned | Food Animal | Sal s 6 | IgE plus basophil+ or SPT+ | 1356 | XP_013998297.1 | 929244458 | 21 |
| <i>Salmo salar</i> | Salmon | Unassigned | Food Animal | Sal s 6 | IgE plus basophil+ or SPT+ | 1356 | XP_014033985.1 | 929312453 | 21 |
| <i>Salmo salar</i> | Salmon | | Food Animal | Salmo Sal s 1 | IgE plus basophil+ or SPT+ | 108 | Q91483.3 | 18281421 | 7 |
| <i>Salmo salar</i> | Salmon | Unassigned | Food Animal | Salmo Sal s 1 | IgE plus basophil+ or SPT+ | 109 | ACI68103.1 | 209734468 | 10 |
| <i>Salmo salar</i> | Salmon | Sal s 1.0101 | Food Animal | Salmo Sal s 1 | IgE plus basophil+ or SPT+ | 109 | CAA66403.1 | 1322183 | 15 |
| <i>Salmo salar</i> | Salmon | Unassigned | Food Animal | Salmo Sal s 2 enolase | IgE plus basophil+ or SPT+ | 432 | CBL79146.1 | 385145180 | 13 |
| <i>Salmo salar</i> | Salmon | Sal s 2.0101 | Food Animal | Salmo Sal s 2 enolase | IgE plus basophil+ or SPT+ | 434 | ACH70931.1 | 197632415 | 15 |
| <i>Salmo salar</i> | Salmon | Sal s 3.0101 | Food Animal | Salmo Sal s 3 aldolase | IgE plus basophil+ or SPT+ | 363 | ACH70901.1 | 197632355 | 13 |
| <i>Salmo salar</i> | Salmon | Unassigned | Food Animal | Salmo Sal s 3 aldolase | IgE plus basophil+ or SPT+ | 363 | CBL79147.1 | 385145176 | 13 |
| <i>Salmo salar</i> | Salmon | Unassigned | Food Animal | Salmon Sal s 7 | IgE but no biological test | 381 | ACH70914.1 | 197632381 | 20 |
| <i>Salmo salar</i> | Salmon | Unassigned | Food Animal | Salmon Sal s 8 Triphosphate isomerase | IgE but no biological test | 247 | ACM09737.1 | 221222152 | 20 |
| <i>Salsola kali</i> | Thistle | Unassigned | Aero Plant | Salsola kali Sal k 6.01 | IgE plus basophil+ or SPT+ | 381 | AHL24657.1 | 589912883 | 15 |
| <i>Salsola kali</i> | Thistle | Sal k 6.0101 | Aero Plant | Salsola kali Sal k 6.01 | IgE plus basophil+ or SPT+ | 401 | ARS33724.1 | 1194995727 | 18 |
| <i>Salsola kali</i> | Thistle | Sal k 1.0201 | Aero Plant | Salsola pectin methylesterase Sal k 1.01 & 1.02 | IgE but no biological test | 362 | AAT99258.1 | 51242679 | 8 |
| <i>Salsola kali</i> | Thistle | Sal k 1.0302 | Aero Plant | Salsola pectin methylesterase Sal k 1.01 & 1.02 | IgE but no biological test | 339 | AAX11261.1 | 59895728 | 8 |
| <i>Salsola kali</i> | Thistle | Sal k 1.0301 | Aero Plant | Salsola pectin methylesterase Sal k 1.01 & 1.02 | IgE but no biological test | 339 | AAX11262.1 | 59895730 | 8 |
| <i>Salsola kali</i> | Thistle | Unassigned | Aero Plant | Salsola pectin methylesterase Sal k 1.01 & 1.02 | IgE but no biological test | 339 | ACO34813.1 | 225810597 | 10 |

| Species | Common | IUIS4 Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stÅ Version |
|--------------------------------|-------------------------|----------------|-------------------|---|----------------------------|--------|----------------|------------|--------------|
| Salsola kali | Thistle | Sal k 1.0101 | Aero Plant | Salsola Sal k 1 | IgE plus basophil+ or SPT+ | 42 | P83181.1 | 25090947 | 10 |
| Salsola kali | Thistle | Sal k 3.0101 | Aero Plant | Salsola Sal k 3 pollen allergen | IgE plus basophil+ or SPT+ | 757 | AC034814.1 | 225810599 | 10 |
| Salsola kali | Thistle | Sal k 4.0101 | Aero Plant | Salsola Sal k 4 profilin | IgE plus basophil+ or SPT+ | 133 | ACS34771.1 | 239916566 | 11 |
| Salsola kali | Thistle | Sal k 4.0201 | Aero Plant | Salsola Sal k 4 profilin | IgE plus basophil+ or SPT+ | 133 | AHL24658.1 | 589912885 | 15 |
| Salsola kali | Thistle | Sal k 4.0201 | Aero Plant | Salsola Sal k 4 profilin | IgE plus basophil+ or SPT+ | 133 | ADK22841.1 | 300490499 | 15 |
| Salsola kali | Thistle | Sal k 6.0101 | Aero Plant | Salsola Sal k 5 | IgE but no biological test | 151 | ADK22842.1 | 300490501 | 15 |
| Salvelinus fontinalis | Brook trout | Unassigned | Food Animal | Salvelinus parvalbumin | IgE but no biological test | 109 | CAX32966.1 | 288557438 | 11 |
| Salvelinus fontinalis | Brook trout | Unassigned | Food Animal | Salvelinus parvalbumin | IgE but no biological test | 108 | CAX32967.1 | 288557440 | 11 |
| Sarcoptes scabiei | mite | Unassigned | Venom or Salivary | Sarcoptes scabiei paramyosin | IgE but no biological test | 828 | SHD75397.1 | 1109598142 | 18 |
| Sarcoptes scabiei type hominis | Scabies mite | Unassigned | Venom or Salivary | Sarcoptes Apolipoprotein Ssag1.2 | IgE but no biological test | 330 | AAO15613.1 | 27462848 | 7 |
| Sarcoptes scabiei type hominis | Scabies mite | Unassigned | Venom or Salivary | Sarcoptes cysteine protease CO8 | IgE but no biological test | 340 | AAS93669.1 | 46406002 | 7 |
| Sarcoptes scabiei type hominis | Scabies mite | Unassigned | Venom or Salivary | Sarcoptes cysteine proteases F04 | IgE but no biological test | 338 | AAS93674.1 | 46406012 | 7 |
| Sarcoptes scabiei type hominis | Scabies mite | Unassigned | Venom or Salivary | Sarcoptes cysteine proteases F04 | IgE but no biological test | 339 | AAS93675.1 | 46406014 | 7 |
| Sarcoptes scabiei type hominis | Scabies mite | Unassigned | Venom or Salivary | Sarcoptes cysteine proteases F04 | IgE but no biological test | 273 | AAS93676.1 | 46406016 | 7 |
| Sarcoptes scabiei type hominis | Scabies mite | Unassigned | Venom or Salivary | Sarcoptes Glutathione S-transferase Mu | IgE but no biological test | 219 | AAO15607.1 | 27462836 | 7 |
| Sarcoptes scabiei type hominis | Scabies mite | Unassigned | Venom or Salivary | Sarcoptes Glutathione S-transferase Mu | IgE but no biological test | 219 | AAAX37321.1 | 60920770 | 7 |
| Sarcoptes scabiei type suis | Scabies mite | Unassigned | Aero Mite | Sarcoptes Apolipoprotein Ssag1.2 | IgE but no biological test | 310 | AGM48615.1 | 507480520 | 15 |
| Sardinops sagax | South American pilchard | Sar sa 1.0101 | Food Animal | Sardinops Sar sa 1 parvalbumin | IgE but no biological test | 109 | CAQ68366.1 | 193247972 | 10 |
| Scapharca broughtonii | Clam | Unassigned | Food Animal | Scapharca tropomyosin | IgE but no biological test | 284 | BAH10151.1 | 219806592 | 10 |
| Schedonorus arundinaceus | Tall fescue | Unassigned | Aero Plant | Festuca group 1 allergen | IgE but no biological test | 35 | Q7MY1Y1 | 75139991 | 7 |
| Schedonorus arundinaceus | Tall fescue | Unassigned | Venom or Salivary | Festuca group 1 allergen | IgE but no biological test | 17 | C37396 | 320610 | 7 |
| Schedonorus arundinaceus | Tall fescue | Unassigned | Aero Plant | Festuca group 1 allergen | IgE but no biological test | 20 | D37396 | 320611 | 7 |
| Schistosoma japonicum | Schistosoma | Unassigned | Protozoan | Schistosoma profilin | IgE but no biological test | 129 | AAP06493.1 | 29841461 | 7 |
| Schistosoma japonicum | Schistosoma | Unassigned | Protozoan | Schistosoma tegumental antigen | IgE but no biological test | 191 | AAC67308.1 | 2739154 | 7 |
| Schizophyllum commune H4-8 | Mushroom | Sch c 1.0101 | Aero Fungi | Schizophyllum Sch c 1 | IgE but no biological test | 576 | XP_003030591.1 | 302681819 | 15 |
| Scolopendra subspinipes | | Unassigned | Venom or Salivary | Scolopendra venom Sco m 5 | IgE plus basophil+ or SPT+ | 210 | QEAF69430.1 | 1721459568 | 20 |
| Scomber japonicus | Chub mackerel | Sco j 1 | Food Animal | Scomber Parvalbumin Sco s 1 | IgE but no biological test | 109 | BAC66618.1 | 29420793 | 7 |
| Scomber scombrus | Atlantic mackerel | Sco s 1.0101 | Food Animal | Scomber Parvalbumin Sco s 1 | IgE but no biological test | 109 | CAX32965.1 | 288557436 | 11 |
| Scylla paramamosain | green mud crab | Scy p 8.0101 | Food Animal | Scy p 8 | IgE but no biological test | 248 | APP94292.1 | 1122816254 | 18 |
| Scylla paramamosain | green mud crab | Scy p 2.0101 | Food Animal | Scylla arginine kinase Scy p 2 | IgE but no biological test | 357 | AF445340.1 | 375298903 | 13 |
| Scylla paramamosain | green mud crab | Unassigned | Food Animal | Scylla arginine kinase Scy p 2 | IgE but no biological test | 357 | 5ZHQ_A | 1597623661 | 20 |
| Scylla paramamosain | green mud crab | Unassigned | Food Animal | Scylla paramamosain filamin C | IgE plus basophil+ or SPT+ | 847 | QF157017.1 | 1759300245 | 20 |
| Scylla paramamosain | green mud crab | Scy p 4.0101 | Food Animal | Scylla paramamosain Scy p 4 Sarc Ca Binding Ptn | IgE but no biological test | 193 | AFJ80778.1 | 387571563 | 18 |
| Scylla serrata | giant mud crab | Unassigned | Food Animal | Scylla arginine kinase Scy p 2 | IgE but no biological test | 356 | C9E1P1.1 | 1679377517 | 20 |
| Scylla serrata | giant mud crab | Unassigned | Food Animal | Scylla sp. (mud crab) tropomyosin | IgE but no biological test | 284 | ABS12233.1 | 151505279 | 9 |
| Sebastes marinus | ocean perch (red fish) | Seb m 1.0101 | Food Animal | Sebastes Seb m 1 | IgE but no biological test | 109 | CAQ72968.1 | 242253959 | 11 |
| Sebastes marinus | ocean perch (red fish) | Seb m 1.0201 | Food Animal | Sebastes Seb m 1 | IgE but no biological test | 110 | CAQ72969.1 | 242253961 | 11 |
| Secale cereale | Rye | Sec c 20.0101 | Food Plant | Secale Sec c 20 | IgE plus basophil+ or SPT+ | 23 | AAB37403.1 | 1699225 | 15 |
| Secale cereale | Rye | Sec c 20.0201 | Food Plant | Secale Sec c 20 | IgE plus basophil+ or SPT+ | 29 | AAB37406.1 | 1699228 | 15 |
| Secale cereale | Rye | Sec c 38.0101 | Aero Plant | Secale Sec c 38.01 | IgE plus basophil+ or SPT+ | 26 | | 75198875 | 7 |
| Secale cereale | Rye | Unassigned | Aero Plant | Secale Sec c 4 | IgE but no biological test | 520 | CAH92630.1 | 55859456 | 7 |
| Secale cereale | Rye | Unassigned | Aero Plant | Secale Sec c 4 | IgE but no biological test | 518 | CAH92627.1 | 55859454 | 7 |
| Secale cereale | Rye | Unassigned | Aero Plant | Secale Sec c 5 | IgE but no biological test | 16 | Q7M263 | 75140047 | 7 |
| Secale cereale | Rye | Sec c 5.0101 | Food Plant | Secale Sec c 5 | IgE but no biological test | 292 | CBG76811.1 | 332205751 | 12 |
| Sepia esculenta | cuttlefish | Unassigned | Food Animal | Sepia tropomyosin | IgE but no biological test | 284 | BAE54429.1 | 83715928 | 7 |
| Sepioteuthis lessoniana | bigfin reef squid | Unassigned | Food Animal | Sepioteuthis tropomyosin | IgE but no biological test | 284 | BAE54430.1 | 83715930 | 7 |
| Sesamum indicum | Sesame | Unassigned | Food Plant | Sesamum seed maturation-like protein | IgE but no biological test | 345 | ACB55491.1 | 171853012 | 16 |
| Sesamum indicum | Sesame | Ses i 1.0101 | Food Plant | Sesamum Ses i 1 | IgE but no biological test | 153 | AAK15088.1 | 13183175 | 7 |
| Sesamum indicum | Sesame | Unassigned | Food Plant | Sesamum Ses i 1 | IgE but no biological test | 153 | ACI41244.1 | 209165427 | 10 |
| Sesamum indicum | Sesame | Ses i 2.0101 | Food Plant | Sesamum Ses i 2 | IgE but no biological test | 148 | AAD42943.1 | 5381323 | 7 |
| Sesamum indicum | Sesame | Ses i 3.0101 | Food Plant | Sesamum Ses i 3 | IgE but no biological test | 585 | AAK15089.1 | 13183177 | 7 |
| Sesamum indicum | Sesame | Ses i 4.0101 | Food Plant | Sesamum Ses i 4 oleosin | IgE but no biological test | 166 | AAG23840.1 | 10834827 | 13 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stA Version |
|-------------------------------------|---------------------|----------------|-------------------|--|----------------------------|--------|----------------|------------|--------------|
| Sesamum indicum | Sesame | Unassigned | Food Plant | Sesamum Ses i 5 oleosin | IgE but no biological test | 145 | ACH85188.1 | 198250343 | 10 |
| Sesamum indicum | Sesame | Ses i 5.0101 | Food Plant | Sesamum Ses i 5 oleosin | IgE but no biological test | 145 | AAD42944.1 | 5381321 | 15 |
| Sesamum indicum | Sesame | Ses i 6.0101 | Food Plant | Sesamum Ses i 6 | IgE plus basophil+ or SPT+ | 459 | AAD42944.1 | 5381325 | 15 |
| Sesamum indicum | Sesame | Ses i 7.0101 | Food Plant | Sesamum Ses i 7 | IgE but no biological test | 497 | AAK15087.1 | 13183173 | 15 |
| Simulium vittatum | black fly | Unassigned | Venom or Salivary | Simulium vit antigen 5 by similarity | IgE but no biological test | 277 | ACH56843.1 | 197260686 | 10 |
| Simulium vittatum | black fly | Unassigned | Venom or Salivary | Simulium vit antigen 5 by similarity | IgE but no biological test | 277 | ACH56844.1 | 197260688 | 10 |
| Sinapis alba | White mustard | | Food Plant | Sinapis Sin a 1.01 | IgE plus basophil+ or SPT+ | 145 | CAA62909.1 | 1009434 | 7 |
| Sinapis alba | White mustard | | Food Plant | Sinapis Sin a 1.01 | IgE plus basophil+ or SPT+ | 145 | CAA62910.1 | 1009436 | 7 |
| Sinapis alba | White mustard | | Food Plant | Sinapis Sin a 1.01 | IgE plus basophil+ or SPT+ | 145 | CAA62911.1 | 1009438 | 7 |
| Sinapis alba | White mustard | | Food Plant | Sinapis Sin a 1.01 | IgE plus basophil+ or SPT+ | 145 | CAA62912.1 | 1009440 | 7 |
| Sinapis alba | White mustard | | Food Plant | Sinapis Sin a 1.01 | IgE plus basophil+ or SPT+ | 145 | CAA62908.1 | 1009442 | 7 |
| Sinapis alba | White mustard | Sin a 1.0101 | Food Plant | Sinapis Sin a 1.01 | IgE plus basophil+ or SPT+ | 145 | P15322.2 | 51338758 | 7 |
| Sinapis alba | White mustard | Sin a 2.0101 | Food Plant | Sinapis Sin a 2.01 11S globulin | IgE plus basophil+ or SPT+ | 510 | AAX77383.1 | 62240390 | 7 |
| Sinapis alba | White mustard | Unassigned | Food Plant | Sinapis Sin a 2.01 11S globulin | IgE plus basophil+ or SPT+ | 523 | AAX77384.1 | 62240392 | 7 |
| Sinapis alba | White mustard | Sin a 3.0101 | Food Plant | Sinapis Sin a 3.01 LTP | IgE but no biological test | 92 | ABU95411.1 | 156778059 | 12 |
| Sinapis alba | White mustard | Sin a 4.0101 | Food Plant | Sinapis Sin a 4.01 profilin | IgE but no biological test | 131 | ABU95412.1 | 156778061 | 12 |
| Sinonovacula constricta | Chinese razor clam | Unassigned | Food Animal | Sinonovacula tropomyosin [Song paper] | IgE but no biological test | 284 | ABU53681.1 | 156145810 | 15 |
| Solanum lycopersicum (Lycopersicon) | Tomato | Sola l 6.0101 | Food Plant | Solanum lycopersicum Sola l 6 | IgE plus basophil+ or SPT+ | 96 | NP_001306883.1 | 985801667 | 17 |
| Solanum lycopersicum (Lycopersicon) | Tomato | Sola l 7.0101 | Food Plant | Solanum lycopersicum Sola l 7 | IgE plus basophil+ or SPT+ | 115 | XP_004229753.1 | 460367790 | 16 |
| Solanum lycopersicum (Lycopersicon) | Tomato | Sola l 1.0101 | Food Plant | Solanum Sola l 1 profilin (Lyc e 1) | IgE plus basophil+ or SPT+ | 131 | CAD10377.1 | 16555787 | 7 |
| Solanum lycopersicum (Lycopersicon) | Tomato | | Food Plant | Solanum Sola l 1 profilin (Lyc e 1) | IgE plus basophil+ or SPT+ | 131 | AAL29690.1 | 17224229 | 7 |
| Solanum lycopersicum (Lycopersicon) | Tomato | Sola l 2.0101 | Food Plant | Solanum Sola l 2 Beta-fructofuranosidase (Lyc e 2) | IgE but no biological test | 553 | AAL75449.1 | 18542113 | 7 |
| Solanum lycopersicum (Lycopersicon) | Tomato | Sola l 2.0201 | Food Plant | Solanum Sola l 2 Beta-fructofuranosidase (Lyc e 2) | IgE but no biological test | 636 | AAL75450.1 | 18542115 | 7 |
| Solanum lycopersicum (Lycopersicon) | Tomato | Unassigned | Food Plant | Solanum Sola l 3 LTP (Lyc e 3) | IgE plus basophil+ or SPT+ | 114 | CAJ19705.1 | 71360928 | 7 |
| Solanum lycopersicum (Lycopersicon) | Tomato | Sola l 3.0101 | Food Plant | Solanum Sola l 3 LTP (Lyc e 3) | IgE plus basophil+ or SPT+ | 114 | AAB42069.1 | 1816535 | 15 |
| Solanum lycopersicum (Lycopersicon) | Tomato | Sola l 4.0101 | Food Plant | Solanum Sola l 4 PR-10 (Lyc e 4) | IgE but no biological test | 178 | CAA75803.1 | 2887310 | 14 |
| Solanum lycopersicum (Lycopersicon) | Tomato | Sola l 4.0201 | Food Plant | Solanum Sola l 4 PR-10 (Lyc e 4) | IgE but no biological test | 160 | AHC08074.1 | 565380268 | 15 |
| Solanum lycopersicum (Lycopersicon) | Tomato | Unassigned | Food Plant | Solanum Sola l 4 PR-10 (Lyc e 4) | IgE but no biological test | 160 | AHC08073.1 | 565380238 | 15 |
| Solanum melongena | Eggplant | Unassigned | Food Plant | Solanum melongena Sola m 1 | IgE plus basophil+ or SPT+ | 159 | QE043417.1 | 1743129991 | 20 |
| Solanum tuberosum | Potato | Unassigned | Food Plant | Solanum profilin-like | IgE but no biological test | 131 | ABA81885.1 | 77416979 | 7 |
| Solanum tuberosum | Potato | Unassigned | Food Plant | Solanum profilin-like | IgE but no biological test | 131 | ABB16985.1 | 77999277 | 7 |
| Solanum tuberosum | Potato | Unassigned | Food Plant | Solanum Sola t 1 | IgE plus basophil+ or SPT+ | 386 | CAA31575.1 | 21510 | 7 |
| Solanum tuberosum | Potato | Unassigned | Food Plant | Solanum Sola t 1 | IgE plus basophil+ or SPT+ | 386 | CAA27571.1 | 21512 | 7 |
| Solanum tuberosum | Potato | Unassigned | Food Plant | Solanum Sola t 1 | IgE plus basophil+ or SPT+ | 386 | CAA27588.1 | 21514 | 7 |
| Solanum tuberosum | Potato | Unassigned | Food Plant | Solanum Sola t 1 | IgE plus basophil+ or SPT+ | 386 | AAA33819.1 | 169500 | 7 |
| Solanum tuberosum | Potato | | Food Plant | Solanum Sola t 1 | IgE plus basophil+ or SPT+ | 386 | P15476.2 | 158517845 | 9 |
| Solanum tuberosum | Potato | Sola t 2.0101 | Food Plant | Solanum Sola t 2 | IgE plus basophil+ or SPT+ | 188 | P16348.1 | 124148 | 7 |
| Solanum tuberosum | Potato | | Food Plant | Solanum Sola t 3 | IgE plus basophil+ or SPT+ | 222 | P20347.3 | 20141344 | 7 |
| Solanum tuberosum | Potato | Sola t 3.0101 | Food Plant | Solanum Sola t 3 | IgE plus basophil+ or SPT+ | 186 | AAB63099.1 | 1575306 | 15 |
| Solanum tuberosum | Potato | Sola t 4.0101 | Food Plant | Solanum Sola t 4 | IgE plus basophil+ or SPT+ | 221 | BAA04149.1 | 994779 | 15 |
| Solen strictus | Gould's razor shell | Unassigned | Food Animal | Solen tropomyosin | IgE but no biological test | 284 | BAH10156.1 | 219806602 | 10 |
| Solenopsis geminata | Tropical Fire Ant | Sol g 4.0101 | Venom or Salivary | Solenopsis Sol g 4 Sol i 4 | IgE but no biological test | 137 | AAF65312.1 | 7638028 | 7 |
| Solenopsis geminata | Tropical Fire Ant | | Venom or Salivary | Solenopsis Sol g 4 Sol i 4 | IgE but no biological test | 137 | AAF65313.1 | 7638030 | 7 |
| Solenopsis invicta | Red fire ant | | Venom or Salivary | Solenopsis Sol g 4 Sol i 4 | IgE but no biological test | 137 | AAC97370.1 | 4038411 | 7 |
| Solenopsis invicta | Red fire ant | Sol i 4.0101 | Venom or Salivary | Solenopsis Sol g 4 Sol i 4 | IgE but no biological test | 137 | AAC97369.1 | 4038409 | 11 |
| Solenopsis invicta | Red fire ant | Unassigned | Venom or Salivary | Solenopsis Sol i 1 | IgE but no biological test | 58 | AAB36117.1 | 1336809 | 7 |
| Solenopsis invicta | Red fire ant | Unassigned | Venom or Salivary | Solenopsis Sol i 1 | IgE but no biological test | 25 | AAB36119.1 | 1336811 | 7 |
| Solenopsis invicta | Red fire ant | Unassigned | Venom or Salivary | Solenopsis Sol i 1 | IgE but no biological test | 26 | AAB36120.1 | 1336812 | 7 |
| Solenopsis invicta | Red fire ant | Unassigned | Venom or Salivary | Solenopsis Sol i 1 | IgE but no biological test | 26 | AAB36121.1 | 1336813 | 7 |
| Solenopsis invicta | Red fire ant | Sol i 1.0101 | Venom or Salivary | Solenopsis Sol i 1 | IgE but no biological test | 346 | AAT95008.1 | 51093373 | 7 |
| Solenopsis invicta | Red fire ant | Sol i 2.0101 | Venom or Salivary | Solenopsis Sol i and Sol r Venom allergen II | IgE but no biological test | 138 | P35775.1 | 549179 | 7 |
| Solenopsis invicta | Red fire ant | Sol i 3.0101 | Venom or Salivary | Solenopsis Venom allergen III | IgE but no biological test | 234 | AAB65434.1 | 2293571 | 11 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stA Version |
|----------------------------------|-------------------------|----------------|-------------------|--|----------------------------|--------|----------------|------------|--------------|
| <i>Solenopsis richteri</i> | Black fire ant | Sol r 2.0101 | Venom or Salivary | Solenopsis Sol i and Sol r Venom allergen II | IgE but no biological test | 119 | P35776.2 | 6136162 | 7 |
| <i>Solenopsis richteri</i> | Black fire ant | Sol r 3.0101 | Venom or Salivary | Solenopsis Venom allergen III | IgE but no biological test | 211 | P35779.2 | 6136163 | 7 |
| <i>Solenopsis saevissima</i> | Brazilian fire ant | Unassigned | Venom or Salivary | Solenopsis Sol g 4 Sol i 4 | IgE but no biological test | 137 | ADD74392.1 | 291092710 | 12 |
| <i>Sorghum halepense</i> | Johnson grass | Sor h 2.0201 | Aero Plant | Sorghum halepens group 2 allergen | IgE but no biological test | 121 | AIL01319.1 | 674275735 | 16 |
| <i>Sorghum halepense</i> | Johnson grass | Sor h 2.0101 | Aero Plant | Sorghum halepens group 2 allergen | IgE but no biological test | 119 | AIL01318.1 | 674275733 | 16 |
| <i>Sorghum halepense</i> | Johnson grass | Sor h 1.0101 | Aero Plant | Sorghum Sor h 1 | IgE but no biological test | 266 | AIL01316.1 | 674275729 | 15 |
| <i>Sorghum halepense</i> | Johnson grass | Sor h 1.0201 | Aero Plant | Sorghum Sor h 1 | IgE but no biological test | 266 | AIL01317.1 | 674275731 | 15 |
| <i>Sorghum halepense</i> | Johnson grass | Sor h 13.0101 | Aero Plant | Sorghum Sor h 13 | IgE but no biological test | 422 | AIL01320.1 | 674275737 | 15 |
| <i>Sorghum halepense</i> | Johnson grass | Sor h 13.0201 | Aero Plant | Sorghum Sor h 13 | IgE but no biological test | 410 | AIL01321.1 | 674275739 | 15 |
| <i>Stachybotrys chartarum</i> | Fungus | Sta 3.0101 | Aero Fungi | Stachybotrys Sta c 3 | IgE but no biological test | 144 | ACT37324.1 | 253970748 | 14 |
| <i>Staphylococcus aureus</i> | Bacteria | Unassigned | Bacteria skin | Staphylococcus enterotoxin SEA | IgE plus basophil+ or SPT+ | 233 | 1ESF_B | 1633233 | 9 |
| <i>Staphylococcus aureus</i> | Bacteria | Unassigned | Bacteria skin | Staphylococcus enterotoxin SEB | IgE plus basophil+ or SPT+ | 254 | CAJ43561.1 | 83308249 | 9 |
| <i>Staphylococcus aureus</i> | Bacteria | Unassigned | Bacteria skin | Staphylococcus enterotoxin SEC | IgE but no biological test | 266 | P34071.1 | 462026 | 9 |
| <i>Staphylococcus aureus</i> | Bacteria | Unassigned | Bacteria skin | Staphylococcus enterotoxin SED | IgE but no biological test | 258 | P20723.1 | 119654 | 9 |
| <i>Staphylococcus aureus</i> | Bacteria | Unassigned | Bacteria skin | Staphylococcus enterotoxin TSST 1 | IgE plus basophil+ or SPT+ | 234 | P06886.1 | 136457 | 9 |
| <i>Stemphylium callistephi</i> | Fungus | Unassigned | Aero Fungi | Stemphylium major allergen alt a1-like | IgE but no biological test | 137 | AAT66567.1 | 49476467 | 7 |
| <i>Stemphylium sp. CID1012</i> | Fungus | Unassigned | Aero Fungi | Stemphylium major allergen alt a1-like | IgE but no biological test | 137 | ABS29033.1 | 152060760 | 9 |
| <i>Stemphylium vesicarium</i> | Fungus | Unassigned | Aero Fungi | Stemphylium major allergen alt a1-like | IgE but no biological test | 137 | AAT66566.1 | 49476465 | 7 |
| <i>Strongyloides stercoralis</i> | Parasitic nematode | Unassigned | Worm (parasite) | Strongyloides L3NieAg.01 | IgE plus basophil+ or SPT+ | 229 | AAD46493.1 | 5669875 | 7 |
| <i>Suidasia medanensis</i> | Mite | Unassigned | Aero Mite | Suidasia putative not official Sui m 2 | IgE but no biological test | 141 | AA575831.1 | 45738062 | 7 |
| <i>Sus scrofa</i> | Pig | Unassigned | Aero Animal | Sus Porcine Pepsin | IgE but no biological test | 385 | P00791.3 | 118572685 | 11 |
| <i>Sus scrofa</i> | Pig | Sus s 1.0101 | Aero Animal | Sus s serum albumin | IgE but no biological test | 605 | AAA30988.1 | 164318 | 17 |
| <i>Sus scrofa</i> | Pig | Unassigned | Aero Animal | Sus s serum albumin | IgE but no biological test | 607 | NP_001005208.1 | 52353352 | 17 |
| <i>Syringa vulgaris</i> | Lilac | Syr v 3.0101 | Aero Plant | Syringa Syr v 3 | IgE but no biological test | 81 | P58171.1 | 14423847 | 7 |
| <i>Syringa vulgaris</i> | Lilac | Syr v 1.0101 | Aero Plant | Syringa Syr v I | IgE but no biological test | 145 | S43242 | 631911 | 7 |
| <i>Syringa vulgaris</i> | Lilac | Syr v 1.0102 | Aero Plant | Syringa Syr v I | IgE but no biological test | 145 | S43243 | 631912 | 7 |
| <i>Syringa vulgaris</i> | Lilac | Syr v 1.0103 | Aero Plant | Syringa Syr v I | IgE but no biological test | 145 | S43244 | 631913 | 7 |
| <i>Tabanus yao</i> | Horse Fly | Tab y 1.0101 | Venom or Salivary | Tabanus Tab y 1 Apyrase | IgE plus basophil+ or SPT+ | 554 | ADX78255.1 | 323473390 | 12 |
| <i>Tabanus yao</i> | Horse Fly | Tab y 2.0101 | Venom or Salivary | Tabanus Tab y 2 Hyaluronidase | IgE but no biological test | 349 | ADM18346.1 | 304273371 | 12 |
| <i>Tabanus yao</i> | Horse Fly | Tab y 5.0101 | Venom or Salivary | Tabanus Tab y 5 | IgE but no biological test | 256 | ADM18345.1 | 304273369 | 12 |
| <i>Tenebrio molitor</i> | Yellow mealworm | Unassigned | Food insect | Tenebrio molitor tropomyosin mealworm | IgE plus basophil+ or SPT+ | 284 | QBM01048.1 | 1591440921 | 20 |
| <i>Thaumetopoea pityocampa</i> | Pine moth | Tha p 1.0101 | Contact | Thaumetopoea Tha p 1 full length | IgE but no biological test | 126 | ADK47876.1 | 301030229 | 12 |
| <i>Thaumetopoea pityocampa</i> | Pine moth | Tha p 2.0101 | Contact | Thaumetopoea Tha p 2 | IgE but no biological test | 115 | P86360.1 | 408387552 | 14 |
| <i>Thaumetopoea pityocampa</i> | Pine moth | Unassigned | Contact | Thaumetopoea Tha p 2 | IgE but no biological test | 104 | CEE03319.1 | 1056731906 | 18 |
| <i>Thaumetopoea solitaria</i> | | Unassigned | Contact | Thaumetopoea Tha p 2 | IgE but no biological test | 100 | CEE03318.1 | 1056731899 | 18 |
| <i>Theragra chalcogramma</i> | Alaska pollock | Unassigned | Food Animal | Theragra parvalbumin | IgE plus basophil+ or SPT+ | 109 | AAK63089.1 | 14531020 | 7 |
| <i>Theragra chalcogramma</i> | Alaska pollock | Unassigned | Food Animal | Theragra parvalbumin | IgE plus basophil+ or SPT+ | 109 | AAK63088.1 | 14531018 | 7 |
| <i>Thunnus albacares</i> | Yellowfin tuna | Unassigned | Food Animal | Thunnus Thu a 2 enolase | IgE plus basophil+ or SPT+ | 12 | P86978.1 | 576011132 | 15 |
| <i>Thunnus albacares</i> | Yellowfin tuna | Thu a 2.0101 | Food Animal | Thunnus Thu a 2 enolase | IgE plus basophil+ or SPT+ | 432 | I0J111.1 | 576011129 | 15 |
| <i>Thunnus albacares</i> | Yellowfin tuna | Unassigned | Food Animal | Thunnus Thu a 3 aldolase | IgE plus basophil+ or SPT+ | 364 | CAX62602.1 | 291195949 | 12 |
| <i>Thunnus albacares</i> | Yellowfin tuna | Thu a 3.0101 | Food Animal | Thunnus Thu a 3 aldolase | IgE plus basophil+ or SPT+ | 37 | P86979.1 | 576011088 | 15 |
| <i>Todarodes pacificus</i> | Japanese flying squid | Unassigned | Food Animal | Todarodes Tod p 1 | IgE but no biological test | 284 | BAE54431.1 | 83715932 | 7 |
| <i>Trachurus japonicus</i> | Japanese horse mackerel | Unassigned | Food Animal | Trachurus parvalbumin | IgE but no biological test | 107 | BAE46763.1 | 7779800 | 7 |
| <i>Tresus keenae</i> | clam | Unassigned | Food Animal | Tresus tropomyosin | IgE but no biological test | 284 | BAH10155.1 | 219806600 | 10 |
| <i>Triatoma protracta</i> | Western conenose | Tria p 1.0101 | Venom or Salivary | Triatoma Tria p 1 | IgE but no biological test | 169 | AAF07903.2 | 15426413 | 7 |
| <i>Trichophyton rubrum</i> | Fungus | Tri r 2.0101 | Contact | Trichophyton (Arthroderma) Tri r 2 | IgE plus basophil+ or SPT+ | 412 | AAD52013.1 | 5813790 | 7 |
| <i>Trichophyton rubrum</i> | Fungus | Tri r 4.0101 | Contact | Trichophyton tri 4 allergen (Arthroderma) | IgE plus basophil+ or SPT+ | 726 | AAD52012.1 | 5813788 | 7 |
| <i>Trichophyton schoenleinii</i> | Fungus | Unassigned | Contact | Trichophyton (Arthroderma) Tri r 2 | IgE plus basophil+ or SPT+ | 405 | Q8J077.1 | 74663809 | 12 |
| <i>Trichophyton schoenleinii</i> | Fungus | Unassigned | Contact | Trichophyton tri 4 allergen (Arthroderma) | IgE plus basophil+ or SPT+ | 726 | CAD23374.1 | 23894227 | 7 |
| <i>Triticum aestivum</i> | Wheat | Unassigned | Food Plant | Triticum Tri a 14 LTP_ amylase inhibitor | IgE plus basophil+ or SPT+ | 113 | P24296.2 | 417370 | 11 |
| <i>Triticum aestivum</i> | Wheat | Tri a 40.0101 | Aero Plant | Triticum aestivum Tri a 40 | IgE but no biological test | 143 | CAA42453.1 | 21711 | 7 |
| <i>Triticum aestivum</i> | Wheat | Unassigned | Food Plant | Triticum aestivum Tri a 40 | IgE but no biological test | 143 | ACG59281.1 | 195957140 | 10 |
| <i>Triticum aestivum</i> | Wheat | Tri a 41.0101 | Aero Plant | Triticum aestivum Tri a 41 | IgE but no biological test | 60 | AKJ77988.1 | 827354845 | 16 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stA Version |
|-------------------|--------|----------------|------------|---|----------------------------|--------|------------|------------|--------------|
| Triticum aestivum | Wheat | Tri a 42.0101 | Aero Plant | Triticum aestivum Tri a 42 | IgE but no biological test | 76 | AKJ77986.1 | 827354790 | 16 |
| Triticum aestivum | Wheat | Tri a 43.0101 | Aero Plant | Triticum aestivum Tri a 43 | IgE but no biological test | 108 | AKJ77987.1 | 827354822 | 16 |
| Triticum aestivum | Wheat | Unassigned | Food Plant | Triticum aestivum Tri a 44 | IgE but no biological test | 94 | CAI64398.1 | 66840998 | 7 |
| Triticum aestivum | Wheat | Tri a 44.0101 | Aero Plant | Triticum aestivum Tri a 44 | IgE but no biological test | 107 | AKJ77990.1 | 827354912 | 16 |
| Triticum aestivum | Wheat | Tri a 45.0101 | Aero Plant | Triticum aestivum Tri a 45 | IgE but no biological test | 89 | AKJ77985.1 | 827354784 | 16 |
| Triticum aestivum | Wheat | Unassigned | Gladiin | Triticum alpha/beta gliadin | IgE plus basophil+ or SPT+ | 307 | CAA35238.1 | 21673 | 7 |
| Triticum aestivum | Wheat | Unassigned | Gladiin | Triticum alpha/beta gliadin | IgE plus basophil+ or SPT+ | 286 | CAA25593.1 | 21755 | 7 |
| Triticum aestivum | Wheat | Unassigned | Gladiin | Triticum alpha/beta gliadin | IgE plus basophil+ or SPT+ | 296 | CAA26383.1 | 21757 | 7 |
| Triticum aestivum | Wheat | Unassigned | Gladiin | Triticum alpha/beta gliadin | IgE plus basophil+ or SPT+ | 286 | CAA26384.1 | 21761 | 7 |
| Triticum aestivum | Wheat | Unassigned | Gladiin | Triticum alpha/beta gliadin | IgE plus basophil+ or SPT+ | 313 | CAA26385.1 | 21765 | 7 |
| Triticum aestivum | Wheat | Unassigned | Gladiin | Triticum alpha/beta gliadin | IgE plus basophil+ or SPT+ | 318 | AAA34275.1 | 170710 | 7 |
| Triticum aestivum | Wheat | Unassigned | Gladiin | Triticum alpha/beta gliadin | IgE plus basophil+ or SPT+ | 291 | AAA34276.1 | 170712 | 7 |
| Triticum aestivum | Wheat | Unassigned | Gladiin | Triticum alpha/beta gliadin | IgE plus basophil+ or SPT+ | 313 | AAA34279.1 | 170718 | 7 |
| Triticum aestivum | Wheat | Unassigned | Gladiin | Triticum alpha/beta gliadin | IgE plus basophil+ or SPT+ | 286 | AAA34280.1 | 170720 | 7 |
| Triticum aestivum | Wheat | Unassigned | Gladiin | Triticum alpha/beta gliadin | IgE plus basophil+ or SPT+ | 262 | AAA34281.1 | 170722 | 7 |
| Triticum aestivum | Wheat | Unassigned | Gladiin | Triticum alpha/beta gliadin | IgE plus basophil+ or SPT+ | 297 | AAA34282.1 | 170724 | 7 |
| Triticum aestivum | Wheat | Unassigned | Gladiin | Triticum alpha/beta gliadin | IgE plus basophil+ or SPT+ | 282 | AAA34283.1 | 170726 | 7 |
| Triticum aestivum | Wheat | Unassigned | Gladiin | Triticum alpha/beta gliadin | IgE plus basophil+ or SPT+ | 186 | AAA34284.1 | 170728 | 7 |
| Triticum aestivum | Wheat | Unassigned | Gladiin | Triticum alpha/beta gliadin | IgE plus basophil+ or SPT+ | 259 | BAA12318.1 | 1304264 | 7 |
| Triticum aestivum | Wheat | Unassigned | Aero Plant | Triticum Bakers asthma allergen #4 | IgE but no biological test | 27 | P81496.1 | 3913017 | 7 |
| Triticum aestivum | Wheat | Unassigned | Aero Plant | Triticum flour Glutathione Transferase | IgE plus basophil+ or SPT+ | 222 | ACE82289.1 | 190684057 | 11 |
| Triticum aestivum | Wheat | Tri a 19.0101 | Food Plant | Triticum omega-5 gliadin Tri a 19 | IgE plus basophil+ or SPT+ | 439 | BAE20328.1 | 73912496 | 7 |
| Triticum aestivum | Wheat | Unassigned | Food Plant | Triticum omega-5 gliadin Tri a 19 | IgE plus basophil+ or SPT+ | 359 | CAR82265.1 | 208605344 | 10 |
| Triticum aestivum | Wheat | Unassigned | Food Plant | Triticum omega-5 gliadin Tri a 19 | IgE plus basophil+ or SPT+ | 272 | CAR82266.1 | 208605346 | 10 |
| Triticum aestivum | Wheat | Unassigned | Food Plant | Triticum omega-5 gliadin Tri a 19 | IgE plus basophil+ or SPT+ | 346 | CAR82267.1 | 208605348 | 10 |
| Triticum aestivum | Wheat | Unassigned | Gladiin | Triticum omega-5 gliadin Tri a 19 | IgE plus basophil+ or SPT+ | 366 | BAN29067.1 | 508732623 | 15 |
| Triticum aestivum | Wheat | Unassigned | Food Plant | Triticum putative leucine-rich repeat protein | IgE but no biological test | 137 | CAI64397.1 | 66840996 | 7 |
| Triticum aestivum | Wheat | Unassigned | Food Plant | Triticum serine carboxypeptidase II | IgE but no biological test | 260 | CAI64396.1 | 66840994 | 7 |
| Triticum aestivum | Wheat | Unassigned | Food Plant | Triticum serine carboxypeptidase II | IgE but no biological test | 444 | P08819.2 | 125987805 | 10 |
| Triticum aestivum | Wheat | Unassigned | Food Plant | Triticum Thaumatin-like | IgE but no biological test | 173 | P27357.1 | 135917 | 12 |
| Triticum aestivum | Wheat | Unassigned | Food Plant | Triticum Tri a 12 | IgE but no biological test | 131 | ACE82291.1 | 190684061 | 11 |
| Triticum aestivum | Wheat | Tri a 12.0103 | Food Plant | Triticum Tri a 12 | IgE but no biological test | 131 | CAA61945.2 | 548948852 | 14 |
| Triticum aestivum | Wheat | Tri a 12.0101 | Food Plant | Triticum Tri a 12 | IgE but no biological test | 131 | CAA61943.2 | 548948848 | 15 |
| Triticum aestivum | Wheat | Tri a 12.0102 | Food Plant | Triticum Tri a 12 | IgE but no biological test | 131 | CAA61944.2 | 548948850 | 15 |
| Triticum aestivum | Wheat | Tri a 12.0104 | Food Plant | Triticum Tri a 12 | IgE but no biological test | 131 | CAQ57979.1 | 207366248 | 15 |
| Triticum aestivum | Wheat | Tri a 15.0101 | Aero Plant | Triticum Tri a 15 | IgE but no biological test | 121 | CB113560.1 | 283465829 | 11 |
| Triticum aestivum | Wheat | Tri a 17.0101 | Food Plant | Triticum Tri a 17 | IgE plus basophil+ or SPT+ | 509 | 6GER_A | 1540347225 | 19 |
| Triticum aestivum | Wheat | Unassigned | Gladiin | Triticum Tri a 20 | IgE plus basophil+ or SPT+ | 302 | AAA34272.1 | 170702 | 7 |
| Triticum aestivum | Wheat | Unassigned | Gladiin | Triticum Tri a 20 | IgE plus basophil+ or SPT+ | 291 | AAA34274.1 | 170708 | 7 |
| Triticum aestivum | Wheat | Unassigned | Gladiin | Triticum Tri a 20 | IgE plus basophil+ or SPT+ | 251 | AAA34288.1 | 170736 | 7 |
| Triticum aestivum | Wheat | Unassigned | Gladiin | Triticum Tri a 20 | IgE plus basophil+ or SPT+ | 327 | AAA34289.1 | 170738 | 7 |
| Triticum aestivum | Wheat | Unassigned | Gladiin | Triticum Tri a 20 | IgE plus basophil+ or SPT+ | 279 | BAA11251.1 | 1063270 | 7 |
| Triticum aestivum | Wheat | Unassigned | Gladiin | Triticum Tri a 20 | IgE plus basophil+ or SPT+ | 285 | CAI78902.1 | 62484809 | 7 |
| Triticum aestivum | Wheat | Tri a 20.0101 | Food Plant | Triticum Tri a 20 | IgE plus basophil+ or SPT+ | 279 | BAN29066.1 | 508732621 | 15 |
| Triticum aestivum | Wheat | Tri a 21.0101 | Food Plant | Triticum Tri a 21 alpha, beta-gliadin | IgE but no biological test | 281 | CAY54134.1 | 283476402 | 11 |
| Triticum aestivum | Wheat | Tri a 25.0101 | Aero Plant | Triticum Tri a 25 | IgE but no biological test | 125 | CB896931.1 | 8980491 | 15 |
| Triticum aestivum | Wheat | Unassigned | Food Plant | Triticum Tri a 26 | IgE plus basophil+ or SPT+ | 830 | CAA43331.1 | 21743 | 7 |
| Triticum aestivum | Wheat | Unassigned | Food Plant | Triticum Tri a 26 | IgE plus basophil+ or SPT+ | 648 | CAA31396.1 | 21751 | 7 |
| Triticum aestivum | Wheat | Unassigned | Food Plant | Triticum Tri a 26 | IgE plus basophil+ or SPT+ | 660 | CAA26847.1 | 21779 | 7 |
| Triticum aestivum | Wheat | Unassigned | Food Plant | Triticum Tri a 26 | IgE plus basophil+ or SPT+ | 705 | CAA24934.1 | 21793 | 7 |
| Triticum aestivum | Wheat | Unassigned | Food Plant | Triticum Tri a 26 | IgE plus basophil+ or SPT+ | 39 | CAA43361.1 | 22090 | 7 |
| Triticum aestivum | Wheat | Unassigned | Food Plant | Triticum Tri a 26 | IgE plus basophil+ or SPT+ | 815 | AA802788.1 | 170743 | 7 |
| Triticum aestivum | Wheat | Unassigned | Food Plant | Triticum Tri a 26 | IgE plus basophil+ or SPT+ | 838 | CAA27052.1 | 736319 | 7 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stA Version |
|---|-----------|----------------|------------|---|----------------------------|--------|------------|------------|--------------|
| Triticum aestivum | Wheat | Unassigned | Food Plant | Triticum Tri a 26 | IgE plus basophil+ or SPT+ | 101 | CAA24933.1 | 897811 | 7 |
| Triticum aestivum | Wheat | Unassigned | Gladiin | Triticum Tri a 26 | IgE plus basophil+ or SPT+ | 794 | BAN29068.1 | 508732625 | 15 |
| Triticum aestivum | Wheat | Tri a 26.0101 | Food Plant | Triticum Tri a 26 | IgE plus basophil+ or SPT+ | 848 | CAA31395.4 | 288860106 | 15 |
| Triticum aestivum | Wheat | Tri a 26.0201 | Food Plant | Triticum Tri a 26 | IgE plus basophil+ or SPT+ | 795 | AA223584.1 | 71084277 | 15 |
| Triticum aestivum | Wheat | Unassigned | Food Plant | Triticum Tri a 27.0101 Thiol reductase | IgE but no biological test | 203 | BAC76688.1 | 30793446 | 7 |
| Triticum aestivum | Wheat | Tri a 28.0101 | Food Plant | Triticum Tri a 28 | IgE but no biological test | 119 | CAI84642.1 | 66841026 | 7 |
| Triticum aestivum | Wheat | Unassigned | Aero Plant | Triticum Tri a 29 | IgE plus basophil+ or SPT+ | 145 | CAA35598.1 | 21701 | 7 |
| Triticum aestivum | Wheat | Tri a 29.0101 | Aero Plant | Triticum Tri a 29 | IgE plus basophil+ or SPT+ | 120 | CAZ76052.1 | 253783731 | 11 |
| Triticum aestivum | Wheat | Tri a 29.0201 | Aero Plant | Triticum Tri a 29 | IgE plus basophil+ or SPT+ | 120 | CBA13559.1 | 283465827 | 11 |
| Triticum aestivum | Wheat | Tri a 30.0101 | Aero Plant | Triticum Tri a 30 | IgE plus basophil+ or SPT+ | 168 | CAA35597.1 | 21713 | 7 |
| Triticum aestivum | Wheat | Tri a 31.0101 | Aero Plant | Triticum Tri a 31 | IgE but no biological test | 253 | CAC14917.1 | 11124572 | 7 |
| Triticum aestivum | Wheat | Unassigned | Aero Plant | Triticum Tri a 32 Peroxiredoxin | IgE plus basophil+ or SPT+ | 218 | ACE82290.1 | 190684059 | 11 |
| Triticum aestivum | Wheat | Tri a 32.0101 | Aero Plant | Triticum Tri a 32 Peroxiredoxin | IgE plus basophil+ or SPT+ | 218 | Q6W8Q2.1 | 75324900 | 14 |
| Triticum aestivum | Wheat | Unassigned | Aero Plant | Triticum Tri a 33 Serine protease inhibitor | IgE but no biological test | 399 | CAA72273.1 | 1885350 | 7 |
| Triticum aestivum | Wheat | Tri a 33.0101 | Aero Plant | Triticum Tri a 33 Serine protease inhibitor | IgE but no biological test | 398 | CAB52710.1 | 5734506 | 15 |
| Triticum aestivum | Wheat | Tri a 34.0101 | Aero Plant | Triticum Tri a 34 GAPDH | IgE but no biological test | 337 | CAZ76054.1 | 253783729 | 11 |
| Triticum aestivum | Wheat | Unassigned | Food Plant | Triticum Tri a 36 | IgE but no biological test | 307 | CAA31685.1 | 21773 | 7 |
| Triticum aestivum | Wheat | Unassigned | Food Plant | Triticum Tri a 36 | IgE but no biological test | 356 | CAA30570.1 | 21783 | 7 |
| Triticum aestivum | Wheat | Unassigned | Gladiin | Triticum Tri a 36 | IgE but no biological test | 304 | AAA34285.1 | 170730 | 7 |
| Triticum aestivum | Wheat | Unassigned | Gladiin | Triticum Tri a 36 | IgE but no biological test | 323 | AAA34286.1 | 170732 | 7 |
| Triticum aestivum | Wheat | Unassigned | Gladiin | Triticum Tri a 36 | IgE but no biological test | 244 | AAA34287.1 | 170734 | 7 |
| Triticum aestivum | Wheat | Unassigned | Food Plant | Triticum Tri a 36 | IgE but no biological test | 373 | O22116 | 75317968 | 7 |
| Triticum aestivum | Wheat | Unassigned | Food Plant | Triticum Tri a 36 | IgE but no biological test | 229 | CAA59338.1 | 886963 | 7 |
| Triticum aestivum | Wheat | Unassigned | Food Plant | Triticum Tri a 36 | IgE but no biological test | 261 | CAA59339.1 | 886965 | 7 |
| Triticum aestivum | Wheat | Unassigned | Food Plant | Triticum Tri a 36 | IgE but no biological test | 276 | CAA59340.1 | 886967 | 7 |
| Triticum aestivum | Wheat | Unassigned | Food Plant | Triticum Tri a 36 | IgE but no biological test | 285 | O22108 | 75219081 | 7 |
| Triticum aestivum | Wheat | Unassigned | Food Plant | Triticum Tri a 36 | IgE but no biological test | 326 | CAI79052.1 | 62550933 | 7 |
| Triticum aestivum | Wheat | Tri a 36.0101 | Food Plant | Triticum Tri a 36 | IgE but no biological test | 369 | AEH31546.1 | 335331566 | 12 |
| Triticum aestivum | Wheat | Unassigned | Gladiin | Triticum Tri a 36 | IgE but no biological test | 283 | BAN29069.1 | 508732627 | 15 |
| Triticum aestivum | Wheat | Tri a 37.0101 | Food Plant | Triticum Tri a 37 alpha purothionin | IgE but no biological test | 137 | CAA65313.1 | 4007850 | 14 |
| Triticum aestivum | Wheat | Unassigned | Aero Plant | Triticum Tri a 39 serine proteinase inhibitor-lik | IgE but no biological test | 84 | ABS58503.1 | 154101366 | 10 |
| Triticum aestivum | Wheat | Unassigned | Aero Plant | Triticum Tri a 39 serine proteinase inhibitor-lik | IgE but no biological test | 84 | P82977.2 | 122065237 | 11 |
| Triticum aestivum | Wheat | Tri a 39.0101 | Aero Plant | Triticum Tri a 39 serine proteinase inhibitor-lik | IgE but no biological test | 84 | CCK33471.1 | 403213259 | 14 |
| Triticum aestivum | Wheat | Tri tu 14 | Food Plant | Triticum Tri tu 14 | IgE plus basophil+ or SPT+ | 115 | CAH69206.1 | 84617221 | 19 |
| Triticum monococcum subsp. aegilopoides | | Unassigned | Gladiin | Triticum alpha/beta gliadin | IgE plus basophil+ or SPT+ | 293 | APY24042.1 | 1137166044 | 18 |
| Triticum turgidum subsp. durum | Wheat | Unassigned | Food Plant | Triticum aestivum Tri a 40 | IgE but no biological test | 143 | CAA34709.1 | 21916 | 7 |
| Triticum turgidum subsp. durum | Wheat | Unassigned | Aero Plant | Triticum Tri a 29 | IgE plus basophil+ or SPT+ | 145 | CAA39099.1 | 21920 | 7 |
| Triticum turgidum subsp. durum | Wheat | Unassigned | Food Plant | Triticum Tri a 36 | IgE but no biological test | 295 | CAA36063.1 | 21926 | 7 |
| Triticum turgidum subsp. durum | Wheat | Unassigned | Food Plant | Triticum Tri a 36 | IgE but no biological test | 285 | CAA44473.1 | 21930 | 7 |
| Triticum urartu | Wheat | Unassigned | Gladiin | Triticum alpha/beta gliadin | IgE plus basophil+ or SPT+ | 296 | AAA34290.1 | 170740 | 7 |
| Tyrophagus putrescentiae | Dust mite | Unassigned | Aero Mite | Tyr p 1 | IgE but no biological test | 336 | ABM53753.1 | 121296504 | 9 |
| Tyrophagus putrescentiae | Dust mite | Unassigned | Aero Mite | Tyr p 20 | IgE but no biological test | 357 | QOI58528.1 | 1914565355 | 21 |
| Tyrophagus putrescentiae | Dust mite | Unassigned | Aero Mite | Tyr p 7 | IgE but no biological test | 212 | ABM53750.1 | 121296498 | 9 |
| Tyrophagus putrescentiae | Dust mite | Unassigned | Aero Mite | Tyr p 7 | IgE but no biological test | 207 | ABM53755.1 | 121296508 | 9 |
| Tyrophagus putrescentiae | Dust mite | Unassigned | Aero Mite | Tyrophagus Blo-t-5-like loose group | IgE but no biological test | 135 | AAX34057.1 | 60679590 | 9 |
| Tyrophagus putrescentiae | Dust mite | Unassigned | Aero Mite | Tyrophagus Blo-t-5-like loose group | IgE but no biological test | 128 | AAX34058.1 | 60679592 | 9 |
| Tyrophagus putrescentiae | Dust mite | Unassigned | Aero Mite | Tyrophagus Blo-t-5-like loose group | IgE but no biological test | 138 | AAX34059.1 | 60679594 | 9 |
| Tyrophagus putrescentiae | Dust mite | Tyr p 28.0101 | Aero Mite | Tyrophagus putrescentiae Tyr p 28 | IgE but no biological test | 659 | AOD75395.1 | 1055365842 | 17 |
| Tyrophagus putrescentiae | Dust mite | Tyr p 35.0101 | Aero Mite | Tyrophagus putrescentiae Tyr p 35 | IgE but no biological test | 486 | AOD75396.1 | 1055365860 | 17 |
| Tyrophagus putrescentiae | Dust mite | Tyr p 36.0101 | Aero Mite | Tyrophagus putrescentiae Tyr p 36 | IgE but no biological test | 131 | AOD75399.1 | 1055365943 | 17 |
| Tyrophagus putrescentiae | Dust mite | Unassigned | Aero Mite | Tyrophagus Tyr p 10 tropomyosin | IgE but no biological test | 284 | ABQ9644.1 | 148615631 | 9 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stA Version |
|--------------------------|----------------------|----------------|-------------------|---|----------------------------|--------|------------|------------|--------------|
| Tyrophagus putrescentiae | Dust mite | Unassigned | Aero Mite | Tyrophagus Tyr p 10 tropomyosin | IgE but no biological test | 201 | ABU97479.1 | 156938915 | 9 |
| Tyrophagus putrescentiae | Dust mite | Tyr p 10.0101 | Aero Mite | Tyrophagus Tyr p 10 tropomyosin | IgE but no biological test | 284 | AAT40866.1 | 48249227 | 9 |
| Tyrophagus putrescentiae | Dust mite | Tyr p 13.0101 | Aero Mite | Tyrophagus Tyr p 13 | IgE but no biological test | 131 | AAU11502.1 | 51860756 | 7 |
| Tyrophagus putrescentiae | Dust mite | Unassigned | Aero Mite | Tyrophagus Tyr p 13 | IgE but no biological test | 130 | ABM53751.1 | 121296500 | 9 |
| Tyrophagus putrescentiae | Dust mite | Unassigned | Aero Mite | Tyrophagus Tyr p 13 | IgE but no biological test | 131 | ABU97480.1 | 156938917 | 9 |
| Tyrophagus putrescentiae | Dust mite | Tyr p 2.0101 | Aero Mite | Tyrophagus Tyr p 2 | IgE but no biological test | 141 | CAA73221.1 | 2182106 | 7 |
| Tyrophagus putrescentiae | Dust mite | Tyr p 34.0101 | Aero Mite | Tyrophagus Tyr p 24 Troponin C | IgE but no biological test | 153 | ACL36923.1 | 219815476 | 11 |
| Tyrophagus putrescentiae | Dust mite | Unassigned | Aero Mite | Tyrophagus Tyr p 8 | IgE plus basophil+ or SPT+ | 218 | AGG10560.1 | 452215228 | 14 |
| Ulocladium alternariae | Fungus | Unassigned | Aero Fungi | Ulocladium alt a1-like | IgE but no biological test | 138 | AAT66607.1 | 49476547 | 7 |
| Ulocladium atrum | Fungus | Unassigned | Aero Fungi | Ulocladium alt a1-like | IgE but no biological test | 137 | AAT66609.1 | 49476551 | 7 |
| Ulocladium capsicum | | Unassigned | Aero Fungi | Ulocladium alt a1-like | IgE but no biological test | 134 | ACH42744.1 | 197110100 | 10 |
| Ulocladium chartarum | Fungus | Unassigned | Aero Fungi | Ulocladium alt a1-like | IgE but no biological test | 137 | AAT66610.1 | 49476553 | 7 |
| Ulocladium dauci | | Unassigned | Aero Fungi | Ulocladium alt a1-like | IgE but no biological test | 137 | ACJ65836.1 | 215399749 | 11 |
| Ulocladium microsporum | | Unassigned | Aero Fungi | Ulocladium alt a1-like | IgE but no biological test | 138 | AGC36415.1 | 441467668 | 18 |
| Ulocladium oudemansii | | Unassigned | Aero Fungi | Ulocladium alt a1-like | IgE but no biological test | 137 | ACH42743.1 | 197110098 | 10 |
| Ulocladium oudemansii | | Unassigned | Aero Fungi | Ulocladium alt a1-like | IgE but no biological test | 138 | ACI44002.1 | 209363467 | 10 |
| Ulocladium sp. CID262 | | Unassigned | Aero Fungi | Ulocladium alt a1-like | IgE but no biological test | 137 | ABQ59259.1 | 148357923 | 9 |
| Ulocladium sp. CID598 | | Unassigned | Aero Fungi | Ulocladium alt a1-like | IgE but no biological test | 137 | ABQ59258.1 | 148357921 | 9 |
| Ulocladium sp. CID68 | | Unassigned | Aero Fungi | Ulocladium alt a1-like | IgE but no biological test | 137 | ABQ59255.1 | 148357915 | 9 |
| Ulocladium sp. HSAUP1144 | | Unassigned | Aero Fungi | Ulocladium alt a1-like | IgE but no biological test | 138 | ACJ54737.1 | 213958825 | 11 |
| Ulocladium sp. XGZ-2008 | | Unassigned | Aero Fungi | Ulocladium alt a1-like | IgE but no biological test | 137 | ACH42741.1 | 197110094 | 10 |
| Ulocladium sp. XGZ-2011a | | Unassigned | Aero Fungi | Ulocladium alt a1-like | IgE but no biological test | 137 | AGC36416.1 | 441467671 | 18 |
| Urochloa mutica | | Unassigned | Aero Plant | Uro m 1 beta expansin | IgE but no biological test | 262 | QC892083.1 | 161884852 | 20 |
| Vachellia farnesiana | | Unassigned | Aero Plant | Acacia (Vachellia) Aca f 1 | IgE but no biological test | 150 | AKV72166.1 | 91410006 | 17 |
| Vachellia farnesiana | | Unassigned | Aero Plant | Acacia (Vachellia) profilin Aca f 2 | IgE but no biological test | 133 | AIV43662.1 | 701225196 | 17 |
| Venerupis philippinarum | Clam | Unassigned | Food Animal | Venerupis tropomyosin | IgE but no biological test | 284 | BAH10157.1 | 219806573 | 10 |
| Vespa affinis | Lesser banded hornet | Unassigned | Venom or Salivary | Vespa affinis Phospholipase A1 | IgE plus basophil+ or SPT+ | 334 | PODMB5.1 | 576011175 | 15 |
| Vespa affinis | Lesser banded hornet | Unassigned | Venom or Salivary | Vespa affinis Phospholipase A1 | IgE plus basophil+ or SPT+ | 334 | PODMB4.1 | 576011171 | 15 |
| Vespa crabro | European hornet | Vesp c 1.0101 | Venom or Salivary | Vespa Vesp c 1 phospholipase | IgE but no biological test | 301 | POCH87.1 | 313471397 | 12 |
| Vespa crabro | European hornet | Vesp c 5.0101 | Venom or Salivary | Vespa Vesp c 5 and Vesp m 5 | IgE but no biological test | 202 | P35781.1 | 549184 | 7 |
| Vespa crabro | European hornet | Vesp c 5.0102 | Venom or Salivary | Vespa Vesp c 5 and Vesp m 5 | IgE but no biological test | 202 | P35782.1 | 549185 | 7 |
| Vespa magnifica | Hornet | Unassigned | Venom or Salivary | Vespa magnifica Vesp ma 2 hyaluronidase | IgE plus basophil+ or SPT+ | 357 | CBY83816.1 | 315133295 | 12 |
| Vespa magnifica | Hornet | Unassigned | Venom or Salivary | Vespa magnifica Vesp ma 5 | IgE plus basophil+ or SPT+ | 225 | CBY93636.1 | 319801357 | 12 |
| Vespa mandarinia | Wasp | Vesp m 5.0101 | Venom or Salivary | Vespa Vesp c 5 and Vesp m 5 | IgE but no biological test | 202 | P81657.1 | 6136165 | 7 |
| Vespa velutina | | Unassigned | Venom or Salivary | Vesp v 1 | IgE but no biological test | 304 | COHLL3.1 | 1859677007 | 21 |
| Vespa velutina | | Unassigned | Venom or Salivary | Vesp v 5 | IgE but no biological test | 202 | PODMB9.2 | 1859630616 | 21 |
| Vespula flavopilosa | Wasp | Ves f 5.0101 | Venom or Salivary | Vespula antigen 5 Ves f, v, s 5 | IgE plus basophil+ or SPT+ | 204 | P35783.1 | 549189 | 7 |
| Vespula germanica | Wasp | Ves g 5.0101 | Venom or Salivary | Vespula antigen 5 Ves f, v, s 5 | IgE plus basophil+ or SPT+ | 204 | P35784.1 | 549190 | 7 |
| Vespula germanica | Wasp | Unassigned | Venom or Salivary | Vespula antigen 5 Ves f, v, s 5 | IgE plus basophil+ or SPT+ | 204 | CAJ28930.1 | 74035841 | 7 |
| Vespula germanica | Wasp | Unassigned | Venom or Salivary | Vespula Phospholipase A1- Ves m/v 1 | IgE plus basophil+ or SPT+ | 300 | CAJ28931.1 | 74035843 | 7 |
| Vespula germanica | Wasp | Unassigned | Venom or Salivary | Vespula Ves v 2 | IgE plus basophil+ or SPT+ | 331 | CALS9818.1 | 116174180 | 8 |
| Vespula germanica | Wasp | Unassigned | Venom or Salivary | Vespula Ves v 2 | IgE plus basophil+ or SPT+ | 323 | CALS9819.1 | 116174182 | 8 |
| Vespula maculifrons | Wasp | Ves m 5.0101 | Venom or Salivary | Vespula antigen 5 Ves f, v, s 5 | IgE plus basophil+ or SPT+ | 204 | P35760.1 | 549191 | 7 |
| Vespula maculifrons | Wasp | Unassigned | Venom or Salivary | Vespula antigen 5 Ves f, v, s 5 | IgE plus basophil+ or SPT+ | 227 | ABC73068.1 | 85681830 | 7 |
| Vespula maculifrons | Wasp | Vesp m 1.0101 | Venom or Salivary | Vespula Phospholipase A1- Ves m/v 1 | IgE plus basophil+ or SPT+ | 300 | P51528.1 | 1709545 | 8 |
| Vespula maculifrons | Wasp | Ves m 2.0101 | Venom or Salivary | Vespula Ves m 2 Hyaluronidase | IgE but no biological test | 31 | POCH89.1 | 313118253 | 12 |
| Vespula pensylvanica | Wasp | Ves p 5.0101 | Venom or Salivary | Vespula antigen 5 Ves f, v, s 5 | IgE plus basophil+ or SPT+ | 204 | P35785.1 | 549192 | 7 |
| Vespula squamosa | Wasp | Ves s 5.0101 | Venom or Salivary | Vespula antigen 5 Ves f, v, s 5 | IgE plus basophil+ or SPT+ | 205 | P35786.1 | 549193 | 7 |
| Vespula squamosa | Wasp | Ves s 1.0101 | Venom or Salivary | Vespula Ves s 1 phospholipase | IgE but no biological test | 298 | POCH86.1 | 313471398 | 12 |
| Vespula vidua | Wasp | Ves vi 5.0101 | Venom or Salivary | Vespula antigen 5 Ves f, v, s 5 | IgE plus basophil+ or SPT+ | 206 | P35787.1 | 549194 | 7 |
| Vespula vulgaris | Wasp | Ves v 5.0101 | Venom or Salivary | Vespula antigen 5 Ves f, v, s 5 | IgE plus basophil+ or SPT+ | 227 | AAA30333.1 | 162551 | 7 |
| Vespula vulgaris | Wasp | Ves v 5 | Venom or Salivary | Vespula antigen 5 Ves f, v, s 5 | IgE plus basophil+ or SPT+ | 204 | CAB42887.1 | 4826574 | 7 |
| Vespula vulgaris | Wasp | Ves v 5 | Venom or Salivary | Vespula antigen 5 Ves f, v, s 5 | IgE plus basophil+ or SPT+ | 209 | 1QNX_A | 11514279 | 7 |

| Species | Common | IUISA Allergen | Type | Group | Allergenicity | Length | Accession | GI# | 1stÅ Version |
|----------------------------|--------------|----------------|-------------------|--|----------------------------|--------|--------------|------------|--------------|
| Vespula vulgaris | Wasp | Vesp v 1.0101 | Venom or Salivary | Vespula Phospholipase A1- Ves m/v 1 | IgE plus basophil+ or SPT+ | 336 | AAB48072.1 | 897647 | 7 |
| Vespula vulgaris | Wasp | | Venom or Salivary | Vespula Ves v 2 | IgE plus basophil+ or SPT+ | 331 | P49370.1 | 1346323 | 7 |
| Vespula vulgaris | Wasp | Ves v 2.0101 | Venom or Salivary | Vespula Ves v 2 | IgE plus basophil+ or SPT+ | 340 | CAI77218.1 | 62147665 | 7 |
| Vespula vulgaris | Wasp | Unassigned | Venom or Salivary | Vespula Ves v 2 | IgE plus basophil+ or SPT+ | 331 | 2ATM_A | 109157163 | 8 |
| Vespula vulgaris | Wasp | Ves v 3.0101 | Venom or Salivary | Vespula Ves v 3 dipeptidylpeptidase IV | IgE plus basophil+ or SPT+ | 776 | ACA00159.1 | 167782086 | 9 |
| Vigna radiata | mung bean | Vig r 1.0101 | Food Plant | Vigna Vig r 1 PR 10 | IgE but no biological test | 155 | AAX19889.1 | 60418924 | 7 |
| Vigna radiata | mung bean | Vig r 2.0101 | Food Plant | Vigna Vig r 2 | IgE but no biological test | 453 | ABG02262.1 | 108743976 | 15 |
| Vigna radiata | mung bean | Vig r 2.0201 | Food Plant | Vigna Vig r 2 | IgE but no biological test | 454 | ABW23574.1 | 158251953 | 15 |
| Vigna radiata | mung bean | Vig r 6.0101 | Food Plant | Vigna Vig r 6 Cytokinin-specific binding protein | IgE but no biological test | 155 | BAA74451.1 | 4190976 | 14 |
| Vigna radiata var. radiata | mung bean | Vig r 4.0101 | Food Plant | Vigna Vig r 4 | IgE but no biological test | 272 | CAA50008.1 | 1000708 | 15 |
| Vigna radiata var. radiata | mung bean | Unassigned | Food Plant | Vigna Vig r 6 Cytokinin-specific binding protein | IgE but no biological test | 155 | AOA153THR8.1 | 1559988738 | 20 |
| Vitis sp. | Grape | Unassigned | Food Plant | Vitis Lipid transfer protein P3 | IgE but no biological test | 91 | P80273.2 | 145559502 | 8 |
| Vitis sp. | Grape | | Food Plant | Vitis Vit v 1 LTP | IgE but no biological test | 37 | P80274.1 | 462719 | 7 |
| Vitis sp. | Grape | Unassigned | Food Plant | Vitis Vit v 1 LTP | IgE but no biological test | 38 | P33556.1 | 462717 | 7 |
| Xiphias gladius | Swordfish | Xip g 1.0101 | Food Animal | Xiphias Xip g 1 beta-parvalbumin | IgE but no biological test | 109 | CAR48256.1 | 222352960 | 10 |
| Zea mays | Corn | Unassigned | Aero Plant | Zea group 13 pollen allergen | IgE but no biological test | 410 | ABD79096.1 | 89892725 | 7 |
| Zea mays | Corn | Unassigned | Aero Plant | Zea group 13 pollen allergen | IgE but no biological test | 404 | ABD79097.1 | 89892727 | 7 |
| Zea mays | Corn | Unassigned | Aero Plant | Zea group 13 pollen allergen | IgE but no biological test | 411 | ABD79098.1 | 89892729 | 7 |
| Zea mays | Corn | Zea m 8.0101 | Food Plant | Zea mays Zea m 8 | IgE but no biological test | 278 | ACX37090.1 | 260401081 | 17 |
| Zea mays | Corn | Unassigned | Food Plant | Zea mays Zea m 8 | IgE but no biological test | 280 | P29022.1 | 116329 | 17 |
| Zea mays | Corn | Unassigned | Aero Plant | Zea pollen specific protein | IgE but no biological test | 170 | 2209273A | 1588669 | 7 |
| Zea mays | Corn | Unassigned | Aero Plant | Zea Zea m 1 beta-expansin | IgE but no biological test | 269 | AAO45608.1 | 28630923 | 7 |
| Zea mays | Corn | Unassigned | Aero Plant | Zea Zea m 1 beta-expansin | IgE but no biological test | 269 | AAK56124.1 | 14193761 | 8 |
| Zea mays | Corn | Unassigned | Aero Plant | Zea Zea m 1 beta-expansin | IgE but no biological test | 245 | 2HCZ_X | 114794319 | 8 |
| Zea mays | Corn | Unassigned | Aero Plant | Zea Zea m 1 beta-expansin | IgE but no biological test | 191 | AAA33496.1 | 293902 | 11 |
| Zea mays | Corn | Unassigned | Aero Plant | Zea Zea m 1 isoform | IgE but no biological test | 263 | ABD79094.1 | 89892721 | 7 |
| Zea mays | Corn | Unassigned | Aero Plant | Zea Zea m 1 isoform | IgE but no biological test | 252 | ABD79095.1 | 89892723 | 7 |
| Zea mays | Corn | Unassigned | Aero Plant | Zea Zea m 1 isoform | IgE but no biological test | 99 | ABF81661.1 | 105969543 | 8 |
| Zea mays | Corn | Unassigned | Aero Plant | Zea Zea m 1 isoform | IgE but no biological test | 269 | ABF81662.1 | 105969545 | 8 |
| Zea mays | Corn | Unassigned | Aero Plant | Zea Zea m 1 isoform | IgE but no biological test | 270 | Q1ZYQ8.2 | 115502167 | 9 |
| Zea mays | Corn | Unassigned | Aero Plant | Zea Zea m 1 isoform | IgE but no biological test | 269 | POC1Y5.1 | 115502168 | 9 |
| Zea mays | Corn | Zea m 12.0104 | Food Plant | Zea Zea m 12 profilin | IgE but no biological test | 131 | AAB86960.1 | 2642324 | 7 |
| Zea mays | Corn | Unassigned | Food Plant | Zea Zea m 12 profilin | IgE but no biological test | 131 | ABG81312.1 | 110644952 | 8 |
| Zea mays | Corn | Unassigned | Food Plant | Zea Zea m 12 profilin | IgE but no biological test | 131 | ABG81313.1 | 110644954 | 8 |
| Zea mays | Corn | Unassigned | Food Plant | Zea Zea m 12 profilin | IgE but no biological test | 131 | ABG81314.1 | 110644956 | 8 |
| Zea mays | Corn | Unassigned | Food Plant | Zea Zea m 12 profilin | IgE but no biological test | 131 | ABG81315.1 | 110644958 | 8 |
| Zea mays | Corn | Unassigned | Food Plant | Zea Zea m 12 profilin | IgE but no biological test | 131 | ABG81316.1 | 110644960 | 8 |
| Zea mays | Corn | Unassigned | Food Plant | Zea Zea m 12 profilin | IgE but no biological test | 131 | ABG81317.1 | 110644962 | 8 |
| Zea mays | Corn | Unassigned | Food Plant | Zea Zea m 12 profilin | IgE but no biological test | 130 | ABG81318.1 | 110644964 | 8 |
| Zea mays | Corn | Zea m 12.0101 | Aero Plant | Zea Zea m 12 profilin | IgE but no biological test | 131 | CAA51718.1 | 313138 | 15 |
| Zea mays | Corn | Zea m 12.0102 | Aero Plant | Zea Zea m 12 profilin | IgE but no biological test | 137 | CAA51719.1 | 313140 | 15 |
| Zea mays | Corn | Zea m 12.0103 | Aero Plant | Zea Zea m 12 profilin | IgE but no biological test | 131 | CAA51720.1 | 313142 | 15 |
| Zea mays | Corn | Zea m 12.0105 | Aero Plant | Zea Zea m 12 profilin | IgE but no biological test | 131 | AAG35601.1 | 11493677 | 15 |
| Zea mays | Corn | Unassigned | Aero Plant | Zea Zea m 12 profilin | IgE but no biological test | 132 | 5FEF_A | 1064245368 | 18 |
| Zea mays | Corn | Zea m 14.0101 | Food Plant | Zea Zea m 14 | IgE but no biological test | 120 | AAA33493.1 | 168576 | 15 |
| Zea mays | Corn | Zea m 14.0102 | Food Plant | Zea Zea m 14 | IgE but no biological test | 99 | AAA33494.1 | 168578 | 15 |
| Zea mays | Corn | Zea m 25.0101 | Aero Plant | Zea Zea m 25 thioredoxin | IgE but no biological test | 128 | CAI64400.1 | 66841002 | 7 |
| Ziziphus mauritiana | Chinese-date | Ziz m 1.0101 | Food Plant | Ziziphus Ziz m 1 | IgE plus basophil+ or SPT+ | 330 | AAX40948.1 | 61225281 | 7 |

35 pages

Table with 3 columns: F (Neurospora crassa protein from Genome), G (Best Allergen overall FASTA or 80mer from public AllergenOnline version 21), and H (Overall Conclusion of Risks for cross-reactivity for N crassa protein). Rows 1-9 contain detailed allergen information and risk assessments.

35 pages

| | F | G | H |
|----|--|---|---|
| 10 | <p>>FAA27626.1 hypothetical protein [Neurospora crassa]</p> <p>MRGLLALSLAACAAAPAVSHESIHGDAAPLSSSNAEVVNSYIKFKKHVTDKDDSHHTWIKQIHSRMDL LKSMSQPMVDDVFRGLKHTYKIQDFMGYSGHFDEETIAYRHPDVEYERDSVHTMSVSEDDVSEGGK DSDIKESAPWGLRISHRDTLSFATFNKLYVAEEGGGVDAVYDITDGTVEHVDFEGRAKWGKTPINGDA DVDNGHGHTCSGTIAGKYYVAKVASYAVKLRNSGSMADVVAGVEVAASKHLEQVKAADGK RKFGKSVANMSLGGGKQALDDTYNAAVSVGIHFAAAGDNDADACNYSAAAAKAVTVGASAIIDS RAYFSVNGKCTDFAPGLSILSTWGSYKATNTISGTSMASPHCGILLAYLSLQPSDDSEYSLATISPEKMKAN LLKIATVGLSDMPFRDTPNLLAWNGGGCSNYSVAIDAGSYKATPKAQSCKSISSVELEKAIHEDYVVISGKVV KGVSLSDKAEKLSKHDMVEELKFLFEEIAH</p> | <p>[739057410 gid 2857 vacuolar serine protease, part (386) 1983 452.5 2.9e-128 0.760 0.928 387 g 60116876 gid 1227 vacuolar serine protease [David (518) 1962 447.6 1.1e-126 0.656 0.849 535 g 4588118 gid 243 alkaline serine protease Pen c2 (457) 1945 443.9 1.3e-125 0.697 0.861 468 g 2143220 gid 318 cellular serine proteinase [Asper (495) 1925 439.4 3.2e-124 0.646 0.848 500 g 193507493 gid 2241 subtilisin-like serine proteas (506) 1922 438.7 5.3e-124 0.665 0.842 505 g 636530596 gid 3038 subtilisin-like serine proteas (507) 1895 432.6 3.5e-122 0.646 0.844 514 g 12005497 gid 243 vacuolar serine protease [Penici (503) 1785 408.0 8.9e-115 0.664 0.842 512 g 148361511 gid 1376 vacuolar serine protease [Clad (388) 1745 399.2 3.1e-112 0.700 0.881 387 g 12005501 gid 243 vacuolar serine protease [Penici (358) 1703 389.8 1.9e-109 0.721 0.873 362 g 14215732 gid 243 vacuolar serine protease [Penici (494) 1685 385.7 4.7e-108 0.635 0.847 509 g 17963902 gid 243 allergen Pen n 18 [Penicillium ch (494) 1681 384.8 8.7e-108 0.636 0.844 508 g 289172 gid 318 serine protease (533) 1554 356.3 3.5e-099 0.676 0.866 448 g 54654335 gid 833 vacuolar serine protease [Rhodot (342) 1337 308.0 7.9e-085 0.624 0.832 346 g 174663809 gid 313 RecName: Full=Subtilisin-like pr (405) 726 171.2 1.4e-043 0.433 0.702 379 g 23894244 gid 313 tri m 2 allergen [Arthroderma be (404) 720 169.8 3.6e-043 0.433 0.691 379 g 23894240 gid 313 tri m 2 allergen [Arthroderma be (292) 713 168.4 6.9e-043 0.453 0.707 287 g 5813790 gid 313 Tri r 2 allergen [Trichophyton ru (412) 715 168.7 7.9e-043 0.403 0.696 392 g 3549630 gid 2227 alkaline protease, partial [Aspe (341) 424 103.7 2.5e-023 0.425 0.710 362 g 2295 gid 2227 uncleaved alkaline protease (ALP) (403) 424 103.6 3.1e-023 0.400 0.678 423 g 74665726 gid 317 Allergen Asp fl 1 (403) 421 103.0 4.9e-023 0.416 0.690 423 g 129235 gid 317 Oryzin precursor (Alkaline protein (403) 421 103.0 4.9e-023 0.416 0.690 423 g 294441150 gid 2457 extracellular alkaline serine (403) 421 103.0 4.9e-023 0.410 0.691 424 g 21069093 gid 244 alkaline serine protease [Penici (398) 369 91.3 1.5e-019 0.379 0.665 427 g 4587983 gid 244 Pen c 1; alkaline serine protease (397) 362 89.8 4.5e-019 0.381 0.666 428 g 6684758 gid 244 allergen Pen n 13 [Penicillium ch (397) 359 89.1 7.2e-019 0.383 0.664 428 g 267048 gid 1174 RecName: Full=Subtilisin Savinase (269) 295 74.9 8.8e-015 0.384 0.673 263 g 1225905 gid 1175 prepro AprM [Bacillus sp.] (361) 267 68.5 1e-012 0.327 0.628 309 g 135016 gid 1171 RecName: Full=Subtilisin Carlsber (379) 247 64.0 2.4e-011 0.320 0.588 369 g 11127680 gid 1171 subtilisin precursor [Bacillus (374) 244 63.4 3.7e-011 0.314 0.591 369 g 1807698 gid 466 pre-pro-cucumisin [Cucumis melo] (731) 117 34.7 0.032 0.272 0.583 151 g 122358.0.015.0.358.0.538.78</p> | <p>These serine protease of <i>N. crassa</i> is highly conserved across some fungal species: <i>Fusarium</i>, <i>Aspergillus</i>, <i>Penicillium</i>, <i>Aspergillus</i> at >65% ID. Since they are not known to be broadly cross-reactivity, it is unlikely to pose a risk of food allergy.</p> |
| 11 | <p>>FAA27626.1 hypothetical protein [Neurospora crassa]</p> <p>LKSSMNVFLK TPVGTYKQ TGLFINNEFY EGVGDKTFEV INPATEEVC SVHEATEKDV DIAVAARAKA FEGVWRDVTQ QQRGIVLKLADLLEKMLDLA LAEVSLDNG KSTIMARGDV GAVVGTIRY GGWADKIEGK TIDSPDSFH YTROEPLGVC GQIIPWNPFL LMLAKWVGA LATGNTIWMK TAEOTPLSAL VFAOQVKEAG FPPGVLIIS GFRGIAGAAM ASHMDDKVA FTGSTMVGRQ IMKAAEESNL KKVTELGKK SPNIIFNDAD IDQAIQWVNF GIYFNHGQTC CAGSRVYVQE GIYDKVAAF KQRAQQNKVG DPFHDEFQ PQVSQLQYDR IMGYIKAGKE EGATVETGG RHGDGKYFIQ PTFTNVRHD MKIMKEIFG PVCVAKAFST EEEVKLGND SNYGLAAVAH</p> | <p>[76666769 gid 518 aldehyde dehydrogenase (NAD+) [Davi (496) 2558 3339.3 7.7e-181 0.760 0.928 487 g 76666767 gid 65 aldehyde dehydrogenase (NAD+) [Alter (497) 2520 3289.6 4.5e-178 0.742 0.922 488 g 105536860 gid 2592 aldehyde dehydrogenase-like prot (486) 1605 2092.9 2e-111 0.516 0.777 475</p> | <p>Aldehyde dehydrogenase of <i>N. crassa</i> is >80% identical to 100 organisms and proteins. Therefore it is unlikely to pose a risk of cross-reactivity.</p> |
| 12 | <p>>ESA43211.1 alcohol dehydrogenase 1, variant [Neurospora crassa OR74A]</p> <p>MPEQIEPEQWQAQVVEKGGPVVFKQIPVQKPGDDEVILNKKVSGVCHTDLHMKMGDWPPLATKMPLV GHEGAGVYVAKGELVTEVEVGDHAGIKWLNSCLASCFCMQADEPLCPHALLSGYTVDSGFQYAIKA AHVAKIPKGCDDLETTAPVLCAGITVYKLGKESVPRPQCVAIVGAGGLGSMAIQYANAMGLHAIADGG EEKKNCRELGAQAYVDFTTKDLADVKAATPDGLGPHAVILAVASEKPFHQAVDYVRSHQDGRPQQA CSLRIDGGGDDCBOICRBYDDEEFTGVMRLRGGVVFFFEFPEPTNLS</p> | <p>[86278351 gid 2582 alcohol dehydrogenase [Curvularia (352) 1429 1636.7 5.2e-086 0.760 0.939 262 g 608690 gid 395 alcohol dehydrogenase [Candida albica (350) 1110 1271.6 1.1e-065 0.637 0.817 262</p> | <p>Alcohol dehydrogenase of <i>N. crassa</i> is > 77% identical to 100 proteins and taxa. It is therefore unlikely to pose a risk of food allergy.</p> |
| 13 | <p>>EAA33987.1 TUBULIN ALPHA CHAIN [Neurospora crassa]</p> <p>MREIISLVGGAGCQIANSWELVLEHIGIQDGLYTERKAAADPDHGFSTFFSETGNCKYVPRTIYADLEP NVIDEVRTGAYRGLFPEHMHMSKEDASNINYARGHYTVGKELDQVLDKVRVADNCSLQGLFLVHFSG GCTGSGFALLMRLSRVYDYGKSKLEFCVPAPQTATSVVPEPNSILTTHTLEHADCSFMVDNEAIDICR RNLGLRPNENYENLRLIAQVSSITASLRFDSGLNVDLNEFTQNLVPPYRHPFLVAYAPVISAAKAAHEANS VQEMTMSCFEPNNQMKCDPRHGYMATCLLYRGDVPNDAAHAAVATLTKRTIGFVWDCPTGFKLGI CYQPPHQVNGDLAKVNRVACMLSNNTIAEAWALSXKFLMYSKRAFVHWYVGGEMEEGFSEARE</p> | <p>[1338184716 gid 2291 Der f 33-like protein [Dermatoph (460) 2336 3041.1 3.1e-164 0.749 0.904 450 g 685432814 gid 2291 Der f 33 allergen [Dermatophagoid (461) 2315 3013.7 1e-162 0.738 0.900 451 g 1561006371 gid 2993 allergen Der p 33 [Dermatophagoid (396) 2001 2605.0 6.1e-140 0.772 0.933 360</p> | <p>Tubulin of <i>N. crassa</i> is >93% identity to 100 proteins and is unlikely to pose a risk of cross-reactivity.</p> |
| 14 | <p>>EAA32343.3 superoxide dismutase [Neurospora crassa OR74A]</p> <p>MNVLKSIWQNLASOAPLQSMGTNATTMACGLATYSLPQLPYANALEPYSIAQIMELHSHKHQHTVYTNL NNALKHVHAAISSDIPAQIAQPAKFGNGGHHNSLFLMKNLAPAEPTNYSKAASPLAAEIKTWGSG DEFKAFSALLGQISGSGVWGLVKESTAEKRLRIITTKDQDPVVGVEVFDVGMWEHAYYLQYNGK AAYVENWVIVNWKTAERFQGSREDAFADLKALL</p> | <p>[529279957 gid 1885 manganese superoxide dismutase [A (191) 927 1072.3 1.4e-054 0.705 0.884 190 g 16489970 gid 330 manganese superoxide dismutase [Aspe (221) 870 1005.8 7.2e-051 0.640 0.832 197 g 83305645 gid 330 superoxide dismutase [Mn], mitochon (210) 869 1005.0 8e-051 0.640 0.832 197 g 465795607 gid 647 allergen [Malassezia sympodialis A (202) 673 780.0 2.7e-038 0.485 0.755 200 g 28569698 gid 647 manganese superoxide dismutase [Mal (237) 671 776.7 4.2e-038 0.492 0.756 197 g 149786150 gid 1092 manganese superoxide dismutase-II (230) 663 767.7 1.3e-037 0.500 0.722 212 g 348137 gid 590 superoxide dismutase (manganese) (233) 661 765.3 1.8e-037 0.484 0.711 225 g 577414 gid 590 MnSOD [Hevea brasiliensis] (205) 649 752.4 9.5e-037 0.507 0.741 201 g 10862818 gid 1590 LipE-hindine protein MnSOD [Hevea br (205) 640 747.0 3.6e-036 0.502 0.736 201 g 1373739558 gid 2869 cyclophilin O101 [Olea europaea] (172) 808 984.5 1.1e-049 0.696 0.848 171 g 373939374 gid 1941 cyclophilin [Daucus carota] (171) 802 977.3 2.8e-049 0.704 0.840 169 g 21886603 gid 344 peptidylprolyl isomerase (cyclophil (173) 782 952.9 6.4e-048 0.673 0.839 168 g 1220142 gid 1926 cyclophilin [Catharanthus roseus] (172) 780 950.5 8.7e-048 0.673 0.845 168 g 91680605 gid 863 cyclophilin [Aspergillus fumigatus] (163) 735 896.3 9.1e-045 0.653 0.820 167 g 4138173 gid 651 allergen [Malassezia sympodialis] (162) 711 867.2 3.8e-043 0.669 0.783 166 g 37958141 gid 951 Der f Mal f 6 allergen [Dermatophag (164) 703 857.4 1.3e-042 0.618 0.800 170 g 5019414 gid 325 PpIase [Aspergillus fumigatus] (178) 587 716.0 1e-034 0.575 0.737 179 g 5381446 gid 1619 pollen allergen, lup n 4 [Dunigerus o (165) 86 108.6 0.68 0.320 0.515 103</p> | <p>Superoxide dismutase of <i>N. crassa</i> is >67% identity over 100 taxa or proteins and it is unlikely to pose a risk of cross-reactivity.</p> |
| 15 | <p>>EAA26627.1 hypothetical protein ((A)292563) peptidyl-prolyl cis-trans isomerase [Neurospora crassa]</p> <p>MSSTDVQARSFVFDITIGGKAAGRIVFELYNDVPKTAENFRALCTGKGVGKGLKPLHYKSTFHRVVK VFMIGQDGFAGNGTGESYGAKEFDEENFQKHDRPFLSMAANAGPTNGSQFVTTPVPHLDGKIV VFEIYSGSVVRQIENLKTGDGPKDAVIAIDGSELGSDAAVSADTKTADYGDGDEYDFPEDEATDGGPL SASKLIATDCKDFGNKAFKAGDLVADLQYKGLRLLNEDPELNEPADTKQLDLALRSLNSAALMNI MKLSAWDECIRASDAGALAVATISDKRAKALRYRGAQVRIKDEPDSLTLSEAAKLAPEADGAINVLEAAVK KAAARMAKKAAYKFFS</p> | <p>[10862818 gid 1590 LipE-hindine protein MnSOD [Hevea br (205) 640 747.0 3.6e-036 0.502 0.736 201 g 1373739558 gid 2869 cyclophilin O101 [Olea europaea] (172) 808 984.5 1.1e-049 0.696 0.848 171 g 373939374 gid 1941 cyclophilin [Daucus carota] (171) 802 977.3 2.8e-049 0.704 0.840 169 g 21886603 gid 344 peptidylprolyl isomerase (cyclophil (173) 782 952.9 6.4e-048 0.673 0.839 168 g 1220142 gid 1926 cyclophilin [Catharanthus roseus] (172) 780 950.5 8.7e-048 0.673 0.845 168 g 91680605 gid 863 cyclophilin [Aspergillus fumigatus] (163) 735 896.3 9.1e-045 0.653 0.820 167 g 4138173 gid 651 allergen [Malassezia sympodialis] (162) 711 867.2 3.8e-043 0.669 0.783 166 g 37958141 gid 951 Der f Mal f 6 allergen [Dermatophag (164) 703 857.4 1.3e-042 0.618 0.800 170 g 5019414 gid 325 PpIase [Aspergillus fumigatus] (178) 587 716.0 1e-034 0.575 0.737 179 g 5381446 gid 1619 pollen allergen, lup n 4 [Dunigerus o (165) 86 108.6 0.68 0.320 0.515 103</p> | <p>Cyclophilin of <i>N. crassa</i> is >69% identity over 100 taxa or proteins. It is unlikely to pose a risk of cross-reactivity.</p> |

35 pages

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| 16 | <p>>F5A42515.1 peptidyl-prolyl cis-trans isomerase B [Neurospora crassa OR74A] MFSLRRLRLAATFLGLAMLLFAQSAEAAKPKTHKVVDFDIEQDQKPLRIVRMLGLYKTVPKTAENFRALAT GKGGFYVTSDFTHRRVQKFMQIGDGGTQKGGTGGKSYGDKFPDKNFLKHSKGLSMAANAGKDTNGSQ FRITTTGGVLDGKHVHVFGEVLDVYVKEIKENTKTGPRDPAEAPKIAKASGLEVYVPEGLQGESEWASPAYA NEDEKPAAPVPTDAPKPAHSDIPAATADDDDTGAPLFAKLVFFGVLDLVLVLRRLRAPKGTYGKGM</p> | <p>[g]191680605 [gid]863] cyclophilin [Aspergillus fumigatus] (163) 749 830.3 4.3e-041 0.683 0.863 361 [g]14138173 [gid]651] allergen [Malassezia sympodialis] (162) 706 783.1 1.8e-038 0.684 0.810 158 [g]137958141 [gid]951] Der f Mal f 6 allergen [Dermatophag (164) 698 774.3 5.7e-038 0.626 0.847 163 [g]13739374 [gid]1941] cyclophilin [Daucus carota] (171) 655 727.0 2.4e-035 0.617 0.760 167 [g]11373739558 [gid]2869] cyclophilin 0101 [Olea europaea] (172) 653 724.8 3.2e-035 0.601 0.774 168 [g]121886603 [gid]344] peptidylprolyl isomerase (cyclophilin) (173) 647 718.2 7.5e-035 0.609 0.763 169 [g]15019414 [gid]325] PPIase [Aspergillus fumigatus] (178) 638 708.3 2.7e-034 0.583 0.794 175 [g]1220142 [gid]1926] cyclophilin [Catharanthus roseus] (172) 625 694.1 1.7e-033 0.592 0.751 169 [g]121585695 [gid]660] allergenic-related protein Pt2L4 [M (177) 106 124.7 0.086 0.244 0.538 78 [g]1332713934 [gid]660] Manioc Glu [Manihot esculenta] (177) 105 123.6 0.099 0.244 0.526 78</p> | <p>Cyclophilin of <i>N. crassa</i> is >63% identity across 100 taxa/proteins</p> |
| 17 | <p>>EA427331.1 78 KDA GLUCOSE-REGULATED PROTEIN HOMOLOG PRECURSOR (GRP 78) (IMMUNOGLOBULIN HEAVY CHAIN BINDING PROTEIN HOMOLOG) (BIP) [Neurospora crassa] MEHRTRSWALGSLILGFFALLFASAGVQAAHDEAMGTGVIDGLTYSYCVGMQKGVLEIVLDQGG NRITPSVAFTDEERLVGDAKNOQAANPHRTIFDIKRLRGRKFSKDKVDQNDIKHFFPKVYSKDDKPKVYKVE KGEKFTTPEEISAMILGKMKETAEGYLGKVKVTHAVVTPYAFNDQROAQTADGAGIAGLNLVLRVNEPT AAAIAYGLDKTEERQIIVYDLGGTDFVLSLIEQGVFVSTAGDTHLGGEDFDQRIINHFAKLFNKKHGV DVTDAKAMGKLRKAEAKAKRTLSQQMSTRIEEAFYQDKDFSETLRAKFEELNDFLKLKPVQEVKDKA KVSKSEIDIVLVGGSTRIKPKVQALIEEFFNGKASKGINPDEAVFAGAAQVGLSSEEGTEDIVLMDVNP TLGIEFTGGVMTKPIRNPITPKRSQIFSTTADNQPVLVQVYGERSMKDNLLKGFELTGIPAPRGPV QIETSELDANGILKVSADKGTGKAESTITNDKGRLTQEIEDRMVAEAEKAEKATREIRIEARNGLENY AFSLKNQVNDDEGLGKIDEDKTELDAVKAQDQLEENATASAEADPEQEKLSNVAYPITSKLYSOG</p> | <p>[g]194468818 [gid]12708] heat shock cognate 70 [Aedes aegypti] (655) 2877 3105.5 8e-168 0.684 0.897 632 [g]105536584 [gid]2591] heat shock-like protein [Tyropha (659) 2637 2846.3 2.2e-153 0.644 0.868 621 [g]11561006361 [gid]3077] allergen Der p 28 [Dermatophag (655) 2601 2807.5 3.2e-151 0.627 0.873 620 [g]1729764 [gid]519] Heat shock 70 kDa protein [Allergen C (643) 2586 2791.4 2.5e-150 0.626 0.856 623 [g]1685432788 [gid]2076] Der f 28 allergen [Dermatophagid (654) 2577 2781.6 8.9e-150 0.634 0.880 609 [g]1442565876 [gid]2076] heat shock protein 70 [Dermatopha (659) 2151 2321.5 3.8e-124 0.592 0.823 571 [g]14423733 [gid]250] Heat shock 70 kDa protein [Allergen (503) 2000 2159.9 3.8e-115 0.631 0.853 491 [g]1465797105 [gid]2027] allergen [Malassezia sympodialis] (773) 880 948.1 1.2e-047 0.287 0.622 651 [g]128564467 [gid]2027] putative heat shock protein [Malas (773) 874 941.6 2.7e-047 0.287 0.621 651 [g]14423730 [gid]61] Heat shock 70 kDa protein [Allergen (152) 356 391.0 1.3e-016 0.450 0.752 129 [g]1589912891 [gid]2206] Fra e 3.01 allergen [Fraxinus exc (84) 91 108.0 0.74 0.386 0.614 57</p> | <p>This hypothetical protein of <i>N. crassa</i> is >85% identity across 100 proteins of taxa. It is highly unlikely to present a risk of cross-reactivity.</p> |
| 18 | <p>>EA427471.1 GLYCERALDEHYDE 3-PHOSPHATE DEHYDROGENASE (GAPDH) (CLOCK-CONTROLLED PROTEIN 7) [Neurospora crassa] MVVVGINGFRIGRIRVFRNAIEHDDHIVAVNDPFEKPYAAYMLRYDTHNGFKGTEVGDADLVVNGK KVYFTEERDPAIPIWSETGADYVVESTVFTTEKASALHGKAKVIPSADAPMVMGVNNEYVDGS ADVNISACCTNCLAPLAKVHDFNTIVEGLMTVVHSHYATQKTVDPGSAKDWGRGTAAQNIIPSTGAA KAVGKVPDLNGLKLTGMAMRVPTANVSVVDLTARIEKGATYDEIKEVKKASEGLAGILAYTEDEVVSSDM</p> | <p>[g]150332371 [gid]13045] glyceralddehyde-3-phosphate de (333) 1563 362.7 1.6e-101 0.700 0.891 330 [g]1253783729 [gid]2301] glyceralddehyde-3-phosphate deh (337) 1494 347.0 8.8e-097 0.666 0.883 332</p> | <p>Glyceralddehyde 3 phosphate dehydrobenase of <i>N. crassa</i> is > 85% identical to 100 taxa and proteins. It is highly unlikely to pose a risk of cross-reactivity.</p> |
| 19 | <p>>EA428119.1 hypothetical protein [Neurospora crassa] MLYSDITDEHISDYLKVEDGIAYEVDCAMIEEGAVQVDIGANASAEAEADLDDGVKVVNVMVHFSR LQSTDFDKXGVLVLYKGYMKSXNALKEQKSGSDEIKDFETKASAFKAVILAKFDWFEYTGESMNPDM VLLVYRDEGDTTPVWVWVHGLKTKV</p> | <p>[g]1112824341 [gid]1337] TCTP [Alternaria alternata] (169) 753 199.3 6.6e-053 0.665 0.888 170 [g]1679357707 [gid]2864] RecName: Full-Translationaly (679) 674 179.1 7.9e-047 0.612 0.818 170 [g]16523380 [gid]624] allergen [Lepidoglyphus destructo (131) 78 26.9 0.4 0.309 0.545 110 [g]1209979542 [gid]1556] ovomucoid [Gallus gallus] (210) 78 26.6 0.76 0.294 0.588 51</p> | <p>This hypothetical protein of <i>N. crassa</i> is > 76% identity across 100 taxa or proteins and it is highly unlikely to pose a risk of cross-reactivity.</p> |
| 20 | <p>>EA429668.2 alpha tubulin [Neurospora crassa OR74A] MARGEVHIHLGQAGTQLGNSAWLVEYLLEHGLTODGRKDPDSTVAGEGSDYTFTESSNGKYVPRSLVD LDPSPIDEIRGTPYRQLHPPELLISGKEDANNYARGHYTVGKMAENLDRIRIKTNDCHSLQGLVHFSFG GGTSGSGLVALERLAQDYAKKCKLEFYSYAPRVATAVVPEPINAVALATHSTLEHSDVTLVDNEAVDICK RNLDIRPPSYHLNRLIAQVSSITSLRFDGALNVDLNEFQTLNVPFRVHYPLISYAPISATKSAHESFKTS LTLQCFEPNQMVCPRNGKYMVAALLYRGDVPDRDTSAAVAALAKKSSFNLEWVCPGTFKIGIHQKX MSVPTASPADGGGLASVDRSVMLSLNTTAAEAWSLRDLHKFDMYSKRAFVHWYVGGEMEEGFSEARE DLASLEKDYEEVAGDYNVDVDAEY</p> | <p>[g]15019414 [gid]325] PPIase [Aspergillus fumigatus] (178) 760 180.1 5.3e-047 0.658 0.834 187 [g]191680605 [gid]863] cyclophilin [Aspergillus fumigat (163) 734 174.3 2.8e-045 0.635 0.796 181 [g]14138173 [gid]651] allergen [Malassezia sympodialis] (162) 729 173.1 6.1e-045 0.657 0.770 178 [g]137958141 [gid]951] Der f Mal f 6 allergen [Dermatop (164) 693 164.9 1.8e-042 0.606 0.794 180 [g]1220142 [gid]1926] cyclophilin [Catharanthus roseus (172) 662 157.8 2.7e-040 0.642 0.799 159 [g]121886603 [gid]344] peptidylprolyl isomerase (cyclo (173) 660 157.4 3.7e-040 0.584 0.741 185 [g]11373739558 [gid]2869] cyclophilin 0101 [Olea europ (172) 655 156.2 8e-040 0.575 0.747 186 [g]13739374 [gid]1941] cyclophilin [Daucus carota] (171) 651 155.3 5e-039 0.637 0.809 157 [g]11168402 [gid]64] Minor allergen Alt a 7 [Alt a VII] (204) 941 260.4 3.9e-071 0.657 0.881 201 [g]1213711549 [gid]64] Allergen Alt a 7 [Alternaria al (261) 910 251.8 1.9e-068 0.663 0.876 193 [g]1467629 [gid]517] minor allergen Cla h 7 [Davidiella (204) 896 248.2 1.7e-067 0.644 0.861 202 [g]114326420 [gid]539] major allergen I, polypeptide c (88) 82 29.7 0.046 0.364 0.591 44 [g]11696665 [gid]539] Major allergen I polypeptide chai (92) 71 26.7 0.39 0.393 0.679 28 [g]163825 [gid]539] major allergen I (92) 71 26.7 0.39 0.393 0.679 28 [g]1218059715 [gid]658] thaumatin-like protein [Malus x (158) 73 26.7 0.64 0.291 0.447 103 [g]11109403341 [gid]658] thaumatin-like protein, partia (159) 73 26.7 0.65 0.268 0.438 112 [g]11364212 [gid]539] fel d I chain 1 precursor with le (88) 67 25.7 0.76 0.393 0.643 28 [g]11364212 [gid]539] fel d I chain 1 precursor with le (88) 67 25.6 0.81 0.393 0.642 28</p> | <p>Alpha tubulin of <i>N. crassa</i> is >84% identity across 100 taxa and proteins and the three sequences with significant matches have at least 60% ID over 147 AA. The risk of cross-reactivity is low.</p> |
| 21 | <p>>EA44259.1 peptidyl-prolyl cis-trans isomerase [Neurospora crassa OR74A] MFGPRMHSVLKTTGSLVSTFSSSLKPTATFSCARAFSGTSSMSKVFDFLEVEGPIVLPNPKPTSEIKAQSG RINFLLYDDVVPKARNFKELCTQNGQFGYKSSFRHRIPEMLQGGDFTRNGTGGKSYGKFADENF KHKVRPGLLSMANAGNPNTGSGQVFTVTPVTSWLDGRHVHVFGEVADDESMMKVKALEATGSSSGAIRYSKX PTIVDCGAL</p> | <p>[g]15019414 [gid]325] PPIase [Aspergillus fumigatus] (178) 760 180.1 5.3e-047 0.658 0.834 187 [g]191680605 [gid]863] cyclophilin [Aspergillus fumigat (163) 734 174.3 2.8e-045 0.635 0.796 181 [g]14138173 [gid]651] allergen [Malassezia sympodialis] (162) 729 173.1 6.1e-045 0.657 0.770 178 [g]137958141 [gid]951] Der f Mal f 6 allergen [Dermatop (164) 693 164.9 1.8e-042 0.606 0.794 180 [g]1220142 [gid]1926] cyclophilin [Catharanthus roseus (172) 662 157.8 2.7e-040 0.642 0.799 159 [g]121886603 [gid]344] peptidylprolyl isomerase (cyclo (173) 660 157.4 3.7e-040 0.584 0.741 185 [g]11373739558 [gid]2869] cyclophilin 0101 [Olea europ (172) 655 156.2 8e-040 0.575 0.747 186 [g]13739374 [gid]1941] cyclophilin [Daucus carota] (171) 651 155.3 5e-039 0.637 0.809 157 [g]11168402 [gid]64] Minor allergen Alt a 7 [Alt a VII] (204) 941 260.4 3.9e-071 0.657 0.881 201 [g]1213711549 [gid]64] Allergen Alt a 7 [Alternaria al (261) 910 251.8 1.9e-068 0.663 0.876 193 [g]1467629 [gid]517] minor allergen Cla h 7 [Davidiella (204) 896 248.2 1.7e-067 0.644 0.861 202 [g]114326420 [gid]539] major allergen I, polypeptide c (88) 82 29.7 0.046 0.364 0.591 44 [g]11696665 [gid]539] Major allergen I polypeptide chai (92) 71 26.7 0.39 0.393 0.679 28 [g]163825 [gid]539] major allergen I (92) 71 26.7 0.39 0.393 0.679 28 [g]1218059715 [gid]658] thaumatin-like protein [Malus x (158) 73 26.7 0.64 0.291 0.447 103 [g]11109403341 [gid]658] thaumatin-like protein, partia (159) 73 26.7 0.65 0.268 0.438 112 [g]11364212 [gid]539] fel d I chain 1 precursor with le (88) 67 25.7 0.76 0.393 0.643 28 [g]11364212 [gid]539] fel d I chain 1 precursor with le (88) 67 25.6 0.81 0.393 0.642 28</p> | <p>Cyclophilin of <i>N. crassa</i> is > 67% identity across 100 taxa and proteins. It is unlikely to pose a risk of cross-reactivity.</p> |
| 22 | <p>>EA436394.2 non-anchored cell wall protein 4 [Neurospora crassa OR74A] MAPKAIYRYSMYGHIRQLAAEAKAGIEKAGGTADLVQVPELSDVLAKMAYAPPKTDIPVIEDPAIKKEYD GFLFGIPTRYGFFPAQWRAFWDKTTGGLWATGGLYKGAALFSTAGLGGGQAEETAIAAMSTLAHHGIY VPLGKAVFGELSDLSAVHGSGPWGSGTSSGDSRQPSSELVKAGIQGEFFNYTSLKLTGA</p> | <p>[g]15019414 [gid]325] PPIase [Aspergillus fumigatus] (178) 760 180.1 5.3e-047 0.658 0.834 187 [g]191680605 [gid]863] cyclophilin [Aspergillus fumigat (163) 734 174.3 2.8e-045 0.635 0.796 181 [g]14138173 [gid]651] allergen [Malassezia sympodialis] (162) 729 173.1 6.1e-045 0.657 0.770 178 [g]137958141 [gid]951] Der f Mal f 6 allergen [Dermatop (164) 693 164.9 1.8e-042 0.606 0.794 180 [g]1220142 [gid]1926] cyclophilin [Catharanthus roseus (172) 662 157.8 2.7e-040 0.642 0.799 159 [g]121886603 [gid]344] peptidylprolyl isomerase (cyclo (173) 660 157.4 3.7e-040 0.584 0.741 185 [g]11373739558 [gid]2869] cyclophilin 0101 [Olea europ (172) 655 156.2 8e-040 0.575 0.747 186 [g]13739374 [gid]1941] cyclophilin [Daucus carota] (171) 651 155.3 5e-039 0.637 0.809 157 [g]11168402 [gid]64] Minor allergen Alt a 7 [Alt a VII] (204) 941 260.4 3.9e-071 0.657 0.881 201 [g]1213711549 [gid]64] Allergen Alt a 7 [Alternaria al (261) 910 251.8 1.9e-068 0.663 0.876 193 [g]1467629 [gid]517] minor allergen Cla h 7 [Davidiella (204) 896 248.2 1.7e-067 0.644 0.861 202 [g]114326420 [gid]539] major allergen I, polypeptide c (88) 82 29.7 0.046 0.364 0.591 44 [g]11696665 [gid]539] Major allergen I polypeptide chai (92) 71 26.7 0.39 0.393 0.679 28 [g]163825 [gid]539] major allergen I (92) 71 26.7 0.39 0.393 0.679 28 [g]1218059715 [gid]658] thaumatin-like protein [Malus x (158) 73 26.7 0.64 0.291 0.447 103 [g]11109403341 [gid]658] thaumatin-like protein, partia (159) 73 26.7 0.65 0.268 0.438 112 [g]11364212 [gid]539] fel d I chain 1 precursor with le (88) 67 25.7 0.76 0.393 0.643 28 [g]11364212 [gid]539] fel d I chain 1 precursor with le (88) 67 25.6 0.81 0.393 0.642 28</p> | <p>The hypothetical protein NAD of <i>N. crassa</i> is >73% identity across 100 proteins and taxa. It is highly unlikely to pose a risk of cross-reactivity.</p> |
| 23 | <p>>EA429172.1 hypothetical protein [Neurospora crassa] MFAASRIQTRAFSARARLTKVSVLGAAGGIGQLSLKLLNPRVSELALYDIRGAPGVGADLSHINTKSTVK GYEPTASGLADALGSEIVLIPAGVPRKPGMTRDOLLFNNTASIVRDLAKACAECEPEANLIVSNPNTVPI VSEIFKAGVYKPKRFLGVTYDILVRASTRFSEIKGDPKDNITVYGGHSGVTVVPLFSQSKHPESLKNELI HRVQGGDEVVKADGASATLSMAMAGARMAESLRLAAQKEGKVIPEPTVDSPLYKQDGIFFAKVSE LGNVYFKVYVGPVDFEQKLI DAFLVDI KKNIKGKDEVAANRGP</p> | <p>[g]4587985 [gid]648] major allergenic protein Mal f4 ((342) 1316 437.0 7.4e-124 0.650 0.839 329 [g]11053214048 [gid]3046] L-lactate dehydrogenase A cha (333) 209 71.8 6.1e-014 0.255 0.582 282 [g]121069093 [gid]244] alkaline serine protease [Penici (398) 83 30.0 0.29 0.214 0.521 140</p> | <p>The putative Mal f 4 protein has >79% identity matches to 100 proteins and taxa. It is highly unlikely to pose a risk of cross-reactivity</p> |

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| 30 | >FAA29931.1 hypothetical protein [Neurospora crassa] MHAFTPKFALGLAAVAASADSVIQLKXDFDFYKTVNDIVLAEFFAWPCWGCKALAPEYEEAATLKEKNI KLAIKDTEESEELCQHQHVEGPTLVKVRGLLEVSYPKYGORAKAAATSYMIKQSPVSELNKDNIEFKKAD VYVYLDADADKASNETFSKVAIDLKRDYEPFGASSDAALAEAGYTPAAVILYKDFDEGKAVTEKDFPEAIE KFAKASTPLUGVEGSPOTYAGYMSAGIPLAVIFATEPERKEKSEALKSIAEAOQRVINFATIDAKAFGAHAG NLNLKADKFFAFAIQDITTKLNFPPDQEKETADSIKXKFDVDFVAGKVEPKTSEPIPETQEGPVTYVVAKSYD DIVLDDTKDVLIEFYAPWCGHCKALAPKYDELATLYANSDFKDKVVIKADQATQNDVPEIQGFPTIKLYAA GAKDKPVEYSGPRVTELDKIFISEGKNGKASPPAEAEVSAASAEESGSETGTVEEPAKETSDEL | [g]185701160 gid 63 Protein disulfide-isomerase (PD) (436) 1323 307.9 1e-084 0.563 0.789 380 [g]191680607 gid 793 thioredoxin [Aspergillus fumigat (108) 182 48.9 2.3e-007 0.667 93 [g]1465793078 gid 1026 allergen [Malassezia sympodial (107) 181 48.7 2.6e-007 0.281 635 96 [g]30813928168 gid 1776 thioredoxin [Plodia interpunct (106) 169 46.0 1.7e-006 0.414 667 87 [g]191680609 gid 876 thioredoxin [Aspergillus fumigat (110) 165 45.0 3.6e-006 0.342 632 76 [g]19879659 gid 544 thioredoxin-like protein [Fusari (121) 141 39.3 0.0002 0.311 689 74 [g]66841002 gid 844 thioredoxin h1 protein [Zea mays (128) 118 34.0 0.0084 0.320 587 75 [g]8980491 gid 2278 thioredoxin h [Triticum aestivum (125) 116 33.6 0.011 0.300 622 90 [g]576011088 gid 1707 RecName: Full=Fructose-bisphos (37) 72 27.5 0.22 0.387 0.710 31 [g]113560 gid 268 Pollen allergen KBG 31 precursor ((373) 102 29.6 0.52 0.295 0.548 210 [g]113562 gid 268 Pollen allergen KBG 60 precursor ((307) 99 29.0 0.66 0.270 0.531 211 | This hypothetical protein of <i>N. crassa</i> is >75% ID for 100 Proteins taxa. It is highly unlikely to pose a risk of cross-reactivity. |
| 31 | >FAA34829.2 alpha-amylase [Neurospora crassa OR74A] MRPERQLSVLGLLSAAVQVQALTSSEWRKQSIYQVTVDFRFSADLSTSPCDTSSQQVYCGGSWQGLSK LDYIQMGFTAVWIPWIKQIDGVTXKDGSSYHYWASDIWLSNPSFGTADNLKGLSKALHHRGMVLMVD VYTNHMALVGRCSCHNYQGLNPFSSQSYHSPCTINYDNTQTSIETCVQGSQDVSPLDKTETDDVVKIWHH WYSKYSTSIDGLRDSVHKVKSFWGFEASAGVFAIGEVFQDGPAYLAPYOSVYSGLDYASYVWVNAF QSTSGNITALANGMNLKAAADLSYGSFLENHQRARFAHKTSDMVWLKNAIAFTMLKDGPIPIYQGEQEQ YAGSDPTYNREALWLSGFSTNSELYTWIKRLNQLRTHAIKDDGVLTYRAWPIYSDSHTIAMRKGSSNKQV VGVFTNVGASSTAVTLLSLSLGSFSADEPVTVDVSCDFTDSGGSTITLFGGLPRLYVSTLLNGSDICSSRSA PTSTTSTNSGVPSTSSAASCTATATVITFEALVSTSYGETVKLLGNTTLTGLSWNTANAVTLASAKYSSNP | [g]12769700 gid 319 peroxisomal-like protein [Aspergi (168) 629 157.9 1.8e-040 0.560 810 168 [g]15326864 gid 251 peroxisomal membrane protein [Pen (167) 641 160.8 2.4e-041 0.578 0.813 166 [g]1465794772 gid 650 allergen [Malassezia sympodiali (172) 444 113.5 4.5e-027 0.443 0.716 176 [g]14138171 gid 650 allergen [Malassezia sympodialis] (172) 444 113.5 4.5e-027 0.443 0.716 176 [g]3445492 gid 646 MF2 [Malassezia furfur (166) 424 108.7 1.2e-025 0.432 0.722 169 [g]3445490 gid 644 MF1 [Malassezia furfur (177) 416 106.7 4.9e-025 0.385 0.672 174 [g]175324900 gid 1542 RecName: Full=1-Cys peroxidoredox (218) 99 30.4 0.056 0.258 0.567 120 [g]190684059 gid 1542 peroxidoredoxin [Triticum aestiv (218) 98 30.2 0.067 0.276 0.575 87 | There are 100 sequences of >53% identity over 80 by BLAST. It is highly unlikely to cause a risk of food allergy. |
| 32 | >EAA35366.3 heat shock protein 70 [Neurospora crassa OR74A] MADEVYDGAIGDGLTYSVAIVEGTNVEIAINEQGSFTTSPVFSFTPEERLIGEAAKNQAAAMNPKNTVDF VKRLRIGRIDPVTQKQDQESWPKVVDGAGNPKVEVDVNGVHTSPQIEASAVMLTKMKEIAEVKLGKVK EKAVITPVYFNDRNRQATKDAGAIGLNLVRIINFEPTAAIAIYGLGANKSNKERNVLYDLGGTFDVSLL NIQQGVFTTKDLSGDARALRRRTACERAKRTLSSGAQTTEIDSLFDGEDFNINVTARFEDLNKAKAFSGT LEPVAQLKADGIEKSAVDEIVLGGSTRIPKVKQLSEFFDGKLEKLSINPDEAVYAGAAVQAGILSGKATS ETSDDLDDVPLSLGVAMEGNIFAPVVPRTQVPTTKKRFTTVDADNQQTVQFPYQGERVNCEDNTSLG EFTLAPIPMKAGEPELVFVFEVDNVLKVTATEKTSGRSANITNSVGLSSSEIEKMVEEAEKFKNSNDEA FSKRFEAKQLESYISRVIEVSDPTLSLKRQKKEIEQSLSEAMSQLEIEDSADLKKKELALKRLVTKAM SR | [g]1561006361 gid 3077 allergen Der p 28 [Dermatopha (655) 1186 286.4 5.2e-078 0.558 0.801 607 [g]685432788 gid 2076 Der f 28 allergen [Dermatopha (654) 1168 282.2 9.8e-077 0.551 0.804 597 [g]729764 gid 519 Heat shock 70 kDa protein [Allerge (643) 1144 276.5 4.8e-075 0.534 0.779 605 [g]1055365842 gid 2591 heat shock-like protein [Tyro (659) 1135 274.4 2.2e-074 0.543 0.791 597 [g]1442565876 gid 2076 heat shock protein 70 [Dermato (659) 940 228.4 1.5e-060 0.508 0.754 606 [g]194468818 gid 2708 heat shock cognate 70 [Aedes ae (655) 892 217.1 3.9e-057 0.503 0.771 606 [g]1465797105 gid 2027 allergen [Malassezia sympodial (773) 457 114.4 3.8e-026 0.267 0.559 648 [g]28564467 gid 2027 putative heat shock protein [Ma (773) 451 113.0 1e-025 0.267 0.557 648 [g]14423730 gid 61 Heat shock 70 kDa protein [Allerg (152) 212 57.9 7.4e-010 0.359 0.748 103 [g]59894749 gid 848 60S acidic ribosomal P1 phosphop (107) 86 28.5 0.38 0.320 0.587 75 | There are 100 proteins / Taxa over 83% ID over 80 AA for this <i>N. crassa</i> proteins. It is not likely to cause cross-reactivity. |
| 33 | >EAA36265.3 Eno3 protein [Neurospora crassa OR74A] MLLDVKASQRDLSRNPITQIVERTAHGIFRALVPSGASTGVHEAVELRDNKRKYGGKGLTAVNWNVE IIGPALKEVYSSRDLDKQIDGFMRELDGTPNKAKLGANAILGVSMACARAGAAAFLLRREGGEEAPYMV PVPFNNLVNGRRHSGMGMAFQEFMIAPTGAKTIEGQIMASETYFVLKQMSIDKFGAYITGVGDEGGFAP PITQPEALDLLEAVAKAGYTDKIKFGIDAASSEFFNPENGTYDGLFKRIKESHSDVTRPAEMMALYKS LIEQYPIPLEDFEADDWESWTRFKCFDFFEELVGDLLVTNVERVRAESRVACNAMLLKINQIGTVTEA LDAAKLAKSLGVGVFVSHRSGETDDFIADLSVLGCTGHGKSGAPRCGERVAKYRNLDLIELKESWKPWS YAGEKFRKPEAFFI | [g]114634673 gid 123 Eno3 protein [Neurospora crassa (438) 1453 337.5 1.1e-093 0.546 0.752 436 [g]183288046 gid 329 Enolase (2-phosphoglycerate dehy (438) 1452 337.3 1.3e-093 0.546 0.752 436 [g]385145180 gid 1959 enolase [Salmo salar] (432) 1447 336.2 2.7e-093 0.525 0.778 442 [g]197632415 gid 1959 enolase 3-2 [Salmo salar] (434) 1446 335.9 3.2e-093 0.536 0.768 440 [g]576011129 gid 1955 RecName: Full=Alpha-enolase; A (432) 1432 332.7 2.9e-092 0.520 0.785 442 [g]146048765 gid 2710 beta-enolase [Gallus gallus] (434) 1421 330.2 1.7e-091 0.514 0.770 440 [g]13991101 gid 249 enolase [Penicillium citrinum] (438) 1417 329.3 3.2e-091 0.539 0.749 438 [g]14423684 gid 66 Enolase (2-phosphoglycerate dehyd (438) 1415 328.9 4.4e-091 0.534 0.745 436 [g]6015094 gid 491 Enolase (2-phosphoglycerate dehyd (440) 1406 326.8 1.8e-090 0.529 0.753 433 [g]1232054 gid 396 Enolase 1 (2-phosphoglycerate dehy (440) 1394 324.1 1.2e-089 0.526 0.756 439 [g]1467660 gid 491 enolase; phosphopyruvate hydratase (440) 1386 322.2 4.3e-089 0.524 0.748 433 [g]30314940 gid 103 enolase [Rhodotorula muciluginos (439) 1374 319.5 2.8e-088 0.518 0.761 436 [g]14585753 gid 1031 enolase [Curvularia lunata] (440) 1351 314.3 1.1e-086 0.524 0.735 437 [g]19581744 gid 586 enolase, isoform 1 [Hevea brasili (445) 1349 313.8 1.5e-086 0.517 0.764 449 [g]14423687 gid 586 Enolase 2 (2-phosphoglycerate de (445) 1340 311.8 6.2e-086 0.516 0.763 448 [g]1503219495 gid 3047 beta-enolase [Pangasianodon h (341) 1152 269.0 3.6e-073 0.530 0.779 349 | This enolase of <i>N. crassa</i> is >55% ID over 100 |

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| 34 | <p>>ESA42917.1 pectate lyase 1 [Neurospora crassa OR74A] MKFALAVTFAVAVATATPTTRDSEGRVPLAKRATVSDIANLGVATQNGGTTGGSGGTVTVTSLAQFTA AVSEKNTAPAINVVDGKGVKNTKRVKSGKTIKGLPGAFNGVGLHFRROSLNLRNIVSSFVEADNGDGLTI EKSSNVVVDHCFEYTLARDKDFYDGLVDISHGSEWVTISHTYFDHWHKSLVGHSDSNGSEDTGHLHVT ANNVWKDCSRGRLRFGTAAHNVSYNEMSTSNTRMGAQLVQSNFAKNVKPLFSEYKQVGYAVEI DNDFFGGANNTAPTGMTSSPSSYSLGSSNVAATVPKEVGAILSF</p> | <p>gi 121584258 gid 925 pectate lyase [Penicillium citr (290) 1014 242.6 2e-065 0.542 0.768 297 gi 493632 gid 450 Cry j IA precursor [Cryptomeria ja (374) 290 74.9 7.9e-015 0.290 0.542 310 gi 19069497 gid 453 putative allergen Cup a 1 [Cupre (367) 280 72.6 3.8e-014 0.275 0.613 222 gi 1516728 gid 450 Cry j I precursor [Cryptomeria jap (374) 280 72.6 3.9e-014 0.284 0.548 310 gi 6562326 gid 453 cup a 1 protein [Cupressus arizon (346) 279 72.4 4.2e-014 0.299 0.644 174 gi 118197955 gid 453 major allergen Cup a 1 [Cupress (347) 279 72.4 4.2e-014 0.299 0.644 174 gi 15139849 gid 617 putative allergen jun o 1 [Junip (367) 278 72.1 5.3e-014 0.283 0.647 173 gi 8843921 gid 617 pollen major allergen 1-1 [Junipe (367) 276 71.7 7.3e-014 0.277 0.586 278 gi 8101717 gid 453 Cup s 1 pollen allergen precursor (367) 275 71.4 8.5e-014 0.270 0.580 281 gi 8101719 gid 453 Cup s 1 pollen allergen precursor (367) 275 71.4 8.5e-014 0.270 0.580 281 gi 4138877 gid 617 pollen major allergen 1-1 [Junipe (367) 274 71.2 1e-013 0.273 0.586 278 gi 1514943 gid 423 Chao1 [Chamaecyparis obtusa (375) 273 71.0 1.2e-013 0.282 0.570 277 gi 493634 gid 450 Cry j IB precursor [Cryptomeria ja (374) 272 70.7 1.4e-013 0.281 0.545 310 gi 8101711 gid 453 Cup s 1 pollen allergen precursor (367) 270 70.3 1.9e-013 0.293 0.644 174 gi 8101713 gid 453 Cup s 1 pollen allergen precursor (367) 270 70.3 1.9e-013 0.270 0.580 281 gi 8101715 gid 453 Cup s 1 pollen allergen precursor (367) 270 70.3 1.9e-013 0.263 0.569 281 gi 8843917 gid 617 pollen major allergen 1-2 [Junipe (367) 268 69.8 2.6e-013 0.273 0.583 278 gi 62530263 gid 979 Amb a 1-like protein [Artemisia (396) 253 66.3 3.2e-012 0.312 0.565 253 gi 302127818 gid 36 putative pectate lyase precursor (397) 245 64.4 1.2e-011 0.282 0.544 333 gi 302127828 gid 36 putative pectate lyase precursor (397) 244 64.2 1.4e-011 0.368 0.611 144 gi 302127826 gid 36 putative pectate lyase precursor (397) 243 64.0 1.6e-011 0.361 0.611 144 gi 166447 gid 36 allergen [Ambrosia artemisiifolia (397) 243 64.0 1.6e-011 0.361 0.611 144 gi 302127820 gid 36 putative pectate lyase precursor (397) 241 63.5 2.2e-011 0.279 0.544 333 gi 302127822 gid 36 putative pectate lyase precursor (397) 241 63.5 2.2e-011 0.279 0.544 333 gi 302127816 gid 36 putative pectate lyase precursor (397) 240 63.3 2.6e-011 0.272 0.553 331 gi 166443 gid 36 antigen E (397) 240 63.3 2.6e-011 0.272 0.553 331 gi 302127814 gid 36 putative pectate lyase precursor (397) 240 63.3 2.6e-011 0.272 0.553 331 gi 113477 gid 36 Pollen allergen Amb a 1.3 precursor (397) 240 63.3 2.6e-011 0.272 0.553 331 gi 1191633749 gid 2703 putative pectate lyase 2 [Hel (394) 238 62.8 3.6e-011 0.314 0.549 264 gi 302127810 gid 36 putative pectate lyase precursor (396) 222 59.1 4.7e-010 0.279 0.550 269 gi 113475 gid 36 Pollen allergen Amb a 1.1 precursor (396) 222 59.1 4.7e-010 0.279 0.550 269</p> | <p>This pectate lyase protein of <i>N. crassa</i> is >36% id to Penicillium citrinum protein that is a weak allergen. By BLASTP it is >55% identical to 100 proteins from diverse sources. It is unlikely to pose a risk of allergic cross-reactivity.</p> |
| 35 | <p>>EAA35055.2 superoxide dismutase [Neurospora crassa OR74A] MYKAAVVIRGDSNVKGTVFIEQESSEAPTITTDISGNDPNAKRGHFHTFDGNTNGCTSAGPHFNPHGT THGDORTAEVHRHVDLGNIEDTAQNAKGVITDNLVLKLGIVSGRTVVVHAGTDLKGNGEESLKTGN AGRPACGVIGISQ</p> | <p>gi 160347112 gid 694 allergen Ole e 5 [Olea europaea (152) 548 140.4 2.8e-035 0.539 0.783 152 gi 145313972 gid 694 pollen allergen Ole e 5 [Olea e (152) 544 139.4 5.5e-035 0.539 0.776 152 gi 160962543 gid 694 Ole e 5 olive pollen allergen [(152) 544 139.4 5.5e-035 0.546 0.776 152 gi 39840779 gid 694 Cu/Zn super-oxide dismutase [O (152) 543 139.2 6.5e-035 0.539 0.776 152 gi 160962577 gid 694 Ole e 5 olive pollen allergen [(152) 543 139.2 6.5e-035 0.539 0.776 152 gi 160347106 gid 694 allergen Ole e 5 [Olea europaea (152) 543 139.2 6.5e-035 0.539 0.776 152 gi 160962547 gid 694 Ole e 5 olive pollen allergen [(152) 542 139.0 7.7e-035 0.539 0.770 152 gi 160347130 gid 694 allergen Ole e 5 [Olea europaea (152) 542 139.0 7.7e-035 0.539 0.770 152 gi 160962613 gid 694 Ole e 5 olive pollen allergen [(152) 541 138.7 9.1e-035 0.539 0.770 152 gi 160962557 gid 694 Ole e 5 olive pollen allergen [(152) 540 138.5 1.1e-034 0.539 0.770 152 gi 160962583 gid 694 Ole e 5 olive pollen allergen [(152) 539 138.2 1.3e-034 0.533 0.776 152 gi 160347124 gid 694 allergen Ole e 5 [Olea europaea (152) 539 138.2 1.3e-034 0.539 0.776 152 gi 160347126 gid 694 allergen Ole e 5 [Olea europaea (152) 538 138.0 1.5e-034 0.539 0.770 152 gi 160962569 gid 694 Ole e 5 olive pollen allergen [(152) 537 137.7 1.8e-034 0.533 0.776 152 gi 160347138 gid 694 allergen Ole e 5 [Olea europaea (152) 534 137.0 3e-034 0.533 0.776 152 gi 160962597 gid 694 Ole e 5 olive pollen allergen [(152) 534 137.0 3e-034 0.533 0.770 152 gi 160347134 gid 694 allergen Ole e 5 [Olea europaea (152) 533 136.8 3.5e-034 0.533 0.776 152 gi 160962611 gid 694 Ole e 5 olive pollen allergen [(152) 528 135.6 8.1e-034 0.533 0.770 152 gi 160347122 gid 694 allergen Ole e 5 [Olea europaea (152) 524 134.6 1.6e-033 0.526 0.763 152 gi 160962591 gid 694 Ole e 5 olive pollen allergen [(152) 522 134.1 2.2e-033 0.526 0.770 152 gi 160347120 gid 694 allergen Ole e 5 [Olea europaea (152) 519 133.4 3.7e-033 0.520 0.770 152 gi 160962587 gid 694 Ole e 5 olive pollen allergen [(144) 503 129.5 5.1e-032 0.520 0.743 152 gi 160347108 gid 694 allergen Ole e 5 [Olea europaea (144) 477 123.2 4.1e-030 0.507 0.730 152</p> | <p>The superoxide dismutase of <i>N. crassa</i> is >85% ID to 100 proteins from diverse sources of plants and pollen. It is unlikely to pose a risk of cross-reactivity.</p> |
| 36 | <p>>EAA28028.2 aldehyde dehydrogenase [Neurospora crassa OR74A] MNLFLRPSRPGSVPLWRHLYKTKGQVYHVQLSLRTSSSPFTNPKNMEVELTAPNGKKNWMLQPLFL NNEFVKSANEQLINSPTTEEEICSVYAATAEDVDAVSAARAKFRHSEWKSLSGTGALMRKLAADLVAE NAEILATIECDLNGKPYQTALNENVPEVINLRYAGYADKNFGQVIDVGPAKFAYTVKPELVGCGQIPWNI YPLDMAAWKLPALCCGNTVVLKLAEQTPLSYLAKLKIEAGFPPIVNIINHGREAALVHPQVDKI AFTGSTITTKEMKIMASYTKMNTLETGGKSLVIFEDADELAATVSHHIGINSNQGQICTATSRLVHEKVI DEFVFKAKVQEVSVLGDPEESTFHGPQVTKAQYERVLGVINVGKEEGATVMMGGEPAPQNGKGFV APTFTNVKPTMKIFREEIFGPCVAITFKTEEEALTLANDSMYGLAALFTDKLTRAHRVAREIEAGMVMV VNSNSNSDREIFEGVWKSQSGIBREAEAGLAPYCNVKSJHUNLAA</p> | <p>gi 76666767 gid 65 aldehyde dehydrogenase (NAD+) [Al (497) 1744 403.8 1.7e-113 0.533 0.780 492 gi 76666769 gid 518 aldehyde dehydrogenase (NAD+) [D (496) 1734 401.5 8.3e-113 0.539 0.780 492 gi 1055365860 gid 2592 aldehyde dehydrogenase-like p (486) 1520 352.7 3.9e-098 0.502 0.738 478</p> | <p>The aldehyde dehydrogenase of <i>N. crassa</i> is >65% ID 100 taxa proteins. It is highly unlikely to pose a risk of cross-reactivity</p> |
| 37 | <p>>ESA1863.1 superoxide dismutase, variant [Neurospora crassa OR74A] MSASLFRATPVARSALRAASAVKPAATVVRGKATLPLDQYDGALEPYSSIKIMELHSHKHQQTYYVNGLSA LTLTAAEESKGFTRKAASVAPLLNFHGGHNLHTLFWENLAPASREGGSGPDGALGKAITFEFGSFSFVKQ MNAALAGIQSGWAWLAKDKAANGKALILTRANQDPVTGNYVPLIGDAWEHAYYLQENRKAIFYFAI WVNVNWKTVAKRFEA</p> | <p>gi 149786150 gid 1092 manganese superoxide dismutase (230) 742 220.6 4.7e-059 0.524 0.806 206 gi 348137 gid 590 superoxide dismutase (manganese) (233) 734 218.3 2.4e-058 0.516 0.781 219 gi 5777414 gid 590 MnSOD [Hevea brasiliensis] (205) 722 214.8 2.4e-057 0.533 0.807 197 gi 10862818 gid 590 IgE-binding protein MnSOD [Hevea (205) 721 214.5 2.9e-057 0.533 0.807 197 gi 1648970 gid 330 manganese superoxide dismutase [A (221) 713 212.1 1.5e-056 0.521 0.725 211 gi 83305645 gid 330 Superoxide dismutase [Mn], mitoc (210) 712 211.8 1.8e-056 0.553 0.751 197 gi 465795607 gid 647 allergen [Malassezia sympodiali (202) 642 191.5 2.3e-050 0.482 0.736 193 gi 28569698 gid 647 manganese superoxide dismutase [(237) 642 191.5 2.7e-050 0.482 0.736 193 gi 57027967 gid 1885 manganese superoxide dismutase (191) 617 194.7 3.4e-048 0.538 0.773 176</p> | <p>This superoxide dismutase of <i>N. crassa</i> is >69% ID over 100 taxa proteins. It is highly unlikely to pose a risk of cross-reactivity.</p> |

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| 45 | <p>>FAA27916.3 hypothetical protein [Neurospora crassa OR74A]</p> <p>MSRRLSIFGRRLGRTTSSATEINSENGDFEIHGMLAPPYATIVDESADTLAAFDQLSLSNAASDPTVD TCLALHLKLLFAIQSKEEVEYTDGLVGLWDSLAGPFIHLEHTYADKKKTPSSDKPLDKMLLEDADKIKLEN LSKIREKRALFLAARATQRYEAWWKLSPGSPQLTEROMEEDTSFGVYTFPTDOSATFDWSEDKLPLDLV MYVHTHMLNPRAFLEDAAMLGRFVNRGLPWHVLVNAIDSDFSYVNTDQCARWTKQGLSVDWN QSDPRVLELQCPNCTKLSIPWTTCSRPFNFHQAELDLDTGTGYDGNLQHTCKGCGITICKELCASKFV KDVEALLGPNTRPIGTVLEPTTPGRAMPVPEPERSIYPTFRNRLKSGCNSIRTKVMTLTSRPNPTMQD VRVEIAILGNSTWLRINKYSNPRSAAYKVRASKLSIRKMGHYWENFSPFALDLAGAVVRQGFIEKM YKIDWLHSPSATDTRMKRLLKYARFFTIQKNTKMAVPTLDDILAWHTHLQDLSPSKYYKYSINTTKYIDHD DKVEEGRLLSEQFEVTSKEYQDTEYVEVSECTCYCESIRTSVNSLSGQVGVSKSEKIAEAFSEKAKLCP PDKSAHSSHNVAVLMHVDPSPNLTQDRVRVQLAALHQKRLDDAYAKAKRAEKGRITIPRDAAYYDH WGPYYMAGPYMYPWIFPLGYGWDGPGYAGCTGANGACAAGTCGGVAAGCGGAGCGGGG ASGACGGGGGGCGGGGGCGGGGGGGGGGGGGGGGGKLLNENPKYRSRY</p> | <p>g 291482310 gid 1338 ragweed homologue of Art v 1 p (134) 228 59.0 4.1e-010 0.506 0.612 85 g 1285005079 gid 1338 ragweed homologue of Art v 1 p (164) 214 55.6 5.6e-009 0.375 0.500 152 g 291197394 gid 1338 ragweed homologue of Art v 1 p (164) 214 55.6 5.6e-009 0.368 0.500 152 g 291482308 gid 1338 ragweed homologue of Art v 1 p (140) 209 54.6 9.1e-009 0.369 0.497 149 g 817033923 gid 2551 Par h I precursor [Parthenium (156) 189 49.9 2.6e-007 0.481 0.543 81 g 116329 gid 2594 RecName: Full=Endochitinase A; Al (280) 167 44.5 2.1e-005 0.462 0.615 65 g 26041081 gid 2594 chitinase [Zea mays (278) 152 41.0 0.00023 0.458 0.593 59 g 17937210 gid 2255 putative chitinase [Musa acumin (318) 124 34.6 0.023 0.411 0.536 56 g 291482318 gid 1338 ragweed homologue of Art v 1 p (116) 112 32.9 0.027 0.789 0.842 19 g 494319674 gid 2238 metallothionein type 2 [Coffea (80) 94 30.5 0.098 0.565 0.739 23 g 929312453 gid 3080 PREDICTED: collagen alpha-2(I) (1356) 123 34.1 0.14 0.361 0.472 108 g 56550550 gid 445 class IV chitinase [Cryptomeria (281) 111 31.7 0.15 0.338 0.532 77 g 363805423 gid 1910 RecName: Full=Non-specific lip (51) 76 28.8 0.2 0.412 0.588 34 g 929097893 gid 3080 PREDICTED: collagen alpha-1(I) (1449) 118 32.9 0.33 0.429 0.571 63 g 929075511 gid 3080 PREDICTED: collagen alpha-1(I) (1449) 118 32.9 0.33 0.429 0.571 63 g 14575525 gid 583 putative class I chitinase [Heve (295) 105 30.3 0.41 0.440 0.600 50 g 291482314 gid 1338 ragweed homologue of Art v 1 p (96) 91 28.7 0.41 0.405 0.541 37 g 929244458 gid 3080 PREDICTED: collagen alpha-2(I) (1356) 113 31.8 0.68 0.353 0.520 102 g 14423730 gid 61 Heat shock 70 kDa protein [Allerg (152) 95 28.5 0.71 0.467 0.600 30 g 14423730 gid 61 Heat shock 70 kDa protein [Allerg (152) 95 28.5 0.71 0.467 0.600 30 g 1225810599 gid 1206 Sal k 3 pollen allergen [Salso (757) 2368 545.9 6.2e-156 0.499 0.753 761</p> | <p>The hypothetical protein of <i>N. crassa</i> is over 46% ID with 100 taxa and proteins. It is highly unlikely to pose a risk of cross-reactivity.</p> | |
| 46 | <p>>EAA32517.2 hsp70-like protein [Neurospora crassa OR74A]</p> <p>MMSTRLTRALPKASIAIRAAGMLRPMTPAFARFESTESNGKVTGSVIGIDLGTNSAVAIMEGKVPRIIE NAEARTTPSVVAFEDGERLVGAARQAVVNPENTLAFATKRLIGRKFDPQEVRODKIPEYKIVQHTNG DAWVEARGQRYSPSQIGGFIQMKMETAESFLSKPVKNNAVTVPAYFNDSQRQATKDAGQIAGLNLRVV NEPTAALAYLEKEQDRIVAVYDLGGTFDVISLQINGVEFKVSTNGDTHLGGEDFDHLVRHLVQQPKK ETGIDLSGDRMAIQIRIEAAEKIELSSQLDINLPITADSSGPKHINQLTRAQLEAMVDPLIQRITIEPV KALKDANLQAKIEQVILVGGMTMPKVAESVIFGRDPAKSNPDEAVAGAAIGAVLSGEVDEKLLLD VTPLSLIGTELVGVTFRILNRTTTPKSKVFASTAADFQTAVEIKVQGERELVKDNKMLGNFQLVGIPPAH RGVPEQVETFDIDADSIVHVHAKDKSTNKDQSTIASGSLSEAEIKMVEDESKYAEQDKERKAAIEAANKA DGVINDTEKALINEYADRDKTEADAIKRIANLREFAIKSOSQEGALSADALKEKIDDLQVASLNFDFKMHK ARAEAGQQQSQTEGEKE</p> | <p>g 11561006361 gid 3077 allergen Der p 28 [Dermatopha (655) 1891 437.2 2.4e-123 0.502 0.775 628 g 194468818 gid 2708 heat shock cognate 70 [Aedes ae (655) 1865 431.3 1.5e-121 0.515 0.802 585 g 685432788 gid 2076 Der f 28 allergen [Dermatophag (654) 1862 430.6 2.4e-121 0.497 0.774 628 g 1055365842 gid 2591 heat shock-like protein [Tyro (659) 1802 416.9 3.1e-117 0.494 0.773 620 g 729764 gid 519 Heat shock 70 kDa protein [Allerge (643) 1756 406.4 4.3e-114 0.501 0.779 589 g 442565876 gid 2076 heat shock protein 70 [Dermato (659) 1527 354.2 2.3e-098 0.455 0.740 578 g 14423733 gid 250 Heat shock 70 kDa protein [Aller (503) 1467 340.6 2.2e-094 0.477 0.780 505 g 1465797105 gid 2027 allergen [Malassezia sympodial (773) 662 157.0 6.2e-039 0.271 0.597 672 g 28564467 gid 2027 putative heat shock protein [Ma (773) 656 155.6 1.6e-038 0.271 0.595 672 g 14423730 gid 61 Heat shock 70 kDa protein [Allerg (152) 114 32.9 0.029 0.298 0.587 121 g 156938889 gid 1143 group 10 allergen Blo t 10 [Bl (284) 107 30.8 0.23 0.258 0.532 124 g 80553470 gid 493 tropomyosin [Dermatophagoides pt (281) 102 29.7 0.5 0.250 0.532 124 g 48249227 gid 1080 tropomyosin [Tyrophagus putresc (284) 98 28.7 0.95 0.242 0.540 124 g 6900304 gid 623 Lep d 10 protein [Lepidoglyphus d (284) 98 28.7 0.95 0.250 0.532 124 g 37958141 gid 951 Der f Mal f 6 allergen [Dermatop (164) 366 92.5 8.8e-021 0.493 0.716 134 g 5019414 gid 325 PPase [Aspergillus fumigatus] (178) 355 89.9 5.6e-020 0.447 0.674 141 g 4138173 gid 651 allergen [Malassezia sympodialis] (162) 354 89.7 5.9e-020 0.459 0.651 146 g 1220142 gid 1926 cyclophilin [Catharanthus roseus (172) 335 85.4 1.3e-018 0.414 0.650 157 g 91680605 gid 863 cyclophilin [Aspergillus fumigat (163) 331 84.4 2.3e-018 0.451 0.699 133 g 373939374 gid 1941 cyclophilin [Daucus carota] (171) 328 83.7 3.9e-018 0.441 0.650 143 g 1373739558 gid 2869 cyclophilin 0101 [Olea europ (173) 325 83.1 6.4e-018 0.465 0.659 129 g 12186603 gid 1344 lepididolnolyl isomerase [Lyclop (173) 324 82.8 7.5e-018 0.433 0.652 141</p> | <p>This heat shock protien 70 of <i>N. crassa</i> is >88% ID to 100 taxa proteins. It is highly unlikely to pose a risk of cross-reactivity.</p> | |
| 48 | <p>>EDO64970.1 peptidyl-prolyl cis-trans isomerase-like 3 [Neurospora crassa OR74A]</p> <p>MSVTLHTLTDGKLEIFCESVPKTAENFALCASGYNAPSFRHMIPSPVQTGAPANPSPENPKGGRSIV GPTFDEIRPVLHNERGIVSMANKNGPNTNGSQFIFDKAPHLDGLNTVFGKLGDESGLTLQAKLEGLEVDK KNRIKEVRIERTVTHANPLAK</p> | <p>g 37958141 gid 951 Der f Mal f 6 allergen [Dermatop (164) 366 92.5 8.8e-021 0.493 0.716 134 g 5019414 gid 325 PPase [Aspergillus fumigatus] (178) 355 89.9 5.6e-020 0.447 0.674 141 g 4138173 gid 651 allergen [Malassezia sympodialis] (162) 354 89.7 5.9e-020 0.459 0.651 146 g 1220142 gid 1926 cyclophilin [Catharanthus roseus (172) 335 85.4 1.3e-018 0.414 0.650 157 g 91680605 gid 863 cyclophilin [Aspergillus fumigat (163) 331 84.4 2.3e-018 0.451 0.699 133 g 373939374 gid 1941 cyclophilin [Daucus carota] (171) 328 83.7 3.9e-018 0.441 0.650 143 g 1373739558 gid 2869 cyclophilin 0101 [Olea europ (173) 325 83.1 6.4e-018 0.465 0.659 129 g 12186603 gid 1344 lepididolnolyl isomerase [Lyclop (173) 324 82.8 7.5e-018 0.433 0.652 141</p> | <p>This cyclophilin of <i>N. crassa</i> is >77% ID to 100 taxa proteins. It is highly unlikely to cause cross-reactivity.</p> | |

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| <p>>FAA30681.1 VACUOLAR PROTEASE A PRECURSOR [Neurospora crassa] MKGALLTAAMLLGSAQAGVHTMKLKKVPLAEQLSEVPIDVQVQHLGQKYGLRTEHSHTQAMFKATDAQ SGNHPPVITFMNAQYFSEITIGTPPQTKFVVLDTGSSNLVWPSQCSGCIAYLHNKYESSESSTYKKNSTFS KIEYSGSLSGFVSDQRMITGIDTINQDLFAEATSEPLAFAGFRDFDGLGLGYRIAVNGITPPFYKMWEOG LVDEPVFSYLDADGGESEVVFVGNKDRYTGKITTPLRKAYWEVFDIAIVGKDFAELEGHVLDLGT SLIALPSQLAEMLNLAQIGAKKSWNGQFTDGCXKSSLEDVFTLAGVNYFLTGPEDYLEASGSLTFMGMD MPAPVGLAILGDAFLRKYYSIYDLGADTVGIATAKR</p> | <p>gi 695094784 gid 2271 aspartyl endopeptidase [Rhizop (401) 1344 312.7.2.6e-086 0.487 0.769 398 gi 1218215869 gid 2709 lysosomal aspartic protease [(387) 1131 264.2 1e-071 0.459 0.732 377 gi 118572685 gid 1618 RecName: Full=Pepsin A; Flags: (385) 915 214.9 6.7e-057 0.387 0.729 380 gi 963013 gid 324 aspergillopepsin i [Aspergillus fu (395) 406 98.9 5.8e-022 0.288 0.624 340 gi 1176397 gid 352 aspartic protease precursor [Blat (352) 403 98.3 8.2e-022 0.302 0.598 321 gi 62738637 gid 352 Chain A, The Structure Of Mutant (330) 401 97.8 1e-021 0.302 0.598 321 gi 315113421 gid 352 Chain A, Crystal Structure Of B (334) 401 97.8 1.1e-021 0.302 0.598 321 gi 145105726 gid 352 Bla g 2 allergen variant [Blatt (352) 397 96.9 2.1e-021 0.299 0.598 321 gi 313870534 gid 854 Per a 2 allergen [Periplaneta a (351) 362 88.9 5.3e-019 0.255 0.578 325 gi 60678785 gid 854 Per a 2 allergen [Periplaneta am (351) 345 85.0 7.8e-018 0.252 0.566 325 gi 293329689 gid 1747 pollen allergen CPA63 [Cryptom (472) 151 40.7 0.00023 0.236 0.537 365</p> | <p>This <i>N. crassa</i> vacuolar protease is >69% ID with 100 taxa proteins. It is highly unlikely to pose a risk of cross-reactivity.</p> |
| <p>>FAA31956.1 hypothetical protein ((AL451018) related to SORBITOL UTILIZATION PROTEIN SOU1 [Neurospora crassa]) MAAEMKDGFRFHDTVAQNTNSVMSLFLKGGKTAIVTGAAGIGVGAFAEAFAGANVAIWNYSKKNAL DAAADIEKRYGVKCAQVNVTSLEAVESAVEIVKFEFNGRLDIFVANSGIPWTDGAALDGPPEYKRVMA TNVDGTGVCQAQGRHWRQKQEGTMTDGGKLEFTYGSFIATASMSGHIANIPLQLQAVYNASKAAVI HLCRSLAVEVWGFARANTISPGYVRTDISEFCSEPEVKNWAKDKIPMGRGEGVELKGAUYLFASDASYYTGG ADILVDDGTCAP</p> | <p>gi 118595439 gid 783 Probable NADP-dependent manno (266) 497 119.9 1.4e-028 0.482 0.750 276 gi 37780013 gid 783 NADP-dependent mannitol dehydrog (266) 497 119.9 1.4e-028 0.482 0.750 280 gi 37780015 gid 799 NADP-dependent mannitol dehydrog (267) 496 119.7 1.7e-028 0.486 0.754 276 gi 171853012 gid 2371 seed maturation-like protein p (345) 168 44.8 7.3e-006 0.296 0.589 297</p> | <p>Sorbitol utilizing protein with >69% identity for 100 taxa proteins</p> |
| <p>>ESA2267.1 hypothetical protein, variant [Neurospora crassa OR744] MEDFGAAEQAQPNNAHDETRQSRITTPSAHTSAHSPPPQPPQQTGPSVTPASAPVSGPSTLTPGP PBSDTGADAGSEPVNPKRKRKASRACDFCHVNHQPCDNGQPKSCVCTKHNKPLCLYRPTKRRGPKQGYR ALNTYKESAAGAVLGAIPGLDIEHGLRAAQTCQKQIASKIDANAQELIARWQSGVGFRAFFGA RPGTAGMGGGGEDGREGSSALTDQDGEDEEMSLGVLGSPVSAQAQVGLGGQAPPAKFARETEQ RRQVARDLQLQQ GEGGRRASISPTKSPAPSVPPPPIQLPATTTTTTTTTTTPAPRPVPTSTSGIPTLNLNLNTITPP NFTINDSLSDVAKDAQSSRESQTLRPLGFAPDETIADFYSMGANPOPIMSAMSMSHHHHQYHHPLG GPNSSSKNFNDNFGGGGGGGGGGGGNGSINGNGNDYGGTYHGIGGGGGGGGGGGGA AAGDADDDFFLDFSEQRAYELLMGRSFG</p> | <p>gi 306722625 gid 160 high molecular weight glutenin (794) 276 41.7 0.00029 0.217 0.465 544 gi 170743 gid 160 HMW glutenin subunit Ax2* [Triticu (815) 276 41.7 0.00029 0.217 0.465 544 gi 170710 gid 151 alpha-type gliadin precursor prote (318) 220 35.8 0.0068 0.481 0.667 81 gi 283476402 gid 1617 alpha/beta gliadin precursor [(281) 209 34.7 0.013 0.475 0.713 80 gi 1137166044 gid 151 alpha-gliadin, partial [Tritic (293) 202 34.0 0.022 0.486 0.581 74 gi 285005079 gid 1338 ragweed homologue of Art v 1 p (164) 191 32.7 0.03 0.410 0.614 83 gi 291197394 gid 1338 ragweed homologue of Art v 1 p (164) 191 32.7 0.03 0.410 0.614 83 gi 291482310 gid 1338 ragweed homologue of Art v 1 p (134) 186 32.2 0.035 0.444 0.708 72 gi 71084277 gid 160 HMW glutenin x-type subunit Bx7 (795) 207 34.7 0.037 0.239 0.481 360 gi 170718 gid 151 alpha/beta-gliadin precursor (313) 194 33.2 0.042 0.429 0.626 91 gi 21765 gid 151 Gliadin-like protein product [Triti (313) 194 33.2 0.042 0.429 0.626 91 gi 291482308 gid 1338 ragweed homologue of Art v 1 p (140) 184 32.0 0.042 0.423 0.603 78 gi 21743 gid 160 high molecular weight glutenin subu (830) 205 34.5 0.044 0.226 0.462 563 gi 21673 gid 151 Alpha/beta gliadin-like protein pro (307) 192 33.0 0.047 0.500 0.614 70 gi 21757 gid 151 Gliadin-like protein product [Trit (296) 184 32.1 0.08 0.577 0.692 52 gi 170722 gid 151 pre-alpha-/beta-gliadin A-1 (262) 181 31.8 0.089 0.449 0.577 78 gi 21761 gid 151 Gliadin-like protein product [Trit (286) 181 31.8 0.096 0.484 0.609 64 gi 258588247 gid 1572 Chain A, Crystal Structure Of (531) 187 32.6 0.11 0.434 0.684 76 gi 307159112 gid 1572 prunin 1 precursor [Prunus dul (551) 187 32.6 0.11 0.434 0.684 76 gi 21755 gid 151 Alpha/beta gliadin-like protein pro (286) 177 31.4 0.13 0.484 0.594 64 gi 170720 gid 151 alpha/beta-gliadin precursor [Trit (286) 177 31.4 0.13 0.484 0.594 64 gi 170740 gid 151 gliadin (296) 176 31.3 0.14 0.558 0.673 52 gi 170738 gid 151 alpha-beta gliadin (296) 166 30.5 0.16 0.659 0.756 41</p> | <p>This hypothetical protein of <i>N. crassa</i> is >49% ID to 100 taxa proteins. It is highly unlikely to cause cross-reactivity.</p> |
| <p>>EAA34525.1 hypothetical protein [Neurospora crassa] MTDKQFKEGHNIPVTHQSPGEMETMPNPQLWDEIPTADGKSQKYRAAGLKKGKAIITGGDGGIGR ASALIFAMEGADSVIAYPEEEDAEQETKRRVEAYGQKCHLVTDLDRDRECKLVDEAVKIFNGQIDLFN AAYQMVMVDKDLSEQWINTFNTHHPFYLAQYPMYKRGSTIINASINAYIGRPDLDTYSTKGAIVA FTRGLNSQQAGKQIRVNAVAPGPVWTPPLIPSTMKRENEQFQSTPLRGAQPSEVATAVVFLASEDSSAF GDTIHPNMGTVWVG</p> | <p>gi 171853012 gid 2371 seed maturation-like protein p (345) 168 44.8 7.3e-006 0.296 0.589 297 gi 118595439 gid 783 Probable NADP-dependent manno (266) 327 81.1 6.8e-017 0.289 0.630 270 gi 37780013 gid 783 NADP-dependent mannitol dehydrog (266) 326 80.9 7.9e-017 0.289 0.630 270 gi 37780015 gid 799 NADP-dependent mannitol dehydrog (267) 294 73.6 1.2e-014 0.292 0.624 250</p> | <p>This oxidoreductase of <i>N. crassa</i> is >69% ID over 100 taxa proteins. It is highly unlikely to cause cross-reactivity.</p> |
| <p>>EAA34668.2 endoithalpepsin [Neurospora crassa OR744] MLFLPFTLLAALATGMAAIPSRDATTANKGTASLLQVRNPFSEFRHGFLALAKAYQKFGAPMPEDLRAA IARFRQNKRTTGTIATDPEKHDEVEYLTPISVGTSPQDLVDFDTGSSDLWVFSTEMSTSDIKGTQYVDPNN SSSEKVGQSTWKTYGDGSSSDGVYLDVTDTIGNLTPSQVAEAAKVSSEFTDSDHNDGLLGGFSAINA VEPTPQNTFFDNKSGLDAPLFTVLDKHTGTPGSNFGYDPAAYIGNISVTPVDSSQVWGTFSPGYAVGT GAFRNHSISGIADTGLTLLPKSVSSAYKIEIQAQYDQDQGGYIFPCSTPPDVFVNGKGVTVPGDMVY YAPADSNQNCFGGIQTDTGIFSGIFSDVALKTSVFFDAGLGLGWAAKNL</p> | <p>gi 963013 gid 324 aspergillopepsin i [Aspergillus fu (395) 1253 292.0 4.6e-080 0.474 0.793 411 gi 118572685 gid 1618 RecName: Full=Pepsin A; Flags: (385) 502 120.8 1.5e-028 0.340 0.627 335 gi 1218215869 gid 2709 lysosomal aspartic protease [(387) 482 116.2 3.6e-027 0.346 0.611 355 gi 695094784 gid 2271 aspartyl endopeptidase [Rhizop (401) 426 103.5 2.6e-023 0.305 0.575 325 gi 145105726 gid 352 Bla g 2 allergen variant [Blatt (352) 191 49.9 3e-007 0.224 0.525 326 gi 1176397 gid 352 aspartic protease precursor [Blat (352) 185 48.6 7.8e-007 0.218 0.525 326 gi 83300369 gid 320 Allergen Asp f 4 precursor (322) 113 32.2 0.061 0.235 0.489 221 gi 3005839 gid 320 Asp f 4 [Aspergillus fumigatus] (286) 111 31.8 0.072 0.235 0.489 221 gi 666434194 gid 320 Allergen Asp f 4 [Aspergillus fu (322) 111 31.7 0.082 0.235 0.489 221</p> | <p>This pepsin like precursor of <i>N. crassa</i> is >61% ID for 100 taxa/proteins. It is highly unlikely to cause cross-reactivity.</p> |

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| 54 | <p>>EA03582.1 hypothetical protein [Neurospora crassa] MVRFSVAALFSLGALVTAAPSGGRHMHQNTQNTAGNAGVVPVANSINSIIPGRYIVVYNTFGEE AINAHQIKVTLVAKRNLGRDIAKTGRIMSPSYKAFKMGTVRAMALDADDDMDINDSIAQEVIEEADQ YVKLNALTSQNSTTGLRLRLSHAGPSKKAAPYFDSSAGEGITAFAVDTGIRVTHSEYEGRAATFAANFVNVV DTEDEHGSHVAGTIGATFGVAKAKLVAVKVLDSGSGSNGVQLGSMQFVADTATSQKLGKAVLN MSLGGKSRANSAINQIAAAGVVPVVAAGNENQDTANTSPGSAIPAATVGAIDQRTDARASFSNFGAG VDIFAPGVNVLVSGIKSDTDDTLGSGTSMASPHVAGLAAYLMALEGLDVTAVGNRIKELAQKTKGAKVTNN VRGTSLIANNGL</p> | <p>g 129235 g 317 Oryzin precursor (Alkaline protein (403) 1067 249.6 2.9e-067 0.456 0.749 399 g 174665726 g 317 Allergen Asp fl 1 (403) 1062 248.4 6.4e-067 0.454 0.749 399 g 12295 g 2227 uncleaved alkaline protease (ALP) [(403) 1045 244.5 9.5e-066 0.461 0.757 399 g 294441150 g 2457 extracellular alkaline serine (403) 1037 242.7 3.3e-065 0.456 0.747 399 g 3549630 g 2227 alkaline protease, partial (Aspe (341) 988 231.6 6.3e-062 0.483 0.776 348 g 5813790 g 313 Tri r 2 allergen (Trichophyton ru (412) 946 222.0 6e-059 0.427 0.733 389 g 123894244 g 313 tri m 2 allergen (Arthroderma be (404) 925 217.2 1.6e-057 0.425 0.723 400 g 121069093 g 244 alkaline serine protease (Penici (398) 923 216.7 2.2e-057 0.430 0.718 393 g 174663809 g 313 RecName: Full=Subtilisin-like pr (405) 923 216.7 2.2e-057 0.424 0.721 401 g 14587983 g 244 Pen c 1; alkaline serine protease (397) 909 213.5 2e-056 0.420 0.728 393 g 6684758 g 244 allergen Pen n 13 (Penicillium ch (397) 902 212.0 6e-056 0.417 0.725 393 g 123894240 g 313 tri m 2 allergen (Arthroderma be (292) 825 194.5 7.9e-051 0.491 0.751 293 g 54654335 g 833 vacuolar serine protease (Rhodot (342) 810 191.0 1e-049 0.479 0.754 284 g 17963902 g 243 allergen Pen n 18 (Penicillium ch (494) 766 180.9 1.7e-046 0.387 0.652 411 g 14215732 g 243 vacuolar serine protease (Penici (494) 766 180.9 1.7e-046 0.387 0.652 411 g 12005501 g 243 vacuolar serine protease (Penici (358) 707 167.5 1.3e-042 0.435 0.712 292 g 1636530596 g 3038 subtilisin-like serine proteas (507) 602 143.5 3.1e-035 0.365 0.662 417 g 193507493 g 2241 subtilisin-like serine proteas (506) 590 140.8 2.1e-034 0.358 0.671 416 g 289172 g 318 serine protease (533) 586 139.9 4.1e-034 0.403 0.672 372 g 148361511 g 1376 vacuolar serine protease (Clad (388) 581 138.8 6.2e-034 0.415 0.680 316 g 12143220 g 318 cellular serine proteinase (Asper (495) 580 138.5 9.7e-034 0.396 0.664 414 g 4588118 g 243 alkaline serine protease Pen c2 [(457) 579 138.3 1e-033 0.376 0.660 415 g 60116876 g 1227 vacuolar serine protease (David (518) 579 138.3 1.2e-033 0.367 0.648 412 g 12005497 g 243 vacuolar serine protease (Penici (503) 577 137.8 1.6e-033 0.388 0.672 415 g 1739057410 g 2857 vacuolar serine protease, part (386) 545 130.6 1.8e-031 0.426 0.696 296 g 11127680 g 1171 subtilisin precursor (Bacillus (379) 511 122.8 3.9e-029 0.373 0.672 308 g 135016 g 1171 RecName: Full=Subtilisin Carlsber (374) 511 122.8 3.9e-029 0.373 0.672 308 g 267048 g 1174 RecName: Full=Subtilisin Savinase (269) 482 116.4 2.4e-027 0.389 0.663 270 g 1225905 g 1175 prepro AprM (Bacillus sp.) (361) 361 88.7 7.1e-019 0.384 0.669 245</p> | <p>Hypothetical alkaline protease >59% ID over 100 taxa / protrins</p> |
| 55 | <p>>EA27598.1 hypothetical protein [Neurospora crassa] MDIRGNLFGKPPOTPGGAGLPRGPVQQAAGGGYGGGATPTNYGSPGGRAPSPQYSGSGAGGYGG APSEKSYGGGGGGYGGQYPPAGVPSQAGRGVPLRLAKVDDKTLQSLYIFGNCAVSPNDFPNHDGT DLVIRLGRQLRGDYYVVARPTPGRFPHSLSDPQRTWCGVMMDELMGEVYDFPARGDDAYIGSMD VEIFGFASTNRIVDTPYDQDELAKVFLKTFQNPQVAFPGQRLFDVKNILAVMVKTVLVDLTMLGSEAPTR SDPGARGILNTQASIGFYKADRSPIKLSGSKRPAANAIAPDFKFNEMIGGGLDTEFTIFRRAFASRIFPPG LIEKLGIMHYGMMLLYPGPTGKTLIARQKGMMLNAREPKVINGPEVLNKYVGQSEINIRKLFADAEKEYEKE GDESGLHIIFDELDAVCKRSGGAGGGTGVGDSVNNQLSKLDGVDLNNILLGMNTNRKMDMIDALLRP GRLEVEQIEISLPEHGRGQILKIHTSKMKNKVMADDVLAELATLKNFSGAELSLVKSATSIFYAFSRHIV GTMVAGSEVDANMKVNRQDFLNALDEVKPAFAGESELEKHLAYGVHYSKITSILEDGLVYNNVRKLER LKHMTVLLHGPSASGKTLAAAHAMKSDPFKIFITPDMVGFREVAKKDYMHKIFDAYKSPSLLIIDNIE RIEWNVPGPRLSNTLQALVTLVTPPKGHRLLIATTSQRTVMEQLDVTESFDYQIAPVAVNNLQELGAV LNEVGFAGGDDQAAVSEVNLTRREYTSVSGVGVRTLITAEASDTPDKPQVFEKMAGLIARYNVR</p> | <p>g 1817033923 g 2551 Par h I precursor (Parthenium (156) 194 43.2 3e-005 0.463 0.538 80 g 291482310 g 1338 ragweed homologue of Art v 1 p (134) 164 38.3 0.00078 0.383 0.531 81 g 1285005079 g 1338 ragweed homologue of Art v 1 p (164) 167 38.5 0.00078 0.363 0.538 91 g 291197394 g 1338 ragweed homologue of Art v 1 p (164) 167 38.5 0.00078 0.363 0.538 91 g 291482308 g 1338 ragweed homologue of Art v 1 p (140) 164 38.2 0.00084 0.367 0.544 90 g 1079717864 g 3017 PREDICTED: collagen alpha-1(I) (1449) 173 37.2 0.018 0.382 0.578 102 g 929312453 g 3080 PREDICTED: collagen alpha-2(I) (1356) 166 36.0 0.036 0.302 0.511 182 g 1079717942 g 3017 PREDICTED: collagen alpha-2(I) (1355) 165 35.9 0.041 0.255 0.442 419 g 929244458 g 3080 PREDICTED: collagen alpha-2(I) (1356) 164 35.7 0.046 0.261 0.489 348 g 929097893 g 3080 PREDICTED: collagen alpha-1(I) (1449) 165 35.8 0.046 0.323 0.626 99 + 169 36.5 0.029 0.270 0.510 200 g 1736319 g 160 glutenin (Triticum aestivum) (838) 156 34.9 0.05 0.336 0.517 116 g 288860106 g 160 high molecular weight glutenin (848) 156 34.9 0.051 0.336 0.517 116 g 170743 g 160 HMW glutenin subunit Ax2* (Triticu (815) 152 34.2 0.076 0.250 0.457 208 g 929075511 g 3080 PREDICTED: collagen alpha-1(I) (1449) 140 31.6 0.86 0.326 0.652 92 + 144 32.3 0.54 0.356 0.485 101 + 142 31.9 0.68 0.248 0.463 335 + 142 31.9 0.68 0.371 0.584 89 + 142 31.9 0.68 0.330 0.588 97</p> | <p>Vesicular fusion protein >60% ID over 100 taxa proteins</p> |
| 56 | <p>>EA27313.1 hypothetical protein [Neurospora crassa] MRPILLSGHERALTQIKYNRDGLFVSVDKQDQICVWFHNGERLGTYHGQAIWTDVPTSTILASGS ADNTIRLWEIKTRLLKTWDFPTAVKRVEFSDGSKLGVTEKRMGLGTIVVLDIKLDVDAEQSDEKAMTI VCEDSKATVAGWSYLSYIAGHEDGVSQDFGKNGDLYNPIHLEINQPTDLQWSDHRTYFITASKDKTSK LITAKDLEVLKTPADTPLNSATITRKKDFVILGGGQAAMDVTTTSARQKGFARFYHKIFESEIGRVGRHGF PLNTVAADPTGKSYASGGFDGQVBIHHEKDFEYEMVYEFBERONKINQQOQOTISA</p> | <p>g 188572343 g 1248 eukaryotic translation initiat (325) 1034 242.2 3.2e-065 0.460 0.759 328</p> | <p>Translation initiation factor >83% ID to 100 taxa proteins</p> |

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| <p>>EAA35497.1 hypothetical protein [Neurospora crassa] MVTYKSPHIIAPGQKIRKPTDIEGHSPATYKQPRGSGLCFMRGALGFLLLHEQTTGVAAGSFDPTLRPT TLVSKAPVSPPTWKSPPAVPTPTSKPPAVGPTSIASSVPIRPSSTITGTSNPTSPNPTPIPLVITNSCPDITWR GIGTQNGIGPEVGGFELAPGETKPLFVSPDWQGRVWGRTRNCSFNADGTGSPNLNGVNGGAACMTGD CFGRNLCEFTQVPTVLAEFNLLGGINSDDTYDLSLVDGYNLPLGIYIIPAAANTWIPPNLTCVCIASAGFL DPPSRSGLYYTKTFPIWESDQTNPSVGGWCPWDLQEYPPSKPGDGIYPPDDSIQRPFVDFCLSCAAT GNPDECCTGKYDDVSPCTPSLYSENAKTVCPDAYSYAFDDQTTSTIIPNGGGVWVFCPRGRSTNLRIFGE ELRTIASGGGLTREILERVNRRTYIESANSKGLGGAGMVQRGAGVGGVVALWMMWMMVFWIC</p> | <p>gi 1144346 gid 240 thaumatin-like protein precursor (245) 258 51.0 1.2e-007 0.345 0.546 284 gi 190613905 gid 1884 putative allergen Pru du 2.01A (246) 245 49.1 4.6e-007 0.337 0.542 288 gi 190613907 gid 1884 putative allergen Pru p 2.01A (246) 243 48.8 5.7e-007 0.340 0.538 288 gi 60418842 gid 658 thaumatin-like protein precursor (246) 243 48.8 5.7e-007 0.333 0.535 288 gi 60418848 gid 658 thaumatin-like protein precursor (246) 243 48.8 5.7e-007 0.333 0.535 288 gi 190613911 gid 1884 putative allergen Pru p 2.01B (246) 242 48.6 6.3e-007 0.333 0.535 288 gi 25091405 gid 1884 RecName: Full=Thaumatin-like pr (246) 240 48.3 7.7e-007 0.337 0.535 288 gi 190613909 gid 1884 putative allergen Pru du 2.01B (246) 239 48.2 8.6e-007 0.333 0.545 288 gi 3643249 gid 658 thaumatin-like protein precursor (245) 238 48.0 9.5e-007 0.333 0.535 288 gi 30316292 gid 658 Thaumatin-like protein 1a precu (246) 238 48.0 9.5e-007 0.333 0.535 288 gi 359744030 gid 1884 thaumatin-like protein 2 [Prun (246) 236 47.7 1.2e-006 0.340 0.538 288 gi 190613903 gid 1884 putative allergen Pru p 2.02 [(242) 231 47.0 1.9e-006 0.330 0.516 285 gi 25091406 gid 1884 RecName: Full=Thaumatin-like pr (242) 231 47.0 1.9e-006 0.330 0.516 285 gi 139002766 gid 1034 thaumatin-like protein [Crypto (225) 223 45.7 4.2e-006 0.343 0.488 283 gi 38456222 gid 615 PR5 allergen Jun r 3.1 precursor (225) 221 45.5 5.2e-006 0.322 0.477 283 gi 38456224 gid 615 PR5 allergen Jun r 3.2 precursor (225) 221 45.5 5.2e-006 0.322 0.477 283 gi 9087177 gid 615 Pathogenesis-related protein prec (225) 221 45.5 5.2e-006 0.322 0.484 283 gi 190613941 gid 1884 putative allergen Pru du 2.02 (241) 219 45.2 6.6e-006 0.319 0.523 285 gi 392507603 gid 658 pathogenesis related protein 5, (193) 214 44.3 9.5e-006 0.326 0.519 258 gi 135917 gid 1720 RecName: Full=Thaumatin-like prot (173) 213 44.2 9.8e-006 0.452 0.661 124 gi 88191901 gid 750 Chain A, Resolution Of The Struc (200) 212 44.1 1.2e-005 0.314 0.473 283 gi 9929163 gid 454 Cup a 3 protein [Cupressus arizon (199) 211 43.9 1.3e-005 0.314 0.481 283 gi 38456226 gid 454 PR5 allergen Cup s 3.1 precursor (225) 211 44.0 1.4e-005 0.318 0.481 283 gi 441482370 gid 48 thaumatin-like protein [Actinidi (225) 209 43.7 1.8e-005 0.310 0.467 287 gi 663434113 gid 1969 RecName: Full=Thaumatin-like p (207) 207 43.3 2.1e-005 0.329 0.481 283 gi 38456228 gid 454 PR5 allergen Cup s 3.2 precursor (225) 206 43.2 2.4e-005 0.314 0.481 283 gi 449061783 gid 1670 RecName: Full=Thaumatin-like p (226) 202 42.6 3.7e-005 0.332 0.470 283 gi 16609959 gid 406 osmotin-like protein [Capsicum a (246) 200 42.4 4.8e-005 0.325 0.500 286 gi 71057064 gid 48 thaumatin-like protein [Actinidia (225) 191 41.0 0.00011 0.303 0.456 287 gi 146737976 gid 48 thaumatin-like protein [Actinidi (201) 189 40.6 0.00013 0.304 0.466 283 gi 218059715 gid 658 thaumatin-like protein [Malus x (158) 137 32.8 0.023 0.317 0.486 218</p> | <p>Hypothetical thaumatin family protein >57% ID over 100 taxa</p> |
| <p>>EAA42117.1 hypothetical protein NCU12078 [Neurospora crassa OR744] MDPRLKTIISNPNITPSTITITAPSTITLITPTSSPPTSTITSTIPSATSLPLKTPSTTSSPLGSATYTTSSKP TLWLSASNTSTDPDGKLPISGTSR</p> | <p>gi 78128018 gid 509 group 15 allergen protein [Derma (558) 170 50.8 6.9e-008 0.451 0.626 91 gi 5815436 gid 509 98kDa HDM allergen [Dermatophago (555) 160 48.2 4.2e-007 0.392 0.676 74 gi 67975089 gid 509 group 15 allergen protein short (532) 140 42.9 1.5e-005 0.441 0.627 59 gi 970836006 gid 2515 Der F 23 allergen [Dermatophag (174) 125 39.2 6.5e-005 0.325 0.627 83 gi 83300389 gid 321 Allergen Asp F 7 precursor (270) 100 32.6 0.01 0.312 0.615 109 gi 666431137 gid 321 allergen Asp F 7 [Aspergillus fu (270) 100 32.6 0.01 0.312 0.615 109 gi 162811 gid 376 kappa-casein precursor (190) 88 29.5 0.059 0.306 0.694 49 gi 27881412 gid 376 kappa-casein precursor [Bos taur (190) 83 28.2 0.15 0.286 0.694 49 gi 455288 gid 129 isoform 9 (339) 86 28.9 0.16 0.259 0.635 85 gi 1026943499 gid 2590 Chain A, Solution Structure O (95) 74 26.0 0.34 0.287 0.575 87 gi 752855036 gid 2590 non-specific lipid transfer pr (120) 74 25.9 0.44 0.287 0.575 87</p> | <p>1 protein 100% match N crassa hypothetical protein</p> |
| <p>>EAA26733.1 hypothetical protein [Neurospora crassa] MGKRKSSSRKPGQPRRNDPLPTVFTCLFCNHERSVINLKDKAGVGYLDCIKGQKFCQPVNLYLDAADVY SAWVDAADAVAQEAEASAKAASYNSRSTGRPAASSRRAADIDEDDEDDRRGVGGSGVEVDDDDYD</p> | <p>gi 1827354784 gid 2463 EIF1 superfamily transcription (89) 252 72.4 4.4e-015 0.451 0.671 82 gi 5777795 gid 520 minor allergen, ribosomal protein (111) 77 26.7 0.31 0.271 0.627 59 gi 6686524 gid 331 rAsp F 8 [Aspergillus fumigatus] (111) 71 25.1 0.92 0.256 0.667 39</p> | <p>Hypothetical protein >53% ID to top 100 taxa and proteins</p> |

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Table with 3 columns: F (Protein Name/Accession), G (Reference Protein/Accession), and H (Conclusion of risks). Rows include entries for myosin regulatory light chain, hypothetical proteins, and various allergens like gliadin and glutenin.

| | F | G | H |
|-----|---|---|---|
| | >FAA29618.1 hypothetical protein [Neurospora crassa] MSNSMRDLIDGEEALDEEDEFSEDEAGDRPRRRPNIDDSSEEEDEDEEAREKREGFVDEDEE EEDSDEARRRRRRRREEREEDEEDLIDGEEAPEWERKRRQEQKFKRGRHRRDHRPERRGLAEI EEDDEEHRHDDGVRGSPSQAQADEDFDIEDDYPDEDEERHREEDVEARPKDRGLNIOTDGLKDALED MDAIFNGEDYEVALQLEEQEHAERTKEDILOVPEFSQKLEKLLDDEDNRIRNFDEPERQLDKAFK LQMTSDQFKEARWISMLPSPKNSLSELHPFNKAVGLVLEFFVIDGVVEVYVVFQHRDYLIHAKKMRNP NRRDDPDAPEYTVDAEKLTTQDDLVKVLDIRFRSFLERNALEQYDKLKEKTRDDILEEMIRQAQSI EELQDLQYLNQYSAELKLAANDNSAQRKAGGRTAQFERIRRSNAYKQVQALGITPDLAKNIRESSK VTESSDRPLDADLTDVADFTGELVINAARQMLAEEMFASPRMRKHFRNFKYGMGIVCRRTDKGLR IDEANPEYVYKLNMSIADLAVRPELFLKMKMAEEGLIEKVSLENDREFRQQLFSDFASENSELADK AERQKVIDLAFDKLVKIVKGVKSLRACQDELKTCRELYFKRLDQAPYKPKGMVIGTTPRVLTLSNGM DPNREPVSVMDEDRLEHGTFTNLARDESQREALAELVRRRQPDVIGISGFASDTHRLIKDVEGLVSE GLVGPYDDPETNEYRSDLEEVINDEVARLYKDSRAVADHPSLNPMTRYCIALARYMQNPMKEYAALG KDVTSLQHPYQYLQAKLKHLETAMVDMVNLVGDVINDVAMQDANTAHLLPYVAGLGRKALQILKI NKGGVVTSRDELVDGPERHKLPLGPRVWNCASFIEYEPTNPESDPLDNTRIHPEDYDLARKVAADA LGLDEEDVKAETDEGAGAVRKLKDDQKVNELIEYAEQLEREYQQRKATLRETIRAEQVPEELR KFESLTVQVFTMLTGENRDLCEGMVAANVRVVKDDFAIVKLDCEGRIESHVSYRHSIKDLVHVGQ VQAKLIDLNRKEFVSKLMDREMRPFRHFDHRDQWYRKEDEDERELREKDKSTGRAQVNVNPLF KPFNSTQAEELYSQSPGSEVIRPSKGNHDLAVTWKVDGQVQVHVDVLELQKENEFAVGRVLRVGYT QDLDELVDHVKAMAKVDELMLCQDKFGKSRNETKWLTYMDANPNSTYAFCDIKHPGFFLFCRKA | g 1732706 g 573 Glycinin-like protein product [Glycin (562) 168 162.5 0.00068 0.388 0.635 85 g 1806556 g 573 ASA483 subunit [Glycine soja (563) 166 160.6 0.00086 0.349 0.616 86 g 18641 g 573 glycinin [Glycine max (562) 163 157.8 0.0012 0.395 0.651 86 g 4249568 g 573 glycinin [Glycine max (563) 163 157.8 0.0012 0.395 0.651 86 g 1980951568 g 1067 RecName: Full=Conglutin beta 7; A (605) 160 154.5 0.0019 0.257 0.521 280 | AOL no significant alignments. BLASTP 100 alignments of > 60% id, diverse. No significant risks of allergic cross-reactivity |
| 103 | >AA35357.1 hypothetical protein [Neurospora crassa] MYKNNVQTKKFEKHLGLVLRKRVYQIKRQEQKQKQAKKQSDAFQKPDGKPKVHAKNGLTAA GEMTVDFDQGGFELDKTKDASGLKGRKRDQESDAEESADGSDVSDDDISHVSDDEEED EVDGAAPTGKMTKAMASLAKDEPFYKFKLNDPEFALEDENADSEIDSESGEGEPEKKQKOT KAADEENGELFTQKMIKWAQIETKSLRAARQVVIACRAHLNEDDEKPKQRYTINNPDAFNDILVLA LKHIFEVLAHHVPKESASGKAYNTDTKFKILSLVKNYAAASHHLLGSLDEPTLKLTSALEPLLYLFRK LKLVIKTVAFWFSQASATEIRATFLAVRRLMVISDKGVRTELKAVYQGLVQGCRLNVTNAGINIMKN SAAELWGLDQTLGYTAFGIRLAIHLRNSVNNKNAFRVNWQYHSLDFVSCVLEHSCPLKEAEA GKESQLKLVPLVQTLGAMRLIPTALYFPLRQLRLLRSLRATDVIPLASALLELVNSAEMKPKKSTLKR LDFATAYKAPKSYLRTRVYDGLGEQVIELSEYFVLSRNIAFPFSLPVVVALKRWLKSRRKSTGNMNG IGTQLALLVQKIESNAKFIEDKRNRFDFANDRTQVEAFLRDFEWEKTPLAGFVVSQRKLAERKMMMEA | g 18536 g 2083 beta-conglycinin, alpha subunit-like (605) 156 147.4 0.0047 0.359 0.769 78 g 1967357 g 2083 alpha subunit of beta conglycinin, (543) 155 147.1 0.0049 0.388 0.700 80 g 194468546 g 1024 30 kDa salivary gland allergen var (273) 144 141.2 0.01 0.421 0.605 76 g 1967361 g 2084 alpha' subunit of beta-conglycinin, (559) 147 139.7 0.013 0.320 0.747 75 g 1169929 g 2084 beta-conglycinin storage protein [G (639) 147 138.9 0.014 0.320 0.747 75 g 2114497 g 1024 30 kDa salivary gland allergen Ge (253) 140 138.0 0.016 0.255 0.571 212 | 66 sequences of >35% identity predictions by AOL, mostly from Triticum and real alignments are <40% identity. Many BLASTP alignments >68% ID 100 taxa proteins, many are >40% identity over the length of the diverse proteins. No likely allergic cross-reactivity. |
| 104 | >EA39368.1 hypothetical protein [Neurospora crassa 0R74A] MAKLVGGSLWNTDNNMLRAKFEFEGVAEEAVVVRDTRGSRGFGVRYGNDADAENAIANMDDGE FDRRVRVQKASDRAAGGG GG QY | g 291482310 g 1338 ragweed homologue of Art v 1 prec (134) 227 217.2 6.1e-007 0.583 0.750 60 g 17108427 g 160 HMW glutenin x-type subunit Bx7 pre (795) 207 188.9 2.3e-005 0.387 0.486 142 g 122090 g 160 HMW glutenin subunit 1B9Y [Triticum ae (705) 200 183.5 4.6e-005 0.426 0.539 115 g 291482308 g 1338 ragweed homologue of Art v 1 prec (140) 188 182.9 5e-005 0.471 0.586 70 g 288860106 g 160 high molecular weight glutenin sub (848) 195 178.0 9.3e-005 0.359 0.545 156 | 20 AOL alignments of >35% identity, diverse proteins, Triticum, Ambrrosia, Sinabis, Lates, Parthenium. No meaningful alignments (often short) in AOL. BLASTP >69% ID of short segments of sequence across 100 taxa and proteins of <40% length. No likely cross-reactivity. |
| 105 | >EA332041.3 AP-1 complex subunit gamma-1 [Neurospora crassa 0R74A] MSSLKQFIRNVAAKIADERAVIQEKSAARFSRESDHSHVRRNNAKLYLFTLGERTHFGQIECKL SPRFADKRLGHLATSLLDENQVLTNLSLQNDLNHMQVYVGLALCTLGNIAVEMSRDLFPQIETLIST NPYIRKAAKLCAMRICKVPLDQEFVEKAQILLSDRNHGVLLGLTSLTSCADEAEGGEGIEKFRQFV PVLVRLTKGLASSGYAPEHDVTGTPDLQKILRLRVLARGDAQTEQINDILAQVATNDATKNVNSIL YEAULTLIDIEADGLRVLGNILGFLANKDNINRVALNTLVKVAIDTNAVQRHNITILECLRDPDISIRR RALDLSFTLINESNVRILRELLAFLEVDNEFKPNMSTQIGIAADRYAPNKRHWVDTMLRVLTLAGNVYKE PILLSFIRIATPELQYVAYQYLNKIKQESLTOAGAWCIGEYDALLRGQVVEEELVQVEKHELIDL FTTLNNSYATQVTEYITAIKLTTLRLQDATQIERVRLQYHQTSLSLDEVQVQAEYGNLFSFQIRRVLE KMPPQIKESSRVLGAAKKTKAAGKTKAAKPEKEDLLDMLGDTNLPSPVPGNGTNNADLADILG GTSPPTSASAPAQSNVASIMDLFSQGTPSPAPAPAAAPSAVLDLFTTTPAASAPAPQAAKPPAAA AGHYACDNNGLNVTIQQRNAEAGMIQATARFRNSFPGGPLSAVGLQAAVPSQKQLLNSISDIAPGA EAE | g 1666431137 g 321 allergen Asp F7 [Aspergillus fumig (270) 124 129.2 0.049 0.280 0.585 118 g 183300389 g 321 Allergen Asp f 7 precursor (270) 123 128.2 0.055 0.280 0.585 118 g 4552888 g 129 isoform 9 (339) 107 111.2 0.49 0.521 0.729 48 g 78128018 g 509 group 15 allergen protein [Dermatop (558) 109 110.6 0.53 0.230 0.598 122 MLRHITITLSTLFTITLFTLNHVLVQATPQQQPSKASIFVHRVNDLSLNTHPKTPPAELPLQQ HAKEPITITITITATATVATPSNTPASSVPSFLNPAFTSALLNSTFYRAQHNASAVIYNDLTS SFASHYDLKLPFSSSSSSSLVQSKSKSKSFSTTTTCKELTHSQYGENLALGSDVQSCVE MWGNERARYDFGAKFGEDTGHTQLVWKTDDVGCARWVQGWNAQGGWVLCYVWRPNVWVGFEGSM VQRRRENGGGSRVRAEVRVWVGVVGVWVGV | Two alignments over 35% ID over 80 by AOL. BLASTP has many alignments of >80% ID over full length for 100 taxa and proteins. Diverse. Not likely cross-reactive. |
| 106 | >EA30878.1 hypothetical protein [Neurospora crassa] MRLHITITLSTLFTITLFTLNHVLVQATPQQQPSKASIFVHRVNDLSLNTHPKTPPAELPLQQHAK PITISITITITATVATPSNTPASSVPSFLNPAFTSALLNSTFYRAQHNASAVIYNDLTSFASHYDLK LPFSSSSSSSLVQSKSKSKSFSTTTTCKELTHSQYGENLALGSDVQSCVEWNERARYDFGAK KFGEDTGHTQLVWKTDDVGCARWVQGWNAQGGWVLCYVWRPNVWVGFEGSMVQRRVEGN GGGSVRVAEVRVWVGVVGVWVGV | g 171464770 g 467 pathogen-related protein 1 [Cucumi (151) 264 319.5 1.2e-012 0.385 0.688 96 g 1343071177 g 2724 Pathogenesis-related protein PR- (163) 240 290.6 4.9e-011 0.408 0.622 98 g 148887203 g 789 art v 2 allergen [Artemisia vulgar (162) 239 289.5 5.7e-011 0.398 0.622 98 g 1343071174 g 2724 Pathogenesis-related protein PR- (163) 239 289.5 5.8e-011 0.398 0.622 98 g 1343071183 g 2724 Pathogenesis-related protein PR- (163) 239 289.5 5.8e-011 0.398 0.622 98 g 1343071179 g 2724 Pathogenesis-related protein PR- (163) 239 289.5 5.8e-011 0.398 0.622 98 g 1343071181 g 2724 Pathogenesis-related protein PR- (163) 237 287.1 7.8e-011 0.396 0.646 96 g 1859630616 g 3039 RecName: Full=Venom allergen 5; (202) 183 221.9 3.3e-007 0.387 0.680 75 g 1595790543 g 3013 basic form of pathogenesis-relate (161) 181 221.0 3.8e-007 0.379 0.598 87 g 1549185 g 121 Venom allergen 5.02 (Antigen 5-2) (Ag (202) 181 219.6 4.5e-007 0.359 0.609 92 g 160780 g 276 allergen 5 (209) 181 219.4 4.6e-007 0.324 0.627 102 g 1549184 g 121 Venom allergen 5.01 (Antigen 5-1) (Ag (202) 180 218.4 5.2e-007 0.363 0.626 91 g 16136165 g 121 Venom allergen 5 (Antigen 5) (Ag5) (202) 179 217.2 6.1e-007 0.358 0.679 81 g 1549188 g 1276 Venom allergen 5 (Antigen 5) (Ag5) (A (205) 179 217.1 6.2e-007 0.324 0.627 102 g 1079717942 g 3017 PREDICTED: collagen alpha-2(I) c (1355) 103 118.0 0.2 0.346 0.519 81 g 929244458 g 3080 PREDICTED: collagen alpha-2(I) c (1356) 94 107.5 0.78 0.338 0.558 77 | 26 AOL alignments of >35% ID over 80 to diverse species, venoms, weed PR 10 proteins, but not over 40% identity. BLASTP 100 proteins with >42% ID and mostly >50% of length of diverse species. No risk of cross-reactivity as the diversity is so great. |
| 107 | >EA27670.3 hypothetical protein [Neurospora crassa 0R74A] MASHDEIWDGSLVNSWNEALAEYKYSIAEAGALPEVADELEDQSAKSPGATNVHQEGEDGAP AVEVKTPIHQHLEGTQSAAEAPTAASLPGPPMLLGSVQDEELKLLMSWYVYGYTGLYEK QKALHEDAQD | g 1079717942 g 3017 PREDICTED: collagen alpha-2(I) c (1355) 103 118.0 0.2 0.346 0.519 81 g 929244458 g 3080 PREDICTED: collagen alpha-2(I) c (1356) 94 107.5 0.78 0.338 0.558 77 | Three minor AOL alignments to grass proteins >35% ID. BLASTP has 100 alignments >43% ID. Very diverse with >90% coverage. No risk of cross-reactivity. |
| 108 | | | |

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Table with 3 columns: F (Protein Name), G (Sequence/Accession), and H (Conclusion). Rows include entries for Neurospora crassa proteins like mucin, hypothetical proteins, and calcineurin subunit B, with detailed sequence alignments and risk assessments.

| | F | G | H |
|-----|---|---|---|
| 134 | >FAA30358.1 hypothetical protein [Neurospora crassa] MSTQPSDSEAFGAAPAAVSTYAGVETPTVPGESEPAADAAKHEEPEKVNPTPEQTPAPVDNEPKPAAAP AQEADSPADIKDSVSTTAGELSPALQWKAEEGHAHEFIWGPLSDPERHIPTQIFQKFLNANEGQVEKAK DQLKTLDWKQTPQQLLRKMFSAKFDGLGVYVTTAGDEPAVDEPEQKEVFTWNLVYGSVSLDETFG NLQEFVEVRVALMELGLMEINIGAKIPADYDPYKMTQVHDYKISFLRQTDVKAASKECIKVLGDNY PELLKEFFLNIPAIMGFFYGLMKMFVSKTLNFKHPMSSGTNLAKEFVNTKVDGLGDKLPAEYGGKADL TLCKAPINT | 24 sequences with identity matches of >35% to group V allergens of <i>Phleum pratense</i> by sliding 80mer | Timothy pollen Phl p identity matches over 35% to 24 proteins from timothy. BLASTP to ID matches of > 51% to 74% coverage of proteins from many 100 diverse species of fungi. No concern about possible cross-reactivity. |
| 135 | >FAA28623.1 predicted protein [Neurospora crassa] MAPFTMSRILGCLLFLGTFALLADTTKSGSQLSKAETRRLAASATATVPVATPAPLVVIGTRTTTVSTIAI TTTTALARAEPSPSNVIVAPPTVTAKPEPAAPSLHAAPLPDDPFRLFHNDNSLLSCYSSGROGERWK FIESIONFCHALDRESLSRRIPLTFGRQHSYNWELWVRYRTHYDISLDVKKPGEWFEFSEYECQYLRI MCDMEMENDKKGGEVOARTGYGDRDQNHVHWKGEVLKQYGEARLDLEKKGMSRTCLVWRIDLVL GHNDGANVVEGEPDQVGLDIDGPHDHDGKQVNHGGE | Two <i>Aspergillus Asp f 7</i> proteins with matches of 37% ID over 80 AA by sliding 80mer window | Two <i>Aspergillus</i> proteins with matches over 35% ID. BLASTP 100 matches of > 33% ID to segments of diverse proteins in fungi. No concern for Cross-reactivity. |
| 136 | >FAA28623.1 predicted protein [Neurospora crassa] MAPFTMSRILGCLLFLGTFALLADTTKSGSQLSKAETRRLAASATATVPVATPAPLVVIGTRTTTVSTIAI TTTTALARAEPSPSNVIVAPPTVTAKPEPAAPSLHAAPLPDDPFRLFHNDNSLLSCYSSGROGERWK FIESIONFCHALDRESLSRRIPLTFGRQHSYNWELWVRYRTHYDISLDVKKPGEWFEFSEYECQYLRI MCDMEMENDKKGGEVOARTGYGDRDQNHVHWKGEVLKQYGEARLDLEKKGMSRTCLVWRIDLVL GHNDGANVVEGEPDQVGLDIDGPHDHDGKQVNHGGE | Four allergens from diverse sources with > 35% ID matches, from <i>From Tyrophagus</i> , <i>Davidiella</i> , <i>Alternaria</i> and <i>Aedes</i> | AOL has few matches over 35% ID. BLASTP there are 100 matches to somewhat diverse fungal proteins with more than 70% cover over > 200 AA. No concern of possible cross-reactivity. |
| 137 | >ESA43749.1 hypothetical protein NCUI6303 [Neurospora crassa OR74A] MKFLNLLARSWLSALAHDFSLPDRQLRALRRQHPNGTSLSEALRGLDESPHEPLHRIQTGRC GANVGRCPDSCSEYVCGDVTVDHCYGFDCQAPVCGVWRPRTVATSTTTTSTVSTSTSTTSTIT STRSSTASSFVPIITGIIITNGQCNGSTICPGITDAWGRCPSRFVCGSGPEYCGAGCQSAFGLCEDDS GSPGTSST DGDQFCPIVNGCPDFEYKCPDQDATT | Five allergens in AOL with matches of >35% ID to this protein by sliding 80mer window, up to 37% identity | AOL five proteins greater than 35% ID over 80. BLASTP ~ 100 proteins in NCBI protein with matches of 35% ID or more from diverse species. |
| 138 | >FAA28982.3 ehand domain-containing protein [Neurospora crassa OR74A] MTPKYTLTPEHIAQFREVDFDKDHTGDITAEELGVVMRELGLNPSKAELEDLVNEADTKNDGVINFEFL NLMSQSVKTEDEKLEAFKVDKDNSGTISTELRAVLKSLGEMTDADVDEMIKLADKNGDQDYAE AQIMK | 30 Protein matches of >35% ID over 80 to a wide variety of proteins, <i>Cup a 4</i> , <i>Bla g 6</i> , <i>Olea Juniperus</i> , chicken and flea | Five proteins with matches of chitinases with >35% ID over 80. BLASTP over 100 matches with > 25% ID over 80% of protein lengths, diverse fungi. No concern of cross-reactivity. |
| 139 | >FAA33858.1 hypothetical protein [Neurospora crassa] MYGFSFLGKAAASSKAPAKRPTTFGGDDDDDEDTAAGDGGQPKPIAAEIAELDGFDDNTSTPELAVDE DRSKKSKGLPQPPIASATTTTTSSSSSNKAPPVAAAAAGDLSALESRYAAQAAATADPSIYDYDAV YDSLKAPKQKEKESKEGRPRYFDALQKAETREDRRAIEEKRLKREAEAGDAFADKEKVFTEAYKRO QENNRLEEEKREEEAKKNKGLTFDYKQMLEKEEQEHAAMKAVEERVKAGPGEAAQKNEGEE DPDAEKATERAKEINAMGNVINDGVEVDKRLKGLGNVAPKKEVHOEKAQAAKPAAGASGPA KGVFGSGSKAMRERQTRMLEAQLEERLKRAREEEEEERKVKLVLSKSRKTEADISSAKERYLARKRAEE AKKLEEEGAP | Nine proteins from AOL matched this <i>N crassa</i> protein with >35% ID over 80 AA by sliding window from snail to oyster to scabies to HDM to mosquito and three others | Nine matches to AOL tropomyosin proteins with > 35% to ID over 80. BLASTP diverse matches of >49% to > 50% ID to 100 many species and diverse proteins. No concern of possible cross-reactivity. |
| 140 | >FAA27100.3 kinesin [Neurospora crassa OR74A] MSRVVVARIRLLKELDKDVIIRAASDEGKPTFKVKNPKNETEFSYVFNVSVDQSCQEDLFNAEYVPH IKALFGDLVTFAYGVGTGKTHMIRGGKMKMDERGLPRLLSNVFRFGKIEKDSNGETTVDVHLSYEIY NDKYDLLEPEMPTMPLPREKEGKTFVGLTERPCDDVDFERLYVEANNRVTAATKLNASRSHAI LRVKTQTTGDMVLESTASADILAGSEDNRRDNNRDRMIESAINKSLFVLSQCIDAISRGDKRIPRESK MTRILSLGQNGITMILNLPMSRYHLDLSSLNVSSRAKRIEVEIENEVYKQPHRSHSSTFSGLTNGVL APRQPLRPIGLTQNSYTGAPALARRSIDRAAASGAVIEKIEKSKLFNVYADRASAHKATASMGGSSSR LAGPPQANTSQIRQLSGLSGLASRRSMTDTPASSSTETALSRLGIGTASKLARPTGLPLPGSVSAGVS RQNSSSGSIQPPQTSKSVNDTPIITLSAAQIEMVVEKVAELAAARAAAAAALAPQITPTPRSDNHHP PGSEQRPKSSEPRISEVQRRLLEERRIEQSMSTSRSSRRGRGRDEKAGLQLLLEARKAKEAGQLEE ALGMVEDALGFFPGQRKLKGLKIKLKGISREDEYVGAQLRDEEAGSRQGNRVGSAIQSRSASVTS RRTAMTGISSTDAEVEDLDDDDMEADVEETPEEAARRRLLKSRGSRATLGVGSSRSRQMYNSNTTDD TGSYDDRSASNSDPEQSSSQSPKQLLDIVNSRDTLILKSLGFGQKRAQDLVHLLDQGGSGKVF KPKKLEEEGAP | Two legumins each of pecan and walnut have matches of >35% ID to this protein | AOL of four 35% ID over 80 matches to legumin proteins. BLASTP 100 Matches of > 50% identity to 100 diverse species of fungi and plant proteins. No concern of cross-reactivity. |
| 141 | >EAA31445.1 predicted protein [Neurospora crassa] MAQVYREARYSRDSSPSGDEGRSSRYKQAPSHSERVYEREIDVIDDROGARLDGRFFRPTGGEL VLDRRDLRYPDRPSTAGQGSYVYERYRETEDWDGDNIPDRERTYVEKRLVTHDDDDYHYRHSRTR DNDGWERSYDAERDAEVRVERKVERREDGSEVILERRIREHIDHDGADVEYRKEETEYEPAPQPIVI RQRPAEQRIIVQEAPPTVLRERRDFAPYVVEETKEEYVEHIDHHPHSHSHSRHRDGHHSRSHR RHEDDEYTRVSRDRERSRSSSSAPHRKHIAEALAGAGVSAIASRDKETGEVDKHRGRKIVAGA ALGAIGTEAVRRAHSAYKERHDDSDDERHHRSRNSRSHSRIKTLGLIAAVALAAAGAAAYESKVEKE EAERGSARRYSEDSYRSPSRKRSRAGSVAKAALGTAAGVAVVQYHHRKRSRHRGSRSSSSDRSG HHSKLTGAEVAVAGAAAKMYDKHEKKEHSRSHRHPDHSRDREYDDDDDLHXYARRRERV SRSRSRQVRSALPSSSNKNNHARFEGTVADDFELGLVEYGNTPVPVQNEERQQQSHSRKKAALATAG AAAIAAAAAATAAAKHERKROKPPPTQLLSAVDDYDNDGIATGYESAAEQRARKEERRERSMR RQREERDEERGGALLVPRTRREEVEEYGYDSEDEAEMRRRRRKRSDRIERERKESRPEKPARSK SRLGRLAAGAAAAGAAIGIKMGENKQKQEKEREKEREKRRDRIEIEREREMGLERRSRDS DRERMRQRELERERRRYEQATPSDYPYKRRQSPPHASGGYPPVPTPAIAASAAVPTAPPQLQPH RLSNGFTQLPNIINFTVNIQTPYPTGPEAMPVPRGAPVRRQPIQQRQYEPYNPVREYASVSPPPP GPEVPSVLVPGKASAAAQPPASASQGVPSQDVPALRAPQGVPSLVMGAPSHLSQSQSQSVIGR NRPEVSRSRDLRPSPTTGLGDERMREGREKRRRHRMSRSPRRRSGAVVDVGDASGSGSGMI REKDLGLTTLALHPPPTDSSSSFSFSEPSHTPSKPEKVIPLSPKSSQTLQRHHEEQMAKETAKRITS GSGVDPDKDTSIDFEDRLDRELNALVPAKYRSSSSSTPWHVPESSSSNALSRRDRSPSTRHKDFNTD DATLELPDRFPTDQGLDSDRDKLHRRGFLYHDDHGNGLQJAGTGQWVSGTDAQAVDIRK | Identity matches of >35% to various lupin, wheat, legume and walnut proteins with modes identities | AOL >35% ID to 17 conglutin proteins over 80 AA. BLASTP Identity matches of >35% over 50 or more AA to many Fusarium proteins and others. No risk of cross-reactivity. |

| | F | G | H |
|-----|--|---|--|
| 148 | <p>>FAA32458.2 hypothetical protein NCU01082 [Neurospora crassa OR74A] MDQQPVSDAASSVEKQLTPPPPEPRFGGWMPTALVGLVAFVASTSIVVSLYLAKKIAANENAMLE IAQSFMLFASLMSAYIGVHRITRAGNTLGLDQGRKTLVPHVARTMLISATSVVWVLTILLAVGIFG GGGSTVLLNMDLFLASIMASLSALSIQYVFRVDFPLLPWLPSPWDARIPRPFDFEENSRSKMKVPMDFK ARGFDASILDRESSPTERIKPTTSHISSPPTSRPGPRMMPAKSDVLSGSLDHDGSDVGSASGSGQ TLPKPLATYQNIQEPQRTPKAPVPTSNHNSYSFETFNVLSPYLAQSQPQVSPQALTTQPTSMAS PQAPYPPPPQAPNMSYAEAAQQQQGHYYQQYPPPHQYQYPPNPPRYHYGPHQVQVHVSVQQPPYYHH QYQYHPQSSTQWAYPQQPTAVYGTGGGNVSPMSSTPDYRDANSEVSPSTRNSGMSIAQVKSMPGT FADGS</p> | 47 identity matches to wheat and barley proteins above 35% ID over 80. | AOL has a number of low identity matches to triticum glutenins. There are few matches by BLASTP to proteins with high to modest identities. And a number with low segment matches (39%) to other fungal proteins. No concern about cross-reactivity. |
| 149 | <p>>EAA29623.1 predicted protein [Neurospora crassa] MKYSTFIGAAVAVSOLQAAPTNNGRTSSNDDGPIVLSPODEVVPIVISOAVPHHSIAGDSALVKSLSNAL AGLPKPTAWFSKAKATPVKQAYVAAATITSETPIVIVFPSPVTTLPVAVSFGNAPAPAASTSSDSSSS SSSSSSTPLVPTSSSSAAALTTSTTASTIGNTNPITASTSSAAPVAVSTTTSTTTTADAAATTA NNGNNGNGNGNGNNGNNGNNGNGGNGAGNGGAATTTTTATAAAATTTANGNNGNNG NNGNNGNNGNNGNNGNNGNNGNNGNNGNNGNNGNNGNNGGNGGAGNGGAA AALTTATATATATVTVANANNGNNGNNGNNGNNGNNGNNGNRRANVRDGLGDKNGGQQQY GGDASKDRFGGSGHGYDGGKVDGTRQDANAAAAAALPLSASIASSAPAAAAAPASASISSA PAAAAAVFTTPIYSSPPHSWSTPIHTSPPPKVQVSSAPAAAAASSTPAAAAALASAAAAAQAQAS APAGNSLVAQIPDGIQVRLPSTPQVGGANSADPAPSPWASVTVGGASVSDGGRLWKTIMGMLVAT VAVGAAVAA</p> | Only 1 alignment was identified to a pollen allergen at 36% identity over 80 | AOL has only 1 match, to Pha a pollen allergen 35% ID over 80. BLASTP identified only three proteins, all from Neurospora with 100% to 98% to 79% ID. There is no concern of allergic cross-reactivity. |
| 150 | <p>>EAA29186.1 predicted protein [Neurospora crassa] MADNSLDRSLDELAERKPNRGRGSGRGRNRDNGAANRQRDRNDYPRDGVKSRFRDAPRNLDSWV VHDFFEENDRRRARRRNSPEPFSDARGSKIRVDNIHLYLQEDLEGLFSRIGLVKLDKMYDRAGRSEGT FVYTESQDASRAIREVDGANAAGQIPLRLMPSGPRRPFETAINPRLAERTVPGGSRSSISPSRDRDL DEEAARKGIDRYRPGSSRGRSRPLPRREGGREGSRPARRREGGRGGGKPEQGERTRNGRP KKTDEEFLDAMENDFRFGGAGANQFNWAAEASNGAVAKSGPAAFDIDMGIK >EAA32153.1 hypothetical protein [AL5102.1] hypothetical protein [Neurospora crassa] MTHYDAMPPOGPIYSSQONQOQQQQQAFQPVAGYHHQHQQQYVNGYNGHPQYLOQ SOHSQQQVPAQASYPQAQPTDFDANPNVLSYSSKPTTFAHTPQTTPAVQVDPVSLKQYVPPVQ NRILPAPHSMTLPSQLPLPOISRHNQIPLQIQITTNQHDQQQRQYKQKQQQQQQQQQQQQRNTN QHHQQQARQQYSSQPSQVQVQQLHQIPSRNSGHRPDERLLQQAATPAERATPRGGRPPSVAR SSASAQRTGHVETLPLLVCAEDCFKAAHAASGARSMSDSEVGYKRMVATGLGCVLEAMNSKLVW RLEARLCLRYASVLIETTNIMEAETALTRGILVCEKFRIDLYKCSQFLMKTLFQRNPRAAFKSLDTHIMDA TMYKHAPWVYAFRFLAAHQIISQGTAAHDHALLENLRMSIAITRDEKAMFVMMVMLEGLSHLNTMKD DWINRVQNCIAQAQKLFQDAAHIPQLDALLLLDLSLQKSHRDAQAQKLSVLSQKLELRNLPWSVSV HELLLPVRVNDAAPTLSDTEAVLRGGGAFDYLVSALGKQGSFAMAYIFNGVLYKSTTLGRSSTIWT EAVRLLLEDKNSGSGPKPLDALAHTQWAKSVSNYAQVILGLQAATLSDWRKVKACLDALGTAAQPEGLD VLTYLTVGVFKQGTCKLGEALVWIKDPRFAMDRSGLPQNNTSHIISCELALNRIWMQAPARNDGET AHLDFLRPLCEDNPDLDIRITYNLVLSITLDPPLINQVQKMKLSLNGAQTSTNTHFSLALNMRNKLFE NVVGEQALKSARAQTAQAKKSNLLWMSVAEGLMAQSLQGLKKEAEKTRDGIRLANEARLQVQE</p> | Three proteins, two from Salmon and one from Lupin were aligned with > 35% identity | AOL had a few matches above 35% IDENTITY TO collagen of salmon. BLASTP had 100 identities of >51% were found to proteins from diverse species of fungi. No concern for possible cross-reactivity. |
| 151 | <p>>EAA32153.1 hypothetical protein [AL5102.1] hypothetical protein [Neurospora crassa] MTHYDAMPPOGPIYSSQONQOQQQQQAFQPVAGYHHQHQQQYVNGYNGHPQYLOQ SOHSQQQVPAQASYPQAQPTDFDANPNVLSYSSKPTTFAHTPQTTPAVQVDPVSLKQYVPPVQ NRILPAPHSMTLPSQLPLPOISRHNQIPLQIQITTNQHDQQQRQYKQKQQQQQQQQQQQQRNTN QHHQQQARQQYSSQPSQVQVQQLHQIPSRNSGHRPDERLLQQAATPAERATPRGGRPPSVAR SSASAQRTGHVETLPLLVCAEDCFKAAHAASGARSMSDSEVGYKRMVATGLGCVLEAMNSKLVW RLEARLCLRYASVLIETTNIMEAETALTRGILVCEKFRIDLYKCSQFLMKTLFQRNPRAAFKSLDTHIMDA TMYKHAPWVYAFRFLAAHQIISQGTAAHDHALLENLRMSIAITRDEKAMFVMMVMLEGLSHLNTMKD DWINRVQNCIAQAQKLFQDAAHIPQLDALLLLDLSLQKSHRDAQAQKLSVLSQKLELRNLPWSVSV HELLLPVRVNDAAPTLSDTEAVLRGGGAFDYLVSALGKQGSFAMAYIFNGVLYKSTTLGRSSTIWT EAVRLLLEDKNSGSGPKPLDALAHTQWAKSVSNYAQVILGLQAATLSDWRKVKACLDALGTAAQPEGLD VLTYLTVGVFKQGTCKLGEALVWIKDPRFAMDRSGLPQNNTSHIISCELALNRIWMQAPARNDGET AHLDFLRPLCEDNPDLDIRITYNLVLSITLDPPLINQVQKMKLSLNGAQTSTNTHFSLALNMRNKLFE NVVGEQALKSARAQTAQAKKSNLLWMSVAEGLMAQSLQGLKKEAEKTRDGIRLANEARLQVQE</p> | 58 proteins from triticum and one from sinapis, one from almone matched | AOL had few matches of >35% id to proteins, and not likely cross-reactive. BLASTP identified 100 proteins with more than 39% identity to diverse fungal proteins. No concern for possible cross-reactivity. |
| 152 | <p>>ESA42520.1 hypothetical protein, variant [Neurospora crassa OR74A] MPFSSTAALRSALPVLITGFISACANALLRDSHPLNIHTATVARRTRRFTATTITNLRQAFRQLCDRHR HRTTRTRRPCAPTITPYHPNINTTATATAHSFIITATHQKARYSGPILSKLRDENSVMVAHIISQSSFGQ ITMQSASLPRRTSSLSRARRRGISTDEEARHPEEAIATLAHADDLTENRSTRSASTASRTHRLSLTLPIAP PNPNPSRPIPTSTTASFSPSTLPTALTPADINDFITAIAAQERRVLELREELTRAESDLAQLKKQWATYEA YKRGGERLRLPVGLVPTFQDEEATKRAVELDRKALKLQSQNQQLPENGRRRIFGGHARTLSLSPTKP SSDFPGRGDGSESRNVAFSPYRPHKQSWAPQSTSTQVGVKGIQDLRMGLWTFMEDLRQATVGDPE VTGQGMVMRGADGKLSMTPMLKSGTASSHTGGQDGFRAAGLNTPRNRSSIASDWAPAVPTSRSTSP KKSQDSTADELSKSPSRPAPALMRSKTDASRSPKRFVWTLAMDSDVDNDWSNWEPTGATSTRWSGTT VAVGQVSTSEKPTENDYKSLV</p> | Three matches to tropomyosin of salmon, an dAscaris, and Anisakis | AOL had 3 matches to with low identities. BLASTP has proteins from diverse species that have matches of > 35% identity over 80, but it is skewed and patchy consistent matches |
| 153 | <p>>ESA42519.1 hypothetical protein NCU01208 [Neurospora crassa OR74A] MPFSSTAALRSALPVLITGFISACANALLRDSHPLNIHTATVARRTRRFTATTITNLRQAFRQLCDRHR HRTTRTRRPCAPTITPYHPNINTTATATAHSFIITATHQKARYSGPILSKLRDENSVMVAHIISQSSFGQ ITMQSASLPRRTSSLSRARRRGISTDEEARHPEEAIATLAHADDLTENRSTRSASTASRTHRLSLTLPIAP PNPNPSRPIPTSTTASFSPSTLPTALTPADINDFITAIAAQERRVLELREELTRAESDLAQLKKQWATYEA YKRGGERLRLPVGLVPTFQDEEATKRAVELDRKALKLQSQNQQLPENGRRRIFGGHARTLSLSPTKP SSDFPGRGDGSESRNVAFSPYRPHKQSWAPQSTSTQVGVKGIQDLRMGLWTFMEDLRQATVGDPE VTGQGMVMRGADGKLSMTPMLKSGTASSHTGGQDGFRAAGLNTPRNRSSIASDWAPAVPTSRSTSP KKSQDSTADELSKSPSRPAPALMRSKTDASRSPKRFVWTLAMDSDVDNDWSNWEPTGATSTRWSGTT VAVGQVSTSEKPTENDYKSLV</p> | Three proteins of tropomyosins from salmon and two parasites over 35% percent over 80 | AOL had three proteins with poor alignments. BLASTP had 100 proteins with up to 37% ID and over more than 200 AA. No concern of possible cross-reactivity |
| 154 | <p>>EAA32883.1 predicted protein [Neurospora crassa] MSKNSSAYGQAAGDTDFRKKYDLDEYAAKARDREEAEKERRKARWEAKMAGKYYKPLEGHETLTTARS GHQDFSLVGTMLVPAAGAVGKRGKAGYCEACDLTKDNLQWIEHTNSMQHQRNTGHTGEVRKAT AEEVHQRIEQLWEKLRKREQVSVLQERLEVRKVEDEKEREKRRKREVEERKLEKALKAKTYGDED VRIEGHDFDDMMMAAMGETGEGVPKK</p> | One match to tropomyosin of a snail at 36.4% identity | AOL had 1 match of >35% ID. BLASTP has 100 matches of >66% over 80 or more AA from diverse species skewed a bit to some species. No concern of possible cross-reactivity. |

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| 161 | >EA36071.1 hypothetical protein [Neurospora crassa] MTVSTKVFLEGGKGLDTEADIEAHPIRAMDDVEVRLNGTLGVGACKLLEVLATKTLRVANFADI FTRGLNLEIPALSSLLSILNPKLINTLNDFLNGTQAPVLAHVLPHLYLNNLNGLPHAGLIAD ALSELHAKKEEARQGDVPEYLVICGRNLENSMTAWAKTFLRHLNKKVQKMKVQNGRQEGISHLSE GLNHASELOLDLQDNTFTLKGARALAKVTPGVTELIEGIGDSSLAGKGVLLSEALRKGKKNLEILRLQYN EITAPGKIGLAAAEALPALKIENLNGKFTEDDEAIIQLDLEERKERFGGDVVAEWDGLSDLEEDD FFFFFFFFEVEEBAKLIKAEFAADEFVWVWVWVDFEIAOKIAKTFI | 53 ID matches of > 35% ID over 80 by sliding 80mer window. Poor matches to tropomyosins and similar proteins. | AOL has 53 protein matches of >35% ID, but BLASTP has 100 matches of > 78% identity to widely divergent taxa and proteins. No concern of possible cross-reactivity. |
| 162 | >EA28582.1 predicted protein [Neurospora crassa] MASNLDSSYLSPIGSGIMSSLSLSSVSSARHPSSSNIKAYRQASTLFLTRRLPEALSTVLPITSSSEF ATPGDVASGAAAFDPAPVAKASRTRIKVWSLYLILNAILENSDEGDAFGTQEWRALCHKVREGVEVW EEVVRSGYHSGEGVDADVINLALLLGHAKTQTLNQRLENYLAAARTPNLIDLTRLSSGSPGGSSAS PARRLRSSSKSGVATGHGADTPROLDNARVILKELYLTVLPRNDEWACAREFINMSAVLDDERKEAFIQALD SLKEDQEEAERKAREKEDAIRKDIENARKLRAENEERERKLEERQKREAGVNSTAASAGSGPTTEGES GVEAKGTGTGTTKPNLKKASALKNKGASSSASKPARPSRKGASSPTATKTGSSSAVTPGPMGTKA ALILNIRSVLDQVMTAFHGNPFLYRFLAFIIGFLMFSKSVREIRTRVQQGWGVKATAGMGMKVSY | 5 proteins matches by sliding 80mer to Nicotiana tabacum, Anisakis simplex, Helix sp, Haliotis sp and turbo at >35% ID over 80 | AOL had 5 matches of >35% ID to diverse proteins. BLASTP has 100 matches of diverse taxa and proteins with >49% identity. No concern for possible cross reactivity. |
| 163 | >EA28124.1 hypothetical protein [Neurospora crassa] MSLSVRFQAQAARQLRASTRASSLLVQKRFESTAAPAANKIAIVDQJSTLTLLETSELVSSKLRNLNIPDL PVGGFAAAPAAAAPAAEAAAEEAAAKELFTLLEKFDAAAKPKVKEVKNLLGLSLVESKFFVESAPK VMKESVPKDEAKIVAAMKELGATVMD | One match of >35% ID over 80 to Manihot esculenta Pt2 | AOL has 1 match of 35% ID. BLASTP has 100 matches of > 68% ID to various ribosomal proteins fungi and others. No concern of possible cross-reactivity. |
| 164 | >EA32207.1 hypothetical protein [Neurospora crassa] MATVSRATATLAPPATSHGNKFTVDSASVPHSEKPNVPRKRSINNENGYFGRPLVASQKRNSTLATH NTPPMDLTHDHYTGQVADARFTSRTRDGGSPADSLDFPETDESKWIHRDKLAQIENELQAAGFLVVP ARDNRARSKGNRLKRDQSDQLGQARSIGGGEHVSRSRKNSSATQDWDRADDGAHADSTNSPG AKVTSRIPVPTKAYPTTPTDEKAAAFGRKRSPEEDKEIAYKPRGRSGSTGNALKAANGSDARPVAK RADTSPMKSKPAAGAKKVSKAATATTARPRTRGASAKDSTGARPTTRSGDRELSPTHKPMEGEPPW MVSAPRDPRLPEQQLLPVAKRLQEKWEREGKVGNGVYDKEFRPLTDEGLEPPEHPHIVAPEHEPAENE NENENENENEKEEKEKEKEQPADWLPKPAEQPCQSPPPSLHLSGSRPAPVGRTRNSYSTMP KLDGQVITCSGSPNPNRPHBSEVQVQPEPEPBNKWKKCGCGCINA | Three diverse proteins over 35% id by sliding 80mer | AOL has 3 proteins of >35% ID over 80. BLASTP has 100 Proteins from diverse taxa with >35% ID matches from a variety of fungi and over 300 AA long. No concern about possible cross-reactivity. |
| 165 | >EA32203.1 hypothetical protein [Neurospora crassa] MLLNKLLASLSAFSLVAANTITVLSLDEHNRFTSKHKIKCTNDHIGICNDVSLADIAPVDVPLAQINVELPS GWEIGNFYSVPGTDPRTGMLAIEIRSGFENGYSYDVALENPNNDVNGVQWPAHDPNAEVSQIQFP CPYTYHPNDLQTKPATWSDKFYCTLGNADLKNPHLAQWHMVIYDHTKKAWPLSA | One protein with >45% ID by sliding 80mer 35% overall to Stachybotrys fungal allergen | AOL has 1 protein with a match >35% ID. BLASTP has 100 Matches of >35% ID to diverse fungal and other proteins for at least 100 AA. No concern for possible cross-reactivity. |
| 166 | >ED065476.1 hypothetical protein NCUI0687 [Neurospora crassa OR74A] MKYSASLLAFAASAAATPWHMAPPFTCPQNTDNKCTEQKTFGVFDLSDLGPQVMDFNFGVWVAG SGGGRFGKRTFGGISVCGSDHSAKSPSAGGFEFLSGSHITPEFDCLDEHYGMPDGTCKHRNRCKD GTNVNKKQCGGATNVTVPPQEKPKPSCSVISVTFDCTKOSTVPPKTKTKAAFTSAAATVSVPTVP AEITSSAAPVASSAPAESVPSQSTAPAEITGAPVPSVPSAPKSESAPSEVVSAPPVTHVTSFSDSTS TVFITEIQITTSAPTNTNCPANHTTTVTIATSTVSAVTETRTVVSAISSAAPVASSGEGEIVISTIGDII SAPAGSTSSAAAVKSSAVSSAVSSAVEISTGVVPTSAAGVASSSAAAVDTSSAAPVSTVPKPLPCGV VPSCLNTLFTGCTDNSDAACFCPNALFKVNYECIYAHGESNSIISDAITFFQGCAPYVNTNPGIATGVPT VYTTAAPTSSVPLTITVNLTVVPTCTNEAGSTIASSSTVIVDTMTVQIHFSTTDDVAIVPAPTGVPL VTETEAVPVVSATATETTETGAAGVSTSAAPVNSAPAVTSAPVPIGTAAGTGGFVRPTSSVSPPIVAG SQRVAGLQIAVAVEGALAL | Two proteins from diverse species HDM and Aspergillus have just over 35% identity matches over 80 AA by sliding 80mer | AOL has matches of 2 proteins over 35% ID. BLASTP has 100 taxa and proteins with matches >35% ID over at least 200 AA. No concern of possible cross-reactivity. |
| 167 | >EA27581.3 deoxyribonuclease tatD [Neurospora crassa OR74A] MSMRLSVSRPSLHLARPPILSRNCTNIPALTTMASNSTLAGNGYKPRVIDIGINLADPIFRGHYHGKPRHP DDLACVQRAIDVGCITLVTGSKFSKRDALIAQOPPHVHTYAGIHPCSSSIFSTSHMHHDGSEGESEQ SRAAPETEAADSASTPIPCADPPDAPQPEPDLIDHVRTQJLIASLSDSDSRSRPGGLIARFEGFLDYDR LHYCSRTIQLHSFRAQLSAASTPQLPLFLHSRAHRDFVDCLEAFGNLERLEKGGVWHSFTGLEEMQE LMDLGLFVIGVNGCSFKTDENCAVVKQRLDRIMLETDGPWCVEVRGGHEGWKYLKYHAREREVREKAE ARKKKEEEEEAAKALADVSINGNGTEVEVGGTTPDISGTSPPNNSGQQQPPGQKRRERKKQPPPP QPKKNNAKESDVPERFKVKKKEWEGAMVGRNEPCTIERIAIVAEKIGSVEEVECAAWRNTVKVGF E | A few matches of short alignments to more than 6 proteins by overall FASTA none by sliding 80mer | AOL has no matches > 35% ID. BLASTP has 100 alignments of >50% ID to diverse taxa and proteins |
| 168 | >EA44044.1 hypothetical protein, variant 2 [Neurospora crassa OR74A] MTPTASGNPTTETVHTISSLDAPLEGDVHHPGLGEEQSAEQSPNGQQQKQMHREQHEEHTTE QQQGEHERHEEQHEHQEQCPDQVHEQHOERQOPEYGPVLAHVPTATNGVESHGSPRARKDNTSIS TITSAATAATSCGSSPSLTPPTALPTQNFISLKDGNAPLSSRRNRRTGLAPEARGKAALIRKQGSACNK RKKIGCDARHGMGTWEELAQKFNSAEMQQLLEAIVPPTNLHQTESRKLNLSTPSEPFMDISSPTQQQIF SFSSESRVRTLPSPKPRQDRASTVSFPQNDGLSNGNVLTSNSHGATVRASEGFARGRYRISALFRWRN DEDPAKNSMDFEVRLEEYDSCSQTKIIPSANQNHNVSMWVLEILQLKTDTEDELKLVYWSHSHYLD DRQMLASSRSEAPASCVRWSAIQALLDHASPDVVMIDAAAYPNQYRFRMRRTNRSLELAASTQANP ERGVFTRALSQDLIRAHKLLGGISDIADLHARVTTSPPLTMGARVQELLSGSGVGGMSLSPSSCPPVLYL QFAGSPRTSSIIHAPKINRELAVMAGDSEASRGGTGLIYTRVFPAGANQDIWEELYLTPDDIKGRFLD VCAF | Five alignments of >35% ID by sliding 80mer search three to conglutin two to HMW gluten of wheat | AOL has five alignments >35% ID. BLASTP has 100 alignments of >33% to 50% ID over a few hundred AA. No concern about possible cross-reactivity. |

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| 169 | >ESA43189.1 hypothetical protein, variant [Neurospora crassa OR74A] MMAKQVRYGAVQPIQVDDLYDQTPVVISQAPMPLAAKPPRRPLQPANSSVLMRPPSTMAPLQKSP KLANARISDSSSAPTQKPPQGGKLSNVQMPPPGALPSTDSLHQQMSRFKTVASKPAAQDLTLNQFV SPQMTIFPAPTQFNLENFYQKPSGRVLTDSPTSDEKSRPAKQNTGETPVPPEGFSPIIDDGKPHHS YATLIGMAILRSPQRRLTSLQYVWIAETFSYQSDSGWQNSIRHNLNKHFKQERPKDPPGKNYWAIE PGAEQFMKEKPSRKAAPPSENLVPMVSTRLEPSQPLGVQPEPNPSRANKPQOLSQAPSRPQPQA PLPDEPVLPPQPTTQALAPRPPSSQAALMPLLELSSDATIPASEIGSVEDVYQGFEGHVSNDNLVYSP PAIVQSSPPVKLEARHSTTPPQPRTKGRRKKWTSMDDNHPRLSTGRAEEIARLTSYDPSKSGRSYS YAPSSSPLRQASATKSGQMLPPLTAMKLPKAPPMPSPVPTTLNLRHRESVQSMVDATYQKVAALPE DDSLQLTNPMLTDLMDLGYFERGTDNVTSEIDFQDPSFGYVNFVGSVPAINQYNGSPVKQSARRQRPERS QSTGALTDMTSFRSNGNDAAFLKVPSPVDLNTGTPSKVFEGLPSSPKVLESCKINSASNDLENLE PWTMTNDLGGSDFLSDSFGIDMLAGFEKIGSTPANTSRTNNAPTIAGLPPRQAYSRCYSNIF | 38 matches over 35% ID over 80 by sliding window FASTA | AOL has 38 Matches of 35% ID over 80. BLASTP has 100 alignments of >43% ID by BLASTP to diverse taxa and proteins. No concern of possible cross-reactivity. |
| 170 | >EA27310.1 predicted protein [Neurospora crassa] MKAALLPFAAMLAVAQAQTTSVCAAYIVETCLGTENSRLALCGRDDYGCCKAQVNIACYNPCPNDR KASAMGDRDTCALDKQYPSSTTKAVAVATLSLNTAPAAAATAATTAISSGSDNENTGDAITATGAAS SNTASAPSTSATGNAAGEVLVSTGGLLAAFAAGVAAVL | Four matches of >35% ID over 80 to LTP of Prunus and grass pollen Poa p 5 and Hol 1 5 | AOL has 4 matches of >35% ID. BLASTP has a few over 70% ID, and more than 100 matches with > 33% ID. No concern for possible cross-reactivity. |
| 171 | >EA32310.2 ubiquitin C-terminal hydrolase [Neurospora crassa OR74A] MEKLGKTKTSLVPPKFRSREKNDLHRNKSTEPGKSRPLSDMAWLSIRPESVKQALREKGEVEKASK AEITRQLEENLYTEISEQVIRFSLNSKANGDYNKAEILRLQKAFAGIQPNPKMSQGAENRGNVTCYLD ALLFAMFALSAFECMLKNDPADENHGRALLRLWVNMRLRSGMLHTDMTQLIQESLAACGWEEAQEL EQDSTSEAFITETLQLLALQVLDLHQQKDDHVKVHERLLNLAVPPDPGKGIKLEDCELEYFNKY DVFRDSVEEKKGDDERGLPRETERLLEDEDEGGTSDQGDNSPNLQRRWTSQDSTTRTPVSMLDITSARPE LPAAPRHRSTIIQRIVDEDRKPPDLAENKTLQKAKRTSSTVKAIVTIPAWQFRLIPWHATAASNGEPSND VEVARHFNQRPVVGCLKRYTMTETGPIRQNTLIDIPDSMLRPHFMPDDEKOSNGLSQEYKLVLSQV CHRGDLSLGHVYAFARVAPKLLDNRRYEDPPDYEAQWVFKFDLDDLNRSVYDDIRDSLRQEMPY LLFYQVPMVDVTAASDGSVGEPPSYNETTVTSVGTPELPERPBGMSRSISGYFDSASTLVHNG GGPNIRFTELERPARLSDDDPYGTGSAGRLRAGRSRRGLSADVSTTTTTPSDVGPASIQSPSTPEES TSTRLGRAAAKFKSKSRPTSQAQETRISLITRWGLTRPSRDLNKKDANSAGNSSEGGSEDEQQQVEKVE DVSDKNQKKNKDEGHHLLHYRKSCKDKGRDKDTEKESKDEKGEKGDGLKSGKETGKDGVPDRE AAK | Three matches to an Ascaris lumbricoides ABA-1 protein by sliding window | AOL has 3 matches over 35% ID to ABA-1 sliding window to Ascaris lumbricoides. BLASTP has 100 matches to diverse taxa and proteins of a few fungi over 45% ID and hundreds of AA long. No concern of possible cross-reactivity. |
| 172 | >ESA42133.1 hypothetical protein NCU04774 [Neurospora crassa OR74A] MAWELSSWLVVMRAFOAALYAGATTNGFVATVILKNGHLQTKMSLPELLICMTLVYATLVFIQHSGL RSRKTGWLTFYVMGDHIFCGVOLAITLLANAGLPSHCSGLATTKEEDHKKVYPPGFTTGFASGSVGEKG QLDKFCAFERSYIAIALGLVFTYIATILVLRIFERNYTESKIEVLNLERADTLESKHSADSQIEAPRPH DRSGPSSGEVITRTASIRSNVMTSSTAAAGNGPYLGAIQSNAIPRRPVPVQVSPARQLSVSTVRSNNT SRPGGAIANFAPVSPIDEIDEIDGAALVADGQYRAHQSHNIPHQYQPNQDQHPQRHHQRNLQGLT PPLAENDLSEVALLADGQYRPNQQTQHGQQQQPQHQLNYDFRPNVPLVPPQGVSLPTPVKGDVYLA SDGAADGVQYPTIQRLNHLPLQQLSSHISQPGISAPIGGGIGGKEDYLSLAADGSSDNRQYFFIQR PLHHHHHRHNPQLQSQSALPPFSGGAGGPTNFYPIPTNPHSGSTTTPSSRNINPNYAPASTGGLNLE LRYDGGSSSNTTSTAHTHTPPSPDRYSMSDVSSTALPPYQRYETGMEPC | 19 matches to gliadins of wheat, barley | AOL has 19 matches to gliadins of wheat, barley. BLASTP P has 100 alignments, most are >35% ID and over a few hundred AA long. No concern of possible cross-reactivity. |
| 173 | >EA31571.1 hypothetical protein [Neurospora crassa] MSAPSLVQAVAKRGWLKMLKPVSNWYNAAGYRQMLRADDLISENETVLAALQRLSPKESYDRIYRI RRATQLSLTHKLLPKNEWTTQEEVPLRPLDQIEAEAEKDALDTLAVKKN | Two HDM cytochrome C proteins aligned with >35% ID over 80 AA | AOL has 2 matches to HDM Cytochrome C proteins over 35% ID. BLASTP has of 40% ID over nearly 100 AA. No concern about possible cross-reactivity. |
| 174 | >ESA42268.1 Ser/Thr protein phosphatase, variant [Neurospora crassa OR74A] MHKLFNDEGERTTIAGGQGTMTWTLQMGELVDANRVYDPTETRIFITHASPARREGILNQLSVTLKADF SISAGLHFRYSSYNEFSVNTLDHYRGLAASKASFNVDVETRVESEPAIQNDVQVQTLKNAISVVEK MPTTAAGGNPFGGAAAGQSAALGVQVDESAFKNMWNFLADAFAFWLVEHDDGRIGTEMRAQGFN FSHRGAKQPVYAAGQVAPPSTGGANVPVTPGAAAPVQPAAPQAPAVPAVVPVQPPAQAKPAAP SPAPTQPKAATPQAAASPASRESEKASAPNTGASNNPEPTSPAPKSAESIIGLVMQPNDDAIPGLF AEEDRSKIVKVDKQGNRVVFKTVEDRDGALDRLPQEVKSRGTGSDRSRPLKLVFNPPSRRPFTTRGG ACTWASSRGGREGTQSGYRSAGGDTASDSEAGRGRGGRGSRGGRGGRGSRGGLKGDGSPA TTSATPADS | Nineteen proteins from diverse sources have >35% ID over 80 | AOL has 19 proteins with at least 35% ID over 80. BLASTP has 100 proteins of >60% ID over 300 or more AA. No concern for possible cross-reactivity. |
| 175 | >EA34532.1 predicted protein [Neurospora crassa] MPSTKTVNVESTSGSNKTTSPSEVPTDTRDASDGLIGPVLSLSTSDTPEDESTITTVISVMPVDA ANVPLPEDECDMLVETPPADHAATIPKSDNVELADHEPAGLNTDQDQDSDQEDVGPPTDSFASFP ALTLPKTRPQEAESLADSGHRGTSSTSSIESCKPTREGSSTYFVVEDETSKLSLDSLDMSSNWMEN ANFLEKIEHIEPDETELEPSIVAVEGEEYDPTALPDTPREHYHNSNFQVRLSRYGGFTFATRDLKMG VILNEKLLRTPRDSYFTEFLKPEEEDAKFMQLYTPPGEYTHDGSYNIHRIKANSFAINPYSSDIISVYN VTSRLNHACRSVANVLFDFDQDFCITLTVSKPVKAGSELFISYGGSPSLYERYGFRCCCGGCEGVTDQDI AAMKAKDIEKYLWSSGGLGCGSIP | Three alignments to soybean glycinin with >35% identity | AOL has 3 alignments over 35%. BLASTP has 100 protein alignments with >35% identity over ~ 200 AA diverse taxa and proteins. No concern for possible cross-reactivity. |
| 176 | >EA29991.1 hypothetical protein [Neurospora crassa] MFARTALRATASASPIARVASASAPVAASRFSSPARLVKIGELLPEGELLQEGSPGNKVDLRKEAESARN MLIIGVPAAFSPACASHPISYIHPKTEQFDVKAVVSDNDFVMKAWKENLDPAGESIGRFLADPSGSFTK ALDLTFDSKAIFGNDRSKRYAMVEDGKVIKAVPEPDNTGATVSLADKVLG | Six matches to fungi hypothetical proteins with >35% identities over sliding 80mer | AOL has six matches > 35% ID. BLASTP has 100 diverse taxa and proteins with > 54% identity over nearly 200 AA. No concern of possible cross-reactivity. |

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| 177 | >EAA35124.1 predicted protein [Neurospora crassa] MRRVYQPPSNRYRPPSRFATGNNRREQAAPTGLPGSNPWVENLTHQTSJLHGLSLFQENAEASRRF IDGSSATAPPRQATAQETRSRMRGVFVPRDIDVVLSPVLLPVAEPLVGNALSDGSIETVATES SPAFSEPNFQIVGNSNTQSSVNPRIEIDLTTALIKLSRRRLASSFHQIPATAVEPDQYQNHRSVQGTLA QTLQOSAPQFAPPNAPRTSPIPQRNTRPKAPAMFRDISHDLFLRQPNPEEHQVQVVAASGYFTSLKPVRE RSSDAALYSLEQGEELPRKLNKRGGARPGAPATKMLRQLAGETTQQPLRAGSLWGRPTSTSPHSD GSGHVCVSGAGLSSSYSGVTLVPSADPYQPSFSSAPVPGSGGALPEPCASVAGAVYTTGNSGTFASTS SAGTRDHPSSLSATVPGDLGTFPSKDKRRNADGSDIHSVTGNFSAVSTSVAVLVAASALELLKQKQEK PPRSQALALDIERVGDAEGGNGDDVQGVKTEGERRQIVKHTFAKGPENLKEETPWLOSRLREGTGE GLRLEALPKSKEAGTRGKPKPERMGAEGDKRQAAYVKGTEGNGRKNANISPLAERAAEEPAKGP AAKBAKTATMSSSAVSETPVVBSARLBDGAAKNRVTELE | Matches above 35.0 to Cup s 1 and Bup s 3.2 by sliding 80mer | AOL has two matches to Cup s 3 with 35% ID over 80. BLASTP has three matches to Neurospora proteins >80% full length and three to Sordaria at 33% over less than 100 AA. No concern for possible cross-reactivity. |
| 178 | >EAA29323.1 predicted protein [Neurospora crassa] MKFTIALLFSAVAMAQNCQATLMPACATPCISSAASAVGCNGADYACQCSKSAQLVASAQCVLGGC GIEAAPTVISAASAIACSACA | No tests positive to AOL | AOL has no matches. BLASTP has 100 alignments of >35% identity to diverse taxa and proteins. No concerns for possible cross-reactivity. |
| 179 | >ESA42324.1 hypothetical protein NCU12151 [Neurospora crassa OR74A] MSANQAQHDPESEPASETTLLPTDHDHSDPENTPKMSSSLFWKVGAIYGAAGVGLGAFGAHGLKRRISD PNKIASWSTAHHYQLVHSAVILVASHHPVASALFTAGMTMFGSIVALTLDTERFRFLGPVTPVGLFLIAG WLALAFASKGTAVARFPRF | Two matches to sesame oleosin >35% ID over 80 | AOL has 2 protein matches to sesame oleosin, 35% id. BLSATP has 100 matches to diverse taxa and proteins >54% ID. No concern for possible cross-reactivity. |
| 180 | >EAA35807.2 SET-7 [Neurospora crassa OR74A] MFKPTTSTQDPPEKPAQVHDEEPRKSYHPLLKPVFGPARKTAGSTAPSRVPEGGHMISAQGSQSKPM APATQPPPEAPNLTVQDIESKLSQFIATVGEDHARFVYLLDEAEQMAPEPKHLSDFADAMPALSA DTASISDDGVETMAFKIKLHHDGKPRAPTAKFKCPVVKIKTKEVVPKYRFHTEIKNLPNTMLT HLRVDVPSVDERDYSWLNLELEKDTQSGFTENRQKQKHVRDEFTATLSMYIEWLQKGLD PTLRVYMLSQEENKAHITQQKQDVLNLYKDDAILSKVAEAAARIFLAFNNVFGNNTDPERFITLRD RETVVDEKRAKETPPPANPQRDQSDSNGLLPKVEASLSYAVLGCNVCFSDHCEGDIDAHNYRTFSLDS VGGVIRALKRWADQVASMGGDEEVAASAKKALHLPCHNACRYHYDVGPAAPVTPWANSEISVLED MFVSVGHSQTLKACQVAVSILGRKWCVEVRRKIKELDLSLQVSPRPTKDPKGGPPTKVKPLVYDRR MGDWQDQATHEHSIREITEPCCHDGPCTKENAACPANASPRLLCDFCQCTVDECALKFTGCACHST GKTCIQRQKGEKPCICIMLNRECDPVVCKGCGAKERADPNNAHDETLHSTGCQVNSLQRGASKTVLLGKS QLEGCGYGLFTAEDISQDEFVIEYTELTHDEGVRRERARRGEGFGSGTSSYLFTLLEHGIWDAAMYG NLSRYINHASENDKACNITPKIYVNNYRIKFTALRDIKAGEELFFNYGDNFNLTKLLEDQDGDGENDT ATKSKGRGSSLAQGTARKATTKASTAKGKAKTQGRAGARKATVMEIPSSDDYEDQTWIRDLPLD EYDEDDSYLPGVGRKRRKRGKRAAGRKKKTPSPEEGEEGEDHGSAGEDDAEAEAEAGDEDDGDD ANGPNSQQTNRRTRAVSEISDSQAERDEMDMESESDSAPLSPTRLANPHSGSLPANPSGSPSKR SKSKRKAPEAEIYSMAEYSSSGFGSDAELFSAPEKSGDHASPSKMKKQKTTSTSTSTSTTTTAA NTRTRTRTSRSARATAAAKTTSPATMKIKPLGVTYTRSPGGRGTAAARHTSMHNAEAEQLRAEQSLRDEAAAA AAAAAAGGASNAQPQRALQGGVQGGEMQATQGGQGMQGSTSSGLYHTAANFPFTSDNDEDD GEEGDASVSGSEEEEEEEEEEEEEEEEEEEEEEGDASGASGEEGEEGQNRKGLSGSEDEED EDDDEDEGSEGGDLDVDEHGDADAYTYTAENDLLLSNEEEEGILGDYDSGASNSPGPESS SNEGDESEDDDDDDTGDREESKEEDQSPVKRLRPHPHQASPTKSMASKARPPVVGKVLQRSS OSQSQSQSQPHSQSKITRQSSTATGTRSTERKITRSTSTGTTSTRKPSNSNTNTPKLPKPSGPKETR | Nine matches to AOL by sliding 80mer window. Mosquito salivary gland protein, cashew viclin like, soybean glycinin all >35% identity over 80 | AOL has nine matches to salivary proteins of mosquito. BLASTP has 100 protein alignments over 35% identity, diverse taxa and proteins, most over 800 AA. No concern of possible cross-reactivity.. |
| 181 | >EAA26668.1 predicted protein [Neurospora crassa] MSWGPNARNPNLMPRGARDYDPGLPHFVCGHLCVGTQLFTKPGDKDKGEEDMLLPREYLV WPCSECKDSRAWWEKGEVYRNEMLPVGNTKAPVVGAGAAPNSNAVASVAQVKEKE EAKKEKEKNGEEKHMLAKEIERLEEDKTWLEKLEKLLLP | No matches by 80mer scanning window, two low identity matches by overall FASTA to mosquito allergen and to 60X ribosomal protein Fusarium | Two low identity matches to AOL proteins. Two high identity matches to N crassa and N tetrasperma proteins none to clear allergens. No concern of possible cross-reactivity |

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| 186 | >ESA42872.1 developmental regulator fiba, variant [Neurospora crassa OR74A] MAAGSSSSRSTNSDSSPVVALQAGHRSTGTVNSKSRASASSISSTISSANTGSAPATGSGTASNTPSHH SSSSSSSSSTYSALAGNTIAKAKNSVSDPVAKPPYAVSGSQTRQQAHSLSSLSVSRQTGGIFALAAAAA LDKTLAGLEPRIRSRQNSRLSAGPSPVGPPLPGDPKSSRSASRSAPEDERYLASSLVPDRPNPSPQP SETDPNRIPLVRSVNDKMHQKTSRLLRMTDDRRPFTKDFKDLSTVLVLLSAHRVRLTKVEHTFLSED AINNLGSLKFSQSNRMPDPKPSRIVTTTTTFSMAKDMARSICORLEAFRIFESADGRYQVQVYMSKGSV WQLTPKGISLDRFCSRNGIQKQVAVELIGNSLPQIVLELRNPQTKVLTDRALIEVIFRRFIGPNGFNKQSVS SADSDLSLDYRDGLTGVKMAAERKVNGRYRTDTGKAATDWMDCSTAVDRRTEIASLVEYELMEA VQQDKAHMQQNPQHLLFQPTKHAIQVTPKGGDLVNGALVGRPSSEDGHSASRSVGIARDSNTQRLDN LNENSLRLLFRENLRETHCEENLAFYLDTDEFVRQCRADLAQRSPNSAASLDGIKEIMAAQAYGIYNAFLAP GSPCELNIHQLRNLNLRMTKAVGQDVTMIDTLREVMALFEDAQNAVFKLMAASDVSVPKFLRNPKEQTL | Three alignments of >35% id to Aspergillus protein | Three alignments of >35% to Aspergillus protein in AOL. BLASTP 100 alignments of 60% identity or more to diverse proteins of fungi and others, 600 AA long. No concern about possible cross-reactivity. |
| 187 | >EAA33138.1 hypothetical protein [Neurospora crassa] MEDYTKASELINSNDNDSESSAPAVIGAPPPPGADLSALFNLPPGALAAANAKPMVTQETFEEMKNKH PLFMFSLPSDEENELAAQLALYEGTFLIENAGNFKEQCEKAKQWQKDAKEYFGKIALVLRDRERR DPAFAKVEEERKREEERKAREEGDAKAKMEADLENVKAEMPIAEAKEDKEEKEDESEETIKQESL LETLYNRAACHLSANRYRSLDCAALRLNPSNLKALYRSGRALLSVKIAEADDACARGLEIDPSNAALK QLARDLIAKNEITRQRAEAERLEKERKKTLKKAALRARGIKRSTDDPPSMEDACIQVDPDLPQSELSF PVMLLYPLKLESDFIKFEFRESVGGHLEYLPDMPWDEEGDYDRPKVCEYMEVSQGLIRVPQKASLLRV SSKTEVYVDFELVIRVDPKGFKAEGWIKWIKFKAGFKK | 15 alignments of >35% ID to various allergens, tropomyosins, paramyosin snails, octopus, crassostrea, anisakis | 15 low identity alignments to AOL various proteins from fish, snail, octopus, Anisakis. BLASTP has 100 alignments of > 47% over 300 AA to a wide variety of taxa and proteins. No concern of possible cross-reactivity. |
| 188 | >EAA26899.1 hypothetical protein [Neurospora crassa] MPSDKAAYLAHLYLSTDPNPKSSSTKRRKRKNSAEDGLIADDDTWSWAQAAKRDSDDDDFDGPVLA GVVSDAFRKAQKSGWTKVSSSAFAKQATSTTTNTSKEDIDAAAADAILAQTAETAALAREAGDDE VLVVDTTGATALRSHOPEATQAPIMSNGTGHLQASAITAQLKARQEAERLELIRAEERDQQHPE DQEQLNRDATTGRRIDASMRRAERQQAEAEKAEKRALKGEVQLEQARRRRELEAKMLPLASK DDEQLNAELKQQRWVNDPMAQFLAPEEVKVKGRKGTAGRRPTYGAPPNNRYGKPGYRWDGVDRS | One alignment over 80 AA to Conglutinin of Lupin | One alignment to an AOL protein, conglutinin. BLASTP has 100 alignments over 42% ID to a wide variety of proteins and taxa over . No concern for possible cross-reactivity. |
| 189 | >EAA26899.1 hypothetical protein [Neurospora crassa] MPSDKAAYLAHLYLSTDPNPKSSSTKRRKRKNSAEDGLIADDDTWSWAQAAKRDSDDDDFDGPVLA GVVSDAFRKAQKSGWTKVSSSAFAKQATSTTTNTSKEDIDAAAADAILAQTAETAALAREAGDDE VLVVDTTGATALRSHOPEATQAPIMSNGTGHLQASAITAQLKARQEAERLELIRAEERDQQHPE DQEQLNRDATTGRRIDASMRRAERQQAEAEKAEKRALKGEVQLEQARRRRELEAKMLPLASK DDEQLNAELKQQRWVNDPMAQFLAPEEVKVKGRKGTAGRRPTYGAPPNNRYGKPGYRWDGVDRS | One match to legumin of black walnut at 32% ID over 80 | On alignment to an AOL protein over 35% ID. BLASTP has 3 alignments of 63% to this protein with more than 100 AA cover. No concern about possible cross-reactivity. |
| 190 | >EAA29847.1 predicted protein [Neurospora crassa] MLFTQTFGVSTAHISVAGVIVCLLFLRFLRLRARTGRERKASIASIEKDKVKTDLPVLLQFPSPRRHVLAT LPGFEKVDVQAITPEMLKSQLPTVTTDFDKDGGYPTPTGFGSTQDIKALGRFPDYAALSGVRDNPVVPETW DITKAFRYPFRFRWGYHQHMALMXYDDPWVVELTSSYHTMATRRALLAQHGSKIFFQNPACASHASRE LMEVLSFLCNRYPHQHSDDQTLFHNHLLCTHTLLQDPLQVLFQVFNVDYAIMMRNETDGLYLLRAA VCSVGVYASQHRDAPLKSHTHPVYESKMAFSDMRVFSKLTSPVSRCSWGLEDWEAFHTSPDPPDR SVSDGTMEWTRSAFGKREDEVTVDKILRCDATLRRMPVSGAVVFNFAIFWDLLEELREKRYPRLLAKV LKEGRELMEYKCEHVRQAVRACEQWAEQVEKGVWSREVEVGTLEESPPFFGWEKVRGEQKF | >35% ID over 80 for Phi p 5, | One AOL match to Phi p 5. BLASTP has High identity matches to N crassa and Sordaria. Over 500 AA. No concern of possible cross-reactivity. |
| 191 | >EAA29847.1 predicted protein [Neurospora crassa] MLFTQTFGVSTAHISVAGVIVCLLFLRFLRLRARTGRERKASIASIEKDKVKTDLPVLLQFPSPRRHVLAT LPGFEKVDVQAITPEMLKSQLPTVTTDFDKDGGYPTPTGFGSTQDIKALGRFPDYAALSGVRDNPVVPETW DITKAFRYPFRFRWGYHQHMALMXYDDPWVVELTSSYHTMATRRALLAQHGSKIFFQNPACASHASRE LMEVLSFLCNRYPHQHSDDQTLFHNHLLCTHTLLQDPLQVLFQVFNVDYAIMMRNETDGLYLLRAA VCSVGVYASQHRDAPLKSHTHPVYESKMAFSDMRVFSKLTSPVSRCSWGLEDWEAFHTSPDPPDR SVSDGTMEWTRSAFGKREDEVTVDKILRCDATLRRMPVSGAVVFNFAIFWDLLEELREKRYPRLLAKV LKEGRELMEYKCEHVRQAVRACEQWAEQVEKGVWSREVEVGTLEESPPFFGWEKVRGEQKF | No matches >35% ID over 80 | No matches to AOL. BLASTP has 100 matches to diverse taxa and proteins with >42% ID and covering 300 AA or more. No concern for possible cross-reactivity. |
| 192 | >ESA43750.1 hypothetical protein NCU16305 [Neurospora crassa OR74A] MKPRSPFFPCSSLVAFSAASVIKPPAAQDDPAFSEDLNTRTPTVHTVFQPMTTAIIHVVGRODQGPPTG APNSGSGPETGPTGGQPEKPKPTHDLPLTAPSDSDSGGGNGRIGAIIGVFAGIIGLILVVCVI KGRKARMEAEQEDDEEYEMRRQRRRVGR | One alignment >35% ID Lates cacarifer collagen | One AOL match low identity for Lates collagen. BLASTP has six alignments, two over 78% and three to four diverse species. No concern of possible cross reactivity. |

Exponent[®]

Center for Chemical Regulation and Food Safety

Estimated Daily Intake of Rhiza Mycoprotein from Proposed Uses in Select Foods by the U.S. Population



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List of Acronyms

| | |
|--------|--|
| DHHS | U.S. Department of Health and Human Services |
| EDI | Estimated Daily Intake |
| FNDDS | Food and Nutrient Database for Dietary Studies |
| g | Gram |
| NCHS | National Center for Health Statistics |
| NHANES | National Health and Nutrition Examination Survey |
| USDA | U.S. Department of Agriculture |
| VIF | Variance Inflation Factor |
| WWEIA | What We Eat In America |
| y | Years |

Introduction

At the request of The Better Meat Company (The Better Meat Co.), Exponent, Inc. (Exponent) conducted a dietary intake assessment to estimate the total daily intake of Rhiza mycoprotein proposed for use in the following three categories: plant-based meat analogs; ground, minced, and chopped meats; and dairy analogs (including milk alternatives, cheese, cream cheese, coffee creamer, frozen dessert, yogurt, and whipped topping). The estimated daily intake (EDI) of Rhiza mycoprotein was based on food consumption records collected in the What We Eat in America (WWEIA) component from the 2015-2018 National Health and Nutrition Examination Survey (NHANES) and provided for the total U.S. population 2 years (y) and older (U.S. 2+ y) and four subpopulations including children 2-6 y, children 7-12 y, adolescents 13-18 y, and adults 19+ y. The data and methods used to conduct the intake assessment and results are summarized in this report.

Data and Methods

Proposed Use

Rhiza mycoprotein is proposed for use in three food categories including plant-based meat analogs; ground, minced, and chopped meats; and dairy analogs (including milk alternatives, cheese, cream cheese, coffee creamer, frozen dessert, yogurt, and whipped topping). The proposed use level of Rhiza mycoprotein is 50% or 90% in the finished product (i.e., the food as consumed) depending on the proposed food use. Table 1 presents the food use categories for which Rhiza mycoprotein is proposed for use, descriptions of representative foods selected for the analysis, and the corresponding maximum proposed use level of Rhiza mycoprotein.

Table 1. Proposed food uses and maximum use levels of Rhiza mycoprotein

| Food Use Category | Description of Foods Selected for Analysis | Rhiza Mycoprotein Maximum Use Level (%) |
|-----------------------------------|---|---|
| Plant-based meat analogs | Plant-based burgers, frankfurters, bacon, links/patties, chicken, luncheon meat, meatball, sandwich spread, meat loaf, fillet, and textured vegetable protein | 90 |
| Ground, minced, and chopped meats | Ground meats and patties (beef, pork, ham, chicken, seafood); chicken nuggets; fish sticks; seafood loafs or cakes; frankfurter/hot dogs; sausages; and meat spreads or potted meat | 50 |
| Dairy analogs | | |
| Milk alternatives | Milk alternatives such as soy milk, almond milk, rice milk, and coconut milks | 50 |
| Cheese | Imitation cheese; due to limited non-dairy cheeses reported consumed in NHANES, cheeses that are not-further-specified (NFS) as to type were also selected as a surrogate | 50 |
| Cream cheese | Non-dairy cream cheese was not reported consumed in NHANES; therefore, dairy-based cream cheeses were selected as surrogates | 50 |
| Coffee creamer, liquid and powder | Soy coffee creamer; due to limited non-dairy coffee creamers reported consumed in NHANES, all types of coffee creamer (liquid and powder) including flavored, fat free, and sugar free were also selected as surrogates | 50 |

| Food Use Category | Description of Foods Selected for Analysis | Rhiza Mycoprotein Maximum Use Level (%) |
|-------------------|---|---|
| Frozen dessert | Non-dairy frozen dessert and rice dessert bar; due to limited non-dairy frozen desserts reported consumed in NHANES, all dairy-based desserts (e.g., frozen yogurt, ice creams and ice cream novelties) were also selected as a surrogate | 50 |
| Yogurt | Soy yogurt and coconut milk yogurt; due to limited non-dairy yogurts reported consumed in NHANES, yogurts that are not-further-specified (NFS) as to type of milk were also selected as a surrogate | 50 |
| Whipped topping | Whipped topping including fat free and sugar free (e.g., Cool Whip, Dream Whip) | 50 |

Consumption Data

Rhiza mycoprotein intakes from proposed foods were based on food consumption records collected in the What We Eat in America (WWEIA) component of the National Health and Nutrition Examination Survey (NHANES) conducted in 2015-2016 and 2017-2018. This continuous survey is a complex multistage probability sample designed to be representative of the civilian U.S. population (CDC 2018, 2020). The NHANES datasets provide nationally representative nutrition and health data and prevalence estimates for nutrition and health status measures in the U.S. Statistical weights are provided by the National Center for Health Statistics (NCHS) for the surveys to adjust for the differential probabilities of selection. As part of the examination, trained dietary interviewers collect detailed information on all foods and beverages consumed by respondents in the previous 24-hr time period (midnight to midnight). A second dietary recall is administered by telephone 3 to 10 days after the first dietary interview, but not on the same day of the week as the first interview. The dietary component of the survey is conducted as a partnership between the U.S. Department of Agriculture (USDA) and the U.S. Department of Health and Human Services (DHHS). DHHS is responsible for the sample design and data collection, and USDA is responsible for the survey's dietary data collection methodology, maintenance of the databases used to code and process the data, and

data review and processing. A total of 13,666 individuals in the survey period 2015-2018 provided 2 complete days of dietary recalls.

Representative NHANES Foods for the Proposed Use

The list of food codes reported consumed in the WWEIA, NHANES 2015-2018 was reviewed and foods corresponding to each food use of Rhiza mycoprotein were identified. Exponent identified surrogate foods when the selection among the foods reported consumed in NHANES were limited such as the case for the dairy analog uses including cheese, cream cheese, coffee creamer, frozen dessert, and yogurt (see Table 1).

Foods in which only a component corresponds to a Rhiza mycoprotein use (e.g., ground beef patty in a burger, sausage in breakfast sandwiches, non-dairy milk in coffee drinks) were also identified by utilizing USDA's Food and Nutrient Database for Dietary Studies (FNDDS) that translates the food reported as consumed by participants in NHANES into its corresponding ingredients (and gram amounts) or recipes. Exponent applied FNDDS version 2017-2018 recipes (which corresponds to dietary consumption for NHANES 2017-2018) (USDA 2020) to process dietary recall data reported during NHANES 2015-2018 and FNDDS 2015-2016 recipes (which corresponds to dietary consumption for NHANES 2015-2016) (USDA 2018) for foods that were only reported consumed in NHANES 2015-2016. The proportion of foods (as a percentage of total weight) corresponding to a proposed use of Rhiza mycoprotein was identified using the USDA FNDDS and only this portion of the food weight was used to determine the amount of Rhiza mycoprotein that may be added.

The list of NHANES food codes (and their descriptions) that were included in this assessment is provided in Appendix A.

Analysis

Using the NHANES 2015-2018 consumption data, Exponent estimated the 2-day average daily intake of Rhiza mycoprotein on a *per capita* and *per user* basis. *Per capita* estimates refer to the intake based on the entire population of interest whereas *per user* estimates refer to those who reported consuming the particular food use of Rhiza mycoprotein on either of the survey days. Thus, if a participant reported consuming the food on day 1 but not on day 2, they would

be considered a “user” and their 2-day average consumption is the amount they reported consumed on day 1 divided by 2. For each subject with a complete 2-day dietary recall, a 2-day average intake estimate of the food use of interest was derived by dividing the cumulative intake of the select food over the two 24-hr recalls by two. The 2-day average intake of Rhiza mycoprotein per subject was derived by multiplying the reported intake of select foods from the 24-hr recall with the corresponding maximum Rhiza mycoprotein use level (see Table 1) and the cumulative sum over the two 24-hr recalls was divided by two.

Flagging of Statistically Unreliable Estimates

Intake estimates that may be less statistically reliable are flagged in the summary tables provided in the results section below. The flagging of statistically unreliable estimates was based on guidance from NCHS (CDC 1996). Specifically, estimates of mean consumption are flagged when based on a sample size of less than 30 times the variance inflation factor (VIF) and estimates of 90th percentiles of consumption are flagged when based on a sample size of less than 8 times the VIF and divided by 0.10. A VIF estimate of 2.52 was estimated by USDA for NHANES 2015-2018 (USDA 2021), and using this VIF, the estimated mean consumption is flagged when based on a sample size of less than 76 (30×2.52). Similarly, using a VIF of 2.52, estimated 90th percentile (and higher) of consumption is flagged when based on a sample size of less than 202 ($8 \times 2.52/0.10$).

Results

Two-day average Rhiza mycoprotein intake estimates from the proposed use in three food categories were calculated based on food consumption data collected in NHANES 2015-2018. Both the *per capita* and *per user* mean and 90th percentile intake estimates for the U.S. population 2+ y and subpopulations of children 2-6 y, children 7-12 y, adolescents 13-18 y, and adults 19+ y from all proposed food uses are provided in Table 2. Table 3 summarizes the estimated intake of Rhiza mycoprotein by population group and food category. Rhiza mycoprotein intake estimates are expressed in grams per day (g/day).

Among the U.S. population 2+ y, approximately 86% consume one or more foods containing Rhiza mycoprotein from proposed uses (Table 2). The EDI of Rhiza mycoprotein from proposed uses at the *per user* mean and 90th percentile of intake among this population was 46.2 g/day and 100.4 g/day, respectively. The *per user* mean intake of Rhiza mycoprotein from proposed uses ranged from 35.3 g/day among children 2-6 y to 47.3 g/day among adults 19+ y. The *per user* 90th percentile intake estimates of Rhiza mycoprotein ranged from 75.4 g/day among children 2-6 y to 103.8 g/day among adults 19+ y.

Table 2. Two-day average estimated daily intake (EDI) of Rhiza mycoprotein (g/day) from all proposed food uses among the U.S. population 2+ y and subpopulations

| Population | N ¹ | % User | Per Capita (g/day) | | Per User (g/day) | |
|---------------------|----------------|--------|--------------------|-----------------|------------------|-----------------|
| | | | Mean | 90th Percentile | Mean | 90th Percentile |
| U.S. 2+ y | 10,730 | 86 | 39.8 | 94.6 | 46.2 | 100.4 |
| Children 2-6 y | 1,056 | 86 | 30.5 | 70.5 | 35.3 | 75.4 |
| Children 7-12 y | 1,342 | 89 | 38.4 | 85.3 | 43.4 | 88.2 |
| Adolescents 13-18 y | 1,218 | 88 | 41.4 | 99.6 | 46.9 | 102.6 |
| Adults 19+ y | 7,114 | 86 | 40.6 | 97.9 | 47.3 | 103.8 |

¹ Un-weighted number of users; %user, *per capita*, and *per user* estimates were based on NHANES 2015-2018 and derived using the statistical weights provided by the NCHS.

Table 3. Two-day average estimated daily intake (EDI) of Rhiza mycoprotein (g/day) by proposed food use category among the U.S. population two years and older (2+ y) and subpopulations

| Population and proposed food category | N ¹ | % User | Per Capita (g/day) | | Per User (g/day) | |
|---------------------------------------|----------------|--------|--------------------|-----------------|------------------|-----------------|
| | | | Mean | 90th Percentile | Mean | 90th Percentile |
| U.S. 2+ y | | | | | | |
| Plant-based meat analogs** | 119 | 1 | 0.5 | 0 | 41.9 | 81.9 |
| Ground, minced, and chopped meats | 8,725 | 69 | 20.0 | 52.4 | 28.9 | 60.9 |
| Dairy analogs | 6,147 | 53 | 19.3 | 61.9 | 36.8 | 89.1 |
| Children 2-6 y | | | | | | |
| Plant-based meat analogs* | 10 | 1 | 0.3 | 0 | 28.9 | NA |
| Ground, minced, and chopped meats | 928 | 76 | 17.7 | 44.2 | 23.2 | 48.7 |
| Dairy analogs | 463 | 38 | 12.4 | 39.9 | 33.1 | 71.2 |
| Children 7-12 y | | | | | | |
| Plant-based meat analogs* | 6 | <1 | 0.1 | 0 | 37.6 | NA |
| Ground, minced, and chopped meats | 1,199 | 78 | 21.3 | 49.3 | 27.2 | 55.7 |
| Dairy analogs | 649 | 46 | 17.0 | 58.8 | 37.1 | 78.5 |
| Adolescents 13-18 y | | | | | | |
| Plant-based meat analogs* | 8 | <1 | 0.4 | 0 | 56.7 | NA |
| Ground, minced, and chopped meats | 1,056 | 74 | 22.0 | 54.4 | 29.6 | 62.7 |
| Dairy analogs | 540 | 42 | 19.0 | 66.0 | 44.9 | 99.2 |
| Adults 19+ y | | | | | | |
| Plant-based meat analogs** | 95 | 1 | 0.6 | 0 | 42.1 | 81.5 |
| Ground, minced, and chopped meats | 5,542 | 67 | 19.9 | 52.9 | 29.5 | 63.4 |
| Dairy analogs | 4,495 | 56 | 20.1 | 63.8 | 36.3 | 89.8 |

¹ Un-weighted number of users; %user, *per capita*, and *per user* estimates were based on NHANES 2015-2018 and derived using the statistical weights provided by the NCHS.

* The *per user* estimates at the mean and 90th percentile may not be statistically reliable due to an inadequate number of users.

** The *per user* estimates at the 90th percentile may not be statistically reliable due to an inadequate number of users.

NA = Not available; estimate not reported when the unweighted number of users ≤10.

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Appendix A. NHANES food codes selected for inclusion in each proposed use category

| Food use category and food code | Food description |
|-----------------------------------|---|
| Plant-based meat analogs | |
| 27564420 | Frankfurter or hot dog sandwich, meatless, plain, on bun* |
| 27564430 | Frankfurter or hot dog sandwich, meatless, plain, on bread* |
| 41440000 | Textured vegetable protein, dry |
| 41810200 | Bacon strip, meatless |
| 41810400 | Breakfast link, pattie, or slice, meatless |
| 41810600 | Chicken, meatless, NFS |
| 41810610 | Chicken, meatless, breaded, fried |
| 41811400 | Frankfurter or hot dog, meatless |
| 41811600 | Luncheon slice, meatless-beef, chicken, salami or turkey |
| 41811800 | Meatball, meatless |
| 41811890 | Vegetarian burger or patty, meatless, no bun |
| 41811950 | Swiss steak, with gravy, meatless* |
| 41812000 | Sandwich spread, meat substitute type |
| 41812450 | Vegetarian chili, made with meat substitute* |
| 41812600 | Vegetarian, fillet |
| 41812900 | Vegetarian meat loaf |
| 59003000 | Meat substitute, cereal- and vegetable protein-based, fried |
| Ground, minced, and chopped meats | |
| 14620320 | Topping from meat pizza* |
| 14620330 | Topping from meat and vegetable pizza* |
| 20000200 | Ground meat, NFS |
| 21500000 | Ground beef, raw |
| 21500100 | Ground beef, cooked |
| 21500310 | Ground beef patty, cooked |
| 22002000 | Pork, ground or patty, cooked |
| 22321110 | Ham, smoked or cured, ground patty |
| 22431000 | Pork roll, cured, fried |
| 23132000 | Lamb, ground or patty, cooked |
| 23220010 | Veal, ground or patty, cooked |
| 23220030 | Veal patty, breaded, cooked |
| 23322100 | Deer sausage |
| 24198671 | Chicken patty, breaded |
| 24198720 | Chicken, ground |
| 24198729 | Chicken nuggets, NFS |
| 24198731 | Chicken nuggets, from fast food |
| 24198732 | Chicken nuggets, from restaurant |
| 24198735 | Chicken nuggets, from school lunch |
| 24198736 | Chicken nuggets, from frozen |
| 24198737 | Chicken nuggets, from other sources |
| 24207000 | Turkey, ground |
| 24208000 | Turkey, nuggets |

| Food use category and food code | Food description |
|---------------------------------|---|
| 25112200 | Liver paste or pate, chicken |
| 25210110 | Frankfurter or hot dog, NFS |
| 25210150 | Frankfurter or hot dog, cheese-filled |
| 25210210 | Frankfurter or hot dog, beef |
| 25210220 | Frankfurter or hot dog, beef and pork |
| 25210240 | Frankfurter or hot dog, beef and pork, reduced fat or light |
| 25210250 | Frankfurter or hot dog, meat and poultry, fat free |
| 25210280 | Frankfurter or hot dog, meat and poultry |
| 25210290 | Frankfurter or hot dog, meat and poultry, reduced fat or light |
| 25210310 | Frankfurter or hot dog, chicken |
| 25210410 | Frankfurter or hot dog, turkey |
| 25210620 | Frankfurter or hot dog, beef, reduced fat or light |
| 25220105 | Beef sausage |
| 25220106 | Beef sausage, reduced fat |
| 25220108 | Beef sausage, reduced sodium |
| 25220150 | Beef sausage with cheese |
| 25220210 | Blood sausage |
| 25220350 | Bratwurst |
| 25220360 | Bratwurst, with cheese |
| 25220410 | Bologna, NFS |
| 25220425 | Bologna, made from any kind of meat, reduced fat |
| 25220435 | Bologna, made from any kind of meat, reduced sodium |
| 25220445 | Bologna, made from any kind of meat, reduced fat and reduced sodium |
| 25220650 | Turkey or chicken and beef sausage |
| 25220710 | Chorizo |
| 25221210 | Mortadella |
| 25221215 | Pastrami, NFS |
| 25221220 | Pastrami, made from any kind of meat, reduced fat |
| 25221250 | Pepperoni, NFS |
| 25221255 | Pepperoni, reduced fat |
| 25221260 | Pepperoni, reduced sodium |
| 25221310 | Polish sausage |
| 25221350 | Italian sausage |
| 25221400 | Sausage, NFS |
| 25221405 | Pork sausage |
| 25221406 | Pork sausage, reduced fat |
| 25221408 | Pork sausage, reduced sodium |
| 25221450 | Pork sausage rice links |
| 25221460 | Pork and beef sausage |
| 25221500 | Salami, NFS |
| 25221505 | Salami, made from any type of meat, reduced fat |
| 25221515 | Salami, made from any type of meat, reduced sodium |
| 25221610 | Scrapple, cooked |
| 25221810 | Thuringer |
| 25221830 | Turkey or chicken sausage |
| 25221855 | Turkey or chicken sausage, reduced sodium |
| 25221860 | Turkey or chicken sausage, reduced fat |
| 25221870 | Turkey or chicken and pork sausage |

| Food use category and food code | Food description |
|---------------------------------|---|
| 25221875 | Turkey or chicken, pork, and beef sausage, reduced sodium |
| 25221910 | Vienna sausage, canned |
| 25221950 | Pickled sausage |
| 25230110 | Luncheon meat, NFS |
| 25230420 | Ham luncheon meat, loaf type |
| 25230530 | Ham and pork, canned luncheon meat, chopped, minced, pressed, spiced |
| 25230540 | Ham, pork and chicken, canned luncheon meat, chopped, minced, pressed, spiced, reduced fat and reduced sodium |
| 25230550 | Ham, pork, and chicken, canned luncheon meat, chopped, minced, pressed, spiced, reduced sodium |
| 25230560 | Liverwurst |
| 25230610 | Luncheon meat, loaf type |
| 25240000 | Meat spread or potted meat, NFS |
| 25240110 | Chicken salad spread |
| 25240220 | Ham salad spread |
| 26100260 | Fish stick, patty or nugget from fast food |
| 26100270 | Fish stick, patty or nugget from restaurant, home, or other place |
| 27111400 | Chili con carne, NS as to beans* |
| 27111405 | Chili con carne with beans, from restaurant* |
| 27111406 | Chili con carne with beans, home recipe* |
| 27111407 | Chili con carne with beans, canned* |
| 27111410 | Chili con carne with beans* |
| 27111420 | Chili con carne without beans* |
| 27111430 | Chili con carne, NS as to beans, with cheese* |
| 27111440 | Chili con carne with beans and cheese* |
| 27111500 | Beef sloppy joe, no bun* |
| 27113300 | Swedish meatballs with cream or white sauce* |
| 27116350 | Stewed seasoned ground beef, Mexican style* |
| 27116400 | Steak tartare* |
| 27118120 | Stewed seasoned ground beef, Puerto Rican style* |
| 27120110 | Sausage with tomato-based sauce* |
| 27120120 | Sausage gravy* |
| 27120210 | Frankfurter or hot dog, with chili, no bun* |
| 27120250 | Frankfurters or hot dogs with tomato-based sauce* |
| 27121410 | Chili con carne with beans, made with pork* |
| 27141030 | Spaghetti sauce with poultry* |
| 27141035 | Spaghetti sauce with poultry and added vegetables* |
| 27141500 | Chili con carne with chicken or turkey and beans* |
| 27150160 | Shrimp with lobster sauce* |
| 27160100 | Meatballs, NS as to type of meat, with sauce* |
| 27162040 | Spaghetti sauce with meat* |
| 27162060 | Spaghetti sauce with meat and added vegetables* |
| 27211550 | Stewed, seasoned, ground beef with potatoes, Mexican style* |
| 27212000 | Beef and noodles, no sauce* |
| 27212050 | Beef and macaroni with cheese sauce* |
| 27212100 | Beef and noodles with tomato-based sauce* |
| 27212120 | Chili con carne with beans and macaroni* |
| 27213120 | Porcupine balls with tomato-based sauce* |

| Food use category and food code | Food description |
|---------------------------------|---|
| 27213150 | Chili con carne with beans and rice* |
| 27213600 | Beef and rice with cheese sauce* |
| 27214100 | Meat loaf made with beef |
| 27214110 | Meat loaf made with beef, with tomato-based sauce |
| 27220010 | Meat loaf made with ham |
| 27220120 | Sausage and rice with tomato-based sauce* |
| 27220170 | Sausage and rice with cheese sauce* |
| 27235000 | Meat loaf made with venison/deer |
| 27246300 | Chicken or turkey cake, patty, or croquette |
| 27246500 | Meat loaf made with chicken or turkey |
| 27246505 | Meat loaf made with chicken or turkey, with tomato-based sauce |
| 27250030 | Codfish ball or cake |
| 27250040 | Crab cake |
| 27250050 | Fish cake or patty, NS as to fish |
| 27250070 | Salmon cake or patty |
| 27250080 | Salmon loaf |
| 27250160 | Tuna cake or patty |
| 27250300 | Mackerel cake or patty |
| 27250400 | Shrimp cake or patty |
| 27250410 | Shrimp with crab stuffing* |
| 27250520 | Seafood restructured |
| 27260010 | Meat loaf, NS as to type of meat |
| 27260050 | Meatballs, with breading, NS as to type of meat, with gravy* |
| 27260080 | Meat loaf made with beef and pork |
| 27260100 | Meat loaf made with beef and pork, with tomato-based sauce* |
| 27261500 | Stewed, seasoned, ground beef and pork with potatoes, Mexican style* |
| 27315250 | Stuffed cabbage rolls with beef and rice* |
| 27315270 | Stuffed grape leaves with beef and rice* |
| 27320080 | Sausage, noodles, and vegetables excluding carrots, broccoli, and dark-green leafy; tomato-based sauce* |
| 27320120 | Sausage, potatoes, and vegetables including carrots, broccoli, and/or dark-green leafy; gravy* |
| 27330170 | Stuffed grape leaves with lamb and rice* |
| 27360090 | Paella, NFS* |
| 27363100 | Jambalaya with meat and rice* |
| 27416200 | Beef, ground, with egg and onion* |
| 27416300 | Beef taco filling: beef, cheese, tomato, taco sauce* |
| 27418110 | Seasoned shredded soup meat |
| 27420040 | Frankfurters or hot dogs and sauerkraut* |
| 27420460 | Sausage and vegetables, excluding carrots, broccoli, and dark-green leafy; no potatoes, tomato-based sauce* |
| 27420470 | Sausage and peppers, no sauce* |
| 27460510 | Antipasto with ham, fish, cheese, vegetables* |
| 27460710 | Livers, chicken, chopped, with eggs and onion* |
| 27500050 | Sandwich, NFS* |
| 27500100 | Meat sandwich, NFS* |
| 27510140 | Cheeseburger slider, from fast food* |
| 27510145 | Cheeseburger, 1 miniature patty, with condiments, on miniature bun, from fast food / restaurant* |
| 27510150 | Cheeseburger, 1 miniature patty, on miniature bun, from school* |

| Food use category and food code | Food description |
|---------------------------------|---|
| 27510155 | Cheeseburger, NFS* |
| 27510160 | Cheeseburger, from fast food, 1 small patty* |
| 27510165 | Cheeseburger, 1 small patty, with condiments, on bun, from fast food / restaurant* |
| 27510170 | Cheeseburger (Burger King)* |
| 27510171 | Whopper Jr with cheese (Burger King)* |
| 27510172 | Cheeseburger (McDonalds)* |
| 27510173 | Cheeseburger, 1 small patty, with condiments, on bun, from fast food / restaurant (Wendy's Kid's Cheeseburger)* |
| 27510174 | Cheeseburger, 1 small patty, with condiments, on bun, from fast food / restaurant (Wendy's Jr. Cheeseburger)* |
| 27510175 | Cheeseburger, 1 small patty, with condiments, on bun, from fast food / restaurant (Wendy's Jr. Cheeseburger Deluxe)* |
| 27510190 | Cheeseburger, from school cafeteria* |
| 27510191 | Cheeseburger slider* |
| 27510195 | Cheeseburger, on white bun, 1 small patty* |
| 27510196 | Cheeseburger, on wheat bun, 1 small patty* |
| 27510205 | Cheeseburger, 1 small patty, with condiments, on white bun* |
| 27510206 | Cheeseburger, 1 small patty, with condiments, on wheat bun* |
| 27510207 | Cheeseburger, 1 small patty, with condiments, on whole wheat bun* |
| 27510215 | Cheeseburger, from fast food, 1 medium patty* |
| 27510225 | Cheeseburger, 1 medium patty, with condiments, on bun, from fast food / restaurant* |
| 27510229 | Quarter Pounder (McDonalds)* |
| 27510231 | Whopper with cheese (Burger King)* |
| 27510232 | Quarter Pounder with cheese (McDonalds)* |
| 27510233 | Cheeseburger, 1 medium patty, with condiments, on bun, from fast food / restaurant (Wendy's 1/4 lb Single with cheese)* |
| 27510235 | Cheeseburger submarine sandwich with lettuce, tomato and spread* |
| 27510241 | Cheeseburger, on white bun, 1 medium patty* |
| 27510242 | Cheeseburger, on wheat bun, 1 medium patty* |
| 27510243 | Cheeseburger, 1 medium patty, plain, on whole wheat bun* |
| 27510245 | Cheeseburger, on white bun, 1 large patty* |
| 27510246 | Cheeseburger, on wheat bun, 1 large patty* |
| 27510251 | Cheeseburger, 1 medium patty, with condiments, on white bun* |
| 27510252 | Cheeseburger, 1 medium patty, with condiments, on wheat bun* |
| 27510253 | Cheeseburger, 1 medium patty, with condiments, on whole wheat bun* |
| 27510254 | Double cheeseburger, on white bun, 2 small patties* |
| 27510257 | Double cheeseburger, on white bun, 2 medium patties* |
| 27510258 | Double cheeseburger, on wheat bun, 2 medium patties* |
| 27510261 | Cheeseburger, from fast food, 1 large patty* |
| 27510262 | Double cheeseburger, on white bun, 2 large patties* |
| 27510266 | Cheeseburger, 1 large patty, with condiments, on bun, from fast food / restaurant* |
| 27510276 | Bacon cheeseburger, 1 small patty, with condiments, on bun, from fast food / restaurant* |
| 27510281 | Bacon cheeseburger, 1 small patty, with condiments, on bun, from fast food / restaurant (Wendy's Jr. Bacon Cheeseburger)* |
| 27510305 | Bacon cheeseburger, 1 medium patty, plain, on bun, from fast food / restaurant* |
| 27510312 | Bacon cheeseburger, 1 medium patty, with condiments, on bun, from fast food / restaurant* |
| 27510331 | Bacon cheeseburger, 1 medium patty, plain, on white bun* |
| 27510341 | Bacon cheeseburger, 1 medium patty, with condiments, on white bun* |

| Food use category and food code | Food description |
|---------------------------------|--|
| 27510342 | Bacon cheeseburger, 1 medium patty, with condiments, on wheat bun* |
| 27510343 | Bacon cheeseburger, 1 medium patty, with condiments, on whole wheat bun* |
| 27510346 | Bacon cheeseburger, 1 large patty, with condiments, on bun, from fast food / restaurant* |
| 27510371 | Double cheeseburger, from fast food, 2 small patties* |
| 27510376 | Double cheeseburger, 2 small patties, with condiments, on bun, from fast food / restaurant* |
| 27510386 | Double cheeseburger (Burger King)* |
| 27510387 | Double cheeseburger (McDonalds)* |
| 27510388 | McDouble (McDonalds)* |
| 27510389 | Big Mac (McDonalds)* |
| 27510391 | Double cheeseburger, 2 small patties, with condiments, on bun, from fast food / restaurant (Wendy's Double Stack)* |
| 27510401 | Double cheeseburger, from fast food, 2 medium patties* |
| 27510405 | Double cheeseburger, from fast food, 2 large patties* |
| 27510406 | Double cheeseburger, 2 medium patties, with condiments, on bun, from fast food / restaurant* |
| 27510412 | Double cheeseburger, 2 medium patties, with condiments, on bun, from fast food / restaurant (McDonald's Double Quarter Pounder with Cheese)* |
| 27510413 | Double cheeseburger, 2 medium patties, with condiments, on bun, from fast food / restaurant (Wendy's 1/2 lb Double with cheese)* |
| 27510431 | Double bacon cheeseburger, 2 small patties, with condiments, on bun, from fast food / restaurant (Burger King Bacon Double Cheeseburger)* |
| 27510446 | Double bacon cheeseburger, 2 medium patties, plain, on bun, from fast food / restaurant* |
| 27510451 | Double bacon cheeseburger, 2 medium patties, with condiments, on bun, from fast food / restaurant* |
| 27510465 | Double bacon cheeseburger, 2 medium patties, with condiments, on bun, from fast food / restaurant (Wendy's Baconator)* |
| 27510475 | Double bacon cheeseburger, 2 large patties, with condiments, on bun, from fast food / restaurant* |
| 27510486 | Triple cheeseburger, 3 medium patties, with condiments, on bun, from fast food / restaurant* |
| 27510501 | Hamburger slider, from fast food* |
| 27510506 | Hamburger, 1 miniature patty, with condiments, on miniature bun, from fast food / restaurant* |
| 27510511 | Hamburger, 1 miniature patty, on miniature bun, from school* |
| 27510531 | Hamburger, from fast food, 1 small patty* |
| 27510536 | Hamburger, 1 small patty, with condiments, on bun, from fast food / restaurant* |
| 27510551 | Hamburger (Burger King)* |
| 27510552 | Whopper Jr (Burger King)* |
| 27510553 | Hamburger (McDonalds)* |
| 27510555 | Hamburger, 1 small patty, with condiments, on bun, from fast food / restaurant (Wendy's Jr. Hamburger)* |
| 27510565 | Hamburger, from school cafeteria* |
| 27510573 | Hamburger slider* |
| 27510575 | Hamburger, on white bun, 1 small patty* |
| 27510576 | Hamburger, on wheat bun, 1 small patty* |
| 27510577 | Hamburger, 1 small patty, plain, on whole wheat bun* |
| 27510585 | Hamburger, 1 small patty, with condiments, on white bun* |
| 27510587 | Hamburger, 1 small patty, with condiments, on whole wheat bun* |
| 27510601 | Hamburger, from fast food, 1 medium patty* |
| 27510605 | Hamburger, from fast food, 1 large patty* |
| 27510606 | Hamburger, 1 medium patty, with condiments, on bun, from fast food / restaurant* |
| 27510615 | Whopper (Burger King)* |

| Food use category and food code | Food description |
|---------------------------------|--|
| 27510616 | Hamburger, 1 medium patty, with condiments, on bun, from fast food / restaurant (Wendy's 1/4 lb Single)* |
| 27510631 | Hamburger, on white bun, 1 medium patty* |
| 27510632 | Hamburger, on wheat bun, 1 medium patty* |
| 27510633 | Hamburger, 1 medium patty, plain, on whole wheat bun* |
| 27510635 | Hamburger, on white bun, 1 large patty* |
| 27510636 | Hamburger, on wheat bun, 1 large patty* |
| 27510641 | Hamburger, 1 medium patty, with condiments, on white bun* |
| 27510642 | Hamburger, 1 medium patty, with condiments, on wheat bun* |
| 27510643 | Hamburger, 1 medium patty, with condiments, on whole wheat bun* |
| 27510649 | Double hamburger, on white bun, 2 small patties* |
| 27510655 | Double hamburger, on white bun, 2 medium patties* |
| 27510657 | Double hamburger, on wheat bun, 2 medium patties* |
| 27510658 | Double hamburger, on white bun, 2 large patties* |
| 27510661 | Double hamburger, from fast food, 2 small patties* |
| 27510667 | Double hamburger, 2 small patties, with condiments, on bun, from fast food / restaurant* |
| 27510671 | Double hamburger, from fast food, 2 medium patties* |
| 27510675 | Double hamburger, from fast food, 2 large patties* |
| 27510676 | Double hamburger, 2 medium patties, with condiments, on bun, from fast food / restaurant* |
| 27510681 | Double hamburger, 2 medium patties, with condiments, on bun, from fast food / restaurant (Burger King Double WHOPPER)* |
| 27510682 | Double hamburger, 2 medium patties, with condiments, on bun, from fast food / restaurant (Wendy's 1/2 lb Double)* |
| 27510705 | Chiliburger, with or without cheese, on bun* |
| 27517000 | Hamburger wrap sandwich, from fast food* |
| 27540120 | Chicken salad or chicken spread sandwich* |
| 27540170 | Chicken patty sandwich, miniature, with spread* |
| 27540180 | Chicken patty sandwich or biscuit* |
| 27540190 | Chicken patty sandwich, with lettuce and spread* |
| 27545000 | Turkey or chicken burger, plain, on bun, from fast food / restaurant* |
| 27545010 | Turkey or chicken burger, with condiments, on bun, from fast food / restaurant* |
| 27545100 | Turkey or chicken burger, on white bun* |
| 27545110 | Turkey or chicken burger, on wheat bun* |
| 27545200 | Turkey or chicken burger, with condiments, on white bun* |
| 27545210 | Turkey or chicken burger, with condiments, on wheat bun* |
| 27545220 | Turkey or chicken burger, with condiments, on whole wheat bun* |
| 27550110 | Crab cake sandwich* |
| 27550120 | Salmon cake sandwich* |
| 27560120 | Bologna and cheese sandwich, with spread* |
| 27560300 | Corn dog, frankfurter or hot dog with cornbread coating* |
| 27560350 | Pig in a blanket, frankfurter or hot dog wrapped in dough* |
| 27560500 | Pepperoni and salami submarine sandwich, with lettuce, tomato and spread* |
| 27560650 | Sausage on biscuit* |
| 27560660 | Sausage griddle cake sandwich* |
| 27560670 | Sausage and cheese on English muffin* |
| 27560705 | Sausage balls, made with biscuit mix and cheese* |
| 27560710 | Sausage sandwich* |
| 27564000 | Frankfurter or hot dog sandwich, NFS, plain, on white bun* |

| Food use category and food code | Food description |
|---------------------------------|--|
| 27564001 | Frankfurter or hot dog sandwich, NFS, plain, on wheat bun* |
| 27564002 | Frankfurter or hot dog sandwich, NFS, plain, on whole wheat bun* |
| 27564010 | Frankfurter or hot dog sandwich, NFS, plain, on white bread* |
| 27564020 | Frankfurter or hot dog sandwich, NFS, plain, on wheat bread* |
| 27564030 | Frankfurter or hot dog sandwich, NFS, plain, on whole wheat bread* |
| 27564060 | Frankfurter or hot dog sandwich, beef, plain, on white bun* |
| 27564061 | Frankfurter or hot dog sandwich, beef, plain, on wheat bun* |
| 27564062 | Frankfurter or hot dog sandwich, beef, plain, on whole wheat bun* |
| 27564064 | Frankfurter or hot dog sandwich, beef, plain, on multigrain bun* |
| 27564070 | Frankfurter or hot dog sandwich, beef, plain, on white bread* |
| 27564080 | Frankfurter or hot dog sandwich, beef, plain, on wheat bread* |
| 27564090 | Frankfurter or hot dog sandwich, beef, plain, on whole wheat bread* |
| 27564100 | Frankfurter or hot dog sandwich, beef, plain, on whole grain white bread* |
| 27564110 | Frankfurter or hot dog sandwich, beef, plain, on multigrain bread* |
| 27564120 | Frankfurter or hot dog sandwich, beef and pork, plain, on white bun* |
| 27564121 | Frankfurter or hot dog sandwich, beef and pork, plain, on wheat bun* |
| 27564122 | Frankfurter or hot dog sandwich, beef and pork, plain, on whole wheat bun* |
| 27564130 | Frankfurter or hot dog sandwich, beef and pork, plain, on white bread* |
| 27564140 | Frankfurter or hot dog sandwich, beef and pork, plain, on wheat bread* |
| 27564150 | Frankfurter or hot dog sandwich, beef and pork, plain, on whole wheat bread* |
| 27564180 | Frankfurter or hot dog sandwich, meat and poultry, plain, on white bun* |
| 27564182 | Frankfurter or hot dog sandwich, meat and poultry, plain, on whole wheat bun* |
| 27564190 | Frankfurter or hot dog sandwich, meat and poultry, plain, on white bread* |
| 27564200 | Frankfurter or hot dog sandwich, meat and poultry, plain, on wheat bread* |
| 27564210 | Frankfurter or hot dog sandwich, meat and poultry, plain, on whole wheat bread* |
| 27564220 | Frankfurter or hot dog sandwich, meat and poultry, plain, on whole grain white bread* |
| 27564240 | Frankfurter or hot dog sandwich, chicken and/or turkey, plain, on white bun* |
| 27564241 | Frankfurter or hot dog sandwich, chicken and/or turkey, plain, on wheat bun* |
| 27564243 | Frankfurter or hot dog sandwich, chicken and/or turkey, plain, on whole grain white bun* |
| 27564250 | Frankfurter or hot dog sandwich, chicken and/or turkey, plain, on white bread* |
| 27564260 | Frankfurter or hot dog sandwich, chicken and/or turkey, plain, on wheat bread* |
| 27564270 | Frankfurter or hot dog sandwich, chicken and/or turkey, plain, on whole wheat bread* |
| 27564290 | Frankfurter or hot dog sandwich, chicken and/or turkey, plain, on multigrain bread* |
| 27564300 | Frankfurter or hot dog sandwich, reduced fat or light, plain, on white bun* |
| 27564301 | Frankfurter or hot dog sandwich, reduced fat or light, plain, on wheat bun* |
| 27564330 | Frankfurter or hot dog sandwich, reduced fat or light, plain, on whole wheat bread* |
| 27564360 | Frankfurter or hot dog sandwich, fat free, plain, on white bun* |
| 27564370 | Frankfurter or hot dog sandwich, fat free, plain, on white bread* |
| 27564380 | Frankfurter or hot dog sandwich, fat free, plain, on wheat bread* |
| 27564418 | Frankfurter or hot dog sandwich, reduced sodium* |
| 27564440 | Frankfurter or hot dog sandwich, with chili, on white bun* |
| 27564441 | Frankfurter or hot dog sandwich, with chili, on wheat bun* |
| 27564442 | Frankfurter or hot dog sandwich, with chili, on whole wheat bun* |
| 27564443 | Frankfurter or hot dog sandwich, with chili, on whole grain white bun* |
| 27564450 | Frankfurter or hot dog sandwich, with chili, on white bread* |
| 27564500 | Frankfurter or hot dog sandwich, with meatless chili, on white bun* |
| 27564510 | Frankfurter or hot dog sandwich, with meatless chili, on white bread* |
| 27564520 | Frankfurter or hot dog sandwich, with meatless chili, on wheat bread* |

| Food use category and food code | Food description |
|---------------------------------|--|
| 28101000 | Frozen dinner, NFS* |
| 28110150 | Beef with vegetable, diet frozen meal* |
| 28110220 | Sirloin, chopped, with gravy, mashed potatoes, vegetable, frozen meal* |
| 28110300 | Salisbury steak dinner, NFS, frozen meal* |
| 28110310 | Salisbury steak with gravy, potatoes, vegetable, frozen meal* |
| 28110330 | Salisbury steak with gravy, whipped potatoes, vegetable, dessert, frozen meal* |
| 28110350 | Salisbury steak with gravy, potatoes, vegetable, dessert, frozen meal* |
| 28110380 | Salisbury steak with gravy, macaroni and cheese, frozen meal* |
| 28110390 | Salisbury steak, potatoes, vegetable, dessert, diet frozen meal* |
| 28110660 | Meatballs, Swedish, in gravy, with noodles, diet frozen meal* |
| 28140720 | Chicken patty, or nuggets, boneless, breaded, potatoes, vegetable, frozen meal* |
| 28140740 | Chicken patty or nuggets, boneless, breaded, with pasta and tomato sauce, fruit, dessert, frozen meal* |
| 28141050 | Chicken patty parmigiana, breaded, with vegetable, diet frozen meal* |
| 28160310 | Meat loaf with potatoes, vegetable, frozen meal* |
| 28160650 | Stuffed green pepper, frozen meal* |
| 28310230 | Meatball soup, home recipe, Mexican style* |
| 28315160 | Italian Wedding Soup* |
| 32105190 | Egg casserole with bread, cheese, milk and meat* |
| 32130190 | Egg omelet or scrambled egg, with meat, NS as to fat* |
| 32130200 | Egg omelet or scrambled egg, with meat, made with margarine* |
| 32130210 | Egg omelet or scrambled egg, with meat, made with oil* |
| 32130220 | Egg omelet or scrambled egg, with meat, made with butter* |
| 32130240 | Egg omelet or scrambled egg, with meat, made with animal fat or meat drippings* |
| 32130260 | Egg omelet or scrambled egg, with meat, made with cooking spray* |
| 32130265 | Egg omelet or scrambled egg, with meat, NS as to fat type* |
| 32130270 | Egg omelet or scrambled egg, with meat, no added fat* |
| 32130290 | Egg omelet or scrambled egg, with cheese and meat, NS as to fat* |
| 32130300 | Egg omelet or scrambled egg, with cheese and meat, made with margarine* |
| 32130310 | Egg omelet or scrambled egg, with cheese and meat, made with oil* |
| 32130320 | Egg omelet or scrambled egg, with cheese and meat, made with butter* |
| 32130360 | Egg omelet or scrambled egg, with cheese and meat, made with cooking spray* |
| 32130365 | Egg omelet or scrambled egg, with cheese and meat, NS as to fat type* |
| 32130370 | Egg omelet or scrambled egg, with cheese and meat, no added fat* |
| 32130800 | Egg omelet or scrambled egg, with meat and tomatoes, fat added* |
| 32130810 | Egg omelet or scrambled egg, with meat and tomatoes, no added fat* |
| 32130820 | Egg omelet or scrambled egg, with meat and tomatoes, NS as to fat* |
| 32130830 | Egg omelet or scrambled egg, with meat and dark-green vegetables, fat added* |
| 32130840 | Egg omelet or scrambled egg, with meat and dark-green vegetables, no added fat* |
| 32130850 | Egg omelet or scrambled egg, with meat and dark-green vegetables, NS as to fat* |
| 32130890 | Egg omelet or scrambled egg, with meat and vegetables other than dark-green and/or tomatoes, fat added* |
| 32130900 | Egg omelet or scrambled egg, with meat and vegetables other than dark-green and/or tomatoes, no added fat* |
| 32130910 | Egg omelet or scrambled egg, with meat and vegetables other than dark-green and/or tomatoes, NS as to fat* |
| 32131000 | Egg omelet or scrambled egg, with cheese, meat, and tomatoes, fat added* |
| 32131010 | Egg omelet or scrambled egg, with cheese, meat, and tomatoes, no added fat* |

| Food use category and food code | Food description |
|---------------------------------|---|
| 32131020 | Egg omelet or scrambled egg, with cheese, meat, and tomatoes, NS as to fat* |
| 32131030 | Egg omelet or scrambled egg, with cheese, meat, and dark-green vegetables, fat added* |
| 32131040 | Egg omelet or scrambled egg, with cheese, meat, and dark-green vegetables, no added fat* |
| 32131050 | Egg omelet or scrambled egg, with cheese, meat, and dark-green vegetables, NS as to fat* |
| 32131060 | Egg omelet or scrambled egg, with cheese, meat, tomatoes, and dark-green vegetables, fat added* |
| 32131070 | Egg omelet or scrambled egg, with cheese, meat, tomatoes, and dark-green vegetables, no added fat* |
| 32131080 | Egg omelet or scrambled egg, with cheese, meat, tomatoes, and dark-green vegetables, NS as to fat* |
| 32131090 | Egg omelet or scrambled egg, with cheese, meat, and vegetables other than dark-green and/or tomatoes, fat added* |
| 32131100 | Egg omelet or scrambled egg, with cheese, meat, and vegetables other than dark-green and/or tomatoes, no added fat* |
| 32131110 | Egg omelet or scrambled egg, with cheese, meat, and vegetables other than dark-green and/or tomatoes, NS as to fat* |
| 32202030 | Egg, cheese, and sausage on English muffin* |
| 32202034 | Egg, cheese, and sausage on bun* |
| 32202035 | Egg, extra cheese, and extra sausage, on bun* |
| 32202050 | Egg, cheese, and sausage on biscuit* |
| 32202055 | Egg, cheese, and sausage griddle cake sandwich* |
| 32202060 | Egg and sausage on biscuit* |
| 32202120 | Egg, cheese and sausage on bagel* |
| 32400200 | Egg white, omelet, scrambled, or fried, with meat* |
| 32400210 | Egg white, omelet, scrambled, or fried, with meat, fat not added in cooking* |
| 32400400 | Egg white, omelet, scrambled, or fried, with cheese and meat* |
| 32400600 | Egg white, omelet, scrambled, or fried, with meat and vegetables* |
| 32400610 | Egg white, omelet, scrambled, or fried, with meat and vegetables, fat not added in cooking* |
| 32400620 | Egg white, omelet, scrambled, or fried, with meat and vegetables, NS as to fat added in cooking* |
| 32400700 | Egg white, omelet, scrambled, or fried, with cheese, meat, and vegetables* |
| 32400710 | Egg white, omelet, scrambled, or fried, with cheese, meat, and vegetables, fat not added in cooking* |
| 33401100 | Egg substitute, omelet, scrambled, or fried, with meat* |
| 33401300 | Egg substitute, omelet, scrambled, or fried, with cheese and meat* |
| 33401310 | Egg substitute, omelet, scrambled, or fried, with cheese and meat, fat not added in cooking* |
| 33401500 | Egg substitute, omelet, scrambled, or fried, with meat and vegetables* |
| 33401600 | Egg substitute, omelet, scrambled, or fried, with cheese, meat, and vegetables* |
| 41206030 | Beans and franks* |
| 41207030 | Beans, dry, cooked with ground beef* |
| 54408430 | Pretzels, soft, ready-to-eat, topped with meat* |
| 58100010 | Burrito, taco, or quesadilla with egg and breakfast meat* |
| 58100013 | Burrito, taco, or quesadilla with egg and breakfast meat, from fast food* |
| 58100015 | Burrito, taco, or quesadilla with egg, potato, and breakfast meat* |
| 58100017 | Burrito, taco, or quesadilla with egg, potato, and breakfast meat, from fast food* |
| 58100020 | Burrito, taco, or quesadilla with egg, beans, and breakfast meat* |
| 58100100 | Burrito with meat* |
| 58100120 | Burrito with meat and beans* |
| 58100125 | Burrito with meat and beans, from fast food* |

| Food use category and food code | Food description |
|---------------------------------|--|
| 58100135 | Burrito with meat and sour cream* |
| 58100140 | Burrito with meat, beans, and sour cream* |
| 58100145 | Burrito with meat, beans, and sour cream, from fast food* |
| 58100160 | Burrito with meat, beans, and rice* |
| 58100165 | Burrito with meat, beans, rice, and sour cream* |
| 58101320 | Taco or tostada with meat* |
| 58101323 | Taco or tostada with meat, from fast food* |
| 58101325 | Taco or tostada with meat and sour cream* |
| 58101345 | Soft taco with meat* |
| 58101347 | Soft taco with meat, from fast food* |
| 58101350 | Soft taco with meat and sour cream* |
| 58101357 | Soft taco with meat and sour cream, from fast food* |
| 58101620 | Soft taco with meat and beans* |
| 58101630 | Soft taco with meat, beans, and sour cream* |
| 58101730 | Taco or tostada with meat and beans* |
| 58101733 | Taco or tostada with meat and beans, from fast food* |
| 58101745 | Taco or tostada with meat, beans, and sour cream* |
| 58101800 | Ground beef with tomato sauce and taco seasonings on a cornbread crust* |
| 58101820 | Mexican casserole made with ground beef, beans, tomato sauce, cheese, taco seasonings, and corn chips* |
| 58101830 | Mexican casserole made with ground beef, tomato sauce, cheese, taco seasonings, and corn chips* |
| 58101930 | Taco or tostada salad with meat* |
| 58101945 | Taco or tostada salad with meat and sour cream* |
| 58103310 | Tamale casserole with meat* |
| 58104130 | Nachos with meat and cheese* |
| 58104160 | Nachos with chili* |
| 58104180 | Nachos with meat, cheese, and sour cream* |
| 58104280 | Gordita, sope, or chalupa with meat and sour cream* |
| 58104290 | Gordita, sope, or chalupa with meat* |
| 58104500 | Chimichanga with meat* |
| 58104535 | Chimichanga with meat and sour cream* |
| 58104820 | Taquito or flauta with meat* |
| 58104825 | Taquito or flauta with meat and cheese* |
| 58105110 | Pupusa, meat-filled* |
| 58106512 | Pizza with pepperoni, from frozen, thin crust* |
| 58106514 | Pizza with pepperoni, from frozen, medium crust* |
| 58106516 | Pizza with pepperoni, from frozen, thick crust* |
| 58106540 | Pizza with pepperoni, from restaurant or fast food, NS as to type of crust* |
| 58106550 | Pizza with pepperoni, from restaurant or fast food, thin crust* |
| 58106555 | Pizza with pepperoni, from restaurant or fast food, medium crust* |
| 58106560 | Pizza with pepperoni, from restaurant or fast food, thick crust* |
| 58106565 | Pizza with pepperoni, stuffed crust* |
| 58106570 | Pizza with pepperoni, from school lunch, thin crust* |
| 58106578 | Pizza, with pepperoni, from school lunch, medium crust* |
| 58106580 | Pizza with pepperoni, from school lunch, thick crust* |
| 58106602 | Pizza with meat other than pepperoni, from frozen, thin crust* |
| 58106604 | Pizza with meat other than pepperoni, from frozen, medium crust* |

| Food use category and food code | Food description |
|---------------------------------|---|
| 58106606 | Pizza with meat other than pepperoni, from frozen, thick crust* |
| 58106610 | Pizza with meat other than pepperoni, from restaurant or fast food, NS as to type of crust* |
| 58106620 | Pizza with meat other than pepperoni, from restaurant or fast food, thin crust* |
| 58106625 | Pizza with meat other than pepperoni, from restaurant or fast food, medium crust* |
| 58106630 | Pizza with meat other than pepperoni, from restaurant or fast food, thick crust* |
| 58106633 | Pizza, with meat other than pepperoni, stuffed crust* |
| 58106634 | Pizza, with meat other than pepperoni, from school lunch, medium crust* |
| 58106635 | Pizza, with meat other than pepperoni, from school lunch, thin crust* |
| 58106636 | Pizza, with meat other than pepperoni, from school lunch, thick crust* |
| 58106650 | Pizza with extra meat, thin crust* |
| 58106655 | Pizza with extra meat, medium crust* |
| 58106660 | Pizza with extra meat, thick crust* |
| 58106700 | Pizza with meat and vegetables, from frozen, thin crust* |
| 58106702 | Pizza with meat and vegetables, from frozen, medium crust* |
| 58106705 | Pizza with meat and vegetables, from frozen, thick crust* |
| 58106720 | Pizza with meat and vegetables, from restaurant or fast food, thin crust* |
| 58106725 | Pizza with meat and vegetables, from restaurant or fast food, medium crust* |
| 58106730 | Pizza with meat and vegetables, from restaurant or fast food, thick crust* |
| 58106736 | Pizza with extra meat and extra vegetables, thin crust* |
| 58106737 | Pizza with extra meat and extra vegetables, thick crust* |
| 58106738 | Pizza with extra meat and extra vegetables, medium crust* |
| 58107050 | Pizza, no cheese, thin crust* |
| 58107222 | White pizza, cheese, with meat, thin crust* |
| 58107224 | White pizza, cheese, with meat, thick crust* |
| 58107232 | White pizza, cheese, with meat and vegetables, thin crust* |
| 58108010 | Calzone, with meat and cheese* |
| 58109030 | Pizza, with meat, whole wheat thin crust* |
| 58109040 | Pizza, with meat, whole wheat thick crust* |
| 58109120 | Pizza, with meat, gluten-free thin crust* |
| 58109130 | Pizza, with meat, gluten-free thick crust* |
| 58116210 | Meat pie, Puerto Rican style* |
| 58117310 | Kibby, Puerto Rican style* |
| 58117410 | Codfish fritter, Puerto Rican style |
| 58122330 | Knish, meat* |
| 58124230 | Pastry, meat / poultry-filled* |
| 58126000 | Turnover filled with ground beef and cabbage* |
| 58127270 | Croissant sandwich with sausage and egg* |
| 58127330 | Croissant sandwich with sausage, egg, and cheese* |
| 58128000 | Biscuit with gravy* |
| 58128250 | Dressing with meat and vegetables* |
| 58130011 | Lasagna with meat* |
| 58130013 | Lasagna with meat, canned* |
| 58130014 | Lasagna with meat, from restaurant* |
| 58130015 | Lasagna with meat, home recipe* |
| 58130016 | Lasagna with meat, frozen* |
| 58130020 | Lasagna with meat and spinach* |
| 58130140 | Lasagna with chicken or turkey* |
| 58130150 | Lasagna, with chicken or turkey, and spinach* |

| Food use category and food code | Food description |
|---------------------------------|--|
| 58131110 | Ravioli, NS as to filling, with tomato sauce* |
| 58131120 | Ravioli, NS as to filling, with cream sauce* |
| 58131310 | Ravioli, meat-filled, no sauce* |
| 58131320 | Ravioli, meat-filled, with tomato sauce or meat sauce* |
| 58131323 | Ravioli, meat-filled, with tomato sauce or meat sauce, canned* |
| 58131330 | Ravioli, meat-filled, with cream sauce* |
| 58134130 | Stuffed shells, cheese-filled, with meat sauce* |
| 58134610 | Tortellini, meat-filled, with tomato sauce* |
| 58134613 | Tortellini, meat-filled, with tomato sauce, canned* |
| 58134650 | Tortellini, meat-filled, no sauce* |
| 58134710 | Tortellini, spinach-filled, with tomato sauce* |
| 58134720 | Tortellini, spinach-filled, no sauce* |
| 58145135 | Macaroni or noodles with cheese and meat* |
| 58145136 | Macaroni or noodles with cheese and meat, prepared from Hamburger Helper mix* |
| 58145160 | Macaroni or noodles with cheese and frankfurters or hot dogs* |
| 58146120 | Pasta with tomato-based sauce, cheese and meat* |
| 58146210 | Pasta with sauce, NFS* |
| 58146315 | Pasta with sauce and meat, from school lunch* |
| 58146321 | Pasta with tomato-based sauce and meat, restaurant* |
| 58146322 | Pasta with tomato-based sauce and meat, home recipe* |
| 58146323 | Pasta with tomato-based sauce and meat, ready-to-heat* |
| 58146331 | Pasta with tomato-based sauce, meat, and added vegetables, restaurant* |
| 58146332 | Pasta with tomato-based sauce, meat, and added vegetables, home recipe* |
| 58146333 | Pasta with tomato-based sauce, meat, and added vegetables, ready-to-heat* |
| 58146341 | Pasta with tomato-based sauce and poultry, restaurant* |
| 58146342 | Pasta with tomato-based sauce and poultry, home recipe* |
| 58146343 | Pasta with tomato-based sauce and poultry, ready-to-heat* |
| 58146351 | Pasta with tomato-based sauce, poultry, and added vegetables, restaurant* |
| 58146352 | Pasta with tomato-based sauce, poultry, and added vegetables, home recipe* |
| 58146353 | Pasta with tomato-based sauce, poultry, and added vegetables, ready-to-heat* |
| 58146401 | Pasta with cream sauce and meat, restaurant* |
| 58146402 | Pasta with cream sauce and meat, home recipe* |
| 58146403 | Pasta with cream sauce and meat, ready-to-heat* |
| 58146411 | Pasta with cream sauce, meat, and added vegetables, restaurant* |
| 58146412 | Pasta with cream sauce, meat, and added vegetables, home recipe* |
| 58146413 | Pasta with cream sauce, meat, and added vegetables, ready-to-heat* |
| 58146421 | Pasta with cream sauce and poultry, restaurant* |
| 58146422 | Pasta with cream sauce and poultry, home recipe* |
| 58146423 | Pasta with cream sauce and poultry, ready-to-heat* |
| 58146431 | Pasta with cream sauce, poultry, and added vegetables, restaurant* |
| 58146432 | Pasta with cream sauce, poultry, and added vegetables, home recipe* |
| 58146433 | Pasta with cream sauce, poultry, and added vegetables, ready-to-heat* |
| 58146622 | Pasta, whole grain, with tomato-based sauce and meat, home recipe* |
| 58146623 | Pasta, whole grain, with tomato-based sauce and meat, ready-to-heat* |
| 58146632 | Pasta, whole grain, with tomato-based sauce, meat, and added vegetables, home recipe* |
| 58146641 | Pasta, whole grain, with tomato-based sauce and poultry, restaurant* |
| 58146642 | Pasta, whole grain, with tomato-based sauce and poultry, home recipe* |
| 58146652 | Pasta, whole grain, with tomato-based sauce, poultry, and added vegetables, home recipe* |

| Food use category and food code | Food description |
|---------------------------------|--|
| 58146653 | Pasta, whole grain, with tomato-based sauce, poultry, and added vegetables, ready-to-heat* |
| 58146702 | Pasta, whole grain, with cream sauce and meat, home recipe* |
| 58146713 | Pasta, whole grain, with cream sauce, meat, and added vegetables, ready-to-heat* |
| 58146722 | Pasta, whole grain, with cream sauce and poultry, home recipe* |
| 58146723 | Pasta, whole grain, with cream sauce and poultry, ready-to-heat* |
| 58146732 | Pasta, whole grain, with cream sauce, poultry, and added vegetables, home recipe* |
| 58146733 | Pasta, whole grain, with cream sauce, poultry, and added vegetables, ready-to-heat* |
| 58160135 | Rice with beans and beef* |
| 58162090 | Stuffed pepper, with meat* |
| 58162110 | Stuffed pepper, with rice and meat* |
| 58163450 | Spanish rice with ground beef* |
| 58301050 | Lasagna with cheese and meat sauce, diet frozen meal* |
| 58302050 | Beef and noodles with meat sauce and cheese, diet frozen meal* |
| 58304010 | Spaghetti and meatballs dinner, NFS, frozen meal* |
| 58304060 | Spaghetti with meat sauce, diet frozen meal* |
| 58306020 | Beef enchilada, chili gravy, rice, refried beans, frozen meal* |
| 58310210 | Sausage and french toast, frozen meal* |
| 58310310 | Pancakes and sausage, frozen meal* |
| 75410530 | Chiles rellenos, filled with meat and cheese* |
| 75414020 | Mushrooms, stuffed* |
| 77121010 | Fried stuffed potatoes, Puerto Rican style* |
| 77205110 | Ripe plantain fritters, Puerto Rican style* |
| 77250110 | Stuffed tannier fritters, Puerto Rican style |
| 77316010 | Stuffed cabbage, with meat, Puerto Rican style* |
| 77316510 | Stuffed cabbage, with meat and rice, Syrian dish, Puerto Rican style* |
| 77316600 | Eggplant and meat casserole* |
| 77513010 | Spanish stew* |
| Dairy analogs | |
| 11320000 | Soy milk |
| 11320100 | Soy milk, light |
| 11320200 | Soy milk, nonfat |
| 11321000 | Soy milk, chocolate |
| 11321100 | Soy milk, light, chocolate |
| 11321200 | Soy milk, nonfat, chocolate |
| 11350000 | Almond milk, sweetened |
| 11350010 | Almond milk, sweetened, chocolate |
| 11350020 | Almond milk, unsweetened |
| 11350030 | Almond milk, unsweetened, chocolate |
| 11360000 | Rice milk |
| 11370000 | Coconut milk |
| 11400000 | Yogurt, NFS |
| 11400010 | Yogurt, Greek, NS as to type of milk or flavor |
| 11410000 | Yogurt, NS as to type of milk or flavor |
| 11411010 | Yogurt, NS as to type of milk, plain |
| 11411390 | Yogurt, Greek, NS as to type of milk, plain |
| 11430000 | Yogurt, NS as to type of milk, fruit |
| 11433990 | Yogurt, Greek, NS as to type of milk, fruit |
| 11434090 | Yogurt, NS as to type of milk, flavors other than fruit |

| Food use category and food code | Food description |
|---------------------------------|---|
| 11435000 | Yogurt, Greek, NS as to type of milk, flavors other than fruit |
| 11459990 | Frozen yogurt, NFS |
| 11460000 | Frozen yogurt, vanilla |
| 11460100 | Frozen yogurt, chocolate |
| 11460160 | Yogurt, frozen, chocolate, lowfat milk |
| 11460170 | Yogurt, frozen, flavors other than chocolate, lowfat milk |
| 11460200 | Yogurt, frozen, chocolate, nonfat milk |
| 11460250 | Yogurt, frozen, flavors other than chocolate, with sorbet or sorbet-coated |
| 11460300 | Yogurt, frozen, flavors other than chocolate, nonfat milk |
| 11460400 | Yogurt, frozen, chocolate, nonfat milk, with low-calorie sweetener |
| 11460410 | Yogurt, frozen, flavors other than chocolate, nonfat milk, with low-calorie sweetener |
| 11460500 | Frozen yogurt, soft serve, vanilla |
| 11460510 | Frozen yogurt, soft serve, chocolate |
| 11461000 | Yogurt, frozen, chocolate-coated |
| 11461200 | Frozen yogurt sandwich |
| 11461210 | Frozen yogurt bar, vanilla |
| 11461250 | Frozen yogurt cone, chocolate |
| 11461260 | Frozen yogurt cone, vanilla |
| 11461270 | Yogurt, frozen, cone, flavors other than chocolate, lowfat milk |
| 11461300 | Frozen yogurt cone, vanilla, waffle cone |
| 11512030 | Hot chocolate / Cocoa, ready to drink, made with non-dairy milk |
| 11513310 | Chocolate milk, made from dry mix with non-dairy milk |
| 11513395 | Chocolate milk, made from no sugar added dry mix with non-dairy milk (Nesquik) |
| 11513750 | Chocolate milk, made from syrup with non-dairy milk |
| 11514150 | Hot chocolate / Cocoa, made with dry mix and non-dairy milk |
| 11514360 | Hot chocolate / Cocoa, made with no sugar added dry mix and non-dairy milk |
| 12200100 | Coffee creamer, NFS |
| 12210200 | Coffee creamer, liquid |
| 12210210 | Coffee creamer, liquid, flavored |
| 12210260 | Coffee creamer, liquid, fat free |
| 12210270 | Coffee creamer, liquid, fat free, flavored |
| 12210280 | Coffee creamer, liquid, fat free, sugar free, flavored |
| 12210310 | Coffee creamer, liquid, sugar free, flavored |
| 12210400 | Coffee creamer, powder |
| 12210420 | Coffee creamer, powder, flavored |
| 12210430 | Coffee creamer, powder, fat free |
| 12210440 | Coffee creamer, powder, fat free, flavored |
| 12210505 | Coffee creamer, powder, sugar free, flavored |
| 12210520 | Coffee creamer, soy, liquid |
| 12220200 | Whipped topping |
| 12220270 | Whipped topping, fat free |
| 12220280 | Whipped topping, sugar free |
| 13110000 | Ice cream, NFS |
| 13110100 | Ice cream, vanilla |
| 13110102 | Ice cream, vanilla, with additional ingredients |
| 13110110 | Ice cream, chocolate |
| 13110112 | Ice cream, chocolate, with additional ingredients |
| 13110120 | Ice cream, rich, flavors other than chocolate |

| Food use category and food code | Food description |
|---------------------------------|--|
| 13110130 | Ice cream, rich, chocolate |
| 13110200 | Ice cream, soft serve, vanilla |
| 13110210 | Ice cream, soft serve, chocolate |
| 13110220 | Ice cream, soft serve, NS as to flavor |
| 13110320 | Ice cream, no sugar added, flavors other than chocolate |
| 13110330 | Ice cream, no sugar added, chocolate |
| 13110460 | Gelato, vanilla |
| 13110470 | Gelato, chocolate |
| 13120050 | Ice cream bar, vanilla |
| 13120100 | Ice cream bar, vanilla, chocolate coated |
| 13120110 | Ice cream candy bar |
| 13120120 | Ice cream bar or stick, rich chocolate ice cream, thick chocolate covering |
| 13120121 | Ice cream bar or stick, rich ice cream, thick chocolate covering |
| 13120130 | Ice cream bar or stick, rich ice cream, chocolate covered, with nuts |
| 13120140 | Ice cream bar, chocolate |
| 13120300 | Ice cream bar, cake covered |
| 13120310 | Ice cream bar, stick or nugget, with crunch coating |
| 13120400 | Ice cream bar or stick with fruit |
| 13120500 | Ice cream sandwich, vanilla |
| 13120510 | Ice cream sandwich, chocolate |
| 13120550 | Ice cream cookie sandwich |
| 13120700 | Ice cream cone with nuts, flavors other than chocolate |
| 13120710 | Ice cream cone, chocolate covered, with nuts, flavors other than chocolate |
| 13120720 | Ice cream cone, chocolate covered or dipped, flavors other than chocolate |
| 13120730 | Ice cream cone, scooped, vanilla |
| 13120735 | Ice cream cone, scooped, vanilla, waffle cone |
| 13120740 | Ice cream cone, NFS |
| 13120760 | Ice cream cone, chocolate covered or dipped, chocolate ice cream |
| 13120770 | Ice cream cone, scooped, chocolate |
| 13120775 | Ice cream cone, scooped, chocolate, waffle cone |
| 13120782 | Ice cream cone, soft serve, vanilla |
| 13120784 | Ice cream cone, soft serve, chocolate |
| 13120786 | Ice cream cone, soft serve, vanilla, waffle cone |
| 13120788 | Ice cream cone, soft serve, chocolate, waffle cone |
| 13120790 | Ice cream cone, vanilla, prepackaged |
| 13120792 | Ice cream cone, chocolate, prepackaged |
| 13120800 | Ice cream soda, flavors other than chocolate* |
| 13120810 | Ice cream soda, chocolate* |
| 13121000 | Ice cream sundae, NFS |
| 13121100 | Ice cream sundae, fruit topping |
| 13121120 | Banana split |
| 13121300 | Ice cream sundae, hot fudge topping |
| 13121400 | Ice cream sundae, caramel topping |
| 13122100 | Ice cream pie, no crust |
| 13127000 | Dippin' Dots, flash frozen ice cream snacks, flavors other than chocolate |
| 13127010 | Dippin' Dots, flash frozen ice cream snacks, chocolate |
| 13130300 | Light ice cream, vanilla |
| 13130310 | Light ice cream, chocolate |

| Food use category and food code | Food description |
|---------------------------------|--|
| 13130320 | Light ice cream, no sugar added, NS as to flavor |
| 13130330 | Light ice cream, no sugar added, flavors other than chocolate |
| 13130340 | Light ice cream, no sugar added, chocolate |
| 13130600 | Light ice cream, soft serve, flavors other than chocolate |
| 13130620 | Light ice cream, soft serve cone, flavors other than chocolate |
| 13130630 | Light ice cream, soft serve cone, chocolate |
| 13130700 | Soft serve, blended with candy or cookies, from fast food |
| 13135000 | Light ice cream sandwich, vanilla |
| 13135010 | Light ice cream sandwich, chocolate |
| 13136000 | Ice cream sandwich, made with light, no sugar added ice cream |
| 13140000 | Light ice cream bar, vanilla |
| 13140100 | Light ice cream bar, vanilla, chocolate coated |
| 13140115 | Light ice cream bar, chocolate |
| 13140500 | Light ice cream, cone, flavors other than chocolate |
| 13140575 | Light ice cream, no sugar added, cone, flavors other than chocolate |
| 13140580 | Light ice cream, no sugar added, cone, chocolate |
| 13140660 | Light ice cream, sundae, soft serve, chocolate or fudge topping, without whipped cream |
| 13140700 | Creamsicle |
| 13140900 | Fudgesicle |
| 13142100 | Light ice cream cone, vanilla, prepackaged |
| 13142110 | Light ice cream cone, chocolate, prepackaged |
| 13150000 | Sherbet, all flavors |
| 13160160 | Fat free ice cream, no sugar added, flavors other than chocolate |
| 13160400 | Fat free ice cream, flavors other than chocolate |
| 13160410 | Fat free ice cream, chocolate |
| 13161500 | Milk dessert sandwich bar, frozen, made from lowfat milk |
| 13161600 | Fudgesicle, light |
| 13161630 | Light ice cream, bar or stick, with low-calorie sweetener, chocolate coated |
| 13252600 | Tiramisu* |
| 14010000 | Cheese, NFS |
| 14301010 | Cream cheese, regular, plain |
| 14301100 | Cream cheese, regular, flavored |
| 14303010 | Cream cheese, light |
| 14410380 | Cream cheese spread, fat free |
| 14410600 | Cheese, processed, with vegetables* |
| 14420200 | Cheese spread, cream cheese, regular |
| 14420210 | Cheese spread, cream cheese, light |
| 14502000 | Imitation cheese |
| 14610520 | Cheese ball* |
| 27500300 | Wrap sandwich, NFS* |
| 41420380 | Yogurt, soy |
| 41480020 | Frozen dessert, non-dairy |
| 42401100 | Yogurt, coconut milk |
| 53102200 | Cake or cupcake, applesauce, with icing or filling* |
| 53102700 | Cake or cupcake, banana, with icing or filling* |
| 53104260 | Cake or cupcake, carrot, with icing or filling* |
| 53112000 | Cake, ice cream and cake roll, chocolate* |
| 53112100 | Ice cream cake* |

| Food use category and food code | Food description |
|---------------------------------|--|
| 53116510 | Cake or cupcake, pumpkin, with icing or filling* |
| 53117200 | Cake or cupcake, spice, with icing or filling* |
| 53124110 | Cake or cupcake, zucchini* |
| 53344200 | Mixed fruit tart filled with custard or cream cheese* |
| 56201360 | Grits, instant, made with non-dairy milk, fat added* |
| 56203075 | Oatmeal, regular or quick, made with non-dairy milk, NS as to fat* |
| 56203076 | Oatmeal, regular or quick, made with non-dairy milk, no added fat* |
| 56203077 | Oatmeal, regular or quick, made with non-dairy milk, fat added* |
| 56203106 | Oatmeal, instant, plain, made with non-dairy milk, no added fat* |
| 56205230 | Rice dessert bar, frozen, flavors other than chocolate, nondairy, carob covered |
| 56207027 | Cream of wheat, regular or quick, made with non-dairy milk, fat added* |
| 56207102 | Cream of wheat, instant, made with non-dairy milk, no added fat* |
| 58111200 | Puffs, fried, crab meat and cream cheese filled* |
| 58200250 | Wrap sandwich, filled with vegetables* |
| 63402970 | Fruit salad, excluding citrus fruits, with nondairy whipped topping* |
| 64134025 | Fruit smoothie, with whole fruit, non-dairy* |
| 75410550 | Stuffed jalapeno pepper* |
| 78101115 | Fruit and vegetable smoothie, non-dairy* |
| 78101118 | Fruit and vegetable smoothie, non-dairy, added protein* |
| 91306040 | Dessert dip* |
| 91501050 | Gelatin dessert with cream cheese* |
| 92101903 | Coffee, Latte, with non-dairy milk* |
| 92101906 | Coffee, Latte, with non-dairy milk, flavored* |
| 92101923 | Frozen coffee drink, with non-dairy milk* |
| 92101960 | Coffee, Cafe Mocha, with non-dairy milk* |
| 92101975 | Coffee, Cafe Mocha, decaffeinated, with non-dairy milk* |
| 92102020 | Frozen mocha coffee drink, with non-dairy milk* |
| 92102050 | Frozen mocha coffee drink, with non-dairy milk and whipped cream* |
| 92102502 | Coffee, Iced Latte, with non-dairy milk* |
| 92102505 | Coffee, Iced Latte, with non-dairy milk, flavored* |
| 92102602 | Coffee, Iced Cafe Mocha, with non-dairy milk* |
| 92121000 | Coffee, instant, pre-lightened and pre-sweetened with sugar, reconstituted* |
| 92121001 | Coffee, instant, decaffeinated, pre-lightened and pre-sweetened with sugar, reconstituted* |
| 92121020 | Coffee, mocha, instant, pre-lightened and pre-sweetened with sugar, reconstituted* |
| 92121040 | Coffee, instant, pre-lightened and pre-sweetened with low calorie sweetener, reconstituted* |
| 92121041 | Coffee, instant, decaffeinated, pre-lightened and pre-sweetened with low calorie sweetener, reconstituted* |
| 92130000 | Coffee, pre-lightened and pre-sweetened with sugar* |
| 92130005 | Coffee, pre-lightened and pre-sweetened with low calorie sweetener* |
| 92130010 | Coffee, pre-lightened* |
| 92130011 | Coffee, decaffeinated, pre-lightened* |
| 92161002 | Coffee, Cappuccino, with non-dairy milk* |
| 92193000 | Coffee, instant, pre-lightened and pre-sweetened with sugar, not reconstituted* |

*Only the proportion of the food mixture corresponding to the proposed food uses was included in the analysis.



In-Vitro PDCAAS Analysis

Date: April 20, 2021
 Sample Number: 2021-003491-01
 Sample Name: 210322

| Amino Acid | Amino Acid Conc. | Amino Acid Conc. | Amino Acid Conc. | Amino Acid Conc. | 1991 Reference Protein (mg/g protein) | Ratio | |
|---------------------------|----------------------------|--------------------------|---------------------------|-------------------------|---------------------------------------|------------|----------|
| | Dehydrated (g/100g sample) | Hydrated (g/100g sample) | Dehydrated (mg/g protein) | Hydrated (mg/g protein) | | Dehydrated | Hydrated |
| Cystine + Methionine* | 0.90 | 1.04 | 21.20 | 24.41 | 25.00 | 0.848 | 0.976 |
| Tryptophan* | 0.50 | 0.55 | 11.76 | 12.90 | 11.00 | 1.069 | 1.173 |
| Aspartic acid | 3.42 | 3.95 | | | | | |
| Threonine* | 1.57 | 1.85 | 36.85 | 43.42 | 34.00 | 1.084 | 1.277 |
| Serine | 1.47 | 1.77 | | | | | |
| Glutamic Acid | 5.40 | 6.15 | | | | | |
| Proline | 1.33 | 1.58 | | | | | |
| Glycine | 1.47 | 1.93 | | | | | |
| Alanine | 1.92 | 2.40 | | | | | |
| Valine* | 2.15 | 2.54 | 50.45 | 59.62 | 35.00 | 1.441 | 1.703 |
| Isoleucine* | 1.50 | 1.74 | 35.23 | 40.84 | 28.00 | 1.258 | 1.459 |
| Leucine* | 2.36 | 2.74 | 55.49 | 64.33 | 66.00 | 0.841 | 0.975 |
| Tyrosine + Phenylalanine* | 2.30 | 2.57 | 53.99 | 60.35 | 63.00 | 0.857 | 0.958 |
| Total Lysine* | 2.23 | 2.54 | 52.28 | 59.63 | 58.00 | 0.901 | 1.028 |
| Histidine* | 0.83 | 0.94 | 19.51 | 22.07 | 19.00 | 1.027 | 1.162 |
| Arginine | 1.93 | 2.15 | | | | | |

*essential amino acid for nutrition
 limiting amino acid for sample

| | Dehydrated Amino Acids | Hydrated Amino Acids |
|---|------------------------|---------------------------|
| Total Moisture (%) = | 6.36 | 6.36 |
| Total Crude Protein (Dumas Combustion, %) = | 42.6 | 42.6 |
| <i>In Vitro</i> Digestibility = | 1.00 | 1.00 |
| First Limiting Amino Acid = | Leucine* | Tyrosine + Phenylalanine* |
| Amino Acid Score = | 0.84 | 0.96 |
| PDCAAS Value = | 0.84 | 0.96 |
| Total Quality Protein (g/100g) = | 35.8 | 40.8 |
| Serving Size (g) = | NS | NS |
| Total Quality Protein per Serving (g/serving) = | NS | NS |

Note: Concentrations of amino acids in the sample are calculated using both the hydrated and dehydrated molecular weight of each individual amino acid for the Amino Acid Score. The above results are recommended for research and product development use. At this time, it is recommended to use *in vivo* PDCAAS (with rat digestion) for final product labeling unless animal testing is not allowed by the food manufacturer.



In-Vitro PDCAAS Analysis

Date: June 2, 2021
 Sample Number: 2021-005162-01
 Sample Name: 210503

| Amino Acid | Amino Acid Conc. | | Amino Acid Conc. | | 1991 Reference Protein (mg/g protein) | Ratio | |
|---------------------------|----------------------------|--------------------------|---------------------------|-------------------------|---------------------------------------|------------|----------|
| | Dehydrated (g/100g sample) | Hydrated (g/100g sample) | Dehydrated (mg/g protein) | Hydrated (mg/g protein) | | Dehydrated | Hydrated |
| Cystine + Methionine* | 0.95 | 1.10 | 21.11 | 24.31 | 25.00 | 0.844 | 0.972 |
| Tryptophan* | 0.54 | 0.59 | 11.90 | 13.05 | 11.00 | 1.082 | 1.187 |
| Aspartic acid | 3.30 | 3.82 | | | | | |
| Threonine* | 1.59 | 1.87 | 35.11 | 41.37 | 34.00 | 1.033 | 1.217 |
| Serine | 1.41 | 1.70 | | | | | |
| Glutamic Acid | 5.69 | 6.48 | | | | | |
| Proline | 1.29 | 1.53 | | | | | |
| Glycine | 1.41 | 1.85 | | | | | |
| Alanine | 1.84 | 2.30 | | | | | |
| Valine* | 1.74 | 2.05 | 38.38 | 45.36 | 35.00 | 1.097 | 1.296 |
| Isoleucine* | 1.39 | 1.61 | 30.73 | 35.62 | 28.00 | 1.098 | 1.272 |
| Leucine* | 2.25 | 2.61 | 49.82 | 57.75 | 66.00 | 0.755 | 0.875 |
| Tyrosine + Phenylalanine* | 2.21 | 2.47 | 48.92 | 54.67 | 63.00 | 0.776 | 0.868 |
| Total Lysine* | 2.37 | 2.70 | 52.37 | 59.73 | 58.00 | 0.903 | 1.030 |
| Histidine* | 0.82 | 0.93 | 18.19 | 20.58 | 19.00 | 0.957 | 1.083 |
| Arginine | 2.08 | 2.32 | | | | | |

*essential amino acid for nutrition

limiting amino acid for sample

| | Dehydrated Amino Acids | Hydrated Amino Acids |
|---|------------------------|---------------------------|
| Total Moisture (%) = | 6.39 | 6.39 |
| Total Crude Protein (Dumas Combustion, %) = | 45.2 | 45.2 |
| <i>In Vitro</i> Digestibility = | 1.00 | 1.00 |
| First Limiting Amino Acid = | Leucine* | Tyrosine + Phenylalanine* |
| Amino Acid Score = | 0.75 | 0.87 |
| PDCAAS Value = | 0.75 | 0.87 |
| Total Quality Protein (g/100g) = | 34.1 | 39.2 |
| Serving Size (g) = | NS | NS |
| Total Quality Protein per Serving (g/serving) = | NS | NS |

Note: Concentrations of amino acids in the sample are calculated using both the hydrated and dehydrated molecular weight of each individual amino acid for the Amino Acid Score. The above results are recommended for research and product development use. At this time, it is recommended to use *in vivo* PDCAAS (with rat digestion) for final product labeling unless animal testing is not allowed by the food manufacturer.



In-Vitro PDCAAS Analysis

Date: May 23, 2022
 Sample Number: 2022-004408-01
 Sample Name: 2022040609kLB

| Amino Acid | Amino Acid Conc. Dehydrated (g/100g sample) | Amino Acid Conc. Hydrated (g/100g sample) | Amino Acid Conc. Dehydrated (mg/g protein) | Amino Acid Conc. Hydrated (mg/g protein) | 1991 Reference Protein (mg/g protein) | Ratio Dehydrated | Ratio Hydrated |
|---------------------------|---|---|--|--|---|---------------------|-------------------|
| Cystine + Methionine* | 1.05 | 1.21 | 20.79 | 23.93 | 25.00 | 0.832 | 0.957 |
| Tryptophan* | 0.61 | 0.67 | 12.10 | 13.27 | 11.00 | 1.100 | 1.206 |
| Aspartic acid | 3.68 | 4.25 | | | | | |
| Threonine* | 1.88 | 2.22 | 37.31 | 43.95 | 34.00 | 1.097 | 1.293 |
| Serine | 1.69 | 2.04 | | | | | |
| Glutamic Acid | 6.28 | 7.15 | | | | | |
| Proline | 1.53 | 1.81 | | | | | |
| Glycine | 1.67 | 2.20 | | | | | |
| Alanine | 2.23 | 2.80 | | | | | |
| Valine* | 2.51 | 2.97 | 49.76 | 58.81 | 35.00 | 1.422 | 1.680 |
| Isoleucine* | 1.60 | 1.85 | 31.60 | 36.63 | 28.00 | 1.129 | 1.308 |
| Leucine* | 2.67 | 3.09 | 52.79 | 61.20 | 66.00 | 0.800 | 0.927 |
| Tyrosine + Phenylalanine* | 2.55 | 2.85 | 50.50 | 56.44 | 63.00 | 0.802 | 0.896 |
| Total Lysine* | 3.00 | 3.42 | 59.39 | 67.73 | 58.00 | 1.024 | 1.168 |
| Histidine* | 0.96 | 1.09 | 19.07 | 21.57 | 19.00 | 1.004 | 1.136 |
| Arginine | 2.54 | 2.83 | | | | | |

*essential amino acid for nutrition

limiting amino acid for sample

| | Dehydrated Amino Acids | Hydrated Amino Acids |
|---|------------------------|---------------------------|
| Total Moisture (%) = | 4.02 | 4.02 |
| Total Crude Protein (Dumas Combustion, %) = | 50.5 | 50.5 |
| <i>In Vitro</i> Digestibility = | 0.99 | 0.99 |
| First Limiting Amino Acid = | Leucine* | Tyrosine + Phenylalanine* |
| Amino Acid Score = | 0.80 | 0.90 |
| PDCAAS Value = | 0.79 | 0.89 |
| Total Quality Protein (g/100g) = | 39.9 | 44.7 |
| Serving Size (g) = | NS | NS |
| Total Quality Protein per Serving (g/serving) = | NS | NS |

Note: Concentrations of amino acids in the sample are calculated using both the hydrated and dehydrated molecular weight of each individual amino acid for the Amino Acid Score. The above results are recommended for research and product development use. At this time, it is recommended to use *in vivo* PDCAAS (with rat digestion) for final product labeling unless animal testing is not allowed by the food manufacturer. Amino acids provided by the client.



CERTIFICATE OF ANALYSIS

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TRADE SECRET / CONFIDENTIAL COMMERCIAL INFORMATION

Contact: Sales Order #
 Phone: Purchase Order # 211007DT01
 Fax:

WO: 2109503 Samples Received: 10/11/2021 Report Date: 10/22/2021 Report No: WAL-169321

| Sample ID | Description / Method / Result | Collection Date: | Analysis Date: |
|---------------------------|-------------------------------|-------------------------------------|----------------|
| 21RE-2109503-29499 | Food Product 2021062109KLB | 10/8/2021 | 10/11/2021 |
| Vit K | <1 ug/100g | Vit E | <0.5 mg/100g |
| Vit C | <0.1 mg/100g | Vitamin B6 Pyridoxine Hydrochloride | 13.2 mg/100g |
| Vitamin B12 | 0.8 ug/100g | Vit A (Total) | <50 I.U./100g |
| Total Vitamin D (D2 + D3) | <0.7 ug/100g | Thiamin (B1) | <0.1 mg/100g |
| Riboflavin (Vitamin B2) | 0.59 mg/100g | Pantothenic Acid - B5 | 31.4 mg/100g |
| Niacin | 66.3 mg/100g | Folic Acid | 165 ug/100g |
| Biotin | 12 ug/100g | | |

Test Method: ,Vit K = Vitamin K METHOD,Vit E = Vitamin E METHOD,Vit C = Vitamin C AOAC 984.26 / WRE017,Vitamin B6 Pyridoxine Hydrochloride = Vitamin B6 Pyridoxine Hydrochloride METHOD,Vitamin B12 = Vitamin B12 METHOD,Vit A (Total) = Vitamin A (Total) WRE 054,Total Vitamin D (D2 + D3) = Total Vitamin D (D2 + D3) METHOD,Thiamin (B1) = Thiamin (B1) JAOAC Vol 76, No 5, 1156, 1993,Riboflavin (Vitamin B2) = Riboflavin (Vitamin B2) JAOAC Vol 76, No 5, 1156, 1993,Pantothenic Acid - B5 = Pantothenic Acid - B5 METHOD,Niacin = Niacin (B3) METHOD,Folic Acid = Folic Acid (B9) METHOD,Biotin = Biotin METHOD

Note Sample also tested by IEH Analytical Lab for Vitamin D. Outsourced for Vitamin B3, B6, B9, B12, K1, B5, B7, and E.

UNLESS OTHERWISE NOTED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION. THE RESULT(S) IN THIS REPORT RELATE ONLY TO THE PORTION OF THE SAMPLE(S) TESTED. THIS REPORT DOES NOT CONSTITUTE A RELEASE OF PRODUCT FOR CONSUMPTION. THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT WRITTEN APPROVAL OF THE LABORATORY. THIS DOCUMENT CONTAINS CONFIDENTIAL COMMERCIAL INFORMATION PURSUANT TO 5 U.S.C. SEC. 552(b)(4).

Authorized Analyst: Elizabeth Forsyth

Appendix 1

Suitability Data for use of *Neurospora crassa* in Meat and Poultry Products

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I. Introduction

We submit this suitability data as an Appendix to our GRAS Notification to FDA for The Better Meat Co.'s (BMC) *Neurospora crassa* food ingredient. BMC is not claiming any information contained in this document as trade secret, confidential, or financial information that is privileged or confidential. Thus, all information and data in this request are not exempt from the Freedom of Information Act (FOIA), 5 U.S.C. Section 552.

The ingredient of interest is the whole biomass of the BMC production strain of *Neurospora crassa* in its dried inactivated or hydrated state, hereafter referred to as Rhiza mycoprotein. One of the intended uses for Rhiza mycoprotein is inclusion as a meat extender in various meat and poultry products. In this application, Rhiza mycoprotein improves the cooking yield, reduces fat and cholesterol content, and increases fiber content as compared to products made solely of meat. Rhiza mycoprotein is intended to be sold as a dry product that customers will hydrate prior to incorporating the ingredient into a formulation.

USDA's FSIS has the authority to regulate certain proposed uses of substances that are otherwise lawfully marketed under applicable laws and regulations enforced by the FDA. FSIS derives such regulatory authority from the Federal Meat Inspection Act (FMIA) and the Poultry Products Inspection Act (PPIA). We understand that FSIS reviews evidence of the suitability of FDA-regulated substances to ensure that their use does not adulterate meat or poultry products, and FSIS works collaboratively with FDA to evaluate the safety of FDA-regulated products for meat and poultry applications, in accordance with its regulations, policies, and a Memorandum of Understanding (MOU) between the two agencies.¹

No regulations in Title 9 of the Code of Federal Regulations (CFR) currently permit the use of *Neurospora crassa* in its dried or hydrated form for use in meat and poultry applications. Because neither FSIS Directive 7120.1 nor 9 CFR covers the use of Rhiza mycoprotein, we seek FSIS's review and confirmation that the enclosed data support the safe and suitable use of Rhiza mycoprotein in meat and poultry applications as a meat extender. In support of this suitability request, we submit water and oil holding capacity, cooking yield, texture analyses, and comparative nutrition data.

We believe that FSIS will find that the information presented herein fully supports the determination that Rhiza mycoprotein is safe and suitable for use in meat and poultry applications as meat extender, and that the agency will include this product in its next update of FSIS Directive 7120.1 ("Safe and Suitable Ingredients Used in The Production of Meat, Poultry, and Egg Products") to reflect the new permitted uses.

¹ MOU 225-00-2000, Regarding the Listing or Approval of Food Ingredients and Sources of Radiation Used in the Production of Meat and Poultry Products (Jan. 2000), available at <https://www.fda.gov/about-fda/domestic-mous/mou-225-00-2000-amendment-1> (last visited Sept. 30, 2022).

II. Meat and Poultry Product Applications

A. Explanation of Meat and Poultry Product Applications

Rhiza mycoprotein is intended to be used as an extender in various meat and poultry products. It is intended to reduce moisture loss in meat and poultry applications, thus extending the cooking yield of these products. Further, Rhiza mycoprotein is intended to reduce fat and cholesterol content and increase fiber content.

B. Intended Use Levels

Rhiza mycoprotein is intended to be added to meat or poultry products at use levels ranging from 10-50% of the total formulation.

C. Data to Demonstrate Suitability of Intended Use

BMC has generated data to demonstrate that the addition of Rhiza mycoprotein at use levels from 10-50% functions as an extender by reducing moisture loss and extending the cooking yield of beef, chicken, and pork products. Across all product categories, Rhiza mycoprotein had no material adverse effects on the texture characteristics of the meat and poultry products tested.

1. Cooking Yield Comparisons for Ground Meat and Rhiza Mycoprotein - Extended Meat Products

In order to evaluate the effectiveness of Rhiza mycoprotein as an extender in meat and poultry products, Rhiza mycoprotein-extended meat patties using ground chicken, pork, and beef were manufactured. The following data quantifies the yield differences between control and Rhiza mycoprotein-extended meat patties.

a) Formulations

For each meat type, a control was prepared along with an “extended” version containing Rhiza mycoprotein. Specific formulations for the control and extended recipes are provided in Table 1. Manufacturing and cooking protocols for each product are described below.

Table 1. Meat Patty Formulations

| Ingredient | Control Recipe (%) | Rhiza Mycoprotein - Extended Recipe (%) |
|--------------------------------------|---------------------------|--|
| Meat (ground chicken, pork, or beef) | 100.00 | 66.67 |
| Dry Rhiza mycoprotein | 0.00 | 11.11 ² |
| Water | 0.00 | 22.22 |
| TOTAL | 100.00 | 100.00 |

² 11.11% dry Rhiza equates to approximately 33% hydrated Rhiza. This is the expected typical rate.

b) Methodology

Rhiza mycoprotein was hydrated at a ratio of 1:2, dry mycoprotein to water by weight. Once hydrated, ground meat was added. The formula consisted of 66.67% ground meat, 11.11% dry Rhiza mycoprotein, and 22.22% water. Once coarsely combined, the meat and hydrated Rhiza mycoprotein were thoroughly integrated using an 8 mm grinder plate. The material was measured into 50-gram patties, and oven-baked at 350 °F. Six chicken patties, both extended meat and solely meat, were cooked to 165 °F internal temperature. Six pork and six beef patties, extended and solely meat, were cooked to 155 °F internal temperature. Calculations of cook yield were a measurement of the post-cook weight divided by the original weight, 50 grams, and multiplied by 100 to produce the percentage of retained yield.

Figure 1. Photographic Comparison of Raw Control and Extended Beef Patty Recipes



Figure 2. Photographic Comparison of Cooked Control and Extended Beef Patty Recipes

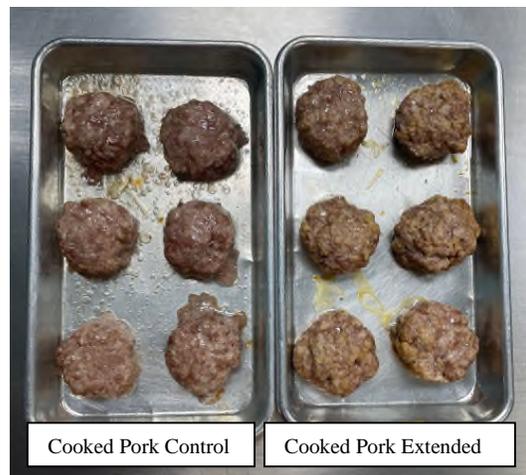


Figure 3. Photographic Comparison of Raw Control and Extended Chicken Patty Recipes



Figure 4. Photographic Comparison of Cooked Control and Extended Chicken Patty Recipes



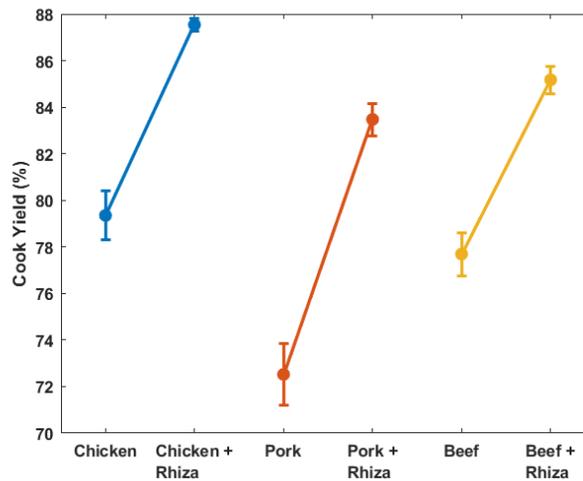
Figure 5. Photographic Comparison of Raw Control and Extended Pork Patty Recipes**Figure 6. Photographic Comparison of Cooked Control and Extended Pork Patty Recipes**

c) Yield Analysis

All Rhiza mycoprotein-extended products out-performed their solely-meat counterparts in cook yield. Less cookout was observed for chicken, pork, and beef products with incorporated Rhiza mycoprotein. Table 2 indicates that Rhiza mycoprotein -extended products have a higher cook yield than control products containing only meat.

Table 2. Meat Patty Average Cook Yields

| Product | Control % Yield | Extended % Yield |
|-------------------|-----------------|------------------|
| Beef Patty (6) | 77.69 | 85.17 |
| Chicken Patty (6) | 79.35 | 87.54 |
| Pork Patty (6) | 72.52 | 83.47 |

Figure 7. Meat Patty Average Cook Yields³

2. Texture Profile Analysis of Ground Meat and Rhiza Mycoprotein - Extended Meat Products

Texture Profile Analysis (TPA) was conducted to assess the impact of Rhiza mycoprotein on the texture of meat and poultry products.⁴ The following data quantifies the texture differences between control and Rhiza mycoprotein-extended ground chicken, pork, and beef patties. Texture profiles explored include hardness, resilience, cohesiveness, springiness, and chewiness.⁵

a) Methodology

TPA was performed on a Stable Micro Systems TA.XTplusC texture analyzer equipped with a 20 mm x 38 mm diameter acrylic cylinder probe (Texture Technologies, cat. #TA-4). Ground meat and ground meat extended with Rhiza mycoprotein were formed to a consistent size using a 30 mm height x 30 mm diameter cylindrical metal cutter. Measurements were acquired at a constant rate of 1 mm/second with a trigger force of 4 g to a strain of 50%, with 5

³ Error bars represent the standard deviation.

⁴ Texture Profile Analysis (Aug. 2001), available at <https://doi.org/10.1002/0471142913.fah0203s00> (last visited Sept. 30, 2022).

⁵ Texture Technologies, Chapter IV: What does TPA Measure?, available at <https://texturetechnologies.com/resources/texture-profile-analysis#tpa-measurements> (last visited Sept. 30, 2022).

seconds between compressions. After raw measurements were acquired, all control and extended meat samples were cooked to an internal temperature of 165 °F. Hardness values were normalized to heights for each sample to account for the differences in height observed after cooking and the correlation between height and hardness, which subsequently impacts chewiness. Figures 8, 10, and 10 were constructed in MATLAB.⁶

Figure 8. Control and Extended Beef Patty TPA Analyses

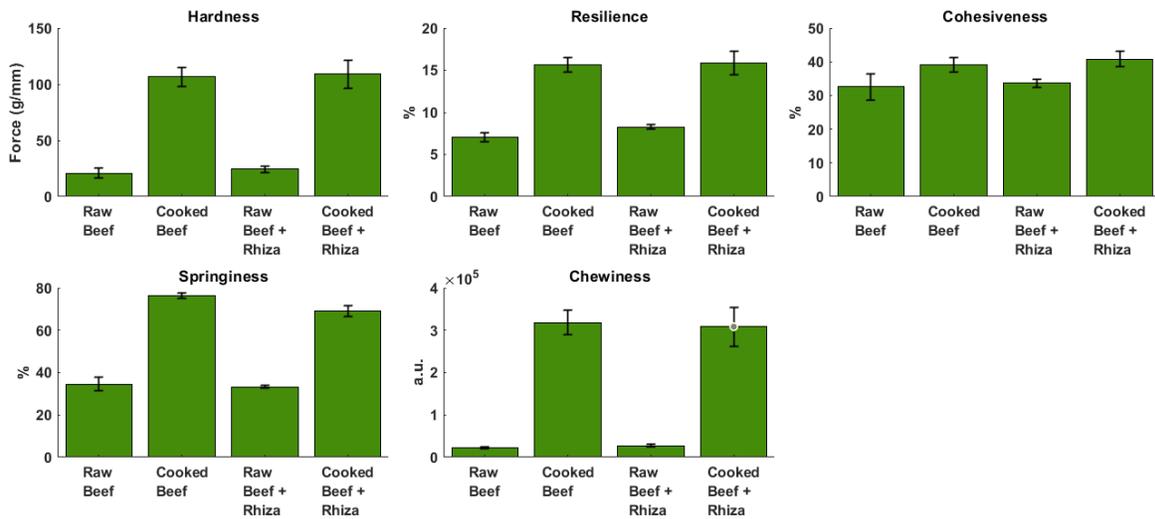
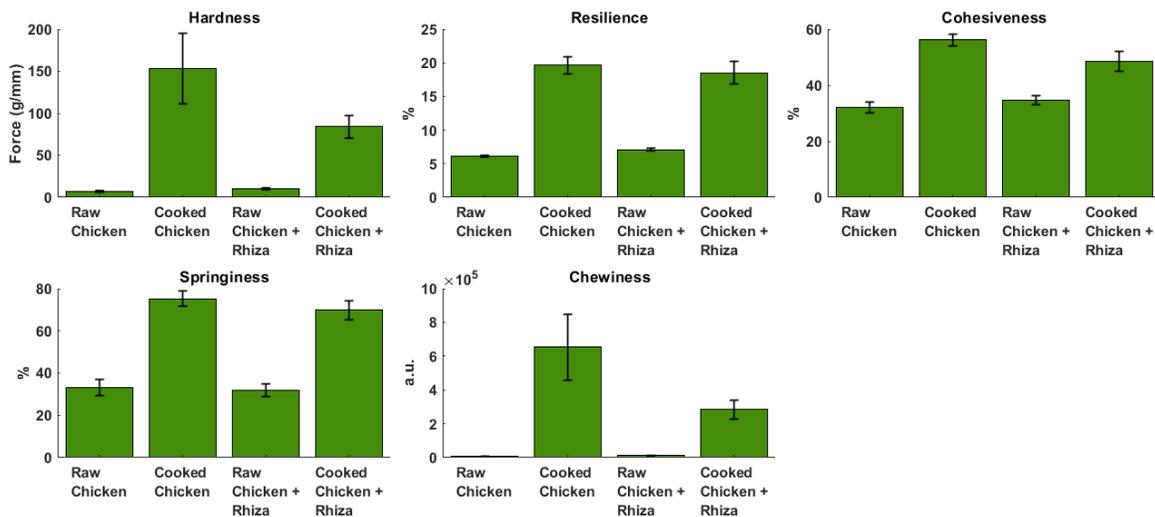
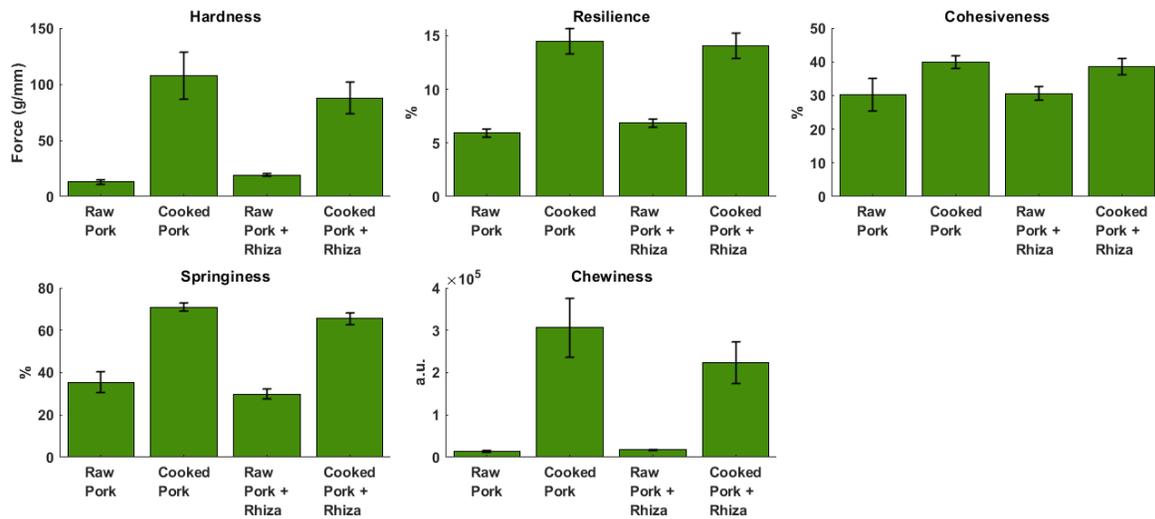


Figure 9. Control and Extended Chicken Patty TPA Analyses



⁶ Error bars represent the standard deviation.

Figure 10. Control and Extended Pork Patty TPA Analyses

b) TPA Analysis

The addition of Rhiza mycoprotein to beef, chicken, and pork products did not have any meaningful effect on the textual properties of raw samples. In comparison to control samples, Rhiza mycoprotein-extended beef, chicken, and pork samples did not exhibit changes in resilience, cohesiveness, or springiness. Hardness and chewiness were not impacted in cooked beef samples. In comparison to control samples, Rhiza mycoprotein-extended pork products were roughly 18% softer and 27% chewier after cooking, and Rhiza mycoprotein-extended chicken products were 45% softer and 56% chewier.

3. Nutritional Comparison

Table 3 provides nutritional comparisons between control and Rhiza mycoprotein-extended ground chicken, beef, and poultry samples based on a 110g raw meat serving size. Rhiza mycoprotein-extended samples consisted of 66.67% raw ground meat, 11.11% dry Rhiza mycoprotein, and 22.22% water. Nutritional values calculated include calories, total fat, saturated fat, trans fat, cholesterol, sodium, total carbohydrates, fiber, protein, and iron.

Table 3. Nutritional Comparison for Ground Meat and Rhiza Mycoprotein - Extended Meat Products

| Product | Calories | Total Fat (g) | Sat. Fat (g) | Trans Fat (g) | Cholesterol (mg) | Sodium (mg) | Total Carbs (g) | Fiber (g) | Protein (g) | Iron (mg) |
|----------------------|----------|---------------|--------------|---------------|------------------|-------------|-----------------|-----------|-------------|-----------|
| Chicken, ground, raw | 157 | 8.9 | 2.5 | 0.1 | 94.6 | 66.0 | 0.0 | 0 | 19.2 | 0.90 |
| Rhiza mycoprotein- | 155 | 6.9 | 1.7 | 0 | 63.1 | 50.8 | 4.0 | 2.5 | 18.9 | 1.80 |

| | | | | | | | | | | |
|--|-----|------|------|-----|------|------|-----|-----|------|------|
| extended Chicken | | | | | | | | | | |
| Pork, ground, raw, 72% lean | 345 | 30.8 | 10.4 | 1.9 | 83.6 | 75.9 | 0.7 | 0 | 16.4 | 0.99 |
| Rhiza mycoprotein- extended Pork | 280 | 21.5 | 6.9 | 1.2 | 55.7 | 57.4 | 4.5 | 2.5 | 17.0 | 1.86 |
| Beef, ground, raw 80% lean | 279 | 22.0 | 8.3 | 1.3 | 78.1 | 72.6 | 0.0 | 0 | 18.9 | 2.13 |
| Rhiza mycoprotein- extended Beef | 236 | 15.7 | 5.6 | 0.9 | 52.1 | 55.2 | 4.0 | 2.5 | 18.7 | 2.62 |

a) Methodology

Nutritional values of the Rhiza mycoprotein-extended ground chicken, beef, and poultry samples were calculated on a weight basis from formulation components using the methods provided in Table 4. Nutritional values for control ground meat patties came from USDA's FoodData Central database.⁷

Table 4. Nutrition Information Methodologies

| Category | Method |
|---------------------|---------------------------------|
| Calories | Internal Calculation |
| Total Fat | Gas Chromatography, AOAC 996.06 |
| Saturated Fat | Gas Chromatography, AOAC 996.06 |
| Trans Fat | Gas Chromatography, AOAC 996.06 |
| Cholesterol | AOAC: 976.26 |
| Sodium | AOAC 2011.14 |
| Total Carbohydrates | Internal Calculation |
| Total Dietary Fiber | AOAC 991.43 |
| Protein | AACC 46-30. AOAC 992.15 |
| Iron | AOAC 2011.14 |

⁷ U.S. Department of Agriculture, FoodData Central Database, available at <https://fdc.nal.usda.gov/> (last visited Sept. 20, 2022).

4. Water and Oil Holding Capacity

Rhiza mycoprotein can be sold as a dry product which the customer will hydrate before incorporating into a formulation. We expect that the typical Rhiza mycoprotein customer will be a food product manufacturer. BMC conducted an analysis of Rhiza mycoprotein water and oil holding capacity to determine the ratio of the maximum amount of water added to Rhiza mycoprotein, or the maximum amount of oil added to Rhiza mycoprotein.

a) Methodology

First, the dry Rhiza mycoprotein sample is confirmed to be within the specifications for moisture content at <11%. 1.5 grams of Rhiza mycoprotein were weighed out and placed into a 50 mL tube. 20 mL of water was added to the tube and left to hydrate for 1 hour. Subsequently, the hydrated Rhiza mycoprotein was drained using a vacuum filter for 1 minute. The filtered product was placed on a paper towel for 5 minutes to absorb any free water. Subsequently, a final weight was measured. The water holding capacity (WHC) was calculated using the following formula:

$$WHC = \frac{Weight_{Final} - Weight_{Initial}}{Weight_{Initial}}$$

This process was repeated 5 times, after which the average was calculated.

Oil holding capacity (OHC) was calculated using the same method, but with 20 mL of sunflower oil and using the following formula:

$$OHC = \frac{Weight_{Final} - Weight_{Initial}}{Weight_{Initial}}$$

b) Water and Oil Holding Results

Dry Rhiza mycoprotein Lot 2022052409KL was assayed for moisture content at 5.63% and was confirmed to be within the product specification of <11%. The water holding capacity of lot 2022052409KL of Rhiza mycoprotein averaged 5.17 grams, on a weight-to-weight basis. The oil holding capacity averaged 5.86 grams. Notably, while a 5.17 ratio for water-holding capacity and 5.86 ratio for oil was obtained, the typical use ratio is between 2-3. This range is typical because it reduces cooking loss and creates a more meat-like texture, thus allowing Rhiza to absorb cooking juices and maintain a higher yield.

D. Safety of FSIS Inspectors

The requested revision to Directive 7120.1 to include Rhiza mycoprotein as a permissible extender is not expected to affect or jeopardize the safety of FSIS inspection personnel. This conclusion is supported by the fact that this ingredient is GRAS when used in accordance with GMPs. The use of Rhiza mycoprotein will not generate any new or unique hazards. Thus, all safety measures currently in place to protect facility workers and FSIS inspection staff should be

sufficient. When Rhiza mycoprotein is stored, handled, and used in accordance with the recommendations listed on the material safety data sheet (MSDS), it will not present any additional hazards to the safety of FSIS inspectors.

E. Impact on Labeling and Inspection Procedures

We expect that the ingredient would be declared by its common or usual name, “*Neurospora crassa*” or (as appropriate) “Rhiza mycoprotein” in the ingredient declaration of the meat/poultry product.

Additionally, no impact is anticipated for FSIS inspection procedures.

III. Conclusion

The data provided herewith demonstrate that Rhiza mycoprotein produces positive effects on cooking yield when added to meat and poultry products. Further, it produces no material adverse effects on the texture properties of the meat and poultry products to which it is added. We trust that FSIS will find the information in this submission sufficient to support a finding that Rhiza mycoprotein is suitable for use as an extender in meat and poultry products.



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October 2, 2023

Via Electronic Mail

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Division of Food Ingredients
Office of Food Additive Safety
Center for Food Safety and Applied Nutrition
U.S. Food and Drug Administration
5001 Campus Drive
College Park, MD 20740

Re: Better Meat Company's GRAS Notice No. 1117

Dear Dr. Honigfort:

On behalf of The Better Meat Co. (BMC or the Company), this letter and its appendices respond to the questions posed in FDA's September 5, 2023 correspondence, regarding GRAS Notice (GRN) 001117 for *N. crassa* biomass. For ease of reference, we reproduce each question below in italics, followed by the relevant response.

Chemistry

1. *The Better Meat Co states that the fermentation media contains a "proprietary substrate". Please provide information on the composition of the fermentation media and confirm that it will not result in a safety concern for the final ingredient.*

RESPONSE 1: Please find attached (Appendix 1) which contains a list of media components which may be utilized in the production process for *N. crassa*. All of these ingredients are GRAS, covered by an appropriate FDA regulation, or otherwise appropriate for food use (e.g. food or pharmaceutical grade) in nature. None of the listed components would cause a safety concern for the finished product.

2. *For the administrative record, please confirm that that [sic] raw materials used to produce the mycelial biomass are food grade, GRAS, and/or subject of a food additive petition and are used*

according to US regulations. Please also confirm that the mycelial biomass is produced in accordance with current good manufacturing practices.

RESPONSE 2: BMC confirms that all raw materials used to produce *N. crassa* biomass are food grade, GRAS, or otherwise suitable for use in food in the US. Further, the Company confirms that the production of *N. crassa* mycelium is accomplished using current Good Manufacturing Practices (GMP).

- 3. The Better Meat Co indicates in Table 1 that the mycelial biomass contains approximately 38% carbohydrates, of which 30% is dietary fiber. Please provide information on the remaining 8% of carbohydrates.*

RESPONSE 3: The remaining carbohydrates are naturally present sugars and carbohydrates that would be expected to be present in any mushroom/fungal biomass.

- 4. Please provide the analytical methods used for the analysis of Vitamin K, B12 and B7. In Table 2, The Better Meat Co states that AOAC method 942.23 is used for the analysis of Vitamin B6. AOAC method 942.23 is not validated for Vitamin B6. Please provide results using a method that is validated for the analysis of Vitamin B6.*

RESPONSE 4: Please find attached (Appendix 2) a revised test report from IEH Laboratories which now includes the test methods utilized to determine vitamin content. These values are not “release specifications” and are in no way related to safety. The values are reported for informational purposes only, and as such the methods are fit for purpose, even absent full validation.

- 5. Please clarify whether the specifications included in Table 6 are for the dried form or hydrated form of the mycelial biomass.*

RESPONSE 5: The specifications in Table 6 are for the dried form.

- 6. In Table 6, the method for moisture is listed as AOAC 945.45. However, AOAC method 945.45 is validated for Unsaponifiable residue of macaroni product. Please provide results using a method that is validated for determining moisture content in food samples.*

RESPONSE 6: The method reported for moisture was an error. The method utilized was AOAC 930.43, not AOAC 930.45. A version of Table 6 updated (in red text) to reflect Responses 5 and 6 is presented below:

Table 6. Compositional Specifications (Dried Form) - Revised 10/2/23

| Analyte | Specification | Method | Instrument |
|-------------------------------|-------------------|-------------------------|--|
| Ash | <10% | AOAC 923.03 | Furnace |
| Moisture | <11% in dry form | AOAC 930.43, 934.01 | Vacuum Oven |
| Protein | >40% | AACC 46-30, AOAC 992.15 | Combustion |
| Total Coliform | <10 CFU/g | AOAC 991.14 | Petrifilm |
| <i>E. coli</i> | <10 CFU/g | AOAC 991.14 | Petrifilm |
| <i>Enterobacteriaceae</i> | <10 CFU/g | Compendium 8.631 | Incubation |
| <i>Listeria monocytogenes</i> | Negative/25 grams | AOAC 2013.11 | Enzyme-linked fluorescent assay (ELFA) |
| Mold | <10 CFU/g | FDA BAM Ch. 18 | Plate Culture |
| <i>Salmonella</i> | Negative/25 grams | AOAC 2013.01 | ELFA |
| Yeast | <10 CFU/g | FDA BAM Ch. 18 | Plate Culture |
| Arsenic | <0.1 ppm | AOAC 993.14 and 2015.06 | ICP-MS |
| Lead | <0.1ppm | AOAC 993.14 and 2015.06 | ICP-MS |
| Mercury | <0.1 ppm | EPA 7473 | Milestone DMA-80 Direct Mercy Analyzer |
| Cadmium | <0.1 ppm | AOAC 993.14 and 2015.06 | ICP-MS |

7. *The Better Meat Co states that AOAC methods 993.14 and 2015.06 were used for the determination of arsenic, cadmium, and lead content. AOAC method 993.14 is validated for the determination of trace elements in water and waste waters. AOAC method 2015.06 is validated for the determination of Na, Mg, P, K, Ca, Cr, Mn, Fe, Cu, Zn, Se, and Mo in infant formula and adult/pediatric nutritional formula. The methods are not validated for the quantification of arsenic, cadmium, and*

lead in food samples and thus they are not appropriate. Please provide results from an appropriate method such as FDA EAM 4.7 or AOAC 2015.01.

RESPONSE 7: BMC reached out to the testing lab, Medallion Labs, and they have confirmed that all of the listed test methods are correct and further confirmed that all listed test methods are appropriate and have been appropriately validated for the analytes and food matrix as reported.

8. *The Better Meat Co states in Table 7 that the result for mercury for batch 2021081009kLB is <0.00001 mg/kg. Attachment 1 of the notice shows results for the determination for mercury for the same batch as <0.01 mg/kg. Please clarify the discrepancy.*

RESPONSE 8: This was a transcription error. The value reported in Attachment 1 of the initial GRN is correct and Table 7 should read <0.01 mg/kg (ppm) for mercury in batch 2021081009kLB. A corrected version of Table 7 with the updated information shown in red text is presented below:

Table 7. Batch Analyses – Revised 10/2/23

| Analyte | Typical Value | Lot 2021081009kLB | Lot 202110309kLB | Lot 2021111709kLB |
|-------------------------------|-------------------|-------------------|-------------------|-------------------|
| Ash | <10% | 6.88% | 6.48% | 7.07% |
| Moisture | <11% in dry form | 6.36% | 5.48% | 7.07% |
| Protein | >40% | 41.80% | 46.20% | 47.80% |
| Total Coliform | <10 CFU/g | <10 CFU/g | <10 CFU/g | <10 CFU/g |
| <i>E. coli</i> | <10 CFU/g | <10 CFU/g | <10 CFU/g | <10 CFU/g |
| <i>Enterobacteriaceae</i> | <10 CFU/g | <10 CFU/g | <10 CFU/g | <10 CFU/g |
| <i>Listeria monocytogenes</i> | Negative/25 grams | Negative/25 grams | Negative/25 grams | Negative/25 grams |
| Mold | <10 CFU/g | <10 CFU/g | <10 CFU/g | <10 CFU/g |
| <i>Salmonella</i> | Negative/25 grams | Negative/25 grams | Negative/25 grams | Negative/25 grams |

| | | | | |
|---------|-----------|------------|------------|------------|
| Yeast | <10 CFU/g | <10 CFU/g | <10 CFU/g | <10 CFU/g |
| Arsenic | <0.1 ppm | 0.0193 ppm | 0.0211 ppm | 0.0145 ppm |
| Lead | <0.1 ppm | 0.0149 ppm | 0.0119 ppm | 0.0141 ppm |
| Mercury | <0.1 ppm | <0.01 ppm | <0.01 ppm | <0.004 ppm |
| Cadmium | <0.1 ppm | 0.0368 ppm | 0.045 ppm | 0.044 ppm |

9. *Please confirm that the methods used for establishing the specifications for the mycelial biomass have been validated for their intended purpose*

RESPONSE 9: As indicated above in the response to Question 7, the testing lab has confirmed that all listed test methods have been validated and are fit for purposes for the analyses indicated.

10. *On page 18 of the notice, The Better Meat Co states that “use levels are provided in Table 8 below on a dry basis.” However, in Table 8 The Better Meat Co states that the maximum use level is on “rehydrated basis”. Please clarify the discrepancy.*

RESPONSE 10: Both instances should be on a “rehydrated basis”.

11. *The Better Meat Company states in Table 8 that the maximum proposed use level of the mycelial biomass in dairy alternatives is 15%. Attachment 3 of the notice indicates that the maximum use level of the mycelial biomass in dairy alternatives is 50%. Please clarify the discrepancy and provide a dietary exposure estimate for the mycelial biomass that is based on a maximum use level of 15% in dairy alternatives.*

RESPONSE 11: The 15% level reported in Table 8 was an oversight. BMC had initially considered, and asked for an NHANES assessment from the 3rd party contractor (Exponent) for 15% in dairy alternatives. However, before the report was completed, the Company expanded the use to 50% in dairy alternatives and Exponent conducted the assessment at a 50% level. Therefore, the error is in Table 8 which should indicated a maximum use level of 50% in dairy alternatives. The report in Attachment 3 is correct, and the exposure numbers in the GRN’s analysis reflect the intended use of 50% in dairy alternatives. A version of Table 8

and its accompanying discussion updated (in red text) to reflect Responses 10 and 11 is presented below:

(Revised 10/2/23) Rhiza mycoprotein is intended to be used as a food ingredient in meat, poultry, seafood and meat/poultry/seafood alternative products. It may also be used in dairy analog products. The proposed uses and their corresponding use levels are provided in **Table 8** below on a rehydrated basis.

Table 8. Proposed Food Uses of Rhiza Mycoprotein – Revised 10/2/23

| Food Category | Max use level (Rehydrated basis) |
|--|----------------------------------|
| Plant based meat analogs | 90% |
| Meat extenders | 50% |
| Dairy analogs (e.g., milk alternatives, cheese, cream cheese, coffee creamer, frozen dessert, yogurt, whipped topping) | 50% |

Toxicology

- On pg. 24 of the notice, The Better Meat Co state that “no studies have been conducted to establish safety of *Neurospora* isolated mycelium as a stand-alone food product” and use a published review article to address this data gap. Please confirm that this peer reviewed assessment, and the citations contained within, are pivotal data to demonstrating the safety of *N. crassa* biomass as a human food ingredient at its intended use level.

RESPONSE 12: BMC confirms that the published peer reviewed assessment constitutes pivotal data to demonstrate the safety of *N. crassa* biomass as a human food ingredient at its intended use level. Additionally, while the statement that “no studies have been conducted to establish safety of *Neurospora* isolated mycelium as a stand-alone food product” was correct at the time the original GRN was submitted (October 3, 2022), such a paper was published after submission but before the Notice was officially filed. At the recommendation of Dr. Highbarger, BMC submitted an amendment to GRN 1107 on July 14, 2023 which contained, in part, a robust summary of Lozy *et al.* (2023) which is attached to this response as well (Appendix 3). Briefly, Lozy (2023) describes a series of traditional

toxicology studies including genotoxicity studies (OECD 471, 473, and 474) as well as an OECD 408 90-day rodent study in rats using *Neurospora crassa* biomass as the test article. The 90-day study doses were 0, 1000, 2000, and 5000 mg/kg bw/day. The study reported no treatment related adverse effects and determined the NOAEL to be the maximum dose tested, or 5,000 mg/kg bw/day. BMC considers both the previously published paper (Bartholomai *et al.*, 2022) and the Lozy *et al.* study to be pivotal safety data for demonstrating the safety of *N. crassa* biomass as a human food ingredient.

13. *We note that, historically, residual RNA has been a safety concern for microbial protein sources, with prior GRNs meeting a specification limit of < 2% RNA, or an exposure through the intended uses to < 2 g nucleic acid/person/day at the 90th percentile. However, The Better Meat Co have not provided batch analytical data on nucleic acid content. Please provide batch analyses for nucleic acid content in the biomass ingredient, and a brief safety discussion in regard to why this would not be a safety concern from dietary consumption of N. crassa biomass at its intended use level.*

RESPONSE 13: Please find attached a lab report (Appendix 4) which reports on purine (adenine and guanine) content in 5 separate batches of *N. crassa* biomass produced using Better Meat's process. Typically, residual nucleic acid content is a concern in human food due to the purine content of the food. High concentrations of purines in the diet may lead to metabolic conversion of purines to uric acid, which can accumulate in the body and cause gout. Appendix 4 contains data on 5 batches, with 4 measurements taken from each batch. Batch 2023050909kLB reported the highest levels of total purines, with the 4 sample average being 1,301 (1,300.97) mg/100g biomass on a dry weight basis. The lowest average reported purine content was 1,172 mg/100g, indicating that purine content is consistent from batch to batch.

Using this data, we can calculate the approximate exposure to purines to the "worst case" population from Table 2 from GRN 1107 of 103.8 g/day for adults at 90th percentile consumption.

Purine content-1,301 mg/100g (dry basis)

EDI-103.8 g/day (90th percentile adults)(2.5x hydrated basis) or 103.8/2.5=41.5 g/day dry basis

Considering this, purine daily intake from *N. crassa* biomass would be:

41.5 g *N. crassa* biomass/day x 13.01 mg/g purine = 539.9 mg purine/day

While this exposure reflects only purine content, purines are the compound of concern when contemplating nucleic acid exposure. Approximately 0.54 g purines/day at the 90th percentile is well below the 2g/person/day limit for nucleic acids and therefore nucleic acid content of *N. crassa* would not raise any safety concerns.

14. *We note that The Better Meat Co does not discuss or provide any traditional oral toxicity studies in animals (i.e., a 90-d repeat oral toxicity study) on which to base an acceptable daily intake level for N. crassa. Therefore, it appears as if the historical consumption of N. crassa outside of the United States, primarily in Asian countries, appears to be substantial to safety in your weight of evidence approach. Please provide additional discussion as to how this evidence relates to dietary exposure at the intended use level, including:*
- a. *What are the estimated exposure levels in Indonesian (via oncom) and Chinese (via soybean dregs) populations to N. crassa?*
 - b. *Additionally, please specify if these are considered major sources of protein or major component of the diet in either population.*

RESPONSE 14: As a direct response to questions 14a and 14b, BMC notes that the information provided regarding the use of *N. crassa* as a food ingredient in Asia was given not as a basis for safety (i.e., use in food prior to 1958) but was intended only to corroborate safety of *N. crassa* as a food ingredient. The Company does not have sufficient information to provide the requested data. While the initial notice did not discuss traditional safety studies in animals, BMC submitted an amendment to GRN 1117 on July 14, 2023 (noted in Response 12) which includes exactly such safety studies. A discussion of Lozy *et al.* (2023) is included here as Appendix 3.

15. *Starting on pg. 26 of the notice, The Better Meat Co discuss the potential for certain toxins to be present in the N. crassa biomass ingredient; including disintegrins and metallopeptidases, which have safety considerations for human oral consumption. Due to a lack of in vivo exposure data combined with the identification of these toxins in the published in silico report, and under the reasonable assumption that some toxins escape digestion, please provide a short safety narrative as to why exposure to these toxins from the N. crassa biomass, in the context of its intended use level, would not be a safety concern for consumers. If necessary, please also provide analytical data to support this conclusion.*

RESPONSE 15: Potential exposure to these compounds, if present, would not be a safety concern for two reasons. First, Appendix 5 contains data showing the rapid digestion of proteins from *N. crassa* biomass under simulated gastric fluid conditions. The report

indicates that breakdown of proteins begins immediately (<30 seconds) and by 60 minutes is nearly complete. In comparison, the report also reports results for pea protein which indicates that pea protein is digested much more slowly than is protein from *N. crassa* biomass. The high digestibility of *N. crassa* biomass is further supported by the digestibility assay and PDCAAS calculation provided in Table 4 of GRN 1107.

Second, BMC again refers to the Lozy *et al.* (2023) paper. The premise of the question relies heavily on the lack of *in vivo* exposure data provided in GRN 1107 for *N. crassa* biomass. However, this is no longer the case. Lozy *et al.* (2023) describes a series of *in vitro* and *in vivo* genotoxicity studies, as well as a 14-day and 90-day repeat dose oral studies in rodents. These studies confirm that any disintegrins, metallopeptidases, or any other potentially toxic protein or peptide are not a safety concern. Lozy reports no treatment related adverse effects in rodents consuming up to the maximum dose tested of 5,000 mg/kg bw/day. BMC is including the full summary of Lozy *et al.* (2023) as Appendix 3.

Taken together, the digestibility data provided in Appendix 5 and the *in vivo* repeat dose oral toxicity studies indicates that there are no safety concerns related to toxigenic proteins or peptides in *N. crassa* biomass. Data indicates that *N. crassa* proteins are efficiently and quickly degraded under simulated digestion conditions, and Lozy *et al.* (2023) indicates that any proteins which may escape digestion do not pose any safety concerns.

* * *

We appreciate the Agency's continued review of this GRAS Notice. Please let us know if you have any other questions or if you need any additional information.

Cordially yours,


Frederick A. Stearns

Appendices:

1. List of media components which may be utilized in the production process for *N. crassa*
2. Revised test report from IEH Laboratories
3. Summary of Lozy *et al.* (2023) from July 14, 2023 amendment to GRN 1117
4. Lab report on purine (adenine and guanine) content in 5 separate batches of *N. crassa* biomass
5. Report on the rapid digestion of proteins from *N. crassa* biomass under simulated gastric fluid conditions

October 30, 2023

Via Electronic Mail

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Re: The Better Meat Co.'s GRAS Notice No. 1117; Responses to Second Set of Questions

Dear Dr. Highbarger:

On behalf of The Better Meat Co. (BMC or the Company), this letter responds to the second set of questions posed in FDA's October 17, 2023 correspondence, regarding GRAS Notice (GRN) 001117 for *Neurospora crassa* biomass. For ease of reference, we reproduce each question below in italics, followed by the relevant response.

Chemistry follow up question

- In the response to question 6 from October 2, 2023, you state that method used for moisture analysis is AOAC 930.43. However, AOAC 930.43 is suitable for analysis of thymol in antiseptics. Please correct the error and provide a method suitable for analysis of moisture in food samples such as AOAC 945.43.*

RESPONSE 1: We apologize for the confusion over the mis-identification of the method reported for moisture analysis. The testing laboratory (Medallion Labs) used AOAC 945.43 for this assessment. This is reflected in the Analytical Compositional Testing Reports for three batches of Rhiza mycoprotein, included in Attachment 1 of GRN 1117 (see .pdf pages 37 of 192; 43 of 192; and 49 of 192). A version of Table 6 updated (in red text) to reflect the correct number of the method actually used is presented below:

Table 6. Compositional Specifications (Dried Form) - Revised 10/25/23

| Analyte | Specification | Method | Instrument |
|-------------------------------|-------------------|-------------------------|--|
| Ash | <10% | AOAC 923.03 | Furnace |
| Moisture | <11% in dry form | AOAC 945.43, 934.01 | Vacuum Oven |
| Protein | >40% | AACC 46-30, AOAC 992.15 | Combustion |
| Total Coliform | <10 CFU/g | AOAC 991.14 | Petrifilm |
| <i>E. coli</i> | <10 CFU/g | AOAC 991.14 | Petrifilm |
| <i>Enterobacteriaceae</i> | <10 CFU/g | Compendium 8.631 | Incubation |
| <i>Listeria monocytogenes</i> | Negative/25 grams | AOAC 2013.11 | Enzyme-linked fluorescent assay (ELFA) |
| Mold | <10 CFU/g | FDA BAM Ch. 18 | Plate Culture |
| <i>Salmonella</i> | Negative/25 grams | AOAC 2013.01 | ELFA |
| Yeast | <10 CFU/g | FDA BAM Ch. 18 | Plate Culture |
| Arsenic | <0.1 ppm | AOAC 993.14 and 2015.06 | ICP-MS |
| Lead | <0.1ppm | AOAC 993.14 and 2015.06 | ICP-MS |
| Mercury | <0.1 ppm | EPA 7473 | Milestone DMA-80 Direct Mercy Analyzer |
| Cadmium | <0.1 ppm | AOAC 993.14 and 2015.06 | ICP-MS |

Toxicology follow up questions:

1. Please provide publicly available, peer-reviewed citations that support the following statements made in [the October 2, 2023] response to question #13:
 - a. “Typically, residual nucleic acid content is a concern in human food due to the purine content of the food.”
 - b. “High concentrations of purines in the diet may lead to metabolic conversion of purines to uric acid, which can accumulate in the body and cause gout.”

RESPONSES 1a and 1b: The relationship and concern surrounding hyperuricemia caused by excess nucleic acid in the diet and potential impacts on gout has been described by several publications. The below citations provide support for the statements that concerns related to

consumption of nucleic acids in the diet are related to the purine content of the foods, which is then metabolized to uric acid and can cause or exacerbate gout.

Choi *et al.* (2005) Intake of purine-rich foods, protein, and dairy products and relationship to serum levels of uric acid: The Third National Health and Nutrition Examination Survey. *Arthritis Rheum.* 52:283-289.

Zgaga *et al.* (2012) The association of dietary intake of purine-rich vegetables, sugar-sweetened beverages and dairy with plasma urate, in a cross-sectional study. *PLoS ONE.* 7:e38123.

Choi *et al.* (2004) Purine-rich foods, dairy, and protein intake, and the risk of gout in men. *N Engl J Med.* 350:1093-1104.

Kaneko *et al.* (2014) Total purine and purine base content of common foodstuffs for facilitating nutritional therapy for gout and hyperuricemia. *Biol Pharm Bull* 37(5):709-721.

2. *Additionally, from your response to question #13, it was not clear whether the limit of < 2g nucleic acid/person/day was only intended to inform on limitations in purine consumption, or this value was designated for total nucleic acids. Please briefly describe the core data and information used for this limit decision in addition to citing relevant references on the limit decision itself. If needed, please also provide further analytical data on total nucleic acid content for the N. crassa biomass.*

RESPONSE 2: The limit of <2g nucleic acid/person/day was taken from FDA's previous set of questions for GRN 1117, specifically Question #13—"...with prior GRNs meeting a specification limit of < 2% RNA, or an exposure through the intended uses to < 2 g nucleic acid/person/day at the 90th percentile" The previously-submitted core data surrounding the answer to Question #13 represents total purine content, regardless of whether the origin was from RNA or DNA. While there are no specific limits set for nucleic acid consumption in the US, the Protein-Calorie Advisory Group (part of FAO/WHO) has long recommended a daily limit of 2g/person/day for nucleic acids (*see citations listed below*)

Coelho *et al.* (2020) Short-Communication: Ingestion of a nucleotide-rich mixed meal increases serum uric acid concentrations but does not affect postprandial blood glucose or serum insulin responses in young adults. *Nutrients.* 12(4):1115.

Calloway (1969). Safety of single-cell proteins-as evaluated by human feeding trials at the University of California, Berkeley. In Proceedings of the 16th Meeting of the FAO/WHO/UNICEF Protein Advisory Group; Geneva, Switzerland. 8–11 September 1969; pp. 8–11. (cited in Coelho *et al.*).

Lane A. Highbarger, Ph.D.
October 30, 2023
Page 4

Protein-Calorie Advisory Group of United Nations (1975). PAG *ad hoc* working group meeting on clinical evaluation and acceptable nucleic acid levels of SCP [single cell protein] for human consumption. *PAG Bull* 5(3):17-26. (cited in Report of the Joint FAO/WHO Food Standards Programme, Codex Alimentarius Commission, Twenty-seventh Session, Geneva, Switzerland, 28 June – 3 July 2004 (pages 65 – 67) (available at: <https://www.fao.org/3/j2484e/j2484e.pdf>).

* * *

We appreciate the Agency's continued review of this GRAS Notice. Please let us know if you have any other questions or if you need any additional information.

Cordially yours,



Frederick A. Stearns

December 12, 2023

Via Electronic Mail

Lane A. Highbarger, Ph.D.
Microbiology and Regulatory Review
Division of Food Ingredients
Office of Food Additive Safety
Center for Food Safety and Applied Nutrition
U.S. Food and Drug Administration
5001 Campus Drive
College Park, MD 20740

Re: The Better Meat Co.'s GRAS Notice No. 1117; Responses to Third Set of Questions

Dear Dr. Highbarger:

On behalf of The Better Meat Co. (BMC or the Company), this letter responds to the third set of questions posed in FDA's November 14, 2023 correspondence, regarding GRAS Notice (GRN) 001117 for *Neurospora crassa* biomass. For ease of reference, we reproduce each question below in italics, followed by the relevant response.

1. *The notifier has only provided analytical data for total purine content of their final product. However, the studies cited regarding the safe limit of 2 g/p/d are in reference to total nucleic acid content (i.e., total purines + total pyrimidines), not only total purine content. Please provide analytical data for total nucleic acid content to demonstrate exposure, from the intended uses of the final product, is below this limit.*
 - o *Additionally, for a complete safety narrative, the notifier should briefly describe the core data (i.e., results) from the studies cited that were used to conclude consumption of 2 g total nucleic acids/p/d is safe, in addition to citing the FAO/WHO limit decision itself.*

RESPONSE 1: While BMC believes that a correction factor could be applied to the total purine content reported in previous responses that would provide a reasonable total nucleotide content, there is not a scientifically supportable method to further calculate total RNA from the resulting total nucleotide number. Please see the response to Question 2 below which provides analytical data determined from three non-consecutive lots of the Company's *N. crassa* biomass ingredient.

In response to the comment regarding a safety narrative surrounding the data used by the FAO/WHO protein working group to establish the 2g/day total nucleic acids limit, we have been unable to find a copy of the original meeting minutes or other publication which describes the details surrounding this finding. Rather, as we previously provided, we have only been able to find references to the 1969 meeting where the decision was reached (which was then cited in other authoritative sources). At this point, it is unclear what underlying data supported this recommendation. Our search did identify a study which fed 10 healthy adults a mycoprotein product (not *N. crassa*) containing either high (4.46 g/day) or low (0.89 g/day) levels of total nucleic acid for 7 days (Coelho *et al.* 2022). Relative or absolute levels of RNA were not reported. Levels of serum and urinary uric acid, insulin sensitivity glycemic index, and plasma lipid composition were measured over the course of the study. The authors reported that levels of serum uric acid increased over the course of the study in the high exposure group only, though there were no changes to urinary uric acid, insulin sensitivity, glycemic index, or plasma lipid composition. No measured parameters were affected in the low exposure group. These results indicate that elevated levels of total nucleic acid consumption could lead to increased plasma uric acid levels, but do not identify any adverse effects resulting from ingesting large levels of nucleic acids.

References:

Calloway (1969). Safety of single-cell proteins-as evaluated by human feeding trials at the University of California, Berkeley. In Proceedings of the 16th Meeting of the FAO/WHO/UNICEF Protein Advisory Group; Geneva, Switzerland. 8–11 September 1969; pp. 8–11. (cited in Coelho *et al.* (2020) Short-Communication: Ingestion of a nucleotide-rich mixed meal increases serum uric acid concentrations but does not affect postprandial blood glucose or serum insulin responses in young adults. *Nutrients*. 12(4):1115. (available at: <https://pubmed.ncbi.nlm.nih.gov/32316391/>).

Coelho MOC, *et al.* (2022) High dietary nucleotide consumption for one week increases circulating uric acid concentrations but does not compromise metabolic health: a randomized controlled trial. *Clinical Nutrition ESPEN*.49:40-52. (details available at: <https://pubmed.ncbi.nlm.nih.gov/35623844/>).

2. *Alternatively, the notifier may present analytical data demonstrating the total RNA content in the final product does not exceed a specification limit of 2%.*

RESPONSE 2: BMC has undertaken an analysis of total RNA present in its dried *N. crassa* biomass ingredient. RNA was extracted from dry finished Rhiza mycoprotein product, using a commercial fungal RNA extraction kit ([Omega BioTek, Cat. # R6840](#)) and analyzed using a commercial fluorometric assay kit ([Biotium, Cat. # 31073](#)) with a microplate reader

(Molecular Devices, Model SpectraMax M2). The average RNA content in 3 non-consecutive batches was $0.44\% \pm 0.001\%$ (Table 1).

Table 1: Total RNA content of three non-consecutive lots

| Lot | RNA Content (% , dry basis, \pm St. Dev.) |
|---------------|---|
| 2023021509KLB | 0.37 ± 0.0002 |
| 2023022209KLB | 0.47 ± 0.0017 |
| 2023050909KLB | 0.49 ± 0.0004 |

Using the average total RNA content in the Company's *N. crassa* product and the worst case 90th percentile exposure of 41.5 g/day (Adults 19+y; dry ingredient basis) calculated for GRN 1107, we can calculate a conservative exposure to RNA from the ingredient of 183 mg total RNA/day.¹ In fact, given that *N. crassa* biomass is intended to be used as a hydrated ingredient, and hydration increases the mass of the ingredient by approximately 2.5x without adding additional nucleic acid, a more accurate exposure to total RNA would be 73.2 mg/day.² Given the dehydrated nature of the product and its intended use on a hydrated basis, the RNA content falls well below the suggested 2% total RNA or 2g/day exposure.

* * *

We appreciate the Agency's continued review of this GRAS Notice. Please let us know if you have any other questions or if you need any additional information.

Cordially yours,


Frederick A. Stearns

¹ $41.5 \text{ g/day} * 0.0044 \text{ (0.44\% average total RNA)} = 0.1826 \text{ g/day or } 183 \text{ mg/day}$

² $183 \text{ mg/day} \div 2.5 \text{ hydration factor} = 73.2 \text{ mg/day}$

~Lane

From: Stearns, Frederick A. <Stearns@khlaw.com>

Sent: Thursday, January 25, 2024 8:42 AM

To: Highbarger, Lane A <Lane.Highbarger@fda.hhs.gov>

Subject: RE: [EXTERNAL] The Better Meat Co. - GRN 1117 - Responses to FSIS Request for Material Safety Data Sheet (MSDS) (Received on 1/23/24) [Neurospora crassa (Rhiza mycoprotein)]

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi, Lane – Thank you for the follow-up message. We'll get the answers to you as quickly as possible.

Best regards. – Rick

From: Highbarger, Lane A <Lane.Highbarger@fda.hhs.gov>

Sent: Thursday, January 25, 2024 6:52 AM

To: Stearns, Frederick A. <Stearns@khlaw.com>

Subject: RE: [EXTERNAL] The Better Meat Co. - GRN 1117 - Responses to FSIS Request for Material Safety Data Sheet (MSDS) (Received on 1/23/24) [Neurospora crassa (Rhiza mycoprotein)]

**** EXTERNAL EMAIL ****

Hi Rick,

Thank you.

FSIS has asked some additional questions for GRN 1117.

1. What is the identity and formulation of the food grade substrate? Please list components by common and usual name. (The food grade substrate may have components that require sub-listing in the labeling determination.)
2. Is there a wash step post-harvest of the slurry before drying? (Questions 2 & 3 are related to the first question. These questions help to determine if the substrate components may or may not require a sub-listing as part of the labeling review.)
3. How much of the non-aqueous components of the substrate remain after drying? (See question 2 rationale.)
4. Do they intend this for use in Siluriformes fish products? (The submission listed a maximum use level of 50% in seafood, fish sticks, and seafood loafs and cakes on page 149. It is unclear if the referenced seafood includes Siluriformes fish.)

~Lane

From: Stearns, Frederick A. <Stearns@khlaw.com>

Sent: Wednesday, January 24, 2024 9:55 PM

To: Highbarger, Lane A <Lane.Highbarger@fda.hhs.gov>

Subject: [EXTERNAL] The Better Meat Co. - GRN 1117 - Responses to FSIS Request for Material Safety Data Sheet (MSDS) (Received on 1/23/24) [Neurospora crassa (Rhiza mycoprotein)]

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi, Lane – Attached is the current Safety Data Sheet (SDS) from The Better Meat Co. Please let us know if FDA or FSIS needs anything further.

Thanks very much. – Rick

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Frederick A. Stearns

Partner

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Keller and Heckman LLP | 1001 G Street NW, Suite 500 West | Washington, DC 20001

Washington, DC Brussels San Francisco Shanghai Boulder

From: Stearns, Frederick A. <Stearns@khlaw.com>
Sent: Tuesday, January 23, 2024 11:10 AM
To: Highbarger, Lane A <Lane.Highbarger@fda.hhs.gov>
Subject: RE: Missing MSDS

Hi, Lane – Thank you for passing along this request. I have asked for the MSDS and will send it to you as soon as I receive it.

Bets regards. – Rick

From: Highbarger, Lane A <Lane.Highbarger@fda.hhs.gov>
Sent: Tuesday, January 23, 2024 10:54 AM
To: Stearns, Frederick A. <Stearns@khlaw.com>
Subject: Missing MSDS

**** EXTERNAL EMAIL ****

Hi Rick,

FSIS has requested that you provide the MSDS for *Neurospora crassa*.

On the last page of appendix 1 (page 192) of the GRAS application, Better Meat Co. (BMC) stated the following:

“When Rhiza mycoprotein is stored, handled, and used in accordance with the recommendations listed on the material safety data sheet (MSDS), it will not present any additional hazards to the safety of FSIS inspectors.”

Thank you for your attention to this matter.

~Lane

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March 14, 2024

Via Electronic Mail

Lane A. Highbarger, Ph.D.
Microbiology and Regulatory Review
Division of Food Ingredients
Office of Food Additive Safety
Center for Food Safety and Applied Nutrition
U.S. Food and Drug Administration
5001 Campus Drive
College Park, MD 20740

Re: The Better Meat Co.'s GRAS Notice No. 1117; Responses to Third Set of FSIS Questions (received 02/23/24)

Dear Dr. Highbarger:

On behalf of The Better Meat Co. (BMC or the Company), this letter responds to the most recent of questions posed in FDA's February 23, 2024 correspondence, regarding GRAS Notice (GRN) 001117 for *N. crassa* biomass. We understand that these questions are from USDA's Food Safety and Inspection Service (FSIS) assessing the suitability of the ingredient for use in meat, poultry, and other uses within FSIS's regulatory jurisdiction. **BMC considers the responses to questions 1 – 3 presented below to be confidential/trade secret information as described in 21 C.F.R. § 20.61(a) and 7 C.F.R. § 1.8(a), and thus protected from disclosure under the Freedom of Information Act (FOIA). If for some reason FDA and/or FSIS do not agree, please let us know immediately.**

Please provide the following requested information for FSIS to determine the labeling requirement for this product:

- 1. List of fermentation substrate ingredients and amount used.*
- 2. Description or explanation of how much of the proteinaceous, sugars, and preservatives are broken down or completely used in the fermentation process.*
- 3. List of residual fermentation substrate left unused and amount present on the final product.*

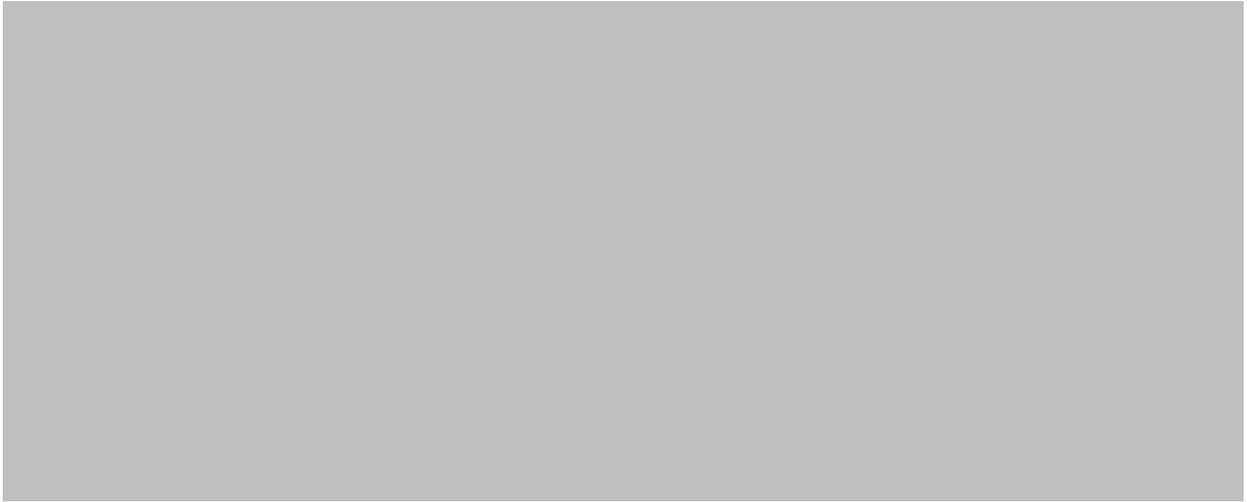
Responses (ALL CONFIDENTIAL):1. 

2.





3.



* * *

We appreciate FDA's and FSIS's continued review of this GRAS Notice. Please let us know if you have other questions or if you need any additional information.

Sincerely yours,



Frederick A. Stearns



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April 24, 2024

Via Electronic Mail

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Microbiology and Regulatory Review
Division of Food Ingredients
Office of Food Additive Safety
Center for Food Safety and Applied Nutrition
U.S. Food and Drug Administration
5001 Campus Drive
College Park, MD 20740

Re: The Better Meat Co.'s GRAS Notice No. 1117; Responses to Fourth Set of FSIS Questions (received 02/23/24)

Dear Dr. Highbarger:

On behalf of The Better Meat Co. (BMC or the Company), this letter responds to the most recent of questions posed in FDA's April 17, 2024 correspondence, regarding GRAS Notice (GRN) 001117 for *N. crassa* biomass. We understand that these questions are from USDA's Food Safety and Inspection Service (FSIS) assessing the suitability of the ingredient for use in meat, poultry, and other uses within FSIS's regulatory jurisdiction. **BMC considers the responses to questions 1 – 3 presented below to be confidential/trade secret information as described in 21 C.F.R. § 20.61(a) and 7 C.F.R. § 1.8(a), and thus protected from disclosure under the Freedom of Information Act (FOIA). If for some reason FDA and/or FSIS do not agree, please let us know immediately.**

Since the FSIS comments/questions are rather lengthy, they are repeated verbatim on pages 6 – 7 of this document. **BMC views these questions as including confidential/trade secret information and thus also protected from disclosure under the FOIA.**

Responses (ALL CONFIDENTIAL):

1.



Three (3) pages removed, confidential business information.



Lane A. Highbarger, Ph.D.
April 24, 2024
Page 5 of 7

-- Contains Confidential Business Information --

[Redacted]

[Redacted]

* * *

We appreciate FDA's and FSIS's continued review of this GRAS Notice. Please let us know if you have other questions or if you need any additional information.

Sincerely yours,

[Redacted Signature]

Frederick A. Stearns

Two (2) pages removed, confidential business information.



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June 25, 2024

Via Electronic Mail

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Microbiology and Regulatory Review
Division of Food Ingredients
Office of Food Additive Safety
Center for Food Safety and Applied Nutrition
U.S. Food and Drug Administration
5001 Campus Drive
College Park, MD 20740

Re: The Better Meat Co.'s GRAS Notice No. 1117; Response to Request for Human Consumption Information (received 06/25/24)

Dear Dr. Highbarger:

On behalf of The Better Meat Co. (BMC or the Company), this letter responds to the following request received from the Food and Drug Administration (FDA) on June 25, 2024:

"In the GRN 001117 dossier, there is no discussion of human consumption of the *Neurospora crassa* mycelial biomass, specifically. Would you please provide any data on human consumption and/or tolerability of the *N. crassa* mycelial biomass and discuss if its consumption resulted in any adverse gastrointestinal effects or similar tolerability concerns."

Response:

BMC's *Neurospora crassa* mycoprotein mycelial biomass has been consumed by more than 10,000 consumers, without a single report of any adverse gastrointestinal effects or distress of any kind. BMC has completed hundreds of internal and public human tastings with pure *N. crassa* and food applications containing 25% to 99% of BMC's *N. crassa* mycelium, again with no known tolerability concerns.

One restaurant alone has already sold over 1,000 "carne asada" dishes containing 100% BMC's *N. crassa* mycelium servings (plus seasoning) as the center-of-the-plate meat alternative. The same restaurant has also sold over 1,200 4-ounce "steaks" made primarily (75%) from BMC's *N. crassa* mycelial biomass. There have been no reports of any human tolerability issues.

Numerous other restaurants and cafeterias have also sold food products made with BMC's *N. crassa* mycelium biomass, with zero reports of side effects or illness. For example, one corporate cafeteria served hundreds of employees deli slices and foie gras dishes made from BMC's *N. crassa*



Lane A. Highbarger, Ph.D.
June 25, 2024
Page 2 of 2

biomass for a few days. BMC staff were on-site and collected feedback on the products. None of the consumers indicated any ill effects from eating the products containing *N. crassa* mycelium biomass.

Additionally, the BMC has exhibited at numerous conferences and festivals, serving thousands of consumers taco meat dishes made solely of BMC's *N. crassa* mycelium biomass (plus seasoning). Once again, BMC has never had any report or complaint about associated adverse effects.

* * *

We trust that this information responds to FDA's request and we appreciate the Agency's continued review of this GRAS Notice. Please let us know if you have other questions or if you need any additional information.

Sincerely yours,



Frederick A. Stearns