

Candidate Vaccine Viruses and Potency Reagents for the 2018-19 Influenza Season

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Topics to Be Covered

- **Currently used vaccine viruses and WHO recommendation for 2018 – 19 seasonal vaccines (Trivalent and Quadrivalent)**
- **Available potency reagents for each of the viruses**
- **Comments:**
 - **Planning for the 2018-19 campaign**
 - **SRID reagents**
 - **Monovalent bulk testing**

Influenza A (H1N1)

- **Current Vaccine Virus (2017-18 season): A/Michigan/45/2015 (H1N1)pdm09-like virus**
 - A/Michigan/45/2015 reassortants NYMC X-275
 - A/Singapore/GP1908/2015 reassortants IVR-180 & IVR-180A
- **WHO Recommended Virus for 2018-19: A/Michigan/45/2015 (H1N1)pdm09-like virus**
Recommended for 2018 southern hemisphere (SH) season

Candidate Vaccine Viruses: as listed above; additional CVVs listed at the WHO web site: http://www.who.int/influenza/vaccines/virus/candidates_reagents/2018_19_north/en/

Available Reagents for A(H1N1)

- **Reference Antigen**
 - **For egg-grown vaccines**
 - **A/Michigan/45/2015 X-275 CBER Reference Antigen Lot 85**
 - *A/Michigan/45/2015 X-275: NIBSC**
 - *A/Singapore/GP1908/2015 IVR-180: TGA*, NIBSC* & NIID**
 - *A/Singapore/GP1908/2015 IVR-180A: TGA**
 - **For mammalian cell-grown vaccines**
 - *A/Singapore/GP1908/2015 (cell): TGA**
 - *A/Singapore/GP1908/2015 IVR-180 (cell): TGA**
- **CBER Antiserum**
 - **H1-Ab-1701**
 - **Replacement Lot: In preparation**

**CBER approval of these reagents on a case by case basis*

Influenza A (H3N2)



- **Current Vaccine Virus (2017-18 season) : A/Hong Kong/4801/2014 (H3N2)-like virus**
 - A/Hong Kong/4801/2014 reassortants NYMC X-263 and NYMC X-263B
 - A/Singapore/GP2050/2015 (cell culture-derived)

Potency reagents are available from CBER and/or other ERLs

- **WHO Recommended Virus for 2018-19: A/Singapore/INFIMH-16-0019/2016-like virus**

Recommended for 2018 southern hemisphere season

- **Candidate Vaccine Viruses (egg-derived):**
 - A/Singapore/INFIMH-16-0019/2016 reassortants NIB-104, IVR-186, NYMC X-307, NYMC X-307A
- **Candidate Vaccine Viruses (cell culture-derived):**
 - A/North Carolina/04/2016; A/Canberra/7/2016

Available Reagents for A(H3N2)

- **Reference Antigen**
 - **For egg-grown vaccines**
 - **A/Singapore/INFIMH-16-0019/2016 NIB-104 CBER Lot 91 (to be calibrated)**
 - *A/Singapore/INFIMH-16-0019/2016 NIB-104: NIBSC**
 - *A/Singapore/INFIMH-16-0019/2016 IVR-186: TGA**
 - **For cell-grown vaccines**
 - CBER will work with manufacturers to prepare and calibrate the required reference antigens
- **CBER Antiserum**
 - Preparation of A/Singapore/INFIMH-16-0019/2016 antiserum has been initiated

**CBER approval of these reagents on a case by case basis*

Influenza B (Victoria Lineage)

- **Current Vaccine Virus (2017-18 Season): B/Brisbane/60/2008-like virus**

Also recommended for 2018 southern hemisphere season

- B/Brisbane/60/2008
- B/Hong Kong/259/2010

Potency reagents are available from CBER and/or other ERLs

- **WHO Recommended Virus for 2018-19: B/Colorado/06/2017-like virus**

– **Candidate Vaccine Viruses (egg-derived):**

B/Colorado/06/2017 ; B/Alabama/2/2017; B/Maryland/15/2016;
B/Maryland/15/2016 reassortants NYMC BX-69 & NYMC BX-69A

– **Candidate Vaccine Viruses (cell culture-derived):**

B/Louisiana/10/2017; B/Iowa/06/2017

Available Reagents for B-strain (Victoria lineage)



- **Reference Antigen**
 - **For egg-grown vaccines**
 - CBER will work with ERLs and manufacturers to prepare and calibrate the required reference antigens
 - **For cell-grown vaccines**
 - CBER will work with manufacturers to prepare and calibrate the required reference antigens
- **CBER Antiserum**
 - **Sheep antiserum will be prepared soon**

Influenza B (Yamagata Lineage)



- **Current Vaccine Strain (2017-18 Season): B/Phuket/3073/2013-like virus**
 - B/Phuket/3073/2013: wt & reassortant BVR-1B
 - B/Utah/09/2014

Potency reagents are available from CBER and/or other ERLs

- **WHO Recommended B (Yamagata lineage) virus for 2018-19:
B/Phuket/3073/2013-like virus**

Recommended for 2018 southern hemisphere season

Candidate Vaccine Viruses: as listed above; additional CVVs listed at the WHO web site:
http://www.who.int/influenza/vaccines/virus/candidates_reagents/2018_19_north/en/

Available Reagents for B-strain (Yamagata-lineage)

- **Reference Antigen**
 - **For egg-grown vaccines**
 - **B/Phuket wt: CBER Lot 80**
 - *B/Phuket wt: NIBSC*, TGA* & NIID**
 - *B/Phuket/BVR-1B: TGA**
 - *B/Brisbane/9/2014 wt. :NIBSC**
 - **For cell-grown vaccines**
 - **B/Utah/09/2014: CBER Lot B(y)-Ag-1501**
 - *B/Utah/09/2014: NIBSC**
- **CBER Antiserum**
 - B(y)-Ab-1605
 - B(y)-Ab-1606
 - B(y)-Ab-1610

**CBER approval of these reagents on a case by case basis*

Planning for 2018-19 Influenza Season



- Manufacturers to provide the following information to DBSQC for each strain used in manufacturing (ASAP following VRBPAC)

Strain Name	Reassortant/ Candidate Vaccine Virus used in manufacturing	Ref Antigen Supplier & Lot No.	Ref Antiserum Supplier & Lot No.
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This information is very important for DBSQC to plan

- Reagent calibration activities
- Importing reagents from other ERLs
- Monovalent testing
- Lot release testing

SRID Reagents: General Comments...1

- Only CBER authorized reagents should be used to test potency of vaccines marketed in the US (consult with CBER)
- When CBER authorizes the use of reagents from other ERLs, those reagents need to be obtained directly from the ERL
- CBER recommends the use of reference antigen and reference antiserum from the same source to avoid discrepancies (consult with CBER)
- The antisera lots may change over time due to limited amounts produced per lot.
Recommendation: Keep a small supply of the current lot for bridging potential future antisera lots

SRID Reagents: General Comments...2



- Use of same reagents is desirable for Monovalent, Trivalent/Quadrivalent formulations (and follow-up stability studies)
- For new products – please discuss the use of SRID reagents in an early phase of product development
- For any inquires regarding CBER Reference Standards and Reagents availability and shipping, contact CBER Standards at CBERshippingrequests@fda.hhs.gov

Monovalent Bulk Testing



Points to remember:

- Monovalent samples must be submitted to DBSQC. Please email Manju.Joshi@fda.hhs.gov regarding dispatch of samples, test results etc.
- To facilitate a faster turn around please submit “Preliminary SRID results” (which are based on at least the first 2 of multiple SRID tests required for generating the reportable result). The test results can be submitted via email.
- The preliminary SRID results should be generated within ± 1 week of sample submission
- DBSQC performs testing in the order samples (and results) are received
- Please submit “Final SRID Results” as soon as they are ready (results can be submitted via email)
- DBSQC will communicate CBER test results only after manufacturers have submitted “Final SRID Results” for monovalent bulks

Thank You