

LORETTA GEORGINA QUE, MD

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Associate Professor (Tenure)  
Department of Internal Medicine  
Division of Pulmonary, Allergy and Critical Care  
Duke University Health System

### **CONTACT INFORMATION**

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### **CHRONOLOGY of EDUCATION**

06/1981-05/1985 University of Illinois  
Champaign-Urbana, IL  
BS, Biology (cum laude with Honors), May 1985

07/1985-05/1989 University of Chicago, Pritzker School of Medicine  
Hyde Park, IL  
MD, May 1989

07/1989-06/1990 Yale-New Haven Hospital  
New Haven, CT  
Medical Internship

07/1990-06/1992 Yale-New Haven Hospital  
New Haven, CT  
Medical Residency

07/1993-06/1996 Duke University Medical Center  
Durham, NC  
Pulmonary-Critical Care Fellowship

### **CHRONOLOGY OF EMPLOYMENT**

07/1992-06/1993 Yale-New Haven Hospital  
New Haven, CT  
Medical Instructor

07/1996-2/2001 Duke University Medical Center  
Durham, NC  
Associate in Medicine

- 3/2001-12/2010 Duke University Medical Center  
Durham, NC  
Assistant Professor of Medicine
- 1/2011-present Duke University Medical Center  
Durham, NC  
Associate Professor of Medicine (Tenure)

### **HONORS and AWARDS**

- 1985 cum laude, University of Illinois, Champaign, IL
- 1985 Golden Key National Honor Society, University of Illinois, Champaign, IL
- 1985 Phi Beta Kappa, University of Illinois, Champaign, IL
- 1989 American Medical Women's Association, University of Chicago, Hyde Park, IL
- 1996 Glaxo-Wellcome Award
- 2000 Mentored Clinical Scientist Development Award (K08)
- 2014 Master Clinician/Teacher Award, nominee
- 2017 Senior Faculty Teaching Award, Duke Health, Durham, NC
- 2017 Kaganov Research Initiative Award, Duke Health, Durham, NC
- 2018 Member, Pulmonary-Allergy Drugs Advisory Committee for the Food and Drug Administration

### **MEDICAL BOARD CERTIFICATIONS**

- 1992; 2012 American Board of Internal Medicine
- 1997, 2017, 2027 American Board of Pulmonary Medicine
- 1998, 2019 American Board of Critical Care Medicine

### **SERVICE**

#### ***Professional Societies and Affiliations***

1994-present	American Thoracic Society active member
2003-	American College of Chest Physicians, Fellow
2004-2009	American Thoracic Society: Member, Strategic Planning Committee
2009-2010	American Thoracic Society: Chair-elect, Strategic Planning Committee
2010-2013	American Thoracic Society: Chair, Strategic Planning Committee
2011-2012	American Thoracic Society: Member, Finance Committee
2002-2014	Member, American Association of Pulmonary Critical Care Program Directors
2016-present	Member, <sup>129</sup> Xe MRI Clinical Trials Consortium
2017-present	Member, Academy Health
2012-2018	Member, NIH AsthmaNet, Publications Committee
2018	Member, American Thoracic Society-Diversity Committee

### **Local/State**

2014-2017	Visiting Pulmonary Scholar Symposium Judge, Greater Research Triangle Area, NC
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### **Duke School of Medicine**

2005-2009	Course Instructor, Clinical Core on Critical Care Duke University School of Medicine, Durham, NC
2013-present	Mentor, K-club/Path to Independence program; Duke School of Medicine, Durham, NC
2017-present	Co-Director, Duke Rodent and Inhalational Physiology Core Facility Duke University School of Medicine, Durham, NC

### **Duke Department of Internal Medicine and Division of Pulmonary Critical Care**

1999-2002	Director of Bronchoscopy/Pulmonary Physiology, Durham Veterans' Administration Hospital, Durham, NC
2001-2014	Program Director, Pulmonary Critical Care Fellowship Program Duke University Medical Center, Durham, NC
2001-Present	Pulmonary Critical Care Fellowship - Recruitment Faculty Interviewer
2001-2014	Program Director, Advanced Pulmonary Critical Care Fellowship Program, Duke University Medical Center, Durham, NC
2001-2010	Program Director, Medicine-Pediatrics Pulmonary Fellowship Program, Duke University Medical Center, Durham, NC
2006-2012	Course Instructor, Central Venous Catheter Workshop Duke University Medical Center, Durham, NC
2009-present	Faculty Coordinator, Duke Wednesday AM Interdisciplinary Chest Conference (CME); Duke University Medical Center, Durham, NC
2013-2015	Course Instructor, Point of Care Ultrasound Workshop Duke University Medical Center, Durham, NC
2013-2014	Director, Annual Pulmonary Fellows' Scientific Retreat Duke University Medical Center, Durham, NC
2014-present	Principle Investigator, American Lung Association, Airways Clinical Research Center
2017-present	Medical Director, Pulmonary Clinical Research Unit; Duke University Health System, Durham, NC
2017-present	Research Director, Duke Asthma, Allergy and Airway Center Duke University Health System, Durham, NC
2017-present	Medical Residency Recruitment Interviewer

### **National Study Section/Grant Review**

2008	NHLBI Special Emphasis Panel, August 14, 2009. Molecular phenotypes for Lung Diseases; SRO: Keith A. Mintzer, PhD
2009	NIH/NIEHS Ad Hoc Reviewer, December 15, 2009. SRO: Darryl Zeldin, MD

- 2011 Scientific Therapeutics Information, Inc., Eighth Annual Young Investigators' Forum, Advisory Committee Member, Sept 15-18, 2011. Atlanta, GA.
- 2011 NIH/NIEHS Ad Hoc Reviewer, October 4-5, 2011. Manhattan Beach, CA.; SRO: George Barnas, PhD
- 2013-2019 NIH/LCMI Permanent Study Section Member; SRO: George Barnas, PhD

### **Editorial Service**

- 2010 Editorial board, American Journal of Respiratory Cell and Molecular Biology
- 2011 Editorial board, American Journal of Respiratory Cell and Molecular Biology
- 2011 Guest Co-Editor, BBA-Gen, special edition: Biochemistry of Asthma
- 2012-2016 Associate Editor, American Journal of Respiratory Cell and Molecular Biology
- 2017 Editorial board, American Journal of Respiratory Cell and Molecular Biology

### ***Ad Hoc Manuscript Review***

American Journal of Respiratory Cell and Molecular Biology

American Journal of Respiratory and Critical Care Medicine

Annals of the American Thoracic Society

Clinical and Experimental Allergy

Drug Delivery

Journal of Allergy and Clinical Immunology

Journal of Clinical Investigation

Plos One

Proceedings of the National Academy of Sciences

## Respiratory Research

### Invited Talks

Spring Conference in Protein Research, San Juan, Puerto Rico, April 15-17, 2004,  
Lecture: Critical Role of GSNO Reductase in Asthma.

Clinical Respiratory Physiology Pathophysiology Workshop, Taipei, Taiwan, August 20-21, 2005, Lectures: 1) Pathophysiology of Hyperoxic Lung Injury; 2) Pathophysiology of Hypercarbic Lung Injury

Duke University Medical Grand Rounds, Durham, NC, July 7, 2006, Lecture: NO "SNO" in Asthma.

Research Triangle Park Visiting Scholars Seminar, Durham, NC, August 5, 2006:  
GSNO reductase, S-nitrosothiols, and Allergic Asthma.

Duke Airway Biology Forum, Durham, NC, January 26, 2007.

National Symposium on the Advancement of Women in Science, Harvard College, April 13-15, 2007.

ATS Scientific Symposium: The Host Response in Asthma: A Look at Innate Immunity, May 23, 2007.

University of North Carolina Cystic Fibrosis Center Seminar Series, Chapel Hill, NC, December 7, 2007. S-nitrosothiols and the Asthmatic Airway.

Duke University Medical Center Pulmonary Research Seminar: S(NO) in Asthma; Durham, NC; April 1, 2008.

National Institute of the Environmental Health Sciences (NIEHS): Visiting Scholars Program; S(NO) in Asthma, Durham, NC; April 2, 2008.

ATS Scientific Symposium: Risks and benefits of S-nitrosothiol-based therapy for Asthma and other diseases: An Emerging Field; May 20, 2008.

Research Triangle Park: Visiting Professor Series; SNO Metabolism and GSNOR in Asthma, Chapel Hill, NC, March 4, 2009.

ATS Symposium, GSNOR Regulates Airway SNO and AHR in Asthma, San Diego, CA, May 19, 2009.

ATS Sunrise Seminar: Obesity and Asthma-New Insights and Challenges, San Diego, CA. May 26, 2009.

University of North Carolina-Biotechnology: GSNOR and Asthma, Chapel Hill, NC, March 5, 2010.

Use of Methacholine Challenge Testing in Clinical Practice. Duke Fellows' Didactic Lecture Series, June 28, 2011, Durham, NC.

NO Colloquium: GSNO-based therapies in Asthma; April 25, 2012, Duke University Medical Center

Invited Scientist Speaker, S(NO) and Asthma. September 25, 2014. National Jewish Health, Denver, CO.

Duke Immunology 610 – School of Medicine lecture: Immunology of Asthma. September 9, 2015.

Biomarkers for Severe Asthma: Duke University Severe Asthma Conference-Mechanisms, Diagnosis, and Treatments. October 3, 2015.

E-cigarettes – Friend or Foe. December 22, 2015. Duke Clinical Research Institute Conference.

NOS-ADMA-Arginase Pathway in Obese Asthma. May 24, 2016. Duke Pulmonary Research Conference, Duke Health System.

Introduction to Asthma. Sept 10, 2016. Duke Pulmonary Fellows' Didactic Conference.

Pulmonary Function Testing. Duke Allergy Wednesday Fellows' Conference. October 19, 2016.

Duke University Severe Asthma Symposium. Obese Asthma: Etiology, Diagnosis and Management. December 3, 2016.

E-cigarettes and How They Work. March 2, 2018. AAAAI.

E-cigarettes and Lung Health. July 10, 2018. Sunshine Hospital. Weifang, China. Sunshine Hospital.

Management and Diagnosis of Severe Asthma in China. July 21, 2018, Sunshine Hospital. Weifang, China.

### **Mentorship/Research Supervision of Trainees**

#### **High School Students:**

- 2009 Peitong Duan, Summer research project. Attended Massachusetts Institute of Technology
- 2017 Jack Womble, Summer research project. Student University of North Carolina, Chapel Hill

**College Students:**

- 2003 Courtney Lockhart, University of Texas. Attended Harvard Medical School.
- 2004 Patrice Whitehead, University of Tuskegee. Summer research project. Lab Technician, Duke
- 2010-2012 Jennifer Huang, Duke University. Student Vanderbilt University Medical School.

**Medical Residents:**

- 2007 Mashael Al-Hegelan, MD, Medicine SAR  
Project: Affect of Obesity in Asthma
- 2016-2017 Shannon Niedermeyer, MD  
Project: Identification of Asthma/COPD exacerbator risk by total protein:Albumin ratio

**Mentorship of Pulmonary Critical Care Fellows:**

- 2005 Armin Meyer, MD  
Assistant Professor, University of South Carolina
- 2003-2006 Alison Clay, MD  
Project: Medical Education in the ICU  
Assistant Professor, Duke University Health System
- 2009-2011 Amy Treece, MD  
Project: Role of NOS in HINI-induced Lung Edema  
Clinical Instructor, USC-Greenville
- 2011-2012 Mashael Al-Hegelan, MD  
Project: Arginase regulation of Airway Responsiveness in Allergic Asthma  
Assistant Professor, Duke University Health System
- 2013-2015 Isaretta Riley, MD  
Project: Health Care Disparities in Asthma  
Medical Instructor, Duke University Health System



- 2014-2017 Devon Paul, MD  
Project: Validation of Spirometry Prediction Equations in Western Kenya  
Awarded: Fogarty  
Medical Instructor, Duke University Health System
- 2015-2017 Anne Mathews, MD  
Project: Assessment of the role and treatment of stress, anxiety and depression in patients admitted to pulmonary rehabilitation program for COPD  
Medical Instructor, Duke University Health System
- 2016-2017 Coral Giovachinni, MD  
Project: Use and Perceived risk of E-cigarettes among students in North Carolina  
Interventional Pulmonary Fellow, Duke University Health System
- 2016-2017 Laura Beth Mann Dosier  
Pediatric Pulmonary Fellow  
Project: Sepsis-induced red blood cell dysfunction
- 2016-2017 Rohan Shyam Virgincar, PhD  
Biomedical Engineering Fellow  
Thesis: Preclinical <sup>129</sup>Xe MRI: Development, Applications and Dissemination
- 2017- Lindsay Boole, MD  
Project: Phase 1 Clinical trial: Evaluate the safety, tolerability and intrapulmonary pharmacokinetics of fosfomycin (ZTI-01) in healthy adult subjects in a Phase 1 clinical trial  
Pulmonary Critical Care Fellow, Duke University Health System
- 2017- Sweta Patel, MD  
Project: Pilot study to assess respiratory symptom burden among HIV-infected individuals in an outpatient setting in Western Kenya

### **Mentorship of Junior Faculty**

Jennifer Ingram, PhD

Research Assistant Professor, Duke University Health System, Durham, NC

Focus of research: IL-13 and GLP-1 Regulation of Airway Remodeling in Obese Asthma

Awarded R01, 2017

Julie Ledford, PhD

Research Assistant Professor, University of Arizona Medical Center, Tucson, AZ

Focus of research: Surfactant Protein A regulation of Asthma

Awarded: R01, 2014

Anne Mathews, MD  
Medicine Instructor, Duke University Health System, Durham, NC  
Focus of research: Role of stress, anxiety and depression in patients with COPD  
undergoing pulmonary rehabilitation

Robert Tighe, MD  
Assistant Professor of Medicine, Duke University Health System, Durham, NC  
Focus of research: Modulation of ozone induced epithelial permeability by CXCL10 and  
CXCL3 axis  
Awarded One's Award (NIH/NIEHS), 2018

### **CLINICAL RESPONSIBILITIES**

Supervise and round in Duke Medical Intensive Care Unit 6 weeks/year

Duke Asthma Outpatient Clinic ½ day/week

Ad Hoc Preceptor for Pulmonary Fellows Outpatient Clinic

Preceptor for Internal Medicine residents in Pulmonary Outpatient Clinic

### **PUBLICATIONS**

#### **Refereed Journal Articles:**

1. **Que LG**, Kang BH, Huang YCT, Piantadosi CA, Chang LY: Anti-ICAM-1 antibody and ICAM-1 gene deficiency do not prevent pulmonary neutrophil recruitment in polymicrobial sepsis. *Shock* 9 (4):304-309, 1998. PMID: 9565260.
2. **Que LG**, Kantrow SP, CP Jenkinson, Huang YCT: Induction of arginase isoforms in the lung during hyperoxia. *American Journal of Physiology* 275 (19): L96-L102, 1998. PMID: 9688940.
3. Carraway MS, Welty-Wolf KE, Kantrow SP, Huang YCT, Simonson SG, **Que LG**, Kishimoto TK, and Piantadosi CA: Antibody to E- and L-selectin does not prevent lung injury or mortality in septic baboons. *Am J of Respir Crit Care Med* 157 (3 Pt 1):938-49, 1998. PMID: 9517615.
4. Lau CL, Bentley RC, Gockerman JP, **Que LG** and D'Amico TA. Malignant melanoma presenting as a mediastinal mass. *Annals of Thoracic Surgery*. 67(3): 851-2, 1999 Mar. PMID: 10215250.

5. **Que LG** and Huang YCT. Pharmacologic adjuncts to mechanical ventilation. *Seminars in Respiratory and Critical Care Medicine*, 21.3, 2000. PMID: 16088735.
6. Liu L, Hausladen A, Zeng M, **Que L**, Heitman J and Stamler JS/ A metabolic enzyme for S-Nitrosothiol conserved from bacteria to humans. *Nature* 410: 490-494, 2001 Mar. PMID: 11260719.
7. Liu L, Hausladen A, Zeng M, **Que L**, Heitman J and Stamler JS. Nitrosative stress: protection by glutathione-dependent formaldehyde dehydrogenase. *Redox Report* 6 (4) 209-10, 2001. PMID: 11642709.
8. Qing Yu, **Que LG**, and Rockey DC. Adenovirus-mediated gene transfer to nonparenchymal cells in normal and injured liver. *Am J Physiol Gastrointest Liver* 282(3):G565-G572, 2002. PMID: 11842008.
9. **Que LG**, George SE, Gotoh T, Mori M, and Huang YCT. Effects of arginase isoforms on NO production by nNOS. *Nitric Oxide* 6 (1):1-8, 2002. PMID: 11829529.
10. Liu L, Yan Y, Zeng M, Zhang J, Hanes MA, Ahearn G, McMahon TJ, Dickfeld T, Marshall HE, **Que LG**, and Stamler JS. Essential roles of S-Nitrosothiols in vascular homeostasis and endotoxic shock. *Cell*, 116:617-628, 2004. PMID: 14980227.
11. **Que LG**, Liu L, Yan Y, Whitehead GS, Gavett GH, Schwartz DA, Stamler JS. Protection from asthma by an endogenous bronchodilator. *Science* 308:1618-21, 2005. PMID: PMC2128762.
12. Clay AS, **Que L**, Andolsek KM, Sebastian MW, Petrusa ER, and Govert JA. Debriefing in the intensive care unit: A feedback tool to facilitate bedside teaching. *Critical Care Medicine*: 35(3): 738-54, 2007. PMID: 17255866.
13. Whalen EJ, Foster MW, Matsumoto A, Ozawa K, Violin JD, **Que LG**, Benhar M, Keys JR, Koch WJ, Daaka Y, Lefkowitz RJ, Stamler JS. Regulation of  $\beta$ -adrenergic receptor signaling by S-nitrosylation of G protein-coupled receptor kinase 2. *Cell* 129 (3):511-22, 2007. PMID:17482545.
14. **Que LG**, Yang Z, Stamler JS, Lugogo NL, Kraft M. S-nitrosogluthathione reductase: an important regulator of human asthma. *Am J Respir Crit Care Med* 180 (3), 226-31, 2009. PMID: PMC2724715.
15. Chudgar SM, Cox CE, **Que LG**, Andolsek K, Knudsen NW, Clay AS. Current teaching and evaluation methods in critical care medicine: has the Accreditation Council for Graduate Medical Education affected how we practice and teach in the intensive care unit? *Crit Care Med*. 2009 Jan;37(1):49-60. PMID: 19050627.

16. \*\*Pastva AM, Walker JK, Maddox LA, Mukherjee S, Giamberardino C, Hsia B, Potts E, Zhu H, Degan S, Sunday ME, Lawson BL, Korfhagen TR, Schwartz DA, Eu JP, Foster WM, McMahon TJ, **Que L**, Wright JR. Nitric oxide mediates a relative airway hyporesponsiveness to LPS in SP-A deficient mice. *Am J Respir Cell Molecular Biology*, 2010, Feb 44(2):175-84. [PMCID 3049231].
17. Wahidi MW, Silvestri GA, Coakley R, Ferguson JS, Shepherd RW, Moses L, Conforti J, **Que LG**, Anstrom KJ, McGuire F, Colt H, Downie GH. A prospective multi-center study of competency metrics and educational interventions in the learning of bronchoscopy among starting pulmonary fellows. *Chest* May :137(5):1040-90, 2010. [PMID: 19858234].
18. Choudhry S\*, **Que LG\***, Yang Z, Liu L, Eng C, Kim SP, Kumar G, Thyne S, Chapela R, Rodriguez-Santana JR, Rodriguez-Cintron W, Avila PC, Stamler JS, and Burchard EG. GSNO reductase and beta2-adrenergic receptor gene-gene interaction: bronchodilator responsiveness to albuterol. *Pharmacogenet Genomics*. 2010 Jun;20(6):351-8. \* These authors contributed equally to this manuscript. [PMCID: PMC2883564].
19. Huang YC, Schmitt M, Yang Z, **Que LG**, Stewart JC, Frampton MW, Devlin RB. Gene expression profile in circulating mononuclear cells after exposure to ultrafine carbon particles. *Inhal Toxicol*, 2010; Aug 22(10):835-46. PMCID: PMC3855293.
20. Norfolk SG, Hollingsworth JL, Wolfe DR, Govert JA, **Que LG**, Cheifetz IM, and Hollingsworth JW. Rescue therapy in adult and pediatric patients with H1N1 influenza infection: a tertiary center ICU experience from April-October, 2009. *Crit Care Med*. 2010 Nov;38(11):2103-7. PMCID: PMC3739437.
21. **Que LG**, Stiles JV, Sundry JS, Foster WM. Pulmonary function, bronchial reactivity, and epithelial permeability are response phenotypes to ozone and develop differentially in healthy humans. *J Appl Physiol*. 2011, Sep;111(3):679-87. Epub **2011** Jun 23. PMID: 21700892, PMCID: PMC3174797.
22. \*\*Foster MW, Yang Z, Potts EN, Foster WM, **Que LG**. S-nitrosoglutathione Supplementation To Ovalbumin Sensitized and Challenged Mice Ameliorates Methacholine-Induced Bronchoconstriction. *Am J Physiol Lung Cell Mol Physiol*. 2011, Nov;301(5):L739-44. Epub **2011** Jul 22. PMID: 21784966.
23. Castillo C, George E, McQuaid DB, Volker E, and **Que LG**. What fellows are reading: Duke University Pulmonary Critical Care Fellowship Training Program. *Am J Respir Crit Care Med*, 2011; 184:980-981.
24. **Que LG**, Janssen-Heininger Y, Biochemistry of asthma, *Biochim. Biophys. Acta* 2011 Nov;1810(11):1007. PMID: 22017859.

25. \*\*Hsai BJ, Pastva AM, Giamberardino CD, Potts-Kant EN, Foster WM, **Que LG**, Abraham SN, Wright JR, and Zaas DW. Increased nitric oxide production prevents airway hyperresponsiveness in caveolin-1 deficient mice following endotoxin exposure. *Journal of Allergy and Therapy*, Jan. 3; suppl 1(4): 2155, 2012. PMID: PMC3836011.
26. Wang Y, Zhu Z, Church TD, Lugogo NL, **Que LG**, Francisco D, Ingram JL, Huggins M, Beaver D, Wright JR, and Kraft M<sup>1</sup>. SHP-1 as a critical regulator of *Mycoplasma pneumoniae*-induced inflammation in human asthmatic airway epithelial cells. *Journal of Immunology*. 2012, 188(7):3371-81. PMID: 22371396.
27. \*\*Lugogo NL, Hollingsworth JW, Howell DL, **Que LG**, Francisco D, Church TD, Potts-Kant EM, Ingram JL, Wang Y, Jung SH and Kraft M. Alveolar macrophages from overweight/obese subject with asthma demonstrate a proinflammatory phenotype. *Am J Respir Crit Care Med*. 2012, Sep 1:186(5): 404-11. [PMID: PMC3443798].
28. Foster MW, Yang Z, Gooden DM, Thompson JW, Ball CH, Turner ME, Hou Y, Pi J, Moseley MA, and **Que LG**. Proteomic characterization of the cellular response to nitrosative stress mediated by S-nitrosoglutathione reductase inhibition. *J Proteome Res*. 2012, 11(4):2480-91. PMID: PMC3327136.
29. Foster MW, Thompson J, **Que LG**, Yang I, Schwartz D, Moseley M and Marshall H. ID: pr-2013-00066g: Proteomic analysis of human bronchoalveolar lavage fluid after subsegmental exposure. *J Proteome Res*. 2013, May 3;12(5):2194-205. PMID: 23550723; PMID: PMC3822014.
30. Catania J, **Que LG**, Govert JA, Hollingsworth JW, Wolfe CR. High ICU admission rate for 2013-2014 Influenza is associated with a low rate of vaccination. *Am J Respir Crit Care Med*. 2014, 15;189(4):485-7. PMID: 24512430.
31. Wu J, Yang J, Yang K, Wang H, Gorentla B, Shin J, Qui Y, **Que LG**, Foster WM, Xia Z, Chi H, and Zhong XP. TSC1 is critical for iNKT cell terminal maturation and controls iNKT-1/17 balance. *J Clin Invest* 2014 Apr 1;124(4):1685-98. PMID: 24614103, PMID: PMC3973110. \*(Under review. Concern raised for technical irregularities in a figure.)
32. Castro M, King TS, Kunselman SJ, Cabana MD, Denlinger L, Holguin F, Kazani SD, Moore WC, Moy J, Sorkness CA, Avila P, Bacharier LB, Bleecker E, Boushey HA, Chmiel J, Fitzpatrick AM, Gentile D, Hundal M, Israel E, Kraft M, Krishnan JA, LaForce C, Lazarus SC, Lemanske R, Lugogo N, MartinRJ, Mauger DT, Naureckas E, Peters SP, Phipatanakul W, **Que LG**, Sheshadri A, Smith L, Solway J, Sullivan-Vedder LM, Sumino K, Wechsler ME, Wenzel S, White S, and Sutherland ER, for the National Heart, Lung and Blood Institute's AsthmaNet

Effect of vitamin D3 supplementation on asthma treatment failures in adults with symptomatic asthma and lower vitamin D levels: The VIDA Randomized Clinical Trial. *JAMA* 2014; 311:2089-2091. PMID: PMC4217655.

33. Ingram JL, Slade D, Church TD, Francisco D, Heck K, Sigmon RW, Ghio M, Murillo A, Firszt R, Lugogo NL, **Que L**, Sunday ME, Kraft M. Matrix Metalloproteinases-1 and -2 Mediate IL-13-induced Suppression of Elastin in Airway Fibroblasts in Asthma. *Am J Respir Cell Mol Biol*. 2015 Jun 13. PMID: 26074138; PMID in progress.
34. Ledford JG, Addison KJ, Francisco D, Foster MW, Voelker DR, **Que LG**, Kraft M. Genetic Variation in Surfactant Protein-A2 Results in Altered Regulation of Eosinophil Activities and Enhanced Eosinophilia in Patients with Asthma. *Ann Am Thorac Soc*. 2016 Mar;13 Suppl 1: S101. PMID: 27027938; PMID: PMC5015737.
35. Baffi C, Wood L, Winnica D, Strollo P; Gladwin M; **Que L**, and Holguin F. Metabolic syndrome and the lung. *Chest*. 2016 Jun;149(6):1525-34. PMID: PMC4944780.
36. Yu YR, O’Koren EG, Hotten DF, Kan MJ, Kopin D, Nelson ER, **Que LG**, Gunn MD. A protocol for the comprehensive flow cytometric analysis of immune cells in normal and inflamed murine non-lymphoid tissues. *Plos One*. 2016. Mar 3;11(3): e0150606. PMID: PMC4777539.
37. He M, Driehuys B, **Que LG**, Huang YT. Using Hyperpolarized  $^{129}\text{Xe}$  MRI to Quantify the Pulmonary Ventilation Distribution. *Acad Radiol*. 2016 Dec;23(12):1521-1531. PMID: 27617823.
38. Durack J, Lynch SV, Nariya S, Bhakta NR, Beigelman A, Castro M, Dyer AM, Israel E, Kraft M, Martin RJ, Mauger DT, Rosenberg SR, Sharp-King T, White SR, Woodruff PG, Avila PC, Denlinger LC, Holguin F, Lazarus SC, Lugogo N, Moore WC, Peters SP, **Que L**, Smith LJ, Sorkness CA, Wechsler M, Wenzel SE, Boushey HA, Huang YJ; National Heart, Lung and Blood Institute’s “AsthmaNet”. Features of the bronchial bacterial microbiome associated with atopy, asthma and responsiveness to inhaled corticosteroid treatment. *J Allergy Clin Immunol*. 2016 Nov 9. pii: S0091-6749(16)31283-0. PMID: 27838347.
39. Ray S, Chiba N, Yao C, Guan X, McConnell AM, Brockway B, **Que L**, McQualter JL, Stripp BR. Rare SOX2<sup>+</sup> Airway Progenitor Cells Generate KRT5<sup>+</sup> Cells that Repopulate Damaged Alveolar Parenchyma following Influenza Virus Infection. *Stem Cell Reports*. 2016 Nov 8;7(5):817-825. PMID: 27773701, PMID: PMC5106521.
40. Winnica D, **Que LG**, Baffi C, Grasemann H, Fiedler K, Yang Z, Etling E, Wasil K, Wenzel SE, Freeman B, Holguin F. L-citrulline prevents asymmetric

dimethylarginine-mediated reductions in nitric oxide and nitrosative stress in primary human airway epithelial cells. *Clin Exp Allergy*. 2016 Aug 26. doi: 10.1111/cea.12802. [Epub ahead of print] PMID: 27562295.

41. Giovacchini CX, Mahmood K, and **Que LG**. A Rare Case of Disseminated Blastomycosis Diagnosed Via Endobronchial Ultrasound Guided Transbronchial Needle Aspiration (EBUS-TBNA). *Jacobs Journal of Pulmonology*, 2016, 2(3): 033.
42. Giovacchini CX, Pacek L, McClernon FJ, and **Que LG**. Use and Perceived Risk of E-cigarettes among North Carolina Middle and High School Students. *N C Med J*. 2017 1-2;78(1):7-13. PMID:28115555.
43. Paul D, Neely NB, Clement M, Riley I, Al-Hegelan M, Phelan M, Kraft M, Murdoch DM, Lucas J, Bartlett J, McKellar M, and **Que LG**. Development and validation of an electronic medical record (EMR)-based computed phenotype of HIV-1 infection. *J Am Med Inform Assoc*. 2017 Jun 22. doi: 10.1093/jamia/ocx061 PMID: 28645207.
44. Suwanpradid J, Shih M, Pontius L, Yang B, Birukova A, Guttman-Yasky E, Corcoran D, **Que LG**, Tighe RM, MacLeod AS. Arginase1 deficiency in monocytes/macrophages up-regulates iNOS to promote cutaneous contact hypersensitivity. *Journal of Immunology*, 2017 Jul 26. pii: ji1700739. doi: 10.4049/jimmunol.1700739. [Epub ahead of print] PMID:28747341.
45. Paul D, Lagat DK, MacIntyre N, Egger JR, Murdoch DM, **Que LG**, and Kussin PS. Validation of Spirometry Prediction Equations in Western Kenya. *International Journal of Tuberculosis and Lung Disease, J Am Med Inform Assoc*. 2018 Feb 1;25(2):150-157. doi: 10.1093/jamia/ocx061. PMID: 28645207.
46. Riley IL, Boulware L, Sun J-L, Chiswell K, **Que LG**, Kraft M, Todd JL, Palmer SM, and Anderson ML. Factors Associated with Reporting Results for Pulmonary Clinical Trials in ClinicalTrials.gov. *Clin Trials*. 2017 Nov 1:1740774517740352. doi: 10.1177/1740774517740352. [Epub ahead of print] PMID: 29121787.
47. **Que LG**, Yang Z, Lugogo N, Katial R, Shoemaker S, Troha J, Rodman D, Tighe R, Kraft M. Effect of the S-nitrosoglutathione reductase inhibitor N6022 on bronchial hyperreactivity in asthma. *Immun Inflamm Dis*. 2018 Jun;6(2):322-331. PMID: 29642282.
48. Baker AM, Holbrook JT, Yohannes AM, Eakin MN, Sugar EA, Henderson RJ, Casper AS, Kaminsky DA, Rea AL, Mathews AM, **Que LG**, Ramsdell JW, Gerald LB, Wise RA, Hanania NA; for American Lung Association Airways Clinical Research Centers. Test Performance Characteristics of the AIR, GAD-7 and HADS-Anxiety Screening Questionnaires for Anxiety in Chronic Obstructive

Pulmonary Disease. *Ann Am Thorac Soc*. 2018 Jul 9. doi: 10.1513/AnnalsATS.201708-631OC. [Epub ahead of print]. PMID 29986152.

49. Zhonghui Y, Bochkov Y, Voelker D, Foster MW, **Que LG**. An inhibitor of S-nitrosogluthione reductase prevents rhinovirus replication and downstream chemokine expression in human airway epithelial cells. Accepted for publication, *American Journal of Respiratory and Molecular Biology*, August 10, 2018.
50. Corey C, Winnica D, **Que LG**, Holguin F, Shiva S. Bioenergetics in platelets correlate with airway epithelium energetics and differ in obese versus lean asthmatics. Submitted for publication. In review.

\*\*Article retracted due to research misconduct by a technician in a collaborating laboratory.

### **Chapters, Reviews and Editorials:**

1. Marshall HE\*, **Que LG\***, Stamler JSS, and Gaston B. S-Nitrosothiols in lung inflammation. therapeutic targets of airway inflammation: Eissa/Huston. *Lung Biology in Health and Disease Series*, Marcel Dekker, Inc., NY, NY (2003). \*Both authors contributed equally to this work.
2. Lugogo NL, Ginsburg G, **Que LG**. Genetic profiling and tailored therapy in asthma: are we there yet? *Current Opinion in Molecular Therapeutics* 9(6);528-37, 2007. PMID: 18041663.
3. Chudgar SM, Cox C, **Que LG**, Andolsek K, Knudsen NW, and Clay AS. Current teaching and evaluation methods in critical care medicine: has the ACGME affected how we practice and teach in the ICU? *Critical Care Medicine* 37(1): 49-60, 2009. PMID: 19050627.
4. Lugogo N, **Que LG**, Fertel D and Kraft M. In: Mason RJ, Broaddus VC, Martin TR, et al. *Murray & Nadel's Textbook of Respiratory Medicine*, 5<sup>th</sup> ed. Philadelphia, PA: Saunders Elsevier; 2010: chap. 38.
5. Ledford JG, Addison KJ, Foster MW, **Que LG**. Eosinophil Associated Lung Diseases: a Cry for SP-A/-D Help? *Am J Respir Cell Mol Biol*. 2014 Jun 24. PMID: 24960334, PMCID: PMC4224083.
6. Lugogo N, **Que LG**, Gilstrap DL, and Kraft M. In: Broaddus VC, Mason RJ, et al. *Murray & Nadel's Textbook of Respiratory Medicine*, 6<sup>th</sup> ed. Philadelphia, PA: Saunders Elsevier: 2016: chap. 42.

### **External support - gifts, grants, and contracts**



**Past (Completed last 3 years):**

4R01-HL107590-04 (PI: Que)

01/07/13 – 01/31/18

National Institutes of Health

**Modulation of Asthma by GSNO-based Therapies**

The goal of this proposal is to advance our understanding of the potential impact and limitations of GSNO-based therapies as acute and chronic treatments for asthma.

PI

R01HL125602-01 (PI: Que)

08/01/15 – 03/31/2017

University of Arizona (Ledford)

Surfactant Protein-A regulation of eosinophil apoptosis in asthma

Goals: My lab performed studies evaluating airway physiology in the wild-type, house dust mite challenged SP-A deficient mice treated with specific SP-A 20-mer peptide fragments containing the 223Q/K site and in the transgenic humanized SP-A expressing SP-A223Q and SP-A223K.

PI

R56-HL126537 (PI: Bartlett)

09/13/14 – 01/31/16

NIH/ NHLBI

HIV and Asthma in the Post-ART Era

The goal of this proposal is to accurately determine the prevalence and severity of asthma in an HIV infected population, increase our understanding of the HIV and asthma inflammatory phenotypes and provide a safe option for therapy that can impact guideline-based asthma management in HIV-infected patients.

Co-I

N/A (Que)

03/27/14 – 12/31/15

Cognosci, Inc.

I2PP2A and Asthma

This proposal aims to develop a new class of therapeutic agents for the treatment of asthma.

PI

No Agency ID (Que)

05/01/14 – 12/31/15

CereNova, LLC

Investigation of Effect of VR55 in a Murine Model of Asthma

The objective of this proposal is to investigate the effect of VR55 when used in connection with an established murine model of asthma.

PI

P01-AI081672 (PI: Monica Kraft, M.D)

09/01/09 – 08/3/14 (NCE 8/31/15)

“NIH/NIAID, Surfactant Protein - A Regulation of Innate Immunity in Asthma”

This program project grant will evaluate the role of surfactant protein A as an innate immune modulator in asthma.

Role: Co-I, Project 2

**Present:**

ALA Research Award (PI: Que)

07/01/17 - 06/30/18

American Lung Association

**Asthma Clinical Research Center of the American Lung Association**

The American Lung Association Airway Clinical Research Centers performs clinical trials related to asthma and COPD in children and adults. Since its inception in 1999, the program has performed guideline-changing research in airway disease and has been published in leading journals.

PI

No number (PI: Que)

07/01/15-06/30/17, NCE

**Centers for Asthma Research**

Effect of E-cigarettes on pulmonary inflammation and behavior in HIV+ smokers

Centers For AIDS Research Pilot Program-This proof of concept study will determine if E-cigarettes can serve as a harm reduction strategy for patients living with HIV who smoke traditional combustible tobacco products.

PI; pilot (no effort assigned)

HHSN272201300015I (Walter/Que)

06/01/17 – 12/31/17

National Institutes of Health

**VTEU Task Order 16-0058 - Task B**

This task order will fill this need by supporting a) the overall administrative management, technical preparedness and support, and all tasks and functions associated with the identification, design, development, and review of Concept Proposals for VTEU clinical studies and clinical trials; b) timely protocol development of approved concepts into protocols; c) timely execution of clinical trials for approved concepts of vaccines, therapeutics, devices and diagnostics in normal, healthy volunteers.

Co-PI

1R01-HL130234-01A1 (Ingram)

10/01/2017 – 09/30/2021

NIH

**Mechanisms that Direct Airway Remodeling in Obese Asthma**

The goal of the study is (Aim 1), defining the role of GLP-1 in blocking allergen-induced airway fibrotic processes. (Aim 2) and, determine the impact of bariatric surgery and weight loss on airway fibrosis in obese asthma. (Aim 3). Successful completion of these Aims will not only increase our understanding of the unique cellular and metabolic mechanisms directing the pathobiology of obese asthma, but will also test specific interventions to treat obese asthma patients.

Co-Investigator

No number (Que/Shen)

11/01/2017 – 11/30/2018

Kaganov Research Initiative

**Pulmonary Neuropeptide Regulation of Fibrotic Airway Disease**

The goal of this proposal is to examine whether PYY secreting cells, recently observed in the lung, protect against asthma and airway fibrosis and then deliver mRNA for proteins to reduce asthma inflammation and fibrosis.

PI

1R01ES027574-01 (Tighe)

12/01/17 – 11/30/22

NIH

**CXCL10/CXCR3 regulation of ozone-induced epithelial permeability**

Aim 1: To determine the impact of CXCL10-CXCR3 signaling on O<sub>3</sub>-induced epithelial barrier dysfunction in vivo. Aim 2: To determine the requirements for and mechanisms of increased O<sub>3</sub>-induced epithelial permeability at the cellular level. Aim 3: To determine if BAL CXCL10 levels correlate with lung function, airway inflammation, and epithelial permeability in humans after laboratory exposure to O<sub>3</sub>.

Co-I

R01-HL105643-06 (Driehuys)

04/01/2017- 05/31/22

NIH

**Early Detection of Changes in Pulmonary Gas Exchange by Hyperpolarized Xe MRI**

The goal of the study is Aim 1) Double SNR and CNR for <sup>129</sup>Xe gas exchange (GX) MRI maps; 2) Characterize GX MRI in rodent models of emphysema, fibrosis, and pulmonary hypertension (PH); 3) Quantify GX MRI in patients with COPD and PH; and 4) Monitor GX MRI changes before and after radiation therapy.

Co-I

T32 HL007538 (PI: Piantadosi/Hogan)

Project Period: 7/1/82 – 3/31/20

NIH/NHLBI

**Interdisciplinary Training Program in Lung Disease**

The major goals for this proposal are to train postdoctoral trainees to acquire the basic knowledge, understanding, and skills for an academic career emphasizing research in the general field of lung diseases.

Mentor; no effort

5T32 AI007062-39 (PI: Sleasman)

Project Period: 9/1/2016-8/31/2021

NIH/NIAID

**Research Training in Allergy and Clinical Immunology**

The major goals for this proposal are to train postdoctoral trainees to acquire knowledge in allergy and immunology.

Mentor; no effort.

T32-EB001040 (PI: Kathryn Nightingale)

Project Period: 7/15/2003 – 8/31/2019

NIH/NIBIB

**Training in Medical Imaging**

Goals for this training program include: (1) bring together the broad community of medical imaging researchers and educators at Duke University to create and coordinate graduate trainee opportunities, (2) bring together the broad community of medical

imaging researchers and educators at Duke University to create and coordinate graduate trainee opportunities, (3) establish a robust educational program in the responsible conduct of research (RCR), and (4) attract well qualified women and underrepresented minority applicants.  
Clinical Collaborator; no effort

**Pending:**

N/A (Que)  
University of Vermont  
NIH/NHLBI

7/1/2018 – 6/30/2023

**Protein Thiol-redox Control in Obese Allergic Asthma- Core**

We have found that allergen challenge increases production of mROS in airway epithelial cells and regulates production of cytokines; mitochondrial responses could be involved in mediating responses to allergen. We have also found that mROS is increased in airway epithelial cells of obese asthmatics; increased mROS in obesity could increase response to allergen. Directly targeting mitochondrial production of mROS in the airway might be particularly effective for the treatment of obese allergic asthma. We hypothesize that mitochondrial redox perturbations induce oxidation of peroxiredoxin 3, which interacts with FoxM1 to enhance allergic airway inflammation, and reactivity in obese allergic asthma; targeting mROS, and oxidant signaling through Prx3-FoxM1 will be effective for the treatment of obese allergic asthma.

PI

N/A (Que, co-PI)  
University of Colorado- Denver  
NIH/NHLBI

10/01/18 – 09/30/23

**Supplementing L-citrulline to Overweight Late Asthma Onset Phenotypes to Increase Airway L-arginine/ADMA ratio and Improve Asthma control**

The proposal includes a small mechanistic proof of concept human interventional trial of L-citrulline supplementation vs. placebo in obese late onset asthma and obese control subjects to determine if L-citrulline, a non-essential amino acid, will decrease airway oxidant stress, increase exhaled nitric oxide levels (FeNO) and improve asthma control. The grant includes three aims. The first will be to determine if L-citrulline supplementation improves asthma control and increases FeNO (co-primary outcomes). Secondary outcomes will include changes in plasma L-arginine/ADMA, lung function (FEV<sub>1</sub>) and bronchial hyperreactivity. The second aim is to determine if L-citrulline supplementation (vs placebo) restores airway epithelial NO bioavailability, and decreases airway oxidative/nitrosative stress. The third aim is to evaluate the effects of L-citrulline on mitochondrial bioenergetics and function in fresh airway epithelial cell brushings from obese late onset asthmatics.

Co-PI

**Prior Foundation/Industry Sponsored Research**

- 2008-2013 Sub-Investigator, Obesity and Treatment Response to Montelukast in Asthma. Investigator initiated study funded by MERCK.
- 2012-2016 PI, Effect of Positive Airway Pressure on Reducing Airway Reactivity in Patients with Asthma. ALA sponsored study to evaluate use of CPAP in treatment of asthma.
- 2012-2017 PI, Long-acting Beta Agonist Step Down Study. ALA sponsored study to evaluate step down treatment of asthmatic subjects with long-acting beta agonists.
- 2013-2015 Sub-Investigator, Mepolizumab in Severe Asthma (GSK). MEA115661: A multi-centre, open-label, long-term safety study of mepolizumab in asthmatic subjects who participated in the MEA115588 or MEA115575 trials.
- 2013-present Sub-Investigator, Study Comparing Measures of Ventilatory Heterogeneity (VH1) in Asthma Patients. MERCK. PI: Cecil Charles.
- 2014 Sub-Investigator, Phase II randomized, double-blind placebo-controlled bronchoscopy study to evaluate the effects of lebrikizumab on airway eosinophilic inflammation in patients with uncontrolled asthma on inhaled corticosteroids and a second controller medication. Genentech
- 2014 Sub-Investigator, Assessment of small airways involvement in asthma (ATLANTIS). A multinational, multicenter, non-pharmacological intervention, cross-sectional and longitudinal study. Sponsor: Chiesi, Inc.

### **Current Foundation/Industry Sponsored Research**

- 2015 PI, Resistant Airway Obstruction in Children. The purpose of this study is to identify children with abnormal post-bronchodilator pulmonary function seen at the ALA- ACRC network of clinical research centers. The objective is to begin to characterize this cohort of children with treatment-insensitive airflow obstruction with respect to demographic features, history of respiratory infections, treatment history, atopy, environmental tobacco smoke exposure, and pulmonary function.
- 2017 PI, ALA-Airway and COPD Evaluation. The purpose of this registry is to assess the validity of the AIR scale in detecting anxiety in relation to the DSM-V criteria in patients with COPD.
- 2017 PI, Losartan Effects on Emphysema Progression (LEEP). Test the hypothesis that administration of Losartan 100mg / day for 48 weeks will

decrease the rate of progression of emphysema as measured by quantitative HRCT compared to placebo.

- 2017 PI, Chronic Refractory Cough Cohort Study. The Chronic Refractory Cough Cohort is one of two components of a trial to test the potential for use of zinc acetate to improve chronic cough.
- 2018 PI, Pilot of Zinc Acetate to Improve Chronic Cough (ZICO). The purpose of the study is to establish if treatment with Zinc Acetate is well tolerated, determine if the trial logistics are feasible, and to assess statistical properties of patient reported measures of cough
- 2018 Co-I, Intervention Study in Overweight Patients with COPD (INSIGHT). The purpose of the study is to help people with a high BMI lose weight and increase their physical activity to see if this will improve COPD symptoms.
- 2018 Co-I, Redefining Therapy in Early COPD for the Pulmonary Trials Cooperative (RETHINC). The study hypothesis is that symptomatic current and former smokers with spirometric values within the normal range (post-bronchodilator  $FEV_1/FVC \geq 0.70$  and post-BD  $FVC \geq 70\%$  predicted [to guard against restrictive lung disease]) will still derive symptomatic benefit from long-acting bronchodilator therapy even though they are excluded from current GOLD guideline recommendations.