

**CURRICULUM VITAE****MICHAEL B. FESSLER, M.D.****I. Personal History**

Present Position: Senior Investigator, Clinical Investigation in Host Defense Group  
Chief; Immunity, Inflammation and Disease Laboratory  
Division of Intramural Research  
National Institute of Environmental Health Sciences  
National Institutes of Health, Department of Health and Human Services

**ORCID:** 0000-0002-8262-8613 (<https://orcid.org/0000-0002-8262-8613>)

ResearcherID: C-6323-2019

**II. Educational History****Princeton University**

B.A. in Philosophy 1992  
Magna Cum Laude

**Harvard Medical School**

M.D. 1996

**Massachusetts General Hospital**

Internal Medicine Residency 1996-99

**University of Colorado Health Sciences Center**

Fellowship in Pulmonary Sciences and Critical Care Medicine 1999-2002

**Board Certification**

2000 Internal Medicine  
2012 Pulmonary Medicine  
2014 Critical Care Medicine

**Medical Licensure**

Colorado 1999-2007  
North Carolina 2006-present

**Miscellaneous**

Diplomate, NIH Senior Leadership Training Program (2014)

**III. Research Training**

1991-1992 Technician, Bristol-Myers Squibb Company: Macromolecular Chemistry Lab  
Developed protocol for amino acid analysis of peptides.

- 1993 Technician, Renal Division, Brigham & Women's Hospital, Boston  
Used DD-PCR to characterize mouse model for polycystic kidney disease.
- 1999 Internal Medicine Resident, Massachusetts General Hospital, Boston  
Analyzed NMR data to study skeletal muscle ventilatory chemoreflex.
- 2000-2002 National Jewish Medical and Research Center, Denver, CO  
Research Fellow

#### IV. Professional Positions

- 2018-present Chief; Immunity, Inflammation and Disease Laboratory, NIEHS, NIH
- 2017-2018 Acting Chief; Immunity, Inflammation and Disease Laboratory, NIEHS, NIH
- 2017-present Adjunct Associate Professor of Medicine; Duke University School of Medicine, Durham, NC
- 2013-present Senior Investigator; Division of Intramural Research, NIEHS, NIH
- 2006-2013 Clinical Investigator (Tenure-Track); Division of Intramural Research, NIEHS, NIH
- 2009-2017 Adjunct Assistant Professor of Medicine; Duke University School of Medicine, Durham, NC
- 2013-present Member, Training Faculty; Curriculum in Toxicology, University of North Carolina-Chapel Hill, Chapel Hill, NC
- 2003-2006 Assistant Professor of Medicine, University of Colorado School of Medicine; Denver, CO
- 2002-2003 Instructor of Medicine; University of Colorado School of Medicine, Denver, CO
- 2004-2006 Assistant Professor of Medicine, National Jewish Hospital; Denver, CO
- 2003-2004 Instructor of Medicine; National Jewish Medical and Research Center, Denver, CO
- 2002-2003 Research Fellow; National Jewish Medical and Research Center, Denver, CO

#### V. Honors and Awards

- 1992 Phi Beta Kappa, Magna Cum Laude, Cane Scholarship, Princeton University
- 2001 Andrew Goodman Research Fellowship Award, National Jewish Hospital
- 2008 Division of Intramural Research Early Career Award, NIEHS, NIH, DHHS
- 2008 Intramural Research Paper of the Month, NIEHS (*Environmental Factor*, Sept.)  
Smoak K et al. *Journal of Immunology* 2008; 180(5):3305-12.
- 2009 Intramural Research Paper of the Month, NIEHS (*Environmental Factor*, June)  
Dhungana S et al. *Molecular & Cellular Proteomics* 2009; 8(1):201-213.
- 2010 Intramural Research Paper of the Month, NIEHS (*Environmental Factor*, August)  
Smoak KA et al. *Cell Metabolism* 2010; 11(6):493-502.
- 2010 Intramural Research Paper of the Month, NIEHS (*Environmental Factor*, Sept.)  
Madenspacher JH et al. *Journal of Immunology* 2010; 185(3):1660-9.
- 2010 Intramural Research Award, NIEHS, NIH, DHHS
- 2011 Intramural Research Paper of the Month, NIEHS (*Environmental Factor*, Oct.)  
Merrick BA et al. *Molecular & Cellular Proteomics* 2011; 10(10):M110.006007.
- 2012 Carol Basbaum Award, American Thoracic Society
- 2012 Intramural Research Paper of the Month, NIEHS (*Environmental Factor*, Nov.)  
Jaramillo R, et al. *Journal of Allergy & Clinical Immunology* 2013; 131(2):405-11.
- 2013 Intramural Research Paper of the Month, NIEHS (*Environmental Factor*, July)  
Madenspacher J et al., *Journal of Experimental Medicine* 2013; 210(5):891-904.
- 2014 Intramural Research Paper of the Month, NIEHS (*Environmental Factor*, May)  
Gale et al., *Journal of Allergy and Clinical Immunology* 2014 Mar 18.

- 2014 Intramural Research Paper of the Month, NIEHS (*Environmental Factor*, June)  
Lowe et al., *Cancer Research* 2014; 74(8):2812-92
- 2014 Intramural Research Paper of the Month, NIEHS (*Environmental Factor*, December)  
Gowdy et al., *Mucosal Immunol* 2014 Oct 22 Epub.
- 2015 Intramural Research Paper of the Month, NIEHS (*Environmental Factor*, September)  
Chowdhury et al., *Molecular & Cellular Proteomics* 2015; 14(7):1859-70.
- 2015 Inducted Member, American Society for Clinical Investigation
- 2016 Special Act Award, NIEHS
- 2016 Intramural Research Paper of the Month, NIEHS (*Environmental Factor*, November)  
Lai et al., *Journal of Biological Chemistry* 2016; 291(37):19651-60.
- 2016 Intramural Research Paper of the Month, NIEHS (*Environmental Factor*, December)  
Lowe et al., *Cell Death Differ* 2016 Nov. 11
- 2017 NIEHS Group Merit Award, Inflammation Research Implementation
- 2017 Scientific Director's Award for Outstanding Intramural Research, NIEHS/NIH
- 2017 Top Reviewer Award, *American Journal of Respiratory Cell and Molecular Biology*
- 2017 Co-PI; NIH DDIR Innovation Award (competitive NIH intramural program project)
- 2017 Special Act Award, NIEHS
- 2017 Intramural Research Paper of the Month, NIEHS (*Environmental Factor*, November)  
Fessler et al., *Environmental Health Perspectives* 2017; 125(5):057010
- 2018 Intramural Research Paper of the Month, NIEHS (*Environmental Factor*, December)  
Madenspacher et al., *Journal of Allergy & Clinical Immunology* 2018
- 2018 Paper of the Year, NIEHS (Madenspacher et al., *Journal of Allergy & Clinical Immunology* 2018 Oct 5. pii: S0091-6749(18)31368-X
- 2019 Top Reviewer Award, *American Journal of Respiratory Cell and Molecular Biology*

## VI. Patents

1. U.S. Patent #: US 9,211,302 B2 (12/15/15): 'Modulation of Lrch4 activity and Therapeutic Application Thereof' (inventors: Michael B. Fessler, Jim J. Aloor). PCT Application No. PCT/US2012/021538; US Application No. 13/980,097
2. PCT Patent Application No. PCT/US19/29801, filed April 30, 2019: 'USE OF EPITHELIAL MEMBRANE PROTEIN 2 (EMP2) TARGETING AGENTS IN TREATING LUNG DISORDERS' (inventors: Michael Brian Fessler, Carmen J. Williams, Wan-Chi Lin).

## VII. Trainees

### Postdoctoral fellows:

- 2007–2008 Suraj Dhungana, Ph.D.; Current Position: Market Development Manager for Biomedical Research, Waters Corporation
- 2007-2011 David Draper, Ph.D.; Current Position: Associate Director; Scientific Development; MI Bioresearch; Ann Arbor, MI
- 2007-2015 Jim J. Aloor, Ph.D.; Current Position: Research Assistant Professor, East Carolina Diabetes and Obesity Institute, East Carolina University
- 2009-2012 Saiful Chowdhury, Ph.D.; Current position: Assistant Professor (Tenured), Dept. of Chemistry and Biochemistry, University of Texas at Arlington

2010-2018	Julie Lowe, Ph.D.; Current position: Biologist [C], Fessler group
2011-2014	Kymerly Gowdy, Ph.D.; Current Position: Assistant Professor, Dept. of Pharmacology and Toxicology, East Carolina University
2013-2017	Kristin Gabor, Ph.D.; Current Position: Integrated Product Development Associate; Rho, Inc., Chapel Hill, NC
2015-present	Wan-Chi Lin, Ph.D.
2016-present	Prashant Rai, Ph.D.
2018-present	Fei Zhao, Ph.D.

**Post-baccalaureate fellows:**

2012-2013	Kezia Addo; Current position: Graduate student, University of North Carolina
2011-2012	John Guardiola; Current position: Medical resident, University of Louisville
2016-2017	Emily Mesev; Current position: Graduate student, Princeton University
2017-2019	Sierra Atwater; Current position: Medical student, Duke University
2019-present	Aidin Alejo

**Predoctoral fellows/students:**

2012-2013	Lihua Lai (graduate student from Zhejiang University, China) Current position: Associate Prof., Institute of Immunology, Zhejiang Univ.
2013-2015	Michael Henderson (graduate student from University of North Carolina: M.S. in Fessler laboratory, 2015); Current position: Graduate Student, UNC
2016-2017	Teminioluwa Ajayi, MPH (Medical student, Duke University) Current position: Internal medicine resident, Vanderbilt University

**Summer students:**

2007	Ugonma Chukwueke; Current position: Instructor in Neurology, Harvard Medical School
2008	Katherine Weissler; Current position: Postdoctoral fellow, NIAID/NIH
2012, 2013	William Ge; Current position: Undergraduate student, Yale University
2014	Matt Moore; Current position: Medical student, Tulane University
2015	Shiyi Li; Current position: Undergraduate, Princeton University
2018	David Lauzier; Current position: Undergraduate, UNC-Chapel Hill

**Honors/Awards to Trainees**

2008	Fellows Award for Research Excellence, NIH Recipient: Suraj Dhungana, Ph.D. (Postdoctoral fellow)
2009	Abstract Travel Award American Thoracic Society International Conference 2009 Recipient: David Draper, Ph.D. (Postdoctoral fellow)
2009	Oral presentation: 'MyD88 Couples Cholesterol Transport to Inflammation' 2009 Keystone Conference, Pathogen Receptors, Banff, Canada Recipient: Kathleen Smoak, Ph.D. (Biologist)
2009	Oral presentation: 'ABCG1, a Negative Regulator of Pulmonary Innate Immunity' American Thoracic Society International Conference 2009 Recipient: David Draper, Ph.D. (Postdoctoral fellow)
2009	Oral presentation: 'ABCG1 is a Negative Regulator of Pulmonary Host Defense'

- NIH Research Festival, Bethesda, MD  
Recipient: David Draper, Ph.D. (Postdoctoral fellow)
- 2009 Fellows Award for Research Excellence, NIH  
Recipient: Suraj Dhungana, Ph.D. (Postdoctoral fellow)
- 2010 Fellows Award for Research Excellence, NIH  
Recipient: David Draper, Ph.D. (Postdoctoral fellow)
- 2010 Fellows Award for Research Excellence, NIH  
Recipient: Jim Aloor, Ph.D. (Postdoctoral fellow)
- 2010 Oral presentation: 'MyD88 Couples Cholesterol Transport to Inflammation'  
LIPID MAPS Meeting 2010; Scripps Seaside Forum – UCSD, La Jolla, CA  
Recipient: Kathleen Smoak, Ph.D. (Biologist)
- 2011 Fellows Award for Research Excellence, NIH  
Recipient: David Draper, Ph.D. (Postdoctoral fellow)
- 2011 Fellows Award for Research Excellence, NIH  
Recipient: Jim Aloor, Ph.D. (Postdoctoral fellow)
- 2012 Fellows Award for Research Excellence, NIH  
Recipient: Saiful Chowdhury, Ph.D. (Postdoctoral fellow)
- 2012 Oral presentation: 'Lrch4, a novel regulator of TLR pathways'  
99th Annual Meeting, American Association of Immunologists (AAI), Boston, MA  
Recipient: Jim Aloor, Ph.D. (Postdoctoral fellow)
- 2012 Best Poster Presentation, NIEHS Science Day  
Recipient : Kymberly Gowdy, Ph.D. (Postdoctoral fellow)
- 2012 Semifinalist in both 2013 Intel Science Talent Search and 2013 Siemens  
Competition in Math, Science and Technology  
Recipient : William Ge (summer student)
- 2013 Fellows Award for Research Excellence, NIH  
Recipient: Julie Lowe, Ph.D. (IRA Postdoctoral fellow)
- 2013 First Place, Postdoctoral Fellow Poster Competition  
Visiting Pulmonary Scholars Symposium, UNC Friday Center  
Recipient : Kymberly Gowdy, Ph.D. (Postdoctoral fellow)
- 2013 Awardee, UNC Program in Translational Medicine (\$10,000 stipend)  
Recipient : Michael Henderson (graduate student)
- 2014 Best Poster Presentation from Graduate Student  
Retreat, UNC Toxicology Curriculum, UNC Friday Center  
Recipient : Michael Henderson (graduate student)
- 2014 Second Place, Postdoctoral Fellow Poster Competition  
Visiting Pulmonary Scholars Symposium, UNC Friday Center  
Recipient : Kymberly Gowdy, Ph.D. (Postdoctoral fellow)
- 2014 Oral presentation: 'SR-BI in Integrated Pulmonary Innate Immune Response'  
American Thoracic Society International Conference, San Diego, CA  
Recipient: Kymberly Gowdy, Ph.D. (Postdoctoral fellow)
- 2015 Best Poster Presentation (pre-doctoral category)  
Visiting Pulmonary Scholars Symposium, UNC Friday Center  
Recipient : Michael Henderson (graduate student)
- 2015 Oral presentation: 'A Novel Role for Irgm1 in Immune Homeostasis'  
Annual Meeting, American Association of Immunologists (AAI), Boston, MA

- 2015 Recipient: Kathleen Azzam, Ph.D. (Biologist)  
 Oral presentation: 'TNFAIP8 regulates cancer cell biology'  
 Annual Meeting, American Association of Immunologists (AAI), Boston, MA  
 Recipient: Julie Lowe, Ph.D. (Postdoctoral fellow)
- 2015 AAI Trainee Abstract Award  
 Recipient: Julie Lowe, Ph.D. (Postdoctoral fellow)
- 2015 Poster Award, NIEHS Science Day  
 Recipient: Julie Lowe, Ph.D. (Postdoctoral fellow)
- 2016 Fellows Award for Research Excellence, NIH  
 Recipient: Julie Lowe, Ph.D. (Postdoctoral fellow)
- 2016 Fellows Award for Research Excellence, NIH  
 Recipient: Kristin Gabor, Ph.D. (Postdoctoral fellow)
- 2016 Oral presentation and travel award  
 Annual Meeting, American Association of Immunologists (AAI), Seattle, WA  
 Recipient: Kristin Gabor, Ph.D. (Postdoctoral fellow)
- 2017 Oral presentation  
 Smith-Lemli-Opitz Scientific Conference, Cincinnati, OH  
 Recipient: Kristin Gabor, Ph.D. (Postdoctoral fellow)
- 2017 Abstract award  
 AAI Assembly, American Thoracic Society International Conference  
 Recipient: Prashant Rai, Ph.D. (Postdoctoral fellow)
- 2017 Graduate Fellowship, Triangle Center for Evolutionary Medicine  
 Recipient: Teminioluwa Ajayi (Medical student / pre-doctoral fellow)
- 2017 Minority Trainee Development Scholarship Award  
 American Thoracic Society  
 Recipient: Teminioluwa Ajayi (Medical student / pre-doctoral fellow)
- 2017 Outstanding Poster Award, NIH Postbac Poster Day  
 Recipient : Emily Mesev (Postbac fellow)
- 2017 Fellows Award for Research Excellence, NIH  
 Recipient: Wan-Chi Lin, Ph.D. (Postdoctoral fellow)
- 2017 Best Poster Award; Duke University Innate Immunity Symposium  
 Recipient: Prashant Rai, Ph.D. (Postdoctoral fellow)
- 2018 Abstract award and oral presentation; RCMB Assembly, American Thoracic  
 Society International Conference  
 Recipient: Wan-Chi Lin, Ph.D. (Postdoctoral fellow)
- 2018 Winner, Post-baccalaureate Fellows Three-Minute Communication Challenge  
 Recipient : Ms. Sierra Atwater (Post-baccalaureate fellow)
- 2018 Third Place; Pre-doc category; Poster Competition, 2018 VPS Symposium  
 Recipient : Ms. Sierra Atwater (Post-baccalaureate fellow)
- 2018 Oral presentation (selected), Duke University Innate Immunity Symposium  
 Recipient: Prashant Rai, PhD (Postdoctoral fellow)
- 2018 Fellows Award for Research Excellence, NIH  
 Recipient: Prashant Rai, Ph.D. (Postdoctoral fellow)
- 2019 Outstanding Poster Award, NIH Postbacc Poster Day  
 Recipient : Aidin Alejo (Postbacc fellow)

**Mentoring and Outreach Activities**

Mentoring and diversity are priorities for me. Of the postdoctoral fellows who have passed through my laboratory, three are now faculty members in academia, and three are in biomedical industry, of which two have risen to managerial leadership positions. As shown in the section above, most of my trainees have garnered honors while in my laboratory in the form of travel awards, poster awards, FARE awards (11 total to date), and various other distinctions. Regarding demographic balance, to date, seven of thirteen fellows and three of three biologists in my laboratory have been female. I have had three African American and one African trainee (three post-baccalaureate/predoctoral, one summer student), plus one Hispanic trainee (post-bacc fellow). One of my trainees (Temini Ajayi), obtained a Minority Trainee Development Scholarship Award from the American Thoracic Society (ATS), among other distinctions, while in my laboratory. Formerly, as Deputy Chief of IIDL, I and Dr. Anton Jetten (then, IIDL Chief) recruited Dr. Jennifer Martinez to IIDL as a Tenure-Track Investigator. During my brief time as Acting Chief of IIDL, we have initiated a 'Women in Science Coffee Hour' (conceived and organized by Dr. Jennifer Martinez) in which female outside speakers meet with trainees during their NIEHS visit to discuss career development. I have also commenced discussions with IIDL Group Leaders about specific measures that can be taken to improve diversity in IIDL, and will seek to enact some of these measures in upcoming months. Since becoming Acting Chief, I have also initiated a monthly IIDL Journal Club series, in which trainees select and present papers, in an aim to encourage cross-group idea sharing and collaboration.

Regarding outreach, in 2014, I delivered an oral presentation on translational research and biomedical careers to area high school teachers at the Rx for Science Literacy Workshop of the NC Association for Biomedical Research. In 2015, I gave an oral presentation on my research to students at Athens Drive High School in Raleigh, NC. This past year, I entered the ATS Mentoring Program, in which role I will be assigned an extramural physician scientist mentee each year. As an active clinician, I also spend 1 month per year on medical service as an attending physician in the medical intensive care unit of the Durham VA Medical Center. I perform these duties on a Without Compensation (WOC) status. In this role, I have interacted directly with, and mentored numerous medical students, medical housestaff, and clinical fellows over the past 12 years. From 2003-2014, I also served as a reviewer for *Practical Reviews in Critical Care Medicine* (Oakstone Publishing), a Continuing Medical Education tool for clinicians. In that capacity, several times per year, I screened the clinical literature and critically reviewed new publications for subscribing clinicians. I also serve on the Training Faculty of the UNC Curriculum in Toxicology (CiT), as well as on its Executive Committee. In this capacity, I have served on a PhD thesis committee (student: Adam Speen), have hosted a UNC student who obtained an M.S. while in my laboratory (Michael Henderson), and have also served as a consultant for the CiT program. For several years following 2012, I served as an Associate Mentor on the NIH T32 Training Grant for the Integrative Lipid Sciences Training Program at Wake Forest University during which time I also served on the thesis committee for one of the students in the program (Caleb Lord).

**VIII. Professional Affiliations**

American Thoracic Society  
NIH Translational Research Interest Group  
Society for Leukocyte Biology

**IX. Professional Service and Committees****Extramural**

- 2003-2006 Member, University Hospital Critical Care Committee, University of Colorado School of Medicine, Denver, CO
- 2003, '04, '08 Chair, Functional Genomics and Proteomics Poster Discussion Session  
American Thoracic Society International Conference
- 2004 Chair, Symposium: 'Recharting Ancient Pathways: Proteomics, the Next Frontier of Inflammation Research', American Thoracic Society International Conference
- 2005-2006 Member, Credentialing Committee  
National Jewish Medical and Research Center, Denver, CO
- 2008-2011 Member, Program Committee, Respiratory Cell and Molecular Biology Assembly  
American Thoracic Society
- 2008- Consultant on extramural R01 award  
HL94525 to Dr. John S. Parks (Wake Forest University)
- 2009 Chair, 'Unusual Suspects: New Roles for Old Lipids in Lung Disease & Critical Illness' Scientific Symposium, American Thoracic Society International Conference
- 2010 Chair, 'Molecular Phenotypes: Bench to Bedside Diagnosis' Scientific Symposium  
American Thoracic Society International Conference
- 2010 Lead Facilitator, Thematic Poster Session: 'Regulating Cell Growth and Survival',  
American Thoracic Society International Conference
- 2010-2012 Member, Environmental Health Policy Committee, American Thoracic Society
- 2011 Chair, Poster Discussion Session: 'NF-kB: Regulation and Exploitation'  
American Thoracic Society International Conference
- 2011 Chair, 'Damage-associated Molecular Patterns in Lung Disease and Critical Illness  
Scientific Symposium, American Thoracic Society International Conference
- 2011 Facilitator, Thematic Poster Session: 'Systems Biology and Molecular Profiling'  
American Thoracic Society International Conference
- 2011 Facilitator, Thematic Poster Session: 'Airway Immune Mechanisms and  
Inflammation', American Thoracic Society International Conference
- 2012- Associate Mentor, Training Grant NHLBI T-32 091797; Integrative Lipid Sciences,  
Inflammation, and Chronic Disease Training Program; Wake Forest University
- 2012 Facilitator, Thematic Poster Session: 'Recent Advances in Phagocyte Biology'  
American Thoracic Society International Conference
- 2013 Facilitator, Poster Discussion Session: 'Airway Epithelial Activation and Dysfunction'  
American Thoracic Society International Conference
- 2013 Consultant on funded extramural R01 application  
'The Role of Lumican in the Cornea,' to National Eye Institute, by Dr. Shukti  
Chakravarti, Johns Hopkins University School of Medicine
- 2013-present Working Group on Metabolomics and Proteomics, Assembly on Respiratory Cell &  
Molecular Biology, American Thoracic Society
- 2013 Moderator, Obesity and Host Defense Session  
Obesity and Metabolism: An Emerging Frontier in Health and Disease Meeting  
University of Vermont, Burlington, VT
- 2014-present Member, Planning Committee; Asthma, Inflammation, and Immunology Assembly  
American Thoracic Society

- 2014 Facilitator, Thematic Poster Session: 'Asthma: Preclinical Studies'  
American Thoracic Society International Conference
- 2014-present Member, Steering Committee, Visiting Pulmonary Scholar Program
- 2015 Chair/Moderator, Course at AAAAI Annual Meeting: 'NIEHS: Emerging Roles for Cholesterol Dysregulation and its Treatment in Lung Disease', Houston, TX
- 2015 Chair, NIEHS Scientific Symposium, American Thoracic Society International Conference
- 2015-present Member, Executive Committee, Curriculum in Toxicology  
University of North Carolina Chapel Hill
- 2015 Co-chair of 'Lipid Mediators' symposium  
48<sup>th</sup> Annual Meeting of the Society for Leukocyte Biology, Raleigh, NC
- 2016 Chair, 'Emerging Immune Functions of the Pulmonary Epithelium' Scientific Symposium, American Thoracic Society International Conference
- 2017- Member, Program Committee; Allergy, Immunology & Inflammation Assembly  
American Thoracic Society
- 2018- Mentor, American Thoracic Society Mentoring Program
- 2018 Founder and Chair, Gordon Research Conference on Immunometabolism  
(programmed for summer, 2020)
- 2019- Member, External Advisory Committee, 'Lung Biology and Disease' COBRE,  
Louisiana State University School of Veterinary Medicine

### **Intramural (NIEHS/NIH)**

- 2006-2007 Member, Training and Education Committee
- 2007-2011 Member, Institutional Review Board
- 2007-present Medical Officer, Mechanisms of Susceptibility to Oxidant Stress-Induced Disease Program, Director's Challenge Program
- 2008-present Member, Clinical Advisory Council
- 2008 Meeting Organizer and Chair, NIEHS Symposium on Lipid Raft Biology
- 2007-present Poster Judge, Science Day
- 2008 Host, Distinguished Lectureship Program, May, 2008  
Speaker: Dr. Kai Simons (Director Emeritus, Max Planck Institute of Molecular Cell Biology and Genetics, Dresden, Germany)
- 2008, 2012 Panelist, Fellows Grantsmanship Course
- 2009, '10, '13 Panelist, Summers of Discovery Career Panel
- 2010 Organizer, Laboratory of Respiratory Biology Retreat
- 2010-2013 Member, Committee on Promotions III (COP III)
- 2011 Member, DIR Pulse Action Plan Committee
- 2011 Member, NIEHS Strategic Planning Stakeholder Community Workshop
- 2011 Member, NIEHS Clinical Research Support Services Contract Review Panel
- 2011-2015 Member, NIEHS Alion Inhalation Facility Oversight Committee
- 2012-2014 Councilor (elected position), NIEHS Assembly of Scientists Council
- 2012 Member, CRU Staff Clinician Search Committee, NIEHS
- 2012- Member, NIH Center for Human Immunology
- 2012, 2013 Member, NIH Stadtman Immunology Committee
- 2012 Chair, Pulmonary/Cardiovascular Disease Subcommittee

	NIEHS Inflammation Cross-Divisional Implementation Committee
2012	Member, DIR Retreat Planning Committee
2013	Judge, NIH Fellows Award for Research Excellence (FARE) Travel Award Competition
2013	Member, Selection Panel for Administrative Coordination Specialist, DIR
2014-	Member, Cross-Divisional Inflammation Evaluation Design Team
2014	Member, DIR Intramural Research Program Review Group
2014	Member, Targeted Tenure Track Investigator Search Committee
2014-	Member, NIEHS Pathology Core Committee
2014-	Member, NIEHS Environmental Polymorphisms Registry Steering Committee
2014-	Co-Chair, Epidemiology Branch Tenure Track Investigator Search Committee
2014-	Member, DIR Space and Renovations Advisory Committee
2014-	Member, Committee on Promotions I (COP I)
2014-	Member, Steering Committee, NIEHS Inflammation Faculty
2014-	Member, Planning Committee, NIEHS Inflammation Workshop
2015	Member, Neurobehavioral Facility Head-Staff Scientist Search Committee
2015	Chair, Planning Committee, NIEHS DIR Retreat
2015-	Member, NIEHS Fluorescence Imaging Core Facility Advisory Committee
2016-	Member, Staff Pathologist Search Committee, NTP
2016	Acting Chair, STL Staff Scientist Search Committee
2016-	Chair, NIEHS Conventional Animal Facility Steering Committee
2017-	Member, Steering Committee, NIH Inflammatory Disease Interest Group
2018-	Chair, NL Tenure Track Investigator Search Committee
2018-	Member, Stadtman Search Committee on Immunology
2018-	Chair, Environmental Polymorphisms Registry Internal Advisory Committee
2018	Session Chair, CIG Immunometabolism Symposium, NIH, Bethesda, MD
2018-	Member, NIEHS Metabolomics Task Force
2019-	Member, NIH Central Tenure Committee
2019-	NIEHS Tenure Track Advisory Committee

## X. Review and Referee Activities

### Editorial Boards:

Member, Editorial Board, *Am. Journal of Respiratory Cell and Molecular Biology* (2014-present)

Associate Editor, *Am. Journal of Respiratory Cell and Molecular Biology* (2019-present)

Faculty Member, *Faculty of 1000 Medicine* (2010 – present)

Academic Editor, *PLoS ONE* (2010 – 2018)

### Ad hoc journal reviewer:

*Blood, Cell Metabolism, Cell Host & Microbe, Journal of Immunology, American Journal of Respiratory and Critical Care Medicine, Journal of Biological Chemistry, Journal of the American Medical Association, PLoS ONE, PLoS Computational Biology, PLoS Genetics, Journal of Leukocyte Biology, American Journal of Respiratory Cell and Molecular Biology, Journal of Proteome Research, Proteomics, Environmental Health Perspectives, Toxicological Sciences, Biochemical Pharmacology, Physiological Genomics, Journal of Pediatrics, Occupational and Environmental Medicine, Clinical & Experimental Allergy, Journal of Pharmacology and Experimental Therapeutics, Molecular Therapy – Nucleic Acids, Journal of Allergy & Clinical*

*Immunology, Journal of the American College of Cardiology, BBA Biomembranes, Journal of Innate Immunity, Lancet Respiratory Medicine, Scientific Reports, JCI*

### Study Sections

2012 American Thoracic Society Foundation research review, Jersey City, NJ  
 2015, 2016 Reviewer, Biomedical Advanced Research & Development Authority, DHHS

### Ad hoc grant application reviewer:

2004 Peer-Reviewed Medical Research Program, U.S. Department of Defense  
 2004 Cystic Fibrosis Pilot Grant Program, Toronto Hospital for Sick Children  
 2006 Pilot/Feasibility Grant, Yale Skin Diseases Research Core Center  
 2007 Integrated Laboratory Systems, Inc., Project Concept Review N11  
 2010 Chilean National Science and Technology Research Fund (FONDECYT; Chile)  
 FONDECYT National Research Funding Competition  
 2011 Standard Proposal, Biotechnology and Biological Sciences Research Council (U.K.)  
 2013 National Peer Reviewer, Arizona Biomedical Research Commission  
 2014 Reviewer, Research Fellowship, Sigma Delta Epsilon/Graduate Women in Science  
 2014-present Scientific Reviewer, Intramural Loan Repayment Program  
 2014 Reviewer, National Jewish Hospital Challenge Grant Program  
 2014 Reviewer, Director's Investigator Awards Program, NICHD/NIH  
 2018 Reviewer, NIEHS-NIA Joint Fellowship Program  
 2018 Reviewer, Medical Research Council (U.K.)

### XI. Teaching/Training Activities

2001-2004 Teaching Assistant, Pulmonary Pathophysiology Course, University of Colorado School of Medicine  
 2002 Founding Contributor/Author, The MGH Primary Care Syllabus. Lippincott, Williams & Wilkins. 2002.  
 2002-2006 Attending Physician, Pulmonary Consult Service, Intensive Care Unit Denver Health Medical Center, Denver, CO  
 2002-2006 Attending Physician, Pulmonary Consult Service, University Hospital, Denver, CO  
 2003-2004 Lecturer, Management of Acute Respiratory Distress Syndrome Critical Care Conference Series, Fellowship in Pulmonary and Critical Care Medicine, University of Colorado School of Medicine  
 2003-2004 Lecturer, Respiratory and Hemodynamic Mechanics of the Ventilated Patient Critical Care Conference Series, Fellowship in Pulmonary and Critical Care Medicine, University of Colorado School of Medicine  
 2003-2014 Literature Reviewer  
*Practical Reviews in Critical Care Medicine*, Oakstone Medical Publishing.  
 2004-2005 Chiron Bronchiectasis and Ventilator-Associated Pneumonia Training Program Speaker, 'Ventilator-Associated Pneumonia: A Pulmonologist's Perspective'  
 2004-2006 Attending Physician, Pulmonary Fellows Clinic National Jewish Medical and Research Center, Denver, CO  
 2007-present Attending Physician – Medical Intensive Care Unit; Pulmonary Consult Service Durham Veterans Affairs Medical Center, Durham, NC

- 2010-2013 Member, Graduate Thesis Committee  
Student: Caleb Lord (Wake Forest University, Department of Pathology)
- 2014- Member, Graduate Thesis Committee  
Student: Matthew McPeck (East Carolina University, Department of Toxicology)
- 2015- Member, Graduate Thesis Committee  
Student: Adam Speen (University of North Carolina, Toxicology Curriculum)

## **XII. Talks at National/International Research Meetings**

- 2001 A Proteomic Analysis of Lipopolysaccharide Stimulation of the Human Neutrophil.  
Aspen Lung Conference, Aspen, CO
- 2002 Cholesterol Content Affects Inflammatory Potential of the Neutrophil.  
American Thoracic Society International Conference
- 2003 A Practical Introduction to Proteomic Analysis (invited speaker)  
Post-Graduate Course: "The Whole World Genomics Do-it-Yourself Course"  
American Thoracic Society International Conference
- 2003 Genomic and Proteomic Profiling of the Lipopolysaccharide-Stimulated Human  
Neutrophil (invited speaker), Pittsburgh International Lung Conference
- 2004 Proteomic Approaches to the Study of Signal Transduction and Inflammation.  
'Sunrise Seminar', American Thoracic Society International Conference
- 2005 Liver X Receptor Regulates Pulmonary Innate Immunity  
Minisymposium, American Thoracic Society International Conference
- 2006 Proteomic Approaches to the Study of Signal Transduction and Inflammation.  
'Sunrise Seminar', American Thoracic Society International Conference
- 2006 A Dual Role for RhoA in Activation of the Human Neutrophil (invited speaker)  
Grover Conference on the Pulmonary Circulation, Deckers, CO
- 2007 Proteomic Approaches to the Study of Signal Transduction and Inflammation.  
'Sunrise Seminar', American Thoracic Society International Conference
- 2009 Cholesterol, a Novel Modifier of Airways Disease: Lessons from Mouse & Man  
Scientific Symposium, American Thoracic Society International Conference
- 2009 Proteomic Discovery and Functional Validation of Rafts in Inflammation Biology  
'Allergy as a mechanism-based case study to apply omics in food and chemicals  
safety assessment' Workshop (invited speaker)  
European Commission Joint Research Centre; Ispra, Italy
- 2010 Proteomic Profiling Reveals New Biology in Macrophage Innate Immune Response  
Scientific Symposium, American Thoracic Society International Conference
- 2010 Lipids/Cholesterol in Acute Lung Injury (invited speaker)  
Scientific Symposium, American Thoracic Society International Conference
- 2011 Coupling Between Cholesterol and Innate Immunity at the Plasma Membrane  
Scientific Symposium, American Thoracic Society International Conference
- 2011 MyD88 couples reverse cholesterol transport to inflammation (invited speaker)  
Gordon Research Conference on Atherosclerosis; Salve Regina University,  
Newport, RI
- 2013 APOE4 is associated with enhanced innate immune responses and sepsis severity  
in humans, Gordon Research Conference on Vascular Cell Biology, Ventura, CA
- 2015 A Role for Cholesterol-25-hydroxylase in Resolution of Pulmonary Neutrophilia.

- American Academy of Allergy, Asthma, and Immunology Annual Meeting  
Houston, TX
- 2015 p53 as integrator of environmental inputs to inflammation  
NIEHS Symposium, American Thoracic Society International Conference
- 2015 A Role for Cholesterol-25-hydroxylase in Resolution of Pulmonary Neutrophilia  
Scientific Symposium, American Thoracic Society International Conference
- 2015 SR-BI in the integrated pulmonary host defense response  
Scientific Symposium, American Thoracic Society International Conference
- 2015 A novel role for oxysterols in resolution of neutrophilia  
48<sup>th</sup> Annual Meeting of the Society for Leukocyte Biology, Raleigh, NC

### Miscellaneous Invited Research Talks

- 2002 A Proteomic Analysis of Lipopolysaccharide Stimulation of the Human Neutrophil.  
Immunology Research in Progress Seminar, NJMRC
- 2003 A Role for Lipid Rafts in Lipopolysaccharide Signal Transduction in the Human  
Neutrophil, Cardiovascular Research Conference, Cardiology Division, UCHSC
- 2003 Functional Proteomics of LPS-induced TNF- $\alpha$  Production by the Human Neutrophil  
Pulmonary Research Conference, Duke University Medical Center
- 2004 A Novel Role for Hydroxymethyl-Glutaryl Coenzyme A in LPS-Induced Acute Lung  
Injury, Denver Health Medical Center Critical Care Grand Rounds
- 2004 Functional Proteomics of LPS-induced TNF- $\alpha$  Production by the Human Neutrophil  
University of Colorado Proteomics Center
- 2006 A Novel Role for Cholesterol in Innate Immunity Signaling  
Department of Pathology, Wake Forest University
- 2008 Global Proteomics and Relative Quantification in Toxicology  
Winter Symposium, RTP Drug Metabolism Discussion Group  
North Carolina Biotechnology Center
- 2008 Innate Immunity as a Physiologic Signal in Cholesterol Homeostasis  
Pulmonary Research Conference, Duke University Medical Center
- 2008 Dyslipidemia Modulates Pulmonary Innate Immunity: Studies in Mouse & Man  
Airway Biology Seminar Series, Duke University Medical Center
- 2008 MyD88 Couples Reverse Cholesterol Transport to Inflammation  
Symposium on Lipid Raft Biology, NIEHS
- 2008 Quantitative Proteomic Analysis of Macrophage Lipid Rafts Reveals a Role for the  
Proteasome in Compartmentalized Activation of ERK  
Laboratory of Pharmacology / Laboratory of Molecular Toxicology, NIEHS
- 2008 Environmental and Genetic Dyslipidemia Modulate Pulmonary Innate Immunity  
Cystic Fibrosis Center, University of North Carolina
- 2009 Emerging Roles for Cholesterol in Pulmonary Innate Immunity  
Dept. of Immunology, Duke University
- 2009 A Novel Complex Role for Cholesterol in Pulmonary Innate Immunity  
Dept. of Microbiology, North Carolina State University
- 2009 MyD88 Couples Reverse Cholesterol Transport to Inflammation  
Dept. of Pathology, Wake Forest University
- 2009 MyD88 Couples Cholesterol Trafficking to Innate Immunity  
Laboratory of Signal Transduction, NIEHS

- 2010 Emerging Roles for Cholesterol in Pulmonary Innate Immunity  
Pulmonary and Vascular Medicine Branch, NHLBI, NIH, Bethesda, MD
- 2010 Cholesterol in Asthma: Bench to Bedside Insights  
NIH Research Festival, Bethesda, MD
- 2010 S-Acylproteomics of the Macrophage Reveals a Role for Palmitoylation in  
Mitochondrial Targeting of PI3K  
NIH Research Festival, Bethesda, MD
- 2010 Novel Roles for Cholesterol in Pulmonary Host Defense  
University of Vermont Lung Center
- 2010 Animal Models of Environmental Endotoxin Exposure  
Evaluating Health Effects to Communities of Confined Animal Feeding Operations  
North Carolina State University
- 2011 Tumor Suppressor p53 Integrates Host Defense and Cell Fate During Pneumonia  
Duke University Airway Biology Forum
- 2011 Effects of Cholesterol on Pulmonary Inflammation (invited speaker)  
Fall 2011 Pulmonary Research Group Symposium, Stowe, VT
- 2012 Cholesterol as a Novel Modifier of Lung Immunity  
Grand Rounds, NIH Clinical Center, Bethesda, MD
- 2012 Tumor Suppressor p53 Integrates Host Defense and Cell Fate  
Lung Research Conference, Division of Pulmonary and Critical Care Medicine  
Johns Hopkins School of Medicine
- 2012 Tumor Suppressor p53 Integrates Host Defense and Cell Fate  
Molecular & Cellular Immunology Shock/Trauma Research Center  
University of Missouri Kansas City Medical School
- 2012 Cholesterol Trafficking Modifies Pulmonary Immune Responses  
Division of Pulmonary, Critical Care, and Sleep Medicine  
Brody School of Medicine, East Carolina University
- 2012 Tumor Suppressor p53 Integrates Host Defense and Cell Fate  
Division of Pulmonary, Allergy, Critical Care, and Sleep Medicine  
Ohio State University
- 2013 Tumor Suppressor p53 Integrates Host Defense and Cell Fate  
Departments of Pathobiological Sciences and Comparative Biomedical Sciences  
School of Veterinary Medicine, Louisiana State University
- 2013 SR-BI in the Integrative Physiology of Bacterial Pneumonia  
University of Vermont Obesity Conference, Burlington, VT
- 2013 Tumor Suppressor p53 Integrates Host Defense and Cell Fate  
NCSU Workshop on Allergy and Inflammation; NCSU McKimmon Center; Center for  
Comparative Medicine and Translational Research, Raleigh, NC
- 2014 APOE4 as a determinant of the human innate immune response  
NIEHS Clinical Research Unit 'TED' talk
- 2014 APOE4 as a determinant of the human innate immune response  
Rx for Science Literacy Workshop, NC Association for Biomedical Research
- 2014 A Bench to Bedside Study of APOE4 in the human innate immune response  
142<sup>nd</sup> Meeting of the National Advisory Environmental Health Sciences Council  
NIEHS, Research Triangle Park, NC
- 2014 A role for cholesterol 25-hydroxylase in resolution of alveolar neutrophilia

- NIH Cytokine Interest Group Lipid Mediators in Inflammation & Disease Meeting  
NIH, Bethesda, MD
- 2014 Role of SR-BI in the integrated host defense response during pneumonia  
Receptor Mechanisms Discussion Group, NIEHS
- 2015 Novel roles for oxysterols in resolution of inflammation and critical illness  
Signal Transduction Laboratory Seminar Series, NIEHS
- 2015 The pulmonary host defense response  
Toxicology Curriculum seminar series, University of North Carolina
- 2015 Oxysterols in resolution of lung inflammation  
North Carolina State University Toxicology Program Seminar Series; Raleigh, NC
- 2015 Oxysterols as mediators and biomarkers of inflammation resolution  
University of Vermont Obesity Conference; Burlington, VT
- 2016 Novel roles for oxysterols in resolution of inflammation  
NIH Immunology Interest Group Seminar Series, NIH main campus, Bethesda, MD
- 2016 Oxysterols in resolution of inflammation  
Seminar Series, Pulmonary Division, National Jewish Hospital, Denver, CO
- 2016 Proteomic analysis of cellular signaling  
Proteomics & Metabolomics Workshop, National Jewish Hospital, Denver, CO
- 2016 Novel roles for oxysterols in resolution of inflammation  
Seminar Series, Dept. of Microbiology & Immunology, Wake Forest University
- 2016 Keynote speaker  
Duke University Innate Immunity Symposium
- 2016 Oxysterols in resolution of inflammation; Metabolism & Pathogens Symposium,  
Rocky Mountain Laboratories, NIAID/NIH, Hamilton, MT
- 2017 Transatlantic Airway Conference; Lucerne, Switzerland
- 2017 NIH Inflammatory Diseases Interest Group Seminar Series; NIH Main Campus  
Bethesda, MD
- 2017 Duke Innate Immunity Group; Duke University, Durham, NC
- 2018 NIEHS IIDL Special Seminar
- 2018 NIEHS Symposium: New Approaches for Characterizing Mitochondrial Signaling in  
Response to Environmental Stress
- 2019 NIEHS DERT Symposium on Inflammation Resolution
- 2019 NIH Cytokine Interest Group Symposium, Bethesda, MD: 'Cytokines &  
Autoimmunity'
- 2019 Respiratory Research Symposium, Novartis Institutes for Biomedical Research
- 2020 Lung Research Conference, Pulmonary/CCM Division, Johns Hopkins University  
(*scheduled*)

### **XIII. Research Grants, Contracts, and Special Grants**

#### **A. Previous Research Grant Support**

**AHA # 0275035N**

**American Heart Association - Michael Fessler, Principal Investigator**

"Modulation of Inflammation by Cholesterol and HMG Co-A Reductase Inhibitors: Role of the Lipid Raft"

Total Award Period - 7/1/02 - 6/30/06      \$593,000

**Atorvastatin Research Awards Program****Pfizer – Michael Fessler, Principal Investigator**

“A Novel Therapeutic Role for Statins in Acute Lung Injury: Targeting the Neutrophil Cytoskeleton”

Total Award Period – 7/04 – 6/06                      \$100,000

**Andrew Goodman Research Fellowship Award**

2001

National Jewish Medical and Research Center

**Individual National Research Service Award [declined]**

2002

**B. Current Support****NIH 1 Z01 ES102005**

2006-present

‘Cell Signaling of Host Defense’ (NIEHS Intramural Research Program)

**Intramural Research Award**

2010-2013

NIEHS Intramural Research Program

**XIV. Bibliography****Original Scientific Manuscripts**

1. Wang TJ, Mort EA, Nordberg P, Chang Y, Cadigan ME, Mylott L, Ananian LV, Thompson BT, **Fessler M**, Warren W, Wheeler A, Jordan M, Fifer MA. Utilization Management Intervention to Reduce Unnecessary Testing in the Coronary Care Unit. *Archives of Internal Medicine* 2002; 162(16):1885-90.
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3. **Fessler MB**, Malcolm KC, Duncan MW, Worthen GS. New Experimental Approaches to the Signaling of Innate Immunity. *American Journal of Respiratory Cell & Molecular Biology* 2004; 31(Supp):S62-66.
4. Frasch SC, Henson PM, Nagaosa K, **Fessler MB**, Borregaard N, Bratton L. Phospholipid Flip-Flop and Phospholipid Scramblase (PLSCR 1) Co-localize to Uropod Rafts in fMLP Stimulated Neutrophils. *Journal of Biological Chemistry* 2004; 279:17625 – 17633.
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10. Cha SI, **Fessler MB**, Cool CD, King TE, Brown KK. Lymphoid Interstitial Pneumonia: Clinical Features, Associations, and Prognosis. *European Respiratory Journal* 2006; 28(2):364-9
11. Jeyaseelan S, Young SK, **Fessler MB**, Liu Y, Malcolm KC, Yamamoto M, Akira S, and Worthen GS. TRIF-Mediated Signaling Contributes to Innate Immune Responses in the Lung During *Escherichia coli* Pneumonia. *Journal of Immunology* 2007; 178(5):3153-60.
12. **Fessler MB\***, Arndt PG, Nick JA, Malcolm KC, Worthen GS. A Dual Role for RhoA in Suppression and Induction of Cytokines in the Human Neutrophil. *Blood* 2007; 109(3):1248-56. \*Corresponding author
13. Brass DM, Hollingsworth JW, **Fessler MB**, Savov JD, Maxwell AB, Whitehead GS, Burch LH, Schwartz DA. The IL-1 type 1 receptor is required for the development of LPS-induced airways disease. *Journal of Allergy and Clinical Immunology* 2007; 120(1):121-7.
14. Smoak K, Madenspacher J, Jeyaseelan S, Williams B, Poch KR, Dixon D, Nick JA, Worthen GS, **Fessler MB**. Liver X Receptor Regulates Pulmonary Innate Immunity. *Journal of Immunology* 2008; 180(5):3305-12.
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\*Corresponding author
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- Proteasome-mediated ERK Activation in Response to Lipopolysaccharide. *Molecular & Cellular Proteomics* 2009; 8(1):201-213.
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