

## Curriculum Vitae

Date of Preparation: September 2022

### MELODY NEUHART NEELY

Office Address:  
University of Maine  
Molecular and Biomedical Sciences Dept.  
360 Hitchner Hall  
Orono, ME 04469

#### EDUCATION:

B.S. in Biology, *summa cum laude*, April 1994  
Eastern Michigan University, Ypsilanti, Michigan  
Goldwater Scholar, awarded by the Barry M. Goldwater Scholarship and Excellence in Education Foundation. 1<sup>st</sup> ever awarded to Eastern Michigan University

Ph.D. in Microbiology and Immunology, July 1998  
Laboratory of David I. Friedman  
Thesis entitled “Functional and genetic analysis of the lambdoid bacteriophage H19-B, a natural vector for the Shiga-like toxin genes”  
\*Awarded the Ward J. MacNeal Distinguished Dissertation Award, University of Michigan\*

Cellular Biotechnology Training Program Graduate Certificate  
University of Michigan, Ann Arbor, Michigan

#### TRAINING:

Post-doctoral Training:  
July 1998 to Feb. 1999 – laboratory of David I. Friedman,  
University of Michigan, Ann Arbor, MI

February 1999 to March 2001 – laboratory of Michael Caparon,  
Washington University School of Medicine, St. Louis, MO

Additional Training:  
March 2011 Stanford Development Program in Medical Teaching  
8/13 to 7/14 Visiting Professor, Department of Pediatrics, University of Texas-Southwestern School of Medicine

#### FACULTY APPOINTMENTS

3/01 to 5/08 Assistant Professor, Department of Immunology and

	Microbiology, Wayne State University School of Medicine, Detroit, MI
5/08 to 9/15	Associate Professor with tenure, Department of Immunology and Microbiology, Wayne State University School of Medicine, Detroit, MI
10/15 to 9/16	Research Professor, Department of Biology, Texas Woman's University, Denton, TX
10/16 to present	Associate Professor, Molecular and Biomedical Sciences Dept., University of Maine, Orono, ME
7/22 to present	Chair of the Department of Molecular and Biomedical Sciences

**PROFESSIONAL SOCIETIES:**

American Society for Microbiology  
Sigma XI

**HONORS/AWARDS:**

2020	The Bangor Savings Bank Faculty Development Fund and The Lyndon Paul LoRusso Memorial Faculty Development Fund Travel Award
2015	Keynote speaker, Michigan Branch of the American Society for Microbiology, Fall meeting. Ann Arbor, MI.
2014	Keynote speaker, Texas Branch of the American Society for Microbiology Spring meeting. New Braunfels, TX.
2013	Keynote speaker, North Atlantic Zebrafish Research symposium, University of Maine, Orono, ME
2012	Allen and Neely manuscript selected by the Editors as a “Spotlight” article for the May 2012 Infection and Immunity Journal
2011	External referee for thesis defense in the Division of Infection Medicine, University of Lund, Lund, Sweden
2011	Keynote speaker, Eastern Michigan University 31 <sup>st</sup> Undergraduate Research Symposium
2010	Wayne State University School of Medicine Teaching Awards; 2013, 2010, 2007, 2004
2009	Kizy and Neely manuscript featured in the Current Topics Section of the June 2009 issue of Microbe.
2007	Phelps and Neely manuscript selected by the Editors as a “Spotlight” article for the September 2007 Infection and Immunity Journal.
2007	Invited speaker, Lorentz Center, International Center for Workshops in the Sciences, Model Systems for Infectious Disease and Cancer in Zebrafish, Leiden, Netherlands.
2005	Invited speaker, Institute of Microbiology, Chinese Academy of Sciences, Beijing, China
2002	Nestle Award for the Best Journal of Bacteriology Paper on Bacteriophage Biology in 2001
2000	Ward J. MacNeal Distinguished Dissertation Award, Department of Microbiology and Immunology, University of Michigan

- 1994 - 1997 Trainee, Cellular Biotechnology Training Program (NIH)  
1992 - 1994 Goldwater Scholar, awarded by the Barry M. Goldwater  
Scholarship and Excellence in Education Foundation.  
1<sup>st</sup> ever awarded to Eastern Michigan University

**SERVICE:**

Wayne State University Committees

1. Departmental
  - Curriculum Committee, 2001 to 2015; Chair, 2009-2015
  - Graduate Committee, 01/01/03 to 10/01/15
  - Salary Committee, 01/01/03 to 2008
  - Seminar Committee, 08/01/02 to 10/01/15
  - Faculty Search Committee, 2004 to 2006
2. School of Medicine
  - Graduate Recruitment Committee, 2002 to 2004
  - MD/PhD advisory and admissions committee, 2009 to 10/01/15
  - Professionalism Committee, 2010 to 2014
  - Faculty Development Liaison for the Department of  
Immunology and Microbiology, 2014 to 10/01/15
3. University -wide
  - Graduate Council, 2006 to 2012
    - New Programs sub-committee, 2006 to 2012
  - Clinical and Translational Science Award (CTSA) planning committee
    - New Investigators sub-committee
  - Nanotoxicity Research Grant planning committee
  - WSU Graduate Dean Search Committee, Nov 2008-2009
  - Biosafety Committee, 2011 to 10/01/15

Texas Woman's University Committees

1. Departmental
  - Seminar committee, Co-Chair, 2016

UMaine University Committees

1. Departmental
  - a. Graduate Admissions Committee, 10/2016 to 2017
  - b. Radke Scholarship Committee, 2016 to present
  - c. Molecular Biology and Biochemistry Faculty search committee, 2021
2. College
  - a. NFSA graduate awards committee, 2019, 2020, 2021, 2022
3. University
  - a. Biosafety Committee, 2017 to present
    - i. Faculty chair, 2019 to present
  - b. GSBSE Graduate Admissions Committee, 2017 to present
  - c. Institute of Medicine Steering Committee, 2019 to present

- d. Life Sciences Research Design Team,  
Faculty chair, 2019 to present
- e. Faculty sponsor for the Undergraduate Women in STEM organization,  
2020 to present.

Journal/Editorial Activity

Editorial Board:      Infection and Immunity 2004-present  
                                 Zebrafish 2004-present

Manuscript Reviewer:

African Journal of Biotechnology  
Anaerobe  
Antonie van Leeuwenhoek International Journal of General and Molecular  
Microbiology  
Applied and Environmental Microbiology  
BMC Veterinary Research  
Cellular Microbiology  
Clinical and Vaccine Immunology  
Current Drug Targets  
Current Microbiology  
Developmental and Comparative Immunology  
Developmental Dynamics  
Emerging Microbes and Infection  
FEMS Immunology and Medical Microbiology  
FEMS Microbiology Letters  
Infection and Immunity  
Journal of Bacteriology  
Journal of Hematology  
Journal of Medical Microbiology  
Journal of Microbiological Methods  
JoVE  
mBio  
Microbiology  
Microbial Pathogenesis  
Microorganisms  
Molecular Microbiology  
PLoS Genetics  
PLoS One  
PLoS Pathogens  
PNAS  
Scandinavian Journal of Immunology  
Veterinary Microbiology  
Zebrafish

National and international boards/committees

Study Sections

Ad Hoc NIH/BM-1

November 2002

Ad Hoc NIH/BM-2	March 2003
Ad Hoc NIH/BM-2	October 2003
Ad Hoc NIH/IDM-N	March 2004
Ad Hoc NIH/IDM-A	June 2004
Ad Hoc NSF	November 2004
Ad Hoc NIH/IDM	February 2005
Ad Hoc NIH/IDM-F32	March 2005
Ad Hoc NIH/IDM-H	March 2005
Ad Hoc NIH/NIDDK	August 2005
Ad Hoc NIH/IDM	October 2005
Ad Hoc NIH/IDM	March 2006
Ad Hoc NIH/IDM	February 2007
Ad Hoc NIH/NIGMS-ZMG1	July 2009
Ad Hoc NIH/IDM-A	March 2010
Ad Hoc NIH/IDM-A	October 2010
Ad Hoc VA/INFB F11	December 2011
Ad Hoc VA/INFB F11	November 2012
ANR (Agence Nationale de la Recherche, France)	May 2015
OCAST (Oklahoma Center for the Advancement of Science and Technology)	May 2016

- Reviewer for BARD proposal (United States - Israel Binational Agricultural Research & Development Fund), December. 2005
- Reviewer for a Science and Technology Center in Ukraine (STCU) proposal funded by the Science Center programs of the U.S. Department of State, with the primary objective of providing peaceful, non-weapons opportunities to weapons scientists in the Newly Independent States of the former Soviet Union (FSU) January, 2006
- Reviewer for an NIH/NCRR R24 proposal on Zebrafish Resources, November 2007.
- Reviewer for an NIH/NCRR R24 proposal on Zebrafish Resources, June, 2008.
- Reviewer for a Marsden Fund proposal for researchers in New Zealand, July, 2008.
- NIGMS Conference on Dynamics of Host-Associated Microbial Communities – workshop to recommend funding initiatives to NIGMS- Resulted in a White paper - “Community Dynamics Conference Report 01-30-09” National Institutes of Health, Bethesda, MD 11/08
- Reviewer for the Jeffress Memorial Trust Scientific Research Grant, October, 2011
- Reviewer for the Wellcome Trust, Sir Henry Dale Fellowship March 2012
- Chief Scientist Office, Scottish Government, January 2013
- Graduate Women in Science (GWIS), May 2019
- Internal Research Proposal for Mississippi State University (MSU), August 2019

Other Service:

- a. Michigan Branch of the American Society for Microbiology  
Served on the planning committee for the Spring 2007 meeting on Bioterrorism
- b. Board Member of The Corner Health Center, Ypsilanti, MI. Non-profit health center for Teens, 2007 to 2011

- c. Planning committee for International Conference on Gram-Positive Pathogens, 2008 to present
- d. Co-Chair of the International Conference on Gram-Positive Pathogens, October 2016
- e. Co-Chair for the North Atlantic Zebrafish Research Symposium, Orono, ME, June 2017

**TEACHING:**

1. Years at Wayne State: 14

2. Courses taught at Wayne State

- a. Graduate: IM7520 Bacterial Pathogenesis  
IM7450 Trends in Microbiology- Microbial Predators (Course director)  
IM7050 Microbiology of Bioterrorism (Course director)  
IM7040 Fundamentals of Research  
IM7060 Laboratory Research
- b. Medical Students: MS Year II Immunology and Microbiology lectures & lab
- c. Faculty: Bio101 Lecture course taught to engineering faculty and Post-docs  
RNA, DNA, and Proteins Fall 2007, Fall 2008,  
Microbiology of Bioterrorism, Winter 2008, Winter 2009

3. Essays/Theses/Dissertations directed:

Jesse D. Miller	Ph.D. 2005	“Large scale screen highlights the importance of capsule for the zoonotic pathogen, <i>Streptococcus iniae</i> ”
Hilary A. Phelps	Ph.D. 2006	“ <i>Streptococcus pyogenes</i> proteins required for host-pathogen interactions. “
Beth A. Lowe	Ph.D. 2007	“ <i>Streptococcus iniae</i> exploits the host environment during systemic infection”
Anne Kizy	Ph.D. 2008	“Trolling for <i>Streptococcus pyogenes</i> virulence genes using a zebrafish host model”
Phanramphoei Namprachan-Franz	Ph.D. 2011	“Identification of the role of the <i>sal</i> locus in <i>Streptococcus pyogenes</i> virulence during host-pathogen interactions”
Jonathan Allen	Ph.D. 2011	“Pleiotropic regulatory function of the LysR family transcriptional regulator CpsY during <i>Streptococcus iniae</i> systemic infection”
Brett Hanson	Ph.D. 2011	“Analysis of the streptococcal CpsA protein in DNA-binding and regulation of capsule and cell wall maintenance”
Hannah Rowe	Ph.D. 2014	“Cell envelope modifications by LCP family of proteins of Group B <i>Streptococcus</i> ”

Ashley Anderson Ph.D. 2012 - 2015

### **Undergraduate Researchers**

Janice Speshok Undergraduate SURE, summer research program – 2001  
Kristie Zellen Undergraduate SURE, summer research program – 2003  
Brian C. Queen Undergraduate Honors Thesis -2006 “The role of enolase in  
*Streptococcus iniae* infection”  
Michelle Mohyi Undergraduate Honors Thesis – 2007 “Effect of stress on infectious  
disease susceptibility”  
Milad Eshaq Undergraduate Research Project – 2007 “Analysis of *S. agalactiae*  
systemic infections in Zebrafish”  
Chris Elkins Undergraduate Research Project – 2007 “ Role of CpsY in  
dissemination to the brain”  
Sonya Kiryakoza Undergraduate Research Project – 2007 “ Role of CpsY in  
dissemination to the brain” (2 students worked as a team)  
Peter Onyskiu Undergraduate Honors Thesis – 2008-2009 "Nanocarriers for Drug  
Delivery to the Brain."(in collaboration with Dr.  
Sandro Da Rocha in Chemical Engineering)  
Jeff Rybak Undergraduate SURE, summer research program – 2009  
Emily Schwessinger Undergraduate SURE, summer research program – 2010  
Thomas W. Carion Undergraduate Kalamazoo College- Senior thesis – 2011  
Cindy Morris Undergraduate Henry Ford Community College, Biotechnology  
Internship –2011  
Abhin Kumar Undergraduate Research Project – Wayne State University-2010-2011  
Aamna A. Hafeez Undergraduate Research Project – Wayne State University-2012  
Timothy Burger Undergraduate Henry Ford Community College, Biotechnology  
Internship –2012  
Arta Duda Undergraduate Research Project – Wayne State University, 2013  
Stela Terezius Undergraduate Research Project – Wayne State University, 2013  
Mouhamadou Seydi Undergraduate Henry Ford Community College, Biotechnology  
Internship –2013  
Quynh Keiu Undergraduate Henry Ford Community College, Biotechnology  
Internship - 2015  
Markiesha Baines Undergraduate intern, IMSD program – WSU SOM -2013-2015  
Connor Olzem Undergraduate SURE, summer research program - 2015

### **MD or MD/PhD student researchers**

Cale Streeter Summer MD/PhD research rotation - 2011  
Andrew Fritz 1<sup>st</sup> year MD student summer research fellowship – 2013  
Anthony Findley Summer MD/PhD reseach rotation - 2015

### **MS student researchers**

Matthew Johnson MS research rotation - 2011  
Sarah Bajer MS summer student research – 2013 – present  
Paula Dietz MS research rotation – 2013

**Masters in Basic Medical Science Students (BMS degree)**

Michael Weindorf     Spring 2012  
Mary Meram            Spring 2011  
Awara Kokoiy         Spring 2011  
Ralph Simillien       Spring 2009

**MD Fellow researchers**

Ramesh Bharadwaj MD     2008

**Thesis committee member:**

Lin Lui, Dept of Immunology & Microbiology, Ph.D. 2001.  
Lynne Shetron-Rama, Dept. of Immunology & Microbiology, Ph.D. 2001  
George Roberts, Dept. of Immunology & Microbiology, Ph.D. 2005  
Quinn Parks, Dept of Immunology & Microbiology, Ph.D. 2005  
Janice Speshock, Dept of Immunology & Microbiology, Ph.D. 2007  
Katherine T. Young, Microbiology & Immunology Dept, Univ of Michigan, Ph.D 2008  
Melphine Harriot, Dept of Immunology & Microbiology, Ph.D. 2009  
Basel Abuaita, Dept of Immunology & Microbiology, Ph.D. 2010  
Marta Bober, Dept of Clinical Sciences, Lund University, Lund Sweden, 2011  
Jennifer Dittmer, Dept of Immunology & Microbiology, Ph.D 2013  
Sarah Pleca, Dept of Immunology & Microbiology, Ph.D. 2014  
Joshua Thomson, Dept of Immunology & Microbiology, Ph.D. 2014  
Paula Dietz, Dept of Immunology & Microbiology, M.S. 2015  
Kristie Mitchell, Dept of Immunology & Microbiology, in progress

**4. Course or curriculum development:**

**Trends in Microbiology:** Microbial Predators  
Microbiology of Bioterrorism  
RNA, DNA, and Proteins

**Development of courses and curriculum for the department of Immunology & Microbiology Masters program in 2011:**

IM7040 Fundamentals of Research  
IM7060 Laboratory Research

**Teaching at Texas Woman's University (October 2015 to October 2016)**

**Essays/Theses/Dissertations directed:**

Danielle Steffey, Department of Biology, MS, defended October 2018

**Undergraduate Researchers**

Joshua Henderson, Summer 2016  
Theresa Meier, Summer 2016

**Thesis committee member**

Bhoomi Madhu, Department of Biology, Ph.D.



## **Teaching at University of Maine (October 2016 to present)**

### **1. Courses taught at UMaine:**

- a. Undergraduate – BMB 280- Introduction to Molecular and Cellular Biology – Spring 2017
- b. Genome Discovery I: Dirt to DNA-BMB 150 - Fall 2017, Fall 2018, Fall 2019, Fall 2020, Fall 2022
- c. Genome Discovery II: DNA to Genes –BMB 155 - Spring 2018, Spring 2019, Spring 2020, Spring 2021, Spring 2022
- d. Seminars in Microbiology – Spring 2018, Spring 2019, Spring 2022
- e. Molecular Mechanisms of Human Disease – Honors College HON 350 – Spring 2017, Winter 2018, Winter 2019

### **2. Undergraduate Researchers at UMaine:**

#### **a. INBRE Summer Undergraduate Researchers**

Eli Michaud – INBRE undergraduate researcher, USM, Summer 2018  
Ameila St. John - INBRE undergraduate researcher, UMO, Summer 2019  
Sarina Raposo - INBRE undergraduate researcher, UMF, Summer 2021  
Natalie Chalfant – INBRE undergraduate researcher, SMCC, Summer 2022  
Jeni Nganzobo – INBRE undergraduate researcher, UMM, Summer 2022

#### **b. Capstone Research**

Megan MacIssac – Capstone Research – graduated May 2017  
Ryley Thompson - Capstone Research – graduated May 2017  
James Barry – Capstone Research – graduated May 2018  
Kourtney Emerson – Capstone research – graduated May 2018  
Arielle Spalla - Capstone research, graduated May 2019  
Allison Watson – Capstone Research, graduated May 2019  
Madeline Burgess - Capstone research, graduated May 2020  
Ameila St. John – Capstone research – graduated May 2020  
Marc St-Pierre – Capstone research – graduated May 2020  
Connor Gilson - Capstone research – graduated May 2020  
Andrew Fournier – Capstone research – graduated Dec. 2020  
Katelyn Hustus – Capstone research - graduated May 2021  
Caiden Fraser – Capstone research, in progress  
Robin Southworth - Capstone research, in progress  
Kaitlyn Jodion - Capstone research, in progress

#### **c. Honors Thesis**

Taaniel Kiidli – Honors thesis – graduated May 2018  
Fazeel Hashmi – Honors thesis research, Graduated May 2019  
Sydney Green – Honors thesis research – Graduated May 2019  
Benjamin Tero – Honors thesis research, Graduated December 2019  
Anna Struba - Honors thesis research, Graduated May 2019  
Klarissa Klier - Honors thesis, Graduated May 2019

Gina DiFredrico – Honors thesis, Graduated May 2020  
Logan Christian – Honors thesis, in progress

**d. Undergraduate researchers**

Mary (Duc) Ngygen – Undergraduate research – Spring 2017  
Sarai Smith – Undergraduate research – Summer 2017, Fall 2018  
Patrick Masaad – Undergraduate research – Summer 2019  
Katie Southworth – undergraduate research, in progress  
Hannah Maurais - undergraduate research, in progress  
Kaori Harrison – undergraduate research, in progress  
Brandon Rockwell - undergraduate research, in progress  
Anna Lane - undergraduate research, in progress  
Chloe Bossow - undergraduate research, in progress  
Giffen Lawrence - undergraduate research, in progress  
Sydney Brown - undergraduate research, in progress  
Sophie Charles - undergraduate research, in progress  
Gavin Bressette - undergraduate research, in progress

3. Essays/Theses/Dissertations directed:

**Graduate students in my lab**

Marc St-Pierre – MS, graduated Dec 2021  
Atefeh Rajaei – PhD, graduated March 2022  
Caitlin Waife-Kwakye - PhD in progress  
Kathryn Patenaude – PhD in progress

**Graduate Rotation students**

Bailey Blair – Graduate rotation – Summer 2017  
Sarah Holbrook – Graduate rotation – Fall 2017  
Hannah Sargent – Graduate rotation – Fall 2017  
Ashley Soucy – Graduate rotation – Spring 2019  
Avery Bond – Graduate rotation – Fall 2019  
Nick LeClerc – Graduate rotation – Fall 2021

**Thesis committee member**

Nicholas Fagnoli – MS student, Defended August 2017  
Colleen Mayberry – PhD student, defended 2020, Maginnis Lab  
Michael Wilczek - PhD student, defended 2020, Maginnis Lab  
Bailey Blair – PhD student, in progress, Wheeler Lab  
Brandy Soos - PhD student, in progress, King Lab  
Cory Johnson - PhD student, in progress, Kelley Lab  
Tolu Esther Adekeye – PhD student, in progress, Klimis Lab  
Mary Astumian – PhD student, in progress, Henry lab  
Siham Hattab - PhD student, in progress, Wheeler lab  
Gursimran Dhillon – PhD student, in progress, Wheeler lab  
Avery Bond - PhD student, in progress, Maginnis Lab  
Liz Saavedra – PhD student, in progress, King Lab  
Nnambdi Baker – PhD student, in progress, Wheeler Lab

Sophie Craig – PhD student, in progress, Maginnis Lab  
Victoria Pennington – MPS student, in progress, Ishaq lab

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**GRANTS, CONTRACTS AND OTHER FUNDING:**

**Pending:**

**R15 Research Enhancement award** **Neely (PI)**  
**NIH/NIGMS**  
“The role of prophages in overall bacterial fitness and virulence in *Streptococcus agalactiae*”  
Total direct costs: \$300,000  
Submitted June 2022

**Previously submitted but not funded:**

**R15 AI130952-01** **Neely (PI)**  
**NIH/NIAID**  
“Functional characterization of the GBS CpsA protein in capsule production and cell wall integrity”  
Total direct costs: \$300,000  
Submitted: June 2016

**R15 AI144868-01** **Neely (PI)**  
**NIH/NIAID**  
“Functional Characterization of the GBS CpsA protein”  
Total direct costs: \$300,000  
Submitted: June 2018

**Current funding:**

University of Maine Institute of Medicine  
Equipment Grant  
\$9,898 to purchase an Eppendorf BioPhotometer D30  
June 2022

Maine INBRE Research Resources Grant (RRC)

Analysis of *Candida albicans* secreted proteins during co-culture with *Streptococcus agalactiae*  
\$4340 to be used at MMCRI, Proteomics and Lipidomics Core  
August 2021

Maine INBRE Research Resources Grant (RRC)  
Characterization of the *Streptococcus agalactiae* CpsA protein  
\$5537 to be used at The Jackson Laboratory, Monoclonal Antibody Services Core  
August 2019

Biomedical Sciences Accelerator Fund Program  
“Polymicrobial virulence and treatment: using zebrafish to untangle a tri-kingdom dialog”  
Co-PI with Dr. Robert Wheeler  
\$30,000 to fund 2 Ph.D students

Biomedical Sciences Accelerator Fund Program  
“Investigation of the role of bacteriophages in *Streptococcus agalactiae* virulence”  
Co-PI with Dr. Sally Molloy  
\$30,000 for research supplies and undergraduate researchers  
1R15AI131202-01A1 King (PI) 2/1/2018-1/31/22  
NIH/NIAID

Academic Research Enhancement Award (Parent R15) – Elucidating the Mechanisms of Neutrophilic Behavior and Hyperinflammatory Response During Influenza Infection  
\$100,000 per year direct; \$435,166 total with indirect costs.  
Role: Co-investigator

#### **Previously funded Grants and Contracts:**

Seed Funding Taub (PI) 11/01/10 – 12/31/15  
Environmental exposures/toxicants involved in the initiation of childhood acute lymphoblastic leukemia (ALL)  
Children’s Hospital, Detroit Medical Center  
Role: Co-Investigator  
Total funds: \$100,000

Biomedcore Inc, Windsore, CA Parajuli (PI) 01/01/13 – 12/31/14  
Zebrafish tumor-transplant models for studying anti-tumor drug response and tumor-immune interaction  
Total funds: \$3,250

Dr. Louis Serafin, MD Neely (PI) 06/01/13 – 12/31/14  
Biofilm formation on prosthetic joint materials  
Total funds: \$ 4,170

R21 Withey (PI) 07/01/11 – 6/30/13

NIH/NIAID

Zebrafish as a natural host model for *Vibrio cholerae*

Role: Co-Investigator

Total funds: \$275,000

1 year no-cost extension

President's Research Enhancement Program Zhang (PI) 05/01/12 – 12/31/14

Sustainable Water Management and Water Technology

Development of a Novel Biosensor for the Detection of Human Pathogenic Bacteria in Water

Role: Co-Investigator

Total funds: \$110,000

R21 AI078147

Neely (PI)

1/1/09 – 12/31/10

NIH/NIAID

Analysis of the virulence mechanism of a lantibiotic locus.

Total direct costs: \$275,000

R21 AI078147-01A1S1

Neely (PI)

7/14/09 – 10/31/09

NIH/NIAID

Analysis of the virulence mechanism of a lantibiotic locus.

Recovery Act Administrative Supplements Providing Summer Research Experiences for Students and Science Educators.

Total direct costs: \$7,468

R01A1057877-02

Eichenbaum (PI)

5/01/04-4/30/09

NIH/NIAID

Iron Acquisition from host proteins in *Streptococcus pyogenes*

Neely is a Co-Investigator on this grant (10% effort)

R01 AI052141-01A1

Neely (PI)

2/15/03 – 1/31/08\*

NIH/NIAID

Streptococcal-Zebrafish Model of Bacterial Pathogenesis

\*One-year no-cost extension

Total direct costs: \$700,000

R01 AI052141-04S1

Neely (PI)

6/01/06 – 1/31/08

NIH/NIAID

Streptococcal-Zebrafish Model of Bacterial Pathogenesis

Research Supplements to Promote Diversity in Health-Related Research Program

Total direct costs: \$25,649

AHA 0355376B

Eichenbaum (PI)

7/1/03-6/30/05

American Heart Association, Grant in Aid

Molecular Genetics of iron acquisition and regulation in *Streptococcus pyogenes*

Neely is a Collaborator on this grant (10% effort)

R21 AI054834 NIH Filamentous Influenza Virus and Microbial Colonization Role: Co-Investigator (5%) Total direct costs: \$453,000	Roberts (PI)	9/29/03 – 09/28/05
R21 AI52141-01 NIH/NIAID Bridge Award Streptococcal-Zebrafish Model of Bacterial Pathogenesis Total direct costs: \$175,000	Neely (PI)	9/15/02 – 9/14/03
American Heart Association National Center Research Program Scientist Development Grant Analysis of streptococcal pathogenesis utilizing a zebrafish animal model. Total direct costs: \$260,000	Neely (PI)	7/01/02 – 6/30/06

## PUBLICATIONS:

### 1. Refereed journals:

\* indicates graduate or undergraduate researcher

1. \*Cannell W, \*Carrolton E, \*Coombs J, \*Gambol A, \*Martin M, Neely MN and Molloy SD. Genome Sequence of a Cluster CR2 *Gordonia terrae* Phage, StarStruck [published online ahead of print, 2022 Aug 30]. *Microbiol Resour Announc.* 2022;e0069422. doi:10.1128/mra.00694-22.
2. \*Curtis B, \*Ganbaatar B, \*Lawrence G, \*Oglesby W, \*Rice J, \*Tremblay E, Maginnis M, Molloy SD and **Neely MN**. Genome Sequence of the Cluster CD *Gordonia* Phage Widow [published online ahead of print, 2022 Sep 6]. *Microbiol Resour Announc.* 2022;e0069522. doi:10.1128/mra.00695-22.
3. \*Ashby S, \*Bressette G, \*Brown S, \*Charles S, Maginnis M, Molloy SD, and **Neely MN**. Genome Sequence of Singleton *Gordonia terrae* Bacteriophage Finkle [published online ahead of print, 2022 Aug 25]. *Microbiol Resour Announc.* 2022;e0069322. doi:10.1128/mra.00693-22.
4. \*Boudreaux EM, \*Childs SB, \*Dichiara A, \*Hardy A, \*Kovacs, \*Kueck AF, \*Landesbergen PM, **Neely MN** and Molloy SD. Genome Sequence of a Cluster DN1 *Gordonia terrae* Phage, Periwinkle [published online ahead of print, 2022 Aug 25]. *Microbiol Resour Announc.* 2022;e0069622. doi:10.1128/mra.00696-22.
5. \*A. Rajaei, \*HM Rowe, **MN Neely**. The LCP family protein, Psr, is required for cell wall integrity and virulence in *Streptococcus agalactiae*. *Microorganisms*, MDPI, 10:217, 2022. [doi.org/10.3390/microorganisms10020217](https://doi.org/10.3390/microorganisms10020217)
6. \*Lembee, H, \*Goktug, O, \*Royal, D, \*Russell A, \*Savage A, \*Sisco M, \*Waltner M, \*Chun V, **Neely MN** and Molloy SD. Characterization of the genome of cluster CZ4 *Gordonia terrae* phage, Oregano. [published online ahead of print, 2022], *Microbiol Resour Announc.* 2022; e00679-22. doi:10.1128/mra.00679-22

7. R. E. Wright III, L. Shahin, V. Gogineni, Z. Hussain, A. Naeem, S. Sadasivan, I. Sinha, **MN Neely**, S. K. Michellhaugh, S. Mittal, N. Joshee and P. Parajuli. Scutellaria Extract Inhibits Proliferation and Migration of Brain-Metastatic Lung Cancer Cells via Modulation of p38 MAPK Signaling. *Journal of Medicinally Active Plants*. 10, (1):32-41. 2021.
8. L. R. Burcham, B.L. Spencer, L.R. Keeler, D.L. Runft, K.A. Patras, **M.N. Neely**, K. S. Doran. Determinants of Group B streptococcal virulence potential amongst vaginal clinical isolates from pregnant women. *PLoS One*. 2019; 14(12): e0226699. doi: 10.1371/journal.pone.0226699, PMID: PMC6919605
9. Shields, J.N., E. C. Hale , L. E. Ranspach, X. Luo, S. Orr, D. Runft, A. Dombkowski, **M. N. Neely**, L. H. Matherly, J. Taub, T. R. Baker and R. Thummel. Exposure of larval Zebrafish to the insecticide Propoxur induced developmental delays that correlate with behavioral abnormalities and altered gene expression of *hspb9* and *hspb11*. *Toxics*. [doi.org/10.3390/toxics7040050](https://doi.org/10.3390/toxics7040050), 2019.
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\* The first two authors contributed equally to this manuscript\*  
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### Book Chapters

53. M. E. Watson, Jr., M. N. Neely and M. G. Caparon. Animal Models. *Streptococcus pyogenes: Basic Biology to Clinical Manifestations*, Edited by Joseph J. Ferretti, Dennis L. Stevens, and Vincent A. Fischetti. *Streptococcus pyogenes: Basic Biology to Clinical Manifestations*. Oklahoma City (OK): University of Oklahoma Health Sciences Center. **2016**.
54. M. E. Watson, Jr., M. N. Neely and M. G. Caparon. Animal Models *Streptococcus pyogenes: Basic Biology to Clinical Manifestations*, Edited by Joseph J. Ferretti, Dennis L. Stevens, and Vincent A. Fischetti. *Streptococcus pyogenes: Basic Biology to Clinical Manifestations*. Oklahoma City (OK): University of Oklahoma Health Sciences Center. 2<sup>nd</sup> Edition. **2022**.

### Published Conference Proceedings

MN Neely, \*CS Wiafe-Kwakye and SD Molloy. Determining the Role of Bacteriophages in the Virulence of *Streptococcus agalactiae*. *Proceedings* **2020**, 50, 20; doi:10.3390/proceedings2020050020.

### CONFERENCE ABSTRACTS:

- 02/20 Viruses 2020 – Novel Concepts in Virology, Barcelona, Spain
- 02/20 Maine Zebrafish Symposium, Bates College, ME (3 poster presentations)
- 04/20 UMaine Student Research Symposium, Orono, ME (8 poster presentations)
- 04/20 Maine Biological and Medical Science Symposium, Bar Harbor, ME (4 poster presentations)

- 04/19 UMaine Student Research Symposium, Bangor, ME (8 poster presentations)
- 04/19 Maine Biological and Medical Science Symposium, Bar Harbor, ME (6 posters)
- 04/18 UMaine Student Research Symposium, Bangor, ME (4 poster presentations)
- 04/18 Maine Biological and Medical Science Symposium, Bar Harbor, ME (2 posters)
- 07/18 INBRE Symposium, Bar Harbor, ME (2 poster presentations)
- 04/17 Maine Biological and Medical Science Symposium, Bar Harbor, ME
- 04/17 UMaine Student Research Symposium, Bangor, ME
- 04/17 Student Creative Arts and Research Symposium, Denton, TX
- 04/16 Student Creative Arts and Research Symposium, Denton, TX
- 09/14 Midwest Microbial Pathogenesis Meeting, Chicago, IL
- 09/13 Midwest Microbial Pathogenesis Meeting, Columbus, OH
- 09/12 Midwest Microbial Pathogenesis Meeting, Milwaukee, WI
- 06/12 10<sup>th</sup> International Conference Zebrafish Development and Genetics, Madison, WI
- 10/11 18<sup>th</sup> Annual Midwest Microbial Pathogenesis Meeting, Ann Arbor, MI
- 09/11 Microbial Pathogenesis and Host Response Meeting IX, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY
- 10/10 Gram-Positive Pathogens meeting, Omaha, NE
- 09/10 17<sup>th</sup> Annual Midwest Microbial Pathogenesis Meeting, St. Louis, MO

## **PRESENTATIONS**

### **1. Invited and/or refereed international or national meetings**

- 06/09 Invited speaker, 5<sup>th</sup> International Conference on Gram-Positive Microorganisms, San Diego, CA
- 05/09 Session Chair and Invited speaker, 109<sup>th</sup> General Meeting of the American Society for Microbiology, Philadelphia, PA
- 10/08 Invited speaker, Gram-positive pathogens meeting, Omaha, NE
- 01/08 Invited speaker, Aquatic Animal Models for Human Disease, Durham, NC
- 09/07 Invited speaker, Microbial Pathogenesis and Host Response Meeting VII, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY
- 07/07 Invited speaker, Model Systems for Infectious Disease and Cancer in Zebrafish, Lorentz Center, International Center for Workshops in the Sciences, Leiden, Netherlands.
- 10/06 Poster presentation, National Conference on Gram-Positive Pathogens, Omaha, NE
- 07/06 Poster presentation, Gordon Research Conference, Microbial Toxins & Pathogenicity, Andover, NH
- 10/05 Invited speaker. Aquatic Animal Models of Human Disease Conference, University of Georgia, Athens, GA.
- 09/05 Poster presentation, Microbial Pathogenesis and Host Response Meeting V, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY
- 07/04 Poster presentation, FASEB - Microbial Pathogenesis: Mechanisms of Infectious Disease, Snowmass, CO
- 10/03 Invited speaker. Aquatic Animal Models of Human Disease Conference, ATCC, Manassas, VA “Zebrafish as a model host for the study of streptococcal infection”.
- 09/03 Poster presentation, Microbial Pathogenesis and Host Response, Cold Spring

Harbor Laboratory, Cold Spring Harbor, NY

- 04/03 Invited speaker. New and Re-Emerging Infectious Diseases 6<sup>th</sup> Annual Conference, University of Illinois at Urbana-Champaign, Champaign, IL. "Fishing for virulence genes: Zebrafish as a model host for streptococcal pathogenesis".
- 09/02 Invited speaker, "Virulence mechanisms in a Streptococcus-Zebrafish model of pathogenesis", FASEB conference, Snowmass, CO
- 04/02 Poster presentation, 6th Conference on Streptococcal Genetics, Asheville, NC
- 10/01 Invited speaker, "A Streptococcal-zebrafish model of Bacterial pathogenesis" Microbial Pathogenesis and Host Response Meeting, Cold Spring Harbor, NY
- 10/01 Invited speaker and session leader. "Evolution of Microbial pathogenesis", Microbial Pathogenesis and Host Response Meeting, Cold Spring Harbor, NY

## **2. Invited and/or refereed local/regional meetings:**

- 10/19 UMaine-MDIBL Zebrafish Research Symposium, Bar Harbor, ME
- 04/17 Maine Biological and Medical Science Symposium, Bar Harbor, ME
- 10/15 Michigan Branch of the American Society for Microbiology, Ann Arbor, MI
- 06/14 North Atlantic Zebrafish Research Symposium, Orono, ME
- 04/14 Texas Branch of the American Society for Microbiology, New Braunfels, TX
- 10/11 18<sup>th</sup> Annual Midwest Microbial Pathogenesis Meeting, Ann Arbor, MI
- 09/08 15<sup>th</sup> Annual Midwest Microbial Pathogenesis Meeting, Madison, WI
- 10/06 13<sup>th</sup> Annual Midwest Microbial Pathogenesis Meeting, Cincinnati, OH
- 10/05 12<sup>th</sup> Annual Midwest Microbial Pathogenesis Meeting, Minneapolis, MN
- 09/04 11<sup>th</sup> Annual Midwest Microbial Pathogenesis Meeting, Lansing, MI
- 10/03 10<sup>th</sup> Annual Midwest Microbial Pathogenesis Meeting, Iowa City, IA

## **3. Invited seminars or lectures presented:**

- 12/17 Invited Speaker, Dept. of Microbiology and Immunology, Uniformed Services University, Bethesda, MD
- 12/16 Invited Speaker, Dept of Molecular and Biomedical Sciences, Orono, ME
- 10/15 Invited Speaker, Dept. of Biology, Texas Woman's University, Denton, TX
- 02/15 Invited Speaker, Dept of Molecular Microbiology, Michigan State University, Lansing, MI
- 05/15 Invited Speaker, Dept of Chemistry, Texas Woman's University, Denton, TX
- 02/14 Invited Speaker, Dept of Molecular Microbiology, UT-Southwestern, Dallas, TX
- 05/12 Invited Speaker, Dept of Biology, University of Texas-Arlington, Arlington, TX
- 01/12 Invited Speaker, Dept of Biology, University of North Texas, Denton, TX
- 11/11 Invited Speaker, Division of Infection Medicine, Lund University, Lund, Sweden
- 04/11 Invited Speaker, Dept of Biological Sciences, Texas Woman's University, Denton, TX
- 11/10 Invited Speaker, Dept of Microbiology and Dept of Infectious Diseases, University of Georgia, Athens, GA
- 10/10 Invited Speaker, Dept of Microbiology, Immunology and Cell Biology, West Virginia University, Morgantown, WV

- 02/10 Invited Speaker, Applied Medical Research Program, Grosse Pointe North High School, Grosse Pointe, MI
- 02/10 Invited Speaker, Dept of Pharmacology, Wayne State University School of Medicine, Detroit, MI
- 01/10 Invited Speaker, Dept of Microbiology and Immunology, University of Illinois-Chicago, Chicago, IL