**CURRICULUM VITAE**

**Karen M. Scanlon, PhD**

Assistant Professor

Department of Microbiology and Immunology

University of Maryland School of Medicine

**DATE** September 12, 2023

**CONTACT INFORMATION**

Business Address: Department of Microbiology and Immunology

University of Maryland School of Medicine

 685 W. Baltimore St, Room 325D

 Baltimore, MD 21201

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**ACADEMIC APPOINTMENT HISTORY**

2020-present Assistant Professor, Department of Microbiology and Immunology, University of Maryland School of Medicine

2017-2020 Research Associate, Department of Microbiology and Immunology, University of Maryland School of Medicine

**EDUCATION**

2005-2010 Ph.D., Immunology, National University of Ireland, Maynooth,

Thesis Advisor: Bernard Mahon

“Delineating the regulation and function of CCL28”

2001-2005 B.Sc., Biology, National University of Ireland, Maynooth (first class honors)

**POST GRADUATE EDUCATION AND TRAINING**

2017-2018 Online course, American Society for Microbiology “Best Practices in Curriculum Design, Teaching and Assessment”

2013-2017 Postdoctoral Fellowship, Department of Microbiology and Immunology, University of Maryland School of Medicine

Mentor: Nicholas Carbonetti

2010-2013 Postdoctoral Fellowship, Department of Medicine, University of Maryland, Baltimore

Mentor: Michael Donnenberg

**GRANT SUPPORT**

eRA COMMONS ID: K\_SCANLON

**Active Grants**

5/21/2021-4/30/2023 Principal Investigator

“IDO promotes severe manifestation of *B. pertussis* infection in infants”

NIH NIAID R21 AI163595

Total Direct Costs: $275,000

Score: 14

1/24/20-12/31/21 Principal Investigator

NCE -12/31/2023 “Age-related skewing of angiotensin II signaling potentiates *B. pertussis*-induced pulmonary hypertension”

NIH NIAID R21 AI151485

Total Direct Costs: $275,000

Score: 20

9/1/2022-8/31/2024 (Co-Inv, 5%) PI: N. Carbonetti

“Age-dependent role of interferon lambda in protection against pertussis lethality in infants”

NIH NIAID R21 AI168603

Total Direct Costs: $275,000

*Provide knowledge and technical expertise*

4/1/2022-3/31/2027 (Co-Inv, 10%) PI: C. Skerry

“Pertussis inflammation is mediated by a balance between peptidoglycan recognition proteins-1 and -4”

NIH NIAID R01 AI167947

Total Direct Costs: $1,250,000

Percentile: 6th

*Provide technical expertise and assistance during flow cytometry experiments*

3/11/2021-2/28/2023 (Co-Inv, 7.5%) PI: N. Carbonetti

NCE “NK cell and interferon gamma deficiency in infant susceptibility to pertussis”

NIH NIAID R21 AI156042

Total Direct Costs: $275,000

*Provide knowledge and technical expertise*

**HIGHLIGHTS, HONORS AND AWARDS**

2023 Department of Microbiology and Immunology Representative on SOM Council Committee (Elected Position)

2023 Scientific Organizing Committee, 14th International Bordetella Symposium

2022 Executive Committee of the International Bordetella Society (Elected Position)

2022 Scientific Organizing Committee and Session Chair, 13th International Bordetella Symposium 2022

2020 Publication spotlight in *The Journal of Immunology* Top Reads, a section used to emphasize manuscripts regarded by reviewers and editors as the top 10% of their field

2020 Scientific Organizing Committee and Session Chair, Bordetella Research Day 2020

 A virtual *Bordetella* conference with >160 international attendees

2018 Scientific Organizing Committee, Bordetella Research Day 2018, Baltimore, MD

A regional meeting with >70 *Bordetella* researchers

2016 Travel grant awarded by the Organizing Committee of the 11th International Bordetella Symposium, Buenos Aires, Argentina ($500)

2013 Publication spotlight in the Nature Reviews Microbiology article “Limiting DNA repair” by Rachel David. *Nature Reviews Microbiology* (2013) 11:510-511, https://doi.org/10.1038/nrmicro3078

2013 Young Investigator Oral Presentation, American Society for Microbiology General Meeting, Denver, CO, 2013

**ADMINSTRATIVE SERVICE**

**Institutional Service**

2023 Voting member, UMB Institutional Biosafety Committee

2023 Department of Microbiology and Immunology Faculty Web Champion

2023 Molecular Medicine Graduate Student Qualifying Examination Committee

2023 Molecular Microbiology and Immunology Graduate Student Qualifying Examination Committee

2023 Reviewer, GPILS Mock Study Section for F Grants

2023 First Year Advisor, Molecular Microbiology and Immunology (Valerie Harrington)

2023 Interviewer, Molecular Microbiology and Immunology Admissions

2023 Reviewer, Molecular Microbiology and Immunology GPILS Award Nominations

2022-present Molecular Microbiology and Immunology Graduate Recruitment; present an overview of the bacteriology and parasitology research directed by MMI faculty during admissions evenings

2022-present Lead, Molecular Microbiology and Immunology Community Culture Task Force

2022-present Reviewer, Molecular Microbiology and Immunology June Presentations

2021-present Skills seminar, “Maximizing the design of your scientific illustrations” for the Center for Advanced Research Training & Innovation (CARTI)

**Symposium Organization**

2023 Scientific Organizing Committee, 14th International Bordetella Symposium, scheduled Prague, Czech Republic, June 24-28, 2024

2022 Scientific Organizing Committee, 13th International Bordetella Symposium, Vancouver, Canada, June 26-30, 2022 – Chair, Pathogenesis and Biology of Bordetellae

2020-present Co-Founder, Host and Scientific Organizing Committee, International Bordetella Lab Meeting

 A monthly virtual seminar series attended by ~100 international researchers and clinicians; established as a subcommittee of the International Bordetella Society

2020 Scientific Organizing Committee and Session Chair, Bordetella Research Day, virtual/international, August 6, 2020

2018 Scientific Organizing Committee, Bordetella Research Day, Baltimore, MD, February 2, 2018

**National and International Service**

2023 Early Career Reviewer, NIH Respiratory Integrative Biology and Translational (RIBT) Research Study Section

2023 *Ad Hoc* Reviewer, The Lancet Microbe

2023 *Ad Hoc* Reviewer, Cells

2023 *Ad Hoc* Reviewer, mSphere

2023 *Ad Hoc* Reviewer, Journal of Molecular Biology

2023 *Ad Hoc* Reviewer, Microbiology Spectrum

2023 *Ad Hoc* Reviewer, Frontiers in Immunology

2021-2023 *Ad Hoc* Reviewer, PLOS Pathogens

2021-2022 *Ad Hoc* Reviewer, Journal of Chronic Obstructive Pulmonary Disease

2021-2022 *Ad Hoc* Reviewer, Pharmaceutics

2021-2022 *Ad Hoc* Reviewer, Frontiers in Cellular and Infection Microbiology, section Clinical Microbiology

2021 *Ad Hoc* Reviewer, Pathogens

2021 *Ad Hoc* Reviewer, Scientific Reports

2021 Review Editor, Molecular Bacterial Pathogenesis, specialty section of Frontiers in Cellular and Infection Microbiology

2020 Judge, Bordetella Research Day 2020 “best presentation”

2020 *Ad Hoc* Reviewer, Microbes and Infection

2020 *Ad Hoc* Reviewer, Frontiers in Cellular Neuroscience

2020 *Ad Hoc* Reviewer, Microorganisms

2020 *Ad Hoc* Reviewer, Biomolecules

2019-2022 *Ad Hoc* Reviewer, Vaccine

2019-2020 *Ad Hoc* Reviewer, PLOS ONE

2019 *Ad Hoc* Reviewer, Journal of Molecular Medicine

2018-2020 *Ad Hoc* Reviewer, Cytokine

2018-2019 *Ad Hoc* Reviewer, Journal of Pediatric Infectious Diseases

2018 *Ad Hoc* Reviewer, Journal of Visual Experiments

2015 *Ad Hoc* Reviewer, Journal of Clinical Microbiology

**PROFESSIONAL SOCIETY MEMBERSHIPS**

2021-present International Bordetella Society

2018-present ASM Science Teaching Fellows Alumni Community sponsored by the ASM Education Committee

2013-present American Society for Microbiology

2006-2009 Irish Society for Immunology

**PATENTS, INVENTIONS AND COPYRIGHTS**

**Patent**

01/31/2008 WO2008012066 A2

“Novel peptide having antimicrobial activity”.

Bernard P Mahon, Mario Fares, Ashling NiRuairc, **Karen Scanlon**, Mary O'Gorman.

Assisted in the design of this novel antimicrobial peptide, and performed and analyzed all experiments included in the patent application

**GenBank Deposited sequence**

01/06/2010 Accession: HM067700

“Homo sapiens chemokine (C-C motif) ligand 28 splice variant chi (CCL28) mRNA, complete cds, alternatively spliced”

**Scanlon, K.M.** and Mahon B.P.

Used bioinformatics to predict a novel slice variant of the chemokine CCL28, confirmed its expression and sequence, and published the sequence on NCBI

**PUBLICATIONS**

**ORCID ID** 0000-0002-5300-8749

**METRICS** Citations: >600 *h*-Index: 14 (Google Scholar)

**Peer-Reviewed Journal Articles**

1. Mitchell, A, **Scanlon, KM**, Flowers, E, Jordan, C, Tibbs, E, Bukowski, A, Gallop, D, Carbonetti, NH (2023)

Age-dependent NK cell and interferon-gamma deficits contribute to severe pertussis in infant mice. *Journal of Leukocyte Biology* (submitted)

1. Ardanuy, J, **Scanlon, KM**, Skerry, C, Gallop, G, and Carbonetti, NH (2023)

DNA-dependent interferon induction and lung inflammation in Bordetella pertussis infection. *Journal of Interferon and Cytokine Research* Aug 31, doi: 10.1089/jir.2023.0066

1. Nasser, NJ, Sun, K, **Scanlon, KM**, Mishra, MV, Molitoris, JK (2022) Administering docetaxel for metastatic hormone-sensitive prostate cancer 1-6 days compared to more than 14 days after the start of LHRH agonist is associated with better clinical outcome due to androgen flare. *Cancers* Feb 9;14(4):864, doi: 10.3390/cancers14040864
2. **\*Scanlon, KM,** Chen, L, Carbonetti, NH (2022) Pertussis toxin promotes pulmonary hypertension in an infant mouse model of Bordetella pertussis infection. *Journal of Infectious Diseases* Jan 5;225(1):172-176, doi: 10.1093/infdis/jab325 \*Corresponding author
3. Gallop, D, **Scanlon, KM**, Ardanuy, J, Sigalov, AB, Carbonetti, NH, Skerry, C (2021) Triggering receptor expressed on myeloid cells-1 (TREM-1) contributes to *Bordetella pertussis* inflammatory pathology. *Infection and Immunity* Jun 7:IAI0012621, doi: 10.1128/IAI.00126-21
4. Ardanuy J, **Scanlon KM**, Skerry C, Fuchs SY, Carbonetti NH (2020) Age-dependent effects of Type I and Type III IFNs in the pathogenesis of *Bordetella pertussis* infection and disease. *The Journal of Immunology* 204(8);2192-2202, doi:10.4049/jimmunol. 1900912
5. **Scanlon K**, Skerry C, Carbonetti N (2019) Association of pertussis toxin with severe pertussis disease. *Toxins (Basel)* 11(7) 373, doi: 10.3390/toxins11070373 (*Figure 1 is the #4 Google image for “pertussis toxin”)*
6. Garber JJ, Mallick EM, **Scanlon K**, Turner JR, Donnenberg M, Leong JM, Snapper SB (2018) Attaching-and-effacing pathogens exploit junction regulatory activities of N-WASP and SNX9 to disrupt intestinal barrier. *Cellular and Molecular Gastroenterology and Hepatology* 5(3):273-288, doi: 10.1016/j.jcmgh.2017.11.015
7. **Scanlon KM**, Snyder YG, Skerry C, Carbonetti NH (2017) Fatal pertussis in the neonatal mouse model is associated with pertussis toxin-mediated pathology beyond the airways. *Infection and Immunity* 85(11):e00355-17, doi: 10.1128/IAI.00355-17
8. Skerry C, **Scanlon KM**, Ardenuy J, Roberts D, Zhang L, Rosen H, Carbonetti NH (2017) Reduction of pertussis inflammatory pathology by therapeutic treatment with sphingosine-1-phosphate receptor 1 ligands by a pertussis toxin-insensitive mechanism. *Journal of Infectious Diseases* 215(2):278-86, doi: 10.1093/infdis/jiw536
9. Wang X, Shaw DK, Hammond HL, Sutterwala FS, Rayamajhi M, Shirey KA, Perkins DJ, Bonventre JV, Velayutham TS, Evans SM, Rodino KG, VieBrock L, **Scanlon KM**, Carbonatti NH, Carlyon JA, Miao EA, McBride JW, Kotsyfakis M, Pedra JH (2016) The prostaglandin E2-EP3 receptor axis regulates *Anaplasma phagocytophilum*-mediated NLRC4 inflammasome activation. *PLOS Pathogens* 12(8):e1005803, doi: 10.1371/journal.ppat.1005803
10. Plaut R, **Scanlon KM**, Taylor M, Teter K, Carbonetti NH (2016) Intracellular disassembly and activity of pertussis toxin require interaction with ATP. *Pathogens and Disease* 74(6):ftw065, doi: 10.1093/femspd/ftw065
11. **Scanlon KM**, Skerry C, Carbonetti NH (2015) Novel therapies for the treatment of pertussis disease. *Pathogens and Disease* 73(8):ftc074, doi: 10.1093/femspd/ftv074
12. Skerry C, **Scanlon KM**, Rosen H, Carbonetti NH (2015) Sphingosine-1-phosphate receptor agonism reduces *Bordetella pertussis*-mediated lung pathology. *Journal of Infectious Diseases* 211(12):1883-6, doi: 10.1093/infdis/jiu823
13. **Scanlon KM**, Gau Y, Zhu J, Skerry C, Wall SM, Soleimani M, Carbonetti NH (2014) Epithelial anion transporter pendrin contributes to inflammatory lung pathology in mouse models of *Bordetella pertussis* infection. *Infection and Immunity* 82(10):4212-21, doi: 10.1128/IAI.02222-14
14. Maddocks ODK, **\*Scanlon KM**, Donnenberg MS (2013) An *Escherichia coli* effector protein promotes host mutation via depletion of DNA mismatch repair protein. *mBio* 4(3):e00152-13, doi: 10.1128/mBio.00152-13 \*Co-first author
15. Yamagata A, Milgotina E, **Scanlon KM**, Craig L, Tainer JA, Donnenberg MS (2012) Structure of an essential type IV pilus biogenesis protein provides insights into pilus and type II secretion systems. *Journal of Molecular Biology* 419(1-2):110-24**,** doi: 10.1016/j.jmb.2012.02.041
16. **Scanlon KM**, Hawksworth RJ, Lane S, Mahon BP (2011) IL-17A induces CCL28, supporting the chemotaxis of IgE-secreting B cells. *International Archives of Allergy and Immunology* 156(1):51-61, doi: 10.1159/000322178
17. Coughlan A, **Scanlon KM**, Mahon BP, Towler MR (2010) Zinc and silver glass polyalkenoate cements: and evaluation of their antibacterial nature. *Bio-medical Materials and Engineering* 20(2):99-106, doi: 10.3233/BME-2010-0620

**Book Chapters**

1. **Scanlon KM**, Skerry C, Carbonetti NH (2019) Chapter 3: Role of major toxin virulence factors in pertussis infection and disease pathogenesis. *Pertussis Infection and Vaccines*, part of the *Advances in Experimental Medicine and Biology* book series (AEMB, volume 1183) and *Advances in Microbiology, Infectious Diseases and Public Health* book sub series (AMIDPH*,* volume 1183)*.* Springer, doi: 10.1007/5584\_2019\_403
2. Nisa S, **Scanlon K** and Donnenberg M (2013) Chapter 4: Enteropathogenic *Escherichia coli*. *Escherichia coli: Pathotypes and Principles of Pathogenesis*. 2nd Edition. Academic Press, August 2013, https://doi.org/10.1016/B978-0-12-397048-0.00004-8

**SPEACHES**

**International**

1. **Scanlon, K**, Carbonetti NH “Age-associated host responses to *Bordetella pertussis*; an examination of the distinctive lung milieu generated at infancy” Czech-American Bordetella Minisymposium, Prague, Czech Republic, 2019 (*Invited speaker*)
2. **Scanlon, K,** Carbonetti NH “A developmentally regulated angiotensin system potentiates severe manifestations of disease in an infant mouse model of pertussis” 12th International Bordetella Symposium, Brussels, Belgium, 2019 (*Proffered communication*)
3. **Scanlon, K**, Snyder Y, Skerry C, Carbonetti NH, “Pertussis toxin promotes lethality but inhibits lung inflammatory pathology in neonatal mice” 11th International Bordetella Symposium, Buenos Aires, Argentina, 2016 (*Proffered communication*)

**Internationally Broadcasted Virtual Speeches**

1. **Scanlon, K**, “Infant pertussis and the dangers of immune quiescence” International Bordetella Lab Meeting, 2022 (*Invited speaker*)
2. Scanlon**, K**, Carbonetti NH, “Resistance vs Tolerance: Immune trade-offs in infant pertussis” Bordetella Research Day, 2020 (*Proffered communication*)

**National**

1. **Scanlon, K,** “Maximizing the design of your scientific illustrations” School of Dentistry Research Seminar Series, University of Maryland, 2023 (*Invited speaker*)
2. **Scanlon, K,** “Infant pertussis, a lethal mix of tolerance and toxins” Department of Microbiology and Immunology Seminar Series, Louisiana State University Health Shreveport, 2021 (*Invited speaker*)
3. **Scanlon, K,** “More than a number; the impact of host age on *Bordetella pertussis* pathogenesis” Department of Microbiology and Immunology Seminar Series, University of Maryland School of Medicine, 2020 (*Invited speaker*)
4. **Scanlon, K.** Carbonetti NH, “Pulmonary hypertension in critical pertussis: A role for angiotensin?” Bordetella Research Day, Baltimore MD, 2018 (*Proffered communication*)
5. **Scanlon, K**, Skerry C, Snyder Y, Carbonetti NH, “*Bordetella pertussis* infection in neonatal mice facilitates systemic pertussis toxin-induced pathology and lethality” Mid-Atlantic Microbial Pathogenesis Meeting, Wintergreen, VA, 2017 (*Proffered communication*)
6. **Scanlon, K,** “Pathogenesis of pulmonary hypertension in critical pertussis” Immunology andMicrobial Pathogenesis Seminar Series, West Virginia University, 2017 (*Invited speaker*)
7. **Scanlon, K,** Maddocks ODK, Donnenberg MS, “An *Escherichia coli* effector protein induces host mutation via disruption of DNA mismatch repair” American Society for Microbiology General Meeting, Denver, CO, 2013 (*Young Investigator oral presentation*)

**POSTER PRESENTATIONS**

1. **Scanlon K,** “Age-related tryptophan metabolism promotes severe infant infection by *Bordetella pertussis*” Keystone Symposia- From First Breath: Lung Development, Infection Repair and Aging, Snowbird, UT, 2023
2. **Scanlon K**, “*Bordetella pertussis*-induced IDO responses are age-dependent and potentiate severe disease” 13th International Bordetella Symposium, Vancouver, Canada, 2022
3. **Scanlon K**, Carbonetti NH, “Early upregulation of the immunosuppressive molecule indoleamine 2, 3-dioxygenase 1 is an infant-specific response to *Bordetella pertussis* infection” Gordon Conference on Biology of Acute Respiratory Infection, Galveston, TX, 2020
4. \*Mitchell, A, **Scanlon, K**, Carbonetti, NH, “Deficiency of interferon-gamma and natural killer cells in susceptibility of infants to fatal *Bordetella pertussis* infection” American Society for Microbiology Annual Meeting, San Francisco, CA, 2019 \*Presenting author
5. \*Ardanuy, J, Skerry, C, **Scanlon, K**, Carbonetti, NH, “Type I and III Interferons exacerbate lung immunopathology during Bordetella pertussis Infection” American Society for Microbiology Annual Meeting, San Francisco, CA, 2019 \*Presenting author
6. **Scanlon, K**, Carbonetti, NH, “Host developmental mechanisms potentiate severe manifestations of disease in *Bordetella pertussis*-infected infant mice” American Society for Microbiology Annual Meeting, San Francisco, CA, 2019
7. \*Mitchell, A, **Scanlon, K**, Carbonetti, NH, “Deficiency of interferon-gamma and natural killer cells in susceptibility of infants to fatal *Bordetella pertussis* infection” 12th International Bordetella Symposium, Brussels, Belgium, 2019 \*Presenting author
8. **Scanlon, K**, Carbonetti, NH, “An age-associated role for angiotensin II in *B. pertussis*-induced pulmonary hypertension” Mid-Atlantic Microbial Pathogenesis Meeting, Wintergreen, VA, 2019
9. \*Mitchell, A, **Scanlon, K**, Carbonetti, NH, “Role of interferon-γ in promoting disease severity in neonatal *Bordetella pertussis* infection” American Association of Immunologists Annual Meeting, Austin, TX, 2018 \*Presenting author
10. \*Ardanuy, J, Skerry, C, **Scanlon, K**, Carbonetti, NH, “Type I Interferons exacerbate inflammation and lung pathology in *Bordetella pertussis* Infection” American Society for Microbiology Annual Meeting, Atlanta, GA, 2018 \*Presenting author
11. **Scanlon, K**, Carbonetti, NH, “Pathogenesis of pulmonary hypertension in critical pertussis”, Gordon Conference on Biology of Acute Respiratory Infection, Ventura, CA, 2018
12. \*Skerry, C, **Scanlon, K**, Carbonetti, NH, “RNA sequencing analysis of *B. pertussis* challenged airways following sphingosine-1-phosphate receptor agonism” Mid-Atlantic Microbial Pathogenesis Meeting, Wintergreen, VA, 2017 \*Presenting author
13. **Scanlon, K**, Merkel, T, Carbonetti, NH, “Upregulation of lung pendrin expression is associated with inflammatory pathology in *B. pertussis* infection” 11th International Bordetella Symposium, Buenos Aires, Argentina, 2016
14. Skerry, C, **Scanlon, K**, \*Carbonetti, NH, “Sphingosine-1-phosphate receptor ligands reduce lung inflammatory pathology and lethality in *B. pertussis* infection” Gordon Conference on Biology of Acute Respiratory Infection, Galveston, TX, 2016 \*Presenting author
15. **Scanlon, K**, Carbonetti, NH, “Pendrin contributes to *B. pertussis*-induced airway pathology in a mouse model” Keystone Symposium on Innate Immunity and Determinants of Microbial Pathogenesis, Olympic Valley, CA, 2015
16. **Scanlon, K**, Gau, Y, Zhu, J, Carbonetti, NH, “*Bordetella pertussis*-induced respiratory pathology is mediated by the anion exchanger pendrin” American Society for Microbiology Annual Meeting, Boston, MA, 2014
17. **Scanlon, K**, Gau, Y, Zhu, J, \*Carbonetti, NH, “Pertussis toxin exacerbates respiratory inflammatory pathology in *Bordetella pertussis* infection” Gordon Conference on Biology of Acute Respiratory Infection, Il Ciocco, Barga, Italy, 2014 \*Presenting author
18. Irish Society of Immunology Annual Meeting, Dublin, Ireland, 2008
19. British Society of Immunology Annual Meeting, Glasgow, Scotland, 2008
20. Irish Society of Immunology Annual Meeting, Dublin, Ireland, 2007
21. British Association of Lung Research Annual Meeting, Kildare, Ireland, 2007
22. Irish Society of Immunology Annual Meeting, Dublin, Ireland, 2006
23. Ulster Immunology Group/ British Society of Immunology/ Irish Society of Immunology Joint Meeting, Belfast, Northern Ireland, 2006

**TEACHING SERVICE**

**Teaching - Medical and Graduate Students**

2023 Lecturer, Introduction to MMI: Practical Skills and Conceptual Foundations

6-14 1st yr PhD candidates - 1 contact hour/year

“Engaging in Professional Conferences”

2023 Lecturer, Principles in Microbial Pathogenesis (GPLS710)

10-15 1st yr PhD candidates - 3 contact hours/year

2022-present Lecturer, Advances in Immunology (GPILS769)

3-10 2nd yr PhD candidates - 1.5 contact hours/year

2021-2022 Lecturer, Introduction to MMI: Practical Skills and Conceptual Foundations (GPILS 693)

6-14 1st yr PhD candidates - 1.5 contact hours/year

“TED-like” talk on the topic of bacteriology

2020-present Lecturer, Advanced Microbial Pathogenesis (GPILS725)

6-10 2nd yr PhD candidates - 3 contact hours/year

2019 Small Group Discussion Leader, Koch’s Postulates and Molecular Koch’s Postulates (HDID SG6)

12-16 2nd yr medical students - 2 contact hours/year

2015-2016 Lecturer, Introduction to Immunology (HGEN 602)

10-12 MSc students in Genetic Counseling - 1-2 contact hours/year

**Teaching - Undergraduate Students**

2006-2009 Lab Instructor for 6th Year Leaving Certificate Practical, National University of Ireland Maynooth.

50-100 high school students – 8 contact hours/day for 10 days/year

2005-2009 Teaching Assistant for a range of BI101 to BI425 biology lab practical modules, National University of Ireland Maynooth

~20 1st-4th year undergraduate students – 3-6 contact hours/week for 9 months/year

**Mentoring – Graduate Students for Ph.D. Thesis**

2023 Jaylyn King (Molecular Microbiology and Immunology Program)

2023 Andrew Allee, co-mentor with Dr. Peg McCarthy (Molecular Microbiology and Immunology Program)

**Mentoring – Graduate Rotation Students**

2023 Michael Wagner (Fall, Molecular Microbiology and Immunology)

 Project title: “*Bordetella pertussis* regulation of the angiotensin system and implications for cardiovascular function”

2023 Jaylyn King (Summer, Molecular Microbiology and Immunology)

 Project title: “Assessing age-related pulmonary tryptophan accumulation and its regulation by *Bordetella pertussis* and IDO”

2023 Valerie Harrington (Spring, Molecular Microbiology and Immunology)

 *Co-mentor with Dr. Bing Ma*

 Project title: “Development of a neonatal “leaky gut” model in mice”

2021 Spiridon Sevdalis (Biochemistry and Molecular Biology)

Project title: “Determining the age-related impact of *Bordetella pertussis* infection on angiotensin II receptor expression, distribution, and function”

**Mentoring – Summer Research Students**

2023 Mehnaz Falguni (Bridges to the Doctorate, Towson University)

 Project title: “IDO regulation of infant macrophage phenotype”

2022 Rebecca Oluwasanmi (American Cancer Society Diversity in Cancer Research, University of Maryland, College Park)

 Project title: “Age-dependent expression and regulation of IDO”

**Mentoring – Lab Mentorship**

2016 Ashley Mitchell, Meyerhoff Graduate Fellow, daily contact for 3 months

 Project: Determine the effect of pertussis toxin on T cell function and proliferation in an infant mouse model of severe pertussis

2015-2017 Esther Xu, High School Student, 100 hours total

Project: Examine the transcriptional responses to *B. pertussis* in cultured monocytes and epithelial cells

2015 Mary Sedegah, Meyerhoff Graduate Fellow, daily contact for 3 months

 Project: The role of the anion channel pendrin in *B. pertussis* infection

2015 Emmanuella Oyogoa, Undergraduate Student, 8 hours/week for 5 months

Project: Generate a chromosomal deletion of pertussis toxin in *Bordetella pertussis* strain D420

2011 Jeffrey Freiberg, Graduate Student, daily contact for 3 months

Project: Clone, express and purify modular mutants of the enteropathogenic *E. coli* type 3 secretion system effector protein EspF

2010-2012 Claudia Valenzuela, Undergraduate Meyerhoff Scholar Student, 6 hours/week for 14 months

Project: Characterize *E. coli* strains colonizing punch biopsies harvested from human colon tumor tissue and proximal or distal normal tissues

2008 Research Mentor for 2 Graduate Students, daily contact for 3 months

 Project: Examine transcriptional responses to IL-1β by cultured alveolar epithelial cells

 Project: Investigate the mechanism of antimicrobial function by Maynosin

2007 Research Mentor for 1 Undergraduate Student, daily contact for 3 months

 Project: Investigate the antimicrobial capacity of Maynosin, a novel antimicrobial peptide

**Graduate Student Ph.D. Thesis Committee**

2023-present Elizabeth Hill (Molecular Microbiology and Immunology)

2023-present Riley Risteen (Molecular Microbiology and Immunology)

2023-present Da’Kuawn Johnson (Molecular Microbiology and Immunology)