

PATRICK R. SECOR

University of Montana
Division of Biological Sciences – CMMB Graduate Program – Center for Translational Medicine
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ACADEMIC APPOINTMENTS

2023 – present University of Montana
Associate Professor
Division of Biological Sciences
CMMB Graduate Program
Center for Translational Medicine

2017- 2022 University of Montana
Assistant Professor
Division of Biological Sciences
CMMB Graduate Program
Center for Translational Medicine

2013-2017 University of Washington
Cystic Fibrosis Foundation Postdoctoral Fellow
Advisor: Pradeep K. Singh

2011-2013 University of Washington
NIH T32 Postdoctoral Fellow
Advisor: William C. Parks

EDUCATION

2006-2011 Montana State University
Center for Biofilm Engineering
Ph.D. in Biological Sciences/Microbiology
Advisor: Garth A. James

2002-2006 Montana State University
B.S. in Biochemistry, *cum laude*

PEER REVIEWED PUBLICATIONS

Link: [Google Scholar](#)

Graduate student co-author, **Undergraduate co-author, *Postdoc co-author*

#P. R. Secor listed as corresponding author

2023 (31) de Mattos CD*, Faith DR*, Nemudryi AA, Schmidt AK*, Bublitz DC, Hammond L, Kinnersley MA, Schwartzkopf CM*, Robinson AJ**, Joyce A**, Michaels LA, Brzozowski RS, Coluccio A, Xing DD, Uchiyama J, Jennings LK, Eswara P, Wiedenheft B, **Secor PR**. Polyamines and linear DNA mediate bacterial threat assessment of bacteriophage infection. *Proc Natl Acad Sci U S A*. 2023;120(9):e2216430120. doi: 10.1073/pnas.2216430120.

(30) Schwartzkopf CM*, Robinson AJ**, Ellenbecker M, Faith DR*, Schmidt AK*, Brooks DM, Lewerke L*, Voronina E, Dandekar AA, **Secor PR**. Tripartite interactions

between filamentous Pf4 bacteriophage, *Pseudomonas aeruginosa*, and bacterivorous nematodes. **PLoS Pathog.** 2023;19(2):e1010925. doi: 0.1371/journal.ppat.1010925.

(29) Wachter, J., Cheff, B., Hillman, C., Carracoi, V., Dorward, D.W., Martens, C., Barbian, K., Nardone, G., Olano, R.L., Kinnersley, M., **Secor, P.R.**, and Rosa, P.A. Coupled induction of prophage and virulence factors during tick transmission of the Lyme disease spirochete. **Nature Communications**, 2023 <https://doi.org/10.1038/s41467-023-35897-3>.

(28) M. T. van Rossem, S. Wilks, **P. R. Secor**, M. Kaczmarek, G. D'Alessandro. Homogenization modelling of antibiotic diffusion and adsorption in viral liquid crystals. **Royal Society Open Sci**, Vol 10, Issue 1, Jan. 2023, doi.org/10.1098/rsos.221120

2022

(27) M. S. Bach, C. R. de Vries, A. Khosravi, J. M. Sweere, M. C. Popescu, Q. Chen, S. Demirdjian, A. Hargil, J. D. Van Belleghem, G. Kaber, M. Hajfathalian, E. B. Burgener, D. Liu, Q. Tran, T. Dharmaraj, M. Birukova, V. Sunkari, S. Balaji, N. Ghosh, S. S. Steiner, M. S. El Masry, S. G. Keswani, N. Banaei, L. Nedelec, C. K. Sen, V. Chandra, **P. R. Secor**, G. A. Suh, P. L. Bollyky. Filamentous bacteriophage delays healing of *Pseudomonas*-infected wounds. **Cell Reports Medicine**, Vol 3, Issue 6, June 2022, <https://doi.org/10.1016/j.xcrm.2022.100656>

(26) **Secor, P. R.**[#], Michaels, L. A., Bublitz, D.C., Jennings, L.K., Singh, P.K. (2022). The Depletion Mechanism Actuates Bacterial Aggregation by Exopolysaccharides and Determines Species Distribution & Composition in Bacterial Aggregates. **Front. Cell. Infect. Microbiol.** <https://doi.org/10.3389/fcimb.2022.869736>

(25) Faith, D*., Kinnersley, M., Schwartzkopf, C.M*., de Mattos, C.D*., Schmidt, A.K*., and **Secor, P.R.**[#]. (2022). Complete Genome Sequence of the N4-like *Pseudomonas aeruginosa* Bacteriophage vB_PaeP_CMS1. **Microbiol Resour Announc**, e0023922. 10.1128/mra.00239-22.

(24) van Rossem, M., Wilks, S., Kaczmarek, M., **Secor, P.R.**, and D'Alessandro, G. (2022). Modelling of filamentous phage-induced antibiotic tolerance of *P. aeruginosa*. **PLoS One** 17, e0261482. 10.1371/journal.pone.0261482.

(23) A.K. Schmidt*, A.D. Fitzpatrick, C. S. Schwartzkopf*, D.R. Faith*, L.K. Jennings, A. Coluccio, D.J. Hunt**, L.A. Michaels, D.W. Dorward, J. Wachter, P.A. Rosa, K.L. Maxwell, **P.R. Secor**[#]. A Filamentous Bacteriophage Protein Inhibits Type IV Pili to Prevent Superinfection of *Pseudomonas aeruginosa*. **mBio**, 2022; <https://doi.org/10.1128/mbio.02441-21>

2021

(22) Kirsch JM, Brzozowski RS***, Faith D.R.*, Round JL, **Secor PR**, Duerkop BA. Bacteriophage-Bacteria Interactions in the Gut: From Invertebrates to Mammals. **Annu Rev Virol.** 2021;8(1):95-113. doi:10.1146/annurev-virology-091919-101238.

(21) Jennings LK, Dreifus JE, Reichhardt C, Storek KM, **Secor PR**, Wozniak DJ, Hisert KB, Parsek MR. *Pseudomonas aeruginosa* aggregates in cystic fibrosis sputum produce exopolysaccharides that likely impede current therapies. **Cell Rep.** 2021;34(8):108782. doi: 10.1016/j.celrep.2021.108782.

2020

(20) E. B. Burgener, **P. R. Secor**, M. C. Tracy, J. M. Sweere, E. M. Bik, C. E. Milla, and P. L. Bollyky. Methods for Extraction and Detection of Pf Bacteriophage DNA from the Sputum of Patients with Cystic Fibrosis, **Phage: Therapy, Applications, and Research**, June 2020, doi.org/10.1089/phage.2020.0003

(19) **P. R. Secor**[#] and A. A. Dandekar, More than Simple Parasites: The Sociobiology of Bacteriophages and Their Bacterial Hosts. **mBio**, March 10, 2020, <https://mbio.asm.org/content/11/2/e00041-20>

(18) **P. R. Secor**, E B Burgener, M Kinnersley, L K Jennings, V Roman-Cruz*, M

Popescu, J D Van Belleghem, N Haddock, C Copeland**, L A Michaels, C R De Vries, Q Chen, J Pourtois, T J Wheeler, C E Milla, P L Bollyky. Pf Bacteriophage and Their Impact on *Pseudomonas* Virulence, Mammalian Immunity, and Chronic infections. **Front. Immunol.**, 21 February 2020
doi.org/10.3389/fimmu.2020.00244

- 2019 (17) J M. Sweere, H Ishak, V Sunkari, M S. Bach, R Manasherob, K Yadava, S. M. Ruppert, C. K. Sen, S Balaji, S. G. Keswani, **P. R. Secor**, and Paul L. Bollyky. (2019) The Immune Response to Chronic *Pseudomonas aeruginosa* Wound Infection in Immunocompetent Mice. **Advances in Wound Care**, Vol. 8.
- (16) E. B. Burgener, J. M. Sweere, M. S. Bach, **P. R. Secor**, N Haddock, L. K. Jennings, R. L. Marvig, H. K. Johansen, E. Rossi, X. Cao, L. Tian, L. Nedelec, S. Molin, P. L. Bollyky, and C. E. Milla. (2019) Filamentous bacteriophages are associated with chronic *Pseudomonas* lung infections and antibiotic resistance in cystic fibrosis. **Science Translational Medicine**, Vol. 11, Issue 488, eaau9748
- (15) J. M. Sweere, H. Ishak, M. S. Bach, V. Sunkari, G. Kaber, R. Manasherob, G. A. Suh, M. Popescu, P. L. Marshall, M. Birukova, E. Katznelson, D. V. Lazzareschi, S. Balaji, S. Keswani, T. R. Hawn, **P. R. Secor**, and P. L. Bollyky. (2019) Filamentous Bacteriophage Suppress Clearance of Bacterial Infection. **Science**, Vol. 363, Issue 6434, eaat9691.
- 2018 (14) **P. R. Secor**[#], M., L.A., Ratjen, A., Jennings, L.K., Singh, P.K. Entropically-driven aggregation of bacteria by host polymers promotes antibiotic tolerance in *Pseudomonas aeruginosa*. **PNAS**, Oct 2018, 201806005; DOI:10.1073/pnas.1806005115
- 2017 (13) Jorth, P.A., McLean, K., Ratjen, A., **Secor, P.R.**, Bautista, G.E., Ravishankar, S., Rezayat, A., Garudathri, J., Harrison, J.J., Harwood, R.A., Penewit, K., Waalkes, A., Singh, P.K., Salipante, S.J. (2017) Evolved aztreonam resistance is multifactorial and can produce hypervirulence in *Pseudomonas aeruginosa*. **mBio**, 8:e00517-17
- (12) Nazik, H., Joubert, L.M., **Secor, P.R.**, Sweere, J.M., Bollyky, P.L., Sass, G., Cegelski, L., Stevens, D.A. (2017) *Pseudomonas* Phage Inhibition of *Candida albicans*. **Microbiology**, 163 (11), 1568-1577
- (11) **Secor P.R.** [#], Sass G, Nazik H, Stevens DA. (2017) Effect of acute predation with bacteriophage on intermicrobial aggression by *Pseudomonas aeruginosa*. **PLoS One**. 16;12(6):e0179659. doi: 10.1371/journal.pone.0179659
- (10) **Secor, P.R.** [#], Michaels, L.A., Smigiel, K.S., Rohani, M.G., Jennings, L.K., Hisert, K.B., Arrigoni, A., Braun, K.R., Birkland, T.P., Hallstrand, T.S., Lai, Y., Bollyky, P.L., Singh, P.K., Parks, W.C. (2017) Filamentous bacteriophage produced by *Pseudomonas aeruginosa* alters the inflammatory response and promotes non-invasive infection *in vivo*. **Infection and Immunity**, vol. 85, issue 1. Featured on journal cover.
- 2016 (9) Penner, J.C., Ferreira, J.A.G., **Secor, P.R.**, Sweere, J.M., Birukova, M.K., Joubert, L.M., Haagensen, J.A.J., Garcia, O., Malkovskiy, A.V., Kaber, G., Nazik, H., Manasherob, R., Spormann, A.M., Clemons, K.V., Stevens, D.A., Bollyky, P.L. (2016) Pf4 Bacteriophage Produced by *Pseudomonas aeruginosa* Inhibits *Aspergillus fumigatus* Metabolism via Iron Sequestration. **Microbiology**, 162, 1583-1594
- (8) **Secor, P.R.** [#], Jennings, L.K., Michaels, L.A., Sweere, J.M., Singh, P.K., Parks, W.C., Bollyky, P.L. (2016) Biofilm assembly becomes crystal clear – filamentous bacteriophage organize the *Pseudomonas aeruginosa* biofilm matrix into a liquid crystal. **Microbial Cell**, 3(1): 49-52. Featured on journal cover
- 2015 (7) **Secor, P.R.** [#], Sweere, J.M., Michaels, L.A., Malkovskiy, A.V., Lazzareschi, D., Katznelson, E., Rajadas, J., Birnbaum, M.E., Arrigoni, A., Braun, K.R., Evanko, S.P., Stevens, D.A., Kaminsky, W., Singh, P.K., Parks, W.C., Bollyky, P.L. (2015)

Filamentous Bacteriophage Promote Biofilm Assembly and Function. *Cell Host & Microbe*, 18(5): 549-59

(6) Jennings L.K., Storek K.M., Ledvina H.E., Coulon C., Marmont L.S., Sadovskaya I., **Secor, P.R.**, Tseng B.S., Scian M., Filloux A., Wozniak D.J., Howell P.L., Parsek M.R. (2015) Pel is a cationic exopolysaccharide that cross-links extracellular DNA in the *Pseudomonas aeruginosa* biofilm matrix. *PNAS*, 112(36): 11353-8

- 2012 (5) **Secor, P. R.** #, Jennings, L. K., James, G. A., Kirker, K. R., Pulcini, E. D., McInnerney, K., Gerlach, R., Livinghouse, T., Hilmer, J. K., Bothner, B., Fleckman, P., Olerud, J. E., Stewart, P. S. (2012) Phevalin (aureusimine B) production by *Staphylococcus aureus* biofilm and impacts on human keratinocyte gene expression, *PLoS One* 7(7) e40973
- 2011 (4) **Secor, P. R.** #, James, G. A., Fleckman, P., Olerud, J. E., McInnerney, K., and Stewart, P.S. (2011) *Staphylococcus aureus* Biofilm and Planktonic cultures differentially impact gene expression, MAPK phosphorylation, and cytokine production in human keratinocytes. *BMC Microbiol*, 11:143
- 2009 (3) Kirker, K.R., **Secor, P.R.**, James, G.A., Fleckman, P., Olerud, J.E., Stewart, P.S., (2009) Loss of viability and induction of apoptosis in human keratinocytes exposed to *Staphylococcus aureus* biofilms in vitro. *Wound Repair Regen*, 17(5): 690-9
- 2008 (2) Dowd, S.E., Sun, Y., **Secor, P.R.**, Rhoads, D.D., Wolcott, B.M., James, G.A., Wolcott, R.D. (2008) Survey of bacterial diversity in chronic wounds using pyrosequencing, DGGE, and full ribosome shotgun sequencing. *BMC Microbiol*, 8: 43
- (1) James, G.A., Swogger, E., Wolcott, R., Pulcini, E., **Secor, P.R.**, Sestrich, J., Costerton, J.W., Stewart, P.S. (2008) Biofilms in chronic wounds. *Wound Repair Regen*, 16(1): 37-44. Cited over 1,600 times.

INVITED PREVIEWS/COMMENTARIES/EDITORIALS

- 2023 Schmidt, A.K., Faith, D.R., and Secor, P.R. PICI Thieves: Molecular Piracy and Cooperation. *Cell Host & Microbe*, 31(1), January 2023.
- 2019 Bollyky, P.L. and **Secor, P.R.** (2019) The Innate Sense of Bacteriophages. *Cell Host & Microbe*, 25(2).

PREPRINTS

- 2022 Sapiro AL, Hayes BM, Volk RF, Zhang JY, Brooks DM, Martyn C, Radkov A, Zhao Z, Kinnersley M, **Secor PR**, Zaro BW, Chou S. Longitudinal map of transcriptome changes in the Lyme pathogen *Borrelia burgdorferi* during tick-borne transmission. *bioRxiv*. 2023:2022.11.09.515847. doi: 10.1101/2022.11.09.515847
- Schwartzkopf CM, Robinson AJ, Ellenbecker M, Faith DR, Brooks DM, Lewerke L, Voronina E, Dandekar AA, **Secor PR**. Tripartite interactions between filamentous Pf4 bacteriophage, *Pseudomonas aeruginosa*, and bacterivorous nematodes. *bioRxiv*. 2022:2022.10.11.511824. doi: 10.1101/2022.10.11.511824
- C. D. de Mattos*, A. A. Nemudryi, D. Faith*, D. C. Bublitz, L. Hammond, M. A. Kinnersley, C. M. Schwartzkopf*, A. J. Robinson**, A. Joyce**, L. A. Michaels, R. S. Brzozowski***, A. Coluccio, D. D. Xing, J. Uchiyama, L. K. Jennings, P. Eswara, B. Wiedenheft, **P. R. Secor**. Bacterial threat assessment of bacteriophage infection is mediated by intracellular polyamine accumulation and Gac/Rsm signaling. *bioRxiv*. 2022, <https://doi.org/10.1101/2022.04.01.486733>
- 2021 **Secor, P. R.**, Michaels, LA, Bublitz, DC, Jennings, LK, Singh, PK. The depletion mechanism can actuate bacterial aggregation by self-produced exopolysaccharides and determine species distribution and composition in bacterial aggregates. *bioRxiv*. 2021, doi.org/10.1101/2021.05.11.443568

2020 Bach MS, Vries CRd, Sweere JM, Popescu M, Belleghem JDV, Kaber G, Burgener EB, Liu D, Tran Q-L, Dharmaraj T, Birukova M, Sunkari V, Balaji S, Keswani S, Banaei N, Khona DK, Nedelec L, Sen CK, Chandra V, **Secor P. R.**, Suh GA, Bollyky PL. Filamentous Bacteriophage Delay Healing of *Pseudomonas*-Infected Wounds. *bioRxiv*. 2020, doi.org/10.1101/2020.03.10.985663

FUNDING

2022 – 2024 NIH/NIAID Administrative Supplement to contract HHSN272201800048C (PI: Evans, JT, **Co-I Secor, PR**), Adjuvanted Lyme disease vaccine. \$1M direct

2022 – 2023 NIH/INBRE Faculty Research Grant (**PI Secor, PR**)
Defining the immunogenicity of tick saliva in mice and men. \$50k direct.

2022 – 2023 NIH/NIGMS COBRE **P30** GM140963 (PI: Bowler, B, Subaward PI: **Secor, PR**), Pilot Award, Structural variation of small phage proteins. \$35k direct

2020 – 2024 NIH/NIDDK **R01** DK124317 (PI: Round, J.L., **Co-I Secor, PR**), Bacteriophage pathobiology of inflammatory bowel disease. \$2,539,200 total

2020 – 2022 NIH/NIAID **R21** AI151597 (**PI: Secor, PR**), Targeting a ubiquitous spirochete bacteriophage to prevent Lyme disease. \$275k direct

2018 – 2023 NIH/NIAID **R01** AI138981 (**PI: Secor, PR**), Immunization against filamentous bacteriophages to prevent bacterial infection. \$5,618,222 total

2018 University of Montana Genomics Core–Illumina Mini-Grant (**PI, Secor, P.R.**). \$5k direct

2017 – 2021 NIH/NIGMS COBRE **P30** GM140963 (PI: Sprang, S, Subaward PI: **Secor, PR**) Young Investigator Award. \$300k direct

2017 – 2020 NIH/NIAID Career Transition Award **K22** AI125282 (**PI: Secor, PR**)
Understanding polymer-induced bacterial aggregation and antimicrobial tolerance. \$250k direct

2017 – 2019 Dr. Ralph and Marian Falk Medical Research Trust – Catalyst Award (PI Bollyky, P.L.). \$1M direct

2016 The Charlie Moore Endowed Fellowship for Cystic Fibrosis Research, \$10,000 direct.

2015 – 2017 Cystic Fibrosis Foundation (National) Postdoctoral Fellowship

2013 – 2014 Cystic Fibrosis Foundation Fellowship, Seattle Chapter, Postdoctoral Fellowship

2013 Stanford University Immunology Postdoctoral Training Grant, awarded, but declined **5T32** AI007290-29 (NIH/NIAID)

2011 University of Washington Pulmonary Postdoctoral Training Grant **5T32** HL007287-33 (NIH/NHLBI)

OTHER AWARDS

2021 Faculty Merit Award for outstanding research productivity, University of Montana

2020 Faculty Merit Award for outstanding research productivity, University of Montana

2020 Co-moderator, Life at the Cutting Edge, ASM Microbe, Chicago, IL (canceled, COVID-19)

2018 Searle Scholar Nominee, University of Montana

2018 Young Investigator Award, Center for Biofilm Engineering, Montana State University

2017 Young Investigator Award, Center for Biomolecular Structure and Design, University of Montana

2016 NIH/NIAID Career Transition Award (K22)

2016 The Charlie Moore Endowed Fellowship for Cystic Fibrosis Research

2015-2017 Cystic Fibrosis Foundation (National) Postdoctoral Fellowship

2013-2014 Cystic Fibrosis Foundation Postdoctoral Fellowship, Seattle Chapter

2009 W.G. Characklis Scholarship for Outstanding Ph.D. Student

INTELLECTUAL PROPERTY

2021 PCT/US2020/063086; Antibacterial Carbohydrate Vaccine.
2020 US Patent App. 63/078,777; Compositions and Methods Targeting Filamentous Bacteriophage.
2019 US Patent 10,835,607 - Monoclonal antibody and vaccine targeting filamentous bacteriophage.

TEACHING

Fall 2018-present Instructor, Microbial Physiology (plus lab) BIOM 450/451, University of Montana
Spring 2020 Co-instructor, The Diversity of Life BIOB 170, University of Montana
Summer 2018 HHMI Summer Institute on Scientific Teaching
Spring 2010 Co-instructor, Microbes in the Environment, Montana State University
2007-2008 Teaching Assistant, Molecules to Cells, Montana State University

MENTORING

Graduate students Camilla de Mattos, Graduated, PhD, Jan. 2023
Valery Roman-Cruz, 5th year PhD candidate (co-advised with Dr. Jay Evans)
Caleb Schwartzkopf, 4th year PhD candidate
Amelia Schmidt, 2nd year PhD student
Dominick Faith, 1st year PhD student
Postdocs Dr. Robert Brzozowski (joined lab 2020)
Research Faculty Dr. Laura Jennings
Dr. Margie Kinnersley
Dr. DeAnna Bublitz

OUTREACH

2018-2020 My lab has hosted multiple high school students through the local Advanced Problems in Science Program. Students work on a research project for an entire semester and then share their findings with their peers and at a poster session at the University of Montana.
2018 & 2019 My lab hosted scientific outreach activities with the Ray Bjork Learning Center's PEAK Program for gifted and talented elementary-aged children.
2017 Harkins High School Science Fusion Lecture, University of Montana
2009-2011 Instructor, American Indian Research Opportunities (AIRO) educational outreach program for Native American students interested in STEM-based careers, Montana State University

INVITED SEMINARS, CONFERENCES, & SYMPOSIUMS

2023 upcoming: Departmental Seminar, **University of Pittsburgh**, School of Medicine, Program in Microbiology and Immunology, April, 2023.
Department of Microbiology and Immunology Seminar Series, **Montana State University**, April, 2023.
Research Seminar, NIH Division of Intramural Research, **NIAID Rocky Mountain Laboratories**, Hamilton, MT, Feb. 2023
2022 Departmental Seminar, Department of Plant and Microbial Biology at **UC Berkeley**, Nov 2022
ALARM International Symposium, **Amrita School of Biotechnology**, India, Nov. 2022

	Thinking like a microbe: a tribute to Stanley Falkow symposium, NIH Division of Intramural Research, NIAID Rocky Mountain Laboratories , Hamilton, MT, July 2022
2021	18th International Conference on Pseudomonas , Atlanta, Georgia Center for Biomolecular Structure and Dynamics Research Symposium, University of Montana
2020	University of Denver Anschutz Microbiology Seminar Series American Society for Microbiology 2020 Microbe Meeting, Co-moderator, in-depth symposium Life at the Cutting Edge *cancelled, covid Pseudomonas Seminar Series , online seminar series organized by Urvish Trivedi (University of Copenhagen) and Cassandra Nelson (University of Maryland).
2019	NIAID Rocky Mountain Laboratories Summer Research Symposium, Hamilton, MT University of Utah Department of Pathology Seminar Series, University of Utah Division of Biological Sciences Seminar Series, University of California, San Diego Department of Microbiology and Immunology Seminar Series, Montana State University Integrative Microbiology Seminar Series, University of California, San Francisco Center for Biomolecular Structure and Dynamics Research Symposium, University of Montana Institute for Infection, Immunology, and Inflammation Seminar Series, Vanderbilt University
2018	Center for Biomolecular Structure and Dynamics Research Symposium, University of Montana Organismal Biology, Ecology, and Evolution Brewery Chalk Talk Series, University of Montana Montana Biofilm Meeting, Center for Biofilm Engineering, Montana State University
2017	Harkins High School Science Fusion Lecture, University of Montana
2016	Pacific Northwest Epithelial Biology Meeting, University of Washington Cystic Fibrosis Foundation Retreat, University of Washington
2015	North American Cystic Fibrosis Conference , Phoenix, AZ
2014	North American Cystic Fibrosis Conference , Atlanta, GA
2012	Cystic Fibrosis Foundation Retreat, University of Washington
2008	Invited Speaker, Molecular Probes , Invitrogen, Eugene, OR
2006-2010	Montana Biofilm Meeting, Center for Biofilm Engineering, Montana State University

PROFESSIONAL ACTIVITIES

Referee for Professional Publications –

Cell Host & Microbe, Cell Reports, iScience, Science Advances, eLife, EMBO Journal, Virulence, Nature Biofilms and Microbiomes, Frontiers in Microbiology, Genome Evolution, Virus Evolution, mBio, Journal of Bacteriology, Applied and Environmental Microbiology, mSphere, Journal of Virology, Soft Matter, PLoS ONE, Spectrum, Viruses.

Grant review –

2022 *ad hoc* member, NIAID P01 Study Section, 2021 *ad hoc* member, NIH DDR Study Section, 2020 *ad hoc* member, NIH Special Emphasis Study Section, 2021 *ad hoc* reviewer, Cystic Fibrosis Foundation

Postdoctoral Fellows Mentored –

Robert Brzozowski, PhD

Graduate Students Mentored –

Camilla de Mattos, Caleb Schwartzkopf, Amelia Schmidt, Dominick Faith, Valery Roman-Cruz

Graduate Student Committees –

Camilla de Mattos, Caleb Schwartzkopf, Amelia Schmidt, Dominick Faith, Shaun Wachter, Kelley Van Vaerenberghe, Christopher Pierpont, John Statz, Nanami Kubota (U Pitt)

Professional Society Affiliations –
American Society for Microbiology

Departmental Service –
Neuroscience Faculty Search Committee, Center for Translational Medicine Faculty
Advisory Council, Graduate Admissions Committee, Microbiology Curriculum
Advisory Committee

College Service –
Undergraduate Award and Scholarship Committee, DBS Curriculum Committee

University Service –
Institutional Biosafety Committee