

Pathology and Microbiology & IPID Graduate student publications 2022-2023

(Not including posters or abstracts)

Monisha Alla:

Pokorzynski ND, **Alla MR**, Carabeo RA. Host Cell Amplification of Nutritional Stress Contributes To Persistence in *Chlamydia trachomatis*. mBio. 2022;13(6):e0271922. doi:10.1128/mbio.02719-22

Blake Bertrand:

Bertrand BP, Heim CE, West SC, Chaudhari SS, Ali H, Thomas VC, Kielian T. Role of *Staphylococcus aureus* Formate Metabolism during Prosthetic Joint Infection. Infect Immun. 2022 Nov 17;90(11):e0042822. doi: 10.1128/iai.00428-22. Epub 2022 Oct 26. PMID: 36286525; PMCID: PMC9670962.

Kathryn Cole:

Cole KE, Ly QP, Hollingsworth MA, Cox JL, Fisher KW, Padussis JC, Foster JM, Vargas LM, Talmadge JE. Splenic and PB immune recovery in neoadjuvant treated gastrointestinal cancer patients. Int Immunopharmacol. 2022 May;106:108628. doi: 10.1016/j.intimp.2022.108628. Epub 2022 Feb 21. PMID: 35203041; PMCID: PMC9009221.

Srijaanee Das:

Das S, Wang W, Ganesan M, Fonseca-Lanza F, Cobb DA, Bybee G, Sun Y, Guo L, Hanson B, Cohen SM, Gendelman HE, Osna NA, Edagwa BJ, Poluektova LY. An ultralong-acting tenofovir ProTide nanoformulation achieves monthslong HBV suppression. Sci Adv. 2022 Dec 23;8(51):eade9582. doi: 10.1126/sciadv.ade9582. Epub 2022 Dec 23. PMID: 36563152; PMCID: PMC9788773.

Del Dsouza:

Kakalij RM, **Dsouza DL**, Boesen EI. Development of High Fat Diet-Induced Hyperinsulinemia in Mice Is Enhanced by Co-treatment With a TLR7 Agonist. Front Physiol. 2022 Jul 6;13:930353. doi: 10.3389/fphys.2022.930353. P

Tang W, Panja S, Jogdeo CM, Tang S, Ding L, Yu A, Foster KW, **Dsouza DL**, Chhonker YS, Jensen-Smith H, Jang HS, Boesen EI, Murry DJ, Padanilam B, Oupický D. Modified chitosan for effective renal delivery of siRNA to treat acute kidney injury. Biomaterials. 2022 Jun;285:121562. doi: 10.1016/j.biomaterials.2022.121562. Epub 2022 May 2. PMID: 35552115; PMCID: PMC9133205. MID: 35874527; PMCID: PMC9298857.

Valerie Fousek-Schuller:

Li J, Chen CH, O'Neill KL, **Fousek-Schuller VJ**, Black AR, Black JD, Zhang J, Luo X. Combined inhibition of aurora kinases and Bcl-xL induces apoptosis through select BH3-only proteins. J Biol Chem. 2023 Feb;299(2):102875. doi: 10.1016/j.jbc.2023.102875. Epub 2023 Jan 6. PMID: 36621626; PMCID: PMC9922828.

Benjamin Girardo:

Yue Y, Puniya BL, Helikar T, **Girardo B**, Hinrichs SH, Larson MA. Arginine Catabolism and Polyamine Biosynthesis Pathway Disparities Within *Francisella tularensis* Subpopulations. Front Microbiol. 2022 Jun 20;13:890856. doi: 10.3389/fmicb.2022.890856. PMID: 35794913; PMCID: PMC9251427.

Nathan Hatch:

Hatch N.D., Ouellette S.P. 2023. Identification of the alternative sigma factor regulons of *Chlamydia trachomatis* using multiplexed CRISPR interference. mBio. Submitted – Under Review

Christopher Horn:

Joseph Menousek, **Christopher M. Horn**, Cortney E. Heim, **Zachary Van Roy**, Lee E. Korshoj, Tammy Kielian; Transcriptional Profiling of Phagocytic Leukocytes and Microglia Reveals a Critical Role for Reactive Oxygen Species in Biofilm Containment during *Staphylococcus aureus* Craniotomy Infection. J Immunol 15 November 2022; 209 (10): 1973–1986. <https://doi.org/10.4049/jimmunol.2200503>

Aaron Jensen:

Pan S, **Jensen AA**, Wood NA, Henrichfreise B, Brötz-Oesterhelt H, Fisher DJ, Sass P, Ouellette SP. Molecular Characterization of the ClpC AAA+ ATPase in the Biology of *Chlamydia trachomatis*. mBio. 2023 Apr 25;14(2):e0007523. doi: 10.1128/mbio.00075-23. Epub 2023 Mar 28. PMID: 36975997; PMCID: PMC10128030.

Elizabeth Klug:

Ripperda T, Yu Y, Verma A, **Klug E**, Thurman M, Reid SP, Wang G. Improved Database Filtering Technology Enables More Efficient Ab Initio Design of Potent Peptides against Ebola Viruses. Pharmaceuticals (Basel). 2022 Apr 24;15(5):521. doi: 10.3390/ph15050521. PMID: 35631348; PMCID: PMC9143221.

Jian Li:

Li J, Chen CH, O'Neill KL, **Fousek-Schuller VJ**, Black AR, Black JD, Zhang J, Luo X. Combined inhibition of aurora kinases and Bcl-xL induces apoptosis through select BH3-only proteins. J Biol Chem. 2023 Feb;299(2):102875. doi: 10.1016/j.jbc.2023.102875. Epub 2023 Jan 6. PMID: 36621626; PMCID: PMC9922828.

Caitlin Molczyk:

Molczyk C, Singh RK. CXCR1: A Cancer Stem Cell Marker and Therapeutic Target in Solid Tumors. Biomedicines. 2023 Feb 16;11(2):576. doi: 10.3390/biomedicines11020576. PMID: 36831112; PMCID: PMC9953306.

Prajapati DR, **Molczyk C**, Purohit A, Saxena S, **Sturgeon R**, Kumar S, Batra SK, and Singh RK. Small molecule antagonist of CXCR2 and CXCR1 inhibits tumor growth, angiogenesis, and metastasis in pancreatic cancer. Cancer Letters, 14;563:216185. 2023 doi: 10.1016/j.canlet.2023.216185. [Epub ahead of print] PubMed PMID: 37062329.

Opeoluwa Oyewole:

Oyewole, O.O., Dunnavant, K., Bhattarai, S., Kharel, Y., Lynch, K.R., Santos, W.L., Reid, S.P. A Novel Sphingosine Kinase Inhibitor Suppresses Chikungunya Virus Infection. Viruses 2022 14 (6) 1123. DOI: 10.3390/v14061123

Melissa Rosenthal:

Rosenthal MR and Ng CL. Harnessing machine learning and high content imaging to automatically quantify malaria parasites. *Cell Reports Methods*. (<http://dx.doi.org/10.2139/ssrn.4115869>). (Manuscript in revision)

Enakshi Roy:

Muralidharan A, Bauer C, Katafiasz DM, Pham D, **Oyewole OO**, Morwitzer MJ, **Roy E**, Bailey KL, Reid SP, Wyatt TA. Malondialdehyde acetaldehyde adduction of surfactant protein D attenuates SARS-CoV-2 spike protein binding and virus neutralization. *Alcohol Clin Exp Res*. 2023 Jan;47(1):95-103

Roy E, Wojciehowicz ML, Ma'ayan A, Reid SP. Host Gene Expression in Bone Marrow-derived Mesenchymal Stem Cells During Chikungunya Virus Infection Reveals Potential Antiviral Targets. *Viruses*. 2023. (In minor revision stage)

Zachary Scott:

Scott ZW, Choi SR, Talmon GA, Britigan BE, Narayanasamy P. Combining Gallium Protoporphyrin and Gallium Nitrate Enhances *In Vitro* and *In Vivo* Efficacy against *Pseudomonas aeruginosa*: Role of Inhibition of Bacterial Antioxidant Enzymes and Resultant Increase in Cytotoxic Reactive Oxygen Species. *ACS Infect Dis*. 2022 Oct 14;8(10):2096-2105. doi: 10.1021/acsinfecdis.2c00196. Epub 2022 Sep 1. PMID: 36049087.

Scott ZW, Choi SR, Britigan BE, Narayanasamy P. Development of Gallium(III) as an Antimicrobial Drug Targeting Pathophysiologic Iron Metabolism of Human Pathogens. *ACS Infect Dis*. 2023 Apr 14;9(4):716-738. doi: 10.1021/acsinfecdis.3c00050. Epub 2023 Mar 30. PMID: 36995299.

Thomas Schulze:

Schulze TT, Neville AJ, Chapman RC, Davis PH. Mouse splenocyte enrichment strategies via negative selection for broadened single-cell transcriptomics. *STAR Protoc*. 2022 May 17;3(2):101402. doi: 10.1016/j.xpro.2022.101402. PMID: 35600930; PMCID: PMC9120244.

Ryan Singh:

Singh RM, Chaudhari SS, Panda S, Hutfless EH, Heim CE, Shinde D, Alqarzaee AA, Sladek M, Kumar V, Zimmerman MC, Fey PD, Kielian T, Thomas VC. A critical role for endogenous bacterial nitric oxide synthase in controlling flavohemoglobin toxicity in *Staphylococcus epidermidis*. *Redox Biology*. Under Revision.

Reegan Sturgeon:

Prajapati DR, **Molczyk C**, Purohit A, Saxena S, **Sturgeon R**, Kumar S, Batra SK, and Singh RK. Small molecule antagonist of CXCR2 and CXCR1 inhibits tumor growth, angiogenesis, and metastasis in pancreatic cancer. *Cancer Letters*, 14;563:216185. 2023 doi: 10.1016/j.canlet.2023.216185. [Epub ahead of print] PubMed PMID: 37062329.

Zachary Van Roy:

Halouska M A, **Van Roy Z A**, Lang A N, et al. (July 18, 2022) Excellent Outcomes With the Selective Use of Oral Antibiotic Therapy for Bone and Joint Infections: A Single-Center Experience. *Cureus* 14(7): e26982. doi:10.7759/cureus.26982

Van Roy, Z, Kielian, T. Exploring epigenetic reprogramming during central nervous system infection. *Immunol Rev*. 2022; 311: 112– 129. doi:10.1111/imr.13079

Joseph Menousek, **Christopher M. Horn**, Cortney E. Heim, **Zachary Van Roy**, Lee E. Korshoj, Tammy Kielian; Transcriptional Profiling of Phagocytic Leukocytes and Microglia Reveals a Critical Role for Reactive Oxygen Species in Biofilm Containment during *Staphylococcus aureus* Craniotomy Infection. *J Immunol* 15 November 2022; 209 (10): 1973–1986. <https://doi.org/10.4049/jimmunol.2200503>

Ray Widner:

Jorgenson LM, Knight L, **Widner RE**, Rucks EA. Eukaryotic Clathrin Adapter Protein and Mediator of Cholesterol Homeostasis, PICALM, Affects Trafficking to the Chlamydial Inclusion. *Mol Cell Biol.* 2023 Feb 13;43(2):1-13. doi: 10.1080/10985549.2023.2171695. Epub ahead of print. PMID: 36779337; PMCID: PMC9980547.

Nicholas Wood:

Wood NA, Swoboda AR, Blocker AM, Fisher DJ, Ouellette SP. Tag-Dependent Substrate Selection of ClpX Underlies Secondary Differentiation of *Chlamydia trachomatis*. *mBio.* 2022 Oct 26;13(5):e0185822. doi: 10.1128/mbio.01858-22. Epub 2022 Sep 26. PMID: 36154190; PMCID: PMC9601184.

Azadmanesh J, Seleem MA, Struble L, **Wood NA**, Fisher DJ, Lovelace JJ, Artigues A, Fenton AW, Borgstahl GEO, Ouellette SP, Conda-Sheridan M. The structure of caseinolytic protease subunit ClpP2 reveals a functional model of the caseinolytic protease system from *Chlamydia trachomatis*. *J Biol Chem.* 2023 Jan;299(1):102762. doi: 10.1016/j.jbc.2022.102762. Epub 2022 Dec 1. PMID: 36463962; PMCID: PMC9823225.

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