

2021 Graduate Student Publications

- Danis-Wlodarczyk, K. M.**, Cai, A., Chen, A., **Gittrich, M. R.**, Sullivan, M. B., Wozniak, D. J., & Abedon, S. T. (2021). Friends or Foes? Rapid Determination of Dissimilar Colistin and Ciprofloxacin Antagonism of *Pseudomonas aeruginosa* Phages. *Pharmaceuticals (Basel, Switzerland)*, 14(11), 1162. <https://doi.org/10.3390/ph14111162>
- Hyman, P., **Trubl, G.**, & Abedon, S. T. (2021). Virus-Like Particle: Evolving Meanings in Different Disciplines. *PHAGE (New Rochelle, N.Y.)*, 2(1), 11–15. <https://doi.org/10.1089/phage.2020.0026>
- Dixit, S., Kessler, A. C., Henderson, J., Pan, X., Zhao, R., **D'Almeida, G. S.**, Kulkarni, S., Rubio, M., Hegedúsová, E., Ross, R. L., Limbach, P. A., Green, B. D., Paris, Z., & Alfonzo, J. D. (2021). Dynamic queuosine changes in tRNA couple nutrient levels to codon choice in *Trypanosoma brucei*. *Nucleic acids research*, 49(22), 12986–12999. <https://doi.org/10.1093/nar/gkab1204>
- Wang, J. M., **Woodruff, A. L.**, **Dunn, M. J.**, Fillinger, R. J., Bennett, R. J., & Anderson, M. Z. (2021). Intraspecies Transcriptional Profiling Reveals Key Regulators of *Candida albicans* Pathogenic Traits. *mBio*, 12(2), e00586-21. <https://doi.org/10.1128/mBio.00586-21>
- Del Peso Santos, T., Alvarez, L., Sit, B., Irazoki, O., Blake, J., **Warner, B. R.**, Warr, A. R., Bala, A., Benes, V., Waldor, M. K., Fredrick, K., & Cava, F. (2021). BipA exerts temperature-dependent translational control of biofilm-associated colony morphology in *Vibrio cholerae*. *eLife*, 10, e60607. <https://doi.org/10.7554/eLife.60607>
- Lundstedt, E.**, Kahne, D., & Ruiz, N. (2021). Assembly and Maintenance of Lipids at the Bacterial Outer Membrane. *Chemical reviews*, 121(9), 5098–5123. <https://doi.org/10.1021/acs.chemrev.0c00587>
- Wilson, A.**, & Ruiz, N. (2021). Transport of lipopolysaccharides and phospholipids to the outer membrane. *Current opinion in microbiology*, 60, 51–57. <https://doi.org/10.1016/j.mib.2021.01.006>
- Vera-Ponce de León, A., **Jahnes, B. C.**, Otero-Bravo, A., & Sabree, Z. L. (2021). Microbiota Perturbation or Elimination Can Inhibit Normal Development and Elicit a Starvation-Like Response in an Omnivorous Model Invertebrate. *mSystems*, 6(4), e0080221. <https://doi.org/10.1128/mSystems.00802-21>
- Jahnes, B. C.**, Poudel, K., **Staats, A. M.**, & Sabree, Z. L. (2021). Microbial colonization promotes model cockroach gut tissue growth and development. *Journal of insect physiology*, 133, 104274. <https://doi.org/10.1016/j.jinsphys.2021.104274>
- Volpedo, G.**, **Huston, R. H.**, Holcomb, E. A., Pacheco-Fernandez, T., Gannavaram, S., Bhattacharya, P., Nakhasi, H. L., & Satoskar, A. R. (2021). From infection to vaccination: reviewing the global burden, history of vaccine development, and recurring challenges in global

leishmaniasis protection. *Expert review of vaccines*, 20(11), 1431–1446.

<https://doi.org/10.1080/14760584.2021.1969231>

Volpedo, G., Pacheco-Fernandez, T., Bhattacharya, P., Oljuskin, T., Dey, R., Gannavaram, S., Satoskar, A. R., & Nakhasi, H. L. (2021). Determinants of Innate Immunity in Visceral Leishmaniasis and Their Implication in Vaccine Development. *Frontiers in immunology*, 12, 748325. <https://doi.org/10.3389/fimmu.2021.748325>

Shaheen, N., Verma, C., Pacheco-Fernandez, T., **Volpedo, G.**, Hamid, A., Zeb, I., Shah, S., Fahad, S., Iqbal, A., Ashraf, A., Khan, A., Gul, M., Khan, M. I., Fatima, H., Afzal, M., Satoskar, A. R., & Qureshi, N. A. (2021). Molecular characterization and genetic diversity of cutaneous leishmaniasis from North Eastern Pakistan. *Acta tropica*, 221, 105964.

<https://doi.org/10.1016/j.actatropica.2021.105964>

Volpedo, G., Pacheco-Fernandez, T., Holcomb, E. A., Cipriano, N., Cox, B., & Satoskar, A. R. (2021). Mechanisms of Immunopathogenesis in Cutaneous Leishmaniasis And Post Kala-azar Dermal Leishmaniasis (PKDL). *Frontiers in cellular and infection microbiology*, 11, 685296.

<https://doi.org/10.3389/fcimb.2021.685296>

Pacheco-Fernandez, T., **Volpedo, G.**, Verma, C., & Satoskar, A. R. (2021). Understanding the immune responses involved in mediating protection or immunopathology during leishmaniasis. *Biochemical Society transactions*, 49(1), 297–311. <https://doi.org/10.1042/BST20200606>

Garneau, J. R., Legrand, V., Marbouty, M., Press, M. O., **Vik, D. R.**, Fortier, L. C., Sullivan, M. B., Bikard, D., & Monot, M. (2021). High-throughput identification of viral termini and packaging mechanisms in virome datasets using PhageTermVirome. *Scientific reports*, 11(1), 18319.

<https://doi.org/10.1038/s41598-021-97867-3>

Zayed, A. A., Lücking, D., Mohssen, M., **Cronin, D.**, Bolduc, B., Gregory, A. C., Hargreaves, K. R., Piehowski, P. D., White, R. A., Huang, E. L., Adkins, J. N., Roux, S., Moraru, C., & Sullivan, M. B. (2021). efam: an expanded, metaproteome-supported HMM profile database of viral protein families. *Bioinformatics (Oxford, England)*, 37(22), 4202–4208. Advance online publication.

<https://doi.org/10.1093/bioinformatics/btab451>

Pratama, A. A., Bolduc, B., **Zayed, A. A.**, Zhong, Z. P., Guo, J., **Vik, D. R.**, Gazitúa, M. C., Wainaina, J. M., Roux, S., & Sullivan, M. B. (2021). Expanding standards in viromics: in silico evaluation of dsDNA viral genome identification, classification, and auxiliary metabolic gene curation. *PeerJ*, 9, e11447. <https://doi.org/10.7717/peerj.11447>

Vik, D., Gazitúa, M. C., Sun, C. L., **Zayed, A. A.**, Aldunate, M., Mulholland, M. R., Ulloa, O., & Sullivan, M. B. (2021). Genome-resolved viral ecology in a marine oxygen minimum zone. *Environmental microbiology*, 23(6), 2858–2874. <https://doi.org/10.1111/1462-2920.15313>

Gazitúa, M. C., **Vik, D. R.**, Roux, S., Gregory, A. C., Bolduc, B., Widner, B., Mulholland, M. R., Hallam, S. J., Ulloa, O., & Sullivan, M. B. (2021). Potential virus-mediated nitrogen cycling in

oxygen-depleted oceanic waters. *The ISME journal*, 15(4), 981–998.

<https://doi.org/10.1038/s41396-020-00825-6>

Guo, J., Bolduc, B., **Zayed, A. A.**, Varsani, A., Dominguez-Huerta, G., Delmont, T. O., **Pratama, A. A.**, Gazitúa, M. C., **Vik, D.**, Sullivan, M. B., & Roux, S. (2021). VirSorter2: a multi-classifier, expert-guided approach to detect diverse DNA and RNA viruses. *Microbiome*, 9(1), 37.

<https://doi.org/10.1186/s40168-020-00990-y>

Staats, A., Burback, P. W., Eltobgy, M., Parker, D. M., Amer, A. O., Wozniak, D. J., Wang, S. H., Stevenson, K. B., Urish, K. L., & Stoodley, P. (2021). Synovial Fluid-Induced Aggregation Occurs across *Staphylococcus aureus* Clinical Isolates and is Mechanistically Independent of Attached Biofilm Formation. *Microbiology spectrum*, 9(2), e0026721.

<https://doi.org/10.1128/Spectrum.00267-21>

Staats, A., Li, D., Sullivan, A. C., & Stoodley, P. (2021). Biofilm formation in periprosthetic joint infections. *Annals of joint*, 6, 43. <https://doi.org/10.21037/aoj-20-85>

Macias-Valcayo, A., **Staats, A.**, Aguilera-Correa, J. J., Brooks, J., Gupta, T., Dusane, D., Stoodley, P., & Esteban, J. (2021). Synovial Fluid Mediated Aggregation of Clinical Strains of Four Enterobacterial Species. *Advances in experimental medicine and biology*, 1323, 81–90.

https://doi.org/10.1007/5584_2020_573

Staats, A., Burback, P. W., Eltobgy, M., Parker, D. M., Amer, A. O., Wozniak, D. J., Wang, S. H., Stevenson, K. B., Urish, K. L., & Stoodley, P. (2021). Synovial Fluid-Induced Aggregation Occurs across *Staphylococcus aureus* Clinical Isolates and is Mechanistically Independent of Attached Biofilm Formation. *Microbiology spectrum*, 9(2), e0026721.

<https://doi.org/10.1128/Spectrum.00267-21>

Marathe IA, Lai SM, Zahurancik WJ, Poirier MG, Wysocki VH, **Gopalan V.** Protein cofactors and substrate influence Mg²⁺-dependent structural changes in the catalytic RNA of archaeal RNase P. *Nucleic Acids Res.* 2021 Sep 20;49(16):9444-9458. doi: 10.1093/nar/gkab655.

Karthigeyan KP, Zhang L, Loiselle DR, Haystead TAJ, Bhat M, **Yount JS**, Kwiek JJ. A bioorthogonal chemical reporter for fatty acid synthase-dependent protein acylation. *J Biol Chem.* 2021 Nov;297(5):101272. doi: 10.1016/j.jbc.2021.101272.

Goughenour KD, Whalin J, Slot JC, Rappleye CA. Diversification of Fungal Chitinases and Their Functional Differentiation in *Histoplasma capsulatum*. *Mol Biol Evol.* 2021 Apr 13;38(4):1339-1355. doi: 10.1093/molbev/msaa293.

Chaffron S, Delage E, Budinich M, Vintache D, Henry N, Nef C, Ardyna M, **Zayed AA**, Junger PC, Galand PE, Lovejoy C, Murray AE, Sarmiento H; Tara Oceans coordinators, Acinas SG, Babin M, Iudicone D, Jaillon O, Karsenti E, Wincker P, Karp-Boss L, Sullivan MB, Bowler C, de Vargas C, Eveillard D. Environmental vulnerability of the global ocean epipelagic plankton community

interactome. *Sci Adv*. 2021 Aug 27;7(35):eabg1921. doi: 10.1126/sciadv.abg1921. Print 2021 Aug.

Casillas-Ituarte NN, **Staats AM**, Lower BH, Stoodley P, Lower SK. Host blood proteins as bridging ligand in bacterial aggregation as well as anchor point for adhesion in the molecular pathogenesis of Staphylococcus aureus infections. *Micron*. 2021 Nov;150:103137. doi: 10.1016/j.micron.2021.103137.

Johnson LJ, **Azari S**, Webb A, Zhang X, Gavrilin MA, Marshall JM, Rood K, Seveau S. Human Placental Trophoblasts Infected by *Listeria monocytogenes* Undergo a Pro-Inflammatory Switch Associated With Poor Pregnancy Outcomes. *Front Immunol*. 2021 Jul 23;12:709466. doi: 10.3389/fimmu.2021.709466. eCollection 2021.

Azari S, **Johnson LJ**, Webb A, Kozlowski SM, Zhang X, Rood K, Amer A, Seveau S. Hofbauer Cells Spread *Listeria monocytogenes* among Placental Cells and Undergo Pro-Inflammatory Reprogramming while Retaining Production of Tolerogenic Factors. *mBio*. 2021 Aug 31;12(4):e0184921. doi: 10.1128/mBio.01849-21. Epub 2021 Aug 17.

Sakowski EG, Arora-Williams K, Tian F, **Zayed AA**, **Zablocki O**, Sullivan MB, Preheim SP. Interaction dynamics and virus-host range for estuarine actinophages captured by epicPCR. *Expert Rev Vaccines*. 2021 Nov;20(11):1431-1446. doi: 10.1080/14760584.2021.1969231. Epub 2021 Sep 15.

Wilson RM, **Zayed AA**, Crossen KB, Woodcroft B, Tfaily MM, Emerson J, Raab N, **Hodgkins SB**, Verbeke B, Tyson G, Crill P, Saleska S, Chanton JP, Rich VI; IsoGenie Project Coordinators; IsoGenie Project Field Team. Functional capacities of microbial communities to carry out large scale geochemical processes are maintained during ex situ anaerobic incubation. *PLoS One*. 2021 Feb 25;16(2):e0245857. doi: 10.1371/journal.pone.0245857. eCollection 2021.

Ellenbogen JB, **Jiang R**, Kountz DJ, Zhang L, Krzycki JA. The MttB superfamily member MtyB from the human gut symbiont *Eubacterium limosum* is a cobalamin-dependent γ -butyrobetaine methyltransferase. *J Biol Chem*. 2021 Nov;297(5):101327. doi: 10.1016/j.jbc.2021.101327. Epub 2021 Oct 21.

Du J, **Zayed AA**, Kigerl KA, Zane K, Sullivan MB, Popovich PG. Spinal Cord Injury Changes the Structure and Functional Potential of Gut Bacterial and Viral Communities. *mSystems*. 2021 May 11;6(3):e01356-20. doi: 10.1128/mSystems.01356-20.

Gerst MM, Somogyi Á, Yang X, **Yousef AE**. Detection and characterization of a rare two-component lantibiotic, amyloliquocidin GF610 produced by *Bacillus velezensis*, using a combination of culture, molecular and bioinformatic analyses. *J Appl Microbiol*. 2022 Feb;132(2):994-1007. doi: 10.1111/jam.15290. Epub 2021 Sep 15.

