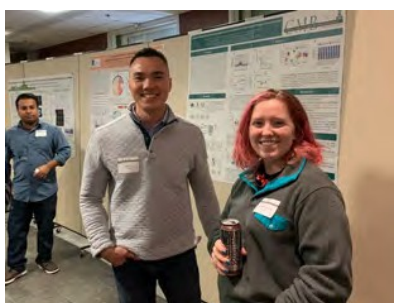
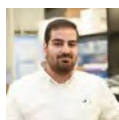


2019-2020 Year in Review



2019-2020 Students

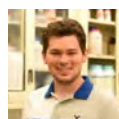
Cellular, Molecular, and Biomedical Sciences



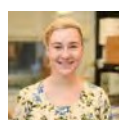
Alqassem Abuarqoub
Mentor: James Stafford



Sierra Bruno
Mentor: Vikas Anathy



Cole Davidson
Mentor: Frances Carr



Lea Drogalis
Mentor: Sylvie Doublee



Evan Elko
Mentor: Yvonne
Janssen-Heininger



Andrea Foote
Mentor: Robert Kelm



Noelle Gillis
Mentor: Frances Carr



Lauren Hinkel
Mentor: Matt Wargo



EmilyJoyce
Mentor: Undecided



Frances Male
Mentor: Gary Ward



Michael Mariani
Mentor: Seth Fietze



Somen Mistri
Mentor: Jonathan
Boyson



Gopika Nandagopal
Mentor: Undecided



Jayita Barua
Mentor: Dan Weiss



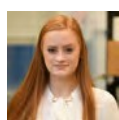
Alisa Cario
Mentor: Chris Berger



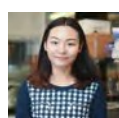
Hannah Despres
Mentor: Jason Botten



Sebastian Duno Miranda
Mentor: David Warshaw



Amanda Fastiggi
Mentor: Undecided



Cong Gao
Mentor: Seth Fietze



Randi Gravelle
Mentor: Brian Cunniff



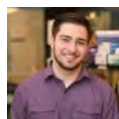
Evan Hoffman
Mentor: Dr. Dan Weiss



Mingu Kang
Mentor: Alan Howe



Kiera Malone
Mentor: Karen Glass



Ethan Mattice
Mentor: Chris Huston



Theresa Montgomery
Mentor: Dimitry
Krementsov



Emily Stassen Pacht
Mentor: Stephanie
McKay



JJ Bivona
Mentor: Benjamin Suratt



Nicolas Chamberlain
Mentor: Vikas Anathy



Pauline DiGianivittorio
Mentor: Dan Weiss



Christopher Dustin
Mentor: Albert van
der Vliet



Jonathon Ferrell
Mentor: Jianing Li



Emily Giddings
Mentor: James Stafford



Md Mahmudul Hasan
Mentor: Chris Huston



Emily Holt
Mentor: Dimitry Kremmentsov



Sean Lenahan
Mentor: David Seward



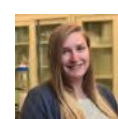
Inessa Manuelyan
Mentor: Jason Botten



Bethany Mihavics
Mentor: Chris Huston



Alexis Nadeau
Mentor: Undecided



Lucy Pilcher
Mentor: Jeff Spees



Katelyn Queen
Mentor: Jason Stumpff



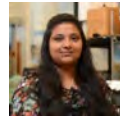
Kathleen Quinn
Mentor: Karen Glass
& Seth Frieze



Alyssa Richman
Mentor: Seth Frieze



Princess Rodriguez
Mentors: Seth Frieze
& Eyal Amiel



Bristy Sabbikunahar
Mentor: Dmitry
Krementsov



Michaela Schuster
Mentor: Undecided



Leslie Sepaniac
Mentor: Jason Stumpff



Nathaniel Shannon
Mentor: Brian Cunniff



Anne Snyder
Mentor: Gary Ward



Julia Snyder
Mentor: Eyal Amiel



Rachel Stadler
Mentor: Gary Ward



Camilla Strother
Mentor: Sean Dehls



Kathryn Svec
Mentor: Alan Howe



Alex Thompson
Mentor: Jason Stumpff



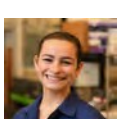
Huy Tu
Mentor: Sean Diehl



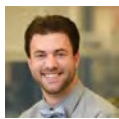
Bay Vagher
Mentor: Eyal Amiel



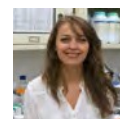
Scott Vanson
Mentor: Sylvie Doublet



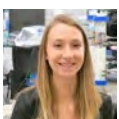
Regina Visconti
Mentor: Undecided



Marcus Weinman
Mentor: James Stafford



Annalis Whitaker
Mentor: Jason Botten



Emily Whitaker
Mentor: Markus Thali



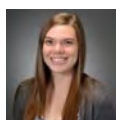
Trevor Wolf
Mentor: Undecided

First year students: Jubilee Ajiboye, Soyeon Gullickson, Kanayo Ikeh, Sylvester Languon, Jacob Mackinder, Paola Pena, Shannon Prior, Joshua Victor

Neuroscience Graduate Program



Mahafuza Aktar
Mentors: Victor May
& Jom Hammack



Katharine Bea
Mentor: Margaret
Vizzard



Melissa Boucher
Mentor: Jom Hammack



Jeffrey Brabec
Mentor: Matt Mahoney



Erin Cullen
Mentor: Matthew
Weston



Willie Curry
Mentor: Rod Scott



Adrian Dutkiewicz
Mentor: Anthony
Morielli



Olivia Fahr
Mentor: Undecided



Nick Fontaine
Mentor: Jom Hammack



Yu Han
Mentor: Patricia
Prelock



Harrison Hsiang
Mentor: Margaret
Vizzard



Montana Kay Lara
Mentor: Matt Mahoney



Theresa Legan
Mentor: Gary Mawe



Zhaojin Li
Mentor: Marilyn Cipolla



Matt McCabe
Mentor: Matthew Weston



John McInnis
Mentor: Jeff Spees



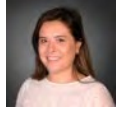
Patrick Mullen
Mentors: Chris Francklyn
& Alicia Ebert



Megan Perkins
Mentor: Margaret Vizzard



McKenna Perry
Mentor: Undecided



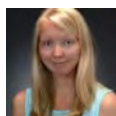
Chloe Pilgrim
Mentor: Undecided



Amanda Sidwall
Mentor: Undecided



Callum Thomas
Mentor: John Green



Daniella Thorsdottir
Mentor: Benedek Erdos



Nicholas Toker
Mentor: Jeff Spees

First year students: Jenan Husain, Mohamed Rabieh Khalife, Pranav Mathkar, Daniel Peipert, Abigail Testo

Graduates: June 1, 2019 - May 31, 2020

Doctor of Philosophy

Eric Bolf

Program: Cellular, Molecular, & Biomedical Sciences
Advisor: Fran Carr
Current Position: Postdoctoral Fellow at University of Colorado Anschutz

Dominique Lessard

Program: Cellular, Molecular, & Biomedical Sciences
Advisor: Christopher Berger
Current Position: Science Communication Director at KIF1A.ORG, INC.

Brittany L. Carroll

Program: Cellular, Molecular, & Biomedical Sciences
Advisor: Silvie Doublet
Current Position: Postdoctoral Fellow at Microbial Sciences Institute, Yale University School of Medicine

Abbas Raza

Program: Cellular, Molecular, & Biomedical Sciences
Advisor: Cory Teuscher
Current Position: Postdoctoral Fellow Department of Microbiology and Physiological Systems, University of Massachusetts Medical School

Wyatt Chia

Program: Cellular, Molecular, & Biomedical Sciences
Advisor: Yvonne Jansen-Heininger
Current Position: Postdoctoral Fellow at University of Colorado Anschutz

Master of Science

Jamie Deutsch
Program: Cellular, Molecular, & Biomedical
Sciences
Advisor: Jessica Heath

Student Publications: June 1, 2019 - May 31, 2020

Arnell TL, York C, Nadeau A, et al. The Role of the Dental Community in Oropharyngeal Cancer Prevention Through HPV Vaccine Advocacy [published online ahead of print, 2019 Nov 14]. *J Cancer Educ.* 2019;10.1007/s13187-019-01628-w. doi:10.1007/s13187-019-01628-w

Bodrug T, Wilson-Kubalek EM, Nithianantham S, et al. The kinesin-5 tail domain directly modulates the mechanochemical cycle of the motor domain for anti-parallel microtubule sliding. *Elife.* 2020;9:e51131. Published 2020 Jan 20. doi:10.7554/eLife.51131

Bolf EL, Gillis NE, Barnum MS, et al. The Thyroid Hormone Receptor-RUNX2 Axis: A Novel Tumor Suppressive Pathway in Breast Cancer. *Horm Cancer.* 2020;11(1):34-41. doi:10.1007/s12672-019-00373-2

Bruce EA, Huang ML, Perchetti GA, et al. DIRECT RT-qPCR DETECTION OF SARS-CoV-2 RNA FROM PATIENT NASOPHARYNGEAL SWABS WITHOUT AN RNA EXTRACTION STEP. Preprint. bioRxiv. 2020;2020.03.20.001008. Published 2020 Apr 6. doi:10.1101/2020.03.20.001008

Chamberlain N, Anathy V. Pathological consequences of the unfolded protein response and downstream protein disulphide isomerases in pulmonary viral infection and disease. *J Biochem.* 2020;167(2):173-184. doi:10.1093/jb/mvz101

Chia SB, Elko EA, Aboushousha R, et al. Dysregulation of the glutaredoxin/S-glutathionylation redox axis in lung diseases. *Am J Physiol Cell Physiol.* 2020;318(2):C304-C327. doi:10.1152/ajpcell.00410.2019

Curtis KD, Smith PR, Despres HW, et al. Glycogen Metabolism Supports Early Glycolytic Reprogramming and Activation in Dendritic Cells in Response to Both TLR and Syk-Dependent CLR Agonists. *Cells.* 2020;9(3):715. Published 2020 Mar 14. doi:10.3390/cells9030715

Dienz O, DeVault VL, Musial SC, et al. Critical Role for SLAM/SAP Signaling in the Thymic Developmental Programming of IL-17- and IFN- γ -Producing $\gamma\delta$ T Cells. *J Immunol.* 2020;204(6):1521-1534. doi:10.4049/jimmunol.1901082

Dustin CM, Heppner DE, Lin MJ, van der Vliet A. Redox regulation of tyrosine kinase signalling: more than meets the eye. *J Biochem.* 2020;167(2):151-163. doi:10.1093/jb/mvz085

Dustin CM, Hristova M, Schiffers C, van der Vliet A. Proteomic Methods to Evaluate NOX-Mediated Redox Signaling. *Methods Mol Biol.* 2019;1982:497-515. doi:10.1007/978-1-4939-9424-3_30

Elko EA, Cunniff B, Seward DJ, et al. Peroxiredoxins and Beyond; Redox Systems Regulating Lung Physiology and Disease. *Antioxid Redox Signal.* 2019;31(14):1070-1091. doi:10.1089/ars.2019.7752

Elko EA, Mahoney JM, Vacek P, et al. Age-dependent dysregulation of redox genes may contribute to fibrotic pulmonary disease susceptibility. *Free Radic Biol Med.* 2019;141:438-446. doi:10.1016/j.freeradbiomed.2019.07.011

Fair DA, Miranda-Dominguez O, Snyder AZ, et al. Correction of respiratory artifacts in MRI head motion estimates. *Neuroimage.* 2020;208:116400. doi:10.1016/j.neuroimage.2019.116400

Fritz AJ, Gillis NE, Gerrard DL, et al. Higher order genomic organization and epigenetic control maintain cellular identity and prevent breast cancer. *Genes Chromosomes Cancer*. 2019;58(7):484-499. doi:10.1002/gcc.22731

Fritz AJ, Hong D, Boyd J, et al. RUNX1 and RUNX2 transcription factors function in opposing roles to regulate breast cancer stem cells. *J Cell Physiol*. 2020;235(10):7261-7272. doi:10.1002/jcp.29625

Galatolo D, Kuo ME, Mullen P, et al. Bi-allelic mutations in HARS1 severely impair histidyl-tRNA synthetase expression and enzymatic activity causing a novel multisystem ataxic syndrome. *Hum Mutat*. 2020;41(7):1232-1237. doi:10.1002/humu.24024

Gerrard DL, Boyd JR, Stein GS, Jin VX, Fietze S. Disruption of Broad Epigenetic Domains in PDAC Cells by HAT Inhibitors. *Epigenomes*. 2019;3(2):11. doi:10.3390/epigenomes3020011

Girard BM, Campbell SE, Perkins M, et al. TRPV4 blockade reduces voiding frequency, ATP release, and pelvic sensitivity in mice with chronic urothelial overexpression of NGF. *Am J Physiol Renal Physiol*. 2019;317(6):F1695-F1706. doi:10.1152/ajprenal.00147.2019

Guigni BA, Fix DK, Bivona JJ 3rd, Palmer BM, Carson JA, Toth MJ. Electrical stimulation prevents doxorubicin-induced atrophy and mitochondrial loss in cultured myotubes. *Am J Physiol Cell Physiol*. 2019;317(6):C1213-C1228. doi:10.1152/ajpcell.00148.2019

Guigni BA, van der Velden J, Kinsey CM, Carson JA, Toth MJ. Effects of conditioned media from murine lung cancer cells and human tumor cells on cultured myotubes. *Am J Physiol Endocrinol Metab*. 2020;318(1):E22-E32. doi:10.1152/ajpendo.00310.2019

Karki A, Giddings E, Carreras A, et al. Sonoporation as an Approach for siRNA delivery into T cells. *Ultrasound Med Biol*. 2019;45(12):3222-3231. doi:10.1016/j.ultrasmedbio.2019.06.406

Kumar A, Howard A, Thomas CP. Estimated Glomerular Filtration Rate at Transplant Listing and Other Predictors of Post-Heart Transplant Mortality and the Development of ESRD [published online ahead of print, 2020 Feb 5]. *Transplantation*. 2020;10.1097/TP.0000000000003159. doi:10.1097/TP.0000000000003159

Lyons KD, Bruce ML, Hull JG, et al. Health Through Activity: Initial Evaluation of an In-Home Intervention for Older Adults With Cancer. *Am J Occup Ther*. 2019;73(5):7305205070p1-7305205070p11. doi:10.5014/ajot.2019.035022

McCabe MP, Cullen ER, Barrows CM, et al. Genetic inactivation of mTORC1 or mTORC2 in neurons reveals distinct functions in glutamatergic synaptic transmission. *Elife*. 2020;9:e51440. Published 2020 Mar 3. doi:10.7554/eLife.51440

McGill MM, Sabikunnahar B, Fang Q, Teuscher C, Kremontsov DN. The sex-specific role of p38 MAP kinase in CNS autoimmunity is regulated by estrogen receptor alpha [published online ahead of print, 2020 Mar 4]. *J Neuroimmunol*. 2020;342:577209. doi:10.1016/j.jneuroim.2020.577209

McKenzie AJ, Svec KV, Williams TF, Howe AK. Protein kinase A activity is regulated by actomyosin contractility during cell migration and is required for durotaxis. *Mol Biol Cell*. 2020;31(1):45-58. doi:10.1091/mbc.E19-03-0131

Munson PB, Hall EM, Farina NH, Pass HI, Shukla A. Exosomal miR-16-5p as a target for malignant mesothelioma. *Sci Rep*. 2019;9(1):11688. Published 2019 Aug 12. doi:10.1038/s41598-019-48133-0

Nivarthi UK, Tu HA, Delacruz MJ, et al. Corrigendum to "Longitudinal analysis of acute and convalescent B cell responses in a human primary dengue serotype 2 infection model" [EBioMedicine 41 (2019) 465-478]. *EBioMedicine*. 2020;54:102708. doi:10.1016/j.ebiom.2020.102708

Ojala J, Tooke K, Hsiang H, Girard BM, May V, Vizzard MA. PACAP/PAC1 Expression and Function in Micturition Pathways. *J Mol Neurosci*. 2019;68(3):357-367. doi:10.1007/s12031-018-1170-7

Perry M, Callas PW, Alef MJ, Bertges DJ. Outcomes of Peripheral Vascular Interventions via Retrograde Pedal Access for Chronic Limb-Threatening Ischemia in a Multicenter Registry. *J Endovasc Ther*. 2020;27(2):205-210. doi:10.1177/1526602820908056

Raza A, Xie Z, Chan EC, et al. A natural mouse model reveals genetic determinants of systemic capillary leak syndrome (Clarkson disease) [published correction appears in *Commun Biol*. 2019 Nov 25;2:439]. *Commun Biol*. 2019;2:398. Published 2019 Oct 31. doi:10.1038/s42003-019-0647-4

Saviola AJ, Zimmermann C, Mariani MP, et al. Chromatin Profiles of Chromosomally Integrated Human Herpesvirus-6A. *Front Microbiol*. 2019;10:1408. Published 2019 Jun 26. doi:10.3389/fmicb.2019.01408

Schroeck FR, Lynch KE, Li Z, et al. The impact of frequent cystoscopy on surgical care and cancer outcomes among patients with low-risk, non-muscle-invasive bladder cancer. *Cancer*. 2019;125(18):3147-3154. doi:10.1002/cncr.32185

Siddiqui A, Ueno C, Agarwal J, et al. Evidence-Based Performance Measures for Autologous Breast Reconstruction: An American Society of Plastic Surgeons Quality Performance Measure Set. *Plast Reconstr Surg*. 2020;145(2):284e-294e. doi:10.1097/PRS.0000000000006478

Sparks ME, Bansal R, Benoit JB, et al. Brown marmorated stink bug, *Halyomorpha halys* (Stål), genome: putative underpinnings of polyphagy, insecticide resistance potential and biology of a top worldwide pest. *BMC Genomics*. 2020;21(1):227. Published 2020 Mar 14. doi:10.1186/s12864-020-6510-7

Svec KV, Patterson JB, Naim N, Howe AK. Single Cell Durotaxis Assay for Assessing Mechanical Control of Cellular Movement and Related Signaling Events. *J Vis Exp*. 2019;(150):10.3791/59995. Published 2019 Aug 27. doi:10.3791/59995

Thomas GWC, Dohmen E, Hughes DST, et al. Gene content evolution in the arthropods. *Genome Biol*. 2020;21(1):15. Published 2020 Jan 23. doi:10.1186/s13059-019-1925-7

Thomas CMP, Thrailkill EA, Bouton ME, Green JT. Inactivation of the prelimbic cortex attenuates operant responding in both physical and behavioral contexts. *Neurobiol Learn Mem*. 2020;171:107189. doi:10.1016/j.nlm.2020.107189

Thompson AF, English EL, Nock AM, et al. Characterizing species interactions that contribute to biofilm formation in a multispecies model of a potable water bacterial community. *Microbiology*. 2020;166(1):34-43. doi:10.1099/mic.0.000849

Thorsdottir D, Cruickshank NC, Einwag Z, Hennig GW, Erdos B. BDNF downregulates β -adrenergic receptor-mediated hypotensive mechanisms in the paraventricular nucleus of the hypothalamus. *Am J Physiol Heart Circ Physiol*. 2019;317(6):H1258-H1271. doi:10.1152/ajpheart.00478.2019

Thwe PM, Fritz DI, Snyder JP, et al. Syk-dependent glycolytic reprogramming in dendritic cells regulates IL-1 β production to β -glucan ligands in a TLR-independent manner. *J Leukoc Biol*. 2019;106(6):1325-1335. doi:10.1002/JLB.3A0819-207RR

Tooke K, Girard B, Vizzard MA. Functional effects of blocking VEGF/VEGFR2 signaling in the rat urinary bladder in acute and chronic CYP-induced cystitis. *Am J Physiol Renal Physiol*. 2019;317(7):F43-F51. doi:10.1152/ajprenal.00083.2019

Toth MJ, Voigt TB, Tourville TW, et al. Effect of neuromuscular electrical stimulation on skeletal muscle size and function in patients with breast cancer receiving chemotherapy. *J Appl Physiol* (1985). 2020;128(6):1654-1665. doi:10.1152/jappphysiol.00203.2020

Tyler AL, Raza A, Kremontsov DN, et al. Network-Based Functional Prediction Augments Genetic Association To Predict Candidate Genes for Histamine Hypersensitivity in Mice. *G3 (Bethesda)*. 2019;9(12):4223-4233. Published 2019 Dec 3. doi:10.1534/g3.119.400740

Washington SD, Singh P, Johns RN, et al. The CCCTC Binding Factor, CTRL2, Modulates Heterochromatin Deposition and the Establishment of Herpes Simplex Virus 1 Latency In Vivo. *J Virol*. 2019;93(13):e00415-19. Published 2019 Jun 14. doi:10.1128/JVI.00415-19

Whitaker EE, Cipolla MJ. Perinatal stroke. *Handb Clin Neurol*. 2020;171:313-326. doi:10.1016/B978-0-444-64239-4.00016-3

Whitaker EE, Matheson NJ, Perlee S, Munson PB, Symeonides M, Thali M. EWI-2 Inhibits Cell-Cell Fusion at the HIV-1 Virological Presynapse. *Viruses*. 2019;11(12):1082. Published 2019 Nov 20. doi:10.3390/v11121082

Whitaker EE, Wiemann BZ, Xia JC, et al. Distinct, sex-dependent miRNA signatures in piglet hippocampus induced by a clinically relevant isoflurane exposure: a pilot study. *J Anesth*. 2019;33(6):670-679. doi:10.1007/s00540-019-02695-5

Whitaker EE, Williams RK. Epidural and Spinal Anesthesia for Newborn Surgery. *Clin Perinatol*. 2019;46(4):731-743. doi:10.1016/j.clp.2019.08.007

Willsey GG, Eckstrom K, LaBauve AE, et al. *Stenotrophomonas maltophilia* Differential Gene Expression in Synthetic Cystic Fibrosis Sputum Reveals Shared and Cystic Fibrosis Strain-Specific Responses to the Sputum Environment. *J Bacteriol*. 2019;201(15):e00074-19. Published 2019 Jul 10. doi:10.1128/JB.00074-19

Zhou Y, Gerrard DL, Wang J, et al. Author Correction: Temporal dynamic reorganization of 3D chromatin architecture in hormone-induced breast cancer and endocrine resistance. *Nat Commun*. 2020;11(1):1967. Published 2020 Apr 20. doi:10.1038/s41467-020-15789-6

Ziegler CM, Dang L, Eisenhauer P, et al. NEDD4 family ubiquitin ligases associate with LCMV Z's PPXY domain and are required for virus budding, but not via direct ubiquitination of Z. *PLoS Pathog*. 2019;15(11):e1008100. Published 2019 Nov