

CMB Alumni Publications List

2021 Graduates

Mazdak Bradberry (Advisor: Edwin Chapman)

Bradberry, M. M., Courtney, N. A., Dominguez, M. J., Lofquist, S. M., Knox, A. T., Sutton, R. B., & Chapman, E. R. (2020). Molecular Basis for Synaptotagmin-1-Associated Neurodevelopmental Disorder. *Neuron*, *107*(1), 52–64.e7. <https://doi.org/10.1016/j.neuron.2020.04.003>

Ruhl, D. A., Bomba-Warczak, E., Watson, E. T., **Bradberry, M. M.**, Peterson, T. A., Basu, T., Frelka, A., Evans, C. S., Briguglio, J. S., Basta, T., Stowell, M., Savas, J. N., Roopra, A., Pearce, R. A., Piper, R. C., & Chapman, E. R. (2019). Synaptotagmin 17 controls neurite outgrowth and synaptic physiology via distinct cellular pathways. *Nature communications*, *10*(1), 3532. <https://doi.org/10.1038/s41467-019-11459-4>

Courtney, N. A., Briguglio, J. S., **Bradberry, M. M.**, Greer, C., & Chapman, E. R. (2018). Excitatory and Inhibitory Neurons Utilize Different Ca²⁺ Sensors and Sources to Regulate Spontaneous Release. *Neuron*, *98*(5), 977–991.e5. <https://doi.org/10.1016/j.neuron.2018.04.022>

Harsini, F. M., Bui, A. A., Rice, A. M., Chebrolu, S., Fuson, K. L., Turtoi, A., **Bradberry, M.**, Chapman, E. R., & Sutton, R. B. (2019). Structural Basis for the Distinct Membrane Binding Activity of the Homologous C2A Domains of Myoferlin and Dysferlin. *Journal of molecular biology*, *431*(11), 2112–2126. <https://doi.org/10.1016/j.jmb.2019.04.006>

Bradberry, M. M., Bao, H., Lou, X., & Chapman, E. R. (2019). Phosphatidylinositol 4,5-bisphosphate drives Ca²⁺-independent membrane penetration by the tandem C2 domain proteins synaptotagmin-1 and Doc2β. *The Journal of biological chemistry*, *294*(28), 10942–10953. <https://doi.org/10.1074/jbc.RA119.007929>

Bendahmane, M., Bohannon, K. P., **Bradberry, M. M.**, Rao, T. C., Schmidtke, M. W., Abbineni, P. S., Chon, N. L., Tran, S., Lin, H., Chapman, E. R., Knight, J. D., & Anantharam, A. (2018). The synaptotagmin C2B domain calcium-binding loops modulate the rate of fusion pore expansion. *Molecular biology of the cell*, *29*(7), 834–845. <https://doi.org/10.1091/mbc.E17-11-0623>

Rao, T. C., Santana Rodriguez, Z., **Bradberry, M. M.**, Ranski, A. H., Dahl, P. J., Schmidtke, M. W., Jenkins, P. M., Axelrod, D., Chapman, E. R., Giovannucci, D. R., & Anantharam, A. (2017). Synaptotagmin isoforms confer distinct activation kinetics and dynamics to chromaffin cell granules. *The Journal of general physiology*, *149*(8), 763–780. <https://doi.org/10.1085/jgp.201711757>

Katarina Braun (Advisor: Thomas Friedrich)

Braun KM, Friedrich TC. Influenza evolution with little host selection. *Nat Ecol Evol.* 2019 Feb;3(2):159-160. doi: 10.1038/s41559-018-0782-1. PMID: 30617345.

Moreno GK*, **Braun KM***, Riemersma KK, Martin MA, Halfmann PJ, Crooks CM, Prall T, Baker D, Baczenas JJ, Heffron AS, Ramuta M, Khubbar M, Weiler AM, Accola MA, Rehrauer WM, O'Connor SL, Safdar N, Pepperell CS, Dasu T, Bhattacharyya S, Kawaoka Y, Koelle K, O'Connor DH, Friedrich TC. Revealing fine-scale spatiotemporal differences in SARS-CoV-2 introduction and spread. *Nat Commun.* 2020 Nov 3;11(1):5558. doi: 10.1038/s41467-020-19346-z. PMID: 33144575; PMCID: PMC7609670.

Safdar N, Moreno GK, **Braun KM**, Friedrich TC, O'Connor DH. Using Virus Sequencing to Determine Source of SARS-CoV-2 Transmission for Healthcare Worker. *Emerg Infect Dis.* 2020 Oct;26(10):2489-2491. doi: 10.3201/eid2610.202322. Epub 2020 Aug 6. PMID: 32758345; PMCID: PMC7510721.

Florek NW, Campos LM, **Braun KM**, McLean HQ, King JP, Flannery B, Belongia EA, Friedrich TC. An updated influenza A(H3N2) vaccine generates limited antibody responses to previously encountered antigens in children. *Vaccine.* 2018 Jan 29;36(5):758-764. doi: 10.1016/j.vaccine.2017.12.024. Epub 2017 Dec 15. PMID: 29249543; PMCID: PMC5773382.

Vermilyea SC, Guthrie S, Meyer M, Smuga-Otto K, **Braun KM**, Howden S, Thomson JA, Zhang SC, Emborg ME, Golos TG (2017). *Induced pluripotent stem cell-derived dopaminergic neurons from adult common marmoset fibroblasts.* *Stem Cells Dev*, 26(17): 1225-1235. PMCID: PMC5576272. DOI: 10.1089/scd.2017.0069.

Kartik Gupta (Advisor: Bo Liu)

Khoury, M. K., **Gupta, K.**, Franco, S. R., & Liu, B. (2020). Necroptosis in the Pathophysiology of Disease. *The American journal of pathology*, 190(2), 272–285. <https://doi.org/10.1016/j.ajpath.2019.10.012>

Gupta, K., Phan, N., Wang, Q., & Liu, B. (2018). Necroptosis in cardiovascular disease - a new therapeutic target. *Journal of molecular and cellular cardiology*, 118, 26–35. <https://doi.org/10.1016/j.yjmcc.2018.03.003>

Ren, J., Zhou, T., Pilli, V., Phan, N., Wang, Q., **Gupta, K.**, Liu, Z., Sheibani, N., & Liu, B. (2019). Novel Paracrine Functions of Smooth Muscle Cells in Supporting

Endothelial Regeneration Following Arterial Injury. *Circulation research*, 124(8), 1253–1265. <https://doi.org/10.1161/CIRCRESAHA.118.314567>

Khoury, M. K., Zhou, T., Yang, H., Prince, S. R., **Gupta, K.**, Stranz, A. R., Wang, Q., & Liu, B. (2020). GSK2593074A blocks progression of existing abdominal aortic dilation. *JVS-vascular science*, 1, 123–135. <https://doi.org/10.1016/j.jvssci.2020.07.001>

Wang, Q., Zhou, T., Liu, Z., Ren, J., Phan, N., **Gupta, K.**, Stewart, D. M., Morgan, S., Assa, C., Kent, K. C., & Liu, B. (2017). Inhibition of Receptor-Interacting Protein Kinase 1 with Necrostatin-1s ameliorates disease progression in elastase-induced mouse abdominal aortic aneurysm model. *Scientific reports*, 7, 42159. <https://doi.org/10.1038/srep42159>

Gupta, K., & Liu, B. (2021). PLK1-mediated S369 phosphorylation of RIPK3 during G2 and M phases enables its ripoptosome incorporation and activity. *iScience*, 24(4), 102320. <https://doi.org/10.1016/j.isci.2021.102320>

Anna Heffron (Advisor: David O'Connor)

Moreno, G. K., Braun, K. M., Riemersma, K. K., Martin, M. A., Halfmann, P. J., Crooks, C. M., Prall, T., Baker, D., Baczenas, J. J., **Heffron, A. S.**, Ramuta, M., Khubbar, M., Weiler, A. M., Accola, M. A., Rehrauer, W. M., O'Connor, S. L., Safdar, N., Pepperell, C. S., Dasu, T., Bhattacharyya, S., ... Friedrich, T. C. (2020). Revealing fine-scale spatiotemporal differences in SARS-CoV-2 introduction and spread. *Nature communications*, 11(1), 5558. <https://doi.org/10.1038/s41467-020-19346-z>

Heffron, A. S., Lauck, M., Somsen, E. D., Townsend, E. C., Bailey, A. L., Sosa, M., Eickhoff, J., Capuano Iii, S., Newman, C. M., Kuhn, J. H., Mejia, A., Simmons, H. A., & O'Connor, D. H. (2020). Discovery of a Novel Simian Pegivirus in Common Marmosets (*Callithrix jacchus*) with Lymphocytic Enterocolitis. *Microorganisms*, 8(10), 1509. <https://doi.org/10.3390/microorganisms8101509>

Dudley, D. M., Newman, C. M., Weiler, A. M., Ramuta, M. D., Shortreed, C. G., **Heffron, A. S.**, Accola, M. A., Rehrauer, W. M., Friedrich, T. C., & O'Connor, D. H. (2020). Optimizing direct RT-LAMP to detect transmissible SARS-CoV-2 from primary nasopharyngeal swab samples. *PloS one*, 15(12), e0244882. <https://doi.org/10.1371/journal.pone.0244882>

Buechler, C. R., Bailey, A. L., Lauck, M., **Heffron, A.**, Johnson, J. C., Campos Lawson, C., Rogers, J., Kuhn, J. H., & O'Connor, D. H. (2017). Genome Sequence of a Novel Kunsagivirus (*Picornaviridae: Kunsagivirus*) from a Wild

Baboon (*Papio cynocephalus*). *Genome announcements*, 5(18), e00261-17. <https://doi.org/10.1128/genomeA.00261-17>

Heffron, A. S., Mohr, E. L., Baker, D., Haj, A. K., Buechler, C. R., Bailey, A., Dudley, D. M., Newman, C. M., Mohns, M. S., Koenig, M., Breitbach, M. E., Rasheed, M., Stewart, L. M., Eickhoff, J., Pinapati, R. S., Beckman, E., Li, H., Patel, J., Tan, J. C., & O'Connor, D. H. (2018). Antibody responses to Zika virus proteins in pregnant and non-pregnant macaques. *PLoS neglected tropical diseases*, 12(11), e0006903. <https://doi.org/10.1371/journal.pntd.0006903>

Heffron, A. S., McIlwain, S. J., Amjadi, M. F., Baker, D. A., Khullar, S., Armbrust, T., Halfmann, P. J., Kawaoka, Y., Sethi, A. K., Palmenberg, A. C., Shelef, M. A., O'Connor, D. H., & Ong, I. M. (2021). The landscape of antibody binding in SARS-CoV-2 infection. *PLoS biology*, 19(6), e3001265. Advance online publication. <https://doi.org/10.1371/journal.pbio.3001265>

Yang Hu (Advisor: Mark Burkard)

Jin, N., Lera, R. F., Yan, R. E., Guo, F., Oxendine, K., Horner, V. L., **Hu, Y.**, Wan, J., Mattison, R. J., Weaver, B. A., & Burkard, M. E. (2020). Chromosomal instability upregulates interferon in acute myeloid leukemia. *Genes, chromosomes & cancer*, 59(11), 627–638. <https://doi.org/10.1002/gcc.22880>

Charu Mehta (Advisor: Emory Bresnick)

Bresnick, E. H., Hewitt, K. J., **Mehta, C.**, Keles, S., Paulson, R. F., & Johnson, K. D. (2018). Mechanisms of erythrocyte development and regeneration: implications for regenerative medicine and beyond. *Development*, 145(1). doi:10.1242/dev.151423

Cavalcante de Andrade Silva, M., Katsumura, K. R., **Mehta, C.**, Velloso, E., Bresnick, E. H., & Godley, L. A. (2021). Breaking the spatial constraint between neighboring zinc fingers: a new germline mutation in GATA2 deficiency syndrome. *Leukemia*, 35(1), 264-268. doi:10.1038/s41375-020-0820-2

Erwin, G. S., Grieshop, M. P., Bhimsaria, D., Do, T. J., Rodríguez-Martínez, J. A., **Mehta, C.**, . . . Ansari, A. Z. (2016). Synthetic genome readers target clustered binding sites across diverse chromatin states. *Proc Natl Acad Sci U S A*, 113(47), E7418-e7427. doi:10.1073/pnas.1604847113

Fraga de Andrade, I., **Mehta, C.**, & Bresnick, E. H. (2020). Post-transcriptional control of cellular differentiation by the RNA exosome complex. *Nucleic Acids Res*, 48(21), 11913-11928. doi:10.1093/nar/gkaa883

Katsumura, K. R., **Mehta, C.**, Hewitt, K. J., Soukup, A. A., Fraga de Andrade, I., Ranheim, E. A., . . . Bresnick, E. H. (2018). Human leukemia mutations corrupt

but do not abrogate GATA-2 function. *Proc Natl Acad Sci U S A*, 115(43), E10109-e10118. doi:10.1073/pnas.1813015115

Mclver, S. C., Hewitt, K. J., Gao, X., **Mehta, C.**, Zhang, J., & Bresnick, E. H. (2018). Dissecting Regulatory Mechanisms Using Mouse Fetal Liver-Derived Erythroid Cells. *Methods Mol Biol*, 1698, 67-89. doi:10.1007/978-1-4939-7428-3_4

Mehta, C., Johnson, K. D., Gao, X., Ong, I., Katsumura, K. R., Mclver, S. C., . . . Bresnick, E. H. (2017). Integrating Enhancer Mechanisms to Establish a Hierarchical Blood Development Program. *Blood*, 130(Suppl_1), 7. doi:10.1182/blood.V130.Suppl_1.7.7

Mehta, C., Johnson, K. D., Gao, X., Ong, I. M., Katsumura, K. R., Mclver, S. C., . . . Bresnick, E. H. (2017). Integrating Enhancer Mechanisms to Establish a Hierarchical Blood Development Program. *Cell Rep*, 20(12), 2966-2979. doi:10.1016/j.celrep.2017.08.090

Soukup, A. A., Zheng, Y., **Mehta, C.**, Wu, J., Liu, P., Cao, M., . . . Bresnick, E. H. (2019). Single-nucleotide human disease mutation inactivates a blood-regenerative GATA2 enhancer. *J Clin Invest*, 129(3), 1180-1192. doi:10.1172/jci122694

You, X., Chang, Y. I., Kong, G., Ranheim, E. A., Zhou, Y., Johnson, K. D., **Mehta, C.**, . . . Zhang, J. (2021). Gata2 -77 enhancer regulates adult hematopoietic stem cell survival. *Leukemia*, 35(3), 901-905. doi:10.1038/s41375-020-0942-6

Zwifelhofer, N. M., Cai, X., Liao, R., Mao, B., Conn, D. J., **Mehta, C.**, . . . Bresnick, E. H. (2020). GATA factor-regulated solute carrier ensemble reveals a nucleoside transporter-dependent differentiation mechanism. *PLoS Genet*, 16(12), e1009286. doi:10.1371/journal.pgen.1009286

Alex Pieper (Advisor: Paul Sondel)

Baniel, C. C., Heinze, C. M., Hoefges, A., Sumiec, E. G., Hank, J. A., Carlson, P. M., Jin, W. J., Patel, R. B., Sriramaneni, R. N., Gillies, S. D., Erbe, A. K., Schwarz, C. N., **Pieper, A. A.**, Rakhmievich, A. L., Sondel, P. M., & Morris, Z. S. (2020). *In situ* Vaccine Plus Checkpoint Blockade Induces Memory Humoral Response. *Frontiers in immunology*, 11, 1610. <https://doi.org/10.3389/fimmu.2020.01610>

Baniel, C. C., Sumiec, E. G., Hank, J. A., Bates, A. M., Erbe, A. K., **Pieper, A. A.**, Hoefges, A. G., Patel, R. B., Rakhmievich, A. L., Morris, Z. S., & Sondel, P. M. (2020). Intratumoral injection reduces toxicity and antibody-mediated neutralization of immunocytokine in a mouse melanoma model. *Journal for*

immunotherapy of cancer, 8(2), e001262. <https://doi.org/10.1136/jitc-2020-001262>

Adhithi Rajagopalan (Advisor: Jing Zhang)

Wen, Z., **Rajagopalan, A.**, Flietner, E. D., Yun, G., Chesi, M., Furumo, Q., Burns, R. T., Papadas, A., Ranheim, E. A., Pagenkopf, A. C., Morrow, Z. T., Finn, R., Zhou, Y., Li, S., You, X., Jensen, J., Yu, M., Cicala, A., Menting, J., Mitsiades, C. S., ... Zhang, J. (2021). Expression of NrasQ61R and MYC transgene in germinal center B cells induces a highly malignant multiple myeloma in mice. *Blood*, 137(1), 61–74. <https://doi.org/10.1182/blood.2020007156>

Kong, G., You, X., Wen, Z., Chang, Y. I., Qian, S., Ranheim, E. A., Letson, C., Zhang, X., Zhou, Y., Liu, Y., **Rajagopalan, A.**, Zhang, J., Stieglitz, E., Loh, M., Hofmann, I., Yang, D., Zhong, X., Padron, E., Zhou, L., Pear, W. S., ... Zhang, J. (2019). Downregulating Notch counteracts Kras^{G12D}-induced ERK activation and oxidative phosphorylation in myeloproliferative neoplasm. *Leukemia*, 33(3), 671–685. <https://doi.org/10.1038/s41375-018-0248-0>

Kong, G., You, X., Wen, Z., Chang, Y. I., Qian, S., Ranheim, E. A., Letson, C., Zhang, X., Zhou, Y., Liu, Y., **Rajagopalan, A.**, Zhang, J., Stieglitz, E., Loh, M., Hofmann, I., Yang, D., Zhong, X., Padron, E., Zhou, L., Pear, W. S., ... Zhang, J. (2019). Downregulating Notch counteracts Kras^{G12D}-induced ERK activation and oxidative phosphorylation in myeloproliferative neoplasm. *Leukemia*, 33(3), 671–685. <https://doi.org/10.1038/s41375-018-0248-0>

Zhang, J., Kong, G., **Rajagopalan, A.**, Lu, L., Song, J., Hussaini, M., Zhang, X., Ranheim, E. A., Liu, Y., Wang, J., Gao, X., Chang, Y. I., Johnson, K. D., Zhou, Y., Yang, D., Bhatnagar, B., Lucas, D. M., Bresnick, E. H., Zhong, X., Padron, E., ... Zhang, J. (2017). p53^{-/-} synergizes with enhanced NrasG12D signaling to transform megakaryocyte-erythroid progenitors in acute myeloid leukemia. *Blood*, 129(3), 358–370. <https://doi.org/10.1182/blood-2016-06-719237>

Raakhee Shankar (Advisor: Anjon Audhya)

Penfield, L., **Shankar, R.**, Szentgyörgyi, E., Laffitte, A., Mauro, M. S., Audhya, A., Müller-Reichert, T., & Bahmanyar, S. (2020). Regulated lipid synthesis and LEM2/CHMP7 jointly control nuclear envelope closure. *The Journal of cell biology*, 219(5), e201908179. <https://doi.org/10.1083/jcb.201908179>

Quinney, K. B., Frankel, E. B., **Shankar, R.**, Kasberg, W., Luong, P., & Audhya, A. (2019). Growth factor stimulation promotes multivesicular endosome biogenesis by prolonging recruitment of the late-acting ESCRT machinery. *Proceedings of the National Academy of Sciences of the United*

States of America, 116(14), 6858–6867.
<https://doi.org/10.1073/pnas.1817898116>

Frankel, E. B., **Shankar, R.**, Moresco, J. J., Yates, J. R., 3rd, Volkmann, N., & Audhya, A. (2017). Ist1 regulates ESCRT-III assembly and function during multivesicular endosome biogenesis in *Caenorhabditis elegans* embryos. *Nature communications*, 8(1), 1439. <https://doi.org/10.1038/s41467-017-01636-8>

2020 Graduates

Peter Carlson (Advisor: Paul Sondel)

Voeller, J., Erbe, A. K., Slowinski, J., Rasmussen, K., **Carlson, P. M.**, Hoefges, A., VandenHeuvel, S., Stuckwisch, A., Wang, X., Gillies, S. D., Patel, R. B., Farrel, A., Rokita, J. L., Maris, J., Hank, J. A., Morris, Z. S., Rakhmilevich, A. L., & Sondel, P. M. (2019). Combined innate and adaptive immunotherapy overcomes resistance of immunologically cold syngeneic murine neuroblastoma to checkpoint inhibition. *Journal for immunotherapy of cancer*, 7(1), 344. <https://doi.org/10.1186/s40425-019-0823-6>

Baniel, C. C., Heinze, C. M., Hoefges, A., Sumiec, E. G., Hank, J. A., **Carlson, P. M.**, Jin, W. J., Patel, R. B., Sriramaneni, R. N., Gillies, S. D., Erbe, A. K., Schwarz, C. N., Pieper, A. A., Rakhmilevich, A. L., Sondel, P. M., & Morris, Z. S. (2020). *In situ* Vaccine Plus Checkpoint Blockade Induces Memory Humoral Response. *Frontiers in immunology*, 11, 1610. <https://doi.org/10.3389/fimmu.2020.01610>

Morris, Z. S., Guy, E. I., Werner, L. R., **Carlson, P. M.**, Heinze, C. M., Kler, J. S., Busche, S. M., Jaquish, A. A., Sriramaneni, R. N., Carmichael, L. L., Loibner, H., Gillies, S. D., Korman, A. J., Erbe, A. K., Hank, J. A., Rakhmilevich, A. L., Harari, P. M., & Sondel, P. M. (2018). Tumor-Specific Inhibition of *In Situ* Vaccination by Distant Untreated Tumor Sites. *Cancer immunology research*, 6(7), 825–834. <https://doi.org/10.1158/2326-6066.CIR-17-0353>

Carlson, P. M., Mohan, M., Rodriguez, M., Subbotin, V., Sun, C. X., Patel, R. B., Birstler, J., Hank, J. A., Rakhmilevich, A. L., Morris, Z. S., Erbe, A. K., & Sondel, P. M. (2021). Depth of tumor implantation affects response to *in situ* vaccination in a syngeneic murine melanoma model. *Journal for immunotherapy of cancer*, 9(4), e002107. <https://doi.org/10.1136/jitc-2020-002107>

Patrick Cervantes (Advisor: Laura Knoll)

Garfoot, A. L., **Cervantes, P. W.**, & Knoll, L. J. (2019). Transcriptional Analysis Shows a Robust Host Response to *Toxoplasma gondii* during Early and Late Chronic Infection in Both Male and Female Mice. *Infection and immunity*, 87(5), e00024-19. <https://doi.org/10.1128/IAI.00024-19>

Pittman, K. J., **Cervantes, P. W.**, & Knoll, L. J. (2016). Z-DNA Binding Protein Mediates Host Control of *Toxoplasma gondii* Infection. *Infection and immunity*, *84*(10), 3063–3070. <https://doi.org/10.1128/IAI.00511-16>

Cervantes, P. W., Martorelli Di Genova, B., Erazo Flores, B. J., & Knoll, L. J. (2021). RIPK3 Facilitates Host Resistance to Oral *Toxoplasma gondii* Infection. *Infection and immunity*, *89*(5), e00021-21. <https://doi.org/10.1128/IAI.00021-21>

Anthony Dawson (Advisor: Andrew Mehle)

Dawson, A. R., Wilson, G. M., Coon, J. J., & Mehle, A. (2020). Post-Translation Regulation of Influenza Virus Replication. *Annual review of virology*, *7*(1), 167–187. <https://doi.org/10.1146/annurev-virology-010320-070410>

Dawson, A. R., & Mehle, A. (2018). Flu's cues: Exploiting host post-translational modifications to direct the influenza virus replication cycle. *PLoS pathogens*, *14*(9), e1007205. <https://doi.org/10.1371/journal.ppat.1007205>

Dawson, A. R., Wilson, G. M., Freiburger, E. C., Mondal, A., Coon, J. J., & Mehle, A. (2020). Phosphorylation controls RNA binding and transcription by the influenza virus polymerase. *PLoS pathogens*, *16*(9), e1008841. <https://doi.org/10.1371/journal.ppat.1008841>

Mondal, A., **Dawson, A. R.**, Potts, G. K., Freiburger, E. C., Baker, S. F., Moser, L. A., Bernard, K. A., Coon, J. J., & Mehle, A. (2017). Influenza virus recruits host protein kinase C to control assembly and activity of its replication machinery. *eLife*, *6*, e26910. <https://doi.org/10.7554/eLife.26910>

Mondal, A., Potts, G. K., **Dawson, A. R.**, Coon, J. J., & Mehle, A. (2015). Phosphorylation at the homotypic interface regulates nucleoprotein oligomerization and assembly of the influenza virus replication machinery. *PLoS pathogens*, *11*(4), e1004826. <https://doi.org/10.1371/journal.ppat.1004826>

Drew Doering (Advisor: Chris Hittinger)

Shen, X. X., Opulente, D. A., Kominek, J., Zhou, X., Steenwyk, J. L., Buh, K. V., Haase, M., Wisecaver, J. H., Wang, M., **Doering, D. T.**, Boudouris, J. T., Schneider, R. M., Langdon, Q. K., Ohkuma, M., Endoh, R., Takashima, M., Manabe, R. I., Čadež, N., Libkind, D., Rosa, C. A., ... Rokas, A. (2018). Tempo and Mode of Genome Evolution in the Budding Yeast Subphylum. *Cell*, *175*(6), 1533–1545.e20. <https://doi.org/10.1016/j.cell.2018.10.023>

Kominek, J., **Doering, D. T.**, Opulente, D. A., Shen, X. X., Zhou, X., DeVirgilio, J., Hulfachor, A. B., Groenewald, M., Mcgee, M. A., Karlen, S. D., Kurtzman, C.

P., Rokas, A., & Hittinger, C. T. (2019). Eukaryotic Acquisition of a Bacterial Operon. *Cell*, 176(6), 1356–1366.e10. <https://doi.org/10.1016/j.cell.2019.01.034>

Alexander, W. G., **Doering, D. T.**, & Hittinger, C. T. (2014). High-efficiency genome editing and allele replacement in prototrophic and wild strains of *Saccharomyces*. *Genetics*, 198(3), 859–866. <https://doi.org/10.1534/genetics.114.170118>

Jiarong Gao (Advisor: Phillip Newmark)

Gao, J., Yang, N., Lewis, F. A., Yau, P., Collins, J. J., 3rd, Sweedler, J. V., & Newmark, P. A. (2019). A rotifer-derived paralytic compound prevents transmission of schistosomiasis to a mammalian host. *PLoS biology*, 17(10), e3000485. <https://doi.org/10.1371/journal.pbio.3000485>

Amelia Haj (Advisor: David O'Connor)

Haj, A. K., Breitbach, M. E., Baker, D. A., Mohns, M. S., Moreno, G. K., Wilson, N. A., Lyamichev, V., Patel, J., Weisgrau, K. L., Dudley, D. M., & O'Connor, D. H. (2020). High-Throughput Identification of MHC Class I Binding Peptides Using an Ultradense Peptide Array. *Journal of immunology (Baltimore, Md. : 1950)*, 204(6), 1689–1696. <https://doi.org/10.4049/jimmunol.1900889>

Braun, K. M., Moreno, G. K., Halfmann, P. J., Hodcroft, E. B., Baker, D. A., Boehm, E. C., Weiler, A. M., **Haj, A. K.**, Hatta, M., Chiba, S., Maemura, T., Kawaoka, Y., Koelle, K., O'Connor, D. H., & Friedrich, T. C. (2020). Transmission of SARS-CoV-2 in domestic cats imposes a narrow bottleneck. *bioRxiv : the preprint server for biology*, 2020.11.16.384917. <https://doi.org/10.1101/2020.11.16.384917>

Shortreed, C. G., Wiseman, R. W., Karl, J. A., Bussan, H. E., Baker, D. A., Prall, T. M., **Haj, A. K.**, Moreno, G. K., Penedo, M., & O'Connor, D. H. (2020). Characterization of 100 extended major histocompatibility complex haplotypes in Indonesian cynomolgus macaques. *Immunogenetics*, 72(4), 225–239. <https://doi.org/10.1007/s00251-020-01159-5>

Haj, A. K., Arbanas, J. M., Yamniuk, A. P., Karl, J. A., Bussan, H. E., Drinkwater, K. Y., Graham, M. E., Ericson, A. J., Prall, T. M., Moore, K., Cheng, L., Gao, M., Graziano, R. F., Loffredo, J. T., Wiseman, R. W., & O'Connor, D. H. (2019). Characterization of Mauritian Cynomolgus Macaque FcγR Alleles Using Long-Read Sequencing. *Journal of immunology (Baltimore, Md. : 1950)*, 202(1), 151–159. <https://doi.org/10.4049/jimmunol.1800843>

Aliota, M. T., Dudley, D. M., Newman, C. M., Weger-Lucarelli, J., Stewart, L. M., Koenig, M. R., Breitbach, M. E., Weiler, A. M., Semler, M. R., Barry, G. L., Zarbock, K. R., **Haj, A. K.**, Moriarty, R. V., Mohns, M. S., Mohr, E. L., Venturi, V.,

Schultz-Darken, N., Peterson, E., Newton, W., Schotzko, M. L., ... O'Connor, D. H. (2018). Molecularly barcoded Zika virus libraries to probe in vivo evolutionary dynamics. *PLoS pathogens*, *14*(3), e1006964. <https://doi.org/10.1371/journal.ppat.1006964>

Heffron, A. S., Mohr, E. L., Baker, D., **Haj, A. K.**, Buechler, C. R., Bailey, A., Dudley, D. M., Newman, C. M., Mohns, M. S., Koenig, M., Breitbach, M. E., Rasheed, M., Stewart, L. M., Eickhoff, J., Pinapati, R. S., Beckman, E., Li, H., Patel, J., Tan, J. C., & O'Connor, D. H. (2018). Antibody responses to Zika virus proteins in pregnant and non-pregnant macaques. *PLoS neglected tropical diseases*, *12*(11), e0006903. <https://doi.org/10.1371/journal.pntd.0006903>

Braun, K. M., Moreno, G. K., Halfmann, P. J., Hodcroft, E. B., Baker, D. A., Boehm, E. C., Weiler, A. M., **Haj, A. K.**, Hatta, M., Chiba, S., Maemura, T., Kawaoka, Y., Koelle, K., O'Connor, D. H., & Friedrich, T. C. (2021). Transmission of SARS-CoV-2 in domestic cats imposes a narrow bottleneck. *PLoS pathogens*, *17*(2), e1009373. <https://doi.org/10.1371/journal.ppat.1009373>

Newman, C. M., Ramuta, M. D., McLaughlin, M. T., Wiseman, R. W., Karl, J. A., Dudley, D. M., Stauss, M. R., Maddox, R. J., Weiler, A. M., Bliss, M. I., Fauser, K. N., Haddock, L. A., Shortreed, C. G., **Haj, A. K.**, Accola, M. A., Heffron, A. S., Bussan, H. E., Reynolds, M. R., Harwood, O. E., Moriarty, R. V., ... O'Connor, D. H. (2021). Initial evaluation of a mobile SARS-CoV-2 RT-LAMP testing strategy. *medRxiv : the preprint server for health sciences*, 2020.07.28.20164038. <https://doi.org/10.1101/2020.07.28.20164038>

Lauren Hillers (Advisor: Lisa Arendt)

Hillers, L. E., D'Amato, J. V., Chamberlin, T., Paderta, G., & Arendt, L. M. (2018). Obesity-Activated Adipose-Derived Stromal Cells Promote Breast Cancer Growth and Invasion. *Neoplasia (New York, N.Y.)*, *20*(11), 1161–1174. <https://doi.org/10.1016/j.neo.2018.09.004>

Jack Hunt (Advisor: Xinyu Zhao)

Hunt, J., Li, M., Zhao, X., & Bhattacharyya, A. (2019). Using Human Neural Progenitor Cell Models to Conduct Large-Scale Drug Screens for Neurological and Psychiatric Diseases. *Methods in molecular biology (Clifton, N.J.)*, *1942*, 79–88. https://doi.org/10.1007/978-1-4939-9080-1_7

Li, M., **Hunt, J.**, Bhattacharyya, A., & Zhao, X. (2019). One-Step Generation of Seamless Luciferase Gene Knockin Using CRISPR/Cas9 Genome Editing in Human Pluripotent Stem Cells. *Methods in molecular biology (Clifton, N.J.)*, *1942*, 61–69. https://doi.org/10.1007/978-1-4939-9080-1_5

Leland Hyman (Advisor: Philip Romero)

Siddhant Jain (Advisor: Peter Lewis)

Lu, C., Jain, S. U., Hoelper, D., Bechet, D., Molden, R. C., Ran, L., Murphy, D., Venneti, S., Hameed, M., Pawel, B. R., Wunder, J. S., Dickson, B. C., Lundgren, S. M., Jani, K. S., De Jay, N., Papillon-Cavanagh, S., Andrulis, I. L., Sawyer, S. L., Grynspan, D., Turcotte, R. E., ... Lewis, P. W. (2016). Histone H3K36 mutations promote sarcomagenesis through altered histone methylation landscape. *Science (New York, N.Y.)*, *352*(6287), 844–849. <https://doi.org/10.1126/science.aac7272>

Jain, S. U., Rashoff, A. Q., Krabbenhoft, S. D., Hoelper, D., Do, T. J., Gibson, T. J., Lundgren, S. M., Bondra, E. R., Deshmukh, S., Harutyunyan, A. S., Juretic, N., Jabado, N., Harrison, M. M., & Lewis, P. W. (2020). H3 K27M and EZHIP Impede H3K27-Methylation Spreading by Inhibiting Allosterically Stimulated PRC2. *Molecular cell*, *80*(4), 726–735.e7. <https://doi.org/10.1016/j.molcel.2020.09.028>

Jain, S. U., Khazaei, S., Marchione, D. M., Lundgren, S. M., Wang, X., Weinberg, D. N., Deshmukh, S., Juretic, N., Lu, C., Allis, C. D., Garcia, B. A., Jabado, N., & Lewis, P. W. (2020). Histone H3.3 G34 mutations promote aberrant PRC2 activity and drive tumor progression. *Proceedings of the National Academy of Sciences of the United States of America*, *117*(44), 27354–27364. <https://doi.org/10.1073/pnas.2006076117>

Jain, S. U., Do, T. J., Lund, P. J., Rashoff, A. Q., Diehl, K. L., Cieslik, M., Bajic, A., Juretic, N., Deshmukh, S., Venneti, S., Muir, T. W., Garcia, B. A., Jabado, N., & Lewis, P. W. (2019). PFA ependymoma-associated protein EZHIP inhibits PRC2 activity through a H3 K27M-like mechanism. *Nature communications*, *10*(1), 2146. <https://doi.org/10.1038/s41467-019-09981-6>

Harutyunyan, A. S., Krug, B., Chen, H., Papillon-Cavanagh, S., Zeinieh, M., De Jay, N., Deshmukh, S., Chen, C., Belle, J., Mikael, L. G., Marchione, D. M., Li, R., Nikbakht, H., Hu, B., Cagnone, G., Cheung, W. A., Mohammadnia, A., Bechet, D., Faury, D., McConechy, M. K., Pathania, M., **Jain, S. U.**, ... Majewski, J. (2019). H3K27M induces defective chromatin spread of PRC2-mediated repressive H3K27me2/me3 and is essential for glioma tumorigenesis. *Nature communications*, *10*(1), 1262. <https://doi.org/10.1038/s41467-019-09140-x>

Khazaei, S., De Jay, N., Deshmukh, S., Hendrikse, L. D., Jawhar, W., Chen, C., Mikael, L. G., Faury, D., Marchione, D. M., Lanoix, J., Bonneil, É., Ishii, T., **Jain, S. U.**, Rossokhata, K., Sihota, T. S., Eveleigh, R., Lisi, V., Harutyunyan, A. S., Jung, S., Karamchandani, J., ... Jabado, N. (2020). H3.3 G34W Promotes Growth and Impedes Differentiation of Osteoblast-Like Mesenchymal Progenitors

in Giant Cell Tumor of Bone. *Cancer discovery*, 10(12), 1968–1987.
<https://doi.org/10.1158/2159-8290.CD-20-0461>

Bayliss, J., Mukherjee, P., Lu, C., **Jain, S. U.**, Chung, C., Martinez, D., Sabari, B., Margol, A. S., Panwalkar, P., Parolia, A., Pekmezci, M., McEachin, R. C., Cieslik, M., Tamrazi, B., Garcia, B. A., La Rocca, G., Santi, M., Lewis, P. W., Hawkins, C., Melnick, A., ... Venneti, S. (2016). Lowered H3K27me3 and DNA hypomethylation define poorly prognostic pediatric posterior fossa ependymomas. *Science translational medicine*, 8(366), 366ra161.
<https://doi.org/10.1126/scitranslmed.aah6904>

McDaniel, S. L., Gibson, T. J., Schulz, K. N., Fernandez Garcia, M., Nevil, M., **Jain, S. U.**, Lewis, P. W., Zaret, K. S., & Harrison, M. M. (2019). Continued Activity of the Pioneer Factor Zelda Is Required to Drive Zygotic Genome Activation. *Molecular cell*, 74(1), 185–195.e4.
<https://doi.org/10.1016/j.molcel.2019.01.014>

Jani, K. S., **Jain, S. U.**, Ge, E. J., Diehl, K. L., Lundgren, S. M., Müller, M. M., Lewis, P. W., & Muir, T. W. (2019). Histone H3 tail binds a unique sensing pocket in EZH2 to activate the PRC2 methyltransferase. *Proceedings of the National Academy of Sciences of the United States of America*, 116(17), 8295–8300.
<https://doi.org/10.1073/pnas.1819029116>

Brown, Z. Z., Müller, M. M., **Jain, S. U.**, Allis, C. D., Lewis, P. W., & Muir, T. W. (2014). Strategy for "detoxification" of a cancer-derived histone mutant based on mapping its interaction with the methyltransferase PRC2. *Journal of the American Chemical Society*, 136(39), 13498–13501.
<https://doi.org/10.1021/ja5060934>

Jayaram, H., Hoelper, D., **Jain, S. U.**, Cantone, N., Lundgren, S. M., Poy, F., Allis, C. D., Cummings, R., Bellon, S., & Lewis, P. W. (2016). S-adenosyl methionine is necessary for inhibition of the methyltransferase G9a by the lysine 9 to methionine mutation on histone H3. *Proceedings of the National Academy of Sciences of the United States of America*, 113(22), 6182–6187.
<https://doi.org/10.1073/pnas.1605523113>

Laura Swanson (Advisor: David Wassarman)

Swanson, L. C., Rimkus, S. A., Ganetzky, B., & Wassarman, D. A. (2020). Loss of the Antimicrobial Peptide Metchnikowin Protects Against Traumatic Brain Injury Outcomes in *Drosophila melanogaster*. *G3 (Bethesda, Md.)*, 10(9), 3109–3119. <https://doi.org/10.1534/g3.120.401377>

Swanson, L. C., Trujillo, E. A., Thiede, G. H., Katzenberger, R. J., Shishkova, E., Coon, J. J., Ganetzky, B., & Wassarman, D. A. (2020). Survival Following

Traumatic Brain Injury in *Drosophila* Is Increased by Heterozygosity for a Mutation of the NF- κ B Innate Immune Response Transcription Factor Relish. *Genetics*, 216(4), 1117–1136.
<https://doi.org/10.1534/genetics.120.303776>

Katzenberger, R. J., Chtarbanova, S., Rimkus, S. A., Fischer, J. A., Kaur, G., Seppala, J. M., **Swanson, L. C.**, Zajac, J. E., Ganetzky, B., & Wassarman, D. A. (2015). Death following traumatic brain injury in *Drosophila* is associated with intestinal barrier dysfunction. *eLife*, 4, e04790.
<https://doi.org/10.7554/eLife.04790>

Sihui Yang (Advisor: Jill Wildonger)

Yang, S. Z., & Wildonger, J. (2020). Golgi Outposts Locally Regulate Microtubule Orientation in Neurons but Are Not Required for the Overall Polarity of the Dendritic Cytoskeleton. *Genetics*, 215(2), 435–447.
<https://doi.org/10.1534/genetics.119.302979>

Arthur, A. L., **Yang, S. Z.**, Abellaneda, A. M., & Wildonger, J. (2015). Dendrite arborization requires the dynein cofactor NudE. *Journal of cell science*, 128(11), 2191–2201. <https://doi.org/10.1242/jcs.170316>

2019 Graduates

Francisco Barros-Becker (Advisor: Anna Huttenlocher)

Barros-Becker, F., Lam, P. Y., Fisher, R., & Huttenlocher, A. (2017). Live imaging reveals distinct modes of neutrophil and macrophage migration within interstitial tissues. *J Cell Sci*, 130(22), 3801-3808. doi:10.1242/jcs.206128

Powell, D., Lou, M., **Barros Becker, F.**, & Huttenlocher, A. (2018). Cxcr1 mediates recruitment of neutrophils and supports proliferation of tumor-initiating astrocytes in vivo. *Sci Rep*, 8(1), 13285. doi:10.1038/s41598-018-31675-0

Barros-Becker, F., Squirrell, J. M., Burke, R., Chini, J., Rindy, J., Karim, A., . . . Huttenlocher, A. (2020). Distinct Tissue Damage and Microbial Cues Drive Neutrophil and Macrophage Recruitment to Thermal Injury. *iScience*, 23(11), 101699. doi:10.1016/j.isci.2020.101699

Tim Catlett (Advisor: Timothy Gomez)

Nichol, R. H., 4th, **Catlett, T. S.**, Onesto, M. M., Hollender, D., & Gómez, T. M. (2019). Environmental Elasticity Regulates Cell-type Specific RHOA Signaling and Neuritogenesis of Human Neurons. *Stem cell reports*, 13(6), 1006–1021.
<https://doi.org/10.1016/j.stemcr.2019.10.008>

Short, C. A., Onesto, M. M., Rempel, S. K., **Catlett, T. S.**, & Gomez, T. M. (2021). Familiar growth factors have diverse roles in neural network

assembly. *Current opinion in neurobiology*, 66, 233–239.

<https://doi.org/10.1016/j.conb.2020.12.016>

Catlett, T. S., & Gomez, T. M. (2016). Division of labor in the growth cone by DSCR1. *The Journal of cell biology*, 213(4), 407–409.

<https://doi.org/10.1083/jcb.201605012>

Onesto, M. M., Short, C. A., Rempel, S. K., **Catlett, T. S.**, & Gomez, T. M. (2021). Growth Factors as Axon Guidance Molecules: Lessons From *in vitro* Studies. *Frontiers in neuroscience*, 15, 678454.

<https://doi.org/10.3389/fnins.2021.678454>

Catlett, T. S., Onesto, M. M., McCann, A. J., Rempel, S. K., Glass, J., Franz, D. N., & Gómez, T. M. (2021). RHOA signaling defects result in impaired axon guidance in iPSC-derived neurons from patients with tuberous sclerosis complex. *Nature communications*, 12(1), 2589. <https://doi.org/10.1038/s41467-021-22770-4>

Tamara Chamberlin (Advisor: Lisa Arendt)

Chamberlin, T., Clack, M., Silvers, C., Kuziel, G., Thompson, V., Johnson, H., & Arendt, L. M. (2020). Targeting Obesity-Induced Macrophages during Preneoplastic Growth Promotes Mammary Epithelial Stem/Progenitor Activity, DNA Damage, and Tumor Formation. *Cancer research*, 80(20), 4465–4475. <https://doi.org/10.1158/0008-5472.CAN-20-0789>

Chamberlin, T., Thompson, V., Hillers-Ziemer, L. E., Walton, B. N., & Arendt, L. M. (2020). Obesity reduces mammary epithelial cell TGF β 1 activity through macrophage-mediated extracellular matrix remodeling. *FASEB journal : official publication of the Federation of American Societies for Experimental Biology*, 34(6), 8611–8624. <https://doi.org/10.1096/fj.202000228RR>

Hillers, L. E., D'Amato, J. V., **Chamberlin, T.**, Paderta, G., & Arendt, L. M. (2018). Obesity-Activated Adipose-Derived Stromal Cells Promote Breast Cancer Growth and Invasion. *Neoplasia (New York, N.Y.)*, 20(11), 1161–1174. <https://doi.org/10.1016/j.neo.2018.09.004>

Chamberlin, T., D'Amato, J. V., & Arendt, L. M. (2017). Obesity reversibly depletes the basal cell population and enhances mammary epithelial cell estrogen receptor alpha expression and progenitor activity. *Breast cancer research : BCR*, 19(1), 128. <https://doi.org/10.1186/s13058-017-0921-7>

Chris Gelbmann (Advisor: Robert Kalejta)

Gelbmann, C. B., & Kalejta, R. F. (2019). The Golgi sorting motifs of human cytomegalovirus UL138 are not required for latency maintenance. *Virus research*, 270, 197646. <https://doi.org/10.1016/j.virusres.2019.197646>

Gelbmann, C. B., & Kalejta, R. F. (2019). The Membrane-Spanning Peptide and Acidic Cluster Dileucine Sorting Motif of UL138 Are Required To Downregulate MRP1 Drug Transporter Function in Human Cytomegalovirus-Infected Cells. *Journal of virology*, 93(11), e00430-19. <https://doi.org/10.1128/JVI.00430-19>

Weng, C., Lee, D., **Gelbmann, C. B.**, Van Sciver, N., Nawandar, D. M., Kenney, S. C., & Kalejta, R. F. (2018). Human Cytomegalovirus Productively Replicates *In Vitro* in Undifferentiated Oral Epithelial Cells. *Journal of virology*, 92(16), e00903-18. <https://doi.org/10.1128/JVI.00903-18>

Lee, S. H., Caviness, K., Albright, E. R., Lee, J. H., **Gelbmann, C. B.**, Rak, M., Goodrum, F., & Kalejta, R. F. (2016). Long and Short Isoforms of the Human Cytomegalovirus UL138 Protein Silence IE Transcription and Promote Latency. *Journal of virology*, 90(20), 9483–9494. <https://doi.org/10.1128/JVI.01547-16>

Indro Neil Ghosh (Advisor: Robert Landick)

Ghosh, I. N., & Landick, R. (2016). OptSSeq: High-Throughput Sequencing Readout of Growth Enrichment Defines Optimal Gene Expression Elements for Homoethanologenes. *ACS Synth Biol*, 5(12), 1519-1534. doi:10.1021/acssynbio.6b00121

Ghosh, I. N., Martien, J., Hebert, A. S., Zhang, Y., Coon, J. J., Amador-Noguez, D., & Landick, R. (2019). OptSSeq explores enzyme expression and function landscapes to maximize isobutanol production rate. *Metab Eng*, 52, 324-340. doi:10.1016/j.ymben.2018.12.008

Adriana Golding (Advisor: William Bement)

Moe, A. M., **Golding, A. E.**, & Bement, W. M. (2015). Cell healing: Calcium, repair and regeneration. *Seminars in cell & developmental biology*, 45, 18–23. <https://doi.org/10.1016/j.semcdb.2015.09.026>

Golding, A. E., Visco, I., Bieling, P., & Bement, W. M. (2019). Extraction of active RhoGTPases by RhoGDI regulates spatiotemporal patterning of RhoGTPases. *eLife*, 8, e50471. <https://doi.org/10.7554/eLife.50471>

Holmes, W. R., **Golding, A. E.**, Bement, W. M., & Edelstein-Keshet, L. (2016). A mathematical model of GTPase pattern formation during single-cell wound repair. *Interface focus*, 6(5), 20160032. <https://doi.org/10.1098/rsfs.2016.0032>

Bement, W. M., Leda, M., Moe, A. M., Kita, A. M., Larson, M. E., **Golding, A. E.**, Pfeuti, C., Su, K. C., Miller, A. L., Goryachev, A. B., & von Dassow, G. (2015). Activator-inhibitor coupling between Rho signalling and actin assembly makes the cell cortex an excitable medium. *Nature cell biology*, 17(11), 1471–1483. <https://doi.org/10.1038/ncb3251>

Moe, A., Holmes, W., **Golding, A. E.**, Zola, J., Swider, Z. T., Edelstein-Keshet, L., & Bement, W. (2021). Cross talk-dependent cortical patterning of Rho GTPases during cell repair. *Molecular biology of the cell*, mbcE20070481. Advance online publication. <https://doi.org/10.1091/mbc.E20-07-0481>

Jeong-Hee Lee (Advisor: Robert Kalejta)

Lee, J. H., & Kalejta, R. F. (2019). Human Cytomegalovirus Enters the Primary CD34⁺ Hematopoietic Progenitor Cells Where It Establishes Latency by Macropinocytosis. *Journal of virology*, 93(15), e00452-19. <https://doi.org/10.1128/JVI.00452-19>

Lee, J. H., Pasquarella, J. R., & Kalejta, R. F. (2019). Cell Line Models for Human Cytomegalovirus Latency Faithfully Mimic Viral Entry by Macropinocytosis and Endocytosis. *Journal of virology*, 93(21), e01021-19. <https://doi.org/10.1128/JVI.01021-19>

Lee, S. H., Albright, E. R., **Lee, J. H.**, Jacobs, D., & Kalejta, R. F. (2015). Cellular defense against latent colonization foiled by human cytomegalovirus UL138 protein. *Science advances*, 1(10), e1501164. <https://doi.org/10.1126/sciadv.1501164>

Lee, S. H., Caviness, K., Albright, E. R., **Lee, J. H.**, Gelbmann, C. B., Rak, M., Goodrum, F., & Kalejta, R. F. (2016). Long and Short Isoforms of the Human Cytomegalovirus UL138 Protein Silence IE Transcription and Promote Latency. *Journal of virology*, 90(20), 9483–9494. <https://doi.org/10.1128/JVI.01547-16>

Netta Golenberg (Advisor: Anna Huttenlocher)

de Oliveira, S., Houseright, R. A., Graves, A. L., **Golenberg, N.**, Korte, B. G., Miskolci, V., & Huttenlocher, A. (2019). Metformin modulates innate immune-mediated inflammation and early progression of NAFLD-associated hepatocellular carcinoma in zebrafish. *Journal of hepatology*, 70(4), 710–721. <https://doi.org/10.1016/j.jhep.2018.11.034>

Golenberg, N., Squirrell, J. M., Bennin, D. A., Rindy, J., Pistono, P. E., Eliceiri, K. W., Shelef, M. A., Kang, J., & Huttenlocher, A. (2020). Citrullination regulates wound responses and tissue regeneration in zebrafish. *The Journal of cell biology*, *219*(4), e201908164. <https://doi.org/10.1083/jcb.201908164>

Rosowski, E. E., Raffa, N., Knox, B. P., **Golenberg, N.**, Keller, N. P., & Huttenlocher, A. (2018). Macrophages inhibit *Aspergillus fumigatus* germination and neutrophil-mediated fungal killing. *PLoS pathogens*, *14*(8), e1007229. <https://doi.org/10.1371/journal.ppat.1007229>

LeBert, D., Squirrell, J. M., Freisinger, C., Rindy, J., **Golenberg, N.**, Frecentese, G., Gibson, A., Eliceiri, K. W., & Huttenlocher, A. (2018). Damage-induced reactive oxygen species regulate *vimentin* and dynamic collagen-based projections to mediate wound repair. *eLife*, *7*, e30703. <https://doi.org/10.7554/eLife.30703>

Nadia Khan (Advisor: Avtar Roopra)

Khan, N., Schoenike, B., Basu, T., Grabenstatter, H., Rodriguez, G., Sindic, C., Johnson, M., Wallace, E., Maganti, R., Dingledine, R., & Roopra, A. (2019). A systems approach identifies Enhancer of Zeste Homolog 2 (EZH2) as a protective factor in epilepsy. *PLoS one*, *14*(12), e0226733. <https://doi.org/10.1371/journal.pone.0226733>

Basu, T., O'Riordan, K. J., Schoenike, B. A., **Khan, N. N.**, Wallace, E. P., Rodriguez, G., Maganti, R. K., & Roopra, A. (2019). Histone deacetylase inhibitors restore normal hippocampal synaptic plasticity and seizure threshold in a mouse model of Tuberous Sclerosis Complex. *Scientific reports*, *9*(1), 5266. <https://doi.org/10.1038/s41598-019-41744-7>

Shelby Lyon (Advisor: Robert Kalejta)

Lyon, S. M., & Kalejta, R. F. (2018). HCMV Assembly Is Totally Tubular. *Developmental cell*, *45*(1), 1–2. <https://doi.org/10.1016/j.devcel.2018.03.014>

Lyon, S. M., Yetming, K. D., Paulus, C., Nevels, M., & Kalejta, R. F. (2020). Human Cytomegalovirus Genomes Survive Mitosis via the IE19 Chromatin-Tethering Domain. *mBio*, *11*(5), e02410-20. <https://doi.org/10.1128/mBio.02410-20>

Richard Merkhofer (Advisor: Bruce Klein)

Wiesner, D. L., **Merkhofer, R. M.**, Ober, C., Kujoth, G. C., Niu, M., Keller, N. P., Gern, J. E., Brockman-Schneider, R. A., Evans, M. D., Jackson, D. J., Warner, T., Jarjour, N. N., Esnault, S. J., Feldman, M. B., Freeman, M., Mou, H., Vyas, J. M., & Klein, B. S. (2020). Club Cell TRPV4 Serves as a Damage Sensor Driving

Lung Allergic Inflammation. *Cell host & microbe*, 27(4), 614–628.e6.
<https://doi.org/10.1016/j.chom.2020.02.006>

Merkhofer, R. M., & Klein, B. S. (2020). Advances in Understanding Human Genetic Variations That Influence Innate Immunity to Fungi. *Frontiers in cellular and infection microbiology*, 10, 69. <https://doi.org/10.3389/fcimb.2020.00069>

Merkhofer, R. M., Jr, O'Neill, M. B., Xiong, D., Hernandez-Santos, N., Dobson, H., Fites, J. S., Shockey, A. C., Wuethrich, M., Pepperell, C. S., & Klein, B. S. (2019). Investigation of Genetic Susceptibility to Blastomycosis Reveals Interleukin-6 as a Potential Susceptibility Locus. *mBio*, 10(3), e01224-19.
<https://doi.org/10.1128/mBio.01224-19>

Kujoth, G. C., Sullivan, T. D., **Merkhofer, R.**, Lee, T. J., Wang, H., Brandhorst, T., Wüthrich, M., & Klein, B. S. (2018). CRISPR/Cas9-Mediated Gene Disruption Reveals the Importance of Zinc Metabolism for Fitness of the Dimorphic Fungal Pathogen *Blastomyces dermatitidis*. *mBio*, 9(2), e00412-18.
<https://doi.org/10.1128/mBio.00412-18>

Wang, H., Lee, T. J., Fites, S. J., **Merkhofer, R.**, Zarnowski, R., Brandhorst, T., Galles, K., Klein, B., & Wüthrich, M. (2017). Ligation of Dectin-2 with a novel microbial ligand promotes adjuvant activity for vaccination. *PLoS pathogens*, 13(8), e1006568. <https://doi.org/10.1371/journal.ppat.1006568>

Angela Myers (Advisor: Richard Gourse)

Gourse, R. L., Chen, A. Y., Gopalkrishnan, S., Sanchez-Vazquez, P., **Myers, A.**, & Ross, W. (2018). Transcriptional Responses to ppGpp and DksA. *Annual review of microbiology*, 72, 163–184. <https://doi.org/10.1146/annurev-micro-090817-062444>

Myers, A. R., Thistle, D. P., Ross, W., & Gourse, R. L. (2020). Guanosine Tetraphosphate Has a Similar Affinity for Each of Its Two Binding Sites on *Escherichia coli* RNA Polymerase. *Frontiers in microbiology*, 11, 587098.
<https://doi.org/10.3389/fmicb.2020.587098>

Banta, A. B., Cuff, M. E., Lin, H., **Myers, A. R.**, Ross, W., Joachimiak, A., & Gourse, R. L. (2014). Structure of the RNA polymerase assembly factor Crl and identification of its interaction surface with sigma S. *Journal of bacteriology*, 196(18), 3279–3288. <https://doi.org/10.1128/JB.01910-14>

Will Olson (Advisor: Laura Knoll)

Olson, W. J., Martorelli Di Genova, B., Gallego-Lopez, G., Dawson, A. R., Stevenson, D., Amador-Noguez, D., & Knoll, L. J. (2020). Dual metabolomic profiling uncovers *Toxoplasma* manipulation of the host metabolome and the

discovery of a novel parasite metabolic capability. *PLoS pathogens*, 16(4), e1008432. <https://doi.org/10.1371/journal.ppat.1008432>

Michelle Pearson (Advisor: Erin Silva)

Kyle Quinney (Advisor: Anjon Audhya)

Quinney, K. B., Frankel, E. B., Shankar, R., Kasberg, W., Luong, P., & Audhya, A. (2019). Growth factor stimulation promotes multivesicular endosome biogenesis by prolonging recruitment of the late-acting ESCRT machinery. *Proceedings of the National Academy of Sciences of the United States of America*, 116(14), 6858–6867. <https://doi.org/10.1073/pnas.1817898116>

Shen, Q. T., Schuh, A. L., Zheng, Y., **Quinney, K.**, Wang, L., Hanna, M., Mitchell, J. C., Otegui, M. S., Ahlquist, P., Cui, Q., & Audhya, A. (2014). Structural analysis and modeling reveals new mechanisms governing ESCRT-III spiral filament assembly. *The Journal of cell biology*, 206(6), 763–777. <https://doi.org/10.1083/jcb.201403108>

Slosarek, E. L., Schuh, A. L., Pustova, I., Johnson, A., Bird, J., Johnson, M., Frankel, E. B., Bhattacharya, N., Hanna, M. G., Burke, J. E., Ruhl, D. A., **Quinney, K.**, Block, S., Peotter, J. L., Chapman, E. R., Sheets, M. D., Butcher, S. E., Stagg, S. M., & Audhya, A. (2018). Pathogenic TFG Mutations Underlying Hereditary Spastic Paraplegia Impair Secretory Protein Trafficking and Axon Fasciculation. *Cell reports*, 24(9), 2248–2260. <https://doi.org/10.1016/j.celrep.2018.07.081>

Schuh, A. L., Hanna, M., **Quinney, K.**, Wang, L., Sarkeshik, A., Yates, J. R., 3rd, & Audhya, A. (2015). The VPS-20 subunit of the endosomal sorting complex ESCRT-III exhibits an open conformation in the absence of upstream activation. *The Biochemical journal*, 466(3), 625–637. <https://doi.org/10.1042/BJ20141202>

Jeremy Volkening (Advisor: Michael Sussman)

Venkateshwaran, M., **Volkening, J. D.**, Sussman, M. R., & Ané, J. M. (2013). Symbiosis and the social network of higher plants. *Current opinion in plant biology*, 16(1), 118–127. <https://doi.org/10.1016/j.pbi.2012.11.007>

Volkening, J. D., Stecker, K. E., & Sussman, M. R. (2019). Proteome-wide Analysis of Protein Thermal Stability in the Model Higher Plant *Arabidopsis thaliana*. *Molecular & cellular proteomics : MCP*, 18(2), 308–319. <https://doi.org/10.1074/mcp.RA118.001124>

Delaux, P. M., Radhakrishnan, G. V., Jayaraman, D., Cheema, J., Malbreil, M., **Volkening, J. D.**, Sekimoto, H., Nishiyama, T., Melkonian, M., Pokorny, L., Rothfels, C. J., Sederoff, H. W., Stevenson, D. W., Surek, B., Zhang, Y., Sussman, M. R., Dunand, C., Morris, R. J., Roux, C., Wong, G. K., ... Ané, J. M. (2015). Algal ancestor of land plants was preadapted for symbiosis. *Proceedings of the National Academy of Sciences of the United States of America*, *112*(43), 13390–13395. <https://doi.org/10.1073/pnas.1515426112>

Gallant, J. R., Traeger, L. L., **Volkening, J. D.**, Moffett, H., Chen, P. H., Novina, C. D., Phillips, G. N., Jr, Anand, R., Wells, G. B., Pinch, M., Güth, R., Unguez, G. A., Albert, J. S., Zakon, H. H., Samanta, M. P., & Sussman, M. R. (2014). Nonhuman genetics. Genomic basis for the convergent evolution of electric organs. *Science (New York, N.Y.)*, *344*(6191), 1522–1525. <https://doi.org/10.1126/science.1254432>

Rose, C. M., Venkateshwaran, M., **Volkening, J. D.**, Grimsrud, P. A., Maeda, J., Bailey, D. J., Park, K., Howes-Podoll, M., den Os, D., Yeun, L. H., Westphall, M. S., Sussman, M. R., Ané, J. M., & Coon, J. J. (2012). Rapid phosphoproteomic and transcriptomic changes in the rhizobia-legume symbiosis. *Molecular & cellular proteomics : MCP*, *11*(9), 724–744. <https://doi.org/10.1074/mcp.M112.019208>

Marx, H., Minogue, C. E., Jayaraman, D., Richards, A. L., Kwiecien, N. W., Siahpirani, A. F., Rajasekar, S., Maeda, J., Garcia, K., Del Valle-Echevarria, A. R., **Volkening, J. D.**, Westphall, M. S., Roy, S., Sussman, M. R., Ané, J. M., & Coon, J. J. (2016). A proteomic atlas of the legume *Medicago truncatula* and its nitrogen-fixing endosymbiont *Sinorhizobium meliloti*. *Nature biotechnology*, *34*(11), 1198–1205. <https://doi.org/10.1038/nbt.3681>

Traeger, L. L., **Volkening, J. D.**, Moffett, H., Gallant, J. R., Chen, P. H., Novina, C. D., Phillips, G. N., Jr, Anand, R., Wells, G. B., Pinch, M., Güth, R., Unguez, G. A., Albert, J. S., Zakon, H., Sussman, M. R., & Samanta, M. P. (2015). Unique patterns of transcript and miRNA expression in the South American strong voltage electric eel (*Electrophorus electricus*). *BMC genomics*, *16*(1), 243. <https://doi.org/10.1186/s12864-015-1288-8>

Traeger, L. L., **Volkening, J. D.**, Moffett, H., Gallant, J. R., Chen, P. H., Novina, C. D., Phillips, G. N., Jr, Anand, R., Wells, G. B., Pinch, M., Güth, R., Unguez, G. A., Albert, J. S., Zakon, H., Sussman, M. R., & Samanta, M. P. (2015). Unique patterns of transcript and miRNA expression in the South American strong voltage electric eel (*Electrophorus electricus*). *BMC genomics*, *16*(1), 243. <https://doi.org/10.1186/s12864-015-1288-8>

Volkening, J. D., Bailey, D. J., Rose, C. M., Grimsrud, P. A., Howes-Podoll, M., Venkateshwaran, M., Westphall, M. S., Ané, J. M., Coon, J. J., & Sussman, M. R. (2012). A proteogenomic survey of the *Medicago truncatula* genome. *Molecular & cellular proteomics : MCP*, *11*(10), 933–944. <https://doi.org/10.1074/mcp.M112.019471>

Sarah Wilson (Advisor: Laura Knoll)

Wilson, S. K., Heckendorn, J., Martorelli Di Genova, B., Koch, L. L., Rooney, P. J., Morrissette, N., Lebrun, M., & Knoll, L. J. (2020). A *Toxoplasma gondii* patatin-like phospholipase contributes to host cell invasion. *PLoS pathogens*, *16*(7), e1008650. <https://doi.org/10.1371/journal.ppat.1008650>

Martorelli Di Genova, B., **Wilson, S. K.**, Dubey, J. P., & Knoll, L. J. (2019). Intestinal delta-6-desaturase activity determines host range for *Toxoplasma* sexual reproduction. *PLoS biology*, *17*(8), e3000364. <https://doi.org/10.1371/journal.pbio.3000364>

Bowden, G. D., Reis, P. M., Rogers, M. B., Bone Relat, R. M., Brayton, K. A., **Wilson, S. K.**, Di Genova, B. M., Knoll, L. J., Nepveux V, F. J., Tai, A. K., Ramadhar, T. R., Clardy, J., & O'Connor, R. M. (2020). A conserved coccidian gene is involved in *Toxoplasma* sensitivity to the anti-apicomplexan compound, tartrolon E. *International journal for parasitology. Drugs and drug resistance*, *14*, 1–7. <https://doi.org/10.1016/j.ijpddr.2020.07.003>

Wilson, S. K., & Knoll, L. J. (2018). Patatin-like phospholipases in microbial infections with emerging roles in fatty acid metabolism and immune regulation by Apicomplexa. *Molecular microbiology*, *107*(1), 34–46. <https://doi.org/10.1111/mmi.13871>

Milligan-Myhre, K., **Wilson, S. K.**, & Knoll, L. J. (2016). Developmental change in translation initiation alters the localization of a common microbial protein necessary for *Toxoplasma* chronic infection. *Molecular microbiology*, *102*(6), 1086–1098. <https://doi.org/10.1111/mmi.13538>

2018 Graduates

Diya Binoy Joseph (Advisor: Chad Vezina)

Henry, G. H., Malewska, A., **Joseph, D. B.**, Malladi, V. S., Lee, J., Torrealba, J., . . . Strand, D. W. (2018). A Cellular Anatomy of the Normal Adult Human Prostate and Prostatic Urethra. *Cell Rep*, *25*(12), 3530-3542.e3535. doi:10.1016/j.celrep.2018.11.086

Joseph, D. B., Chandrashekar, A. S., Abler, L. L., Chu, L. F., Thomson, J. A., Mendelsohn, C., & Vezina, C. M. (2018). In vivo replacement of damaged

bladder urothelium by Wolffian duct epithelial cells. *Proc Natl Acad Sci U S A*, 115(33), 8394-8399. doi:10.1073/pnas.1802966115

Joseph, D. B., Strand, D. W., & Vezina, C. M. (2018). DNA methylation in development and disease: an overview for prostate researchers. *Am J Clin Exp Urol*, 6(6), 197-218.

Joseph, D. B., Chandrashekar, A. S., Abler, L. L., Chu, L. F., Thomson, J. A., & Vezina, C. M. (2019). Epithelial DNA methyltransferase-1 regulates cell survival, growth and maturation in developing prostatic buds. *Dev Biol*. doi:10.1016/j.ydbio.2019.01.011

Joseph, D. B., Chandrashekar, A. S., Chu, L. F., Thomson, J. A., & Vezina, C. M. (2019). A folic acid-enriched diet attenuates prostate involution in response to androgen deprivation. *Prostate*, 79(2), 183-194. doi:10.1002/pros.23723

Robert Bradley (Advisor: Su-Chun Zhang)

Lu, J., **Bradley, R. A.**, & Zhang, S. C. (2014). Turning reactive glia into functional neurons in the brain. *Cell Stem Cell*, 14(2), 133-134. doi:10.1016/j.stem.2014.01.010

Bradley, R. A., Shireman, J., McFalls, C., Choi, J., Canfield, S. G., Dong, Y., Liu, K., Lisota, B., Jones, J. R., Petersen, A., Bhattacharyya, A., Palecek, S. P., Shusta, E. V., Kendzioriski, C., & Zhang, S. C. (2019). Regionally specified human pluripotent stem cell-derived astrocytes exhibit different molecular signatures and functional properties. *Development (Cambridge, England)*, 146(13), dev170910. <https://doi.org/10.1242/dev.170910>

Li, X., Tao, Y., **Bradley, R.**, Du, Z., Tao, Y., Kong, L., . . . Zhang, S. C. (2018). Fast Generation of Functional Subtype Astrocytes from Human Pluripotent Stem Cells. *Stem Cell Reports*, 11(4), 998-1008. doi:10.1016/j.stemcr.2018.08.019

Jones, J. R., Kong, L., Hanna, M. G. t., Hoffman, B., Krencik, R., **Bradley, R.**, . . . Zhang, S. C. (2018). Mutations in GFAP Disrupt the Distribution and Function of Organelles in Human Astrocytes. *Cell Rep*, 25(4), 947-958.e944. doi:10.1016/j.celrep.2018.09.083

Kevin Cope (Advisor: Jean-Michel Ane)

Labbé, J., Muchero, W., Czarnecki, O., Wang, J., Wang, X., Bryan, A. C., Zheng, K., Yang, Y., Xie, M., Zhang, J., Wang, D., Meidl, P., Wang, H., Morrell-Falvey, J. L., **Cope, K. R.**, Maia, L., Ané, J. M., Mewalal, R., Jawdy, S. S., Gunter, L. E., . . . Tuskan, G. A. (2019). Mediation of plant-mycorrhizal interaction by a lectin receptor-like kinase. *Nature plants*, 5(7), 676–680. <https://doi.org/10.1038/s41477-019-0469-x>

Rush, T. A., Puech-Pagès, V., Bascaules, A., Jargeat, P., Maillet, F., Haouy, A., Maës, A. Q., Carriel, C. C., Khokhani, D., Keller-Pearson, M., Tannous, J., **Cope, K. R.**, Garcia, K., Maeda, J., Johnson, C., Kleven, B., Choudhury, Q. J., Labbé, J., Swift, C., O'Malley, M. A., ... Ané, J. M. (2020). Lipo-chitooligosaccharides as regulatory signals of fungal growth and development. *Nature communications*, 11(1), 3897. <https://doi.org/10.1038/s41467-020-17615-5>

Cope, K. R., Bascaules, A., Irving, T. B., Venkateshwaran, M., Maeda, J., Garcia, K., Rush, T. A., Ma, C., Labbé, J., Jawdy, S., Steigerwald, E., Setzke, J., Fung, E., Schnell, K. G., Wang, Y., Schlieff, N., Bücking, H., Strauss, S. H., Maillet, F., Jargeat, P., ... Ané, J. M. (2019). The Ectomycorrhizal Fungus *Laccaria bicolor* Produces Lipochitooligosaccharides and Uses the Common Symbiosis Pathway to Colonize *Populus* Roots. *The Plant cell*, 31(10), 2386–2410. <https://doi.org/10.1105/tpc.18.00676>

Garcia, K., Delaux, P. M., **Cope, K. R.**, & Ane, J. M. (2015). Molecular signals required for the establishment and maintenance of ectomycorrhizal symbioses. *New Phytol*, 208(1), 79-87. doi:10.1111/nph.13423

Ryan Denu (Advisor: Mark Burkard)

Choudhary, A., Zachek, B., Lera, R. F., Zasadil, L. M., Lasek, A., **Denu, R. A.**, . . . Burkard, M. E. (2016). Identification of Selective Lead Compounds for Treatment of High-Ploidy Breast Cancer. *Mol Cancer Ther*, 15(1), 48-59. doi:10.1158/1535-7163.Mct-15-0527

Denu, R. A., Zasadil, L. M., Kanugh, C., Laffin, J., Weaver, B. A., & Burkard, M. E. (2016). Centrosome amplification induces high grade features and is prognostic of worse outcomes in breast cancer. *BMC Cancer*, 16, 47. doi:10.1186/s12885-016-2083-x

Denu, R. A., & Burkard, M. E. (2017). Synchronous Bilateral Breast Cancer in a Patient With Nager Syndrome. *Clin Breast Cancer*, 17(3), e151-e153. doi:10.1016/j.clbc.2016.12.009

Denu, R. A., Shabbir, M., Nihal, M., Singh, C. K., Longley, B. J., Burkard, M. E., & Ahmad, N. (2018). Centriole Overduplication is the Predominant Mechanism Leading to Centrosome Amplification in Melanoma. *Mol Cancer Res*, 16(3), 517-527. doi:10.1158/1541-7786.Mcr-17-0197

Denu, R. A., Sass, M. M., Johnson, J. M., Potts, G. K., Choudhary, A., Coon, J. J., & Burkard, M. E. (2019). Polo-like kinase 4 maintains centriolar satellite

integrity by phosphorylation of centrosomal protein 131 (CEP131). *J Biol Chem*. doi:10.1074/jbc.RA118.004867

Denu, R. A., & Burkard, M. E. (2020). Analysis of the "centrosome-ome" identifies MCPH1 deletion as a cause of centrosome amplification in human cancer. *Scientific reports*, 10(1), 11921. <https://doi.org/10.1038/s41598-020-68629-4>

Denu, R. A., Kaur, G., Sass, M. M., Lakkaraju, A., & Burkard, M. E. (2020). Centrosome Amplification in Cancer Disrupts Autophagy and Sensitizes to Autophagy Inhibition. *Molecular cancer research : MCR*, 18(1), 33–45. <https://doi.org/10.1158/1541-7786.MCR-19-0509>

Singh, A., **Denu, R. A.**, Wolfe, S. K., Sperger, J. M., Schehr, J., Witkowsky, T., Esbona, K., Chappell, R. J., Weaver, B. A., Burkard, M. E., & Lang, J. M. (2020). Centrosome amplification is a frequent event in circulating tumor cells from subjects with metastatic breast cancer. *Molecular oncology*, 14(8), 1898–1909. <https://doi.org/10.1002/1878-0261.12687>

Matson, D. R., **Denu, R. A.**, Zasadil, L. M., Burkard, M. E., Weaver, B. A., Flynn, C., & Stukenberg, P. T. (2021). High nuclear TPX2 expression correlates with TP53 mutation and poor clinical behavior in a large breast cancer cohort, but is not an independent predictor of chromosomal instability. *BMC cancer*, 21(1), 186. <https://doi.org/10.1186/s12885-021-07893-7>

Gulpreet Kaur (Advisor: Aparna Lakkaraju)

Denu, R. A., **Kaur, G.**, Sass, M. M., Lakkaraju, A., & Burkard, M. E. (2020). Centrosome Amplification in Cancer Disrupts Autophagy and Sensitizes to Autophagy Inhibition. *Molecular cancer research : MCR*, 18(1), 33–45. <https://doi.org/10.1158/1541-7786.MCR-19-0509>

Rigby, M. J., Lawton, A. J., **Kaur, G.**, Banduseela, V. C., Kamm, W. E., Lakkaraju, A., Denu, J. M., & Puglielli, L. (2021). Endoplasmic reticulum acetyltransferases Atase1 and Atase2 differentially regulate reticulophagy, macroautophagy and cellular acetyl-CoA metabolism. *Communications biology*, 4(1), 454. <https://doi.org/10.1038/s42003-021-01992-8>

Kaur, G., & Lakkaraju, A. (2018). Early Endosome Morphology in Health and Disease. *Adv Exp Med Biol*, 1074, 335-343. doi:10.1007/978-3-319-75402-4_41

Kaur, G., Tan, L. X., Rathnasamy, G., La Cunza, N., Germer, C. J., Toops, K. A., . . . Lakkaraju, A. (2018). Aberrant early endosome biogenesis mediates complement activation in the retinal pigment epithelium in models of macular

degeneration. *Proc Natl Acad Sci U S A*, 115(36), 9014-9019.
doi:10.1073/pnas.1805039115

Ryan Kessens (Advisor: Mehdi Kabbage)

Kabbage, M., **Kessens, R.**, & Dickman, M. B. (2016). A plant Bcl-2-associated athanogene is proteolytically activated to confer fungal resistance. *Microb Cell*, 3(5), 224-226. doi:10.15698/mic2016.05.501

Kabbage, M., **Kessens, R.**, Bartholomay, L. C., & Williams, B. (2017). The Life and Death of a Plant Cell. *Annu Rev Plant Biol*, 68, 375-404.
doi:10.1146/annurev-arplant-043015-111655

Ranjan, A., Westrick, N. M., Jain, S., Piotrowski, J. S., Ranjan, M., **Kessens, R.**, . . . Kabbage, M. (2019). Resistance against *Sclerotinia sclerotiorum* in soybean involves a reprogramming of the phenylpropanoid pathway and up-regulation of antifungal activity targeting ergosterol biosynthesis. *Plant Biotechnol J*.
doi:10.1111/pbi.13082

Kessens, R., Sorensen, N., & Kabbage, M. (2018). An inhibitor of apoptosis (SflAP) interacts with SQUAMOSA promoter-binding protein (SBP) transcription factors that exhibit pro-cell death characteristics. *Plant direct*, 2(8), e00081.
<https://doi.org/10.1002/pld3.81>

Tippapha (Zizi) Pisithkul (Advisor: Daniel Amador-Noguez)

Pisithkul, T., Schroeder, J. W., Trujillo, E. A., Yeesin, P., Stevenson, D. M., Chaiamarit, T., Coon, J. J., Wang, J. D., & Amador-Noguez, D. (2019). Metabolic Remodeling during Biofilm Development of *Bacillus subtilis*. *mBio*, 10(3), e00623-19. <https://doi.org/10.1128/mBio.00623-19>

Kwan, G., **Pisithkul, T.**, Amador-Noguez, D., & Barak, J. (2015). De novo amino acid biosynthesis contributes to salmonella enterica growth in Alfalfa seedling exudates. *Appl Environ Microbiol*, 81(3), 861-873. doi:10.1128/aem.02985-14

Liu, K., Myers, A. R., **Pisithkul, T.**, Claas, K. R., Satyshur, K. A., Amador-Noguez, D., . . . Wang, J. D. (2015). Molecular mechanism and evolution of guanylate kinase regulation by (p)ppGpp. *Mol Cell*, 57(4), 735-749.
doi:10.1016/j.molcel.2014.12.037

Pisithkul, T., Jacobson, T. B., O'Brien, T. J., Stevenson, D. M., & Amador-Noguez, D. (2015). Phenolic Amides Are Potent Inhibitors of De Novo Nucleotide Biosynthesis. *Appl Environ Microbiol*, 81(17), 5761-5772.
doi:10.1128/aem.01324-15

Pisithkul, T., Patel, N. M., & Amador-Noguez, D. (2015). Post-translational modifications as key regulators of bacterial metabolic fluxes. *Curr Opin Microbiol*, 24, 29-37. doi:10.1016/j.mib.2014.12.006

Spero, M. A., Brickner, J. R., Mollet, J. T., **Pisithkul, T.**, Amador-Noguez, D., & Donohue, T. J. (2016). Different Functions of Phylogenetically Distinct Bacterial Complex I Isozymes. *J Bacteriol*, 198(8), 1268-1280. doi:10.1128/jb.01025-15

Wang, P. M., Choera, T., Wiemann, P., **Pisithkul, T.**, Amador-Noguez, D., & Keller, N. P. (2016). TrpE feedback mutants reveal roadblocks and conduits toward increasing secondary metabolism in *Aspergillus fumigatus*. *Fungal Genet Biol*, 89, 102-113. doi:10.1016/j.fgb.2015.12.002

Rand, J. M., **Pisithkul, T.**, Clark, R. L., Thiede, J. M., Mehrer, C. R., Agnew, D. E., . . . Pfleger, B. F. (2017). A metabolic pathway for catabolizing levulinic acid in bacteria. *Nat Microbiol*, 2(12), 1624-1634. doi:10.1038/s41564-017-0028-z

Kwan, G., Plagenz, B., Cowles, K., **Pisithkul, T.**, Amador-Noguez, D., & Barak, J. D. (2018). Few Differences in Metabolic Network Use Found Between *Salmonella enterica* Colonization of Plants and Typhoidal Mice. *Front Microbiol*, 9, 695. doi:10.3389/fmicb.2018.00695

Harisha Rajanala (Advisor: Vincent Cryns)

Malin, D., Strekalova, E., Petrovic, V., **Rajanala, H.**, Sharma, B., Ugolkov, A., . . . Cryns, V. L. (2015). ERK-regulated alphaB-crystallin induction by matrix detachment inhibits anoikis and promotes lung metastasis in vivo. *Oncogene*, 34(45), 5626-5634. doi:10.1038/onc.2015.12

Strekalova, E., Malin, D., **Rajanala, H.**, & Cryns, V. L. (2017). Metformin sensitizes triple-negative breast cancer to proapoptotic TRAIL receptor agonists by suppressing XIAP expression. *Breast Cancer Res Treat*, 163(3), 435-447. doi:10.1007/s10549-017-4201-0

Strekalova, E., Malin, D., **Rajanala, H.**, & Cryns, V. L. (2019). Preclinical Breast Cancer Models to Investigate Metabolic Priming by Methionine Restriction. *Methods Mol Biol*, 1866, 61-73. doi:10.1007/978-1-4939-8796-2_6

Benjamin Steyer (Advisor: Krishanu Saha)

Sinha, D., **Steyer, B.**, Shahi, P. K., Mueller, K. P., Valiauga, R., Edwards, K. L., Bacig, C., Steltzer, S. S., Srinivasan, S., Abdeen, A., Cory, E., Periyasamy, V., Siahpirani, A. F., Stone, E. M., Tucker, B. A., Roy, S., Pattnaik, B. R., Saha, K., & Gamm, D. M. (2020). Human iPSC Modeling Reveals Mutation-Specific Responses to Gene Therapy in a Genotypically Diverse Dominant

Maculopathy. *American journal of human genetics*, 107(2), 278–292.
<https://doi.org/10.1016/j.ajhg.2020.06.011>

Gajbhiye, V., Escalante, L., Chen, G., Laperle, A., Zheng, Q., **Steyer, B.**, . . . Saha, K. (2014). Drug-loaded nanoparticles induce gene expression in human pluripotent stem cell derivatives. *Nanoscale*, 6(1), 521-531.
doi:10.1039/c3nr04794f

Carlson-Stevermer, J., Goedland, M., **Steyer, B.**, Movaghar, A., Lou, M., Kohlenberg, L., . . . Saha, K. (2016). High-Content Analysis of CRISPR-Cas9 Gene-Edited Human Embryonic Stem Cells. *Stem Cell Reports*, 6(1), 109-120.
doi:10.1016/j.stemcr.2015.11.014

Steyer, B., Carlson-Stevermer, J., Angenent-Mari, N., Khalil, A., Harkness, T., & Saha, K. (2016). High content analysis platform for optimization of lipid mediated CRISPR-Cas9 delivery strategies in human cells. *Acta Biomater*, 34, 143-158.
doi:10.1016/j.actbio.2015.12.036

Steyer, B., Bu, Q., Cory, E., Jiang, K., Duong, S., Sinha, D., . . . Saha, K. (2018). Scarless Genome Editing of Human Pluripotent Stem Cells via Transient Puromycin Selection. *Stem Cell Reports*, 10(2), 642-654.
doi:10.1016/j.stemcr.2017.12.004

Steyer, B., Cory, E., & Saha, K. (2018). Developing precision medicine using scarless genome editing of human pluripotent stem cells. *Drug Discov Today Technol*, 28, 3-12. doi:10.1016/j.ddtec.2018.02.001

Tricia Windgassen (Advisor: James Keck)

Windgassen, T. A., Mooney, R. A., Nayak, D., Palangat, M., Zhang, J., & Landick, R. (2014). Trigger-helix folding pathway and S13 mediate catalysis and hairpin-stabilized pausing by Escherichia coli RNA polymerase. *Nucleic Acids Res*, 42(20), 12707-12721. doi:10.1093/nar/gku997

Piechura, J. R., Tseng, T. L., Hsu, H. F., Byrne, R. T., **Windgassen, T. A.**, Chitteni-Pattu, S., . . . Cox, M. M. (2015). Biochemical characterization of RecA variants that contribute to extreme resistance to ionizing radiation. *DNA Repair (Amst)*, 26, 30-43. doi:10.1016/j.dnarep.2014.12.001

Windgassen, T. A., & Keck, J. L. (2016). An aromatic-rich loop couples DNA binding and ATP hydrolysis in the PriA DNA helicase. *Nucleic Acids Res*, 44(20), 9745-9757. doi:10.1093/nar/gkw690

Windgassen, T. A., Leroux, M., Satyshur, K. A., Sandler, S. J., & Keck, J. L. (2018). Structure-specific DNA replication-fork recognition directs helicase and

replication restart activities of the PriA helicase. *Proc Natl Acad Sci U S A*, 115(39), E9075-e9084. doi:10.1073/pnas.1809842115

Windgassen, T. A., Wessel, S. R., Bhattacharyya, B., & Keck, J. L. (2018). Mechanisms of bacterial DNA replication restart. *Nucleic Acids Res*, 46(2), 504-519. doi:10.1093/nar/gkx1203

Saba, J., Chua, X. Y., Mishanina, T. V., Nayak, D., **Windgassen, T. A.**, Mooney, R. A., & Landick, R. (2019). The elemental mechanism of transcriptional pausing. *Elife*, 8. doi:10.7554/eLife.40981

Windgassen, T. A., Leroux, M., Sandler, S. J., & Keck, J. L. (2019). Function of a strand-separation pin element in the PriA DNA replication restart helicase. *J Biol Chem*, 294(8), 2801-2814. doi:10.1074/jbc.RA118.006870

2017 Graduates

Adam Bayless (Advisor: Andrew Bent)

Bayless, A. M., Zapotocny, R. W., Han, S., Grunwald, D. J., Amundson, K. K., & Bent, A. F. (2019). The *rhg1-a* (*Rhg1* low-copy) nematode resistance source harbors a copia-family retrotransposon within the *Rhg1*-encoded α -SNAP gene. *Plant direct*, 3(8), e00164. <https://doi.org/10.1002/pld3.164>

Cook, D. E., Lee, T. G., Guo, X., Melito, S., Wang, K., **Bayless, A. M.**, . . . Bent, A. F. (2012). Copy number variation of multiple genes at *Rhg1* mediates nematode resistance in soybean. *Science*, 338(6111), 1206-1209. doi:10.1126/science.1228746

Cook, D. E., **Bayless, A. M.**, Wang, K., Guo, X., Song, Q., Jiang, J., & Bent, A. F. (2014). Distinct Copy Number, Coding Sequence, and Locus Methylation Patterns Underlie *Rhg1*-Mediated Soybean Resistance to Soybean Cyst Nematode. *Plant Physiol*, 165(2), 630-647. doi:10.1104/pp.114.235952

Bayless, A. M., Smith, J. M., Song, J., McMinn, P. H., Teillet, A., August, B. K., & Bent, A. F. (2016). Disease resistance through impairment of alpha-SNAP-NSF interaction and vesicular trafficking by soybean *Rhg1*. *Proc Natl Acad Sci U S A*, 113(47), E7375-e7382. doi:10.1073/pnas.1610150113

Bayless, A. M., Zapotocny, R. W., Grunwald, D. J., Amundson, K. K., Diers, B. W., & Bent, A. F. (2018). An atypical N-ethylmaleimide sensitive factor enables the viability of nematode-resistant *Rhg1* soybeans. *Proc Natl Acad Sci U S A*, 115(19), E4512-e4521. doi:10.1073/pnas.1717070115

Mitch Biermann (Advisor: Timothy Kamp)

Cai, W., Zhang, J., de Lange, W. J., Gregorich, Z. R., Karp, H., Farrell, E. T., Mitchell, S. D., Tucholski, T., Lin, Z., **Biermann, M.**, McIlwain, S. J., Ralphe, J. C., Kamp, T. J., & Ge, Y. (2019). An Unbiased Proteomics Method to Assess the Maturation of Human Pluripotent Stem Cell-Derived Cardiomyocytes. *Circulation research*, *125*(11), 936–953. <https://doi.org/10.1161/CIRCRESAHA.119.315305>

Biermann, M., Cai, W., Lang, D., Hermsen, J., Profio, L., Zhou, Y., Czirok, A., Isai, D. G., Napiwocki, B. N., Rodriguez, A. M., Brown, M. E., Woon, M. T., Shao, A., Han, T., Park, D., Hacker, T. A., Crone, W. C., Burlingham, W. J., Glukhov, A. V., Ge, Y., ... Kamp, T. J. (2019). Epigenetic Priming of Human Pluripotent Stem Cell-Derived Cardiac Progenitor Cells Accelerates Cardiomyocyte Maturation. *Stem cells (Dayton, Ohio)*, *37*(7), 910–923. <https://doi.org/10.1002/stem.3021>

Biermann, M., & Kamp, T. J. (2016). Cardiotoxicity in a dish: new insights for personalized therapy. *Nat Med*, *22*(5), 459-460. doi:10.1038/nm.4095

Nelson, D. O., Lalit, P. A., **Biermann, M.**, Markandeya, Y. S., Capes, D. L., Adesso, L., . . . Lyons, G. E. (2016). Irx4 Marks a Multipotent, Ventricular-Specific Progenitor Cell. *Stem Cells*, *34*(12), 2875-2888. doi:10.1002/stem.2486

Brown, M. E., Zhou, Y., McIntosh, B. E., Norman, I. G., Lou, H. E., **Biermann, M.**, . . . Burlingham, W. J. (2018). A Humanized Mouse Model Generated Using Surplus Neonatal Tissue. *Stem Cell Reports*, *10*(4), 1175-1183. doi:10.1016/j.stemcr.2018.02.011

Nasim Jamali (Advisor: Nader Sheibani)

Zaitoun, I. S., Wintheiser, C. M., **Jamali, N.**, Wang, S., Suscha, A., Darjatmoko, S. R., Schleck, K., Hanna, B. A., Lindner, V., Sheibani, N., & Sorenson, C. M. (2019). Bcl-2 Expression in Pericytes and Astrocytes Impacts Vascular Development and Homeostasis. *Scientific reports*, *9*(1), 9700. <https://doi.org/10.1038/s41598-019-45915-4>

Jamali, N., Song, Y. S., Sorenson, C. M., & Sheibani, N. (2019). 1,25(OH)₂D₃ regulates the proangiogenic activity of pericyte through VDR-mediated modulation of VEGF production and signaling of VEGF and PDGF receptors. *FASEB bioAdvances*, *1*(7), 415–434. <https://doi.org/10.1096/fba.2018-00067>

Morrison, M. E., Palenski, T. L., **Jamali, N.**, Sheibani, N., & Sorenson, C. M. (2013). Modulation of vascular cell function by bim expression. *Int J Cell Biol*, *2013*, 297537. doi:10.1155/2013/297537

Zaitoun, I. S., Johnson, R. P., **Jamali, N.**, Almomani, R., Wang, S., Sheibani, N., & Sorenson, C. M. (2015). Endothelium Expression of Bcl-2 Is Essential for Normal and Pathological Ocular Vascularization. *PLoS One*, *10*(10), e0139994. doi:10.1371/journal.pone.0139994

Ghanian, Z., Staniszewski, K., **Jamali, N.**, Sepehr, R., Wang, S., Sorenson, C. M., . . . Ranji, M. (2016). Quantitative Assessment of Retinopathy Using Multi-parameter Image Analysis. *J Med Signals Sens*, *6*(2), 71-80.

Jamali, N., Wang, S., Darjatmoko, S. R., Sorenson, C. M., & Sheibani, N. (2017). Vitamin D receptor expression is essential during retinal vascular development and attenuation of neovascularization by 1, 25(OH)₂D₃. *PLoS One*, *12*(12), e0190131. doi:10.1371/journal.pone.0190131

Wang, S., Zaitoun, I. S., Johnson, R. P., **Jamali, N.**, Gurel, Z., Wintheiser, C. M., . . . Sorenson, C. M. (2017). Bim expression in endothelial cells and pericytes is essential for regression of the fetal ocular vasculature. *PLoS One*, *12*(5), e0178198. doi:10.1371/journal.pone.0178198

Ghanian, Z., Mehrvar, S., **Jamali, N.**, Sheibani, N., & Ranji, M. (2018). Time-lapse microscopy of oxidative stress demonstrates metabolic sensitivity of retinal pericytes under high glucose condition. *J Biophotonics*, *11*(9), e201700289. doi:10.1002/jbio.201700289

Jamali, N., Sorenson, C. M., & Sheibani, N. (2018). Vitamin D and regulation of vascular cell function. *Am J Physiol Heart Circ Physiol*, *314*(4), H753-h765. doi:10.1152/ajpheart.00319.2017

Amy Jancewicz (Advisor: Patrick Masson)

Jancewicz, A. L., Gibbs, N. M., & Masson, P. H. (2016). Cadaverine's Functional Role in Plant Development and Environmental Response. *Front Plant Sci*, *7*, 870. doi:10.3389/fpls.2016.00870

Su, S. H., Gibbs, N. M., **Jancewicz, A. L.**, & Masson, P. H. (2017). Molecular Mechanisms of Root Gravitropism. *Curr Biol*, *27*(17), R964-r972. doi:10.1016/j.cub.2017.07.015

Lowe-Power, T. M., Hendrich, C. G., von Roepenack-Lahaye, E., Li, B., Wu, D., Mitra, R., Dalsing, B. L., Ricca, P., Naidoo, J., Cook, D., **Jancewicz, A.**, . . . Allen, C. (2018). Metabolomics of tomato xylem sap during bacterial wilt reveals *Ralstonia solanacearum* produces abundant putrescine, a metabolite that accelerates wilt disease. *Environ Microbiol*, *20*(4), 1330-1349. doi:10.1111/1462-2920.14020

Meihua Kuang (Advisor: Chris Hittinger)

Alexander, W. G., Peris, D., Pfannenstiel, B. T., Oplente, D. A., **Kuang, M.**, & Hittinger, C. T. (2016). Efficient engineering of marker-free synthetic allotetraploids of *Saccharomyces*. *Fungal Genet Biol*, *89*, 10-17. doi:10.1016/j.fgb.2015.11.002

Kuang, M. C., Hutchins, P. D., Russell, J. D., Coon, J. J., & Hittinger, C. T. (2016). Ongoing resolution of duplicate gene functions shapes the diversification of a metabolic network. *Elife*, *5*. doi:10.7554/eLife.19027

Kuang, M. C., Kominek, J., Alexander, W. G., Cheng, J. F., Wrobel, R. L., & Hittinger, C. T. (2018). Repeated Cis-Regulatory Tuning of a Metabolic Bottleneck Gene during Evolution. *Mol Biol Evol*, *35*(8), 1968-1981. doi:10.1093/molbev/msy102

Alison Moe (Advisor: William Bement)

Bement, W. M., Leda, M., **Moe, A. M.**, Kita, A. M., Larson, M. E., Golding, A. E., . . . von Dassow, G. (2015). Activator-inhibitor coupling between Rho signalling and actin assembly makes the cell cortex an excitable medium. *Nat Cell Biol*, *17*(11), 1471-1483. doi:10.1038/ncb3251

Moe, A. M., Golding, A. E., & Bement, W. M. (2015). Cell healing: Calcium, repair and regeneration. *Semin Cell Dev Biol*, *45*, 18-23. doi:10.1016/j.semcdb.2015.09.026

Moe, A., Holmes, W., Golding, A. E., Zola, J., Swider, Z. T., Edelstein-Keshet, L., & Bement, W. (2021). Cross talk-dependent cortical patterning of Rho GTPases during cell repair. *Molecular biology of the cell*, mbcE20070481. Advance online publication. <https://doi.org/10.1091/mbc.E20-07-0481>

Brett Morris (Advisor: Patricia Keely)

Burkel, B., **Morris, B. A.**, Ponik, S. M., Riching, K. M., Eliceiri, K. W., & Keely, P. J. (2016). Preparation of 3D Collagen Gels and Microchannels for the Study of 3D Interactions In Vivo. *J Vis Exp*(111). doi:10.3791/53989

Morris, B. A., Burkel, B., Ponik, S. M., Fan, J., Condeelis, J. S., Aguirre-Ghiso, J. A., . . . Keely, P. J. (2016). Collagen Matrix Density Drives the Metabolic Shift in Breast Cancer Cells. *EBioMedicine*, *13*, 146-156. doi:10.1016/j.ebiom.2016.10.012

Dhananjay Nawandar (Advisor: Shannon Kenney)

Wille, C. K., **Nawandar, D. M.**, Panfil, A. R., Ko, M. M., Hagemeyer, S. R., & Kenney, S. C. (2013). Viral genome methylation differentially affects the ability of

BZLF1 versus BRLF1 to activate Epstein-Barr virus lytic gene expression and viral replication. *J Virol*, *87*(2), 935-950. doi:10.1128/jvi.01790-12

Nawandar, D. M., Wang, A., Makielski, K., Lee, D., Ma, S., Barlow, E., . . . Kenney, S. C. (2015). Differentiation-Dependent KLF4 Expression Promotes Lytic Epstein-Barr Virus Infection in Epithelial Cells. *PLoS Pathog*, *11*(10), e1005195. doi:10.1371/journal.ppat.1005195

Bilger, A., Plowshay, J., Ma, S., **Nawandar, D.**, Barlow, E. A., Romero-Masters, J. C., Bristol, J. A., Li, Z., Tsai, M. H., Delecluse, H. J., & Kenney, S. C. (2017). Leflunomide/teriflunomide inhibit Epstein-Barr virus (EBV)- induced lymphoproliferative disease and lytic viral replication. *Oncotarget*, *8*(27), 44266–44280. <https://doi.org/10.18632/oncotarget.17863>

Reusch, J. A., **Nawandar, D. M.**, Wright, K. L., Kenney, S. C., & Mertz, J. E. (2015). Cellular differentiation regulator BLIMP1 induces Epstein-Barr virus lytic reactivation in epithelial and B cells by activating transcription from both the R and Z promoters. *J Virol*, *89*(3), 1731-1743. doi:10.1128/jvi.02781-14

Wille, C. K., **Nawandar, D. M.**, Henning, A. N., Ma, S., Oetting, K. M., Lee, D., . . . Kenney, S. C. (2015). 5-hydroxymethylation of the EBV genome regulates the latent to lytic switch. *Proc Natl Acad Sci U S A*, *112*(52), E7257-7265. doi:10.1073/pnas.1513432112

Makielski, K. R., Lee, D., Lorenz, L. D., **Nawandar, D. M.**, Chiu, Y. F., Kenney, S. C., & Lambert, P. F. (2016). Human papillomavirus promotes Epstein-Barr virus maintenance and lytic reactivation in immortalized oral keratinocytes. *Virology*, *495*, 52-62. doi:10.1016/j.virol.2016.05.005

Kraus, R. J., Yu, X., Cordes, B. A., Sathiamoorthi, S., Iempridee, T., **Nawandar, D. M.**, . . . Mertz, J. E. (2017). Hypoxia-inducible factor-1alpha plays roles in Epstein-Barr virus's natural life cycle and tumorigenesis by inducing lytic infection through direct binding to the immediate-early BZLF1 gene promoter. *PLoS Pathog*, *13*(6), e1006404. doi:10.1371/journal.ppat.1006404

Nawandar, D. M., Ohashi, M., Djavadian, R., Barlow, E., Makielski, K., Ali, A., . . . Kenney, S. C. (2017). Differentiation-Dependent LMP1 Expression Is Required for Efficient Lytic Epstein-Barr Virus Reactivation in Epithelial Cells. *J Virol*, *91*(8). doi:10.1128/jvi.02438-16

Weng, C., Lee, D., Gelbmann, C. B., Van Sciver, N., **Nawandar, D. M.**, Kenney, S. C., & Kalejta, R. F. (2018). Human Cytomegalovirus Productively Replicates In Vitro in Undifferentiated Oral Epithelial Cells. *J Virol*, *92*(16). doi:10.1128/jvi.00903-18

Sarah Neuman (Advisor: Arash Bashirullah)

Vasudevan, D., **Neuman, S. D.**, Yang, A., Lough, L., Brown, B., Bashirullah, A., Cardozo, T., & Ryoo, H. D. (2020). Translational induction of ATF4 during integrated stress response requires noncanonical initiation factors eIF2D and DENR. *Nature communications*, 11(1), 4677. <https://doi.org/10.1038/s41467-020-18453-1>

Neuman, S. D., Terry, E. L., Selegue, J. E., Cavanagh, A. T., & Bashirullah, A. (2021). Mistargeting of secretory cargo in retromer-deficient cells. *Disease models & mechanisms*, 14(1), dmm046417. <https://doi.org/10.1242/dmm.046417>

Neuman, S. D., Ihry, R. J., Gruetzmacher, K. M., & Bashirullah, A. (2014). INO80-dependent regression of ecdysone-induced transcriptional responses regulates developmental timing in Drosophila. *Dev Biol*, 387(2), 229-239. doi:10.1016/j.ydbio.2014.01.006

Weasner, B. M., Weasner, B. P., **Neuman, S. D.**, Bashirullah, A., & Kumar, J. P. (2016). Retinal Expression of the Drosophila eyes absent Gene Is Controlled by Several Cooperatively Acting Cis-regulatory Elements. *PLoS Genet*, 12(12), e1006462. doi:10.1371/journal.pgen.1006462

Kang, Y., **Neuman, S. D.**, & Bashirullah, A. (2017). Tango7 regulates cortical activity of caspases during reaper-triggered changes in tissue elasticity. *Nat Commun*, 8(1), 603. doi:10.1038/s41467-017-00693-3

Baker, L. R., Weasner, B. M., Nagel, A., **Neuman, S. D.**, Bashirullah, A., & Kumar, J. P. (2018). Eyeless/Pax6 initiates eye formation non-autonomously from the peripodial epithelium. *Development*, 145(15). doi:10.1242/dev.163329

Neuman, S. D., & Bashirullah, A. (2018). Reconsidering the Passive Diffusion Model of Steroid Hormone Cellular Entry. *Dev Cell*, 47(3), 261-262. doi:10.1016/j.devcel.2018.10.022

Neuman, S. D., & Bashirullah, A. (2018). Hobbit regulates intracellular trafficking to drive insulin-dependent growth during Drosophila development. *Development*, 145(11). doi:10.1242/dev.161356

Palliyil, S., Zhu, J., Baker, L. R., **Neuman, S. D.**, Bashirullah, A., & Kumar, J. P. (2018). Allocation of distinct organ fates from a precursor field requires a shift in expression and function of gene regulatory networks. *PLoS Genet*, 14(1), e1007185. doi:10.1371/journal.pgen.1007185

Xingmin Zhang (Advisor: Thomas Martin)

Kabachinski, G., Kielar-Grevstad, D. M., **Zhang, X.**, James, D. J., & Martin, T. F. (2016). Resident CAPS on dense-core vesicles docks and primes vesicles for fusion. *Mol Biol Cell*, 27(4), 654-668. doi:10.1091/mbc.E15-07-0509

Zhang, X., Jiang, S., Mitok, K. A., Li, L., Attie, A. D., & Martin, T. F. J. (2017). BAIAP3, a C2 domain-containing Munc13 protein, controls the fate of dense-core vesicles in neuroendocrine cells. *J Cell Biol*, 216(7), 2151-2166. doi:10.1083/jcb.201702099

Zhang, X. A., & Martin, T. F. J. (2018). High Throughput NPY-Venus and Serotonin Secretion Assays for Regulated Exocytosis in Neuroendocrine Cells. *Bio Protoc*, 8(1). doi:10.21769/BioProtoc.2680

Ray Rui Zhang (Advisor: John Shu-shin Kuo)

Zhang, R. R., Grudzinski, J. J., Mehta, T. I., Burnette, R. R., Hernandez, R., Clark, P. A., Lubin, J. A., Pinchuk, A. N., Jeffrey, J., Longino, M., Kuo, J. S., & Weichert, J. P. (2019). *In Silico* Docking of Alkylphosphocholine Analogs to Human Serum Albumin Predicts Partitioning and Pharmacokinetics. *Molecular pharmaceutics*, 16(8), 3350–3360.

<https://doi.org/10.1021/acs.molpharmaceut.8b01301>

Lubin, J. A., **Zhang, R. R.**, & Kuo, J. S. (2018). Zika Virus has Oncolytic Activity Against Glioblastoma Stem Cells. *Neurosurgery*, 82(5), E113–E114.

<https://doi.org/10.1093/neuros/nyy047>

Pointer, K. B., **Zhang, R. R.**, Kuo, J. S., & Dempsey, R. J. (2014). Detecting brain tumor with Raman scattering microscopy. *Neurosurgery*, 74(2), N12-14.

doi:10.1227/01.neu.0000442975.53712.6f

Zhang, R. R., Pointer, K. B., Kuo, J. S., & Dempsey, R. J. (2014). Mutational analysis reveals the origin and therapy-driven evolution of recurrent glioma.

Neurosurgery, 75(6), N9-10. doi:10.1227/neu.0000000000000580

Pointer, K. B., **Zhang, R. R.**, & Kuo, J. S. (2015). Oncolytic Herpes Simplex Virus Glioblastoma Therapy is Potentiated by Tumor Necrosis Factor-alpha Inhibition.

Neurosurgery, 77(2), N18-20. doi:10.1227/01.neu.0000467297.56504.5b

Swanson, K. I., Clark, P. A., **Zhang, R. R.**, Kandela, I. K., Farhoud, M., Weichert, J. P., & Kuo, J. S. (2015). Fluorescent cancer-selective alkylphosphocholine analogs for intraoperative glioma detection. *Neurosurgery*, 76(2), 115-123;

discussion 123-114. doi:10.1227/neu.0000000000000622

Zhang, R. R., Pointer, K. B., & Kuo, J. S. (2015). Excitotoxic SLC7A11 Expression Is a Marker of Poor Glioblastoma Survival and a Potential Therapeutic Target. *Neurosurgery*, *77*(6), N16-17. doi:10.1227/01.neu.0000473809.76102.ee

Zhang, R. R., Pointer, K. B., & Kuo, J. S. (2015). New Molecular Insights and Potential Therapies for Diffuse Intrinsic Pontine Glioma. *Neurosurgery*, *77*(4), N13-14. doi:10.1227/01.neu.0000471836.59263.1f

Clark, P. A., Al-Ahmad, A. J., Qian, T., **Zhang, R. R.**, Wilson, H. K., Weichert, J. P., . . . Shusta, E. V. (2016). Analysis of Cancer-Targeting Alkylphosphocholine Analogue Permeability Characteristics Using a Human Induced Pluripotent Stem Cell Blood-Brain Barrier Model. *Mol Pharm*, *13*(9), 3341-3349. doi:10.1021/acs.molpharmaceut.6b00441

Zhang, R. R., & Kuo, J. S. (2016). Detection of Human Brain Tumor Infiltration With Quantitative Stimulated Raman Scattering Microscopy. *Neurosurgery*, *78*(4), N9-n11. doi:10.1227/01.neu.0000481982.43612.7b

Zhang, R. R., Lubin, J. A., & Kuo, J. S. (2016). Bioresorbable Silicon Electronic Sensors for the Brain. *Neurosurgery*, *79*(4), N19. doi:10.1227/01.neu.0000499711.96831.af

Zhang, R. R., Strebe, J. K., & Kuo, J. S. (2016). Heparan Sulfates Promote Amyloid Pathology in Alzheimer Disease. *Neurosurgery*, *79*(2), N12-13. doi:10.1227/neu.0000000000001291

Zhang, R. R., Swanson, K. I., Hall, L. T., Weichert, J. P., & Kuo, J. S. (2016). Diaplectic cancer-targeting alkylphosphocholine analogs may advance management of brain malignancies. *CNS Oncol*, *5*(4), 223-231. doi:10.2217/cns-2016-0017

Ehrlich, N. A., **Zhang, R. R.**, & Kuo, J. S. (2017). Anti-Programmed Cell Death Protein-1 Immunotherapy for Glioblastoma is Impaired by Systemic Chemotherapy but Enhanced in Combination With Locally Delivered Chemotherapy. *Neurosurgery*, *81*(5), N34-n36. doi:10.1093/neuros/nyx453

Zhang, R. R., & Kuo, J. S. (2017). Reduced H3K27me3 is a New Epigenetic Biomarker for Pediatric Posterior Fossa Ependymomas. *Neurosurgery*, *81*(1), N7-n8. doi:10.1093/neuros/nyx262

Zhang, R. R., Schroeder, A. B., Grudzinski, J. J., Rosenthal, E. L., Warram, J. M., Pinchuk, A. N., . . . Weichert, J. P. (2017). Beyond the margins: real-time

detection of cancer using targeted fluorophores. *Nat Rev Clin Oncol*, 14(6), 347-364. doi:10.1038/nrclinonc.2016.212

Lubin, J. A., Zhang, R. R., & Kuo, J. S. (2018). Zika Virus has Oncolytic Activity Against Glioblastoma Stem Cells. *Neurosurgery*, 82(5), E113-e114. doi:10.1093/neuros/nyy047

2016 Graduates

Craig Barcus (Advisor: Linda Schuler)

Barcus, C. E., Keely, P. J., Eliceiri, K. W., & Schuler, L. A. (2013). Stiff collagen matrices increase tumorigenic prolactin signaling in breast cancer cells. *J Biol Chem*, 288(18), 12722-12732. doi:10.1074/jbc.M112.447631

Barcus, C. E., Holt, E. C., Keely, P. J., Eliceiri, K. W., & Schuler, L. A. (2015). Dense collagen-I matrices enhance pro-tumorigenic estrogen-prolactin crosstalk in MCF-7 and T47D breast cancer cells. *PLoS One*, 10(1), e0116891. doi:10.1371/journal.pone.0116891

Barcus, C. E., Keely, P. J., Eliceiri, K. W., & Schuler, L. A. (2016). Prolactin signaling through focal adhesion complexes is amplified by stiff extracellular matrices in breast cancer cells. *Oncotarget*, 7(30), 48093-48106. doi:10.18632/oncotarget.10137

Barcus, C. E., O'Leary, K. A., Brockman, J. L., Rugowski, D. E., Liu, Y., Garcia, N., . . . Schuler, L. A. (2017). Elevated collagen-I augments tumor progressive signals, intravasation and metastasis of prolactin-induced estrogen receptor alpha positive mammary tumor cells. *Breast Cancer Res*, 19(1), 9. doi:10.1186/s13058-017-0801-1

Joseph Bruckner (Advisor: Kate O'Connor-Giles)

Bruckner, J. J., Gratz, S. J., Slind, J. K., Geske, R. R., Cummings, A. M., Galindo, S. E., . . . O'Connor-Giles, K. M. (2012). Fife, a Drosophila Piccolo-RIM homolog, promotes active zone organization and neurotransmitter release. *J Neurosci*, 32(48), 17048-17058. doi:10.1523/jneurosci.3267-12.2012

Bruckner, J. J., Zhan, H., & O'Connor-Giles, K. M. (2015). Advances in imaging ultrastructure yield new insights into presynaptic biology. *Front Cell Neurosci*, 9, 196. doi:10.3389/fncel.2015.00196

Gratz, S. J., Goel, P., **Bruckner, J. J.**, Hernandez, R. X., Khateeb, K., Macleod, G. T., Dickman, D., & O'Connor-Giles, K. M. (2019). Endogenous Tagging Reveals Differential Regulation of Ca²⁺ Channels at Single Active Zones during Presynaptic Homeostatic Potentiation and Depression. *The Journal of neuroscience : the official journal of the Society for Neuroscience*, 39(13), 2416–2429. <https://doi.org/10.1523/JNEUROSCI.3068-18.2019>

Zhan, H., **Bruckner, J.**, Zhang, Z., & O'Connor-Giles, K. (2016). Three-dimensional imaging of Drosophila motor synapses reveals ultrastructural organizational patterns. *Journal of neurogenetics*, *30*(3-4), 237–246. <https://doi.org/10.1080/01677063.2016.1253693>

Ukken, F. P., **Bruckner, J. J.**, Weir, K. L., Hope, S. J., Sison, S. L., Birschbach, R. M., . . . O'Connor-Giles, K. M. (2016). BAR-SH3 sorting nexins are conserved interacting proteins of Nervous wreck that organize synapses and promote neurotransmission. *J Cell Sci*, *129*(1), 166-177. doi:10.1242/jcs.178699

Bruckner, J. J., Zhan, H., Gratz, S. J., Rao, M., Ukken, F., Zilberg, G., & O'Connor-Giles, K. M. (2017). Fife organizes synaptic vesicles and calcium channels for high-probability neurotransmitter release. *J Cell Biol*, *216*(1), 231-246. doi:10.1083/jcb.201601098

Viswa Teja Colluru (Advisor: Douglas McNeel)

Colluru, V. T., Johnson, L. E., Olson, B. M., & McNeel, D. G. (2016). Preclinical and clinical development of DNA vaccines for prostate cancer. *Urol Oncol*, *34*(4), 193-204. doi:10.1016/j.urolonc.2013.09.014

Colluru, V. T., & McNeel, D. G. (2016). B lymphocytes as direct antigen-presenting cells for anti-tumor DNA vaccines. *Oncotarget*, *7*(42), 67901-67918. doi:10.18632/oncotarget.12178

Colluru, V. T., Zahm, C. D., & McNeel, D. G. (2016). Mini-intronic plasmid vaccination elicits tolerant LAG3(+) CD8(+) T cells and inferior antitumor responses. *Oncoimmunology*, *5*(10), e1223002. doi:10.1080/2162402x.2016.1223002

Olson, B. M., Bradley, E. S., Sawicki, T., Zhong, W., Ranheim, E. A., Bloom, J. E., **Colluru, V.T.**, . . . McNeel, D. G. (2017). Safety and Immunological Efficacy of a DNA Vaccine Encoding the Androgen Receptor Ligand-Binding Domain (AR-LBD). *Prostate*, *77*(7), 812-821. doi:10.1002/pros.23321

Zahm, C. D., **Colluru, V. T.**, & McNeel, D. G. (2017). Vaccination with High-Affinity Epitopes Impairs Antitumor Efficacy by Increasing PD-1 Expression on CD8(+) T Cells. *Cancer Immunol Res*, *5*(8), 630-641. doi:10.1158/2326-6066.Cir-16-0374

Zahm, C. D., **Colluru, V. T.**, & McNeel, D. G. (2017). DNA vaccines for prostate cancer. *Pharmacol Ther*, *174*, 27-42. doi:10.1016/j.pharmthera.2017.02.016

Zahm, C. D., **Colluru, V. T.**, McIlwain, S. J., Ong, I. M., & McNeel, D. G. (2018). TLR Stimulation during T-cell Activation Lowers PD-1 Expression on CD8(+) T Cells. *Cancer Immunol Res*, *6*(11), 1364-1374. doi:10.1158/2326-6066.Cir-18-0243

Nicholas Davenport (Advisor: William Bement)

Davenport, N. R., & Bement, W. M. (2016). Cell repair: Revisiting the patch hypothesis. *Commun Integr Biol*, *9*(6), e1253643. doi:10.1080/19420889.2016.1253643

Davenport, N. R., Sonnemann, K. J., Eliceiri, K. W., & Bement, W. M. (2016). Membrane dynamics during cellular wound repair. *Mol Biol Cell*, *27*(14), 2272-2285. doi:10.1091/mbc.E16-04-0223

Antoinette Dummer (Advisor: Catherine Fox)

Dummer, A. M., Su, Z., Cherney, R., Choi, K., Denu, J., Zhao, X., & Fox, C. A. (2016). Binding of the Fkh1 Forkhead Associated Domain to a Phosphopeptide within the Mph1 DNA Helicase Regulates Mating-Type Switching in Budding Yeast. *PLoS Genet*, *12*(6), e1006094. doi:10.1371/journal.pgen.1006094

Asuka Eguchi (Advisor: Aseem Ansari)

Eguchi, A., Lee, G. O., Wan, F., Erwin, G. S., & Ansari, A. Z. (2014). Controlling gene networks and cell fate with precision-targeted DNA-binding proteins and small-molecule-based genome readers. *Biochem J*, *462*(3), 397-413. doi:10.1042/bj20140400

Erwin, G. S., Bhimsaria, D., **Eguchi, A.**, & Ansari, A. Z. (2014). Mapping polyamide-DNA interactions in human cells reveals a new design strategy for effective targeting of genomic sites. *Angew Chem Int Ed Engl*, *53*(38), 10124-10128. doi:10.1002/anie.201405497

Eguchi, A., Wleklinski, M. J., Spurgat, M. C., Heiderscheit, E. A., Kropornicka, A. S., Vu, C. K., . . . Ansari, A. Z. (2016). Reprogramming cell fate with a genome-scale library of artificial transcription factors. *Proc Natl Acad Sci U S A*, *113*(51), E8257-e8266. doi:10.1073/pnas.1611142114

Erwin, G. S., Grieshop, M. P., Bhimsaria, D., **Eguchi, A.**, Rodriguez-Martinez, J. A., & Ansari, A. Z. (2016). Genome-wide Mapping of Drug-DNA Interactions in Cells with COSMIC (Crosslinking of Small Molecules to Isolate Chromatin). *J Vis Exp*(107), e53510. doi:10.3791/53510

Erwin, G. S., Grieshop, M. P., Ali, A., Qi, J., Lawlor, M., Kumar, D., Ahmad, I., McNally, A., Teider, N., Worringer, K., Sivasankaran, R., Syed, D. N., **Eguchi, A.**, . . . Ansari, A. Z. (2017). Synthetic transcription elongation factors license

transcription across repressive chromatin. *Science*, 358(6370), 1617-1622.
doi:10.1126/science.aan6414

Heiderscheit, E. A., **Eguchi, A.**, Spurgat, M. C., & Ansari, A. Z. (2018).
Reprogramming cell fate with artificial transcription factors. *FEBS Lett*, 592(6),
888-900. doi:10.1002/1873-3468.12993

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Anthony Hanson (Advisor: Yoshihiro Kawaoka)

Watanabe, T., Shinya, K., Watanabe, S., Imai, M., Hatta, M., Li, C., **Hanson, A.**,
. . . Kawaoka, Y. (2011). Avian-type receptor-binding ability can increase
influenza virus pathogenicity in macaques. *J Virol*, 85(24), 13195-13203.
doi:10.1128/jvi.00859-11

Imai, M., Watanabe, T., Hatta, M., Das, S. C., Ozawa, M., Shinya, K., **Hanson,**
A., . . . Kawaoka, Y. (2012). Experimental adaptation of an influenza H5 HA
confers respiratory droplet transmission to a reassortant H5 HA/H1N1 virus in
ferrets. *Nature*, 486(7403), 420-428. doi:10.1038/nature10831

Watanabe, T., Imai, M., Watanabe, S., Shinya, K., Hatta, M., Li, C., **Hanson, A.**, .
. . . Kawaoka, Y. (2012). Characterization in vitro and in vivo of pandemic (H1N1)
2009 influenza viruses isolated from patients. *J Virol*, 86(17), 9361-9368.
doi:10.1128/jvi.01214-12

Watanabe, T., Kiso, M., Fukuyama, S., Nakajima, N., Imai, M., Yamada, S.,
Hanson, A., . . . Kawaoka, Y. (2013). Characterization of H7N9 influenza A
viruses isolated from humans. *Nature*, 501(7468), 551-555.
doi:10.1038/nature12392

de Vries, R. P., Zhu, X., McBride, R., Rigter, A., **Hanson, A.**, Zhong, G., . . .
Paulson, J. C. (2014). Hemagglutinin receptor specificity and structural analyses
of respiratory droplet-transmissible H5N1 viruses. *J Virol*, 88(1), 768-773.
doi:10.1128/jvi.02690-13

Watanabe, T., Zhong, G., Russell, C. A., Nakajima, N., Hatta, M., **Hanson, A.**, . .
. . . Kawaoka, Y. (2014). Circulating avian influenza viruses closely related to the
1918 virus have pandemic potential. *Cell Host Microbe*, 15(6), 692-705.
doi:10.1016/j.chom.2014.05.006

Hanson, A., Imai, M., Hatta, M., McBride, R., Imai, H., Taft, A., . . . Kawaoka, Y. (2015). Identification of Stabilizing Mutations in an H5 Hemagglutinin Influenza Virus Protein. *J Virol*, *90*(6), 2981-2992. doi:10.1128/jvi.02790-15

Arafa, A. S., Yamada, S., Imai, M., Watanabe, T., Yamayoshi, S., Iwatsuki-Horimoto, K., **Hanson, A.**, . . . Kawaoka, Y. (2016). Risk assessment of recent Egyptian H5N1 influenza viruses. *Sci Rep*, *6*, 38388. doi:10.1038/srep38388

Li, C., Hatta, M., Burke, D. F., Ping, J., Zhang, Y., Ozawa, M., **Hanson, A.**, . . . Kawaoka, Y. (2016). Selection of antigenically advanced variants of seasonal influenza viruses. *Nat Microbiol*, *1*(6), 16058. doi:10.1038/nmicrobiol.2016.58

Imai, H., Dinis, J. M., Zhong, G., Moncla, L. H., Lopes, T. J. S., McBride, R., **Hanson, A.**, . . . Kawaoka, Y. (2018). Diversity of Influenza A(H5N1) Viruses in Infected Humans, Northern Vietnam, 2004-2010. *Emerg Infect Dis*, *24*(7), 1128-1238. doi:10.3201/eid2407.171441

Chris Hooper (Advisor: Shigeki Miyamoto)

Hooper, C., Jackson, S. S., Coughlin, E. E., Coon, J. J., & Miyamoto, S. (2014). Covalent modification of the NF-kappaB essential modulator (NEMO) by a chemical compound can regulate its ubiquitin binding properties in vitro. *J Biol Chem*, *289*(48), 33161-33174. doi:10.1074/jbc.M114.582478

Helzer, K. T., **Hooper, C.**, Miyamoto, S., & Alarid, E. T. (2015). Ubiquitylation of nuclear receptors: new linkages and therapeutic implications. *J Mol Endocrinol*, *54*(3), R151-167. doi:10.1530/jme-14-0308

Jackson, S. S., Oberley, C., **Hooper, C. P.**, Grindle, K., Wuerzberger-Davis, S., Wolff, J., . . . Miyamoto, S. (2015). Withaferin A disrupts ubiquitin-based NEMO reorganization induced by canonical NF-kappaB signaling. *Exp Cell Res*, *331*(1), 58-72. doi:10.1016/j.yexcr.2014.09.034

Brittany Jacobs (Advisor: Troy Hornberger)

Goodman, C. A., Frey, J. W., Mabrey, D. M., **Jacobs, B. L.**, Lincoln, H. C., You, J. S., & Hornberger, T. A. (2011). The role of skeletal muscle mTOR in the regulation of mechanical load-induced growth. *J Physiol*, *589*(Pt 22), 5485-5501. doi:10.1113/jphysiol.2011.218255

Goodman, C. A., Kotecki, J. A., **Jacobs, B. L.**, & Hornberger, T. A. (2012). Muscle fiber type-dependent differences in the regulation of protein synthesis. *PLoS One*, *7*(5), e37890. doi:10.1371/journal.pone.0037890

Jacobs, B. L., You, J. S., Frey, J. W., Goodman, C. A., Gundermann, D. M., & Hornberger, T. A. (2013). Eccentric contractions increase the phosphorylation of

tuberous sclerosis complex-2 (TSC2) and alter the targeting of TSC2 and the mechanistic target of rapamycin to the lysosome. *J Physiol*, 591(18), 4611-4620. doi:10.1113/jphysiol.2013.256339

Frey, J. W., **Jacobs, B. L.**, Goodman, C. A., & Hornberger, T. A. (2014). A role for Raptor phosphorylation in the mechanical activation of mTOR signaling. *Cell Signal*, 26(2), 313-322. doi:10.1016/j.cellsig.2013.11.009

Jacobs, B. L., Goodman, C. A., & Hornberger, T. A. (2014). The mechanical activation of mTOR signaling: an emerging role for late endosome/lysosomal targeting. *J Muscle Res Cell Motil*, 35(1), 11-21. doi:10.1007/s10974-013-9367-4

Goodman, C. A., Dietz, J. M., **Jacobs, B. L.**, McNally, R. M., You, J. S., & Hornberger, T. A. (2015). Yes-Associated Protein is up-regulated by mechanical overload and is sufficient to induce skeletal muscle hypertrophy. *FEBS Lett*, 589(13), 1491-1497. doi:10.1016/j.febslet.2015.04.047

Jacobs, B. L., McNally, R. M., Kim, K. J., Blanco, R., Privett, R. E., You, J. S., & Hornberger, T. A. (2017). Identification of mechanically regulated phosphorylation sites on tuberin (TSC2) that control mechanistic target of rapamycin (mTOR) signaling. *J Biol Chem*, 292(17), 6987-6997. doi:10.1074/jbc.M117.777805

You, J. S., McNally, R. M., **Jacobs, B. L.**, Privett, R. E., Gundermann, D. M., Lin, K. H., . . . Hornberger, T. A. (2019). The role of raptor in the mechanical load-induced regulation of mTOR signaling, protein synthesis, and skeletal muscle hypertrophy. *Faseb j*, 33(3), 4021-4034. doi:10.1096/fj.201801653RR

Emily Jobe (Advisor: Xinyu Zhao)

Guo, W., Patzlaff, N. E., **Jobe, E. M.**, & Zhao, X. (2012). Isolation of multipotent neural stem or progenitor cells from both the dentate gyrus and subventricular zone of a single adult mouse. *Nat Protoc*, 7(11), 2005-2012. doi:10.1038/nprot.2012.123

Jobe, E. M., McQuate, A. L., & Zhao, X. (2012). Crosstalk among Epigenetic Pathways Regulates Neurogenesis. *Front Neurosci*, 6, 59. doi:10.3389/fnins.2012.00059

Liu, C., Teng, Z. Q., McQuate, A. L., **Jobe, E. M.**, Christ, C. C., von Hoyningen-Huene, S. J., . . . Zhao, X. (2013). An epigenetic feedback regulatory loop involving microRNA-195 and MBD1 governs neural stem cell differentiation. *PLoS One*, 8(1), e51436. doi:10.1371/journal.pone.0051436

Gao, Y., Wang, F., Eisinger, B. E., Kelnhofer, L. E., **Jobe, E. M.**, & Zhao, X. (2017). Integrative Single-Cell Transcriptomics Reveals Molecular Networks Defining Neuronal Maturation During Postnatal Neurogenesis. *Cereb Cortex*, 27(3), 2064-2077. doi:10.1093/cercor/bhw040

Jobe, E. M., Gao, Y., Eisinger, B. E., Mladucky, J. K., Giuliani, C. C., Kelnhofer, L. E., & Zhao, X. (2017). Methyl-CpG-Binding Protein MBD1 Regulates Neuronal Lineage Commitment through Maintaining Adult Neural Stem Cell Identity. *J Neurosci*, 37(3), 523-536. doi:10.1523/jneurosci.1075-16.2016

Jobe, E. M., & Zhao, X. (2017). DNA Methylation and Adult Neurogenesis. *Brain Plast*, 3(1), 5-26. doi:10.3233/bpl-160034

Mo, K., Wu, S., Gu, X., Xiong, M., Cai, W., Atianjoh, F. E., **Jobe, E.E.**, . . . Tao, Y. X. (2018). MBD1 Contributes to the Genesis of Acute Pain and Neuropathic Pain by Epigenetic Silencing of Oprm1 and Kcna2 Genes in Primary Sensory Neurons. *J Neurosci*, 38(46), 9883-9899. doi:10.1523/jneurosci.0880-18.2018

Brian Keppler (Advisor: Andrew Bent)

Song, J., **Keppler, B. D.**, Wise, R. R., & Bent, A. F. (2015). PARP2 Is the Predominant Poly(ADP-Ribose) Polymerase in Arabidopsis DNA Damage and Immune Responses. *PLoS Genet*, 11(5), e1005200. doi:10.1371/journal.pgen.1005200

Briggs, A. G., Adams-Phillips, L. C., **Keppler, B. D.**, Zebell, S. G., Arend, K. C., Apfelbaum, A. A., . . . Bent, A. F. (2017). A transcriptomics approach uncovers novel roles for poly(ADP-ribosyl)ation in the basal defense response in Arabidopsis thaliana. *PLoS One*, 12(12), e0190268. doi:10.1371/journal.pone.0190268

Keppler, B. D., Song, J., Nyman, J., Voigt, C. A., & Bent, A. F. (2018). 3-Aminobenzamide Blocks MAMP-Induced Callose Deposition Independently of Its Poly(ADPribosyl)ation Inhibiting Activity. *Front Plant Sci*, 9, 1907. doi:10.3389/fpls.2018.01907

James Kirui (Advisor: Andrew Mehle)

Kirui, J., Bucci, M. D., Poole, D. S., & Mehle, A. (2014). Conserved features of the PB2 627 domain impact influenza virus polymerase function and replication. *J Virol*, 88(11), 5977-5986. doi:10.1128/jvi.00508-14

Kirui, J., Mondal, A., & Mehle, A. (2016). Ubiquitination Upregulates Influenza Virus Polymerase Function. *J Virol*, 90(23), 10906-10914. doi:10.1128/jvi.01829-16

Matthew Larson (Advisor: William Bement)

Bement, W. M., Leda, M., Moe, A. M., Kita, A. M., **Larson, M. E.**, Golding, A. E., . . . von Dassow, G. (2015). Activator-inhibitor coupling between Rho signalling and actin assembly makes the cell cortex an excitable medium. *Nat Cell Biol*, *17*(11), 1471-1483. doi:10.1038/ncb3251

Larson, M. E., & Bement, W. M. (2017). Automated mitotic spindle tracking suggests a link between spindle dynamics, spindle orientation, and anaphase onset in epithelial cells. *Mol Biol Cell*, *28*(6), 746-759. doi:10.1091/mbc.E16-06-0355

Sandquist, J. C., **Larson, M. E.**, Woolner, S., Ding, Z., & Bement, W. M. (2018). An interaction between myosin-10 and the cell cycle regulator Wee1 links spindle dynamics to mitotic progression in epithelia. *J Cell Biol*, *217*(3), 849-859. doi:10.1083/jcb.201708072

Amber Lasek (Advisor: Mark Burkard)

Choudhary, A., Zachek, B., Lera, R. F., Zasadil, L. M., **Lasek, A.**, Denu, R. A., . . . Burkard, M. E. (2016). Identification of Selective Lead Compounds for Treatment of High-Ploidy Breast Cancer. *Mol Cancer Ther*, *15*(1), 48-59. doi:10.1158/1535-7163.Mct-15-0527

Lasek, A. L., McPherson, B. M., Trueman, N. G., & Burkard, M. E. (2016). The Functional Significance of Posttranslational Modifications on Polo-Like Kinase 1 Revealed by Chemical Genetic Complementation. *PLoS One*, *11*(2), e0150225. doi:10.1371/journal.pone.0150225

Ronghui Li (Advisor: Qiang Chang)

Williams, E. C., Zhong, X., Mohamed, A., **Li, R.**, Liu, Y., Dong, Q., . . . Chang, Q. (2014). Mutant astrocytes differentiated from Rett syndrome patients-specific iPSCs have adverse effects on wild-type neurons. *Hum Mol Genet*, *23*(11), 2968-2980. doi:10.1093/hmg/ddu008

Li, R., Dong, Q., Yuan, X., Zeng, X., Gao, Y., Chiao, C., . . . Chang, Q. (2016). Misregulation of Alternative Splicing in a Mouse Model of Rett Syndrome. *PLoS Genet*, *12*(6), e1006129. doi:10.1371/journal.pgen.1006129

Bu, Q., Wang, A., Hamzah, H., Waldman, A., Jiang, K., Dong, Q., **Li, R.**, . . . Chang, Q. (2017). CREB Signaling Is Involved in Rett Syndrome Pathogenesis. *J Neurosci*, *37*(13), 3671-3685. doi:10.1523/jneurosci.3735-16.2017

Dong, Q., Liu, Q., **Li, R.**, Wang, A., Bu, Q., Wang, K. H., & Chang, Q. (2018). Mechanism and consequence of abnormal calcium homeostasis in Rett syndrome astrocytes. *Elife*, *7*. doi:10.7554/eLife.33417

Jenna Lorenzini (Advisor: Bruce Klein)

Sterkel, A. K., **Lorenzini, J. L.**, Fites, J. S., Subramanian Vignesh, K., Sullivan, T. D., Wuthrich, M., . . . Klein, B. S. (2016). Fungal Mimicry of a Mammalian Aminopeptidase Disables Innate Immunity and Promotes Pathogenicity. *Cell Host Microbe*, 19(3), 361-374. doi:10.1016/j.chom.2016.02.001

Lorenzini, J., Scott Fites, J., Nett, J., & Klein, B. S. (2017). Blastomyces dermatitidis serine protease dipeptidyl peptidase IVA (DppIVA) cleaves ELR(+) CXC chemokines altering their effects on neutrophils. *Cell Microbiol*, 19(9). doi:10.1111/cmi.12741

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Bryan Sibert (Advisor: Paul Ahlquist)

Sibert, B. S., Navine, A. K., Pennington, J., Wang, X., & Ahlquist, P. (2018). Cowpea chlorotic mottle bromovirus replication proteins support template-selective RNA replication in *Saccharomyces cerevisiae*. *PLoS One*, 13(12), e0208743. doi:10.1371/journal.pone.0208743

Zhangli Su (Advisor: John Denu)

Su, Z., Boersma, M. D., Lee, J. H., Oliver, S. S., Liu, S., Garcia, B. A., & Denu, J. M. (2014). ChIP-less analysis of chromatin states. *Epigenetics Chromatin*, 7, 7. doi:10.1186/1756-8935-7-7

Su, Z., & Denu, J. M. (2015). MARCC (Matrix-Assisted Reader Chromatin Capture) An Antibody-Free Method to Enrich and Analyze Combinatorial Nucleosome Modifications. *Curr Protoc Mol Biol*, 111, 21.32.21-21. doi:10.1002/0471142727.mb2132s111

Dummer, A. M., **Su, Z.**, Cherney, R., Choi, K., Denu, J., Zhao, X., & Fox, C. A. (2016). Binding of the Fkh1 Forkhead Associated Domain to a Phosphopeptide within the Mph1 DNA Helicase Regulates Mating-Type Switching in Budding Yeast. *PLoS Genet*, 12(6), e1006094. doi:10.1371/journal.pgen.1006094

Su, Z., & Denu, J. M. (2016). Reading the Combinatorial Histone Language. *ACS Chem Biol*, 11(3), 564-574. doi:10.1021/acscchembio.5b00864

Su, Z., Wang, F., Lee, J. H., Stephens, K. E., Papazyan, R., Voronina, E., . . . Denu, J. M. (2016). Reader domain specificity and lysine demethylase-4 family function. *Nat Commun*, 7, 13387. doi:10.1038/ncomms13387

Anqi Wang (Advisor: Eric Christian Johannsen)

Jiang, S., Willox, B., Zhou, H., Holthaus, A. M., **Wang, A.**, Shi, T. T., . . . Zhao, B. (2014). Epstein-Barr virus nuclear antigen 3C binds to BATF/IRF4 or SPI1/IRF4 composite sites and recruits Sin3A to repress CDKN2A. *Proc Natl Acad Sci U S A*, *111*(1), 421-426. doi:10.1073/pnas.1321704111

Nawandar, D. M., **Wang, A.**, Makielski, K., Lee, D., Ma, S., Barlow, E., . . . Kenney, S. C. (2015). Differentiation-Dependent KLF4 Expression Promotes Lytic Epstein-Barr Virus Infection in Epithelial Cells. *PLoS Pathog*, *11*(10), e1005195. doi:10.1371/journal.ppat.1005195

Wang, A., Welch, R., Zhao, B., Ta, T., Keles, S., & Johannsen, E. (2015). Epstein-Barr Virus Nuclear Antigen 3 (EBNA3) Proteins Regulate EBNA2 Binding to Distinct RBPJ Genomic Sites. *J Virol*, *90*(6), 2906-2919. doi:10.1128/jvi.02737-15

Jae-Sung You (Advisor: Troy Hornberger)

Goodman, C. A., Frey, J. W., Mabrey, D. M., Jacobs, B. L., Lincoln, H. C., **You, J. S.**, & Hornberger, T. A. (2011). The role of skeletal muscle mTOR in the regulation of mechanical load-induced growth. *J Physiol*, *589*(Pt 22), 5485-5501. doi:10.1113/jphysiol.2011.218255

You, J. S., McNally, R. M., Jacobs, B. L., Privett, R. E., Gundermann, D. M., Lin, K. H., Steinert, N. D., Goodman, C. A., & Hornberger, T. A. (2019). The role of raptor in the mechanical load-induced regulation of mTOR signaling, protein synthesis, and skeletal muscle hypertrophy. *FASEB journal : official publication of the Federation of American Societies for Experimental Biology*, *33*(3), 4021–4034. <https://doi.org/10.1096/fj.201801653RR>

You, J. S., Dooley, M. S., Kim, C. R., Kim, E. J., Xu, W., Goodman, C. A., & Hornberger, T. A. (2018). A DGK ζ -FoxO-ubiquitin proteolytic axis controls fiber size during skeletal muscle remodeling. *Science signaling*, *11*(530), eaao6847. <https://doi.org/10.1126/scisignal.aao6847>

You, J. S., Kim, K., Steinert, N. D., Chen, J., & Hornberger, T. A. (2021). mTORC1 mediates fiber type-specific regulation of protein synthesis and muscle size during denervation. *Cell death discovery*, *7*(1), 74. <https://doi.org/10.1038/s41420-021-00460-w>

Novak, M. L., Bryer, S. C., Cheng, M., Nguyen, M. H., Conley, K. L., Cunningham, A. K., Xue, B., Sisson, T. H., **You, J. S.**, . . . Koh, T. J. (2011). Macrophage-specific expression of urokinase-type plasminogen activator promotes skeletal muscle regeneration. *J Immunol*, *187*(3), 1448-1457. doi:10.4049/jimmunol.1004091

You, J. S., Frey, J. W., & Hornberger, T. A. (2012). Mechanical stimulation induces mTOR signaling via an ERK-independent mechanism: implications for a direct activation of mTOR by phosphatidic acid. *PLoS One*, *7*(10), e47258. doi:10.1371/journal.pone.0047258

Jacobs, B. L., **You, J. S.**, Frey, J. W., Goodman, C. A., Gundermann, D. M., & Hornberger, T. A. (2013). Eccentric contractions increase the phosphorylation of tuberous sclerosis complex-2 (TSC2) and alter the targeting of TSC2 and the mechanistic target of rapamycin to the lysosome. *J Physiol*, *591*(18), 4611-4620. doi:10.1113/jphysiol.2013.256339

Vaughan, E. M., **You, J. S.**, Elsie Yu, H. Y., Lasek, A., Vitale, N., Hornberger, T. A., & Bement, W. M. (2014). Lipid domain-dependent regulation of single-cell wound repair. *Mol Biol Cell*, *25*(12), 1867-1876. doi:10.1091/mbc.E14-03-0839

White, J. P., Wrann, C. D., Rao, R. R., Nair, S. K., Jedrychowski, M. P., **You, J. S.**, . . . Spiegelman, B. M. (2014). G protein-coupled receptor 56 regulates mechanical overload-induced muscle hypertrophy. *Proc Natl Acad Sci U S A*, *111*(44), 15756-15761. doi:10.1073/pnas.1417898111

You, J. S., Lincoln, H. C., Kim, C. R., Frey, J. W., Goodman, C. A., Zhong, X. P., & Hornberger, T. A. (2014). The role of diacylglycerol kinase zeta and phosphatidic acid in the mechanical activation of mammalian target of rapamycin (mTOR) signaling and skeletal muscle hypertrophy. *J Biol Chem*, *289*(3), 1551-1563. doi:10.1074/jbc.M113.531392

Goodman, C. A., Dietz, J. M., Jacobs, B. L., McNally, R. M., **You, J. S.**, & Hornberger, T. A. (2015). Yes-Associated Protein is up-regulated by mechanical overload and is sufficient to induce skeletal muscle hypertrophy. *FEBS Lett*, *589*(13), 1491-1497. doi:10.1016/j.febslet.2015.04.047

You, J. S., Anderson, G. B., Dooley, M. S., & Hornberger, T. A. (2015). The role of mTOR signaling in the regulation of protein synthesis and muscle mass during immobilization in mice. *Dis Model Mech*, *8*(9), 1059-1069. doi:10.1242/dmm.019414

Goodman, C. A., Coenen, A. M., Frey, J. W., **You, J. S.**, Barker, R. G., Frankish, B. P., . . . Hornberger, T. A. (2017). Insights into the role and regulation of TCTP in skeletal muscle. *Oncotarget*, *8*(12), 18754-18772. doi:10.18632/oncotarget.13009

Jacobs, B. L., McNally, R. M., Kim, K. J., Blanco, R., Privett, R. E., **You, J. S.**, & Hornberger, T. A. (2017). Identification of mechanically regulated phosphorylation sites on tuberin (TSC2) that control mechanistic target of

rapamycin (mTOR) signaling. *J Biol Chem*, 292(17), 6987-6997.
doi:10.1074/jbc.M117.777805

Potts, G. K., McNally, R. M., Blanco, R., **You, J. S.**, Hebert, A. S., Westphall, M. S., . . . Hornberger, T. A. (2017). A map of the phosphoproteomic alterations that occur after a bout of maximal-intensity contractions. *J Physiol*, 595(15), 5209-5226.
doi:10.1113/jp273904

2015 Graduates

Lindsay, Boateng (Advisor: Anna Huttenlocher)

Cortesio, C. L., **Boateng, L. R.**, Piazza, T. M., Bennin, D. A., & Huttenlocher, A. (2011). Calpain-mediated proteolysis of paxillin negatively regulates focal adhesion dynamics and cell migration. *J Biol Chem*, 286(12), 9998-10006.
doi:10.1074/jbc.M110.187294

Boateng, L. R., Cortesio, C. L., & Huttenlocher, A. (2012). Src-mediated phosphorylation of mammalian Abp1 (DBNL) regulates podosome rosette formation in transformed fibroblasts. *J Cell Sci*, 125(Pt 5), 1329-1341.
doi:10.1242/jcs.096529

Boateng, L. R., & Huttenlocher, A. (2012). Spatiotemporal regulation of Src and its substrates at invadosomes. *Eur J Cell Biol*, 91(11-12), 878-888.
doi:10.1016/j.ejcb.2012.06.003

Boateng, L. R., Bennin, D., De Oliveira, S., & Huttenlocher, A. (2016). Mammalian Actin-binding Protein-1/Hip-55 Interacts with FHL2 and Negatively Regulates Cell Invasion. *J Biol Chem*, 291(27), 13987-13998.
doi:10.1074/jbc.M116.725739

Chris Calvey (Advisor: Thomas Jeffries)

Calvey, C. H., Willis, L. B., & Jeffries, T. W. (2014). An optimized transformation protocol for *Lipomyces starkeyi*. *Curr Genet*, 60(3), 223-230.
doi:10.1007/s00294-014-0427-0

Calvey, C. H., Su, Y. K., Willis, L. B., McGee, M., & Jeffries, T. W. (2016). Nitrogen limitation, oxygen limitation, and lipid accumulation in *Lipomyces starkeyi*. *Bioresour Technol*, 200, 780-788. doi:10.1016/j.biortech.2015.10.104

Riley, R., Haridas, S., Wolfe, K. H., Lopes, M. R., Hittinger, C. T., Goker, M., Salamov, A. A., Wisecaver, J. H., Long, T. M., **Calvey, C. H.**, . . . Jeffries, T. W. (2016). Comparative genomics of biotechnologically important yeasts. *Proc Natl Acad Sci U S A*, 113(35), 9882-9887. doi:10.1073/pnas.1603941113

Esteban Carrillo (Advisor: Patricia Keeley)

Curran, C. S., **Carrillo, E. R.**, Ponik, S. M., & Keely, P. J. (2015). Collagen density regulates xenobiotic and hypoxic response of mammary epithelial cells. *Environ Toxicol Pharmacol*, *39*(1), 114-124. doi:10.1016/j.etap.2014.10.017

Joshua Carson (Advisor: David Pagliarini)

Grimsrud, P. A., **Carson, J. J.**, Hebert, A. S., Hubler, S. L., Niemi, N. M., Bailey, D. J., . . . Pagliarini, D. J. (2012). A quantitative map of the liver mitochondrial phosphoproteome reveals posttranslational control of ketogenesis. *Cell Metab*, *16*(5), 672-683. doi:10.1016/j.cmet.2012.10.004

Hebert, A. S., Dittenhafer-Reed, K. E., Yu, W., Bailey, D. J., Selen, E. S., Boersma, M. D., **Carson J. J.**, . . . Coon, J. J. (2013). Calorie restriction and SIRT3 trigger global reprogramming of the mitochondrial protein acetylome. *Mol Cell*, *49*(1), 186-199. doi:10.1016/j.molcel.2012.10.024

Still, A. J., Floyd, B. J., Hebert, A. S., Bingman, C. A., **Carson, J. J.**, Gunderson, D. R., . . . Pagliarini, D. J. (2013). Quantification of mitochondrial acetylation dynamics highlights prominent sites of metabolic regulation. *J Biol Chem*, *288*(36), 26209-26219. doi:10.1074/jbc.M113.483396

Overmyer, K. A., Evans, C. R., Qi, N. R., Minogue, C. E., **Carson, J. J.**, Chermiside-Scabbo, C. J., . . . Burant, C. F. (2015). Maximal oxidative capacity during exercise is associated with skeletal muscle fuel selection and dynamic changes in mitochondrial protein acetylation. *Cell Metab*, *21*(3), 468-478. doi:10.1016/j.cmet.2015.02.007

Adityarup Rup Chakravorty (Advisor: William Sugden)

Chakravorty, A., & Sugden, B. (2015). The AT-hook DNA binding ability of the Epstein Barr virus EBNA1 protein is necessary for the maintenance of viral genomes in latently infected cells. *Virology*, *484*, 251-258. doi:10.1016/j.virol.2015.05.018

Chakravorty, A., & Sugden, B. (2018). Long-distance communication: Looping of human papillomavirus genomes regulates expression of viral oncogenes. *PLoS Biol*, *16*(11), e3000062. doi:10.1371/journal.pbio.3000062

Chakravorty, A., Sugden, B., & Johannsen, E. C. (2019). An epigenetic journey: Epstein-Barr virus transcribes chromatinized and subsequently unchromatinized templates during its lytic cycle. *J Virol*. doi:10.1128/jvi.02247-18

Hutcheson, R. L., **Chakravorty, A.**, & Sugden, B. (2021). Burkitt Lymphomas Evolve to Escape Dependencies on Epstein-Barr Virus. *Frontiers in cellular and infection microbiology*, *10*, 606412. <https://doi.org/10.3389/fcimb.2020.606412>

Emily Chin (Advisor: Caroline Alexander)

Goel, S., **Chin, E. N.**, Fakhraldeen, S. A., Berry, S. M., Beebe, D. J., & Alexander, C. M. (2012). Both LRP5 and LRP6 receptors are required to respond to physiological Wnt ligands in mammary epithelial cells and fibroblasts. *J Biol Chem*, 287(20), 16454-16466. doi:10.1074/jbc.M112.362137

Berry, S. M., **Chin, E. N.**, Jackson, S. S., Strotman, L. N., Goel, M., Thompson, N. E., . . . Beebe, D. J. (2014). Weak protein-protein interactions revealed by immiscible filtration assisted by surface tension. *Anal Biochem*, 447, 133-140. doi:10.1016/j.ab.2013.10.038

Chin, E. N., Martin, J. A., Kim, S., Fakhraldeen, S. A., & Alexander, C. M. (2015). Lrp5 Has a Wnt-Independent Role in Glucose Uptake and Growth for Mammary Epithelial Cells. *Mol Cell Biol*, 36(6), 871-885. doi:10.1128/mcb.00800-15

Fakhraldeen, S. A., Clark, R. J., Roopra, A., **Chin, E. N.**, Huang, W., Castorino, J., . . . Alexander, C. M. (2015). Two Isoforms of the RNA Binding Protein, Coding Region Determinant-binding Protein (CRD-BP/IGF2BP1), Are Expressed in Breast Epithelium and Support Clonogenic Growth of Breast Tumor Cells. *J Biol Chem*, 290(21), 13386-13400. doi:10.1074/jbc.M115.655175

Jessica Ciomperlik (Advisor: Ann Palmenberg)

Bacot-Davis, V. R., **Ciomperlik, J. J.**, Basta, H. A., Cornilescu, C. C., & Palmenberg, A. C. (2014). Solution structures of Mengovirus Leader protein, its phosphorylated derivatives, and in complex with nuclear transport regulatory protein, RanGTPase. *Proc Natl Acad Sci U S A*, 111(44), 15792-15797. doi:10.1073/pnas.1411098111

Basta, H. A., Bacot-Davis, V. R., **Ciomperlik, J. J.**, & Palmenberg, A. C. (2014). Encephalomyocarditis virus leader is phosphorylated by CK2 and syk as a requirement for subsequent phosphorylation of cellular nucleoporins. *J Virol*, 88(4), 2219-2226. doi:10.1128/jvi.03150-13

Ciomperlik, J. J., Basta, H. A., & Palmenberg, A. C. (2015). Three cardiovirus Leader proteins equivalently inhibit four different nucleocytoplasmic trafficking pathways. *Virology*, 484, 194-202. doi:10.1016/j.virol.2015.06.004

Ciomperlik, J. J., Basta, H. A., & Palmenberg, A. C. (2016). Cardiovirus Leader proteins bind exportins: Implications for virus replication and nucleocytoplasmic trafficking inhibition. *Virology*, 487, 19-26. doi:10.1016/j.virol.2015.10.001

Maria Garcia Mendoza (Advisor: Patricia Keely)

Heck, J. N., Ponik, S. M., **Garcia-Mendoza, M. G.**, Pehlke, C. A., Inman, D. R., Eliceiri, K. W., & Keely, P. J. (2012). Microtubules regulate GEF-H1 in response to extracellular matrix stiffness. *Mol Biol Cell*, *23*(13), 2583-2592. doi:10.1091/mbc.E11-10-0876

Garcia-Mendoza, M. G., Inman, D. R., Ponik, S. M., Jeffery, J. J., Sheerar, D. S., Van Doorn, R. R., & Keely, P. J. (2016). Neutrophils drive accelerated tumor progression in the collagen-dense mammary tumor microenvironment. *Breast Cancer Res*, *18*(1), 49. doi:10.1186/s13058-016-0703-7

Elisha (Yi-Hsuan) Ho (Advisor: Audrey P Gasch)

Sverchkov, Y., **Ho, Y. H.**, Gasch, A., & Craven, M. (2020). Context-Specific Nested Effects Models. *Journal of computational biology : a journal of computational molecular cell biology*, *27*(3), 403–417. <https://doi.org/10.1089/cmb.2019.0459>

Sverchkov, Y., **Ho, Y. H.**, Gasch, A., & Craven, M. (2018). Context-Specific Nested Effects Models. *Research in computational molecular biology : ... Annual International Conference, RECOMB ... : proceedings. RECOMB (Conference : 2005-)*, *10812*, 194–210. https://doi.org/10.1007/978-3-319-89929-9_13

Nemec, C. M., Singh, A. K., Ali, A., Tseng, S. C., Syal, K., Ringelberg, K. J., **Ho, Y. H.**, Hintermair, C., Ahmad, M. F., Kar, R. K., Gasch, A. P., Akhtar, M. S., Eick, D., & Ansari, A. Z. (2019). Noncanonical CTD kinases regulate RNA polymerase II in a gene-class-specific manner. *Nature chemical biology*, *15*(2), 123–131. <https://doi.org/10.1038/s41589-018-0194-1>

Chasman, D., **Ho, Y. H.**, Berry, D. B., Nemec, C. M., MacGilvray, M. E., Hose, J., . . . Gasch, A. P. (2014). Pathway connectivity and signaling coordination in the yeast stress-activated signaling network. *Mol Syst Biol*, *10*, 759. doi:10.15252/msb.20145120

Ho, Y. H., & Gasch, A. P. (2015). Exploiting the yeast stress-activated signaling network to inform on stress biology and disease signaling. *Curr Genet*, *61*(4), 503-511. doi:10.1007/s00294-015-0491-0

Nemec, C. M., Yang, F., Gilmore, J. M., Hintermair, C., **Ho, Y. H.**, Tseng, S. C., . . . Ansari, A. Z. (2017). Different phosphoisoforms of RNA polymerase II engage the Rtt103 termination factor in a structurally analogous manner. *Proc Natl Acad Sci U S A*, *114*(20), E3944-e3953. doi:10.1073/pnas.1700128114

Ho, Y. H., Shishkova, E., Hose, J., Coon, J. J., & Gasch, A. P. (2018). Decoupling Yeast Cell Division and Stress Defense Implicates mRNA

Repression in Translational Reallocation during Stress. *Current biology* : *CB*, 28(16), 2673–2680.e4. <https://doi.org/10.1016/j.cub.2018.06.044>

Cindy (Tzu-Ling) Huang (Advisor: Su-Chun Zhang)

Chen, H., Qian, K., Du, Z., Cao, J., Petersen, A., Liu, H., Blackbourn, L. W., 4th, **Huang, C. L.**, Errigo, A., Yin, Y., Lu, J., Ayala, M., & Zhang, S. C. (2014). Modeling ALS with iPSCs reveals that mutant SOD1 misregulates neurofilament balance in motor neurons. *Cell stem cell*, 14(6), 796–809. <https://doi.org/10.1016/j.stem.2014.02.004>

Du, Z. W., Chen, H., Liu, H., Lu, J., Qian, K., **Huang, C. L.**, Zhong, X., Fan, F., & Zhang, S. C. (2015). Generation and expansion of highly pure motor neuron progenitors from human pluripotent stem cells. *Nature communications*, 6, 6626. <https://doi.org/10.1038/ncomms7626>

Zhang, X., **Huang, C. T.**, Chen, J., Pankratz, M. T., Xi, J., Li, J., . . . Zhang, S. C. (2010). Pax6 is a human neuroectoderm cell fate determinant. *Cell Stem Cell*, 7(1), 90-100. doi:10.1016/j.stem.2010.04.017

Yoo, Y. D., **Huang, C. T.**, Zhang, X., Lavaute, T. M., & Zhang, S. C. (2011). Fibroblast growth factor regulates human neuroectoderm specification through ERK1/2-PARP-1 pathway. *Stem Cells*, 29(12), 1975-1982. doi:10.1002/stem.758

Lu, J., Liu, H., **Huang, C. T.**, Chen, H., Du, Z., Liu, Y., . . . Zhang, S. C. (2013). Generation of integration-free and region-specific neural progenitors from primate fibroblasts. *Cell Rep*, 3(5), 1580-1591. doi:10.1016/j.celrep.2013.04.004

Qian, K., **Huang, C. T.**, Chen, H., Blackbourn, L. W. t., Chen, Y., Cao, J., . . . Zhang, S. C. (2014). A simple and efficient system for regulating gene expression in human pluripotent stem cells and derivatives. *Stem Cells*, 32(5), 1230-1238. doi:10.1002/stem.1653

Chen, Y., Cao, J., Xiong, M., Petersen, A. J., Dong, Y., Tao, Y., **Huang, C. T.**, . . . Zhang, S. C. (2015). Engineering Human Stem Cell Lines with Inducible Gene Knockout using CRISPR/Cas9. *Cell Stem Cell*, 17(2), 233-244. doi:10.1016/j.stem.2015.06.001

Huang, C. T., Tao, Y., Lu, J., Jones, J. R., Fowler, L., Weick, J. P., & Zhang, S. C. (2016). Time-Course Gene Expression Profiling Reveals a Novel Role of Non-Canonical WNT Signaling During Neural Induction. *Sci Rep*, 6, 32600. doi:10.1038/srep32600

Lu, J., Zhong, X., Liu, H., Hao, L., **Huang, C. T.**, Sherafat, M. A., . . . Zhang, S. C. (2016). Generation of serotonin neurons from human pluripotent stem cells. *Nat Biotechnol*, *34*(1), 89-94. doi:10.1038/nbt.3435

Jeffery Jensen (Advisor: Fotis Asimakopoulos)

Wen, Z., Rajagopalan, A., Flietner, E. D., Yun, G., Chesi, M., Furumo, Q., Burns, R. T., Papadas, A., Ranheim, E. A., Pagenkopf, A. C., Morrow, Z. T., Finn, R., Zhou, Y., Li, S., You, X., **Jensen, J.**, Yu, M., Cicala, A., Menting, J., Mitsiades, C. S., . . . Zhang, J. (2021). Expression of NrasQ61R and MYC transgene in germinal center B cells induces a highly malignant multiple myeloma in mice. *Blood*, *137*(1), 61–74. <https://doi.org/10.1182/blood.2020007156>

Asimakopoulos, F., Kim, J., Denu, R. A., Hope, C., **Jensen, J. L.**, Ollar, S. J., . . . Hematti, P. (2013). Macrophages in multiple myeloma: emerging concepts and therapeutic implications. *Leuk Lymphoma*, *54*(10), 2112-2121. doi:10.3109/10428194.2013.778409

Hebron, E., Hope, C., Kim, J., **Jensen, J. L.**, Flanagan, C., Bhatia, N., . . . Asimakopoulos, F. (2013). MAP3K8 kinase regulates myeloma growth by cell-autonomous and non-autonomous mechanisms involving myeloma-associated monocytes/macrophages. *Br J Haematol*, *160*(6), 779-784. doi:10.1111/bjh.12175

Hope, C., Ollar, S. J., Heninger, E., Hebron, E., **Jensen, J. L.**, Kim, J., . . . Asimakopoulos, F. (2014). TPL2 kinase regulates the inflammatory milieu of the myeloma niche. *Blood*, *123*(21), 3305-3315. doi:10.1182/blood-2014-02-554071

Jensen, J. L., Rakhmievich, A., Heninger, E., Broman, A. T., Hope, C., Phan, F., . . . Asimakopoulos, F. (2015). Tumoricidal Effects of Macrophage-Activating Immunotherapy in a Murine Model of Relapsed/Refractory Multiple Myeloma. *Cancer Immunol Res*, *3*(8), 881-890. doi:10.1158/2326-6066.Cir-15-0025-t

Ma, S. D., Xu, X., Plowshay, J., Ranheim, E. A., Burlingham, W. J., **Jensen, J. L.**, . . . Kenney, S. C. (2015). LMP1-deficient Epstein-Barr virus mutant requires T cells for lymphomagenesis. *J Clin Invest*, *125*(1), 304-315. doi:10.1172/jci76357

Hope, C., Foulcer, S., Jagodinsky, J., Chen, S. X., **Jensen, J. L.**, Patel, S., . . . Asimakopoulos, F. (2016). Immunoregulatory roles of versican proteolysis in the myeloma microenvironment. *Blood*, *128*(5), 680-685. doi:10.1182/blood-2016-03-705780

Jensen, J. L., Hope, C., & Asimakopoulos, F. (2016). Deploying myeloid cells against myeloma. *Oncoimmunology*, *5*(3), e1090076. doi:10.1080/2162402x.2015.1090076

Robert Lera (Advisor: Mark Burkard)

Jin, N., **Lera, R. F.**, Yan, R. E., Guo, F., Oxendine, K., Horner, V. L., Hu, Y., Wan, J., Mattison, R. J., Weaver, B. A., & Burkard, M. E. (2020). Chromosomal instability upregulates interferon in acute myeloid leukemia. *Genes, chromosomes & cancer*, *59*(11), 627–638. <https://doi.org/10.1002/gcc.22880>

Lera, R. F., Norman, R. X., Dumont, M., Dennee, A., Martin-Koob, J., Fachinetti, D., & Burkard, M. E. (2019). Plk1 protects kinetochore-centromere architecture against microtubule pulling forces. *EMBO reports*, *20*(10), e48711. <https://doi.org/10.15252/embr.201948711>

Johnson, J. M., Hebert, A. S., Drane, Q. H., **Lera, R. F.**, Wan, J., Weaver, B. A., Coon, J. J., & Burkard, M. E. (2020). A Genetic Toggle for Chemical Control of Individual Plk1 Substrates. *Cell chemical biology*, *27*(3), 350–362.e8. <https://doi.org/10.1016/j.chembiol.2020.01.007>

Lera, R. F., & Burkard, M. E. (2012). High mitotic activity of Polo-like kinase 1 is required for chromosome segregation and genomic integrity in human epithelial cells. *J Biol Chem*, *287*(51), 42812-42825. doi:10.1074/jbc.M112.412544

Lera, R. F., & Burkard, M. E. (2012). The final link: tapping the power of chemical genetics to connect the molecular and biologic functions of mitotic protein kinases. *Molecules*, *17*(10), 12172-12186. doi:10.3390/molecules171012172

Choudhary, A., **Lera, R. F.**, Martowicz, M. L., Oxendine, K., Laffin, J. J., Weaver, B. A., & Burkard, M. E. (2013). Interphase cytofission maintains genomic integrity of human cells after failed cytokinesis. *Proc Natl Acad Sci U S A*, *110*(32), 13026-13031. doi:10.1073/pnas.1308203110

Choudhary, A., Zachek, B., **Lera, R. F.**, Zasadil, L. M., Lasek, A., Denu, R. A., . . . Burkard, M. E. (2016). Identification of Selective Lead Compounds for Treatment of High-Ploidy Breast Cancer. *Mol Cancer Ther*, *15*(1), 48-59. doi:10.1158/1535-7163.Mct-15-0527

Lera, R. F., Potts, G. K., Suzuki, A., Johnson, J. M., Salmon, E. D., Coon, J. J., & Burkard, M. E. (2016). Decoding Polo-like kinase 1 signaling along the kinetochore-centromere axis. *Nat Chem Biol*, *12*(6), 411-418. doi:10.1038/nchembio.2060

Kim, H., Johnson, J. M., **Lera, R. F.**, Brahma, S., & Burkard, M. E. (2017). Anillin Phosphorylation Controls Timely Membrane Association and Successful Cytokinesis. *PLoS Genet*, *13*(1), e1006511. doi:10.1371/journal.pgen.1006511

Shang Ma (Advisor: Zhen Huang)

Kwon, H. J., **Ma, S.**, & Huang, Z. (2011). Radial glia regulate Cajal-Retzius cell positioning in the early embryonic cerebral cortex. *Dev Biol*, *351*(1), 25-34. doi:10.1016/j.ydbio.2010.12.026

Ma, S., Kwon, H. J., & Huang, Z. (2012). A functional requirement for astroglia in promoting blood vessel development in the early postnatal brain. *PLoS One*, *7*(10), e48001. doi:10.1371/journal.pone.0048001

Ma, S., Kwon, H. J., & Huang, Z. (2012). Ric-8a, a guanine nucleotide exchange factor for heterotrimeric G proteins, regulates bergmann glia-basement membrane adhesion during cerebellar foliation. *J Neurosci*, *32*(43), 14979-14993. doi:10.1523/jneurosci.1282-12.2012

Ma, S., Kwon, H. J., Johng, H., Zang, K., & Huang, Z. (2013). Radial glial neural progenitors regulate nascent brain vascular network stabilization via inhibition of Wnt signaling. *PLoS Biol*, *11*(1), e1001469. doi:10.1371/journal.pbio.1001469

Ma, S., & Huang, Z. (2015). Neural Regulation of CNS Angiogenesis During Development. *Front Biol (Beijing)*, *10*(1), 61-73. doi:10.1007/s11515-014-1331-y

Ma, S., Santhosh, D., Kumar, T. P., & Huang, Z. (2017). A Brain-Region-Specific Neural Pathway Regulating Germinal Matrix Angiogenesis. *Dev Cell*, *41*(4), 366-381.e364. doi:10.1016/j.devcel.2017.04.014

Arick Park (Advisor: Daniel Greenspan)

Yang, C., **Park, A. C.**, Davis, N. A., Russell, J. D., Kim, B., Brand, D. D., . . . Greenspan, D. S. (2012). Comprehensive mass spectrometric mapping of the hydroxylated amino acid residues of the alpha1(V) collagen chain. *J Biol Chem*, *287*(48), 40598-40610. doi:10.1074/jbc.M112.406850

Park, A. C., Phillips, C. L., Pfeiffer, F. M., Roenneburg, D. A., Kernien, J. F., Adams, S. M., . . . Greenspan, D. S. (2015). Homozygosity and Heterozygosity for Null Col5a2 Alleles Produce Embryonic Lethality and a Novel Classic Ehlers-Danlos Syndrome-Related Phenotype. *Am J Pathol*, *185*(7), 2000-2011. doi:10.1016/j.ajpath.2015.03.022

Park, A. C., Huang, G., Jankowska-Gan, E., Massoudi, D., Kernien, J. F., Vignali, D. A., . . . Greenspan, D. S. (2016). Mucosal Administration of Collagen V Ameliorates the Atherosclerotic Plaque Burden by Inducing Interleukin 35-

dependent Tolerance. *J Biol Chem*, 291(7), 3359-3370.
doi:10.1074/jbc.M115.681882

Park, A. C., Phan, N., Massoudi, D., Liu, Z., Kernien, J. F., Adams, S. M., . . . Greenspan, D. S. (2017). Deficits in Col5a2 Expression Result in Novel Skin and Adipose Abnormalities and Predisposition to Aortic Aneurysms and Dissections. *Am J Pathol*, 187(10), 2300-2311. doi:10.1016/j.ajpath.2017.06.006

Sullivan, J. A., Jankowska-Gan, E., Hegde, S., Pestrak, M. A., Agashe, V. V., **Park, A. C.**, Brown, M. E., Kernien, J. F., Wilkes, D. S., Kaufman, D. B., Greenspan, D. S., & Burlingham, W. J. (2017). Th17 Responses to Collagen Type V, α 1-Tubulin, and Vimentin Are Present Early in Human Development and Persist Throughout Life. *American journal of transplantation : official journal of the American Society of Transplantation and the American Society of Transplant Surgeons*, 17(4), 944–956. <https://doi.org/10.1111/ajt.14097>

Kelly Pittman (Advisor: Laura Knoll)

Pittman, K. J., Aliota, M. T., & Knoll, L. J. (2014). Dual transcriptional profiling of mice and *Toxoplasma gondii* during acute and chronic infection. *BMC Genomics*, 15, 806. doi:10.1186/1471-2164-15-806

Tobin Magle, C., **Pittman, K. J.**, Moser, L. A., Boldon, K. M., & Knoll, L. J. (2014). A toxoplasma patatin-like protein changes localization and alters the cytokine response during toxoplasmic encephalitis. *Infect Immun*, 82(2), 618-625. doi:10.1128/iai.00444-13

Pittman, K. J., & Knoll, L. J. (2015). Long-Term Relationships: the Complicated Interplay between the Host and the Developmental Stages of *Toxoplasma gondii* during Acute and Chronic Infections. *Microbiol Mol Biol Rev*, 79(4), 387-401. doi:10.1128/mnbr.00027-15

Pittman, K. J., Cervantes, P. W., & Knoll, L. J. (2016). Z-DNA Binding Protein Mediates Host Control of *Toxoplasma gondii* Infection. *Infect Immun*, 84(10), 3063-3070. doi:10.1128/iai.00511-16

Kelli Pointer (Advisor: John Shu-shin Kuo)

Cong, D., Zhu, W., Shi, Y., **Pointer, K. B.**, Clark, P. A., Shen, H., . . . Sun, D. (2014). Upregulation of NHE1 protein expression enables glioblastoma cells to escape TMZ-mediated toxicity via increased H(+) extrusion, cell migration and survival. *Carcinogenesis*, 35(9), 2014-2024. doi:10.1093/carcin/bgu089

Schroeder, A., **Pointer, K.**, Clark, P., Datta, R., Kuo, J., & Eliceiri, K. (2020). Metabolic mapping of glioblastoma stem cells reveals NADH fluxes associated

with glioblastoma phenotype and survival. *Journal of biomedical optics*, 25(3), 1–13. <https://doi.org/10.1117/1.JBO.25.3.036502>

Pointer, K., Kuo, J. S., & Dempsey, R. J. (2013). CLARITY--a clearer view of the brain. *Neurosurgery*, 73(2), N16.

<https://doi.org/10.1227/01.neu.0000432622.44397.74>

Ouellette, J. N., Drifka, C. R., **Pointer, K. B.**, Liu, Y., Lieberthal, T. J., Kao, W. J., Kuo, J. S., Loeffler, A. G., & Eliceiri, K. W. (2021). Navigating the Collagen Jungle: The Biomedical Potential of Fiber Organization in Cancer. *Bioengineering (Basel, Switzerland)*, 8(2), 17. <https://doi.org/10.3390/bioengineering8020017>

Lyon, W., Mehta, T. I., **Pointer, K. B.**, Walden, D., Elmaman, A., Swanson, K. I., & Kuo, J. S. (2014). Clinton Woolsey: functional brain mapping pioneer. *J Neurosurg*, 121(4), 983-988. doi:10.3171/2014.6.Jns132030

Pointer, K. B., Clark, P. A., Zorniak, M., Alrfaei, B. M., & Kuo, J. S. (2014). Glioblastoma cancer stem cells: Biomarker and therapeutic advances. *Neurochem Int*, 71, 1-7. doi:10.1016/j.neuint.2014.03.005

Pointer, K. B., Zhang, R. R., Kuo, J. S., & Dempsey, R. J. (2014). Detecting brain tumor with Raman scattering microscopy. *Neurosurgery*, 74(2), N12-14. doi:10.1227/01.neu.0000442975.53712.6f

Zhang, R. R., **Pointer, K. B.**, Kuo, J. S., & Dempsey, R. J. (2014). Mutational analysis reveals the origin and therapy-driven evolution of recurrent glioma. *Neurosurgery*, 75(6), N9-10. doi:10.1227/neu.0000000000000580

Pointer, K. B., Zhang, R. R., & Kuo, J. S. (2015). Oncolytic Herpes Simplex Virus Glioblastoma Therapy is Potentiated by Tumor Necrosis Factor-alpha Inhibition. *Neurosurgery*, 77(2), N18-20. doi:10.1227/01.neu.0000467297.56504.5b

Zhang, R. R., **Pointer, K. B.**, & Kuo, J. S. (2015). Excitotoxic SLC7A11 Expression Is a Marker of Poor Glioblastoma Survival and a Potential Therapeutic Target. *Neurosurgery*, 77(6), N16-17. doi:10.1227/01.neu.0000473809.76102.ee

Zhang, R. R., **Pointer, K. B.**, & Kuo, J. S. (2015). New Molecular Insights and Potential Therapies for Diffuse Intrinsic Pontine Glioma. *Neurosurgery*, 77(4), N13-14. doi:10.1227/01.neu.0000471836.59263.1f

Pointer, K. B., Clark, P. A., Eliceiri, K. W., Salamat, M. S., Robertson, G. A., & Kuo, J. S. (2017). Administration of Non-Torsadogenic human Ether-a-go-go-

Related Gene Inhibitors Is Associated with Better Survival for High hERG-Expressing Glioblastoma Patients. *Clin Cancer Res*, 23(1), 73-80. doi:10.1158/1078-0432.Ccr-15-3169

Pointer, K. B., Clark, P. A., Schroeder, A. B., Salamat, M. S., Eliceiri, K. W., & Kuo, J. S. (2017). Association of collagen architecture with glioblastoma patient survival. *J Neurosurg*, 126(6), 1812-1821. doi:10.3171/2016.6.Jns152797

Jarred Rensvold (Advisor: David Pagliarini)

Foss, M. H., Eun, Y. J., Grove, C. I., Pauw, D. A., Sorto, N. A., **Rensvold, J. W.**, . . . Weibel, D. B. (2013). Inhibitors of bacterial tubulin target bacterial membranes in vivo. *Medchemcomm*, 4(1), 112-119. doi:10.1039/c2md20127e

Rensvold, J. W., Ong, S. E., Jeevananthan, A., Carr, S. A., Mootha, V. K., & Pagliarini, D. J. (2013). Complementary RNA and protein profiling identifies iron as a key regulator of mitochondrial biogenesis. *Cell Rep*, 3(1), 237-245. doi:10.1016/j.celrep.2012.11.029

Vincent, C. E., **Rensvold, J. W.**, Westphall, M. S., Pagliarini, D. J., & Coon, J. J. (2013). Automated gas-phase purification for accurate, multiplexed quantification on a stand-alone ion-trap mass spectrometer. *Anal Chem*, 85(4), 2079-2086. doi:10.1021/ac302156t

Minogue, C. E., Hebert, A. S., **Rensvold, J. W.**, Westphall, M. S., Pagliarini, D. J., & Coon, J. J. (2015). Multiplexed quantification for data-independent acquisition. *Anal Chem*, 87(5), 2570-2575. doi:10.1021/ac503593d

Floyd, B. J., Wilkerson, E. M., Veling, M. T., Minogue, C. E., Xia, C., Beebe, E. T., **Rensvold, J. W.**, . . . Pagliarini, D. J. (2016). Mitochondrial Protein Interaction Mapping Identifies Regulators of Respiratory Chain Function. *Mol Cell*, 63(4), 621-632. doi:10.1016/j.molcel.2016.06.033

Rensvold, J. W., Krautkramer, K. A., Dowell, J. A., Denu, J. M., & Pagliarini, D. J. (2016). Iron Deprivation Induces Transcriptional Regulation of Mitochondrial Biogenesis. *J Biol Chem*, 291(40), 20827-20837. doi:10.1074/jbc.M116.727701

Gregg, T., Sdao, S. M., Dhillon, R. S., **Rensvold, J. W.**, Lewandowski, S. L., Pagliarini, D. J., Denu, J. M., & Merrins, M. J. (2019). Obesity-dependent CDK1 signaling stimulates mitochondrial respiration at complex I in pancreatic β -cells. *The Journal of biological chemistry*, 294(12), 4656–4666. <https://doi.org/10.1074/jbc.RA118.006085>

Schaffer, L. V., **Rensvold, J. W.**, Shortreed, M. R., Cesnik, A. J., Jochem, A., Scalf, M., Frey, B. L., Pagliarini, D. J., & Smith, L. M. (2018). Identification and

Quantification of Murine Mitochondrial Proteoforms Using an Integrated Top-Down and Intact-Mass Strategy. *Journal of proteome research*, 17(10), 3526–3536. <https://doi.org/10.1021/acs.jproteome.8b00469>

Wong, H. H., Seet, S. H., Maier, M., Gurel, A., Traspas, R. M., Lee, C., Zhang, S., Talim, B., Loh, A., Chia, C. Y., Teoh, T. S., Sng, D., **Rensvold, J.**, Unal, S., Shishkova, E., Cepni, E., Nathan, F. M., Sirota, F. L., Liang, C., Yarali, N., ... Reversade, B. (2021). Loss of C2orf69 defines a fatal autoinflammatory syndrome in humans and zebrafish that evokes a glycogen storage-associated mitochondriopathy. *American journal of human genetics*, S0002-9297(21)00187-7. Advance online publication. <https://doi.org/10.1016/j.ajhg.2021.05.003>

Cary Valley (Advisor: Marvin Wickens)

Campbell, Z. T., Bhimsaria, D., **Valley, C. T.**, Rodriguez-Martinez, J. A., Menichelli, E., Williamson, J. R., . . . Wickens, M. (2012). Cooperativity in RNA-protein interactions: global analysis of RNA binding specificity. *Cell Rep*, 1(5), 570-581. doi:10.1016/j.celrep.2012.04.003

Valley, C. T., Porter, D. F., Qiu, C., Campbell, Z. T., Hall, T. M., & Wickens, M. (2012). Patterns and plasticity in RNA-protein interactions enable recruitment of multiple proteins through a single site. *Proc Natl Acad Sci U S A*, 109(16), 6054-6059. doi:10.1073/pnas.1200521109

Campbell, Z. T., **Valley, C. T.**, & Wickens, M. (2014). A protein-RNA specificity code enables targeted activation of an endogenous human transcript. *Nat Struct Mol Biol*, 21(8), 732-738. doi:10.1038/nsmb.2847

Daniel Wilinski (Advisor: Marvin Wickens)

Wilinski, D., Buter, N., Klocko, A. D., Lapointe, C. P., Selker, E. U., Gasch, A. P., & Wickens, M. (2017). Recurrent rewiring and emergence of RNA regulatory networks. *Proceedings of the National Academy of Sciences of the United States of America*, 114(14), E2816–E2825. <https://doi.org/10.1073/pnas.1617777114>

Qiu, C., Kershner, A., Wang, Y., Holley, C. P., **Wilinski, D.**, Keles, S., . . . Hall, T. M. (2012). Divergence of Pumilio/fem-3 mRNA binding factor (PUF) protein specificity through variations in an RNA-binding pocket. *J Biol Chem*, 287(9), 6949-6957. doi:10.1074/jbc.M111.326264

Lapointe, C. P., **Wilinski, D.**, Saunders, H. A., & Wickens, M. (2015). Protein-RNA networks revealed through covalent RNA marks. *Nat Methods*, 12(12), 1163-1170. doi:10.1038/nmeth.3651

Wilinski, D., Qiu, C., Lapointe, C. P., Nevil, M., Campbell, Z. T., Tanaka Hall, T. M., & Wickens, M. (2015). RNA regulatory networks diversified through curvature of the PUF protein scaffold. *Nat Commun*, *6*, 8213. doi:10.1038/ncomms9213

Lapointe, C. P., Preston, M. A., **Wilinski, D.**, Saunders, H. A. J., Campbell, Z. T., & Wickens, M. (2017). Architecture and dynamics of overlapped RNA regulatory networks. *Rna*, *23*(11), 1636-1647. doi:10.1261/rna.062687.117

Zeng Hao (Advisor: Wei Xu)

Liu, F., Ma, F., Wang, Y., Hao, L., **Zeng, H.**, Jia, C., Wang, Y., Liu, P., Ong, I. M., Li, B., Chen, G., Jiang, J., Gong, S., Li, L., & Xu, W. (2017). PKM2 methylation by CARM1 activates aerobic glycolysis to promote tumorigenesis. *Nature cell biology*, *19*(11), 1358–1370. <https://doi.org/10.1038/ncb3630>

Zeng, H., Wu, J., Bedford, M. T., Sbardella, G., Hoffmann, F. M., Bi, K., & Xu, W. (2013). A TR-FRET-based functional assay for screening activators of CARM1. *Chembiochem*, *14*(7), 827-835. doi:10.1002/cbic.201300029

Wang, L., **Zeng, H.**, Wang, Q., Zhao, Z., Boyer, T. G., Bian, X., & Xu, W. (2015). MED12 methylation by CARM1 sensitizes human breast cancer cells to chemotherapy drugs. *Sci Adv*, *1*(9), e1500463. doi:10.1126/sciadv.1500463

Zeng, H., & Xu, W. (2015). Ctr9, a key subunit of PAFc, affects global estrogen signaling and drives ERalpha-positive breast tumorigenesis. *Genes Dev*, *29*(20), 2153-2167. doi:10.1101/gad.268722.115

Zeng, H., Lu, L., Chan, N. T., Horswill, M., Ahlquist, P., Zhong, X., & Xu, W. (2016). Systematic identification of Ctr9 regulome in ERalpha-positive breast cancer. *BMC Genomics*, *17*(1), 902. doi:10.1186/s12864-016-3248-3

Zeng, H., & Xu, W. (2016). Gene expression profiling of Ctr9-regulated transcriptome in ERalpha-positive breast cancer. *Genom Data*, *7*, 103-104. doi:10.1016/j.gdata.2015.12.006

Shishkova, E., **Zeng, H.**, Liu, F., Kwiecien, N. W., Hebert, A. S., Coon, J. J., & Xu, W. (2017). Global mapping of CARM1 substrates defines enzyme specificity and substrate recognition. *Nat Commun*, *8*, 15571. doi:10.1038/ncomms15571

2014 Graduates

Holly Basta (Advisor: Ann Palmenberg)

Bacot-Davis, V. R., Ciomperlik, J. J., **Basta, H. A.**, Cornilescu, C. C., & Palmenberg, A. C. (2014). Solution structures of Mengovirus Leader protein, its phosphorylated derivatives, and in complex with nuclear transport regulatory

protein, RanGTPase. *Proc Natl Acad Sci U S A*, 111(44), 15792-15797.
doi:10.1073/pnas.1411098111

Basta, H. A., Ashraf, S., Sgro, J. Y., Bochkov, Y. A., Gern, J. E., & Palmenberg, A. C. (2014). Modeling of the human rhinovirus C capsid suggests possible causes for antiviral drug resistance. *Virology*, 448, 82-90.
doi:10.1016/j.virol.2013.10.004

Basta, H. A., Bacot-Davis, V. R., Ciomperlik, J. J., & Palmenberg, A. C. (2014). Encephalomyocarditis virus leader is phosphorylated by CK2 and syk as a requirement for subsequent phosphorylation of cellular nucleoporins. *J Virol*, 88(4), 2219-2226. doi:10.1128/jvi.03150-13

Basta, H. A., & Palmenberg, A. C. (2014). AMP-activated protein kinase phosphorylates EMCV, TMEV and SafV leader proteins at different sites. *Virology*, 462-463, 236-240. doi:10.1016/j.virol.2014.06.026

Basta, H. A., Sgro, J. Y., & Palmenberg, A. C. (2014). Modeling of the human rhinovirus C capsid suggests a novel topography with insights on receptor preference and immunogenicity. *Virology*, 448, 176-184.
doi:10.1016/j.virol.2013.10.006

Petty, R. V., **Basta, H. A.**, Bacot-Davis, V. R., Brown, B. A., & Palmenberg, A. C. (2014). Binding interactions between the encephalomyocarditis virus leader and protein 2A. *J Virol*, 88(22), 13503-13509. doi:10.1128/jvi.02148-14

Ciomperlik, J. J., **Basta, H. A.**, & Palmenberg, A. C. (2015). Three cardiovirus Leader proteins equivalently inhibit four different nucleocytoplasmic trafficking pathways. *Virology*, 484, 194-202. doi:10.1016/j.virol.2015.06.004

Ciomperlik, J. J., **Basta, H. A.**, & Palmenberg, A. C. (2016). Cardiovirus Leader proteins bind exportins: Implications for virus replication and nucleocytoplasmic trafficking inhibition. *Virology*, 487, 19-26. doi:10.1016/j.virol.2015.10.001

Suyong Choi (Advisor: Richard Anderson)

Thapa, N., Sun, Y., Schramp, M., **Choi, S.**, Ling, K., & Anderson, R. A. (2012). Phosphoinositide signaling regulates the exocyst complex and polarized integrin trafficking in directionally migrating cells. *Dev Cell*, 22(1), 116-130.
doi:10.1016/j.devcel.2011.10.030

Choi, S., Thapa, N., Hedman, A. C., Li, Z., Sacks, D. B., & Anderson, R. A. (2013). IQGAP1 is a novel phosphatidylinositol 4,5 bisphosphate effector in regulation of directional cell migration. *Embo j*, 32(19), 2617-2630.
doi:10.1038/emboj.2013.191

Thapa, N., **Choi, S.**, Hedman, A., Tan, X., & Anderson, R. A. (2013). Phosphatidylinositol phosphate 5-kinase Igamma2 in association with Src controls anchorage-independent growth of tumor cells. *J Biol Chem*, *288*(48), 34707-34718. doi:10.1074/jbc.M113.512848

Schill, N. J., Hedman, A. C., **Choi, S.**, & Anderson, R. A. (2014). Isoform 5 of PIPKgamma regulates the endosomal trafficking and degradation of E-cadherin. *J Cell Sci*, *127*(Pt 10), 2189-2203. doi:10.1242/jcs.132423

Choi, S., Thapa, N., Tan, X., Hedman, A. C., & Anderson, R. A. (2015). PIP kinases define PI4,5P(2) signaling specificity by association with effectors. *Biochim Biophys Acta*, *1851*(6), 711-723. doi:10.1016/j.bbalip.2015.01.009

Tan, X., Thapa, N., **Choi, S.**, & Anderson, R. A. (2015). Emerging roles of PtdIns(4,5)P₂--beyond the plasma membrane. *J Cell Sci*, *128*(22), 4047-4056. doi:10.1242/jcs.175208

Thapa, N., **Choi, S.**, Tan, X., Wise, T., & Anderson, R. A. (2015). Phosphatidylinositol Phosphate 5-Kinase Igamma and Phosphoinositide 3-Kinase/Akt Signaling Couple to Promote Oncogenic Growth. *J Biol Chem*, *290*(30), 18843-18854. doi:10.1074/jbc.M114.596742

Robert Ihry (Advisor: Arash Bashirullah)

Ihry, R. J., Sapiro, A. L., & Bashirullah, A. (2012). Translational control by the DEAD Box RNA helicase belle regulates ecdysone-triggered transcriptional cascades. *PLoS Genet*, *8*(11), e1003085. doi:10.1371/journal.pgen.1003085

Sapiro, A. L., **Ihry, R. J.**, Buhr, D. L., Konieczko, K. M., Ives, S. M., Engstrom, A. K., . . . Bashirullah, A. (2013). Rapid recombination mapping for high-throughput genetic screens in Drosophila. *G3 (Bethesda)*, *3*(12), 2313-2319. doi:10.1534/g3.113.008615

Ihry, R. J., & Bashirullah, A. (2014). Genetic control of specificity to steroid-triggered responses in Drosophila. *Genetics*, *196*(3), 767-780. doi:10.1534/genetics.113.159707

Neuman, S. D., **Ihry, R. J.**, Gruetzmacher, K. M., & Bashirullah, A. (2014). INO80-dependent regression of ecdysone-induced transcriptional responses regulates developmental timing in Drosophila. *Dev Biol*, *387*(2), 229-239. doi:10.1016/j.ydbio.2014.01.006

Saheed Imam (Advisor: Timothy Donohue)

Imam, S., Yilmaz, S., Sohmen, U., Gorzalski, A. S., Reed, J. L., Noguera, D. R., & Donohue, T. J. (2011). iRsp1095: a genome-scale reconstruction of the *Rhodobacter sphaeroides* metabolic network. *BMC Syst Biol*, *5*, 116. doi:10.1186/1752-0509-5-116

Kontur, W. S., Ziegelhoffer, E. C., Spero, M. A., **Imam, S.**, Noguera, D. R., & Donohue, T. J. (2011). Pathways involved in reductant distribution during photobiological H₂ production by *Rhodobacter sphaeroides*. *Appl Environ Microbiol*, *77*(20), 7425-7429. doi:10.1128/aem.05273-11

Dufour, Y. S., **Imam, S.**, Koo, B. M., Green, H. A., & Donohue, T. J. (2012). Convergence of the transcriptional responses to heat shock and singlet oxygen stresses. *PLoS Genet*, *8*(9), e1002929. doi:10.1371/journal.pgen.1002929

Imam, S., Noguera, D. R., & Donohue, T. J. (2013). Global insights into energetic and metabolic networks in *Rhodobacter sphaeroides*. *BMC Syst Biol*, *7*, 89. doi:10.1186/1752-0509-7-89

Imam, S., Noguera, D. R., & Donohue, T. J. (2014). Global analysis of photosynthesis transcriptional regulatory networks. *PLoS Genet*, *10*(12), e1004837. doi:10.1371/journal.pgen.1004837

Imam, S., Fitzgerald, C. M., Cook, E. M., Donohue, T. J., & Noguera, D. R. (2015). Quantifying the effects of light intensity on bioproduction and maintenance energy during photosynthetic growth of *Rhodobacter sphaeroides*. *Photosynth Res*, *123*(2), 167-182. doi:10.1007/s11120-014-0061-1

Imam, S., Noguera, D. R., & Donohue, T. J. (2015). An integrated approach to reconstructing genome-scale transcriptional regulatory networks. *PLoS Comput Biol*, *11*(2), e1004103. doi:10.1371/journal.pcbi.1004103

Imam, S., Noguera, D. R., & Donohue, T. J. (2015). CceR and AkgR regulate central carbon and energy metabolism in alphaproteobacteria. *MBio*, *6*(1). doi:10.1128/mBio.02461-14

Burger, B. T., **Imam, S.**, Scarborough, M. J., Noguera, D. R., & Donohue, T. J. (2017). Combining Genome-Scale Experimental and Computational Methods To Identify Essential Genes in *Rhodobacter sphaeroides*. *mSystems*, *2*(3). doi:10.1128/mSystems.00015-17

Sunita Joshi (Advisor: Gail Robertson)

Jones, D. K., Liu, F., Dombrowski, N., **Joshi, S.**, & Robertson, G. A. (2016). Dominant negative consequences of a hERG 1b-specific mutation associated

with intrauterine fetal death. *Prog Biophys Mol Biol*, 120(1-3), 67-76.
doi:10.1016/j.pbiomolbio.2016.01.002

Lindsey Kaschner (Hoover) (Advisor: Elizabeth Craig)

Kaschner, L. A., Sharma, R., Shrestha, O. K., Meyer, A. E., & Craig, E. A. (2015). A conserved domain important for association of eukaryotic J-protein co-chaperones Jjj1 and Zuo1 with the ribosome. *Biochim Biophys Acta*, 1853(5), 1035-1045. doi:10.1016/j.bbamcr.2015.01.014

Hyun Jung Kim (Advisor: Mark Burkard)

Kim, H., Guo, F., Brahma, S., Xing, Y., & Burkard, M. E. (2014). Centralspindlin assembly and 2 phosphorylations on MgcRacGAP by Polo-like kinase 1 initiate Ect2 binding in early cytokinesis. *Cell Cycle*, 13(18), 2952-2961.
doi:10.4161/15384101.2014.947201

Choudhary, A., Zachek, B., Lera, R. F., Zasadil, L. M., Lasek, A., Denu, R. A., **Kim, H.**, . . . Burkard, M. E. (2016). Identification of Selective Lead Compounds for Treatment of High-Ploidy Breast Cancer. *Mol Cancer Ther*, 15(1), 48-59.
doi:10.1158/1535-7163.Mct-15-0527

Kim, H., Johnson, J. M., Lera, R. F., Brahma, S., & Burkard, M. E. (2017). Anillin Phosphorylation Controls Timely Membrane Association and Successful Cytokinesis. *PLoS Genet*, 13(1), e1006511. doi:10.1371/journal.pgen.1006511

Angela Kita (Advisor: William Bement)

Sandquist, J. C., **Kita, A. M.**, & Bement, W. M. (2011). And the dead shall rise: actin and myosin return to the spindle. *Dev Cell*, 21(3), 410-419.
doi:10.1016/j.devcel.2011.07.018

Bement, W. M., Leda, M., Moe, A. M., **Kita, A. M.**, Larson, M. E., Golding, A. E., . . . von Dassow, G. (2015). Activator-inhibitor coupling between Rho signalling and actin assembly makes the cell cortex an excitable medium. *Nat Cell Biol*, 17(11), 1471-1483. doi:10.1038/ncb3251

Varjabedian, A., **Kita, A.**, & Bement, W. (2018). Living *Xenopus* oocytes, eggs, and embryos as models for cell division. *Methods Cell Biol*, 144, 259-285.
doi:10.1016/bs.mcb.2018.03.013

Pui Ying (Penny) Lam (Advisor: Anna Huttenlocher)

Lam, P. Y., Yoo, S. K., Green, J. M., & Huttenlocher, A. (2012). The SH2-domain-containing inositol 5-phosphatase (SHIP) limits the motility of neutrophils and their recruitment to wounds in zebrafish. *J Cell Sci*, 125(Pt 21), 4973-4978.
doi:10.1242/jcs.106625

Yoo, S. K., **Lam, P. Y.**, Eichelberg, M. R., Zasadil, L., Bement, W. M., & Huttenlocher, A. (2012). The role of microtubules in neutrophil polarity and migration in live zebrafish. *J Cell Sci*, *125*(Pt 23), 5702-5710. doi:10.1242/jcs.108324

Lam, P. Y., Harvie, E. A., & Huttenlocher, A. (2013). Heat shock modulates neutrophil motility in zebrafish. *PLoS One*, *8*(12), e84436. doi:10.1371/journal.pone.0084436

Lam, P. Y., & Huttenlocher, A. (2013). Interstitial leukocyte migration in vivo. *Curr Opin Cell Biol*, *25*(5), 650-658. doi:10.1016/j.ceb.2013.05.007

Lam, P. Y., Fischer, R. S., Shin, W. D., Waterman, C. M., & Huttenlocher, A. (2014). Spinning disk confocal imaging of neutrophil migration in zebrafish. *Methods Mol Biol*, *1124*, 219-233. doi:10.1007/978-1-62703-845-4_14

Tauzin, S., Starnes, T. W., Becker, F. B., **Lam, P. Y.**, & Huttenlocher, A. (2014). Redox and Src family kinase signaling control leukocyte wound attraction and neutrophil reverse migration. *J Cell Biol*, *207*(5), 589-598. doi:10.1083/jcb.201408090

Lam, P. Y., Mangos, S., Green, J. M., Reiser, J., & Huttenlocher, A. (2015). In vivo imaging and characterization of actin microridges. *PLoS One*, *10*(1), e0115639. doi:10.1371/journal.pone.0115639

Vincent, W. J., Freisinger, C. M., **Lam, P. Y.**, Huttenlocher, A., & Sauer, J. D. (2016). Macrophages mediate flagellin induced inflammasome activation and host defense in zebrafish. *Cell Microbiol*, *18*(4), 591-604. doi:10.1111/cmi.12536

Barros-Becker, F., **Lam, P. Y.**, Fisher, R., & Huttenlocher, A. (2017). Live imaging reveals distinct modes of neutrophil and macrophage migration within interstitial tissues. *J Cell Sci*, *130*(22), 3801-3808. doi:10.1242/jcs.206128

Fischer, R. S., **Lam, P. Y.**, Huttenlocher, A., & Waterman, C. M. (2018). Filopodia and focal adhesions: An integrated system driving branching morphogenesis in neuronal pathfinding and angiogenesis. *Dev Biol*. doi:10.1016/j.ydbio.2018.08.015

Sang Hee Lee (Advisor: Wade Bushman)

Lee, S., Yang, G., Mulligan, W., Gipp, J., & Bushman, W. (2014). Ventral prostate fibrosis in the Akita mouse is associated with macrophage and fibrocyte infiltration. *J Diabetes Res*, *2014*, 939053. doi:10.1155/2014/939053

Wong, L., Gipp, J., Carr, J., Loftus, C. J., Benck, M., **Lee, S.**, . . . Bushman, W. (2014). Prostate angiogenesis in development and inflammation. *Prostate*, *74*(4), 346-358. doi:10.1002/pros.22751

Greer, T., Hao, L., Nechyporenko, A., **Lee, S.**, Vezina, C. M., Ricke, W. A., . . . Li, L. (2015). Custom 4-Plex DiLeu Isobaric Labels Enable Relative Quantification of Urinary Proteins in Men with Lower Urinary Tract Symptoms (LUTS). *PLoS One*, *10*(8), e0135415. doi:10.1371/journal.pone.0135415

Lee, S., Yang, G., & Bushman, W. (2015). Prostatic inflammation induces urinary frequency in adult mice. *PLoS One*, *10*(2), e0116827. doi:10.1371/journal.pone.0116827

Lee, S., Yang, G., Xiang, W., & Bushman, W. (2016). Retrograde double-labeling demonstrates convergent afferent innervation of the prostate and bladder. *Prostate*, *76*(8), 767-775. doi:10.1002/pros.23170

Patrick Lee (Brown) (Advisor: Wan-Ju Li)

Lee, P. T., & Li, W. J. (2017). Chondrogenesis of Embryonic Stem Cell-Derived Mesenchymal Stem Cells Induced by TGFbeta1 and BMP7 Through Increased TGFbeta Receptor Expression and Endogenous TGFbeta1 Production. *J Cell Biochem*, *118*(1), 172-181. doi:10.1002/jcb.25623

Joelle Lomax (Advisor: Ronald Raines)

Lomax, J. E., Eller, C. H., & Raines, R. T. (2012). Rational design and evaluation of mammalian ribonuclease cytotoxins. *Methods Enzymol*, *502*, 273-290. doi:10.1016/b978-0-12-416039-2.00014-8

Eller, C. H., **Lomax, J. E.**, & Raines, R. T. (2014). Bovine brain ribonuclease is the functional homolog of human ribonuclease 1. *J Biol Chem*, *289*(38), 25996-26006. doi:10.1074/jbc.M114.566166

Lomax, J. E., Bianchetti, C. M., Chang, A., Phillips, G. N., Jr., Fox, B. G., & Raines, R. T. (2014). Functional evolution of ribonuclease inhibitor: insights from birds and reptiles. *J Mol Biol*, *426*(17), 3041-3056. doi:10.1016/j.jmb.2014.06.007

McGrath, N. A., Andersen, K. A., Davis, A. K., **Lomax, J. E.**, & Raines, R. T. (2015). Diazo compounds for the bioreversible esterification of proteins. *Chem Sci*, *6*(1), 752-755. doi:10.1039/c4sc01768d

Andersen, K. A., Smith, T. P., **Lomax, J. E.**, & Raines, R. T. (2016). Boronic Acid for the Traceless Delivery of Proteins into Cells. *ACS Chem Biol*, *11*(2), 319-323. doi:10.1021/acscchembio.5b00966

Lomax, J. E., Eller, C. H., & Raines, R. T. (2017). Comparative functional analysis of ribonuclease 1 homologs: molecular insights into evolving vertebrate physiology. *Biochem J*, 474(13), 2219-2233. doi:10.1042/bcj20170173

Mix, K. A., **Lomax, J. E.**, & Raines, R. T. (2017). Cytosolic Delivery of Proteins by Bioreversible Esterification. *J Am Chem Soc*, 139(41), 14396-14398. doi:10.1021/jacs.7b06597

Timothy Loveless (Advisor: Jeff Hardin)

Sheffield, M., **Loveless, T.**, Hardin, J., & Pettitt, J. (2007). C. elegans Enabled exhibits novel interactions with N-WASP, Abl, and cell-cell junctions. *Curr Biol*, 17(20), 1791-1796. doi:10.1016/j.cub.2007.09.033

Loveless, T., & Hardin, J. (2012). Cadherin complexity: recent insights into cadherin superfamily function in C. elegans. *Curr Opin Cell Biol*, 24(5), 695-701. doi:10.1016/j.ceb.2012.06.008

Hardin, J., Lynch, A., **Loveless, T.**, & Pettitt, J. (2013). Cadherins and their partners in the nematode worm Caenorhabditis elegans. *Prog Mol Biol Transl Sci*, 116, 239-262. doi:10.1016/b978-0-12-394311-8.00011-x

Choi, H. J., **Loveless, T.**, Lynch, A. M., Bang, I., Hardin, J., & Weis, W. I. (2015). A conserved phosphorylation switch controls the interaction between cadherin and beta-catenin in vitro and in vivo. *Dev Cell*, 33(1), 82-93. doi:10.1016/j.devcel.2015.02.005

Loveless, T., Qadota, H., Benian, G. M., & Hardin, J. (2017). Caenorhabditis elegans SORB-1 localizes to integrin adhesion sites and is required for organization of sarcomeres and mitochondria in myocytes. *Mol Biol Cell*, 28(25), 3621-3633. doi:10.1091/mbc.E16-06-0455

Shao, X., Kang, H., **Loveless, T.**, Lee, G. R., Seok, C., Weis, W. I., . . . Hardin, J. (2017). Cell-cell adhesion in metazoans relies on evolutionarily conserved features of the alpha-catenin.beta-catenin-binding interface. *J Biol Chem*, 292(40), 16477-16490. doi:10.1074/jbc.M117.795567

Maria Mikedis (Advisor: Karen Downs)

Mikedis, M. M., & Downs, K. M. (2009). Collagen type IV and Perlecan exhibit dynamic localization in the Allantoic Core Domain, a putative stem cell niche in the murine allantois. *Dev Dyn*, 238(12), 3193-3204. doi:10.1002/dvdy.22129

Mikedis, M. M., & Downs, K. M. (2012). STELLA-positive subregions of the primitive streak contribute to posterior tissues of the mouse gastrula. *Dev Biol*, 363(1), 201-218. doi:10.1016/j.ydbio.2011.10.003

Mikedis, M. M., & Downs, K. M. (2013). Widespread but tissue-specific patterns of interferon-induced transmembrane protein 3 (IFITM3, FRAGILIS, MIL-1) in the mouse gastrula. *Gene Expr Patterns*, *13*(7), 225-239. doi:10.1016/j.gep.2013.04.003

Mikedis, M. M., & Downs, K. M. (2014). Mouse primordial germ cells: a reappraisal. *Int Rev Cell Mol Biol*, *309*, 1-57. doi:10.1016/b978-0-12-800255-1.00001-6

Mikedis, M. M., & Downs, K. M. (2017). PRDM1/BLIMP1 is widely distributed to the nascent fetal-placental interface in the mouse gastrula. *Dev Dyn*, *246*(1), 50-71. doi:10.1002/dvdy.24461

Rodriguez, A. M., Jin, D. X., Wolfe, A. D., **Mikedis, M. M.**, Wierenga, L., Hashmi, M. P., . . . Downs, K. M. (2017). Brachyury drives formation of a distinct vascular branchpoint critical for fetal-placental arterial union in the mouse gastrula. *Dev Biol*, *425*(2), 208-222. doi:10.1016/j.ydbio.2017.03.032

Daryl Nelson (Advisor: Gary Lyons)

Nelson, D. O., Jin, D. X., Downs, K. M., Kamp, T. J., & Lyons, G. E. (2014). Irx4 identifies a chamber-specific cell population that contributes to ventricular myocardium development. *Dev Dyn*, *243*(3), 381-392. doi:10.1002/dvdy.24078

Lalit, P. A., Salick, M. R., **Nelson, D. O.**, Squirrell, J. M., Shafer, C. M., Patel, N. G., . . . Kamp, T. J. (2016). Lineage Reprogramming of Fibroblasts into Proliferative Induced Cardiac Progenitor Cells by Defined Factors. *Cell Stem Cell*, *18*(3), 354-367. doi:10.1016/j.stem.2015.12.001

Nelson, D. O., Lalit, P. A., Biermann, M., Markandeya, Y. S., Capes, D. L., Adesso, L., . . . Lyons, G. E. (2016). Irx4 Marks a Multipotent, Ventricular-Specific Progenitor Cell. *Stem Cells*, *34*(12), 2875-2888. doi:10.1002/stem.2486

Kunil Raval (Advisor: Timothy Kamp)

Lian, X., Hsiao, C., Wilson, G., Zhu, K., Hazeltine, L. B., Azarin, S. M., **Raval K. K.**, . . . Palecek, S. P. (2012). Robust cardiomyocyte differentiation from human pluripotent stem cells via temporal modulation of canonical Wnt signaling. *Proc Natl Acad Sci U S A*, *109*(27), E1848-1857. doi:10.1073/pnas.1200250109

Zhang, J., Klos, M., Wilson, G. F., Herman, A. M., Lian, X., **Raval, K. K.**, . . . Kamp, T. J. (2012). Extracellular matrix promotes highly efficient cardiac differentiation of human pluripotent stem cells: the matrix sandwich method. *Circ Res*, *111*(9), 1125-1136. doi:10.1161/circresaha.112.273144

Raval, K. K., & Kamp, T. J. (2014). Cardiomyopathy, mitochondria and Barth syndrome: iPSCs reveal a connection. *Nat Med*, *20*(6), 585-586. doi:10.1038/nm.3592

Raval, K. K., Tao, R., White, B. E., De Lange, W. J., Koonce, C. H., Yu, J., . . . Kamp, T. J. (2015). Pompe disease results in a Golgi-based glycosylation deficit in human induced pluripotent stem cell-derived cardiomyocytes. *J Biol Chem*, *290*(5), 3121-3136. doi:10.1074/jbc.M114.628628

Jessica Reusch (Advisor: Janet Mertz)

Iempridee, T., **Reusch, J. A.**, Riching, A., Johannsen, E. C., Dovat, S., Kenney, S. C., & Mertz, J. E. (2014). Epstein-Barr virus utilizes Ikaros in regulating its latent-lytic switch in B cells. *J Virol*, *88*(9), 4811-4827. doi:10.1128/jvi.03706-13

Nawandar, D. M., Wang, A., Makielski, K., Lee, D., Ma, S., Barlow, E., **Reusch, J. A.**, . . . Kenney, S. C. (2015). Differentiation-Dependent KLF4 Expression Promotes Lytic Epstein-Barr Virus Infection in Epithelial Cells. *PLoS Pathog*, *11*(10), e1005195. doi:10.1371/journal.ppat.1005195

Reusch, J. A., Nawandar, D. M., Wright, K. L., Kenney, S. C., & Mertz, J. E. (2015). Cellular differentiation regulator BLIMP1 induces Epstein-Barr virus lytic reactivation in epithelial and B cells by activating transcription from both the R and Z promoters. *J Virol*, *89*(3), 1731-1743. doi:10.1128/jvi.02781-14

Prabha Shrestha (Advisor: William Sugden)

Shrestha, P., & Sugden, B. (2014). Identification of properties of the Kaposi's sarcoma-associated herpesvirus latent origin of replication that are essential for the efficient establishment and maintenance of intact plasmids. *J Virol*, *88*(15), 8490-8503. doi:10.1128/jvi.00742-14

Elena Sorokin (Advisor: Judith Kimble)

Ortiz, M. A., Noble, D., **Sorokin, E. P.**, & Kimble, J. (2014). A new dataset of spermatogenic vs. oogenic transcriptomes in the nematode *Caenorhabditis elegans*. *G3 (Bethesda)*, *4*(9), 1765-1772. doi:10.1534/g3.114.012351

Sorokin, E. P., Gasch, A. P., & Kimble, J. (2014). Competence for chemical reprogramming of sexual fate correlates with an intersexual molecular signature in *Caenorhabditis elegans*. *Genetics*, *198*(2), 561-575. doi:10.1534/genetics.114.169409

Allison Strohm (Advisor: Patrick Masson)

Stanga, J., **Strohm, A.**, & Masson, P. H. (2011). Studying starch content and sedimentation of amyloplast statoliths in *Arabidopsis* roots. *Methods Mol Biol*, *774*, 103-111. doi:10.1007/978-1-61779-234-2_7

Strohm, A. K., Baldwin, K. L., & Masson, P. H. (2012). Multiple roles for membrane-associated protein trafficking and signaling in gravitropism. *Front Plant Sci*, *3*, 274. doi:10.3389/fpls.2012.00274

Strohm, A. K., Baldwin, K. L., & Masson, P. H. (2012). Molecular mechanisms of root gravity sensing and signal transduction. *Wiley Interdiscip Rev Dev Biol*, *1*(2), 276-285. doi:10.1002/wdev.14

Baldwin, K. L., **Strohm, A. K.**, & Masson, P. H. (2013). Gravity sensing and signal transduction in vascular plant primary roots. *Am J Bot*, *100*(1), 126-142. doi:10.3732/ajb.1200318

Strohm, A. K., Barrett-Wilt, G. A., & Masson, P. H. (2014). A functional TOC complex contributes to gravity signal transduction in Arabidopsis. *Front Plant Sci*, *5*, 148. doi:10.3389/fpls.2014.00148

Strohm, A. K., Vaughn, L. M., & Masson, P. H. (2015). Natural variation in the expression of ORGANIC CATION TRANSPORTER 1 affects root length responses to cadaverine in Arabidopsis. *J Exp Bot*, *66*(3), 853-862. doi:10.1093/jxb/eru444

Heather Taff (Advisor: David Andes)

Taff, H. T., Nett, J. E., & Andes, D. R. (2012). Comparative analysis of Candida biofilm quantitation assays. *Med Mycol*, *50*(2), 214-218. doi:10.3109/13693786.2011.580016

Taff, H. T., Nett, J. E., Zarnowski, R., Ross, K. M., Sanchez, H., Cain, M. T., . . . Andes, D. R. (2012). A Candida biofilm-induced pathway for matrix glucan delivery: implications for drug resistance. *PLoS Pathog*, *8*(8), e1002848. doi:10.1371/journal.ppat.1002848

Mitchell, K. F., **Taff, H. T.**, Cuevas, M. A., Reinicke, E. L., Sanchez, H., & Andes, D. R. (2013). Role of matrix beta-1,3 glucan in antifungal resistance of non-albicans Candida biofilms. *Antimicrob Agents Chemother*, *57*(4), 1918-1920. doi:10.1128/aac.02378-12

Taff, H. T., & Andes, D. R. (2013). Preparation of Candida albicans Biofilms for Transmission Electron Microscopy. *Bio Protoc*, *3*(14).

Taff, H. T., Marchillo, K., & Andes, D. R. (2013). Preparation of Candida albicans Biofilms Using an in vivo Rat Central Venous Catheter Model. *Bio Protoc*, *3*(14).

Taff, H. T., Mitchell, K. F., Edward, J. A., & Andes, D. R. (2013). Mechanisms of Candida biofilm drug resistance. *Future Microbiol*, 8(10), 1325-1337. doi:10.2217/fmb.13.101

Jessica TeSlaa (Advisor: Yevgenya Grinblat)

Goswami, S., Tarapore, R. S., **Teslaa, J. J.**, Grinblat, Y., Setaluri, V., & Spiegelman, V. S. (2010). MicroRNA-340-mediated degradation of microphthalmia-associated transcription factor mRNA is inhibited by the coding region determinant-binding protein. *J Biol Chem*, 285(27), 20532-20540. doi:10.1074/jbc.M110.109298

Teslaa, J. J., Keller, A. N., Nyholm, M. K., & Grinblat, Y. (2013). Zebrafish Zic2a and Zic2b regulate neural crest and craniofacial development. *Dev Biol*, 380(1), 73-86. doi:10.1016/j.ydbio.2013.04.033

Goswami, S., Tarapore, R. S., Poenitzsch Strong, A. M., **TeSlaa, J. J.**, Grinblat, Y., Setaluri, V., & Spiegelman, V. S. (2015). MicroRNA-340-mediated degradation of microphthalmia-associated transcription factor (MITF) mRNA is inhibited by coding region determinant-binding protein (CRD-BP). *J Biol Chem*, 290(1), 384-395. doi:10.1074/jbc.M114.590158

Sedykh, I., **TeSlaa, J. J.**, Tatarsky, R. L., Keller, A. N., Toops, K. A., Lakkaraju, A., . . . Grinblat, Y. (2016). Novel roles for the radial spoke head protein 9 in neural and neurosensory cilia. *Sci Rep*, 6, 34437. doi:10.1038/srep34437

Danielle Westhoff Smith (Advisor: William Sugden)

Westhoff Smith, D., & Sugden, B. (2013). Potential cellular functions of Epstein-Barr Nuclear Antigen 1 (EBNA1) of Epstein-Barr Virus. *Viruses*, 5(1), 226-240. doi:10.3390/v5010226

Westhoff Smith, D., Hill-Batorski, L., N'Jai, A., Einfeld, A. J., Neumann, G., Halfmann, P., & Kawaoka, Y. (2016). Ebola Virus Stability Under Hospital and Environmental Conditions. *J Infect Dis*, 214(suppl 3), S142-s144. doi:10.1093/infdis/jiw167

Laura Winkler (Advisor: Robert Kalejta)

Hwang, J., **Winkler, L.**, & Kalejta, R. F. (2011). Ubiquitin-independent proteasomal degradation during oncogenic viral infections. *Biochim Biophys Acta*, 1816(2), 147-157. doi:10.1016/j.bbcan.2011.05.005

Winkler, L. L., Hwang, J., & Kalejta, R. F. (2013). Ubiquitin-independent proteasomal degradation of tumor suppressors by human cytomegalovirus pp71 requires the 19S regulatory particle. *J Virol*, 87(8), 4665-4671. doi:10.1128/jvi.03301-12

Winkler, L. L., & Kalejta, R. F. (2014). The 19S proteasome activator promotes human cytomegalovirus immediate early gene expression through proteolytic and nonproteolytic mechanisms. *J Virol*, *88*(20), 11782-11790. doi:10.1128/jvi.01720-14

Lily Wong (Jarrett) (Advisor: Scott Kennedy)

Burkhart, K. B., Guang, S., Buckley, B. A., **Wong, L.**, Bochner, A. F., & Kennedy, S. (2011). A pre-mRNA-associating factor links endogenous siRNAs to chromatin regulation. *PLoS Genet*, *7*(8), e1002249. doi:10.1371/journal.pgen.1002249

Sang Su Woo (Advisor: Thomas Martin)

Woo, S. S., James, D. J., & Martin, T. F. (2017). Munc13-4 functions as a Ca(2+) sensor for homotypic secretory granule fusion to generate endosomal exocytic vacuoles. *Mol Biol Cell*, *28*(6), 792-808. doi:10.1091/mbc.E16-08-0617

Bruinsma, S., James, D. J., Quintana Serrano, M., Esquibel, J., **Woo, S. S.**, Kielar-Grevstad, E., . . . Martin, T. F. J. (2018). Small molecules that inhibit the late stage of Munc13-4-dependent secretory granule exocytosis in mast cells. *J Biol Chem*, *293*(21), 8217-8229. doi:10.1074/jbc.RA117.001547

Messenger, S. W., **Woo, S. S.**, Sun, Z., & Martin, T. F. J. (2018). A Ca(2+)-stimulated exosome release pathway in cancer cells is regulated by Munc13-4. *J Cell Biol*, *217*(8), 2877-2890. doi:10.1083/jcb.201710132

Messenger, S. W., **Woo, S. S.**, Sun, Z., & Martin, T. F. J. (2019). Correction: A Ca(2+)-stimulated exosome release pathway in cancer cells is regulated by Munc13-4. *J Cell Biol*. doi:10.1083/jcb.20171013203042019c

Xiaolin Zhang (Advisor: Jennifer Reed)

Pinchuk, G. E., Hill, E. A., Geydebekht, O. V., De Ingeniis, J., **Zhang, X.**, Osterman, A., . . . Reed, J. L. (2010). Constraint-based model of *Shewanella oneidensis* MR-1 metabolism: a tool for data analysis and hypothesis generation. *PLoS Comput Biol*, *6*(6), e1000822. doi:10.1371/journal.pcbi.1000822

Zhang, X., & Reed, J. L. (2014). Adaptive evolution of synthetic cooperating communities improves growth performance. *PLoS One*, *9*(10), e108297. doi:10.1371/journal.pone.0108297

Zhang, X., Tervo, C. J., & Reed, J. L. (2016). Metabolic assessment of *E. coli* as a Biofactory for commercial products. *Metab Eng*, *35*, 64-74. doi:10.1016/j.ymben.2016.01.007

Wu, W., Long, M. R., **Zhang, X.**, Reed, J. L., & Maravelias, C. T. (2018). A framework for the identification of promising bio-based chemicals. *Biotechnol Bioeng*, 115(9), 2328-2340. doi:10.1002/bit.26779

2013 Graduates

Serife Ayaz-Guner (Advisor: Wei Xu)

Ayaz-Guner, S., Zhang, J., Li, L., Walker, J. W., & Ge, Y. (2009). In vivo phosphorylation site mapping in mouse cardiac troponin I by high resolution top-down electron capture dissociation mass spectrometry: Ser22/23 are the only sites basally phosphorylated. *Biochemistry*, 48(34), 8161-8170. doi:10.1021/bi900739f

Zhang, J., Zhang, H., **Ayaz-Guner, S.**, Chen, Y. C., Dong, X., Xu, Q., & Ge, Y. (2011). Phosphorylation, but not alternative splicing or proteolytic degradation, is conserved in human and mouse cardiac troponin T. *Biochemistry*, 50(27), 6081-6092. doi:10.1021/bi2006256

Guy, M. J., Chen, Y. C., Clinton, L., Zhang, H., Zhang, J., Dong, X., Xu, Q., **Ayaz-Guner, S.**, . . . Ge, Y. (2013). The impact of antibody selection on the detection of cardiac troponin I. *Clin Chim Acta*, 420, 82-88. doi:10.1016/j.cca.2012.10.034

Zhao, Z., Wang, L., Wen, Z., **Ayaz-Guner, S.**, Wang, Y., Ahlquist, P., & Xu, W. (2013). Systematic analyses of the cytotoxic effects of compound 11a, a putative synthetic agonist of photoreceptor-specific nuclear receptor (PNR), in cancer cell lines. *PLoS One*, 8(9), e75198. doi:10.1371/journal.pone.0075198

Peng, Y., **Ayaz-Guner, S.**, Yu, D., & Ge, Y. (2014). Top-down mass spectrometry of cardiac myofilament proteins in health and disease. *Proteomics Clin Appl*, 8(7-8), 554-568. doi:10.1002/prca.201400043

Chen, Y. C., **Ayaz-Guner, S.**, Peng, Y., Lane, N. M., Locher, M., Kohmoto, T., . . . Ge, Y. (2015). Effective top-down LC/MS+ method for assessing actin isoforms as a potential cardiac disease marker. *Anal Chem*, 87(16), 8399-8406. doi:10.1021/acs.analchem.5b01745

Hwang, L., **Ayaz-Guner, S.**, Gregorich, Z. R., Cai, W., Valeja, S. G., Jin, S., & Ge, Y. (2015). Specific enrichment of phosphoproteins using functionalized multivalent nanoparticles. *J Am Chem Soc*, 137(7), 2432-2435. doi:10.1021/ja511833y

Kate Baldwin (Advisor: Patrick Masson)

Strohm, A. K., **Baldwin, K. L.**, & Masson, P. H. (2012). Multiple roles for membrane-associated protein trafficking and signaling in gravitropism. *Front Plant Sci*, 3, 274. doi:10.3389/fpls.2012.00274

Strohm, A. K., **Baldwin, K. L.**, & Masson, P. H. (2012). Molecular mechanisms of root gravity sensing and signal transduction. *Wiley Interdiscip Rev Dev Biol*, 1(2), 276-285. doi:10.1002/wdev.14

Baldwin, K. L., Dinh, E. M., Hart, B. M., & Masson, P. H. (2013). CACTIN is an essential nuclear protein in Arabidopsis and may be associated with the eukaryotic spliceosome. *FEBS Lett*, 587(7), 873-879. doi:10.1016/j.febslet.2013.02.041

Baldwin, K. L., Strohm, A. K., & Masson, P. H. (2013). Gravity sensing and signal transduction in vascular plant primary roots. *Am J Bot*, 100(1), 126-142. doi:10.3732/ajb.1200318

Christina Carlson (Advisor: Joel Pedersen)

Carlson, C. M., Schneider, J. R., Pedersen, J. A., Heisey, D. M., & Johnson, C. J. (2015). Experimental infection of meadow voles (*Microtus pennsylvanicus*) with sheep scrapie. *Can J Vet Res*, 79(1), 68-73.

Matthew Clay (Advisor: Mary Halloran)

Berndt, J. D., **Clay, M. R.**, Langenberg, T., & Halloran, M. C. (2008). Rho-kinase and myosin II affect dynamic neural crest cell behaviors during epithelial to mesenchymal transition in vivo. *Dev Biol*, 324(2), 236-244. doi:10.1016/j.ydbio.2008.09.013

Clay, M. R., & Halloran, M. C. (2010). Control of neural crest cell behavior and migration: Insights from live imaging. *Cell Adh Migr*, 4(4), 586-594. doi:10.4161/cam.4.4.12902

Andersen, E., Asuri, N., **Clay, M.**, & Halloran, M. (2010). Live imaging of cell motility and actin cytoskeleton of individual neurons and neural crest cells in zebrafish embryos. *J Vis Exp*(36). doi:10.3791/1726

Clay, M. R., & Halloran, M. C. (2011). Regulation of cell adhesions and motility during initiation of neural crest migration. *Curr Opin Neurobiol*, 21(1), 17-22. doi:10.1016/j.conb.2010.09.013

Clay, M. R., & Halloran, M. C. (2013). Rho activation is apically restricted by Arhgap1 in neural crest cells and drives epithelial-to-mesenchymal transition. *Development*, 140(15), 3198-3209. doi:10.1242/dev.095448

Clay, M. R., & Halloran, M. C. (2014). Cadherin 6 promotes neural crest cell detachment via F-actin regulation and influences active Rho distribution during epithelial-to-mesenchymal transition. *Development*, *141*(12), 2506-2515. doi:10.1242/dev.105551

Shih-Tsung Han (Advisor: Deane Mosher)

Johansson, M. W., **Han, S. T.**, Gunderson, K. A., Busse, W. W., Jarjour, N. N., & Mosher, D. F. (2012). Platelet activation, P-selectin, and eosinophil beta1-integrin activation in asthma. *Am J Respir Crit Care Med*, *185*(5), 498-507. doi:10.1164/rccm.201109-1712OC

Esnault, S., Kelly, E. A., Johansson, M. W., Liu, L. Y., **Han, S. T.**, Akhtar, M., . . . Jarjour, N. N. (2014). Semaphorin 7A is expressed on airway eosinophils and upregulated by IL-5 family cytokines. *Clin Immunol*, *150*(1), 90-100. doi:10.1016/j.clim.2013.11.009

Han, S. T., & Mosher, D. F. (2014). IL-5 induces suspended eosinophils to undergo unique global reorganization associated with priming. *Am J Respir Cell Mol Biol*, *50*(3), 654-664. doi:10.1165/rcmb.2013-0181OC

Timothy Hoggard (Advisor: Catherine Fox)

Chang, F., May, C. D., **Hoggard, T.**, Miller, J., Fox, C. A., & Weinreich, M. (2011). High-resolution analysis of four efficient yeast replication origins reveals new insights into the ORC and putative MCM binding elements. *Nucleic Acids Res*, *39*(15), 6523-6535. doi:10.1093/nar/gkr301

Hoggard, T., Shor, E., Muller, C. A., Nieduszynski, C. A., & Fox, C. A. (2013). A Link between ORC-origin binding mechanisms and origin activation time revealed in budding yeast. *PLoS Genet*, *9*(9), e1003798. doi:10.1371/journal.pgen.1003798

Hoggard, T., Liachko, I., Burt, C., Meikle, T., Jiang, K., Craciun, G., . . . Fox, C. A. (2016). High Throughput Analyses of Budding Yeast ARSs Reveal New DNA Elements Capable of Conferring Centromere-Independent Plasmid Propagation. *G3 (Bethesda)*, *6*(4), 993-1012. doi:10.1534/g3.116.027904

Shawn Jackson (Advisor: Shigeki Miyamoto)

Jackson, S. S., Coughlin, E. E., Coon, J. J., & Miyamoto, S. (2013). Identifying post-translational modifications of NEMO by tandem mass spectrometry after high affinity purification. *Protein Expr Purif*, *92*(1), 48-53. doi:10.1016/j.pep.2013.08.020

Berry, S. M., Chin, E. N., **Jackson, S. S.**, Strotman, L. N., Goel, M., Thompson, N. E., . . . Beebe, D. J. (2014). Weak protein-protein interactions revealed by

immiscible filtration assisted by surface tension. *Anal Biochem*, 447, 133-140. doi:10.1016/j.ab.2013.10.038

Hooper, C., **Jackson, S. S.**, Coughlin, E. E., Coon, J. J., & Miyamoto, S. (2014). Covalent modification of the NF-kappaB essential modulator (NEMO) by a chemical compound can regulate its ubiquitin binding properties in vitro. *J Biol Chem*, 289(48), 33161-33174. doi:10.1074/jbc.M114.582478

Jackson, S. S., & Miyamoto, S. (2015). Dissecting NF-kappaB signaling induced by genotoxic agents via genetic complementation of NEMO-deficient 1.3E2 cells. *Methods Mol Biol*, 1280, 197-215. doi:10.1007/978-1-4939-2422-6_11

Jackson, S. S., Oberley, C., Hooper, C. P., Grindle, K., Wuerzberger-Davis, S., Wolff, J., . . . Miyamoto, S. (2015). Withaferin A disrupts ubiquitin-based NEMO reorganization induced by canonical NF-kappaB signaling. *Exp Cell Res*, 331(1), 58-72. doi:10.1016/j.yexcr.2014.09.034

Yoon-a Kang (Advisor: Emery Bresnick)

Fujiwara, T., O'Geen, H., Keles, S., Blahnik, K., Linnemann, A. K., **Kang, Y. A.**, . . . Bresnick, E. H. (2009). Discovering hematopoietic mechanisms through genome-wide analysis of GATA factor chromatin occupancy. *Mol Cell*, 36(4), 667-681. doi:10.1016/j.molcel.2009.11.001

Kang, Y. A., Sanalkumar, R., O'Geen, H., Linnemann, A. K., Chang, C. J., Bouhassira, E. E., . . . Bresnick, E. H. (2012). Autophagy driven by a master regulator of hematopoiesis. *Mol Cell Biol*, 32(1), 226-239. doi:10.1128/mcb.06166-11

Klionsky, D. J., Abdalla, F. C., Abeliovich, H., Abraham, R. T., Acevedo-Arozena, A., Adeli, K., **Kang, Y. A.**, . . . Zuckerbraun, B. (2012). Guidelines for the use and interpretation of assays for monitoring autophagy. *Autophagy*, 8(4), 445-544.

Mclver, S. C., **Kang, Y. A.**, DeVilbiss, A. W., O'Driscoll, C. A., Ouellette, J. N., Pope, N. J., . . . Bresnick, E. H. (2014). The exosome complex establishes a barricade to erythroid maturation. *Blood*, 124(14), 2285-2297. doi:10.1182/blood-2014-04-571083

Hewitt, K. J., Kim, D. H., Devadas, P., Prathibha, R., Zuo, C., Sanalkumar, R., **Kang, Y.A.**, . . . Bresnick, E. H. (2015). Hematopoietic Signaling Mechanism Revealed from a Stem/Progenitor Cell Cistrome. *Mol Cell*, 59(1), 62-74. doi:10.1016/j.molcel.2015.05.020

Mclver, S. C., Katsumura, K. R., Davids, E., Liu, P., **Kang, Y. A.**, Yang, D., &

Bresnick, E. H. (2016). Exosome complex orchestrates developmental signaling to balance proliferation and differentiation during erythropoiesis. *Elife*, 5. doi:10.7554/eLife.17877

Michael Lauck (Advisor: David O'Connor)

Bimber, B. N., Dudley, D. M., **Lauck, M.**, Becker, E. A., Chin, E. N., Lank, S. M., . . . O'Connor, D. H. (2010). Whole-genome characterization of human and simian immunodeficiency virus intrahost diversity by ultradeep pyrosequencing. *J Virol*, 84(22), 12087-12092. doi:10.1128/jvi.01378-10

Lauck, M., Hyeroba, D., Tumukunde, A., Weny, G., Lank, S. M., Chapman, C. A., . . . Goldberg, T. L. (2011). Novel, divergent simian hemorrhagic fever viruses in a wild Ugandan red colobus monkey discovered using direct pyrosequencing. *PLoS One*, 6(4), e19056. doi:10.1371/journal.pone.0019056

Hughes, A. L., Becker, E. A., **Lauck, M.**, Karl, J. A., Braasch, A. T., O'Connor, D. H., & O'Connor, S. L. (2012). SIV genome-wide pyrosequencing provides a comprehensive and unbiased view of variation within and outside CD8 T lymphocyte epitopes. *PLoS One*, 7(10), e47818. doi:10.1371/journal.pone.0047818

Lauck, M., Alvarado-Mora, M. V., Becker, E. A., Bhattacharya, D., Striker, R., Hughes, A. L., . . . Pinho, J. R. (2012). Analysis of hepatitis C virus intrahost diversity across the coding region by ultradeep pyrosequencing. *J Virol*, 86(7), 3952-3960. doi:10.1128/jvi.06627-11

Ghai, R. R., Sibley, S. D., **Lauck, M.**, Dinis, J. M., Bailey, A. L., Chapman, C. A., . . . Goldberg, T. L. (2013). Deep sequencing identifies two genotypes and high viral genetic diversity of human pegivirus (GB virus C) in rural Ugandan patients. *J Gen Virol*, 94(Pt 12), 2670-2678. doi:10.1099/vir.0.055509-0

Lauck, M., Sibley, S. D., Hyeroba, D., Tumukunde, A., Weny, G., Chapman, C. A., . . . Goldberg, T. L. (2013). Exceptional simian hemorrhagic fever virus diversity in a wild African primate community. *J Virol*, 87(1), 688-691. doi:10.1128/jvi.02433-12

Lauck, M., Sibley, S. D., Lara, J., Purdy, M. A., Khudyakov, Y., Hyeroba, D., . . . Goldberg, T. L. (2013). A novel hepacivirus with an unusually long and intrinsically disordered NS5A protein in a wild Old World primate. *J Virol*, 87(16), 8971-8981. doi:10.1128/jvi.00888-13

Lauck, M., Switzer, W. M., Sibley, S. D., Hyeroba, D., Tumukunde, A., Weny, G., . . . O'Connor, D. H. (2013). Discovery and full genome characterization of two highly divergent simian immunodeficiency viruses infecting black-and-white

colobus monkeys (*Colobus guereza*) in Kibale National Park, Uganda. *Retrovirology*, 10, 107. doi:10.1186/1742-4690-10-107

Bailey, A. L., **Lauck, M.**, Sibley, S. D., Pecotte, J., Rice, K., Weny, G., . . . O'Connor, D. H. (2014). Two novel simian arteriviruses in captive and wild baboons (*Papio* spp.). *J Virol*, 88(22), 13231-13239. doi:10.1128/jvi.02203-14

Bailey, A. L., **Lauck, M.**, Weiler, A., Sibley, S. D., Dinis, J. M., Bergman, Z., . . . O'Connor, D. H. (2014). High genetic diversity and adaptive potential of two simian hemorrhagic fever viruses in a wild primate population. *PLoS One*, 9(3), e90714. doi:10.1371/journal.pone.0090714

Christopher Lennon (Advisor: Richard Gourse)

Blankschien, M. D., Lee, J. H., Grace, E. D., **Lennon, C. W.**, Halliday, J. A., Ross, W., . . . Herman, C. (2009). Super DksAs: substitutions in DksA enhancing its effects on transcription initiation. *Embo j*, 28(12), 1720-1731. doi:10.1038/emboj.2009.126

Lennon, C. W., Gaal, T., Ross, W., & Gourse, R. L. (2009). Escherichia coli DksA binds to Free RNA polymerase with higher affinity than to RNA polymerase in an open complex. *J Bacteriol*, 191(18), 5854-5858. doi:10.1128/jb.00621-09

Lee, J. H., **Lennon, C. W.**, Ross, W., & Gourse, R. L. (2012). Role of the coiled-coil tip of Escherichia coli DksA in promoter control. *J Mol Biol*, 416(4), 503-517. doi:10.1016/j.jmb.2011.12.028

Lennon, C. W., Ross, W., Martin-Tumasz, S., Touloukhonov, I., Vrentas, C. E., Rutherford, S. T., . . . Gourse, R. L. (2012). Direct interactions between the coiled-coil tip of DksA and the trigger loop of RNA polymerase mediate transcriptional regulation. *Genes Dev*, 26(23), 2634-2646. doi:10.1101/gad.204693.112

Lennon, C. W., Lemmer, K. C., Irons, J. L., Sellman, M. I., Donohue, T. J., Gourse, R. L., & Ross, W. (2014). A *Rhodobacter sphaeroides* protein mechanistically similar to Escherichia coli DksA regulates photosynthetic growth. *MBio*, 5(3), e01105-01114. doi:10.1128/mBio.01105-14

Lima, B. P., **Lennon, C. W.**, Ross, W., Gourse, R. L., & Wolfe, A. J. (2016). In vitro evidence that RNA Polymerase acetylation and acetyl phosphate-dependent CpxR phosphorylation affect cpxP transcription regulation. *FEMS Microbiol Lett*, 363(5), fnw011. doi:10.1093/femsle/fnw011

Jung Wook Park (Advisor: Paul Lambert)

Park, J. W., Pitot, H. C., Strati, K., Spardy, N., Duensing, S., Grompe, M., & Lambert, P. F. (2010). Deficiencies in the Fanconi anemia DNA damage response pathway increase sensitivity to HPV-associated head and neck cancer. *Cancer Res*, *70*(23), 9959-9968. doi:10.1158/0008-5472.Can-10-1291

Park, J. W., Shin, M. K., Pitot, H. C., & Lambert, P. F. (2013). High incidence of HPV-associated head and neck cancers in FA deficient mice is associated with E7's induction of DNA damage through its inactivation of pocket proteins. *PLoS One*, *8*(9), e75056. doi:10.1371/journal.pone.0075056

Park, J. W., Nickel, K. P., Torres, A. D., Lee, D., Lambert, P. F., & Kimple, R. J. (2014). Human papillomavirus type 16 E7 oncoprotein causes a delay in repair of DNA damage. *Radiother Oncol*, *113*(3), 337-344. doi:10.1016/j.radonc.2014.08.026

Son, J., **Park, J. W.**, Lambert, P. F., & Chung, S. H. (2014). Requirement of estrogen receptor alpha DNA-binding domain for HPV oncogene-induced cervical carcinogenesis in mice. *Carcinogenesis*, *35*(2), 489-496. doi:10.1093/carcin/bgt350

Park, S., **Park, J. W.**, Pitot, H. C., & Lambert, P. F. (2016). Loss of Dependence on Continued Expression of the Human Papillomavirus 16 E7 Oncogene in Cervical Cancers and Precancerous Lesions Arising in Fanconi Anemia Pathway-Deficient Mice. *MBio*, *7*(3). doi:10.1128/mBio.00628-16

SunYoung Park (Advisor: Nader Sheibani)

Grutzmacher, C., **Park, S.**, Elmergreen, T. L., Tang, Y., Scheef, E. A., Sheibani, N., & Sorenson, C. M. (2010). Opposing effects of bim and bcl-2 on lung endothelial cell migration. *Am J Physiol Lung Cell Mol Physiol*, *299*(5), L607-620. doi:10.1152/ajplung.00390.2009

Park, S., DiMaio, T. A., Scheef, E. A., Sorenson, C. M., & Sheibani, N. (2010). PECAM-1 regulates proangiogenic properties of endothelial cells through modulation of cell-cell and cell-matrix interactions. *Am J Physiol Cell Physiol*, *299*(6), C1468-1484. doi:10.1152/ajpcell.00246.2010

Sheibani, N., Morrison, M. E., Gurel, Z., **Park, S.**, & Sorenson, C. M. (2012). BIM deficiency differentially impacts the function of kidney endothelial and epithelial cells through modulation of their local microenvironment. *Am J Physiol Renal Physiol*, *302*(7), F809-819. doi:10.1152/ajprenal.00498.2011

Grutzmacher, C., **Park, S.**, Zhao, Y., Morrison, M. E., Sheibani, N., & Sorenson, C. M. (2013). Aberrant production of extracellular matrix proteins and dysfunction

in kidney endothelial cells with a short duration of diabetes. *Am J Physiol Renal Physiol*, 304(1), F19-30. doi:10.1152/ajprenal.00036.2012

Park, S., Dimaio, T. A., Liu, W., Wang, S., Sorenson, C. M., & Sheibani, N. (2013). Endoglin regulates the activation and quiescence of endothelium by participating in canonical and non-canonical TGF-beta signaling pathways. *J Cell Sci*, 126(Pt 6), 1392-1405. doi:10.1242/jcs.117275

Ghanian, Z., Maleki, S., **Park, S.**, Sorenson, C. M., Sheibani, N., & Ranji, M. (2014). Organ specific optical imaging of mitochondrial redox state in a rodent model of hereditary hemorrhagic telangiectasia-1. *J Biophotonics*, 7(10), 799-809. doi:10.1002/jbio.201300033

Park, S., Sorenson, C. M., & Sheibani, N. (2015). PECAM-1 isoforms, eNOS and endoglin axis in regulation of angiogenesis. *Clin Sci (Lond)*, 129(3), 217-234. doi:10.1042/cs20140714

Eui Seok Shin (Advisor: Nader Sheibani)

Al-Shabraway, M., Ahmad, S., Megyerdi, S., Othman, A., Baban, B., Palenski, T. L., **Shin, E. S.**, . . . Sheibani, N. (2012). Caspase-14: a novel caspase in the retina with a potential role in diabetic retinopathy. *Mol Vis*, 18, 1895-1906.

Shah, G. N., Price, T. O., Banks, W. A., Morofuji, Y., Kovac, A., Ercal, N., Sorenson, C. M., **Shin, E. S.**, . . . Sheibani, N. (2013). Pharmacological inhibition of mitochondrial carbonic anhydrases protects mouse cerebral pericytes from high glucose-induced oxidative stress and apoptosis. *J Pharmacol Exp Ther*, 344(3), 637-645. doi:10.1124/jpet.112.201400

Shin, E. S., Huang, Q., Gurel, Z., Sorenson, C. M., & Sheibani, N. (2014). High glucose alters retinal astrocytes phenotype through increased production of inflammatory cytokines and oxidative stress. *PLoS One*, 9(7), e103148. doi:10.1371/journal.pone.0103148

Shin, E. S., Sorenson, C. M., & Sheibani, N. (2014). Diabetes and retinal vascular dysfunction. *J Ophthalmic Vis Res*, 9(3), 362-373. doi:10.4103/2008-322x.143378

Shin, E. S., Huang, Q., Gurel, Z., Palenski, T. L., Zaitoun, I., Sorenson, C. M., & Sheibani, N. (2014). STAT1-mediated Bim expression promotes the apoptosis of retinal pericytes under high glucose conditions. *Cell Death Dis*, 5, e986. doi:10.1038/cddis.2013.517

Shin, E. S., Sorenson, C. M., & Sheibani, N. (2014). PEDF expression regulates the proangiogenic and proinflammatory phenotype of the lung endothelium. *Am J*

Physiol Lung Cell Mol Physiol, 306(7), L620-634.
doi:10.1152/ajplung.00188.2013

Adam Swick (Advisor: John Yin)

Swick, A., Baltes, A., & Yin, J. (2014). Visualizing infection spread: dual-color fluorescent reporting of virus-host interactions. *Biotechnol Bioeng*, 111(6), 1200-1209. doi:10.1002/bit.25170

Pesko, K., Voigt, E. A., **Swick, A.**, Morley, V. J., Timm, C., Yin, J., & Turner, P. E. (2015). Genome rearrangement affects RNA virus adaptability on prostate cancer cells. *Front Genet*, 6, 121. doi:10.3389/fgene.2015.00121

2012 Graduates

Jeanette Ducett (Waltner) (Advisor: Elizabeth Craig)

Prunuske, A. J., **Waltner, J. K.**, Kuhn, P., Gu, B., & Craig, E. A. (2012). Role for the molecular chaperones Zuo1 and Ssz1 in quorum sensing via activation of the transcription factor Pdr1. *Proc Natl Acad Sci U S A*, 109(2), 472-477. doi:10.1073/pnas.1119184109

Ducett, J. K., Peterson, F. C., Hoover, L. A., Prunuske, A. J., Volkman, B. F., & Craig, E. A. (2013). Unfolding of the C-terminal domain of the J-protein Zuo1 releases autoinhibition and activates Pdr1-dependent transcription. *J Mol Biol*, 425(1), 19-31. doi:10.1016/j.jmb.2012.09.020

Brandi Gathy (Gancarz) (Advisor: Paul Ahlquist)

Chasman, D., **Gancarz, B.**, Hao, L., Ferris, M., Ahlquist, P., & Craven, M. (2014). Inferring host gene subnetworks involved in viral replication. *PLoS Comput Biol*, 10(5), e1003626. doi:10.1371/journal.pcbi.1003626

Gancarz, B. L., Hao, L., He, Q., Newton, M. A., & Ahlquist, P. (2011). Systematic identification of novel, essential host genes affecting bromovirus RNA replication. *PLoS One*, 6(8), e23988. doi:10.1371/journal.pone.0023988

Wang, X., Diaz, A., Hao, L., **Gancarz, B.**, den Boon, J. A., & Ahlquist, P. (2011). Intersection of the multivesicular body pathway and lipid homeostasis in RNA replication by a positive-strand RNA virus. *J Virol*, 85(11), 5494-5503. doi:10.1128/jvi.02031-10

Erin Gonzales (Advisor: Jerry Chi-Ping Yin)

Gonzales, E., & Yin, J. (2010). Drosophila Models of Huntington's Disease exhibit sleep abnormalities. *PLoS Curr*, 2. doi:10.1371/currents.RRN1185

Tubon, T. C., Jr., Zhang, J., Friedman, E. L., Jin, H., **Gonzales, E. D.**, Zhou, H., . . . Yin, J. C. (2013). dCREB2-mediated enhancement of memory formation. *J Neurosci*, *33*(17), 7475-7487. doi:10.1523/jneurosci.4387-12.2013

Kearney Gunsalus (Advisor: Avtar Roopra)

Wagoner, M. P., **Gunsalus, K. T.**, Schoenike, B., Richardson, A. L., Friedl, A., & Roopra, A. (2010). The transcription factor REST is lost in aggressive breast cancer. *PLoS Genet*, *6*(6), e1000979. doi:10.1371/journal.pgen.1000979

Gunsalus, K. T., Wagoner, M. P., Meyer, K., Potter, W. B., Schoenike, B., Kim, S., . . . Roopra, A. (2012). Induction of the RNA regulator LIN28A is required for the growth and pathogenesis of RESTless breast tumors. *Cancer Res*, *72*(13), 3207-3216. doi:10.1158/0008-5472.Can-11-1639

Julie Keating (Advisor: Robert Striker)

Lim, P. Y., **Keating, J. A.**, Hoover, S., Striker, R., & Bernard, K. A. (2011). A thiopurine drug inhibits West Nile virus production in cell culture, but not in mice. *PLoS One*, *6*(10), e26697. doi:10.1371/journal.pone.0026697

Keating, J. A., & Striker, R. (2012). Phosphorylation events during viral infections provide potential therapeutic targets. *Rev Med Virol*, *22*(3), 166-181. doi:10.1002/rmv.722

Keating, J. A., Bhattacharya, D., Lim, P. Y., Falk, S., Weisblum, B., Bernard, K. A., . . . Striker, R. (2013). West Nile virus methyltransferase domain interacts with protein kinase G. *Virology*, *453*, 242. doi:10.1016/j.virus.2013.08.002

Keating, J. A., Bhattacharya, D., Rund, S. S., Hoover, S., Dasgupta, R., Lee, S. J., . . . Striker, R. (2013). Mosquito protein kinase G phosphorylates flavivirus NS5 and alters flight behavior in *Aedes aegypti* and *Anopheles gambiae*. *Vector Borne Zoonotic Dis*, *13*(8), 590-600. doi:10.1089/vbz.2012.1110

Jaehyup Kim (Advisor: Peiman Hematti)

Kim, J., & Hematti, P. (2009). Mesenchymal stem cell-educated macrophages: a novel type of alternatively activated macrophages. *Exp Hematol*, *37*(12), 1445-1453. doi:10.1016/j.exphem.2009.09.004

Markovina, S., Callander, N. S., O'Connor, S. L., Xu, G., Shi, Y., Leith, C. P., Kim, K., Trivedi, P., **Kim, J.**, . . . Miyamoto, S. (2010). Bone marrow stromal cells from multiple myeloma patients uniquely induce bortezomib resistant NF-kappaB activity in myeloma cells. *Mol Cancer*, *9*, 176. doi:10.1186/1476-4598-9-176

Hanson, S. E., **Kim, J.**, Johnson, B. H., Bradley, B., Breunig, M. J., Hematti, P., & Thibeault, S. L. (2010). Characterization of mesenchymal stem cells from

human vocal fold fibroblasts. *Laryngoscope*, 120(3), 546-551.
doi:10.1002/lary.20797

Lushaj, E. B., Anstadt, E., Haworth, R., Roenneburg, D., **Kim, J.**, Hematti, P., & Kohmoto, T. (2011). Mesenchymal stromal cells are present in the heart and promote growth of adult stem cells in vitro. *Cytotherapy*, 13(4), 400-406.
doi:10.3109/14653249.2010.529890

Hanson, S. E., King, S. N., **Kim, J.**, Chen, X., Thibeault, S. L., & Hematti, P. (2011). The effect of mesenchymal stromal cell-hyaluronic acid hydrogel constructs on immunophenotype of macrophages. *Tissue Eng Part A*, 17(19-20), 2463-2471. doi:10.1089/ten.TEA.2010.0716

Bouchlaka, M. N., Moffitt, A. B., **Kim, J.**, Kink, J. A., Bloom, D. D., Love, C., . . . Capitini, C. M. (2017). Human Mesenchymal Stem Cell-Educated Macrophages Are a Distinct High IL-6-Producing Subset that Confer Protection in Graft-versus-Host-Disease and Radiation Injury Models. *Biol Blood Marrow Transplant*, 23(6), 897-905. doi:10.1016/j.bbmt.2017.02.018

Parascandolo, A., Rappa, F., Cappello, F., **Kim, J.**, Cantu, D. A., Chen, H., . . . Laukkanen, M. O. (2017). Extracellular Superoxide Dismutase Expression in Papillary Thyroid Cancer Mesenchymal Stem/Stromal Cells Modulates Cancer Cell Growth and Migration. *Sci Rep*, 7, 41416. doi:10.1038/srep41416

Joseph Klim (Advisor: Laura Kiessling)

Derda, R., Musah, S., Orner, B. P., **Klim, J. R.**, Li, L., & Kiessling, L. L. (2010). High-throughput discovery of synthetic surfaces that support proliferation of pluripotent cells. *J Am Chem Soc*, 132(4), 1289-1295. doi:10.1021/ja906089g

Klim, J. R., Li, L., Wrighton, P. J., Piekarczyk, M. S., & Kiessling, L. L. (2010). A defined glycosaminoglycan-binding substratum for human pluripotent stem cells. *Nat Methods*, 7(12), 989-994. doi:10.1038/nmeth.1532

Li, L., **Klim, J. R.**, Derda, R., Courtney, A. H., & Kiessling, L. L. (2011). Spatial control of cell fate using synthetic surfaces to potentiate TGF-beta signaling. *Proc Natl Acad Sci U S A*, 108(29), 11745-11750. doi:10.1073/pnas.1101454108

Klim, J. R., Fowler, A. J., Courtney, A. H., Wrighton, P. J., Sheridan, R. T., Wong, M. L., & Kiessling, L. L. (2012). Small-molecule-modified surfaces engage cells through the alpha5beta3 integrin. *ACS Chem Biol*, 7(3), 518-525.
doi:10.1021/cb2004725

Wrighton, P. J., **Klim, J. R.**, Hernandez, B. A., Koonce, C. H., Kamp, T. J., & Kiessling, L. L. (2014). Signals from the surface modulate differentiation of

human pluripotent stem cells through glycosaminoglycans and integrins. *Proc Natl Acad Sci U S A*, 111(51), 18126-18131. doi:10.1073/pnas.1409525111

Malika Kuzembayeva (Advisor: William Sugden)

Pratt, Z. L., **Kuzembayeva, M.**, Sengupta, S., & Sugden, B. (2009). The microRNAs of Epstein-Barr Virus are expressed at dramatically differing levels among cell lines. *Virology*, 386(2), 387-397. doi:10.1016/j.virol.2009.01.006

Kuzembayeva, M., Chiu, Y. F., & Sugden, B. (2012). Comparing proteomics and RISC immunoprecipitations to identify targets of Epstein-Barr viral miRNAs. *PLoS One*, 7(10), e47409. doi:10.1371/journal.pone.0047409

Kuzembayeva, M., Hayes, M., & Sugden, B. (2014). Multiple functions are mediated by the miRNAs of Epstein-Barr virus. *Curr Opin Virol*, 7, 61-65. doi:10.1016/j.coviro.2014.04.003

David Manthei (Advisor: Loren Denlinger)

Manthei, D. M., Jackson, D. J., Evans, M. D., Gangnon, R. E., Tisler, C. J., Gern, J. E., . . . Denlinger, L. C. (2012). Protection from asthma in a high-risk birth cohort by attenuated P2X(7) function. *J Allergy Clin Immunol*, 130(2), 496-502. doi:10.1016/j.jaci.2012.05.040

Shi, L., **Manthei, D. M.**, Guadarrama, A. G., Lenertz, L. Y., & Denlinger, L. C. (2012). Rhinovirus-induced IL-1beta release from bronchial epithelial cells is independent of functional P2X7. *Am J Respir Cell Mol Biol*, 47(3), 363-371. doi:10.1165/rcmb.2011-0267OC

Denlinger, L. C., **Manthei, D. M.**, Seibold, M. A., Ahn, K., Bleecker, E., Boushey, H. A., . . . Lemanske, R. F., Jr. (2013). P2X7-regulated protection from exacerbations and loss of control is independent of asthma maintenance therapy. *Am J Respir Crit Care Med*, 187(1), 28-33. doi:10.1164/rccm.201204-0750OC

Rene Roy (Advisor: Bruce Klein)

Roy, R. M., & Klein, B. S. (2012). Dendritic cells in antifungal immunity and vaccine design. *Cell Host Microbe*, 11(5), 436-446. doi:10.1016/j.chom.2012.04.005

Roy, R. M., Wuthrich, M., & Klein, B. S. (2012). Chitin elicits CCL2 from airway epithelial cells and induces CCR2-dependent innate allergic inflammation in the lung. *J Immunol*, 189(5), 2545-2552. doi:10.4049/jimmunol.1200689

Roy, R. M., & Klein, B. S. (2013). Fungal glycan interactions with epithelial cells in allergic airway disease. *Curr Opin Microbiol*, 16(4), 404-408. doi:10.1016/j.mib.2013.03.004

Roy, R. M., Paes, H. C., Nanjappa, S. G., Sorkness, R., Gasper, D., Sterkel, A., . . . Klein, B. S. (2013). Complement component 3C3 and C3a receptor are required in chitin-dependent allergic sensitization to *Aspergillus fumigatus* but dispensable in chitin-induced innate allergic inflammation. *MBio*, 4(2). doi:10.1128/mBio.00162-13

Brandhorst, T. T., **Roy, R.**, Wuthrich, M., Nanjappa, S., Filutowicz, H., Galles, K., . . . Klein, B. (2013). Structure and function of a fungal adhesin that binds heparin and mimics thrombospondin-1 by blocking T cell activation and effector function. *PLoS Pathog*, 9(7), e1003464. doi:10.1371/journal.ppat.1003464

Brian Teague (Advisor: David Schwartz)

Kidd, J. M., Cooper, G. M., Donahue, W. F., Hayden, H. S., Sampas, N., Graves, T., Hansen, N., **Teague, B.**, . . . Eichler, E. E. (2008). Mapping and sequencing of structural variation from eight human genomes. *Nature*, 453(7191), 56-64. doi:10.1038/nature06862

Church, D. M., Goodstadt, L., Hillier, L. W., Zody, M. C., Goldstein, S., She, X., **Teague, B.**, . . . Ponting, C. P. (2009). Lineage-specific biology revealed by a finished genome assembly of the mouse. *PLoS Biol*, 7(5), e1000112. doi:10.1371/journal.pbio.1000112

Antonacci, F., Kidd, J. M., Marques-Bonet, T., **Teague, B.**, Ventura, M., Girirajan, S., . . . Eichler, E. E. (2010). A large and complex structural polymorphism at 16p12.1 underlies microdeletion disease risk. *Nat Genet*, 42(9), 745-750. doi:10.1038/ng.643

Teague, B., Waterman, M. S., Goldstein, S., Potamouisis, K., Zhou, S., Reslewic, S., . . . Schwartz, D. C. (2010). High-resolution human genome structure by single-molecule analysis. *Proc Natl Acad Sci U S A*, 107(24), 10848-10853. doi:10.1073/pnas.0914638107

Rebecca Uelmen (Johnson) (Advisor: Gail Robertson)

Sridhar, A., Nishijima, Y., Terentyev, D., Terentyeva, R., **Uelmen, R.**, Kukielka, M., . . . Carnes, C. A. (2008). Repolarization abnormalities and afterdepolarizations in a canine model of sudden cardiac death. *Am J Physiol Regul Integr Comp Physiol*, 295(5), R1463-1472. doi:10.1152/ajpregu.90583.2008

Jones, D. K., Johnson, A. C., Roti Roti, E. C., Liu, F., **Uelmen, R.**, Ayers, R. A., . . . Robertson, G. A. (2018). Localization and functional consequences of a direct interaction between TRIOBP-1 and hERG proteins in the heart. *J Cell Sci*, 131(6). doi:10.1242/jcs.206730

Zhao Wang (Advisor: Edwin Chapman)

Gaffaney, J. D., Dunning, F. M., **Wang, Z.**, Hui, E., & Chapman, E. R. (2008). Synaptotagmin C2B domain regulates Ca²⁺-triggered fusion in vitro: critical residues revealed by scanning alanine mutagenesis. *J Biol Chem*, *283*(46), 31763-31775. doi:10.1074/jbc.M803355200

Wang, Z., & Chapman, E. R. (2010). Rat and Drosophila synaptotagmin 4 have opposite effects during SNARE-catalyzed membrane fusion. *J Biol Chem*, *285*(40), 30759-30766. doi:10.1074/jbc.M110.137745

Hui, E., Gaffaney, J. D., **Wang, Z.**, Johnson, C. P., Evans, C. S., & Chapman, E. R. (2011). Mechanism and function of synaptotagmin-mediated membrane apposition. *Nat Struct Mol Biol*, *18*(7), 813-821. doi:10.1038/nsmb.2075

Paddock, B. E., **Wang, Z.**, Biela, L. M., Chen, K., Getzy, M. D., Striegel, A., . . . Reist, N. E. (2011). Membrane penetration by synaptotagmin is required for coupling calcium binding to vesicle fusion in vivo. *J Neurosci*, *31*(6), 2248-2257. doi:10.1523/jneurosci.3153-09.2011

Wang, Z., Liu, H., Gu, Y., & Chapman, E. R. (2011). Reconstituted synaptotagmin I mediates vesicle docking, priming, and fusion. *J Cell Biol*, *195*(7), 1159-1170. doi:10.1083/jcb.201104079

Zhang, Z., Wu, Y., **Wang, Z.**, Dunning, F. M., Rehfuss, J., Ramanan, D., . . . Jackson, M. B. (2011). Release mode of large and small dense-core vesicles specified by different synaptotagmin isoforms in PC12 cells. *Mol Biol Cell*, *22*(13), 2324-2336. doi:10.1091/mbc.E11-02-0159

Striegel, A. R., Biela, L. M., Evans, C. S., **Wang, Z.**, Delehoy, J. B., Sutton, R. B., . . . Reist, N. E. (2012). Calcium binding by synaptotagmin's C2A domain is an essential element of the electrostatic switch that triggers synchronous synaptic transmission. *J Neurosci*, *32*(4), 1253-1260. doi:10.1523/jneurosci.4652-11.2012

Sa Kan Yoo (Advisor: Anna Huttenlocher)

Mathias, J. R., Dodd, M. E., Walters, K. B., **Yoo, S. K.**, Ranheim, E. A., & Huttenlocher, A. (2009). Characterization of zebrafish larval inflammatory macrophages. *Dev Comp Immunol*, *33*(11), 1212-1217. doi:10.1016/j.dci.2009.07.003

Yoo, S. K., & Huttenlocher, A. (2009). Innate immunity: wounds burst H₂O₂ signals to leukocytes. *Curr Biol*, *19*(14), R553-555. doi:10.1016/j.cub.2009.06.025

Walters, K. B., Green, J. M., Surfus, J. C., **Yoo, S. K.**, & Huttenlocher, A. (2010). Live imaging of neutrophil motility in a zebrafish model of WHIM syndrome. *Blood*, *116*(15), 2803-2811. doi:10.1182/blood-2010-03-276972

Yoo, S. K., Deng, Q., Cavnar, P. J., Wu, Y. I., Hahn, K. M., & Huttenlocher, A. (2010). Differential regulation of protrusion and polarity by PI3K during neutrophil motility in live zebrafish. *Dev Cell*, *18*(2), 226-236. doi:10.1016/j.devcel.2009.11.015

Deng, Q., **Yoo, S. K.**, Cavnar, P. J., Green, J. M., & Huttenlocher, A. (2011). Dual roles for Rac2 in neutrophil motility and active retention in zebrafish hematopoietic tissue. *Dev Cell*, *21*(4), 735-745. doi:10.1016/j.devcel.2011.07.013

Yoo, S. K., & Huttenlocher, A. (2011). Spatiotemporal photolabeling of neutrophil trafficking during inflammation in live zebrafish. *J Leukoc Biol*, *89*(5), 661-667. doi:10.1189/jlb.1010567

Yoo, S. K., Starnes, T. W., Deng, Q., & Huttenlocher, A. (2011). Lyn is a redox sensor that mediates leukocyte wound attraction in vivo. *Nature*, *480*(7375), 109-112. doi:10.1038/nature10632

Lam, P. Y., **Yoo, S. K.**, Green, J. M., & Huttenlocher, A. (2012). The SH2-domain-containing inositol 5-phosphatase (SHIP) limits the motility of neutrophils and their recruitment to wounds in zebrafish. *J Cell Sci*, *125*(Pt 21), 4973-4978. doi:10.1242/jcs.106625

Yoo, S. K., Freisinger, C. M., LeBert, D. C., & Huttenlocher, A. (2012). Early redox, Src family kinase, and calcium signaling integrate wound responses and tissue regeneration in zebrafish. *J Cell Biol*, *199*(2), 225-234. doi:10.1083/jcb.201203154

Yoo, S. K., Lam, P. Y., Eichelberg, M. R., Zasadil, L., Bement, W. M., & Huttenlocher, A. (2012). The role of microtubules in neutrophil polarity and migration in live zebrafish. *J Cell Sci*, *125*(Pt 23), 5702-5710. doi:10.1242/jcs.108324

Hai Zhang (Advisor: Dongsheng Cai)

Zhang, X., Zhang, G., **Zhang, H.**, Karin, M., Bai, H., & Cai, D. (2008). Hypothalamic IKKbeta/NF-kappaB and ER stress link overnutrition to energy imbalance and obesity. *Cell*, *135*(1), 61-73. doi:10.1016/j.cell.2008.07.043

Purkayastha, S., **Zhang, H.**, Zhang, G., Ahmed, Z., Wang, Y., & Cai, D. (2011). Neural dysregulation of peripheral insulin action and blood pressure by brain

endoplasmic reticulum stress. *Proc Natl Acad Sci U S A*, 108(7), 2939-2944.
doi:10.1073/pnas.1006875108

Zhang, G., Bai, H., **Zhang, H.**, Dean, C., Wu, Q., Li, J., . . . Cai, D. (2011). Neuropeptide exocytosis involving synaptotagmin-4 and oxytocin in hypothalamic programming of body weight and energy balance. *Neuron*, 69(3), 523-535.
doi:10.1016/j.neuron.2010.12.036

Zhang, H., Zhang, G., Gonzalez, F. J., Park, S. M., & Cai, D. (2011). Hypoxia-inducible factor directs POMC gene to mediate hypothalamic glucose sensing and energy balance regulation. *PLoS Biol*, 9(7), e1001112.
doi:10.1371/journal.pbio.1001112

He, Z., Zhang, S. S., Meng, Q., Li, S., Zhu, H. H., Raquil, M. A., **Zhang, H.**, . . . Feng, G. S. (2012). Shp2 controls female body weight and energy balance by integrating leptin and estrogen signals. *Mol Cell Biol*, 32(10), 1867-1878.
doi:10.1128/mcb.06712-11

Zhang, G., Li, J., Purkayastha, S., Tang, Y., **Zhang, H.**, Yin, Y., . . . Cai, D. (2013). Hypothalamic programming of systemic ageing involving IKK-beta, NF-kappaB and GnRH. *Nature*, 497(7448), 211-216. doi:10.1038/nature12143

Zhang, H., Wu, C., Chen, Q., Chen, X., Xu, Z., Wu, J., & Cai, D. (2013). Treatment of obesity and diabetes using oxytocin or analogs in patients and mouse models. *PLoS One*, 8(5), e61477. doi:10.1371/journal.pone.0061477

Yan, J., **Zhang, H.**, Yin, Y., Li, J., Tang, Y., Purkayastha, S., . . . Cai, D. (2014). Obesity- and aging-induced excess of central transforming growth factor-beta potentiates diabetic development via an RNA stress response. *Nat Med*, 20(9), 1001-1008. doi:10.1038/nm.3616

Zhang, H., Zhang, G., Gonzalez, F. J., Park, S. M., & Cai, D. (2016). Correction: Hypoxia-Inducible Factor Directs POMC Gene to Mediate Hypothalamic Glucose Sensing and Energy Balance Regulation. *PLoS Biol*, 14(3), e1002428.
doi:10.1371/journal.pbio.1002428

2011 Graduates

Karen Chinchilla (Advisor: Michael Culbertson)

Ursic, D., **Chinchilla, K.**, Finkel, J. S., & Culbertson, M. R. (2004). Multiple protein/protein and protein/RNA interactions suggest roles for yeast DNA/RNA helicase Sen1p in transcription, transcription-coupled DNA repair and RNA processing. *Nucleic Acids Res*, 32(8), 2441-2452. doi:10.1093/nar/gkh561

Finkel, J. S., **Chinchilla, K.**, Ursic, D., & Culbertson, M. R. (2010). Sen1p performs two genetically separable functions in transcription and processing of U5 small nuclear RNA in *Saccharomyces cerevisiae*. *Genetics*, *184*(1), 107-118. doi:10.1534/genetics.109.110031

Kuny, C. V., **Chinchilla, K.**, Culbertson, M. R., & Kalejta, R. F. (2010). Cyclin-dependent kinase-like function is shared by the beta- and gamma- subset of the conserved herpesvirus protein kinases. *PLoS Pathog*, *6*(9), e1001092. doi:10.1371/journal.ppat.1001092

Chinchilla, K., Rodriguez-Molina, J. B., Ursic, D., Finkel, J. S., Ansari, A. Z., & Culbertson, M. R. (2012). Interactions of Sen1, Nrd1, and Nab3 with multiple phosphorylated forms of the Rpb1 C-terminal domain in *Saccharomyces cerevisiae*. *Eukaryot Cell*, *11*(4), 417-429. doi:10.1128/ec.05320-11

Amy Cooke (Advisor: Marvin Wickens)

Cooke, A., Prigge, A., & Wickens, M. (2010). Translational repression by deadenylases. *J Biol Chem*, *285*(37), 28506-28513. doi:10.1074/jbc.M110.150763

Cooke, A., Prigge, A., Opperman, L., & Wickens, M. (2011). Targeted translational regulation using the PUF protein family scaffold. *Proc Natl Acad Sci U S A*, *108*(38), 15870-15875. doi:10.1073/pnas.1105151108

Friend, K., Campbell, Z. T., **Cooke, A.**, Kroll-Conner, P., Wickens, M. P., & Kimble, J. (2012). A conserved PUF-Ago-eEF1A complex attenuates translation elongation. *Nat Struct Mol Biol*, *19*(2), 176-183. doi:10.1038/nsmb.2214

Zhang, Y., **Cooke, A.**, Park, S., Dewey, C. N., Wickens, M., & Sheets, M. D. (2013). Bicaudal-C spatially controls translation of vertebrate maternal mRNAs. *Rna*, *19*(11), 1575-1582. doi:10.1261/rna.041665.113

Laura Helft (Advisor: Andrew Bent)

Dunning, F. M., Sun, W., Jansen, K. L., **Helft, L.**, & Bent, A. F. (2007). Identification and mutational analysis of Arabidopsis FLS2 leucine-rich repeat domain residues that contribute to flagellin perception. *Plant Cell*, *19*(10), 3297-3313. doi:10.1105/tpc.106.048801

Helft, L., Reddy, V., Chen, X., Koller, T., Federici, L., Fernandez-Recio, J., . . . Bent, A. (2011). LRR conservation mapping to predict functional sites within protein leucine-rich repeat domains. *PLoS One*, *6*(7), e21614. doi:10.1371/journal.pone.0021614

Helft, L., Thompson, M., & Bent, A. F. (2016). Directed Evolution of FLS2 towards Novel Flagellin Peptide Recognition. *PLoS One*, *11*(6), e0157155. doi:10.1371/journal.pone.0157155

Dana Huebert Lima (Advisor: Audrey Gasch)

Kuan, P. F., **Huebert, D.**, Gasch, A., & Keles, S. (2009). A non-homogeneous hidden-state model on first order differences for automatic detection of nucleosome positions. *Stat Appl Genet Mol Biol*, *8*, Article29. doi:10.2202/1544-6115.1454

Alejandro-Osorio, A. L., **Huebert, D. J.**, Porcaro, D. T., Sonntag, M. E., Nillasithanukroh, S., Will, J. L., & Gasch, A. P. (2009). The histone deacetylase Rpd3p is required for transient changes in genomic expression in response to stress. *Genome Biol*, *10*(5), R57. doi:10.1186/gb-2009-10-5-r57

Huebert, D. J., & Gasch, A. P. (2012). Defining flexible vs. inherent promoter architectures: the importance of dynamics and environmental considerations. *Nucleus*, *3*(5), 399-403. doi:10.4161/nucl.21172

Huebert, D. J., Kuan, P. F., Keles, S., & Gasch, A. P. (2012). Dynamic changes in nucleosome occupancy are not predictive of gene expression dynamics but are linked to transcription and chromatin regulators. *Mol Cell Biol*, *32*(9), 1645-1653. doi:10.1128/mcb.06170-11

John (Johan) Jeong (Advisor: Judith Kimble)

Jeong, J., Verheyden, J. M., & Kimble, J. (2011). Cyclin E and Cdk2 control GLD-1, the mitosis/meiosis decision, and germline stem cells in *Caenorhabditis elegans*. *PLoS Genet*, *7*(3), e1001348. doi:10.1371/journal.pgen.1001348

Erin Jones (Advisor: John Svaren)

Jones, E. A., Jang, S. W., Mager, G. M., Chang, L. W., Srinivasan, R., Gokey, N. G., . . . Svaren, J. (2007). Interactions of Sox10 and Egr2 in myelin gene regulation. *Neuron Glia Biol*, *3*(4), 377-387. doi:10.1017/s1740925x08000173

Jang, S. W., Srinivasan, R., **Jones, E. A.**, Sun, G., Keles, S., Krueger, C., . . . Svaren, J. (2010). Locus-wide identification of Egr2/Krox20 regulatory targets in myelin genes. *J Neurochem*, *115*(6), 1409-1420. doi:10.1111/j.1471-4159.2010.07045.x

Jagalur, N. B., Ghazvini, M., Mandemakers, W., Driegen, S., Maas, A., **Jones, E. A.**, . . . Meijer, D. (2011). Functional dissection of the Oct6 Schwann cell enhancer reveals an essential role for dimeric Sox10 binding. *J Neurosci*, *31*(23), 8585-8594. doi:10.1523/jneurosci.0659-11.2011

Jones, E. A., Lopez-Anido, C., Srinivasan, R., Krueger, C., Chang, L. W., Nagarajan, R., & Svaren, J. (2011). Regulation of the PMP22 gene through an intronic enhancer. *J Neurosci*, *31*(11), 4242-4250. doi:10.1523/jneurosci.5893-10.2011

Prasad, M. K., Reed, X., Gorkin, D. U., Cronin, J. C., McAdow, A. R., Chain, K., **Jones, E. A.** . . . McCallion, A. S. (2011). SOX10 directly modulates ERBB3 transcription via an intronic neural crest enhancer. *BMC Dev Biol*, *11*, 40. doi:10.1186/1471-213x-11-40

Hodonsky, C. J., Kleinbrink, E. L., Charney, K. N., Prasad, M., Bessling, S. L., **Jones, E. A.**, . . . Antonellis, A. (2012). SOX10 regulates expression of the SH3-domain kinase binding protein 1 (Sh3kbp1) locus in Schwann cells via an alternative promoter. *Mol Cell Neurosci*, *49*(2), 85-96. doi:10.1016/j.mcn.2011.10.004

Jones, E. A., Brewer, M. H., Srinivasan, R., Krueger, C., Sun, G., Charney, K. N., . . . Svaren, J. (2012). Distal enhancers upstream of the Charcot-Marie-Tooth type 1A disease gene PMP22. *Hum Mol Genet*, *21*(7), 1581-1591. doi:10.1093/hmg/ddr595

Srinivasan, R., Sun, G., Keles, S., **Jones, E. A.**, Jang, S. W., Krueger, C., . . . Svaren, J. (2012). Genome-wide analysis of EGR2/SOX10 binding in myelinating peripheral nerve. *Nucleic Acids Res*, *40*(14), 6449-6460. doi:10.1093/nar/gks313

Aaron Kershner (Advisor: Judith Kimble)

Lee, M. H., Hook, B., Pan, G., **Kershner, A. M.**, Merritt, C., Seydoux, G., . . . Kimble, J. (2007). Conserved regulation of MAP kinase expression by PUF RNA-binding proteins. *PLoS Genet*, *3*(12), e233. doi:10.1371/journal.pgen.0030233

Kershner, A. M., & Kimble, J. (2010). Genome-wide analysis of mRNA targets for *Caenorhabditis elegans* FBF, a conserved stem cell regulator. *Proc Natl Acad Sci U S A*, *107*(8), 3936-3941. doi:10.1073/pnas.1000495107

Hinde, E., Cardarelli, F., Digman, M. A., **Kershner, A.**, Kimble, J., & Gratton, E. (2011). The impact of mitotic versus interphase chromatin architecture on the molecular flow of EGFP by pair correlation analysis. *Biophys J*, *100*(7), 1829-1836. doi:10.1016/j.bpj.2011.02.024

Buckley, B. A., Burkhart, K. B., Gu, S. G., Spracklin, G., **Kershner, A.**, Fritz, H., . . . Kennedy, S. (2012). A nuclear Argonaute promotes multigenerational epigenetic inheritance and germline immortality. *Nature*, *489*(7416), 447-451. doi:10.1038/nature11352

Qiu, C., **Kershner, A.**, Wang, Y., Holley, C. P., Wilinski, D., Keles, S., . . . Hall, T. M. (2012). Divergence of Pumilio/fem-3 mRNA binding factor (PUF) protein specificity through variations in an RNA-binding pocket. *J Biol Chem*, *287*(9), 6949-6957. doi:10.1074/jbc.M111.326264

Kershner, A., Crittenden, S. L., Friend, K., Sorensen, E. B., Porter, D. F., & Kimble, J. (2013). Germline stem cells and their regulation in the nematode *Caenorhabditis elegans*. *Adv Exp Med Biol*, *786*, 29-46. doi:10.1007/978-94-007-6621-1_3

Kershner, A. M., Shin, H., Hansen, T. J., & Kimble, J. (2014). Discovery of two GLP-1/Notch target genes that account for the role of GLP-1/Notch signaling in stem cell maintenance. *Proc Natl Acad Sci U S A*, *111*(10), 3739-3744. doi:10.1073/pnas.1401861111

Jacqueline LeGendre (Baca) (Advisor: Marvin Wickens)

LeGendre, J. B., Campbell, Z. T., Kroll-Conner, P., Anderson, P., Kimble, J., & Wickens, M. (2013). RNA targets and specificity of Staufén, a double-stranded RNA-binding protein in *Caenorhabditis elegans*. *J Biol Chem*, *288*(4), 2532-2545. doi:10.1074/jbc.M112.397349

Robin (Robyn) Lindeman (Advisor: Francisco Pelegri)

Lyman Gingerich, J., **Lindeman, R.**, Putiri, E., Stolzmann, K., & Pelegri, F. (2006). Analysis of axis induction mutant embryos reveals morphogenetic events associated with zebrafish yolk extension formation. *Dev Dyn*, *235*(10), 2749-2760. doi:10.1002/dvdy.20918

Yabe, T., Ge, X., **Lindeman, R.**, Nair, S., Runke, G., Mullins, M. C., & Pelegri, F. (2009). The maternal-effect gene cellular island encodes aurora B kinase and is essential for furrow formation in the early zebrafish embryo. *PLoS Genet*, *5*(6), e1000518. doi:10.1371/journal.pgen.1000518

Lindeman, R. E., & Pelegri, F. (2010). Vertebrate maternal-effect genes: Insights into fertilization, early cleavage divisions, and germ cell determinant localization from studies in the zebrafish. *Mol Reprod Dev*, *77*(4), 299-313. doi:10.1002/mrd.21128

Lindeman, R. E., & Pelegri, F. (2012). Localized products of futile cycle/lrmp promote centrosome-nucleus attachment in the zebrafish zygote. *Curr Biol*, *22*(10), 843-851. doi:10.1016/j.cub.2012.03.058

Nair, S., **Lindeman, R. E.**, & Pelegri, F. (2013). In vitro oocyte culture-based manipulation of zebrafish maternal genes. *Dev Dyn*, *242*(1), 44-52. doi:10.1002/dvdy.23894

Colleen McMichael (Advisor: Sebastian Bednarek)

Backues, S. K., Konopka, C. A., **McMichael, C. M.**, & Bednarek, S. Y. (2007). Bridging the divide between cytokinesis and cell expansion. *Curr Opin Plant Biol*, 10(6), 607-615. doi:10.1016/j.pbi.2007.08.009

Korasick, D. A., **McMichael, C.**, Walker, K. A., Anderson, J. C., Bednarek, S. Y., & Heese, A. (2010). Novel functions of Stomatal Cytokinesis-Defective 1 (SCD1) in innate immune responses against bacteria. *J Biol Chem*, 285(30), 23342-23350. doi:10.1074/jbc.M109.090787

Donohoe, B. S., Kang, B. H., Gerl, M. J., Gergely, Z. R., **McMichael, C. M.**, Bednarek, S. Y., & Staehelin, L. A. (2013). Cis-Golgi cisternal assembly and biosynthetic activation occur sequentially in plants and algae. *Traffic*, 14(5), 551-567. doi:10.1111/tra.12052

McMichael, C. M., & Bednarek, S. Y. (2013). Cytoskeletal and membrane dynamics during higher plant cytokinesis. *New Phytol*, 197(4), 1039-1057. doi:10.1111/nph.12122

McMichael, C. M., Reynolds, G. D., Koch, L. M., Wang, C., Jiang, N., Nadeau, J., . . . Bednarek, S. Y. (2013). Mediation of clathrin-dependent trafficking during cytokinesis and cell expansion by Arabidopsis stomatal cytokinesis defective proteins. *Plant Cell*, 25(10), 3910-3925. doi:10.1105/tpc.113.115162

Dylan Morgan (Vogel) (Advisor: Judith Kimble)

Chesney, M. A., Lam, N., **Morgan, D. E.**, Phillips, B. T., & Kimble, J. (2009). C. elegans HLH-2/E/Daughterless controls key regulatory cells during gonadogenesis. *Dev Biol*, 331(1), 14-25. doi:10.1016/j.ydbio.2009.04.015

Cinquin, O., Crittenden, S. L., **Morgan, D. E.**, & Kimble, J. (2010). Progression from a stem cell-like state to early differentiation in the C. elegans germ line. *Proc Natl Acad Sci U S A*, 107(5), 2048-2053. doi:10.1073/pnas.0912704107

Morgan, D. E., Crittenden, S. L., & Kimble, J. (2010). The C. elegans adult male germline: stem cells and sexual dimorphism. *Dev Biol*, 346(2), 204-214. doi:10.1016/j.ydbio.2010.07.022

Lee, M. H., Kim, K. W., Morgan, C. T., **Morgan, D. E.**, & Kimble, J. (2011). Phosphorylation state of a Tob/BTG protein, FOG-3, regulates initiation and maintenance of the Caenorhabditis elegans sperm fate program. *Proc Natl Acad Sci U S A*, 108(22), 9125-9130. doi:10.1073/pnas.1106027108

Natalia Morsci (Advisor: Maureen Barr)

Morsci, N. S., & Barr, M. M. (2011). Kinesin-3 KLP-6 regulates intraflagellar transport in male-specific cilia of *Caenorhabditis elegans*. *Curr Biol*, *21*(14), 1239-1244. doi:10.1016/j.cub.2011.06.027

Morsci, N. S., Haas, L. A., & Barr, M. M. (2011). Sperm status regulates sexual attraction in *Caenorhabditis elegans*. *Genetics*, *189*(4), 1341-1346. doi:10.1534/genetics.111.133603

Wang, J., Silva, M., Haas, L. A., **Morsci, N. S.,** Nguyen, K. C., Hall, D. H., & Barr, M. M. (2014). *C. elegans* ciliated sensory neurons release extracellular vesicles that function in animal communication. *Curr Biol*, *24*(5), 519-525. doi:10.1016/j.cub.2014.01.002

Silva, M., **Morsci, N.,** Nguyen, K. C. Q., Rizvi, A., Rongo, C., Hall, D. H., & Barr, M. M. (2017). Cell-Specific alpha-Tubulin Isoform Regulates Ciliary Microtubule Ultrastructure, Intraflagellar Transport, and Extracellular Vesicle Biology. *Curr Biol*, *27*(7), 968-980. doi:10.1016/j.cub.2017.02.039

Akella, J. S., Silva, M., **Morsci, N. S.,** Nguyen, K. C., Rice, W. J., Hall, D. H., & Barr, M. M. (2019). Cell type-specific structural plasticity of the ciliary transition zone in *C. elegans*. *Biol Cell*. doi:10.1111/boc.201800042

Philip Mudd (Advisor: David Watkins)

Mudd, P. A., Piaskowski, S. M., Neves, P. C., Rudersdorf, R., Kolar, H. L., Eernisse, C. M., . . . Watkins, D. I. (2010). The live-attenuated yellow fever vaccine 17D induces broad and potent T cell responses against several viral proteins in Indian rhesus macaques--implications for recombinant vaccine design. *Immunogenetics*, *62*(9), 593-600. doi:10.1007/s00251-010-0461-0

Neves, P. C., Rudersdorf, R. A., Galler, R., Bonaldo, M. C., de Santana, M. G., **Mudd, P. A.,** . . . Watkins, D. I. (2010). CD8+ gamma-delta TCR+ and CD4+ T cells produce IFN-gamma at 5-7 days after yellow fever vaccination in Indian rhesus macaques, before the induction of classical antigen-specific T cell responses. *Vaccine*, *28*(51), 8183-8188. doi:10.1016/j.vaccine.2010.09.090

Mudd, P. A., Ericson, A. J., Price, A. A., Wilson, N. A., Reimann, K. A., & Watkins, D. I. (2011). Reduction of CD4+ T cells in vivo does not affect virus load in macaque elite controllers. *J Virol*, *85*(14), 7454-7459. doi:10.1128/jvi.00738-11

Mudd, P. A., Ericson, A. J., Walsh, A. D., Leon, E. J., Wilson, N. A., Maness, N. J., . . . Watkins, D. I. (2011). CD8+ T cell escape mutations in simian immunodeficiency virus SIVmac239 cause fitness defects in vivo, and many revert after transmission. *J Virol*, *85*(23), 12804-12810. doi:10.1128/jvi.05841-11

Mudd, P. A., Ericson, A. J., Walsh, A. D., Leon, E. J., Wilson, N. A., Maness, N. J., . . . Watkins, D. I. (2011). CD8+ T cell escape mutations in simian immunodeficiency virus SIVmac239 cause fitness defects in vivo, and many revert after transmission. *J Virol*, *85*(23), 12804-12810. doi:10.1128/jvi.05841-11

Mudd, P. A., & Watkins, D. I. (2011). Understanding animal models of elite control: windows on effective immune responses against immunodeficiency viruses. *Curr Opin HIV AIDS*, *6*(3), 197-201. doi:10.1097/COH.0b013e3283453e16

Mudd, P. A., Ericson, A. J., Burwitz, B. J., Wilson, N. A., O'Connor, D. H., Hughes, A. L., & Watkins, D. I. (2012). Escape from CD8(+) T cell responses in Mamu-B*00801(+) macaques differentiates progressors from elite controllers. *J Immunol*, *188*(7), 3364-3370. doi:10.4049/jimmunol.1102470

Mudd, P. A., Martins, M. A., Ericson, A. J., Tully, D. C., Power, K. A., Bean, A. T., . . . Watkins, D. I. (2012). Vaccine-induced CD8+ T cells control AIDS virus replication. *Nature*, *491*(7422), 129-133. doi:10.1038/nature11443

Amanda Panfil (Robinson) (Advisor: Shannon Kenney)

Raver, R. M., **Panfil, A. R.,** Hagemeyer, S. R., & Kenney, S. C. (2013). The B-cell-specific transcription factor and master regulator Pax5 promotes Epstein-Barr virus latency by negatively regulating the viral immediate early protein BZLF1. *J Virol*, *87*(14), 8053-8063. doi:10.1128/jvi.00546-13

Wille, C. K., Nawandar, D. M., **Panfil, A. R.,** Ko, M. M., Hagemeyer, S. R., & Kenney, S. C. (2013). Viral genome methylation differentially affects the ability of BZLF1 versus BRLF1 to activate Epstein-Barr virus lytic gene expression and viral replication. *J Virol*, *87*(2), 935-950. doi:10.1128/jvi.01790-12

Rhiannon Penkert (Advisor: Robert Kalejta)

Penkert, R. R., & Kalejta, R. F. (2010). Nuclear localization of tegument-delivered pp71 in human cytomegalovirus-infected cells is facilitated by one or more factors present in terminally differentiated fibroblasts. *J Virol*, *84*(19), 9853-9863. doi:10.1128/jvi.00500-10

Saffert, R. T., **Penkert, R. R.,** & Kalejta, R. F. (2010). Cellular and viral control over the initial events of human cytomegalovirus experimental latency in CD34+ cells. *J Virol*, *84*(11), 5594-5604. doi:10.1128/jvi.00348-10

Penkert, R. R., & Kalejta, R. F. (2011). Tegument protein control of latent herpesvirus establishment and animation. *Herpesviridae*, *2*(1), 3. doi:10.1186/2042-4280-2-3

Penkert, R. R., & Kalejta, R. F. (2012). Tale of a tegument transactivator: the past, present and future of human CMV pp71. *Future Virol*, 7(9), 855-869. doi:10.2217/fvl.12.86

Penkert, R. R., & Kalejta, R. F. (2013). Human embryonic stem cell lines model experimental human cytomegalovirus latency. *MBio*, 4(3), e00298-00213. doi:10.1128/mBio.00298-13

Qin, Q., **Penkert, R. R.**, & Kalejta, R. F. (2013). Heterologous viral promoters incorporated into the human cytomegalovirus genome are silenced during experimental latency. *J Virol*, 87(17), 9886-9894. doi:10.1128/jvi.01726-13

Erik Petersen (Advisor: Gary Splitter)

Rajashekara, G., Eskra, L., Mathison, A., **Petersen, E.**, Yu, Q., Harms, J., & Splitter, G. (2006). Brucella: functional genomics and host-pathogen interactions. *Anim Health Res Rev*, 7(1-2), 1-11. doi:10.1017/s146625230700117x

Rajashekara, G., Covert, J., **Petersen, E.**, Eskra, L., & Splitter, G. (2008). Genomic island 2 of Brucella melitensis is a major virulence determinant: functional analyses of genomic islands. *J Bacteriol*, 190(18), 6243-6252. doi:10.1128/jb.00520-08

Rambow-Larsen, A. A., Rajashekara, G., **Petersen, E.**, & Splitter, G. (2008). Putative quorum-sensing regulator BlxR of Brucella melitensis regulates virulence factors including the type IV secretion system and flagella. *J Bacteriol*, 190(9), 3274-3282. doi:10.1128/jb.01915-07

Rambow-Larsen, A. A., **Petersen, E. M.**, Gourley, C. R., & Splitter, G. A. (2009). Brucella regulators: self-control in a hostile environment. *Trends Microbiol*, 17(8), 371-377. doi:10.1016/j.tim.2009.05.006

Petersen, E., Chaudhuri, P., Gourley, C., Harms, J., & Splitter, G. (2011). Brucella melitensis cyclic di-GMP phosphodiesterase BpdA controls expression of flagellar genes. *J Bacteriol*, 193(20), 5683-5691. doi:10.1128/jb.00428-11

Petersen, E., Rajashekara, G., Sanakkayala, N., Eskra, L., Harms, J., & Splitter, G. (2013). Erythritol triggers expression of virulence traits in Brucella melitensis. *Microbes Infect*, 15(6-7), 440-449. doi:10.1016/j.micinf.2013.02.002

Gourley, C. R., **Petersen, E.**, Harms, J., & Splitter, G. (2015). Decreased in vivo virulence and altered gene expression by a Brucella melitensis light-sensing histidine kinase mutant. *Pathog Dis*, 73(2), 1-8. doi:10.1111/2049-632x.12209

Josh Snow (Advisor: Judith Kimble)

Snow, J. J., Lee, M. H., Verheyden, J., Kroll-Conner, P. L., & Kimble, J. (2013). *C. elegans* FOG-3/Tob can either promote or inhibit germline proliferation, depending on gene dosage and genetic context. *Oncogene*, *32*(21), 2614-2621. doi:10.1038/onc.2012.291

Sarah Wernimont (Advisor: Anna Huttenlocher)

Wang, X., Chen, X., Rodenkirch, L., Simonson, W., **Wernimont, S.**, Ndonge, R. M., . . . Gumperz, J. E. (2008). Natural killer T-cell autoreactivity leads to a specialized activation state. *Blood*, *112*(10), 4128-4138. doi:10.1182/blood-2008-05-157529

Wernimont, S. A., Cortesio, C. L., Simonson, W. T., & Huttenlocher, A. (2008). Adhesions ring: a structural comparison between podosomes and the immune synapse. *Eur J Cell Biol*, *87*(8-9), 507-515. doi:10.1016/j.ejcb.2008.01.011

Schartner, J. M., Simonson, W. T., **Wernimont, S. A.**, Nettenstrom, L. M., Huttenlocher, A., & Seroogy, C. M. (2009). Gene related to anergy in lymphocytes (GRAIL) expression in CD4+ T cells impairs actin cytoskeletal organization during T cell/antigen-presenting cell interactions. *J Biol Chem*, *284*(50), 34674-34681. doi:10.1074/jbc.M109.024497

Cortesio, C. L., **Wernimont, S. A.**, Kastner, D. L., Cooper, K. M., & Huttenlocher, A. (2010). Impaired podosome formation and invasive migration of macrophages from patients with a PSTPIP1 mutation and PAPA syndrome. *Arthritis Rheum*, *62*(8), 2556-2558. doi:10.1002/art.27521

Wernimont, S. A., Legate, K. R., Simonson, W. T., Fassler, R., & Huttenlocher, A. (2010). PIPKI gamma 90 negatively regulates LFA-1-mediated adhesion and activation in antigen-induced CD4+ T cells. *J Immunol*, *185*(8), 4714-4723. doi:10.4049/jimmunol.1001445

Wernimont, S. A., Simonson, W. T., Greer, P. A., Seroogy, C. M., & Huttenlocher, A. (2010). Calpain 4 is not necessary for LFA-1-mediated function in CD4+ T cells. *PLoS One*, *5*(5), e10513. doi:10.1371/journal.pone.0010513

Wiemer, A. J., Lokuta, M. A., Surfus, J. C., **Wernimont, S. A.**, & Huttenlocher, A. (2010). Calpain inhibition impairs TNF-alpha-mediated neutrophil adhesion, arrest and oxidative burst. *Mol Immunol*, *47*(4), 894-902. doi:10.1016/j.molimm.2009.10.002

Wernimont, S. A., Wiemer, A. J., Bennin, D. A., Monkley, S. J., Ludwig, T., Critchley, D. R., & Huttenlocher, A. (2011). Contact-dependent T cell activation and T cell stopping require talin1. *J Immunol*, *187*(12), 6256-6267. doi:10.4049/jimmunol.1102028

Sackmann, E. K., Berthier, E., Young, E. W., Shelef, M. A., **Wernimont, S. A.**, Huttenlocher, A., & Beebe, D. J. (2012). Microfluidic kit-on-a-lid: a versatile platform for neutrophil chemotaxis assays. *Blood*, *120*(14), e45-53. doi:10.1182/blood-2012-03-416453

Wiemer, A. J., **Wernimont, S.**, & Huttenlocher, A. (2012). Live imaging of LFA-1-dependent T-cell motility and stop signals. *Methods Mol Biol*, *757*, 191-204. doi:10.1007/978-1-61779-166-6_13

Mathis, L., **Wernimont, S.**, Affentranger, S., Huttenlocher, A., & Niggli, V. (2013). Determinants of phosphatidylinositol-4-phosphate 5-kinase type Igamma90 uropod location in T-lymphocytes and its role in uropod formation. *PeerJ*, *1*, e131. doi:10.7717/peerj.131

Wiemer, A. J., **Wernimont, S. A.**, Cung, T. D., Bennin, D. A., Beggs, H. E., & Huttenlocher, A. (2013). The focal adhesion kinase inhibitor PF-562,271 impairs primary CD4+ T cell activation. *Biochem Pharmacol*, *86*(6), 770-781. doi:10.1016/j.bcp.2013.07.024

Amanda Wollenberg (Johnson) (Advisor: Richard Amasino)

Wollenberg, A. C., Strasser, B., Cerdan, P. D., & Amasino, R. M. (2008). Acceleration of flowering during shade avoidance in Arabidopsis alters the balance between FLOWERING LOCUS C-mediated repression and photoperiodic induction of flowering. *Plant Physiol*, *148*(3), 1681-1694. doi:10.1104/pp.108.125468

Wollenberg, A. C., & Amasino, R. M. (2012). Natural variation in the temperature range permissive for vernalization in accessions of Arabidopsis thaliana. *Plant Cell Environ*, *35*(12), 2181-2191. doi:10.1111/j.1365-3040.2012.02548.x

Cheng-Hsien Wu (Advisor: Lloyd Smith)

Wu, C. H., Chen, S., Shortreed, M. R., Kreitinger, G. M., Yuan, Y., Frey, B. L., . . . Smith, L. M. (2011). Sequence-specific capture of protein-DNA complexes for mass spectrometric protein identification. *PLoS One*, *6*(10), e26217. doi:10.1371/journal.pone.0026217

Wu, C. H., Lockett, M. R., & Smith, L. M. (2012). RNA-mediated gene assembly from DNA arrays. *Angew Chem Int Ed Engl*, *51*(19), 4628-4632. doi:10.1002/anie.201109058

Wu, C. H., Holden, M. T., & Smith, L. M. (2014). Enzymatic fabrication of high-density RNA arrays. *Angew Chem Int Ed Engl*, *53*(49), 13514-13517. doi:10.1002/anie.201408747

Holden, M. T., Carter, M. C., **Wu, C. H.**, Wolfer, J., Codner, E., Sussman, M. R., . . . Smith, L. M. (2015). Photolithographic Synthesis of High-Density DNA and RNA Arrays on Flexible, Transparent, and Easily Subdivided Plastic Substrates. *Anal Chem*, *87*(22), 11420-11428. doi:10.1021/acs.analchem.5b02893

Palmer (Pengzhi) Yu (Advisor: James Thomson)

Hawkins, R. D., Hon, G. C., Yang, C., Antosiewicz-Bourget, J. E., Lee, L. K., Ngo, Q. M., **Yu, P.**, . . . Ren, B. (2011). Dynamic chromatin states in human ES cells reveal potential regulatory sequences and genes involved in pluripotency. *Cell Res*, *21*(10), 1393-1409. doi:10.1038/cr.2011.146

Yu, P., Pan, G., Yu, J., & Thomson, J. A. (2011). FGF2 sustains NANOG and switches the outcome of BMP4-induced human embryonic stem cell differentiation. *Cell Stem Cell*, *8*(3), 326-334. doi:10.1016/j.stem.2011.01.001

Bailey, D. J., Rose, C. M., McAlister, G. C., Brumbaugh, J., **Yu, P.**, Wenger, C. D., . . . Coon, J. J. (2012). Instant spectral assignment for advanced decision tree-driven mass spectrometry. *Proc Natl Acad Sci U S A*, *109*(22), 8411-8416. doi:10.1073/pnas.1205292109

Brumbaugh, J., Hou, Z., Russell, J. D., Howden, S. E., **Yu, P.**, Ledvina, A. R., . . . Thomson, J. A. (2012). Phosphorylation regulates human OCT4. *Proc Natl Acad Sci U S A*, *109*(19), 7162-7168. doi:10.1073/pnas.1203874109

Chen, G., Gulbranson, D. R., **Yu, P.**, Hou, Z., & Thomson, J. A. (2012). Thermal stability of fibroblast growth factor protein is a determinant factor in regulating self-renewal, differentiation, and reprogramming in human pluripotent stem cells. *Stem Cells*, *30*(4), 623-630. doi:10.1002/stem.1021

Xie, W., Schultz, M. D., Lister, R., Hou, Z., Rajagopal, N., Ray, P., **Yu, P.**, . . . Ren, B. (2013). Epigenomic analysis of multilineage differentiation of human embryonic stem cells. *Cell*, *153*(5), 1134-1148. doi:10.1016/j.cell.2013.04.022

Brumbaugh, J., Russell, J. D., **Yu, P.**, Westphall, M. S., Coon, J. J., & Thomson, J. A. (2014). NANOG is multiply phosphorylated and directly modified by ERK2 and CDK1 in vitro. *Stem Cell Reports*, *2*(1), 18-25. doi:10.1016/j.stemcr.2013.12.005

Junrui Zhang (Advisor: Richard Vierstra)

Wagner, J. R., **Zhang, J.**, Brunzelle, J. S., Vierstra, R. D., & Forest, K. T. (2007). High resolution structure of Deinococcus bacteriophytochrome yields new insights into phytochrome architecture and evolution. *J Biol Chem*, *282*(16), 12298-12309. doi:10.1074/jbc.M611824200

Ulijasz, A. T., Cornilescu, G., von Stetten, D., Kaminski, S., Mroginski, M. A., **Zhang, J.**, . . . Vierstra, R. D. (2008). Characterization of two thermostable cyanobacterial phytochromes reveals global movements in the chromophore-binding domain during photoconversion. *J Biol Chem*, *283*(30), 21251-21266. doi:10.1074/jbc.M801592200

von Stetten, D., Gunther, M., Scheerer, P., Murgida, D. H., Mroginski, M. A., Krauss, N., **Zhang, J.**, . . . Hildebrandt, P. (2008). Chromophore heterogeneity and photoconversion in phytochrome crystals and solution studied by resonance Raman spectroscopy. *Angew Chem Int Ed Engl*, *47*(25), 4753-4755. doi:10.1002/anie.200705716

Wagner, J. R., **Zhang, J.**, von Stetten, D., Gunther, M., Murgida, D. H., Mroginski, M. A., . . . Vierstra, R. D. (2008). Mutational analysis of Deinococcus radiodurans bacteriophytochrome reveals key amino acids necessary for the photochromicity and proton exchange cycle of phytochromes. *J Biol Chem*, *283*(18), 12212-12226. doi:10.1074/jbc.M709355200

Ulijasz, A. T., Cornilescu, G., von Stetten, D., Cornilescu, C., Velazquez Escobar, F., **Zhang, J.**, . . . Vierstra, R. D. (2009). Cyanochromes are blue/green light photoreversible photoreceptors defined by a stable double cysteine linkage to a phycoviolobin-type chromophore. *J Biol Chem*, *284*(43), 29757-29772. doi:10.1074/jbc.M109.038513

Li, H., **Zhang, J.**, Vierstra, R. D., & Li, H. (2010). Quaternary organization of a phytochrome dimer as revealed by cryoelectron microscopy. *Proc Natl Acad Sci U S A*, *107*(24), 10872-10877. doi:10.1073/pnas.1001908107

Ulijasz, A. T., Cornilescu, G., Cornilescu, C. C., **Zhang, J.**, Rivera, M., Markley, J. L., & Vierstra, R. D. (2010). Structural basis for the photoconversion of a phytochrome to the activated Pfr form. *Nature*, *463*(7278), 250-254. doi:10.1038/nature08671

Vierstra, R. D., & **Zhang, J.** (2011). Phytochrome signaling: solving the Gordian knot with microbial relatives. *Trends Plant Sci*, *16*(8), 417-426. doi:10.1016/j.tplants.2011.05.011

Klionsky, D. J., Abdalla, F. C., Abeliovich, H., Abraham, R. T., Acevedo-Arozena, A., Adeli, K., **Zhang, J.**, . . . Zuckerbraun, B. (2012). Guidelines for the use and interpretation of assays for monitoring autophagy. *Autophagy*, 8(4), 445-544.

Zhang, J., Stankey, R. J., & Vierstra, R. D. (2013). Structure-guided engineering of plant phytochrome B with altered photochemistry and light signaling. *Plant Physiol*, 161(3), 1445-1457. doi:10.1104/pp.112.208892

2010 Graduates

Allen Bateman (Advisor: Christopher Olsen)

Bateman, A. C., Busch, M. G., Karasin, A. I., Bovin, N., & Olsen, C. W. (2008). Amino acid 226 in the hemagglutinin of H4N6 influenza virus determines binding affinity for alpha2,6-linked sialic acid and infectivity levels in primary swine and human respiratory epithelial cells. *J Virol*, 82(16), 8204-8209. doi:10.1128/jvi.00718-08

Busch, M. G., **Bateman, A. C.**, Landolt, G. A., Karasin, A. I., Brockman-Schneider, R. A., Gern, J. E., . . . Olsen, C. W. (2008). Identification of amino acids in the HA of H3 influenza viruses that determine infectivity levels in primary swine respiratory epithelial cells. *Virus Res*, 133(2), 269-279. doi:10.1016/j.virusres.2008.01.014

Bateman, A. C., Karamanska, R., Busch, M. G., Dell, A., Olsen, C. W., & Haslam, S. M. (2010). Glycan analysis and influenza A virus infection of primary swine respiratory epithelial cells: the importance of NeuAc{alpha}2-6 glycans. *J Biol Chem*, 285(44), 34016-34026. doi:10.1074/jbc.M110.115998

Bateman, A. C., Busch, M. G., Karasin, A. I., & Olsen, C. W. (2012). Infectivity phenotypes of H3N2 influenza A viruses in primary swine respiratory epithelial cells are controlled by sialic acid binding. *Influenza Other Respir Viruses*, 6(6), 424-433. doi:10.1111/j.1750-2659.2012.00333.x

Bateman, A. C., Karasin, A. I., & Olsen, C. W. (2013). Differentiated swine airway epithelial cell cultures for the investigation of influenza A virus infection and replication. *Influenza Other Respir Viruses*, 7(2), 139-150. doi:10.1111/j.1750-2659.2012.00371.x

Amy Briggs (Advisor: Andrew Bent)

Adams-Phillips, L., **Briggs, A. G.**, & Bent, A. F. (2010). Disruption of poly(ADP-ribose)ation mechanisms alters responses of Arabidopsis to biotic stress. *Plant Physiol*, 152(1), 267-280. doi:10.1104/pp.109.148049

Briggs, A. G., & Bent, A. F. (2011). Poly(ADP-ribosyl)ation in plants. *Trends Plant Sci*, 16(7), 372-380. doi:10.1016/j.tplants.2011.03.008

Briggs, A. G., Adams-Phillips, L. C., Keppler, B. D., Zebell, S. G., Arend, K. C., Apfelbaum, A. A., . . . Bent, A. F. (2017). A transcriptomics approach uncovers novel roles for poly(ADP-ribosyl)ation in the basal defense response in *Arabidopsis thaliana*. *PLoS One*, 12(12), e0190268. doi:10.1371/journal.pone.0190268

Stephanie Ellison-Zelski (Advisor: Elaine Alarid)

Ellison-Zelski, S. J., Solodin, N. M., & Alarid, E. T. (2009). Repression of ESR1 through actions of estrogen receptor alpha and Sin3A at the proximal promoter. *Mol Cell Biol*, 29(18), 4949-4958. doi:10.1128/mcb.00383-09

Regehr, K. J., Domenech, M., Koepsel, J. T., Carver, K. C., **Ellison-Zelski, S. J.**, Murphy, W. L., . . . Beebe, D. J. (2009). Biological implications of polydimethylsiloxane-based microfluidic cell culture. *Lab Chip*, 9(15), 2132-2139. doi:10.1039/b903043c

Ellison-Zelski, S. J., & Alarid, E. T. (2010). Maximum growth and survival of estrogen receptor-alpha positive breast cancer cells requires the Sin3A transcriptional repressor. *Mol Cancer*, 9, 263. doi:10.1186/1476-4598-9-263

Powers, G. L., **Ellison-Zelski, S. J.**, Casa, A. J., Lee, A. V., & Alarid, E. T. (2010). Proteasome inhibition represses ERalpha gene expression in ER+ cells: a new link between proteasome activity and estrogen signaling in breast cancer. *Oncogene*, 29(10), 1509-1518. doi:10.1038/onc.2009.434

Rajbhandari, P., Finn, G., Solodin, N. M., Singarapu, K. K., Sahu, S. C., Markley, J. L., Kadunc, K. J., **Ellison-Zelski, S. J.**, . . . Alarid, E. T. (2012). Regulation of estrogen receptor alpha N-terminus conformation and function by peptidyl prolyl isomerase Pin1. *Mol Cell Biol*, 32(2), 445-457. doi:10.1128/mcb.06073-11

Rajbhandari, P., Schalper, K. A., Solodin, N. M., **Ellison-Zelski, S. J.**, Ping Lu, K., Rimm, D. L., & Alarid, E. T. (2014). Pin1 modulates ERalpha levels in breast cancer through inhibition of phosphorylation-dependent ubiquitination and degradation. *Oncogene*, 33(11), 1438-1447. doi:10.1038/onc.2013.78

Vessela Ensberg (Petrova) (Advisor: Michael Cox)

Petrova, V., Chitteni-Pattu, S., Drees, J. C., Inman, R. B., & Cox, M. M. (2009). An SOS inhibitor that binds to free RecA protein: the PsiB protein. *Mol Cell*, *36*(1), 121-130. doi:10.1016/j.molcel.2009.07.026

Petrova, V., Satyshur, K. A., George, N. P., McCaslin, D., Cox, M. M., & Keck, J. L. (2010). X-ray crystal structure of the bacterial conjugation factor PsiB, a negative regulator of RecA. *J Biol Chem*, *285*(40), 30615-30621. doi:10.1074/jbc.M110.152298

Petrova, V., Chen, S. H., Molzberger, E. T., Tomko, E., Chitteni-Pattu, S., Jia, H., . . . Cox, M. M. (2015). Active displacement of RecA filaments by UvrD translocase activity. *Nucleic Acids Res*, *43*(8), 4133-4149. doi:10.1093/nar/gkv186

Scott Friedle (Advisor: Jyoti Watters)

Friedle, S. A., Curet, M. A., & Watters, J. J. (2010). Recent patents on novel P2X(7) receptor antagonists and their potential for reducing central nervous system inflammation. *Recent Pat CNS Drug Discov*, *5*(1), 35-45.

Friedle, S. A., Brautigam, V. M., Nikodemova, M., Wright, M. L., & Watters, J. J. (2011). The P2X7-Egr pathway regulates nucleotide-dependent inflammatory gene expression in microglia. *Glia*, *59*(1), 1-13. doi:10.1002/glia.21071

Smith, S. M., **Friedle, S. A.**, & Watters, J. J. (2013). Chronic intermittent hypoxia exerts CNS region-specific effects on rat microglial inflammatory and TLR4 gene expression. *PLoS One*, *8*(12), e81584. doi:10.1371/journal.pone.0081584

Smith, S. M., Mitchell, G. S., **Friedle, S. A.**, Sibigtroth, C. M., Vinit, S., & Watters, J. J. (2013). Hypoxia Attenuates Purinergic P2X Receptor-Induced Inflammatory Gene Expression in Brainstem Microglia. *Hypoxia (Auckl)*, *2013*(1). doi:10.2147/hp.S45529

Miller, A. H., Howe, H. B., Krause, B. M., **Friedle, S. A.**, Banks, M. I., Perkins, B. D., & Wolman, M. A. (2018). Pregnancy-Associated Plasma Protein-aa Regulates Photoreceptor Synaptic Development to Mediate Visually Guided Behavior. *J Neurosci*, *38*(22), 5220-5236. doi:10.1523/jneurosci.0061-18.2018

Adam Hume (Advisor: Robert Kalejta)

Hume, A. J., Finkel, J. S., Kamil, J. P., Coen, D. M., Culbertson, M. R., & Kalejta, R. F. (2008). Phosphorylation of retinoblastoma protein by viral protein with cyclin-dependent kinase function. *Science*, *320*(5877), 797-799. doi:10.1126/science.1152095

Hume, A. J., & Kalejta, R. F. (2009). Regulation of the retinoblastoma proteins by the human herpesviruses. *Cell Div*, 4, 1. doi:10.1186/1747-1028-4-1

Kamil, J. P., **Hume, A. J.**, Jurak, I., Munger, K., Kalejta, R. F., & Coen, D. M. (2009). Human papillomavirus 16 E7 inactivator of retinoblastoma family proteins complements human cytomegalovirus lacking UL97 protein kinase. *Proc Natl Acad Sci U S A*, 106(39), 16823-16828. doi:10.1073/pnas.0901521106

Lisa Johns (Advisor: Philip Anderson)

Johns, L., Grimson, A., Kuchma, S. L., Newman, C. L., & Anderson, P. (2007). Caenorhabditis elegans SMG-2 selectively marks mRNAs containing premature translation termination codons. *Mol Cell Biol*, 27(16), 5630-5638. doi:10.1128/mcb.00410-07

Cabell (Mary) Jonas (Advisor: Luigi Puglielli)

Costantini, C., Ko, M. H., **Jonas, M. C.**, & Puglielli, L. (2007). A reversible form of lysine acetylation in the ER and Golgi lumen controls the molecular stabilization of BACE1. *Biochem J*, 407(3), 383-395. doi:10.1042/bj20070040

Jonas, M. C., Costantini, C., & Puglielli, L. (2008). PCSK9 is required for the disposal of non-acetylated intermediates of the nascent membrane protein BACE1. *EMBO Rep*, 9(9), 916-922. doi:10.1038/embor.2008.132

Jonas, M. C., Pehar, M., & Puglielli, L. (2010). AT-1 is the ER membrane acetyl-CoA transporter and is essential for cell viability. *J Cell Sci*, 123(Pt 19), 3378-3388. doi:10.1242/jcs.068841

Pehar, M., **Jonas, M. C.**, Hare, T. M., & Puglielli, L. (2012). SLC33A1/AT-1 protein regulates the induction of autophagy downstream of IRE1/XBP1 pathway. *J Biol Chem*, 287(35), 29921-29930. doi:10.1074/jbc.M112.363911

Jeremy Lavine (Advisor: Alan Attie)

Lavine, J. A., Raess, P. W., Davis, D. B., Rabaglia, M. E., Presley, B. K., Keller, M. P., . . . Attie, A. D. (2008). Overexpression of pre-pro-cholecystokinin stimulates beta-cell proliferation in mouse and human islets with retention of islet function. *Mol Endocrinol*, 22(12), 2716-2728. doi:10.1210/me.2008-0255

Davis, D. B., **Lavine, J. A.**, Suhonen, J. I., Krautkramer, K. A., Rabaglia, M. E., Sperger, J. M., . . . Attie, A. D. (2010). FoxM1 is up-regulated by obesity and stimulates beta-cell proliferation. *Mol Endocrinol*, 24(9), 1822-1834. doi:10.1210/me.2010-0082

Lavine, J. A., & Attie, A. D. (2010). Gastrointestinal hormones and the regulation of beta-cell mass. *Ann N Y Acad Sci*, *1212*, 41-58. doi:10.1111/j.1749-6632.2010.05802.x

Lavine, J. A., Raess, P. W., Davis, D. B., Rabaglia, M. E., Presley, B. K., Keller, M. P., . . . Attie, A. D. (2010). Contamination with E1A-positive wild-type adenovirus accounts for species-specific stimulation of islet cell proliferation by CCK: a cautionary note. *Mol Endocrinol*, *24*(2), 464-467. doi:10.1210/me.2009-0384

Lavine, J. A., Raess, P. W., Stapleton, D. S., Rabaglia, M. E., Suhonen, J. I., Schueler, K. L., . . . Attie, A. D. (2010). Cholecystokinin is up-regulated in obese mouse islets and expands beta-cell mass by increasing beta-cell survival. *Endocrinology*, *151*(8), 3577-3588. doi:10.1210/en.2010-0233

Thomas Lentz (Advisor: Daniel Loeb)

Lentz, T. B., & Loeb, D. D. (2010). Development of cell cultures that express hepatitis B virus to high levels and accumulate cccDNA. *J Virol Methods*, *169*(1), 52-60. doi:10.1016/j.jviromet.2010.06.015

Lentz, T. B., & Loeb, D. D. (2011). Roles of the envelope proteins in the amplification of covalently closed circular DNA and completion of synthesis of the plus-strand DNA in hepatitis B virus. *J Virol*, *85*(22), 11916-11927. doi:10.1128/jvi.05373-11

Wang, J. C., Nickens, D. G., **Lentz, T. B.,** Loeb, D. D., & Zlotnick, A. (2014). Encapsidated hepatitis B virus reverse transcriptase is poised on an ordered RNA lattice. *Proc Natl Acad Sci U S A*, *111*(31), 11329-11334. doi:10.1073/pnas.1321424111

Eric Lewellyn (Advisor: Daniel Loeb)

Lewellyn, E. B., & Loeb, D. D. (2007). Base pairing between cis-acting sequences contributes to template switching during plus-strand DNA synthesis in human hepatitis B virus. *J Virol*, *81*(12), 6207-6215. doi:10.1128/jvi.00210-07

Abraham, T. M., **Lewellyn, E. B.,** Haines, K. M., & Loeb, D. D. (2008). Characterization of the contribution of spliced RNAs of hepatitis B virus to DNA synthesis in transfected cultures of Huh7 and HepG2 cells. *Virology*, *379*(1), 30-37. doi:10.1016/j.virol.2008.06.021

Lewellyn, E. B., & Loeb, D. D. (2011). Serine phosphoacceptor sites within the core protein of hepatitis B virus contribute to genome replication pleiotropically. *PLoS One*, *6*(2), e17202. doi:10.1371/journal.pone.0017202

Lewellyn, E. B., & Loeb, D. D. (2011). The arginine clusters of the carboxy-terminal domain of the core protein of hepatitis B virus make pleiotropic contributions to genome replication. *J Virol*, *85*(3), 1298-1309. doi:10.1128/jvi.01957-10

Laura Moody (Sullivan) (Advisor: Judd Aiken)

Moody, L. R., Herbst, A. J., Yoo, H. S., Vanderloo, J. P., & Aiken, J. M. (2009). Comparative prion disease gene expression profiling using the prion disease mimetic, cuprizone. *Prion*, *3*(2), 99-109.

Moody, L. R., Herbst, A. J., & Aiken, J. M. (2011). Upregulation of interferon-gamma-induced genes during prion infection. *J Toxicol Environ Health A*, *74*(2-4), 146-153. doi:10.1080/15287394.2011.529064

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None

Cassandra Theusch (Advisor: Cynthia Czajkowski)

Muroi, Y., **Theusch, C. M.**, Czajkowski, C., & Jackson, M. B. (2009). Distinct structural changes in the GABAA receptor elicited by pentobarbital and GABA. *Biophys J*, *96*(2), 499-509. doi:10.1016/j.bpj.2008.09.037

Stacy Valkenaar (Advisor: Paul Bertics)

None

Emily Vaughan (Advisor: William Bement)

Bement, W. M., Yu, H. Y., Burkel, B. M., **Vaughan, E. M.**, & Clark, A. G. (2007). Rehabilitation and the single cell. *Curr Opin Cell Biol*, *19*(1), 95-100. doi:10.1016/j.ceb.2006.12.001

Clark, A. G., Miller, A. L., **Vaughan, E.**, Yu, H. Y., Penkert, R., & Bement, W. M. (2009). Integration of single and multicellular wound responses. *Curr Biol*, *19*(16), 1389-1395. doi:10.1016/j.cub.2009.06.044

Vaughan, E. M., Miller, A. L., Yu, H. Y., & Bement, W. M. (2011). Control of local Rho GTPase crosstalk by Abr. *Curr Biol*, *21*(4), 270-277. doi:10.1016/j.cub.2011.01.014

Burkel, B. M., Benink, H. A., **Vaughan, E. M.**, von Dassow, G., & Bement, W. M. (2012). A Rho GTPase signal treadmill backs a contractile array. *Dev Cell*, *23*(2), 384-396. doi:10.1016/j.devcel.2012.05.025

Simon, C. M., **Vaughan, E. M.**, Bement, W. M., & Edelstein-Keshet, L. (2013). Pattern formation of Rho GTPases in single cell wound healing. *Mol Biol Cell*, *24*(3), 421-432. doi:10.1091/mbc.E12-08-0634

Vaughan, E. M., You, J. S., Elsie Yu, H. Y., Lasek, A., Vitale, N., Hornberger, T. A., & Bement, W. M. (2014). Lipid domain-dependent regulation of single-cell wound repair. *Mol Biol Cell*, *25*(12), 1867-1876. doi:10.1091/mbc.E14-03-0839

Kevin Walters (Advisor: Anna Huttenlocher)

Mathias, J. R., Dodd, M. E., **Walters, K. B.**, Rhodes, J., Kanki, J. P., Look, A. T., & Huttenlocher, A. (2007). Live imaging of chronic inflammation caused by mutation of zebrafish Hai1. *J Cell Sci*, *120*(Pt 19), 3372-3383. doi:10.1242/jcs.009159

Dodd, M. E., Hatzold, J., Mathias, J. R., **Walters, K. B.**, Bennin, D. A., Rhodes, J., . . . Huttenlocher, A. (2009). The ENTH domain protein Clint1 is required for epidermal homeostasis in zebrafish. *Development*, *136*(15), 2591-2600. doi:10.1242/dev.038448

Mathias, J. R., Dodd, M. E., **Walters, K. B.**, Yoo, S. K., Ranheim, E. A., & Huttenlocher, A. (2009). Characterization of zebrafish larval inflammatory macrophages. *Dev Comp Immunol*, *33*(11), 1212-1217. doi:10.1016/j.dci.2009.07.003

Mathias, J. R., **Walters, K. B.**, & Huttenlocher, A. (2009). Neutrophil motility in vivo using zebrafish. *Methods Mol Biol*, *571*, 151-166. doi:10.1007/978-1-60761-198-1_10

Szabady, R. L., Lokuta, M. A., **Walters, K. B.**, Huttenlocher, A., & Welch, R. A. (2009). Modulation of neutrophil function by a secreted mucinase of Escherichia coli O157:H7. *PLoS Pathog*, *5*(2), e1000320. doi:10.1371/journal.ppat.1000320

Walters, K. B., Dodd, M. E., Mathias, J. R., Gallagher, A. J., Bennin, D. A., Rhodes, J., . . . Huttenlocher, A. (2009). Muscle degeneration and leukocyte infiltration caused by mutation of zebrafish Fad24. *Dev Dyn*, *238*(1), 86-99. doi:10.1002/dvdy.21821

Walters, K. B., Green, J. M., Surfus, J. C., Yoo, S. K., & Huttenlocher, A. (2010). Live imaging of neutrophil motility in a zebrafish model of WHIM syndrome. *Blood*, *116*(15), 2803-2811. doi:10.1182/blood-2010-03-276972

Melisa Wittkowske (Budde) (Advisor: David O'Connor)

Budde, M. L., Lhost, J. J., Dudley, D. M., Rakasz, E. G., & O'Connor, D. H. (2010). Integrin alpha4beta7 is downregulated on the surfaces of simian

immunodeficiency virus SIVmac239-infected cells. *J Virol*, *84*(13), 6344-6351. doi:10.1128/jvi.00430-10

Budde, M. L., Wiseman, R. W., Karl, J. A., Hanczaruk, B., Simen, B. B., & O'Connor, D. H. (2010). Characterization of Mauritian cynomolgus macaque major histocompatibility complex class I haplotypes by high-resolution pyrosequencing. *Immunogenetics*, *62*(11-12), 773-780. doi:10.1007/s00251-010-0481-9

Greene, J. M., Lhost, J. J., Burwitz, B. J., **Budde, M. L.**, Macnair, C. E., Weiker, M. K., . . . O'Connor, D. H. (2010). Extralymphoid CD8+ T cells resident in tissue from simian immunodeficiency virus SIVmac239{Delta}nef-vaccinated macaques suppress SIVmac239 replication ex vivo. *J Virol*, *84*(7), 3362-3372. doi:10.1128/jvi.02028-09

Budde, M. L., Lhost, J. J., Burwitz, B. J., Becker, E. A., Burns, C. M., O'Connor, S. L., . . . O'Connor, D. H. (2011). Transcriptionally abundant major histocompatibility complex class I alleles are fundamental to nonhuman primate simian immunodeficiency virus-specific CD8+ T cell responses. *J Virol*, *85*(7), 3250-3261. doi:10.1128/jvi.02355-10

Idella Yamben (Advisor: Anne Griep)

Rivera, C., **Yamben, I. F.**, Shatadal, S., Waldof, M., Robinson, M. L., & Griep, A. E. (2009). Cell-autonomous requirements for Dlg-1 for lens epithelial cell structure and fiber cell morphogenesis. *Dev Dyn*, *238*(9), 2292-2308. doi:10.1002/dvdy.22036

Rivera, C., Simonson, S. J., **Yamben, I. F.**, Shatadal, S., Nguyen, M. M., Beurg, M., . . . Griep, A. E. (2013). Requirement for Dlg-1 in planar cell polarity and skeletogenesis during vertebrate development. *PLoS One*, *8*(1), e54410. doi:10.1371/journal.pone.0054410

Yamben, I. F., Rachel, R. A., Shatadal, S., Copeland, N. G., Jenkins, N. A., Warming, S., & Griep, A. E. (2013). Scrib is required for epithelial cell identity and prevents epithelial to mesenchymal transition in the mouse. *Dev Biol*, *384*(1), 41-52. doi:10.1016/j.ydbio.2013.09.027

2009 Graduates

Benjamin Bimber (Advisor: David O'Connor)

Bimber, B. N., Moreland, A. J., Wiseman, R. W., Hughes, A. L., & O'Connor, D. H. (2008). Complete characterization of killer Ig-like receptor (KIR) haplotypes in

Mauritian cynomolgus macaques: novel insights into nonhuman primate KIR gene content and organization. *J Immunol*, 181(9), 6301-6308.

Bimber, B. N., Chugh, P., Giorgi, E. E., Kim, B., Almudevar, A. L., Dewhurst, S., . . . Lee, H. Y. (2009). Nef gene evolution from a single transmitted strain in acute SIV infection. *Retrovirology*, 6, 57. doi:10.1186/1742-4690-6-57

Burwitz, B. J., Pendley, C. J., Greene, J. M., Detmer, A. M., Lhost, J. J., Karl, J. A., Piaskowski, S. M., Rudersdorf, R. A., Wallace, L. T., **Bimber, B. N.**, . . . O'Connor, D. H. (2009). Mauritian cynomolgus macaques share two exceptionally common major histocompatibility complex class I alleles that restrict simian immunodeficiency virus-specific CD8+ T cells. *J Virol*, 83(12), 6011-6019. doi:10.1128/jvi.00199-09

Campbell, K. J., Detmer, A. M., Karl, J. A., Wiseman, R. W., Blasky, A. J., Hughes, A. L., **Bimber, B. N.**, . . . O'Connor, D. H. (2009). Characterization of 47 MHC class I sequences in Filipino cynomolgus macaques. *Immunogenetics*, 61(3), 177-187. doi:10.1007/s00251-008-0351-x

O'Leary, C. E., Wiseman, R. W., Karl, J. A., **Bimber, B. N.**, Lank, S. M., Tuscher, J. J., & O'Connor, D. H. (2009). Identification of novel MHC class I sequences in pig-tailed macaques by amplicon pyrosequencing and full-length cDNA cloning and sequencing. *Immunogenetics*, 61(10), 689-701. doi:10.1007/s00251-009-0397-4

Wiseman, R. W., Karl, J. A., **Bimber, B. N.**, O'Leary, C. E., Lank, S. M., Tuscher, J. J., . . . O'Connor, D. H. (2009). Major histocompatibility complex genotyping with massively parallel pyrosequencing. *Nat Med*, 15(11), 1322-1326. doi:10.1038/nm.2038

Bimber, B. N., Dudley, D. M., Lauck, M., Becker, E. A., Chin, E. N., Lank, S. M., . . . O'Connor, D. H. (2010). Whole-genome characterization of human and simian immunodeficiency virus intrahost diversity by ultradeep pyrosequencing. *J Virol*, 84(22), 12087-12092. doi:10.1128/jvi.01378-10

O'Connor, S. L., Lhost, J. J., Becker, E. A., Detmer, A. M., Johnson, R. C., Macnair, C. E., Wiseman, R. W., Karl, J. A., Greene, J. M., Burwitz, B. J., **Bimber, B. N.**, . . . O'Connor, D. H. (2010). MHC heterozygote advantage in simian immunodeficiency virus-infected Mauritian cynomolgus macaques. *Sci Transl Med*, 2(22), 22ra18. doi:10.1126/scitranslmed.3000524

Adam Book (Advisor: Richard Vierstra)

Book, A. J., Yang, P., Scalf, M., Smith, L. M., & Vierstra, R. D. (2005). Tripeptidyl peptidase II. An oligomeric protease complex from Arabidopsis. *Plant Physiol*, *138*(2), 1046-1057. doi:10.1104/pp.104.057406

Book, A. J., Smalle, J., Lee, K. H., Yang, P., Walker, J. M., Casper, S., . . . Vierstra, R. D. (2009). The RPN5 subunit of the 26s proteasome is essential for gametogenesis, sporophyte development, and complex assembly in Arabidopsis. *Plant Cell*, *21*(2), 460-478. doi:10.1105/tpc.108.064444

Book, A. J., Gladman, N. P., Lee, S. S., Scalf, M., Smith, L. M., & Vierstra, R. D. (2010). Affinity purification of the Arabidopsis 26 S proteasome reveals a diverse array of plant proteolytic complexes. *J Biol Chem*, *285*(33), 25554-25569. doi:10.1074/jbc.M110.136622

Farmer, L. M., **Book, A. J.**, Lee, K. H., Lin, Y. L., Fu, H., & Vierstra, R. D. (2010). The RAD23 family provides an essential connection between the 26S proteasome and ubiquitylated proteins in Arabidopsis. *Plant Cell*, *22*(1), 124-142. doi:10.1105/tpc.109.072660

Lee, K. H., Minami, A., Marshall, R. S., **Book, A. J.**, Farmer, L. M., Walker, J. M., & Vierstra, R. D. (2011). The RPT2 subunit of the 26S proteasome directs complex assembly, histone dynamics, and gametophyte and sporophyte development in Arabidopsis. *Plant Cell*, *23*(12), 4298-4317. doi:10.1105/tpc.111.089482

Russell, J. D., Scalf, M., **Book, A. J.**, Ladrer, D. T., Vierstra, R. D., Smith, L. M., & Coon, J. J. (2013). Characterization and quantification of intact 26S proteasome proteins by real-time measurement of intrinsic fluorescence prior to top-down mass spectrometry. *PLoS One*, *8*(3), e58157. doi:10.1371/journal.pone.0058157

Marshall, R. S., Li, F., Gemperline, D. C., **Book, A. J.**, & Vierstra, R. D. (2015). Autophagic Degradation of the 26S Proteasome Is Mediated by the Dual ATG8/Ubiquitin Receptor RPN10 in Arabidopsis. *Mol Cell*, *58*(6), 1053-1066. doi:10.1016/j.molcel.2015.04.023

Kristopher Carver (Advisor: Linda Schuler)

Carver, K. C., & Schuler, L. A. (2008). Prolactin does not require insulin-like growth factor intermediates but synergizes with insulin-like growth factor I in human breast cancer cells. *Mol Cancer Res*, *6*(4), 634-643. doi:10.1158/1541-7786.Mcr-07-2069

Carver, K. C., Arendt, L. M., & Schuler, L. A. (2009). Complex prolactin crosstalk in breast cancer: new therapeutic implications. *Mol Cell Endocrinol*, *307*(1-2), 1-7. doi:10.1016/j.mce.2009.03.014

Piazza, T. M., Lu, J. C., **Carver, K. C.**, & Schuler, L. A. (2009). SRC family kinases accelerate prolactin receptor internalization, modulating trafficking and signaling in breast cancer cells. *Mol Endocrinol*, *23*(2), 202-212. doi:10.1210/me.2008-0341

Regehr, K. J., Domenech, M., Koepsel, J. T., **Carver, K. C.**, Ellison-Zelski, S. J., Murphy, W. L., . . . Beebe, D. J. (2009). Biological implications of polydimethylsiloxane-based microfluidic cell culture. *Lab Chip*, *9*(15), 2132-2139. doi:10.1039/b903043c

Carver, K. C., Piazza, T. M., & Schuler, L. A. (2010). Prolactin enhances insulin-like growth factor I receptor phosphorylation by decreasing its association with the tyrosine phosphatase SHP-2 in MCF-7 breast cancer cells. *J Biol Chem*, *285*(11), 8003-8012. doi:10.1074/jbc.M109.066480

Yu, Z., Zhao, L. X., Jiang, C. L., Duan, Y., Wong, L., **Carver, K. C.**, . . . Shen, B. (2011). Bafilomycins produced by an endophytic actinomycete *Streptomyces* sp. YIM56209. *J Antibiot (Tokyo)*, *64*(1), 159-162. doi:10.1038/ja.2010.147

Robert Chumanov (Advisor: Richard Burgess)

Liu, L., Hou, J., Du, J., **Chumanov, R. S.**, Xu, Q., Ge, Y., . . . Murphy, R. M. (2009). Differential modification of Cys10 alters transthyretin's effect on beta-amyloid aggregation and toxicity. *Protein Eng Des Sel*, *22*(8), 479-488. doi:10.1093/protein/gzp025

Chumanov, R. S., & Burgess, R. R. (2010). Expression, purification, and refolding of active Nrf2 transcription factor fused to protein transduction TAT tag. *Protein Expr Purif*, *74*(2), 280-288. doi:10.1016/j.pep.2010.06.017

Chumanov, R. S., & Burgess, R. R. (2011). Artifact-inducing enrichment of ethylenediaminetetraacetic acid and ethyleneglycoltetraacetic acid on anion exchange resins. *Anal Biochem*, *412*(1), 34-39. doi:10.1016/j.ab.2011.01.027

Chumanov, R. S., Kuhn, P. A., Xu, W., & Burgess, R. R. (2011). Expression and purification of full-length mouse CARM1 from transiently transfected HEK293T cells using HaloTag technology. *Protein Expr Purif*, *76*(2), 145-153. doi:10.1016/j.pep.2010.11.010

Banta, A. B., **Chumanov, R. S.**, Yuan, A. H., Lin, H., Campbell, E. A., Burgess, R. R., & Gourse, R. L. (2013). Key features of sigmaS required for specific

recognition by Crl, a transcription factor promoting assembly of RNA polymerase holoenzyme. *Proc Natl Acad Sci U S A*, 110(40), 15955-15960. doi:10.1073/pnas.1311642110

Jessica Crain (Advisor: Jyoti Watters)

Potucek, Y. D., **Crain, J. M.**, & Watters, J. J. (2006). Purinergic receptors modulate MAP kinases and transcription factors that control microglial inflammatory gene expression. *Neurochem Int*, 49(2), 204-214. doi:10.1016/j.neuint.2006.04.005

Brautigam, V. M., Dubyak, G. R., **Crain, J. M.**, & Watters, J. J. (2008). The inflammatory effects of UDP-glucose in N9 microglia are not mediated by P2Y14 receptor activation. *Purinergic Signal*, 4(1), 73-78. doi:10.1007/s11302-008-9095-1

Crain, J. M., Nikodemova, M., & Watters, J. J. (2009). Expression of P2 nucleotide receptors varies with age and sex in murine brain microglia. *J Neuroinflammation*, 6, 24. doi:10.1186/1742-2094-6-24

Crain, J. M., & Watters, J. J. (2010). Estrogen and P2 Purinergic Receptor Systems in Microglia: Therapeutic Targets for Neuroprotection. *Open Drug Discov J*, 2, 148-167. doi:10.2174/1877381801002010148

Crain, J. M., Nikodemova, M., & Watters, J. J. (2013). Microglia express distinct M1 and M2 phenotypic markers in the postnatal and adult central nervous system in male and female mice. *J Neurosci Res*, 91(9), 1143-1151. doi:10.1002/jnr.23242

Crain, J. M., & Watters, J. J. (2015). Microglial P2 Purinergic Receptor and Immunomodulatory Gene Transcripts Vary By Region, Sex, and Age in the Healthy Mouse CNS. *Transcr Open Access*, 3(2). doi:10.4172/2329-8936.1000124

Tessa Durham Brooks (Advisor: Edgar Spalding)

Miller, N. D., **Durham Brooks, T. L.**, Assadi, A. H., & Spalding, E. P. (2010). Detection of a gravitropism phenotype in glutamate receptor-like 3.3 mutants of *Arabidopsis thaliana* using machine vision and computation. *Genetics*, 186(2), 585-593. doi:10.1534/genetics.110.118711

Jill Herschleb (Advisor: David Schwartz)

Herschleb, J., Ananiev, G., & Schwartz, D. C. (2007). Pulsed-field gel electrophoresis. *Nat Protoc*, 2(3), 677-684. doi:10.1038/nprot.2007.94

Church, D. M., Goodstadt, L., Hillier, L. W., Zody, M. C., Goldstein, S., She, X., Bult, C. J., Agarwala, R., Cherry, J. L., DiCuccio, M., Hlavina, W., Kapustin, Y., Meric, P., Maglott, D., Birtle, Z., Marques, A. C., Graves, T., Zhou, S., Teague, B., Potamou, K., Churas, C., Place, M., **Herschleb, J.**, . . . Ponting, C. P. (2009). Lineage-specific biology revealed by a finished genome assembly of the mouse. *PLoS Biol*, 7(5), e1000112. doi:10.1371/journal.pbio.1000112

Matthew Mysliwicz (Advisor: Youngsook Lee)

Jung, J., **Mysliwicz, M. R.**, & Lee, Y. (2005). Roles of JUMONJI in mouse embryonic development. *Dev Dyn*, 232(1), 21-32. doi:10.1002/dvdy.20204

Kim, T. G., Jung, J., **Mysliwicz, M. R.**, Kang, S., & Lee, Y. (2005). Jumonji represses alpha-cardiac myosin heavy chain expression via inhibiting MEF2 activity. *Biochem Biophys Res Commun*, 329(2), 544-553. doi:10.1016/j.bbrc.2005.01.154

Mysliwicz, M. R., Chen, J., Powers, P. A., Bartley, C. R., Schneider, M. D., & Lee, Y. (2006). Generation of a conditional null allele of jumonji. *Genesis*, 44(9), 407-411. doi:10.1002/dvg.20221

Mysliwicz, M. R., Kim, T. G., & Lee, Y. (2007). Characterization of zinc finger protein 496 that interacts with Jumonji/Jarid2. *FEBS Lett*, 581(14), 2633-2640. doi:10.1016/j.febslet.2007.05.006

Shen, X., Kim, W., Fujiwara, Y., Simon, M. D., Liu, Y., **Mysliwicz, M. R.**, . . . Orkin, S. H. (2009). Jumonji modulates polycomb activity and self-renewal versus differentiation of stem cells. *Cell*, 139(7), 1303-1314. doi:10.1016/j.cell.2009.12.003

Mejta, S., Morey, L., Pascual, G., Kuebler, B., **Mysliwicz, M. R.**, Lee, Y., . . . Benitah, S. A. (2011). Jarid2 regulates mouse epidermal stem cell activation and differentiation. *Embo j*, 30(17), 3635-3646. doi:10.1038/emboj.2011.265

Mysliwicz, M. R., Bresnick, E. H., & Lee, Y. (2011). Endothelial Jarid2/Jumonji is required for normal cardiac development and proper Notch1 expression. *J Biol Chem*, 286(19), 17193-17204. doi:10.1074/jbc.M110.205146

Zhang, Z., Jones, A., Sun, C. W., Li, C., Chang, C. W., Joo, H. Y., Dai, Q., **Mysliwicz, M. R.**, . . . Wang, H. (2011). PRC2 complexes with JARID2, MTF2, and esPRC2p48 in ES cells to modulate ES cell pluripotency and somatic cell reprogramming. *Stem Cells*, 29(2), 229-240. doi:10.1002/stem.578

Jeniell Nett (Advisor: David Andes)

Nobile, C. J., Andes, D. R., **Nett, J. E.**, Smith, F. J., Yue, F., Phan, Q. T., . . . Mitchell, A. P. (2006). Critical role of Bcr1-dependent adhesins in *C. albicans* biofilm formation in vitro and in vivo. *PLoS Pathog*, 2(7), e63. doi:10.1371/journal.ppat.0020063

Nobile, C. J., **Nett, J. E.**, Andes, D. R., & Mitchell, A. P. (2006). Function of *Candida albicans* adhesin Hwp1 in biofilm formation. *Eukaryot Cell*, 5(10), 1604-1610. doi:10.1128/ec.00194-06

Nett, J. E., Guite, K. M., Ringeisen, A., Holoyda, K. A., & Andes, D. R. (2008). Reduced biocide susceptibility in *Candida albicans* biofilms. *Antimicrob Agents Chemother*, 52(9), 3411-3413. doi:10.1128/aac.01656-07

Nobile, C. J., Schneider, H. A., **Nett, J. E.**, Sheppard, D. C., Filler, S. G., Andes, D. R., & Mitchell, A. P. (2008). Complementary adhesin function in *C. albicans* biofilm formation. *Curr Biol*, 18(14), 1017-1024. doi:10.1016/j.cub.2008.06.034

Nett, J. E., Lepak, A. J., Marchillo, K., & Andes, D. R. (2009). Time course global gene expression analysis of an in vivo *Candida* biofilm. *J Infect Dis*, 200(2), 307-313. doi:10.1086/599838

Nobile, C. J., **Nett, J. E.**, Hernday, A. D., Homann, O. R., Deneault, J. S., Nantel, A., . . . Mitchell, A. P. (2009). Biofilm matrix regulation by *Candida albicans* Zap1. *PLoS Biol*, 7(6), e1000133. doi:10.1371/journal.pbio.1000133

Nett, J. E., Crawford, K., Marchillo, K., & Andes, D. R. (2010). Role of Fks1p and matrix glucan in *Candida albicans* biofilm resistance to an echinocandin, pyrimidine, and polyene. *Antimicrob Agents Chemother*, 54(8), 3505-3508. doi:10.1128/aac.00227-10

Nett, J. E., Marchillo, K., Spiegel, C. A., & Andes, D. R. (2010). Development and validation of an in vivo *Candida albicans* biofilm denture model. *Infect Immun*, 78(9), 3650-3659. doi:10.1128/iai.00480-10

Nett, J. E., Sanchez, H., Cain, M. T., & Andes, D. R. (2010). Genetic basis of *Candida* biofilm resistance due to drug-sequestering matrix glucan. *J Infect Dis*, 202(1), 171-175. doi:10.1086/651200

Jeremiah Paulus (Advisor: Mary Halloran)

Paulus, J. D., & Halloran, M. C. (2006). Zebrafish bashful/laminin-alpha 1 mutants exhibit multiple axon guidance defects. *Dev Dyn*, 235(1), 213-224. doi:10.1002/dvdy.20604

Paulus, J. D., Willer, G. B., Willer, J. R., Gregg, R. G., & Halloran, M. C. (2009). Muscle contractions guide rohn-beard peripheral sensory axons. *J Neurosci*, *29*(42), 13190-13201. doi:10.1523/jneurosci.2179-09.2009

Eric Pueschel (Advisor: Grace Boekhoff-Falk)

Plavicki, J., Mader, S., **Pueschel, E.**, Peebles, P., & Boekhoff-Falk, G. (2012). Homeobox gene *distal-less* is required for neuronal differentiation and neurite outgrowth in the *Drosophila* olfactory system. *Proc Natl Acad Sci U S A*, *109*(5), 1578-1583. doi:10.1073/pnas.1016741109

Oliver Richards (Advisor: Alan Attie)

Clee, S. M., Yandell, B. S., Schueler, K. M., Rabaglia, M. E., **Richards, O. C.**, Raines, S. M., . . . Attie, A. D. (2006). Positional cloning of *Sorcs1*, a type 2 diabetes quantitative trait locus. *Nat Genet*, *38*(6), 688-693. doi:10.1038/ng1796

Flowers, M. T., Groen, A. K., Oler, A. T., Keller, M. P., Choi, Y., Schueler, K. L., **Richards, O. C.**, . . . Attie, A. D. (2006). Cholestasis and hypercholesterolemia in *SCD1*-deficient mice fed a low-fat, high-carbohydrate diet. *J Lipid Res*, *47*(12), 2668-2680. doi:10.1194/jlr.M600203-JLR200

Richards, O. C., Raines, S. M., & Attie, A. D. (2010). The role of blood vessels, endothelial cells, and vascular pericytes in insulin secretion and peripheral insulin action. *Endocr Rev*, *31*(3), 343-363. doi:10.1210/er.2009-0035

Raines, S. M., **Richards, O. C.**, Schneider, L. R., Schueler, K. L., Rabaglia, M. E., Oler, A. T., . . . Attie, A. D. (2011). Loss of PDGF-B activity increases hepatic vascular permeability and enhances insulin sensitivity. *Am J Physiol Endocrinol Metab*, *301*(3), E517-526. doi:10.1152/ajpendo.00241.2011

Elon Roti Roti (Advisor: Gail Robertson)

Jones, E. M., **Roti Roti, E. C.**, Wang, J., Delfosse, S. A., & Robertson, G. A. (2004). Cardiac IKr channels minimally comprise hERG 1a and 1b subunits. *J Biol Chem*, *279*(43), 44690-44694. doi:10.1074/jbc.M408344200

Trudeau, M. C., Leung, L. M., **Roti, E. R.**, & Robertson, G. A. (2011). hERG1a N-terminal eag domain-containing polypeptides regulate homomeric hERG1b and heteromeric hERG1a/hERG1b channels: a possible mechanism for long QT syndrome. *J Gen Physiol*, *138*(6), 581-592. doi:10.1085/jgp.201110683

Nicholas Schill (Advisor: Richard Anderson)

Ling, K., **Schill, N. J.**, Wagoner, M. P., Sun, Y., & Anderson, R. A. (2006). Movin' on up: the role of PtdIns(4,5)P(2) in cell migration. *Trends Cell Biol*, *16*(6), 276-284. doi:10.1016/j.tcb.2006.03.007

Heck, J. N., Mellman, D. L., Ling, K., Sun, Y., Wagoner, M. P., **Schill, N. J.**, & Anderson, R. A. (2007). A conspicuous connection: structure defines function for the phosphatidylinositol-phosphate kinase family. *Crit Rev Biochem Mol Biol*, 42(1), 15-39. doi:10.1080/10409230601162752

Schill, N. J., & Anderson, R. A. (2009). Two novel phosphatidylinositol-4-phosphate 5-kinase type Igamma splice variants expressed in human cells display distinctive cellular targeting. *Biochem J*, 422(3), 473-482. doi:10.1042/bj20090638

Schill, N. J., & Anderson, R. A. (2009). Out, in and back again: PtdIns(4,5)P(2) regulates cadherin trafficking in epithelial morphogenesis. *Biochem J*, 418(2), 247-260. doi:10.1042/bj20081844

Sun, Y., Hedman, A. C., Tan, X., **Schill, N. J.**, & Anderson, R. A. (2013). Endosomal type Igamma PIP 5-kinase controls EGF receptor lysosomal sorting. *Dev Cell*, 25(2), 144-155. doi:10.1016/j.devcel.2013.03.010

Schill, N. J., Hedman, A. C., Choi, S., & Anderson, R. A. (2014). Isoform 5 of PIPKIgamma regulates the endosomal trafficking and degradation of E-cadherin. *J Cell Sci*, 127(Pt 10), 2189-2203. doi:10.1242/jcs.132423

Jeremy Teuton (Advisor: Curtis Brandt)

Bultmann, H., **Teuton, J.**, & Brandt, C. R. (2007). Addition of a C-terminal cysteine improves the anti-herpes simplex virus activity of a peptide containing the human immunodeficiency virus type 1 TAT protein transduction domain. *Antimicrob Agents Chemother*, 51(5), 1596-1607. doi:10.1128/aac.01009-06

Teuton, J. R., & Brandt, C. R. (2007). Sialic acid on herpes simplex virus type 1 envelope glycoproteins is required for efficient infection of cells. *J Virol*, 81(8), 3731-3739. doi:10.1128/jvi.02250-06

2008 Graduates

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Abler, L. L., Mansour, S. L., & Sun, X. (2009). Conditional gene inactivation reveals roles for Fgf10 and Fgfr2 in establishing a normal pattern of epithelial branching in the mouse lung. *Dev Dyn*, 238(8), 1999-2013. doi:10.1002/dvdy.22032

Norman, R. X., Ko, H. W., Huang, V., Eun, C. M., **Abler, L. L.**, Zhang, Z., . . . Eggenschwiler, J. T. (2009). Tubby-like protein 3 (TULP3) regulates patterning in the mouse embryo through inhibition of Hedgehog signaling. *Hum Mol Genet*, 18(10), 1740-1754. doi:10.1093/hmg/ddp113

Mehta, V., Schmitz, C. T., Keil, K. P., Joshi, P. S., **Abler, L. L.**, Lin, T. M., . . . Vezina, C. M. (2013). Beta-catenin (CTNNB1) induces Bmp expression in urogenital sinus epithelium and participates in prostatic bud initiation and patterning. *Dev Biol*, *376*(2), 125-135. doi:10.1016/j.ydbio.2013.01.034

Kate Cooper (Advisor: Anna Huttenlocher)

Lokuta, M. A., **Cooper, K. M.**, Aksentijevich, I., Kastner, D. L., & Huttenlocher, A. (2005). Neutrophil chemotaxis in a patient with neonatal-onset multisystem inflammatory disease and Muckle-Wells syndrome. *Ann Allergy Asthma Immunol*, *95*(4), 394-399. doi:10.1016/s1081-1206(10)61159-3

Cooper, K. M., Bennin, D. A., & Huttenlocher, A. (2008). The PCH family member proline-serine-threonine phosphatase-interacting protein 1 targets to the leukocyte uropod and regulates directed cell migration. *Mol Biol Cell*, *19*(8), 3180-3191. doi:10.1091/mbc.E08-02-0225

Cortesio, C. L., Wernimont, S. A., Kastner, D. L., **Cooper, K. M.**, & Huttenlocher, A. (2010). Impaired podosome formation and invasive migration of macrophages from patients with a PSTPIP1 mutation and PAPA syndrome. *Arthritis Rheum*, *62*(8), 2556-2558. doi:10.1002/art.27521

Fiona Fernandes (Advisor: Rob Striker)

Fernandes, F., Poole, D. S., Hoover, S., Middleton, R., Andrei, A. C., Gerstner, J., & Striker, R. (2007). Sensitivity of hepatitis C virus to cyclosporine A depends on nonstructural proteins NS5A and NS5B. *Hepatology*, *46*(4), 1026-1033. doi:10.1002/hep.21809

Fernandes, F., Ansari, I. U., & Striker, R. (2010). Cyclosporine inhibits a direct interaction between cyclophilins and hepatitis C NS5A. *PLoS One*, *5*(3), e9815. doi:10.1371/journal.pone.0009815

Jonathan Finkel (Advisor: Michael Culbertson)

Ursic, D., Chinchilla, K., **Finkel, J. S.**, & Culbertson, M. R. (2004). Multiple protein/protein and protein/RNA interactions suggest roles for yeast DNA/RNA helicase Sen1p in transcription, transcription-coupled DNA repair and RNA processing. *Nucleic Acids Res*, *32*(8), 2441-2452. doi:10.1093/nar/gkh561

Hume, A. J., **Finkel, J. S.**, Kamil, J. P., Coen, D. M., Culbertson, M. R., & Kalejta, R. F. (2008). Phosphorylation of retinoblastoma protein by viral protein with cyclin-dependent kinase function. *Science*, *320*(5877), 797-799. doi:10.1126/science.1152095

Ursic, D., **Finkel, J. S.**, & Culbertson, M. R. (2008). Detecting phosphorylation-dependent interactions with the C-terminal domain of RNA polymerase II subunit Rpb1p using a yeast two-hybrid assay. *RNA Biol*, 5(1), 1-4.

Zheng, W., **Finkel, J. S.**, Landers, S. M., Long, R. M., & Culbertson, M. R. (2008). Nonsense-mediated decay of ash1 nonsense transcripts in *Saccharomyces cerevisiae*. *Genetics*, 180(3), 1391-1405. doi:10.1534/genetics.108.095737

Finkel, J. S., Chinchilla, K., Ursic, D., & Culbertson, M. R. (2010). Sen1p performs two genetically separable functions in transcription and processing of U5 small nuclear RNA in *Saccharomyces cerevisiae*. *Genetics*, 184(1), 107-118. doi:10.1534/genetics.109.110031

Chinchilla, K., Rodriguez-Molina, J. B., Ursic, D., **Finkel, J. S.**, Ansari, A. Z., & Culbertson, M. R. (2012). Interactions of Sen1, Nrd1, and Nab3 with multiple phosphorylated forms of the Rpb1 C-terminal domain in *Saccharomyces cerevisiae*. *Eukaryot Cell*, 11(4), 417-429. doi:10.1128/ec.05320-11

Sean Hasso (Advisor: John Fallon)

Ros, M. A., Dahn, R. D., Fernandez-Teran, M., Rashka, K., Caruccio, N. C., **Hasso, S. M.**, . . . Fallon, J. F. (2003). The chick oligozeugodactyly (ozd) mutant lacks sonic hedgehog function in the limb. *Development*, 130(3), 527-537.

Harris, M. P., **Hasso, S. M.**, Ferguson, M. W., & Fallon, J. F. (2006). The development of archosaurian first-generation teeth in a chicken mutant. *Curr Biol*, 16(4), 371-377. doi:10.1016/j.cub.2005.12.047

Nissim, S., **Hasso, S. M.**, Fallon, J. F., & Tabin, C. J. (2006). Regulation of Gremlin expression in the posterior limb bud. *Dev Biol*, 299(1), 12-21. doi:10.1016/j.ydbio.2006.05.026

Pal, S., Wu, J., Murray, J. K., Gellman, S. H., Wozniak, M. A., Keely, P. J., Boyer, M.E., Gomez, T. M., **Hasso, S. M.** . . . Bresnick, E. H. (2006). An antiangiogenic neurokinin-B/thromboxane A2 regulatory axis. *J Cell Biol*, 174(7), 1047-1058. doi:10.1083/jcb.200603152

Suzuki, T., **Hasso, S. M.**, & Fallon, J. F. (2008). Unique SMAD1/5/8 activity at the phalanx-forming region determines digit identity. *Proc Natl Acad Sci U S A*, 105(11), 4185-4190. doi:10.1073/pnas.0707899105

Michele Jaeger (Advisor: James Ervasti)

Bunnell, T. M., **Jaeger, M. A.**, Fitzsimons, D. P., Prins, K. W., & Ervasti, J. M. (2008). Destabilization of the dystrophin-glycoprotein complex without functional

deficits in alpha-dystrobrevin null muscle. *PLoS One*, 3(7), e2604.
doi:10.1371/journal.pone.0002604

Jaeger, M. A., Sonnemann, K. J., Fitzsimons, D. P., Prins, K. W., & Ervasti, J. M. (2009). Context-dependent functional substitution of alpha-skeletal actin by gamma-cytoplasmic actin. *Faseb j*, 23(7), 2205-2214. doi:10.1096/fj.09-129783

Baltgalvis, K. A., **Jaeger, M. A.**, Fitzsimons, D. P., Thayer, S. A., Lowe, D. A., & Ervasti, J. M. (2011). Transgenic overexpression of gamma-cytoplasmic actin protects against eccentric contraction-induced force loss in mdx mice. *Skelet Muscle*, 1(1), 32. doi:10.1186/2044-5040-1-32

McCourt, J. L., Rhett, K. K., **Jaeger, M. A.**, Belanto, J. J., Talsness, D. M., & Ervasti, J. M. (2015). In vitro stability of therapeutically relevant, internally truncated dystrophins. *Skelet Muscle*, 5, 13. doi:10.1186/s13395-015-0040-z

Jang Sung-Wook (Advisor: John Svaren)

Jang, S. W., LeBlanc, S. E., Roopra, A., Wrabetz, L., & Svaren, J. (2006). In vivo detection of Egr2 binding to target genes during peripheral nerve myelination. *J Neurochem*, 98(5), 1678-1687. doi:10.1111/j.1471-4159.2006.04069.x

LeBlanc, S. E., **Jang, S. W.**, Ward, R. M., Wrabetz, L., & Svaren, J. (2006). Direct regulation of myelin protein zero expression by the Egr2 transactivator. *J Biol Chem*, 281(9), 5453-5460. doi:10.1074/jbc.M512159200

Jones, E. A., **Jang, S. W.**, Mager, G. M., Chang, L. W., Srinivasan, R., Gokey, N. G., . . . Svaren, J. (2007). Interactions of Sox10 and Egr2 in myelin gene regulation. *Neuron Glia Biol*, 3(4), 377-387. doi:10.1017/s1740925x08000173

Srinivasan, R., **Jang, S. W.**, Ward, R. M., Sachdev, S., Ezashi, T., & Svaren, J. (2007). Differential regulation of NAB corepressor genes in Schwann cells. *BMC Mol Biol*, 8, 117. doi:10.1186/1471-2199-8-117

Mager, G. M., Ward, R. M., Srinivasan, R., **Jang, S. W.**, Wrabetz, L., & Svaren, J. (2008). Active gene repression by the Egr2.NAB complex during peripheral nerve myelination. *J Biol Chem*, 283(26), 18187-18197. doi:10.1074/jbc.M803330200

Jang, S. W., & Svaren, J. (2009). Induction of myelin protein zero by early growth response 2 through upstream and intragenic elements. *J Biol Chem*, 284(30), 20111-20120. doi:10.1074/jbc.M109.022426

Jang, S. W., Srinivasan, R., Jones, E. A., Sun, G., Keles, S., Krueger, C., . . . Svaren, J. (2010). Locus-wide identification of Egr2/Krox20 regulatory targets in

myelin genes. *J Neurochem*, 115(6), 1409-1420. doi:10.1111/j.1471-4159.2010.07045.x

Jang, S. W., Lopez-Anido, C., MacArthur, R., Svaren, J., & Inglese, J. (2012). Identification of drug modulators targeting gene-dosage disease CMT1A. *ACS Chem Biol*, 7(7), 1205-1213. doi:10.1021/cb300048d

Srinivasan, R., Sun, G., Keles, S., Jones, E. A., **Jang, S. W.**, Krueger, C., . . . Svaren, J. (2012). Genome-wide analysis of EGR2/SOX10 binding in myelinating peripheral nerve. *Nucleic Acids Res*, 40(14), 6449-6460. doi:10.1093/nar/gks313

Inglese, J., Dranchak, P., Moran, J. J., **Jang, S. W.**, Srinivasan, R., Santiago, Y., . . . Svaren, J. (2014). Genome editing-enabled HTS assays expand drug target pathways for Charcot-Marie-tooth disease. *ACS Chem Biol*, 9(11), 2594-2602. doi:10.1021/cb5005492

Ben Kopek (Advisor: Paul Ahlquist)

None

Jason Kuehner (Advisor: David Brow)

Kuehner, J. N., & Brow, D. A. (2006). Quantitative analysis of in vivo initiator selection by yeast RNA polymerase II supports a scanning model. *J Biol Chem*, 281(20), 14119-14128. doi:10.1074/jbc.M601937200

Steinmetz, E. J., Warren, C. L., **Kuehner, J. N.**, Panbehi, B., Ansari, A. Z., & Brow, D. A. (2006). Genome-wide distribution of yeast RNA polymerase II and its control by Sen1 helicase. *Mol Cell*, 24(5), 735-746. doi:10.1016/j.molcel.2006.10.023

Kuehner, J. N., & Brow, D. A. (2008). Regulation of a eukaryotic gene by GTP-dependent start site selection and transcription attenuation. *Mol Cell*, 31(2), 201-211. doi:10.1016/j.molcel.2008.05.018

Kraig Kumfer (Advisor: John White)

Kumfer, K. T., Cook, S. J., Squirrell, J. M., Eliceiri, K. W., Peel, N., O'Connell, K. F., & White, J. G. (2010). CGEF-1 and CHIN-1 regulate CDC-42 activity during asymmetric division in the *Caenorhabditis elegans* embryo. *Mol Biol Cell*, 21(2), 266-277. doi:10.1091/mbc.E09-01-0060

Joseph Lancman (Advisor: John Fallon)

Ros, M. A., Dahn, R. D., Fernandez-Teran, M., Rashka, K., Caruccio, N. C., Hasso, S. M., Bitgood, J. J., **Lancman, J. J.**, Fallon, J. F. (2003). The chick

oligozeugodactyly (ozd) mutant lacks sonic hedgehog function in the limb. *Development*, 130(3), 527-537.

Lancman, J. J., Caruccio, N. C., Harfe, B. D., Pasquinelli, A. E., Schageman, J. J., Pertsemlidis, A., & Fallon, J. F. (2005). Analysis of the regulation of lin-41 during chick and mouse limb development. *Dev Dyn*, 234(4), 948-960. doi:10.1002/dvdy.20591

Stephanie Markovina (Advisor: Shigeki Miyamoto)

O'Connor, S., **Markovina, S.**, & Miyamoto, S. (2005). Evidence for a phosphorylation-independent role for Ser 32 and 36 in proteasome inhibitor-resistant (PIR) I κ B degradation in B cells. *Exp Cell Res*, 307(1), 15-25. doi:10.1016/j.yexcr.2005.02.015

Markovina, S., Callander, N. S., O'Connor, S. L., Kim, J., Werndli, J. E., Raschko, M., . . . Miyamoto, S. (2008). Bortezomib-resistant nuclear factor-kappaB activity in multiple myeloma cells. *Mol Cancer Res*, 6(8), 1356-1364. doi:10.1158/1541-7786.Mcr-08-0108

Yang, D. T., Young, K. H., Kahl, B. S., **Markovina, S.**, & Miyamoto, S. (2008). Prevalence of bortezomib-resistant constitutive NF-kappaB activity in mantle cell lymphoma. *Mol Cancer*, 7, 40. doi:10.1186/1476-4598-7-40

Markovina, S., Callander, N. S., O'Connor, S. L., Xu, G., Shi, Y., Leith, C. P., . . . Miyamoto, S. (2010). Bone marrow stromal cells from multiple myeloma patients uniquely induce bortezomib resistant NF-kappaB activity in myeloma cells. *Mol Cancer*, 9, 176. doi:10.1186/1476-4598-9-176

Callander, N., **Markovina, S.**, Eickhoff, J., Hutson, P., Campbell, T., Hematti, P., . . . Miyamoto, S. (2014). Acetyl-L-carnitine (ALCAR) for the prevention of chemotherapy-induced peripheral neuropathy in patients with relapsed or refractory multiple myeloma treated with bortezomib, doxorubicin and low-dose dexamethasone: a study from the Wisconsin Oncology Network. *Cancer Chemother Pharmacol*, 74(4), 875-882. doi:10.1007/s00280-014-2550-5

Huynh, M., Pak, C., **Markovina, S.**, Callander, N. S., Chng, K. S., Wuerzberger-Davis, S. M., . . . Miyamoto, S. (2018). Hyaluronan and proteoglycan link protein 1 (HAPLN1) activates bortezomib-resistant NF-kappaB activity and increases drug resistance in multiple myeloma. *J Biol Chem*, 293(7), 2452-2465. doi:10.1074/jbc.RA117.000667

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Bird, A. J., Swierczek, S., **Qiao, W.**, Eide, D. J., & Winge, D. R. (2006). Zinc metalloregulation of the zinc finger pair domain. *J Biol Chem*, 281(35), 25326-25335. doi:10.1074/jbc.M600655200

Qiao, W., Mooney, M., Bird, A. J., Winge, D. R., & Eide, D. J. (2006). Zinc binding to a regulatory zinc-sensing domain monitored in vivo by using FRET. *Proc Natl Acad Sci U S A*, 103(23), 8674-8679. doi:10.1073/pnas.0600928103

Qiao, W., Ellis, C., Steffen, J., Wu, C. Y., & Eide, D. J. (2009). Zinc status and vacuolar zinc transporters control alkaline phosphatase accumulation and activity in *Saccharomyces cerevisiae*. *Mol Microbiol*, 72(2), 320-334. doi:10.1111/j.1365-2958.2009.06644.x

Cathy Rasmussen, (Advisor: B. Lynn Allen-Hoffmann)

Gill, E. M., Straseski, J. A., **Rasmussen, C. A.**, Liliensiek, S. J., Eliceiri, K. W., Ramanujam, N., . . . Allen-Hoffmann, B. L. (2010). Visualization of morphological and molecular features associated with chronic ischemia in bioengineered human skin. *Microsc Microanal*, 16(2), 117-131. doi:10.1017/s1431927610000103

Rasmussen, C. A., Gibson, A. L., Schlosser, S. J., Schurr, M. J., & Allen-Hoffmann, B. L. (2010). Chimeric composite skin substitutes for delivery of autologous keratinocytes to promote tissue regeneration. *Ann Surg*, 251(2), 368-376. doi:10.1097/SLA.0b013e3181c1ab5f

Centanni, J. M., Straseski, J. A., Wicks, A., Hank, J. A., **Rasmussen, C. A.**, Lokuta, M. A., . . . Allen-Hoffmann, B. L. (2011). StrataGraft skin substitute is well-tolerated and is not acutely immunogenic in patients with traumatic wounds: results from a prospective, randomized, controlled dose escalation trial. *Ann Surg*, 253(4), 672-683. doi:10.1097/SLA.0b013e318210f3bd

Rasmussen, C. A., & Allen-Hoffmann, B. L. (2012). Chimeric Human Skin Substitute Tissue: A Novel Treatment Option for the Delivery of Autologous Keratinocytes. *Adv Wound Care (New Rochelle)*, 1(2), 57-62. doi:10.1089/wound.2011.0340

Schurr, M. J., Foster, K. N., Lokuta, M. A., **Rasmussen, C. A.**, Thomas-Virnig, C. L., Faucher, L. D., . . . Allen-Hoffmann, B. L. (2012). Clinical Evaluation of NIKS-Based Bioengineered Skin Substitute Tissue in Complex Skin Defects: Phase I/IIa Clinical Trial Results. *Adv Wound Care (New Rochelle)*, 1(2), 95-103. doi:10.1089/wound.2011.0343

De Abrew, K. N., Thomas-Virnig, C. L., **Rasmussen, C. A.**, Bolterstein, E. A., Schlosser, S. J., & Allen-Hoffmann, B. L. (2014). TCDD induces dermal accumulation of keratinocyte-derived matrix metalloproteinase-10 in an organotypic model of human skin. *Toxicol Appl Pharmacol*, *276*(3), 171-178. doi:10.1016/j.taap.2014.02.010

Rasmussen, C. A., Tam, J., Steiglitz, B. M., Bauer, R. L., Peters, N. R., Wang, Y., . . . Allen-Hoffmann, B. L. (2014). Chimeric autologous/allogeneic constructs for skin regeneration. *Mil Med*, *179*(8 Suppl), 71-78. doi:10.7205/milmed-d-13-00480

Ryan Saffert (Advisor: Robert Kalejta)

Saffert, R. T., & Kalejta, R. F. (2006). Inactivating a cellular intrinsic immune defense mediated by Daxx is the mechanism through which the human cytomegalovirus pp71 protein stimulates viral immediate-early gene expression. *J Virol*, *80*(8), 3863-3871. doi:10.1128/jvi.80.8.3863-3871.2006

Saffert, R. T., & Kalejta, R. F. (2007). Human cytomegalovirus gene expression is silenced by Daxx-mediated intrinsic immune defense in model latent infections established in vitro. *J Virol*, *81*(17), 9109-9120. doi:10.1128/jvi.00827-07

Saffert, R. T., & Kalejta, R. F. (2008). Promyelocytic leukemia-nuclear body proteins: herpesvirus enemies, accomplices, or both? *Future Virol*, *3*(3), 265-277. doi:10.2217/17460794.3.3.265

Saffert, R. T., Penkert, R. R., & Kalejta, R. F. (2010). Cellular and viral control over the initial events of human cytomegalovirus experimental latency in CD34+ cells. *J Virol*, *84*(11), 5594-5604. doi:10.1128/jvi.00348-10

Hwang, J., **Saffert, R. T.**, & Kalejta, R. F. (2011). Elongin B-mediated epigenetic alteration of viral chromatin correlates with efficient human cytomegalovirus gene expression and replication. *MBio*, *2*(2), e00023-00011. doi:10.1128/mBio.00023-11

Neema Saless (Advisor: Robert Blank)

Saless, N., Litscher, S. J., Lopez Franco, G. E., Houlihan, M. J., Sudhakaran, S., Raheem, K. A., . . . Blank, R. D. (2009). Quantitative trait loci for biomechanical performance and femoral geometry in an intercross of recombinant congenic mice: restriction of the Bmd7 candidate interval. *Faseb j*, *23*(7), 2142-2154. doi:10.1096/fj.08-118679

Saless, N., Lopez Franco, G. E., Litscher, S., Kattappuram, R. S., Houlihan, M. J., Vanderby, R., . . . Blank, R. D. (2010). Linkage mapping of femoral material

properties in a reciprocal intercross of HcB-8 and HcB-23 recombinant mouse strains. *Bone*, 46(5), 1251-1259. doi:10.1016/j.bone.2010.01.375

Saless, N., Litscher, S. J., Houlihan, M. J., Han, I. K., Wilson, D., Demant, P., & Blank, R. D. (2011). Comprehensive skeletal phenotyping and linkage mapping in an intercross of recombinant congenic mouse strains HcB-8 and HcB-23. *Cells Tissues Organs*, 194(2-4), 244-248. doi:10.1159/000324774

Saless, N., Litscher, S. J., Vanderby, R., Demant, P., & Blank, R. D. (2011). Linkage mapping of principal components for femoral biomechanical performance in a reciprocal HCB-8 x HCB-23 intercross. *Bone*, 48(3), 647-653. doi:10.1016/j.bone.2010.10.165

Kimberly Schultz (Advisor: Paul Friesen)

Schultz, K. L., & Friesen, P. D. (2009). Baculovirus DNA replication-specific expression factors trigger apoptosis and shutoff of host protein synthesis during infection. *J Virol*, 83(21), 11123-11132. doi:10.1128/jvi.01199-09

Schultz, K. L., Wetter, J. A., Fiore, D. C., & Friesen, P. D. (2009). Transactivator IE1 is required for baculovirus early replication events that trigger apoptosis in permissive and nonpermissive cells. *J Virol*, 83(1), 262-272. doi:10.1128/jvi.01827-08

Vandergaast, R., **Schultz, K. L.**, Cerio, R. J., & Friesen, P. D. (2011). Active depletion of host cell inhibitor-of-apoptosis proteins triggers apoptosis upon baculovirus DNA replication. *J Virol*, 85(16), 8348-8358. doi:10.1128/jvi.00667-11

Yixin Tang (Advisor: Nader Sheibani)

Kondo, S., **Tang, Y.**, Scheef, E. A., Sheibani, N., & Sorenson, C. M. (2008). Attenuation of retinal endothelial cell migration and capillary morphogenesis in the absence of bcl-2. *Am J Physiol Cell Physiol*, 294(6), C1521-1530. doi:10.1152/ajpcell.90633.2007

Sheibani, N., **Tang, Y.**, & Sorenson, C. M. (2008). Paxillin's LD4 motif interacts with bcl-2. *J Cell Physiol*, 214(3), 655-661. doi:10.1002/jcp.21256

Tang, Y., Scheef, E. A., Wang, S., Sorenson, C. M., Marcus, C. B., Jefcoate, C. R., & Sheibani, N. (2009). CYP1B1 expression promotes the proangiogenic phenotype of endothelium through decreased intracellular oxidative stress and thrombospondin-2 expression. *Blood*, 113(3), 744-754. doi:10.1182/blood-2008-03-145219

Grutzmacher, C., Park, S., Elmergreen, T. L., **Tang, Y.**, Scheef, E. A., Sheibani, N., & Sorenson, C. M. (2010). Opposing effects of bim and bcl-2 on lung

endothelial cell migration. *Am J Physiol Lung Cell Mol Physiol*, 299(5), L607-620. doi:10.1152/ajplung.00390.2009

Tang, Y., Scheef, E. A., Gurel, Z., Sorenson, C. M., Jefcoate, C. R., & Sheibani, N. (2010). CYP1B1 and endothelial nitric oxide synthase combine to sustain proangiogenic functions of endothelial cells under hyperoxic stress. *Am J Physiol Cell Physiol*, 298(3), C665-678. doi:10.1152/ajpcell.00153.2009

Catherine Vrentas (Advisor: Richard Gourse)

Vrentas, C. E., Gaal, T., Ross, W., Ebright, R. H., & Gourse, R. L. (2005). Response of RNA polymerase to ppGpp: requirement for the omega subunit and relief of this requirement by DksA. *Genes Dev*, 19(19), 2378-2387. doi:10.1101/gad.1340305

Rutherford, S. T., Lemke, J. J., **Vrentas, C. E.**, Gaal, T., Ross, W., & Gourse, R. L. (2007). Effects of DksA, GreA, and GreB on transcription initiation: insights into the mechanisms of factors that bind in the secondary channel of RNA polymerase. *J Mol Biol*, 366(4), 1243-1257. doi:10.1016/j.jmb.2006.12.013

Vrentas, C. E., Gaal, T., Berkmen, M. B., Rutherford, S. T., Haugen, S. P., Vassilyev, D. G., . . . Gourse, R. L. (2008). Still looking for the magic spot: the crystallographically defined binding site for ppGpp on RNA polymerase is unlikely to be responsible for rRNA transcription regulation. *J Mol Biol*, 377(2), 551-564. doi:10.1016/j.jmb.2008.01.042

Vrentas, C. E., Gaal, T., Burgess, R. R., & Gourse, R. L. (2010). An improved procedure for the purification of the Escherichia coli RNA polymerase omega subunit. *Protein Expr Purif*, 71(2), 190-194. doi:10.1016/j.pep.2009.11.009

Vrentas, C. E., Zinnen, T., & Huebert Lima, D. J. (2011). The MicroSafari: A Journey into Microbiology, an Expedition into Engagement. *J Microbiol Biol Educ*, 12(1), 61-63. doi:10.1128/jmbe.v12i1.265

Lennon, C. W., Ross, W., Martin-Tomasz, S., Touloukhonov, I., **Vrentas, C. E.**, Rutherford, S. T., . . . Gourse, R. L. (2012). Direct interactions between the coiled-coil tip of DksA and the trigger loop of RNA polymerase mediate transcriptional regulation. *Genes Dev*, 26(23), 2634-2646. doi:10.1101/gad.204693.112

Ross, W., **Vrentas, C. E.**, Sanchez-Vazquez, P., Gaal, T., & Gourse, R. L. (2013). The magic spot: a ppGpp binding site on E. coli RNA polymerase responsible for regulation of transcription initiation. *Mol Cell*, 50(3), 420-429. doi:10.1016/j.molcel.2013.03.021

Chang-Yi (Charlie) Wu (Advisor: David Eide)

Herbig, A., Bird, A. J., Swierczek, S., McCall, K., Mooney, M., **Wu, C. Y.**, . . . Eide, D. J. (2005). Zap1 activation domain 1 and its role in controlling gene expression in response to cellular zinc status. *Mol Microbiol*, *57*(3), 834-846. doi:10.1111/j.1365-2958.2005.04734.x

Wu, C. Y., Bird, A. J., Winge, D. R., & Eide, D. J. (2007). Regulation of the yeast TSA1 peroxiredoxin by ZAP1 is an adaptive response to the oxidative stress of zinc deficiency. *J Biol Chem*, *282*(4), 2184-2195. doi:10.1074/jbc.M606639200

Wu, C. Y., Bird, A. J., Chung, L. M., Newton, M. A., Winge, D. R., & Eide, D. J. (2008). Differential control of Zap1-regulated genes in response to zinc deficiency in *Saccharomyces cerevisiae*. *BMC Genomics*, *9*, 370. doi:10.1186/1471-2164-9-370

Qiao, W., Ellis, C., Steffen, J., **Wu, C. Y.**, & Eide, D. J. (2009). Zinc status and vacuolar zinc transporters control alkaline phosphatase accumulation and activity in *Saccharomyces cerevisiae*. *Mol Microbiol*, *72*(2), 320-334. doi:10.1111/j.1365-2958.2009.06644.x

Wu, C. Y., Roje, S., Sandoval, F. J., Bird, A. J., Winge, D. R., & Eide, D. J. (2009). Repression of sulfate assimilation is an adaptive response of yeast to the oxidative stress of zinc deficiency. *J Biol Chem*, *284*(40), 27544-27556. doi:10.1074/jbc.M109.042036

Wu, C. Y., Steffen, J., & Eide, D. J. (2009). Cytosolic superoxide dismutase (SOD1) is critical for tolerating the oxidative stress of zinc deficiency in yeast. *PLoS One*, *4*(9), e7061. doi:10.1371/journal.pone.0007061

Yue Zhang (Advisor: Daniel Greenspan)

Gonzalez, E. M., Reed, C. C., Bix, G., Fu, J., **Zhang, Y.**, Gopalakrishnan, B., . . . Iozzo, R. V. (2005). BMP-1/Tolloid-like metalloproteases process endorepellin, the angiostatic C-terminal fragment of perlecan. *J Biol Chem*, *280*(8), 7080-7087. doi:10.1074/jbc.M409841200

Ge, G., **Zhang, Y.**, Steiglitz, B. M., & Greenspan, D. S. (2006). Mammalian tolloid-like 1 binds procollagen C-proteinase enhancer protein 1 and differs from bone morphogenetic protein 1 in the functional roles of homologous protein domains. *J Biol Chem*, *281*(16), 10786-10798. doi:10.1074/jbc.M511111200

Zhang, Y., Ge, G., & Greenspan, D. S. (2006). Inhibition of bone morphogenetic protein 1 by native and altered forms of alpha2-macroglobulin. *J Biol Chem*, *281*(51), 39096-39104. doi:10.1074/jbc.M601362200

Huang, G., **Zhang, Y.**, Kim, B., Ge, G., Annis, D. S., Mosher, D. F., & Greenspan, D. S. (2009). Fibronectin binds and enhances the activity of bone morphogenetic protein 1. *J Biol Chem*, *284*(38), 25879-25888. doi:10.1074/jbc.M109.024125

Kobayashi, K., Luo, M., **Zhang, Y.**, Wilkes, D. C., Ge, G., Grieskamp, T., . . . Sato, T. N. (2009). Secreted Frizzled-related protein 2 is a procollagen C proteinase enhancer with a role in fibrosis associated with myocardial infarction. *Nat Cell Biol*, *11*(1), 46-55. doi:10.1038/ncb1811