

# Graduation with Distinction in Biology

**Helena Abbott**, Exploring neurodegeneration in fruit flies: how does Pak3 loss rescue the spastin mutant phenotype? (Dr. Nina Sherwood, Department of Biology)

**Priya Alagesan**, Exploring the biased signaling patterns of C-X-C motif chemokine receptor 3, (Dr. Sudarshan Rajagopal, Department of Biochemistry)

**Albert Antar**, Extracellular signal-regulated kinase signaling by the MAS G-protein coupled receptor, (Dr. Robert Lefkowitz, Department of Biochemistry)

**Monica Arniella**, Signaling between the lines: early intervein development in Lepidoptera and its effect on wing growth and vein positioning, (Dr. H. Frederik Nijhout, Department of Biology)

**Ryan M. Bertoli**, A putative transcription factor plays a role in cell morphology and division in Halophilic archaea, (Dr. Amy Schmid, Department of Biology)

**Clara Bird**, A new method for using surface texture to predict potential Adelie penguin (*Pygoscelis adeliae*) habitat off the Western Antarctic Peninsula using 3D structure from motion data collected with UAV, (Dr. David W. Johnston, Nicholas School of the Environment)

**\*James Bradford**, Bacterial natural products in the mosquito microbiome, (Dr. Emily Derbyshire, Department of Molecular Genetics and Microbiology)

**Francesca Brancati**, Evaluation of the knockout of the glycerol and water channel host protein AQP7 on parasitemia levels of *Plasmodium* in human hepatocyte cell line, (Dr. Emily Derbyshire, Department of Molecular Genetics and Microbiology)

**Xiaoyu Cai**, The role of human GGA1 gene in malaria liver infection, (Dr. Emily Derbyshire, Department of Molecular Genetics and Microbiology)

**Wesley Chan**, Manipulating cancer cell phenotypic transitions reveals information on cancer cell epithelial plasticity dynamics, (Drs. Jason Somarelli, Kathryn Ware, & Tian Zhang, Department of GU Oncology)

**\*Shivam Narayan Dave**, Identification of conformationally selective nanobodies for allosteric regulation of the Beta-2 Adrenergic Receptor, (Dr. Robert Lefkowitz, Department of Biochemistry)

**\*Reena Reed Debray**, Testing how social relationships “get under the skin”: mitochondrial DNA regulation in a social primate, (Dr. Jenny Tung, Departments of Biology & Evolutionary Anthropology)

**Jason Dinh**, Recreational boat noise disrupts larval recruitment in eastern oysters (*Crassostrea virginica*), (Dr. Douglas Nowacek, Nicholas School of the Environment)

**Alexander Eric Doan**, daf-16/FoxO promotes trehalose synthesis during *C. elegans* L1 starvation survival, (Dr. L. Ryan Baugh, Department of Biology)

**Jamie Michelle Derivas Dohopolski**, The perils of mating: regulation of cell-cell fusion using *Saccharomyces cerevisiae* as a model, (Dr. Daniel Lew, Department of Pharmacology & Cancer Biology)

**Liane Emerson**, Sexual differentiation in *Plasmodium falciparum* using a single-cell approach, (Dr. Jen-Tsan Ashley Chi, Department of Molecular Genetics and Microbiology)

**\*Jared Eng**, Combatting enzalutamide drug resistance in metastatic prostate cancer: p38 inhibition as a potential novel strategy, (Dr. Jason Somarelli, Department of Department of Molecular Genetics and Microbiology)

**\*Dillon Fernando**, Identifying how ufmylation of RAB1B regulates IFN- $\beta$  signaling, (Dr. Stacy Horner, Department of Molecular Genetics and Microbiology)

**Alvin Han**, Short-chain fatty acids are produced by zebrafish microbiota and influence glucose homeostasis, (Dr. John Rawls, Department of Molecular Genetics and Microbiology)

**Jake Herb**, A spoonful of sugar: suppressor analysis demonstrates that the transcription factor TrmB is essential in *Haloferax volcanii* under gluconeogenic conditions, (Dr. Amy Schmid, Department of Biology)

**Garrett Holmes**, Harmine and curcumin induced suppression of tumor growth in multiple glioblastoma subtypes, (Dr. Madan Kwatra, Department of Anesthesiology)

**Carmen Hoyt**, A shortage of sharks: quantifying biodiversity changes in a community of sharks in Onslow Bay, N.C., (Dr. Meagan Dunphy-Daly, Nicholas School of the Environment)

**Angelina Hwang**, Linking chronic kidney disease and sodium bicarbonate supplementation with gut microbiota composition, (Dr. Julia Scialla, Department of Medicine)

**Sejal Jain**, Oncogenic transformation alters airway stem cell behavior in 3D organoid culture, (Dr. Purushothama Rao Tata, Department of Cell Biology)

**Varun Jain**, Tissue-specific targeting of collagen IV to developing basement membranes in *C. elegans*, (Dr. David Sherwood, Department of Biology)

**Fabian Jimenez Contreras**, Effects of proximal tubule angiotensin II signaling on energy metabolism in the kidney, (Dr. Susan Gurley, Department of Pharmacology & Cancer Biology)

**\*Matina E. Kakalis**, RV305 vaccine-induced antibodies recognize breakthrough HIV-1-infected cells, (Dr. Guido Ferrari, Department of Molecular Genetics and Microbiology)

**\*Joseph Kreitz**, Interaction network optimization improves the antimicrobial efficacy of phage cocktails, (Dr. Lingchong You, Department of Biomedical Engineering)

**Napasorn (Nina) Kuprasertkul**, Characterizing a novel genetically engineered mouse model of alveolar rhabdomyosarcoma, (Dr. Corinne Linardic, Department of Pharmacology & Cancer Biology)

**Frederick Matthew Lang**, A novel treatment for glioblastoma: Mesenchymal stem cells as natural bio-factories for exosomes carrying miR-124a, (Dr. John Sampson, Department of Neurosurgery)

**Alexander Lee**, Age-related differences in brain structural connectivity and fluid cognition, (Dr. David Madden, Department of Psychiatry and Behavioral Sciences)

**Devon O. Lewis**, Adaptation of tissue clearing methods to investigate the effect of chemotherapy on innervation in the ovary, (Dr. Blanche Capel, Department of Cell Biology)

**Anna Li**, Adenoviral transduction of CXCR1 into human bronchial epithelial cells may stimulate directed migration towards IL-8, (Dr. Michael Gunn, Department of Immunology)

**Xinyu Li**, Allometry of metamorphosis in *Oncopeltus fasciatus*, (Dr. H. Frederik Nijhout, Department of Biology)

**Youlei Li**, Identification of novel regulators of anchor cell invasion in *Caenorhabditis elegans*, (Dr. David Sherwood, Department of Biology)

**Andrea Lin**, Discovery of a novel protein interaction network for *Arabidopsis NPR1*: a master transcriptional regulator of plant immunity, (Drs. Xinnian Dong & John Withers, Department of Biology)

**Jackie J. Lin**, Calcineurin as an antifungal target: testing FK506 analogs against *Mucor circinelloides* and *Cryptococcus neoformans*, (Dr. Joseph Heitman, Department of Molecular Genetics and Microbiology)

**Jana Lu**, Identification of diagnostic single chain recombinant antibodies for Zika virus, (Dr. Michael D. Gunn, Department of Immunology)

**Katherine Maitland**, Effects of Cannabis-associated alterations in DNA methylation in a unique sequence repeat in the aryl hydrocarbon receptor repressor gene (AHRR) on downstream transcription, (Dr. Susan K. Murphy, Department of Obstetrics)

**Madeline Matthys**, Nodal signaling regulates blastocoelar and pigment cell differentiation in the sea urchin *Lytechinus variegatus*, (Dr. David McClay, Department of Biology)

**Melaney Mayes**, Behavioral effects of hormonal contraception on *Eulemur flavifrons*, (Dr. Peter Klopfer, Department of Biology)

**Samantha McLendon**, Social function of disgust reactions in *Lemur catta*, (Dr. Charles Nunn, Department of Evolutionary Anthropology)

**Ambika Menon**, Biomarkers associated with longitudinal cognitive decline in veterans with traumatic brain injury, (Dr. Larry Tupler, Department of Psychiatry and Behavioral Sciences)

**Colby Newson**, Targeting TAR-RNA binding mechanisms with small molecules, (Dr. Amanda Hargrove, Department of Chemistry)

**Pranalee Patel**, Targeting the DNA synthesis pathway with ribonucleotide reductase (RNR) inhibitor Didox in an estrogen receptor negative breast cancer cell line model, (Dr. Gayathri Devi, Department of Surgery)

**Shubham Patel**, Aging of embryonic cardiomyocytes on downstream phosphorylation and functional effects of IGF1, (Dr. Conrad Hodgkinson, Department of Medicine)

**\*Vir Patel**, Tracing the origins of antimalarial resistance in *Plasmodium vivax*, (Dr. Greg Wray, Department of Biology)

**Taji Phillips**, Pigment cells of embryonic *L. Variegatus*: an analysis of motility and immunology, (Dr. David McClay, Department of Biology)

**Katelyn Ripple**, Leukemogenesis involving the nuclear export carrier CRM1: utilizing a novel protein SQSTM1-NUP214 to study the role of CRM1 in abnormal gene activation of HOXA, (Dr. Catherine Lavau, Department of Pediatric Hematology Oncology)

**Hannah Robinson**, Preliminary assessment of river otter (*Lontra canadensis*) utilizing marine habitats in coastal North Carolina, (Dr. Brian Silliman, Duke University Marine Lab)

**Yuming Shi**, Role of the nuclear pore complex in mammalian X chromosome dosage compensation, (Dr. Eda Yildirim, Department of Cell Biology)

**Eliane Shinder**, The tumor microenvironment: macrophage polarization during breast cancer dormancy and recurrence, (Dr. James Alvarez, Department of Pharmacology & Cancer Biology)

**Sydney Stanley**, Identifying the substrates and binding partner of a viral protein to determine the mechanism of host IL-10 induction, (Dr. David Pickup, Department of Molecular Genetics and Microbiology)

**Mickias Tegegn**, Successful restoration of intracellular ATP in sickle cell red blood cells: a novel method reducing endothelial adhesion, (Dr. Marilyn Telen, Department of Pathology)

**Jasmine Wang**, Optineurin-mediated neurodegeneration in glaucoma, (Dr. Henry Tseng, Department of Ophthalmology)

**Erin Weingarten**, Vegetation complexity drives avian assemblages in southern Africa, (Dr. Susan Alberts, Department of Biology)

**\*Abigail Xie**, Systematically mapping metabolic-apoptotic interactions in acute myeloid leukemia using loss-of-function CRISPR/Cas9 screening, (Dr. Kris Wood, Department of Pharmacology & Cancer Biology)

**Eric Xu**, The role of Yap1 amplification in injury-induced soft tissue sarcomas in mice, (Dr. David Kirsch, Department of Radiation Oncology)

**Shengnan Xu**, Systems-based analyses of gene expression reveal autophagy upregulation as a resistance mechanism to cancer therapies during epithelial plasticity, (Dr. Jason Somarelli, Department of Medicine)

**Madison Zamora**, Triplication of the SNCA locus exacerbates neuronal nuclear aging, (Dr. Ornit Chiba-Falek, Department of Neurology)

**Joy C. Zhang**, Stable isotope analyses reveal impacts of resource availability and interspecies competition on body sizes of California Channel Islands deer mice, (Drs. V. Louise Roth and John Mercer, Department of Biology)