



2021 Graduates with Distinction in Biology

Christine Adjangba*, Sex-biased investment: Measuring energy expenditure in baboon mothers, (*Dr. Susan Alberts, Department of Biology*)

Abena Antobre, Biomagnification of heavy metals: determining whether Cu, Zn, Pb, & Fe biomagnify in riparian ecosystems around Duke University, (*Dr. Emily Bernhardt, Department of Biology*)

Catherine Bailey, Impact of boring sponge on oyster reef recruitment and implications for reef reconstruction, (*Dr. Daniel Rittschof, Department of Biology and the Duke Marine Laboratory*)

George Thomas Barlow, Building a light-sheet microscope for whole-brain calcium imaging in larval zebrafish of a schizophrenia-associated mutant, (*Dr. Eva Naumann, Department of Neurobiology*)

Preeti Bhanap*, A novel transcriptional regulator, TbsP, involved in cell shape in the haloarchaeon *Haloferax volcanii*, (*Dr. Amy Schmid, Department of Biology*)

Noelia Boldizar, Receptor internalization as a mechanism of biased agonism at CXCR3, (*Dr. Sudarshan Rajagopal, Department of Biochemistry*)

Annalise Bracher, Investigating local translation of extracellular matrix and NM myosin II proteins in radial glial cell endfeet, (*Dr. Debra Silver, Department of Molecular Genetics and Microbiology*)

David Chen, Basement membrane tissue integrity, maintenance, and fibrosis in long-lived *C. elegans*, (*Dr. David Sherwood, Department of Biology*)

Yuexuan Chen, Potential transmission of cross-species adenovirus infections at the Duke Lemur Center, (*Dr. Gregory Gray, Department of Medicine - Infectious Disease*)

Divya Dayanidhi, Isolation of potential anti-cancer compounds from the tunicate *Styela plicata*: leveraging marine resources for human disease treatments, (*Dr. Jason Somarelli, Department of Medicine and Dr. Christopher Roy, Department of Chemistry*)

Emily Dean, Supernumerary centrosomes and chromosomal instability in genome-duplicated cells of a Her2+ breast cancer model, (*Dr. James V Alvarez, Department of Pharmacology and Cancer Biology*)

Raksha Doddabele, Inferring the evolutionary history of the coupled processes of hypoxia and cellular motility in eukaryotes, (*Dr. Jason Somarelli, Department of Medicine*)

Claire Engstrom, Developing a reporter cell line for DMD exon 51 deletion with CRISPR-Cas9, (*Dr. Charles Gersbach, Department of Biomedical Engineering*)

Abigail Elaine Franklin, Using ancient genomes to analyze the history of Neanderthal DNA in Europeans and East Asians, (*Dr. Alex Hartemink, Duke Departments of Computer Science and Biology and Dr. Tony Capra, University of California – San Francisco*)

Avery Fulford*, Comparative genomic analysis of 250-million-year-old halophilic archaeon *Halosimplex carlsbadense* with related species, (*Dr. Amy Schmid, Department of Biology*)

Meghana Giri, Generation of a zebrafish transgenic line for manipulating notochord patterning, (*Dr. Michel Bagnat, Department of Cell Biology*)

Emma Glenn, The genetic basis of recessive lethal mutations in natural populations, (Dr. Mohamed Noor, Department of Biology)

Alexander Goff, Modeling the cardiac myovascular niche using induced pluripotent stem cells, (Dr. Ravi Karra, Department of Medicine - Cardiology)

Rachel Gropper*, Development of recombinant antibodies for a novel point-of-care Lassa virus assay, (Dr. Michael Dee Gunn, Department of Immunology)

Bing Xuan Ho, The role of codon usage bias and synonymous mutations in phospholamban expression, (Dr. Christopher Holley & Dr. Paul Agris, Department of Medicine)

Cole Honeycutt, Phosphorylation patterns on the chemokine receptor CXCR3 regulate G protein- and β -arrestin-mediated GPCR biased signaling and function, (Dr. Sudarshan Rajagopal, Department of Biochemistry)

Naeema Hopkins-Kotb*, Characterization of human X chromosome abnormalities: Novel fates and structures from an engineered chromosome assay, (Dr. Beth Sullivan, Department of Molecular Genetics and Microbiology)

Sakib Hoque*, A paleobiological review on fern-insect interactions: Were ferns underutilized? (Dr. Kathleen Pryer, Department of Biology)

Lenique Huggins, Meta-Analysis of variations in association between APOE4 and Alzheimer's disease and related dementias across Hispanic regions of origin, (Dr. Hanzhang Xu, Duke School of Medicine)

Katlyn Hurst, Investigating Grk3-deficiency as a model of Paget's Disease of Bone, (Dr. Teresa Tarrant, Department of Immunology and Rheumatology)

Margret Joos, Suppressing chemoresistance in acute myeloid leukemia with combination chemotherapies: Using barcoding technology to track the fate of cells, (Dr. Kris Wood, Department of Pharmacology and Cancer Biology)

Sweta Kafle, The Role of Erythrocyte *Rpl13a* snoRNAs in Regulation of Oxidative Stress in Sickle Cell Disease, (Dr. Rahima Zennadi, Department of Medicine- Hematology)

Aren Kalash, Predictors of juvenile male dominance status - a study of wild savannah baboons, (Dr. Susan Alberts, Department of Biology)

Sahar Kaleem, Investigating the potential of the mouse model for olfaction to predict human olfactory receptor-ligand binding patterns, (Dr. Hiroaki Matsunami, Department of Molecular Genetics and Microbiology)

Ezra Kalmowitz*, The evolution of immune cell subsets during hormonal therapy resistance in men with metastatic prostate cancer, (Drs. Andrew Armstrong and Jason Somarelli, Department of Medicine)

Jiwoo Kim, Characterization of general anesthetics-activated neurons in the bed nucleus of the stria terminalis, (Dr. Fan Wang, Department of Neurobiology)

Bailey Phillips Knight, Investigating the functional relationship of POSTN and FASN in ovarian cancer, (Dr. Zhiqing Huang, Department of Obstetrics and Gynecology, Duke School of Medicine)

Leonie Kurzlechner*, Role of the Na⁺/K⁺-ATPase pump in cardiac electrophysiology and intracellular Ca²⁺ handling, (Dr. Andrew Landstrom, Department of Pediatrics - Division of Cardiology)

Sarah K. Kwartler, Investigating invertebrate and enzymatic bioremediation of plastic waste, (Dr. Jason Somarelli, Department of Medicine)

Harry Liang*, Maf transcription factors and cell differentiation during epidermal development, (Dr. Terry Lechler, Department of Cell Biology)

Samuel Liu*, Establishment and characterization of culture conditions for primary human lung endothelial cells, (Dr. Purushothama Rao Tata, Department of Cell Biology)

Joy Lu, The effects of Forever Chemicals on human health: Investigating the toxicity of environmentally persistent compounds GenX and PFOA in human liver cells, (Dr. Tom Schultz, Duke Marine Laboratory and Dr. Jason Somarelli, Department of Medicine)

Hannah Marchuk, Refining Constraint-Based Reconstruction Analysis (COBRA) models for *Haloferax volcanii* and *Halobacterium salinarum*: creating a knowledge base and comparing halophile metabolism, (Dr. Amy Schmid, Department of Biology)

Amelia Martin, Diversification of the *Leishmania* virulence factor GP63 drives divergent expression patterns, activating conditions, and substrate specificities, (Dr. Dennis Ko, Department of Molecular Genetics and Microbiology)

Kirill Milov*, Kynurenergic Treatments of Huntington's Disease – Mathematical Modeling Insights, (Dr. Michael Reed, Department of Mathematics)

Dang Nguyen, Characterizing the effects of prenatal exposure to air pollution and maternal stress: a role for the dopamine system and the gut microbiome in Autism Spectrum Disorder, (Dr. Staci Bilbo, Department of Psychology and Neuroscience)

Mihir Narendra Patel*, Investigating ATM regulation of cohesin-associated proteins NIPBL, WAPL, and PDS5A, (Dr. Michael Kastan, Department of Pharmacology and Cancer Biology)

Ayana Paul, Can hypervirulence emerge from bisexual mating? An inquiry into the inheritance of virulent traits in *Cryptococcus neoformans*, (Dr. John Perfect, Department of Molecular Genetics and Microbiology)

Margaret Pickard, Wild male baboon growth curves and effects of early-life adversity, (Dr. Susan Alberts, Department of Biology)

Victoria Priester*, Visual acuity in the Florida fighting conch (*Strombus alatus*), (Dr. Sonke Johnsen, Department of Biology)

Daniel Raftis, Optimization of Basal AKT Phosphorylation in C2C12 Cells for TASK-1 in-Vitro Experiments, (Dr. Dennis Abraham, Department of Medicine)

Angela Renne, Optimization of gDNA extraction from blood spot cards for SIDS biomarkers, (Dr. Andrew Landstrom, Departments of Cell Biology and Pediatrics)

Luke Sang, Investigating the functional and structural characterization of RAMOSA3 from maize, (Dr. Richard Brennan, Department of Biochemistry)

Ryan H. Sellers, Examining the Function of Adhesion Receptors DDR-2 and PTP-3 in *C. elegans*, (Dr. David Sherwood, Department of Biology)

Tymofii Sokolskyi, Bacterial detoxification in host protection: response of *C. elegans* gut microbiome to aflatoxin B1, (Dr. Joel Meyer, Nicholas School of the Environment)

Sami Soliman, Therapeutic vulnerabilities in transcriptionally active tumors: The role of BRD4 in maintaining the genome integrity of MYC-driven cancer cells, (Dr. Scott Floyd, Department of Radiation Oncology, Duke School of Medicine)

Wendy Tan*, Characterizing the expression of histone H1.4 expression throughout development and its role in Rahman Syndrome, *(Dr. Anne West, Department of Neurobiology)*

Grace Travers, A behavioral and genetic investigation of the circadian effects of Alzheimer's prone genotypes, blue light exposure, and mild traumatic brain injury, *(Dr. Rebecca Klein, Department of Psychiatry & Behavioral Sciences)*

Rose Trimpey-Warhaftig, Measuring the effects of environmental pollutants on zebrafish, *(Dr. Richard Di Giulio, Nicholas School of the Environment)*

Daniel Tsai*, Investigation of *D. melanogaster* cell sheet morphogenesis: a live imaging approach to study the importance of four genomic regions on the 2L chromosome to dorsal closure, *(Dr. Daniel Kiehart, Department of Biology)*

Natalie Weinrauch, Effects of molecular weight and RGD insertions on partially ordered polypeptides as a biomaterial for supporting cell culture, *(Dr. Ashutosh Chilkoti, Department of Biomedical Engineering)*

Zachary Weishampel, Identification and characterization of potential plastic-degrading enzymes in microbial genomes, *(Dr. Jason Somarelli and Dr. William Eward, Department of Medicine)*

Tzu-Chieh Michael Wen*, Pak1 is required for epithelial-mesenchymal transition in the PMC lineage of the developing sea urchin embryo, *(Dr. David McClay, Department of Biology)*

Tristan Westover, Phylogenetic investigation of physiological variables in marine and terrestrial mammals, *(Dr. Andreas Fahlman, Department of Marine Science and Conservation and Dr. Jason Somarelli, Department of Medicine)*

William White, Phylogenetic relatedness structures partner associations in cyanolichens, *(Dr. François Lutzoni, Department of Biology)*

Shuyun Xiao*, The neural mechanism of silence: amygdala neurons non-aversively suppress vocalizations across sexes and social contexts in mice, *(Dr. Richard Mooney, Department of Neurobiology)*

Kelly W Yang, Visualizing cancer malignancy: The characterization of two novel fluorescent Hsp90 probes, HS-273 and HS-279, *(Dr. Timothy Haystead, Department of Pharmacology and Cancer Biology)*

Alan Haosheng Zhao, Integrative Audible and Ultrasonic Sound for Pain Evaluation, *(Dr. Andrea Nackley, Department of Anesthesiology)*

Amy Zhao, Role of the Nucleoporin 153 in transcription and spatial positioning of X-linked genes, *(Dr. Eda Yildirim, Department of Cell Biology)*

Megan Zhao*, NUA2: a novel molecular target for prostate cancer that may have increased efficacy in obesity-driven prostate cancer, *(Dr. Everardo Macias, Department of Pathology)*

Trudy Zou, What drives metastasis in chondrosarcoma?: The role of NF- κ B activation, *(Dr. Julia Visgauss, Department of Orthopaedic Surgery)*

***High Distinction**