



## 2021 Candidates for Graduation 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 *Haloflex 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  $\beta$ -arrestin-mediated GPCR biased signaling and function, (Dr. Sudarshan Rajagopal, Department of Biochemistry)

**Naeema Hopkins-Koth\***, 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<sup>+</sup>/K<sup>+</sup>-ATPase pump in cardiac electrophysiology and intracellular Ca<sup>2+</sup> 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- $\kappa$ B activation, *(Dr. Julia Visgauss, Department of Orthopaedic Surgery)*

**\*High Distinction**