HGSAC

6TH ANNUAL LIFE SCIENCES SYMPOSIUM

MAY 12
8 A.M. – 6 P.M.
SMEAL COLLEGE OF BUSINESS BUILDING

SPONSORS

PennState Huck Institutes of the Life Sciences
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Schedule	THURSDAY MAY 12, 2021
8:00 AM	**Poster Setup & Breakfast**
SEE AT ANY TIME	**My Research video contest** People's choice winner is the most "liked" video on YouTube. Vote by May 12 at 1:00 PM. Link: **Exhibitor Booths and Posters** Atrium, Smeal College of Business
8:40-9:00 AM	**Opening ceremony:** Welcome & tips to make the most out of the symposium. Opening remarks by Dr. Troy Ott, Associate Director of The Huck Institutes of the Life Sciences.
9:00 – 9:55 AM	**Keynote Presentation** Room 107, Smeal College of Business Richard Harris | Science Friction: What's slowing progress in biomedical research
10:00-11:30 AM	**Oral presentations - Group A** Room 108, Smeal College of Business
10:00 AM	ID#1 | **Emily Van Syoc** Metformin modulates the microbiome of broiler breeder hens in an avian model of ovarian dysfunction
10:20 AM	ID#8 | **Rebecca Fleeman** Predictive link between systemic metabolism and immune signaling in the brain of APOE4 mice
10:40 AM	ID#2 | **Alenka Hafner** The reuse of public datasets: Potential risks and rewards from a student's perspective
11:00 AM	ID#18 | **Chinmay Sankhe** Mechanical regulation of histone H3 lysine 9 methylation during TGFβ1-induced epithelial-mesenchymal transition
11:20 AM	ID#24 | **Fuhan Yang** Annual and non-annual cycles in the respiratory disease dynamics in tropical regions
11:00-12:00 PM	**LIVE Poster presentations - Session 1** Atrium, Smeal College of Business ID#3 | **Florian Fekete** Oxygen-dependent signaling by globin coupled sensors in pathogenic bacteria ID#5 | **Tracy Yu** Ligand-specific mechanisms of allosteric regulation in FXR

	ID#15 | **Ashlesha Bhide** Enzyme Aggregation and Fragmentation ID#19 | **Min Soo Kim** Comprehensive mapping of bile acid metabolism by the gut microbiome ID#23 | **Niladri Sekhar Mandal** Kinetic asymmetry determines the direction of enzyme chemotaxis ID#27 | **Benjamin Anderson** Antimalarial modulation of the human gut microbiome ID#28 | **Abirami Ravichandran** Evaluation of Oncoselectivity and Oncotoxicity of novel oncolytic viruses in vitro ID#32 | **Shray Patel** Schizophrenia risk gene ZNF804A regulates parvalbumin and perineuronal net expression ID#35 | **Kushal Saha** Autophagy enhances the intestinal epithelial tight junction barrier by upregulating cellular occludin levels and enhancing its localization to the paracellular Tight Junction ID#37 | **Kaitlin E Carson** Perinatal high fat diet alters oxytocin inputs onto vagal neurocircuits controlling gastric motility ID#39 | **D.J. Baldwin** Examining the relationship between Per1 expression in the retrosplenial cortex and memory formation ID#40 | **Pankajam Thyagarajan** Skin cell-derived Wnt ligands affect γ-tubulin localization in dendrites ID#43 | **Chau Duong** The Effects of tRNA Methylation on Protein Synthesis in *Dictyostelium discoideum* - Research Updates ID#44 | **Mariel Micael** Characterization of disease progression in Alzheimer's disease mouse models by sex
12:00 – 1:00 PM	**Exhibitor Hours** Atrium, Smeal College of Business | See list of exhibitors below
12:45-1:00 PM	**Elevator Pitch Competition** Room 107, Smeal College of Business ID#7 | **Rebecca Fleeman** Discovering the link between brain metabolism and brain immune signaling in Alzheimer's disease risk ID#20 | **Min Soo Kim** Comprehensive mapping of bile acid metabolism by the gut microbiome ID#26 | **Chinmay Sankhe** Monitoring mechanical regulation of cellular responses during epithelial-mesenchymal transition ID#34 | **Jacob DeVos** The cellular function of the iron-sensing czcD (NiCo) riboswitch and its associated proteins
1:00 – 1:55 PM	**Speak Life!** Rm 108, Smeal College of Business Invited guest panel tackling the issue of effectively communicating life sciences to the public Richard Harris, Dr. Deboki Chakravati, Dr. Jessica Myrick, Cole Hons

2:00-3:00 PM	**LIVE Poster presentations - Session 2** Atrium, Smeal College of Business ID#6 | **Ana Victoria Leon Apodaca** Runs of homozygosity reveal extensive inbreeding among K'gari Island dingoes ID#10 | **Chandlar Kern** Role of the bovine PRAMEY protein in sperm function during in vitro fertilization (IVF) ID#11 | **Sophia Kenney** Nontyphoidal Salmonella isolated from dogs reveal antimicrobial resistance determinants and relatedness to strains found in humans ID#13 | **Lillian Germeroth** Does milkweed species influence monarch survival? Maximizing conservation efforts of the monarch butterfly in the face of predators ID#16 | **Mingyao Yang** The mouse Pramel1 gene regulates spermatogonial development through the retinoic acid (RA) signaling pathway ID#21 | **Chiara Vanalli** Can the enemy of my enemy be my friend? Lessons from field infections of two gastrointestinal helminths of the European rabbits ID#22 | **Sawali Navare** Impact of superheated steam roasting on the polyphenol composition, bioactivity and volatile compound profile of cocoa beans ID#25 | **Francisco Menendez** Characterization of Cd transport activity of candidate HMA genes from T. cacao ID#29 | **M. Isabel da Silva** Endometrial transcriptome in response to intrauterine infusions of secretory proteins from the bovine conceptus ID#30 | **Sterling Wright** The ancient oral microbiome in the Caucasus ID#33 | **Linhan Sun** Dynamic regulation of the stability of Petunia S-locus F-box (SLF) proteins involved in pollen function of self-incompatability ID#36 | **Collin Hudzik** Interface-induced miRNAs from Cuscuta campestris are detectable early during infection, and may be transcribed by RNA POL III ID#41 | **Ya-Chi Nien** MicroRNAs up-and-coming: Regulation of trans-species microRNAs biogenesis in Cuscuta campestris ID#42 | **Jaime Manzano** Interactions between relative humidity and viral vector competence in Aedes aegypti
2:30 – 3:55 PM	**Oral presentations - Group B** Rm 107, Smeal College of Business
2:30 PM	ID#14 | **Susan Tian** A synthetic microbiota designed via meta-analysis exhibits C. difficile colonization resistance
2:50 PM	ID#17 | **Ty Montgomery** The effect of intrauterine infusions of IFNT and PAG on the expression of early pregnancy factor (HSPE1)
3:10 PM	ID#12 | **Maria Solares** The secret life of molecules: Developing extraction and enrichment systems for Cryo-EM analysis of natively-sourced assemblies

3:30 PM	ID#31 | **Cheng Xu** Systematic dissection of sequence features affecting binding specificity of a pioneer factor
4:00 – 4:55 PM	**Keynote Presentation** Rm 108, Smeal College of Business Dr. Deboki Chakravarty | Navigating media as a scientist
5:00 – 5:30 PM	**Closing Ceremony:** Closing ceremony, acknowledgements, and prize announcements. Closing remarks by Maria Solares, chair of the Huck Graduate Student Advisory Committee and prize announcements with Dr. Andrew Read, Director of The Huck Institutes of Life Sciences. Rm 108, Smeal College of Business
5:30 – 6:00 PM	**Evening refreshments and Network Hour** Atrium, Smeal College of Business

Exhibitors

1. Penn State Graduate Women in Science (GWIS) - Kleinschmidt, Holly E:
   Graduate Women in Science (GWIS) is an interdisciplinary national society of women and men who support equal opportunities for all in science. Their mission as an organization is to build a global community to inspire, support, recognize, and empower women in science

2. Penn State Biology Graduate Student Association - Lan-Nhi Phung
   Biology Graduate Student Association (BioGSA) is a coalition of biology graduate students who represent and advocate for the interests of graduate students in the Department of Biology at Penn State. BioGSA serves as a formal channel for communication between biology graduate students and faculty, in addition to hosting events and workshops for the benefit of the graduate biology community.

3. Eberly Office of Diversity and Inclusion - Dr. Kristin Finch
   The Eberly Office of Diversity and Inclusion is dedicated to providing a nurturing environment to support students personally, academically, and professionally in the Eberly College of Science. The Office of Diversity and Inclusion provides a variety of resources for both undergraduate and graduate students within Eberly, including a number of fellowship and scholarship opportunities such as the Science Achievement Graduate Fellowship and the Sloan Scholars Program.

4. Huck Institute of the Life Sciences Genomics Core - Daniel Hannon / Dr. Craig Paul: The Genomics Core Facility provides services using several different next-generation sequencing platforms. Applications supported include: Whole-genome and transcriptome sequencing of non-model organisms, Amplicon sequencing for metagenomic studies, Differential expression analysis of mRNA and miRNA, Degradome sequencing, ChIP and RIP sequencing, In addition, the facility continues to offer a variety of traditional services, including: Sanger DNA sequencing, Genotyping of SNPs and VNTRs, Microarray analysis, Real-time qPCR, Digital PCR

5. Huck Institute of the Life Sciences Proteomics Core - Tatiana Laremore
   The Proteomics and Mass Spectrometry Core Facility offers highly sensitive and accurate mass spectrometry analysis, including identification and quantitation of proteins by liquid chromatography electrospray ionization tandem mass spectrometry (LC-ESI-MS-MS) or by matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF-TOF-MS)

6. Huck Institute of the Life Sciences X-ray Crystallography Core - Julia Fecko / Dr. Neela Yennawar / Dr. Hemant Yennawar
   The X-Ray Crystallography Facility provides the necessary infrastructure and support for individual investigators to undertake single crystal X-ray structural studies. This includes instrumentation, training, and collaboration for protein characterization, binding studies using robotic imaging, diffraction data collection and processing, structure determination and analysis, molecular modeling, and small angle X-ray scattering.

7. Huck Institute of the Life Sciences Automated Calorimetry Facility - Julia Fecko / Dr. Neela Yennawar / Dr. Hemant Yennawar
   The Automated Biological Calorimetry Facility provides the necessary infrastructure and support for individual investigators to undertake studies of macromolecule binding and folding, as well as protein and lipid quantification. The calorimetry instruments are fully automated and require the least amount of sample of any commercially available instruments. Specifically, instrumentation and collaborative assistance are offered for isothermal titration calorimetry for studying ligand-macromolecule binding and differential scanning calorimetry for investigating stability and folding thermodynamics.

8. The Biomarker Core Lab (BCL), College of Health and Human Development – Matthew Ulrich / Dr. Sue Siegel / Dr. Sheree Logue
   The Biomarker Core Laboratory is a not-for-profit facility and offers biomarker research support and testing, blood chemistry testing, Telomere Analysis, DNA extraction, wet lab space, and equipment use. Matt offers expertise and guidance in the execution of ELISA and Multiplex analysis. Dr. Siegel provides DNA extraction as well as telomere length analysis in humans, mice and lizards. Dr. Logue serves as the director of the BCL. https://hhd.psu.edu/bbh/bcl.

9. Center for Sexual and Gender Diversity - Eric Duran
   The Center for Sexual and Gender Diversity (CSGD) provides a comprehensive range of education, information, and advocacy services to students, faculty, staff, and alumni. We work to create and maintain an open, safer, and inclusive environment honoring gender and sexual diversity. Through educational, social, and supportive programming, along with workshops and individual consultation, the Center for Sexual and Gender Diversity strives to serve the entire Penn State community. Our staff is eager to support you on your journey through Penn State! Please stop by the center to say hello, engage with us virtually, and get involved. This center will be enforcing University COVID guidelines including masks required, physical distancing, and sanitizing of all spaces.

10. *Viral Imaginations: COVID-19* - Michele Mekel / Lauren Stetz
    The *Viral Imaginations: COVID-19* project is an interdisciplinary initiative focused on collecting, displaying, and archiving Pennsylvanians' first-person, imaginative and artistic expressions made in response to their lived experience of the coronavirus pandemic. This project contains both creative writing and visual art created by current and former Pennsylvanians made in response to their first-person, lived experience of the coronavirus pandemic.

11. *Strain* - Cristin Millett
    9" (H) x 54" (W) x 16" (D)
    2021
    X-Ray illuminator, vinyl print, sweetgum seed pods
    Artist statement:
    Straddling traditional disciplinary boundaries, my investigations of medicine and its history are integral to my artistic process. As a transdisciplinary artist, my work examines the intersection of art and science, specifically sculptural processes and reproductive futures. I have studied collections of instruments, anatomical models, historical texts, and anatomy theaters throughout Europe, Australia, and the United States. The resulting sculptural objects and installations prompt a contemporary cultural critique of societal issues surrounding reproduction and gender identity.

    I was living in Australia when I first learned about a new virus spreading across the globe. As reports of concern turned into sounds of alarm, checking the number of cases became a part of my daily routine. I monitored the changes - locally, regionally, nationally, globally - and became acutely aware of the disparate approaches to managing this public health crisis. On the day the New York Times remembered the incalculable loss of 100,000 Americans, I said goodbye to OZ and began my journey back to America. "Strain," was made upon my return to the US and marks the day the United States reached 600,000 deaths. As red dots punctuate and pulse across the Covid-19 global data tracking map, I struggle to breathe, and the seemingly endless loss of life weighs heavy on me.

12. *The Word of Trees* and *Especially in the Context of Aquariums* - Bradley Mikesell II
    Note that this exhibitor will be present at 2:00 to 4:00 (atrium) instead of 12:00 to 1:00.
    The Words of Trees
    The Words of Trees aurally represents the many sounds that trees either directly or indirectly create and connects that idea to the global decline of forests. Part of the piece is constructed using a semi-fractal rhythmic system built upon a rhythmic reduction from the prominent transients of a brief audio clip of a tree falling, which plays near the beginning of the piece. Certain sounds—that are related to trees in various ways—appear throughout the work in an augmented version of those transients. In addition, The Words of Trees also uses various musical elements to represent change and transformation.

Throughout the course of the piece, the audio resolution, density of sounds, and other parameters gradually shift—reflecting the decline of forests.

Especially in the Context of Aquariums

The nitrogen cycle is, as the name suggests, a biogeochemical process in which nitrogen takes on many different chemical forms. The main steps of the nitrogen cycle include nitrogen fixation, ammonification, nitrification, and denitrification—all of which are musically analogized in this piece as it relates to the linear process. The relative toxicity of the chemical compounds—ammonia, nitrite, and nitrate—correspond to dynamics. At an early moment in the piece, ammonia—the most toxic compound—is introduced to the aquarium. As it is the most toxic out of the three, it has the loudest dynamics. Conversely, nitrate is the least toxic with the softest dynamics. It is through the use of these dynamics and an additive tetrachord pitch system, as they relate to continuously shifting levels of chemicals, that Especially in the Context of Aquariums depicts the nitrogen cycle. More specifically, it sonically represents the data of the cycling process collected from my new aquarium in Spring 2021.