



**5th Annual University of Kentucky  
Society of Postdoctoral Scholars  
Regional Research Symposium**

**May 31, 2019**

**Don and Cathy Jacobs Science Building  
680 Rose St.  
Lexington, KY 40508**

## PROGRAM SCHEDULE

- 8:30 AM**      **Registration Opens**
- 9:00 AM**      **Welcome, Stephanie Davis, Ph.D.**
- 9:05 AM**      **Opening Remarks, Morris Grubbs, Ph.D. Assistant Dean of the University of Kentucky Graduate School**
- 9:10 AM**      **Keynote Address, Cynthia Fuhrmann, Ph.D. Assistant Dean of Professional and Career Development, UMass Medical School**  
*“Maximizing Your Postdoctoral Training for Career Success”*
- 10:10 AM**      **Oral presentations, Moderated by Stephanie Davis, Ph.D.**
- Yohan Choi, Ph.D.,** UK College of Medicine  
*FOS/AP-1 Transcription Factor: a Critical Regulator in Human Ovulatory Follicles*
- Belal Muhammed, Ph.D.,** Cincinnati Children’s Hospital Medical Center  
*New Therapeutic Strategies for Cancers with Transcription Elongation Defects (TEdef)*
- James Castle, Ph.D.,** UK College of Medicine  
*Estimating Breast Tissue-Specific Epigenetic Age Using Next-Generation Methylation Sequencing Data*
- 10:45 AM**      **Short Break**
- 11:00 AM**      **Panel Discussion: Scientific Entrepreneurship in Action,**  
*Moderated by Warren Nash, J.D., Executive Director of the Von Allmen Center for Entrepreneurship*
- Speakers:*
- Chase Kempinski, Ph.D., Postdoctoral Scholar in UK College of Pharmacy-  
Co-Founder of Enerpret*
- Shavahn Loux, Ph.D. – Postdoctoral Scholar in UK Gluck Equine Research  
Center – Co-Founder of GenomEqs*
- Kathryn Van Pelt, Ph.D. – Postdoctoral Fellow at UK Sanders Brown  
Center for Aging – Co-Founder of Synaptex*
- Soroosh Torabi, M.S. – Ph.D. Candidate in UK Department of Mechanical  
Engineering – Co-Founder of HandPrint*
- Ramon Sun, Ph.D. - Assistant Professor in UK College of Medicine –  
Fluxomics (Tech Bioscience)*

**12:00 PM**      **Poster Session and Networking Lunch (poster judging 12:45-2:00)**  
*Moderated by Emily Hankosky, Ph.D.*

**2:00 PM**      **Oral presentations, Moderated by Lindsey Hammerslag, Ph.D.**

**Xingjiang Mu, Ph.D.**, U of Cincinnati College of Medicine  
*Sectm1a positively regulates tissue-resident macrophage self-renewal capacity during endotoxemia by boosting T effector cells*

**Patrick Van Hoose, Ph.D.**, UK College of Medicine  
*Lipid Phosphate Phosphatase 3 in Smooth Muscle Cells Regulates Dissecting Abdominal Aortic Aneurysm Formation*

**Syed Z. Islam, Ph.D.**, Oak Ridge National Laboratory  
*Recovery and Recycling of Rare Earth Elements from Electronic Waste*

**Muhammed Fethullah Simsek, Ph.D.**, Cincinnati Children's Hospital Medical Center  
*Multicellular Signaling Network Provides Time and Position Information for Robust Patterning*

**Ian Boggero, Ph.D.**, UK College of Medicine  
*Using Sleep Parameters to Predict Pain and Disability Outcomes in an Inpatient Functional Rehabilitation Program for Children with Chronic Pain*

**Mereena George Ushakumary, Ph.D.**, Cincinnati Children's Hospital Medical Center  
*Defining the role of activated fibroblasts in cystic fibrosis*

**3:00 PM**      **Coffee Break**

**3:20 PM**      **Oral presentations, Moderated by James Castle, Ph.D.**

**Shailaja Hegde, Ph.D.**, Cincinnati Children's Hospital Medical Center  
*Leukemic Initiating/Propagating Cell Basal Polarity Complex Scribble is required for leukemogenesis through the hypoxia inducing factor-1a.*

**Velmurugan Gopal Viswanathan Ph.D.**, UK College of Medicine  
*Amylin dyshomeostasis impairs A $\beta$  clearance and blood-brain barrier function by miRNA mediated LRP1 and ZO-1 downregulation*

**Megan Johnstone, Ph.D.**, Cincinnati Children's Hospital Medical Center  
*Investigating DEK as a prognostic marker for secondary breast cancer in female survivors of pediatric Hodgkin's Lymphoma*

**Byeongjae Ben Chun, Ph.D.**, UK College of Arts and Sciences  
*Computational Modeling of Microglial Physiology and Pathophysiology*

**Maria Kraemer, Ph.D.**, University of Kentucky College of Medicine

*Dietary Regulation of Lipoprotein Associated Bioactive Lysophospholipid Mediators of Atherosclerosis*

**Hanane Boukarabila, Ph.D.**, Cincinnati Children's Hospital Medical Center  
*Towards understanding & uncovering new key players in T cell development upon aging*

**Nirmal Verma, Ph.D.**, UK College of Medicine  
*Prediabetic Hypersecretion of Amylin Alters Oxygen Sensing and Accelerates Aging*

**4:30 PM Closing Remarks and Awards Ceremony**

*Thank you for attending the 5<sup>th</sup> Annual Society of Postdoctoral Scholars Regional Research Symposium*

*Please join us for a social after the event at Pazzo's Pizza Pub!*

*We would love to have you on the SOPS planning team! To keep up to date please follow us on our social media channels below:*

Facebook: <https://www.facebook.com/ukysops/>

Twitter: [@uky\\_sops](https://twitter.com/uky_sops)

LinkedIn: <https://www.linkedin.com/company/universityofkentuckysops/>

*Sign up for the SOPS listserv, find us on Facebook, and let us know how you'd like to be involved.*

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***Funding for the Society of Postdoctoral Scholars 5<sup>th</sup> Annual Research Symposium was kindly provided by the following sponsors:***

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## ABOUT OUR KEYNOTE SPEAKER

**Cynthia Fuhrmann, Ph.D.**



**Co-Developer, myIDP  
Associate Professor of Biochemistry and Molecular Biology  
Assistant Dean of Professional Career Development  
Graduate School of Biomedical Sciences  
University of Massachusetts Medical School**

*Cynthia Fuhrmann, PhD, is Assistant Dean of Career and Professional Development in the Graduate School of Biomedical Sciences and Associate Professor of Biochemistry and Molecular Pharmacology at University of Massachusetts Medical School in Worcester, MA. She founded and directs [UMassMed's Center for Biomedical Career Development](#), which serves the campus's ~600 students and postdocs while acting as a scholarly incubator for educational approaches in PhD career development. Dr. Fuhrmann's curricular innovations have been funded by the National Institutes of Health, National Science Foundation, and Burroughs Wellcome Fund. Her study on the career interests of biomedical PhD students contributed to the growing national dialogue over the past decade on the training needs of PhD scientists, and has been cited in reports by the NIH and Council of Graduate Schools. She co-authored [myIDP](#), an interactive career-planning website hosted by the American Association for the Advancement of Science (AAAS) that is used by more than 190,000 early-career scientists worldwide, and continues scholarship in the use of Individual Development Plans. Dr. Fuhrmann serves on external advisory boards for the Association of American Universities' PhD Education Initiative, the Texas A&M AGEF Alliance, and Dana Farber Cancer Institute CCBM Training Program, and is active in the Graduate Career Consortium, AAMC GREAT Group, and NIH BEST Consortium. Her engagement with a diverse array of organizations has informed her role leading an emerging national initiative to bring together stakeholders to further advance PhD career development in the sciences. Fuhrmann holds a B.S. in Chemistry from University of California Davis and a Ph.D. in Biochemistry and Molecular Biology from UCSF.*

## Poster Abstracts

- 1. Kirtley Amos**, College of Food, Agriculture and Environment, University of Kentucky  
*In Pursuit of Cellulose Biosynthesis Inhibitors: A Bio-active Synthetic Compound Screen*
- 2. Mojtaba Bahktiari, Ph.D.**, College of Medicine, University of Kentucky  
*Determining the contribution of cystathionine beta synthase to lung cancer lineage fate*
- 3. Anne Berres, Ph.D.**, Oak Ridge National Laboratory  
*Modeling Energy Use in an Urban Environment*
- 4. Cassie Chandler, Ph.D.**, College of Arts and Sciences, University of Kentucky  
*Modeling Ethanol and Nicotine Co-Use in Sprague Dawley Rats*
- 5. Azhad U. Chowdhury, Ph.D.**, Oak Ridge National Laboratory  
*Probing the Surface Structure of Fluorinated Bottlebrush Polymers with Vibrational Sum Frequency Generation Spectroscopy and Molecular Dynamics Simulations*
- 6. Swapneeta Date Ph.D.**, Oak Ridge National Laboratory  
*Insights into the Biomolecular Mechanisms of Mercury Methylation by Anaerobic Bacteria*
- 7. Aminesh Dhara, Ph.D.**, College of Medicine, University of Kentucky  
*TgOTUD5, a deubiquitinase regulated by phosphorylation, controls cell cycle progression and maternal turnover in Toxoplasma gondii.*
- 8. Lu Han, Ph.D.**, Oak Ridge National Laboratory  
*Mechanically robust 3D-printed silica part: Binder development for binder jet 3D printing*
- 9. Kendra Hargis-Staggs, Ph.D.**, College of Medicine, University of Kentucky  
*Ceruplasmin in aging and Alzheimer's disease neurovascular units*
- 10. Nathaniel Holcomb**, College of Medicine, University of Kentucky  
*ATR 1774Yfs\*5 generates micronuclei and extra-cellular DNA without impacting viability: a potential driver of carcinogenesis*
- 11. Sam Hughes**, College of Medicine, University of Kentucky  
*Sustained Bupivacaine Analgesia Following Facial Reconstructive Surgery: A Study of Release Kinetics and Injectability of an In situ Forming Implant (ISI)*
- 12. Magda Javakhishvili**, College of Agriculture, Food, and Environment, University of Kentucky  
*Parental Vigilance, Low Self-control, and Internet Dependency Among Rural Adolescents*

- 13. Selvakumar Jayaraman, Ph.D.**, College of Science and Mathematics, Wright State University  
*Redox Non-Innocent dithiolene-N-Heterocyclic carbene complexes and its catalytic application*
- 14. Eleanor Johnson**, College of Medicine, University of Kentucky  
*Progesterone Pretreatment Decrease Acute Stress Effect on Cognition and Sgk1 Expression in Sprague-Dawley Rats*
- 15. Sanjay Joshi**, College of Agriculture, Food and Environment, University of Kentucky  
*The Role of Transcription Factor LBD40 in Arabidopsis Embryogenesis*
- 16. Samudu Karunadasa**, College of Agriculture, Food and Environment, University of Kentucky  
*Cytokinin signaling promotes misfolded protein accumulation by modulating the protein synthesis rates in Arabidopsis thaliana.*
- 17. Christine Kim**, School of Medicine, University of Louisville  
*Assessing the role of arsenite in disrupting the EGFR signaling axis*
- 18. Geoffrey Li, Ph.D.**, School of Medicine, Vanderbilt University  
*Towards the Structural Characterization of Peripheral Myelin Protein 22 and Its Mutants in Model Membranes by NMR Spectroscopy*
- 19. Zulong Liu, Ph.D.**, College of Medicine, University of Kentucky  
*Targeting ABL Kinases Reverses Resistance to BRAF Inhibitors: A Potential New Therapy for Treatment-Refractory Melanomas*
- 20. Siavesh Mazdeyasna**, College of Engineering, University of Kentucky  
*Noninvasive Intraoperative 3D Imaging of Blood Flow Distributions in Mastectomy Skin Flaps*
- 21. Rebecca McGrail**, College of Agriculture, Food, and Environment, University of Kentucky  
*Addressing Root Turnover at Differing Phosphorus Fertility with the Agroecosystem Mesocosm Facility*
- 22. Kanthi Nuti**, College of Arts and Sciences, University of Kentucky  
*Charge effects and their role on particle transport in polymeric gels*
- 23. Priyanka Paul, Ph.D.**, College of Agriculture, Food, and Environment, University of Kentucky  
*The regulatory role of AGL18 in Arabidopsis embryogenesis*
- 24. Warlen Pereira Piedade**, College of Arts and Sciences, University of Kentucky  
*Siah E3 ubiquitin ligase control of CDHR1a protein stability is required for photoreceptor cell development during zebrafish eye development.*

- 25. Vira Pravosud**, College of Public Health, University of Kentucky  
*Exceptional Survival among Kentucky Stage IV Lung Cancer Patients: Appalachian versus Non-Appalachian Populations*
- 26. Jacqueline Rivas, Ph.D.**, College of Medicine, University of Kentucky  
*Reversing interleukin-10 mediated immune suppression enhances anti-tumor immunity in chronic lymphocytic leukemia*
- 27. Ana Ferragut Cardoso, Ph.D.**, School of Medicine, University of Louisville  
*Overexpression of hsa-miR-186 induces chromosomal instability in arsenic-exposed human keratinocytes*
- 28. Melonie Thomas**, College of Arts and Sciences, University of Kentucky  
*Determining the Structure and Stability of Thermoelectric La<sub>3-x</sub>Te<sub>4</sub>-Ni Composites using High-Resolution and In-Situ TEM*
- 29. Ahamad Ullah**, College of Arts and Sciences, University of Kentucky  
*Systematic characterization of W-doped vanadium dioxide, V<sub>1-x</sub>W<sub>x</sub>O<sub>2</sub> (x=0.0, and 0.01) for in-situ biasing TEM experiments*
- 30. Kristyn VanDerMeulen**, College of Arts and Sciences, University of Kentucky  
*Deciphering the Complex Relationships of Periocular Mesenchyme Subpopulations within the Developing Zebrafish Ocular Anterior Segment*
- 31. Sathya Velmurugan, Ph.D.**, College of Medicine, University of Kentucky  
*Mitochondrial Na<sup>+</sup>/Ca<sup>2+</sup> exchanger inhibition reduces oxidative stress and Ca<sup>2+</sup> sparks in diabetic rat cardiac myocytes*
- 32. Oliver Voeking, Ph.D.**, College of Arts and Sciences, University of Kentucky  
*Single cell analysis of periocular mesenchyme during anterior segment development*
- 33. Wen Wen, Ph.D.**, College of Medicine, University of Kentucky  
*MANF Protects Purkinje Cells from Alcohol-Induced Neurodegeneration*
- 34. Zhihui Zhu, Ph.D.**, College of Medicine, University of Kentucky  
*Ceramide regulates interaction of Hsd17b4 with Pex5 and function of peroxisomes*
- 35. Zhihui Zhu, Ph.D.**, College of Medicine, University of Kentucky  
*Ceramide-induced interaction between tubulin and voltage-dependent anion channel 1 regulates mitochondria ATP release in astrocytes*
- 36. Jiaying Weng**, College of Arts and Sciences, University of Kentucky  
*On sparse Fourier transform inverse regression for sufficient variable selection*



**37. Kai Tan**, College of Arts and Sciences, University of Kentucky

*COM-negative binomial distribution: modeling overdispersion and ultrahigh zero-inated count data*

**38. Melonie Thomas**, College of Arts and Sciences, University of Kentucky

*Determining the Structure of Heteroatom Doped Carbon Nano-Onions for Catalysis via Aberration-Corrected STEM*