

SIDNEY KIMMEL MEDICAL COLLEGE AT THOMAS JEFFERSON UNIVERSITY

# IN THE LOOP

DEPARTMENT OF BIOCHEMISTRY & MOLECULAR BIOLOGY | WINTER 2019

Epigenetic  
Enzymes  
Broaden Their  
Reach



## From the Chair

### Truly exciting times in the Department of Biochemistry and Molecular Biology, and across Jefferson as a whole.

In this issue, we will share with you details of some of the things only hinted at in the previous newsletter. You can read here about the construction of the new labs our faculty will occupy in Jefferson Alumni Hall. You can also read about the successful outcomes from our faculty search efforts, new technologies in the Department, and most importantly a few examples of the cutting edge research that our faculty are pursuing in their labs.

You read previously about our recruitment of Dr. Erik Debler from Rockefeller University. We have now been joined by Dr. Dmitry Temiakov, who is profiled in this issue. His recruitment adds to the critical mass we have in the structural biology and transcription arenas. Dmitry also provides a strong link between our Department and the MitoCare Center here at Jefferson, whose faculty have impressive international stature in the fields of mitochondrial structure, function and energetics. There are two additional faculty who will be joining us in the coming months, both as Assistant Professors. These recruits, Drs. Elise Fouquerel and Lin Guo, will be profiled in upcoming issues.

As always, I would be happy to hear from you. Send any ideas or comments to [steven.mcmahon@jefferson.edu](mailto:steven.mcmahon@jefferson.edu).



#### **Steven B. McMahon, PhD**

Professor and Chair  
Department of Biochemistry and Molecular Biology  
Sidney Kimmel Medical College

Senior Associate Provost, Programmatic Science  
Thomas Jefferson University

## Thomas Jefferson University Department of Biochemistry and Molecular Biology

#### **Steven B. McMahon, PhD**

Professor and Chair  
Senior Associate Provost,  
Programmatic Science

#### **Peter Ronner, PhD**

Professor and Vice Chair for Education

#### **Gino Cingolani, PhD**

Professor and Vice Chair for Research

#### **Diane Merry, PhD**

Professor and Vice Chair for Faculty  
Development and Engagement

#### **Emad Alnemri, PhD**

Thomas Eakins Professor

#### **Teresa Alnemri, PhD**

Research Assistant Professor

#### **Jeffrey Benovic, PhD**

Thomas Eakins Professor

#### **Anshul Bhardwaj, PhD**

Research Assistant Professor

#### **Erik Debler, PhD**

Assistant Professor

#### **Elise Fouquerel, PhD**

Assistant Professor

#### **Miki Fujioka, PhD**

Research Instructor

#### **Howard Gamper, PhD**

Research Assistant Professor

#### **Ya-Ming Hou, PhD**

Professor

#### **James Jaynes, PhD**

Professor

#### **Hideko Kaji, PhD**

Professor

#### **James Keen, PhD**

Professor

#### **Yohei Kirino, PhD**

Associate Professor

#### **Alexander Mazo, PhD**

Professor

#### **Svetlana Petruk, PhD**

Research Assistant Professor

#### **Anna Pluciennik, PhD**

Research Instructor

#### **Michael Root, MD, PhD**

Associate Professor

#### **Charles Scott, PhD**

Research Assistant Professor

#### **Dmitry Temiakov, PhD**

Associate Professor

#### **Philip Wedegaertner, PhD**

Professor

#### **Eric Wickstrom, PhD**

Professor

#### **Edward Winter, PhD**

Professor



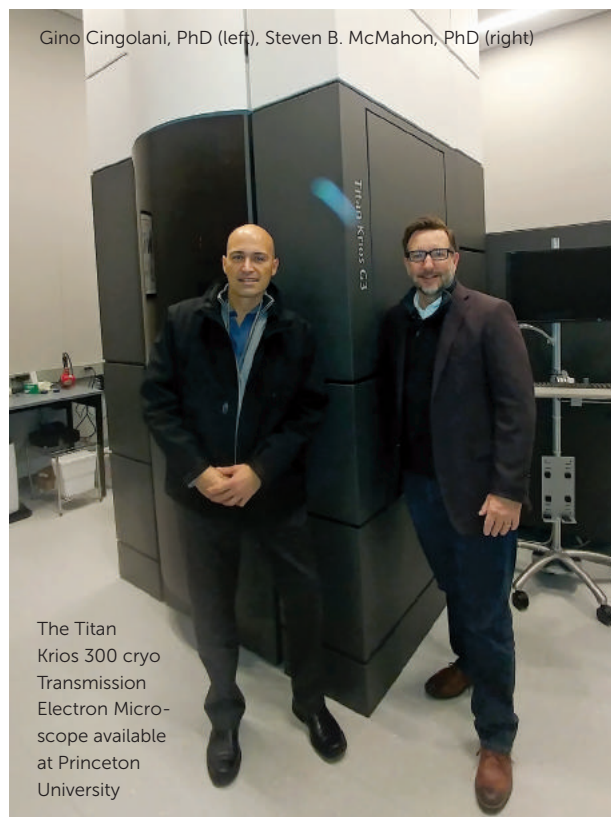
# Jefferson and Princeton Sign Collaborative Agreement for CryoEM

by Gino Cingolani, PhD

**The Office of the Provost at Jefferson signed a collaborative agreement that provides our scientists access to the state-of-the-art microscopy resources at Princeton University's Imaging and Analysis Center.**

The Center houses electron microscopes for visualization of biological specimens such as purified macromolecular complexes, solubilized membrane proteins and frozen cells with near atomic resolution. This agreement provides Jefferson faculty access to the broad range of equipment and expertise at Princeton's Imaging and Analysis Center (<https://materials.princeton.edu>), which is professionally staffed with experienced microscopists offering extensive training to users.

Of particular relevance to the work carried out in the department of Biochemistry, the collaborative agreement provides access to two Transmission Electron Microscopes (TEMs) for routine negative stain analysis of biological specimens, an automatic plunger freezer (Vitrobot) for preparation of cryogenic grids and a newly installed 300kV Titan Krios G3 cryo equipped with a K2 Summit® electron counting direct detection camera (also featured at [www.azom.com/news.aspx?newsID=46998](http://www.azom.com/news.aspx?newsID=46998)). This equipment will allow TJU researchers to carry out all stages of EM data collection that requires screening by negative stain EM, freezing at cryogenic temperatures, and acquisition of high resolution 'movies' under low dose. All subsequent steps of single particle analysis can be conveniently carried out in-house using workstations or shared computer clusters.



Gino Cingolani, PhD (left), Steven B. McMahon, PhD (right)

The Titan Krios 300 cryo Transmission Electron Microscope available at Princeton University

## Hereditary Disease Foundation 2018 Conference



HD2018, the Hereditary Disease Foundation's (HDF) 11th Biennial Milton Wexler Celebration of Life Scientific Conference, was held in Boston, MA, on August 8-11, 2018. Diane Merry, PhD, member of the HDF Scientific Advisory Board, served on the Organizing Committee for HD2018.

HD2018 brought together the world's leading Huntington's disease and other rare disease researchers for three packed days of scientific platform and poster presentations. 250 scientists from around the world shared new research highlights ranging from protein structure to computational analyses, and reporting on novel model organisms to new clinical trials. Continuing in the strong tradition of HDF scientific meetings, HD2018 was inspirational and filled with innovative and rigorous science.



## Recent Awards and Honors

The Department of Biochemistry and Molecular Biology faculty members garnered multiple awards in recognition of their research and educational accomplishments during the 2017-2018 academic year.

### FACULTY AWARD

**Peter Ronner, PhD**, was part of a team that received the Sidney Kimmel Medical College Faculty Team Achievement Award. This award is given annually and “recognizes the collaborative work of faculty teams leading to innovations or other achievements in clinical care, education, or research.”



### TEACHING AWARD

**Michael Root, MD, PhD**, received the Sidney Kimmel Medical College Dean’s Award for Excellence in Education. This award is presented to faculty who “demonstrate superior effectiveness as teacher and devote significant time/effort to teaching over a sustained period of time, and/or faculty who demonstrate major contributions to an educational course, clerkship or program of training.”

Dr. Root also received the 2018 Sidney Kimmel Cancer Center (SKCC) Director’s Award for Achievement in Mentoring. Jeffrey L. Benovic, PhD, Thomas Eakins Endowed Professor in Biochemistry and Molecular Biology, and SKCC’s Associate Director of Education, presented the award to Dr. Root at the 2018 SKCC Member Retreat held at Citizens Bank Park in Philadelphia.





L to R: Steven B. McMahon, PhD, Victoria Gennaro, Marina Farkas, Emad Alnemri, PhD, Corey Rogers, Jeffrey L. Benovic, PhD, Sarah Sulon

### RESEARCH AWARD

BMP doctoral students **Corey Rogers, Sarah Sulon, Victoria Gennaro, and Marina Farkas** received excellence in research awards at the 2018 SKCC Education Retreat, held on September 24, 2018. The retreat included a total of ten oral presentations and 45 posters.

### RESEARCH AWARD

**Jeffrey L. Benovic, PhD**, received the Discovery of the Year Award for Basic Science. The award was presented by Andrew Aplin, PhD, Associate Director of Basic Research at SKCC, at the 2018 SKCC Member Retreat held at Citizens Bank Park in Philadelphia. Dr. Benovic and his laboratory have been researching on the mechanisms that regulate G protein-coupled receptor (GPCR) signaling, with a particular focus on the role of GPCR kinases (GRKs) and arrestins. "Because GRKs play a central role in regulating GPCR function, a better understanding of the mechanisms involved in this process provides an opportunity to manipulate this pathway in treating various diseases," Benovic said.



### TEACHING AWARD

**Gino Cingolani, PhD**, received the 2018 Rieders Faculty Prize in Graduate Education. This annual award recognizes outstanding performance by a Jefferson College of Biomedical Sciences faculty member engaged in the education of graduate students at the doctoral or master's level including lecturing in didactic courses, research training in the laboratory setting, or other aspects of student membership.



**more >**



## Editorial Appointments



**Michael Root, MD, PhD**, Associate Professor of Biochemistry and Molecular Biology, has joined the Editorial Board of *Scientific Reports* (Molecular Biology section). *Scientific Reports* is an online open access journal that publishes research from all areas of the natural and clinical sciences.



## Faculty Honors



**Steven B. McMahon, PhD**, Professor and Chair, Department of Biochemistry and Molecular Biology, recently delivered the Rutgers Biomedical and Health Sciences (RBHS) Chancellor's Special Lecture in Piscataway, New Jersey. Dr. McMahon presented on MYC Links to Nuclear and Mitochondrial Transcription to Drive Malignant Transformation.



**Ya-Ming Hou, PhD**, was a plenary speaker at the April 2018 American Society of Biochemistry and Molecular Biology (ASBMB) Symposium in San Diego, CA. Dr. Hou presented on NA methylation: a mechanism to regulate gene expression.







## Appointments

**Michael Root, MD, PhD**, Associate Professor of Biochemistry and Molecular Biology, was appointed Assistant Dean in the Jefferson College of Life Sciences. For many years, Dr. Root has been active in graduate education as a mentor to students in his own laboratory, as a course director and instructor, and as Director of the PhD Program in Biochemistry and Molecular Pharmacology. In his new role, Dr. Root will work with JCLS Dean Gerald Grunwald, PhD, to assist with matters pertaining to graduate education and training. His main focus will be on curricular and co-curricular development of JCLS doctoral programs to prepare our students for their future roles as leaders in the biomedical sciences workforce.

Throughout Michael's time at Jefferson and in his various roles, he has been a strong advocate for student success. Whether in the classroom or laboratory, he has sought to construct an education and training environment that is both rigorous and supportive, and that is focused on development of fundamental skills while also being forward-thinking and innovative in approach. Please join me in congratulating Michael and welcoming him to his new position.

—By Gerald Grunwald, PhD, JCLS Dean

## Promotions

**Yohei Kirino, PhD**, was promoted in April 2018 to the rank of Associate Professor of Biochemistry and Molecular Biology in the Academic Investigator track at the Sidney Kimmel Medical College. Dr. Kirino was recruited to Jefferson in 2013 to join the Center for Computational Medicine and the Department of Biochemistry and Molecular Biology. In the short time since his recruitment, Dr. Kirino has established an outstanding record of scholarship. He has published papers in *Cell*, *PNAS*, *Nature Structural and Molecular Biology*, and *Nature Protocols*, among others, and his publications have been cited over 2,000 times. Dr. Kirino currently serves as PI on four active grants from the NIH, American Cancer Society and the WW Smith Foundation. He has also been honored with many research awards, including being named a Research Scholar of the American Cancer Society and winning the prestigious Sidney Kimmel Medical College Early Career Investigator Award for Distinguished Achievement in Biomedical Research for his innovative studies of the molecular mechanisms used by small regulatory RNAs to control cell function. In addition to a stellar research program, Dr. Kirino is highly involved in the educational mission at Jefferson, giving lectures in JCP, SKMC and JCLS. Within the Department of Biochemistry and Molecular Biology, Dr. Kirino recently served on the Faculty Search Committee, where he worked alongside departmental colleagues to identify top talent for recruitment. Dr. Kirino also serves on the Jefferson Committee on Research and recently joined the Editorial Board of *Nature Scientific Reports*.

—By Diane Merry, PhD, Professor and Vice Chair for Faculty Development and Engagement, Department of Biochemistry and Molecular Biology

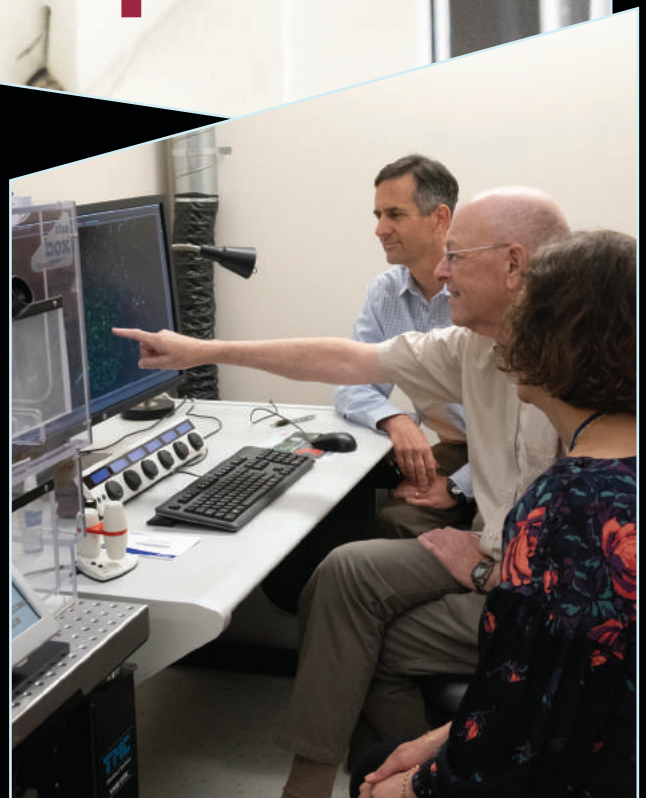


# Super-Resolution Microscope

By James Keen, PhD

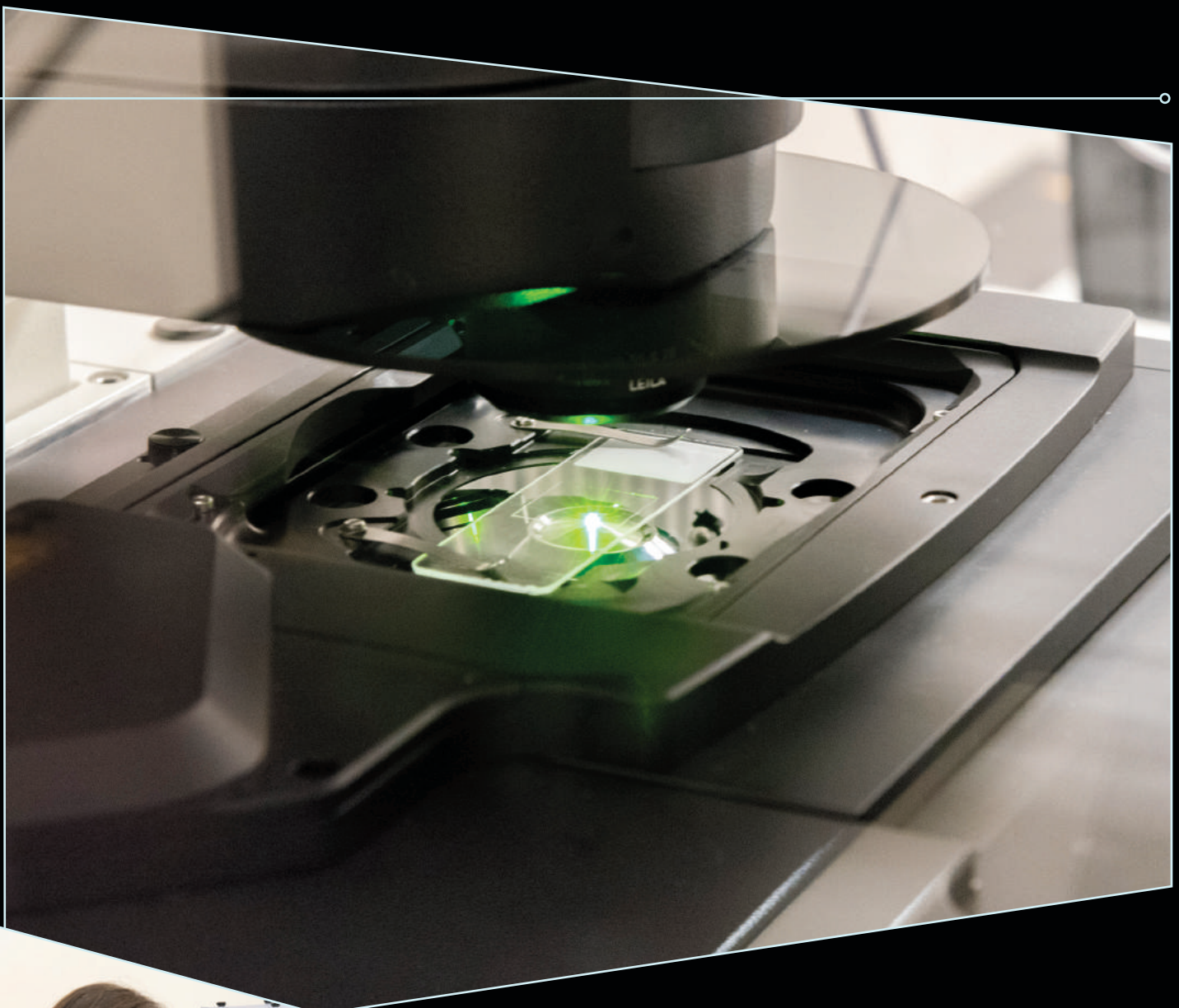
**B**iochemistry and Molecular Biology researchers have a new, powerful tool in their arsenal. Jefferson has purchased a state-of-the-art Leica STED Super-Resolution (SR) microscope. The SR microscope is stationed in Sidney Kimmel Cancer Center's Bioimaging Facility, and is supervised by Biochemistry and Molecular Biology faculty members James Keen, PhD, and Philip Wedegaertner, PhD.

For hundreds of years, light microscopy was governed by a diffraction-limited resolution of about 220nm, so objects closer than this distance could not be distinguished. Techniques such as electron microscopy can provide much higher resolution, but require processing not suitable for visualizing native or especially live samples. Accordingly, while light microscopy was adequate for investigating major structures in tissues or organelles in cells, probing



**L to R:** Philip Wedegaertner, PhD, James Keen, PhD, Maria Yolanda Covarrubias, PhD





further for information within these compartments was severely limited. A revolution in approaches has recently broken this diffraction barrier, and the new STED microscope system promises resolution down to  $\approx 40\text{-}50$  nm. Importantly, up to five objects can potentially be visualized in individual fixed samples, and up to three objects in live cells. This opens the door to much more successfully investigating molecular interactions in membrane compartments of the cell, in supramolecular structures such as adhesion complexes, and even local heterogeneities in the cytoplasm, increasingly recognized to be ordered. As biological structure is often a powerful key to understanding function, this instrument is expected to provide substantial advances in our research capabilities.





# Welcome to New BMP Students



**VICTORIA  
FRISBIE**

**Philadelphia University**

**INTEREST:** *Enzymology and  
Macromolecular Structures*

"I chose Biochemistry and Molecular Pharmacology because I'm interested in the biological structure and mechanism involved in diseases. It's exciting that BMP research has so many applications! My father introduced me to the idea of science as a career by pushing me to educate myself and do what most interested me. Though he does not have a science background, my father often sends me research articles and is always interested in my classes and lab work.

"Outside of lab, I enjoy trying different restaurants around Philadelphia. I ran cross-country and track in high school and college, and enjoy running on all of the trails around the city!"







**PHILLIP SLOGOFF SEVILLA**

**University of Illinois of Chicago**

*INTEREST: Structural Biology and Biophysics*

"I am a chemist by trade and have always been interested in biochemistry and pharmacologically active molecules. Applying chemistry here at Jefferson is what I want to do and I am passionate about it. I give credit to Dr. Jen Morford of Franklin and Marshall College, for sending me down this path!

"My favorite non-science courses in college were the multidisciplinary courses we had at Franklin and Marshall College called Foundations. Students were required to take two of these courses, with the premise of answering a 'big' question using philosophy, literature, math, science, and social sciences. My favorite of the two courses was about identity and humanity, where the 'big' question was 'what does it mean to be human?' It really challenged me and was one of the first classes I had where confronting differing opinions with an open mind and kindness became important.

"In my leisure, I like to read, watch TV, play video games, play rugby, or go on small trips and simply enjoy the change in scenery!"



**MORGAN DWYER**

**Rutgers University, Camden**

*INTEREST: Neurodegeneration and Cancer*

"My high school biology teacher helped me to realize that my interest in this field could be something I could continue to build on in college. His excitement about the subject and encouragement towards me gave me the confidence I needed to believe this was the best route for me.

"Of interest to me is investigating biology at the molecular level by understanding gene interactions and networks to find connections between the nature of those interactions and various diseases. The concept that we can use molecular techniques to learn more about a given gene, its expression levels, regulation, and its resulting protein products truly fascinates me. Once you can apply that information to the onset of a disease or in finding targets for therapy, it becomes part of a larger story and has medical relevance. Essentially, research always has great potential to make a difference and advance science in new directions, regardless of how large or small the contribution.

"When I'm not in the lab, I enjoy hanging out with my friends and family. I also love hockey, board games, road trips, exploring the city, and watching mystery shows or reading mystery books."



**GINA BUCHEL**

**Rutgers University, New Brunswick**

*INTEREST: Mechanism of Action Studies, Protein Biochemistry, Structural Biology, Computational Biology*

"Though I developed an interest in medicine at a young age, my research advisor at Rutgers University opened my eyes to a career in research. He helped me discover my love for biochemistry, research, and teaching. I became interested in using biochemistry in the pharmacology field because I enjoy learning about how drugs work to cure diseases while minimizing adverse effects. The BMP program was a perfect fit for me since it involves targeting compounds for possible therapeutics, understanding their mechanism of action, and then completing translational research. I tell my friends and family that I look at developing possible drugs from a very microscopic scale. It's like I am helping out the medical field from a "behind the scenes" point of view.

"My favorite pastimes include spending time with friends and family, binge-watching tv shows, eating, working out, and cooking."



**MASON  
TRACEWELL**

**Widener University**

*INTEREST: Research in Receptors*

"Pursuing Biochemistry and Molecular Pharmacology was mainly due to my interest in drug development—it's the logical program to obtain my goals. Both my parents worked in the research community, so the inspiration of science as a career came from them. My mom was a research assistant for development of biological vaccines for large animals, and my dad is the director of clinical pharmacology at a pharmaceutical company.

"When I talk to friends and family about my research interests, I explain that I work in a fly lab and conduct research experiments on flies to try to better understand the activity of a protein that is involved in an important metabolic pathway.

"My favorite non-science course in college was philosophy—I enjoyed having to craft persuasive arguments for what you believe. For fun, I enjoy watching shows, playing video games, and trivia nights at restaurants."



**TRAVIS  
STUTZER**

**Clark University**

*INTEREST: Neurodegeneration*

"Choosing science as a career was something I stumbled into. I enjoyed biology and chemistry classes in high school and college, and when it was time to declare a major for my undergrad, biochemistry seemed to make the most sense! Biochemistry and Molecular Pharmacology allows me to examine finely balanced reactions and how minor changes can lead to drastic changes.

"My favorite course unrelated to science was probably dystopian fiction—an English course that examined different dystopian stories. I managed to enjoyably combine what I might normally read in my free time with an in-depth examination of the novels.

"I also enjoy reading sci-fi or fantasy, playing video games on PC or Nintendo Switch, or occasionally going on a hike."



**ABHIMANNYU  
RIMAL**

**Kutztown University**

*INTEREST: Protein Structure and Function*

"I came to the United States of America five years ago for my bachelors in Biochemistry and Molecular Biology from Nepal. I graduated on May 2017 from Kutztown University of Pennsylvania and worked as a Research Technician afterwards in Dr. Edward Winter's laboratory in the Department of Biochemistry and Molecular Biology at Jefferson. I am fascinated by how simple biochemical molecules interact in complex ways to support life. Specifically, I am interested in protein structure and function as it relates to signaling process that underlie vital biological processes. A PhD in Biochemistry and Molecular Pharmacology would help me grow as an independent researcher with many career options.

"During my free time I enjoy cooking, reading about finance and economics, psychology, watching soccer and engaging in other outdoor activities."





## JAH 4 East Lab Renovations

Drs. Erik Debler and Gino Cingolani discuss construction progress within one of the four lab modules undergoing complete renovation in Jefferson Alumni Hall. Completion of the project is slated for early 2019, and the final occupants will include Drs. Diane Merry, Michael Root, Dmitry Temiakov and Lin Guo, in addition to Drs. Debler and Cingolani. The modernized open lab concept is designed to foster scientific interactions and collaborative projects, while also allowing individual labs to expand or contract when necessary, without the constraint of permanent walls.



L to R: Michael Root, MD, PhD, Gino Cingolani, PhD, Anna Pluciennik, PhD, Diane Merry, PhD, Erik Debler, PhD

## Eagles Autism Challenge

By Julia Gelman Barr, Director of Employee Giving



More than 300 members of Team Jefferson turned out despite monsoon-like conditions on May 19, 2018, for the inaugural Eagles Autism Challenge presented by Lincoln Financial Group.

The Eagles announced the event last fall as a way to galvanize support and foster collaborations for innovative autism research and programs at Jefferson, Children's Hospital of Philadelphia, and Drexel University. The effort was a tremendous success, with the Eagles reporting that some 3,300 participants raised \$2.3 million—and counting.

Jefferson president and CEO, and Team Jefferson co-captain, Dr. Stephen K. Klasko, who ran in the 5K race, tweeted, "Great moment as the Eagles challenged the city's academic medical centers to transform how we all respond and help people and their families."

Diane Merry, PhD, Professor and Vice Chair for Faculty Development and Engagement, Department of Biochemistry and Molecular Biology, also participated in the challenge. "It was an amazing and memorable (and soggy) day, filled with energy and commitment to raising money and awareness for Autism. Cycling 15 miles in drenching, chilly rain and sharing the Philly streets with Coach Doug Pederson and many Eagles players, and other committed participants from Jefferson and the community, made the event truly unforgettable!" said Merry.

Jefferson came through strong, with full hearts, wet shoes, and top results in the challenge. On the day of the event, Team Jefferson had the fourth best fundraising total, raising more than \$70,000. Since then, Jefferson community members have raised more than \$121,000 for autism research.

## Welcome Dmitry Temiakov, PhD

Associate Professor, Department of Biochemistry and Molecular Biology

The Department of Biochemistry and Molecular Biology at Jefferson welcomes Dr. Dmitry Temiakov as Associate Professor. Dmitry joins the Department from Rowan University School of Medicine, where he has served as a faculty member since 2005. He performed his graduate studies at Mendeleev University of Chemical Technology and the Institute for Genetics at the Russian Academy of Science, both in Moscow. His fellowship research was conducted at SUNY Downstate. Dmitry's current research focuses on the key enzymes responsible for gene transcription, with a particular emphasis on the enzymes that transcribe the mitochondrial genome. In addition to their role in the primary steps in gene expression, these enzymes are targeted for therapy in a variety of diseases. His research has been consistently funded by the National Institutes of Health and his findings have been published in journals that include *Cell*, *Science*, and *Nature*. Most importantly, Dmitry's work provides a link between three of Jefferson areas of programmatic research strength, gene expression and chromatin biology, mitochondrial function, and protein structure/function analysis.

Renowned scientist Patrick Cramer, Director of the Department of Molecular Biology at the Max Planck Institute for Biophysical Chemistry, states "Dmitry is an international leader in the field of mitochondrial gene expression and its regulation. The work of his laboratory has defined many of the mechanisms underlying transcription of essential genes in the genome of our mitochondria that are required for cellular energy production."

Moreover, Dr. Gyorgy Hajnoczky, Founding Director of the MitoCare Center for Mitochondrial Imaging, Research and Diagnostics at Thomas Jefferson University, states "The addition of Dmitry to the faculty of Jefferson is a brilliant move. He is an outstanding and accomplished expert in mitochondrial structural biology whose research can synergize with the efforts of both other structural biologists of Biochemistry and the SKMC-wide Mitochondrial Pathogenesis Programmatic research group. Our crew at the MitoCare Center is more than excited to plan joint efforts with Dmitry."

**Dr. Temiakov's laboratory will be located on the 4th floor of Jefferson Alumni Hall and he can be reached at [dmitry.temiakov@jefferson.edu](mailto:dmitry.temiakov@jefferson.edu).**

**"The addition of Dmitry to the faculty of Jefferson is a brilliant move. He is an outstanding and accomplished expert."**

—Gyorgy Hajnoczky, MD, PhD

*Mechanism of Transcription Anti-termination in Human Mitochondria. Hillen HS, Parshin AV, Agaronyan K, Morozov YI, Graber JJ, Chernev A, Schwinghammer K, Urlaub H, Anikin M, Cramer P, Temiakov D. 2017. Cell. 171:1082-1093.*



## Grant Awards

Adding to the Department's extramural funding portfolio in 2017/18, faculty were awarded new grants from both the private and federal sector.

<b>Emad Alnemri, PhD</b>	Falk Medical Research Trust	Role of DFNA5 in the anti-tumor immune response
<b>Jeffrey Benovic, PhD Charles Scott, PhD</b>	Gates Foundation subaward through Monell Chemical Senses Center	Developing taste technologies to improve pediatric medication compliance for global health
<b>Jeffrey Benovic, PhD Charles Scott, PhD</b>	NIH R01	Structural and dynamic analysis of GRK interaction with G protein-coupled receptors
<b>Ya-Ming Hou, PhD</b>	NIH R03	A patient-derived CMT cell model
<b>Ya-Ming Hou, PhD</b>	NIH R01	Probe discovery for tRNA methylation
<b>Ya-Ming Hou, PhD Davide Trotti, PhD</b>	NIH R21	Tractable models for C9orf72-linked RAN translation in ALS/FTD
<b>Michael Ippolito</b> (Student Fellowship)	NIH F31	Characterization and development of Gs-biased ligands of Beta2-Adrenergic receptor
<b>Dominic Lapadula</b> (Student Fellowship)	NIH F31	Targeting G alpha q/11 in uveal melanoma
<b>Alexander Mazo, PhD</b>	NIH R01	Transcriptional regulation by epigenetic factors
<b>Diane Merry, PhD</b>	NIH R01	The role of the AR interactome in SBMA
<b>Diane Merry, PhD</b>	NIH R01	The AR N/C interaction in SBMA-Mechanistic role and therapeutic potential
<b>Anna Pluciennik, PhD</b>	HDF	Crosstalk between DNA repair pathways in Huntington's Disease
<b>Philip Wedegaertner, PhD Clinita Randolph</b>	NIH F31	Understanding G alpha q/11 localization and trafficking in uveal melanoma

NIH (National Institutes of Health) HDF (Hereditary Disease Foundation)

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## ON THE COVER

**Victoria Gennaro et al.** recently published the results of their research showing that the enzyme **USP22**, a classic epigenetic regulator thought to work by controlling transcription of our genome, also directly controls central players in cell cycle progression. By removing ubiquitin from the cyclin D1 oncoprotein, USP22 elevates its levels in cells and drives cells to divide faster. The Figure shows human adenocarcinoma cells stained for both USP22 and cyclin D1, and reveals a tight correlation in the levels of the two proteins.

### Reference:

Control of CCND1 ubiquitylation by the catalytic SAGA subunit USP22 is essential for cell cycle progression through G1 in cancer cells.

Gennaro VJ, Stanek TJ, Peck AR, Sun Y, Wang F, Qie S, Knudsen KE, Rui H, Butt T, Diehl JA, McMahon SB.

*Proc Natl Acad Sci U S A.* 2018 Oct 2; 115(40):E9298-E9307. Epub 2018 Sep 17. (PMID:30224477)

## FACULTY SPOTLIGHT

### Edward Winter, PhD



Edward Winter, PhD (left), Michael Root, MD, PhD (right)

This past summer, **Edward Winter, PhD**, Professor of Biochemistry and Molecular Biology, was welcomed as the new Director of the PhD Program in Biochemistry and Molecular Pharmacology (BMP). Dr. Winter has been deeply involved in educating graduate and medical students at Thomas

Jefferson University for the past 28 years. He is an integral part of a number of popular graduate courses, including GC 550 (Foundations in Biomedical Sciences) and BI 525 (Genetic Information Transfer). He has mentored 13 PhD and 4 MS students in his laboratory, which explores yeast meiosis and mechanisms of MAP kinase activation. He has been a very active member of the BMP Program Committee since its inception and helped to formalize curricular requirements and organize Journal Club for program students. The BMP Program was established in 2012 from the merger of two former programs, Biochemistry and Molecular Biology (BMB) and Molecular Pharmacology and Structural Biology (MPSB). The BMP Program is currently home to 34 PhD students and over 50 faculty spanning seven departments in the Sidney Kimmel Medical College. We congratulate Dr. Winter and wish him much success as Program Director.

To support the research and education missions of the Department of Biochemistry and Molecular Biology, please visit **Giving.Jefferson.edu**.