

# Welcome to the Department of Biochemistry and Molecular Biophysics



Washington University in St. Louis  
School of Medicine

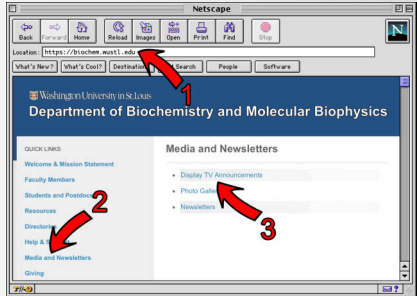
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2) Click **Media and Newsletters**

3) Click **Display TV Announcements**



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# January Publication



**Shixuan Liu**, Shuang Li, **Andrzej M. Krezel**, & **Weikai Li**

***Stabilization and structure determination of integral membrane proteins  
by termini restraining***

Nat Protoc. 2022 Jan 17. doi: 10.1038/s41596-021-00656-5. (2022)

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# Congratulations to Dr. Holehouse

August 18<sup>th</sup>, 2021 – **Alex Holehouse, PhD**, Assistant Professor of Biochemistry and Molecular Biophysics, along with Shahar Sukenik, Assistant Professor, Department of Chemistry & Biochemistry at University of California, Merced, and Thomas Boothby, Assistant Professor, Department of Molecular Biology, University of Wyoming, received a new four year grant award from the National Science Foundation through the new “Integrative Research in Biology” mechanism for their research entitled ***“Collaborative Research: Functional Synergy Between Disordered Proteins and their Environment in Desiccation Protection”***.



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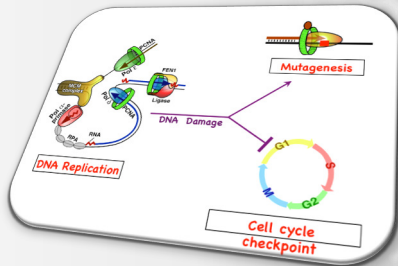
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# Spotlight on Research

The **Burgers Lab** studies DNA replication and DNA damage response in eukaryotic cells. Using yeast as a model organism, the lab integrates the biochemical analysis of DNA-protein interactions in purified model systems with the genetic analysis of targeted yeast mutants. Specific areas of interest are lagging strand DNA replication and Okazaki fragment maturation, damage induced mutagenesis, and DNA damage cell cycle checkpoints.

Right: DNA replication fork and Okazaki fragment maturation



See more research:  
[biochem.wustl.edu/spotlight](http://biochem.wustl.edu/spotlight)

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# Congratulations to Dr. Niemi



December 15<sup>th</sup>, 2021 – **Dr. Natalie Niemi's** publication in the Journal of Biological Chemistry about mitochondrial phosphorylation function has been chosen by the journal as one of the best of 2021!

You can visit [biochem.wustl.edu/news](https://biochem.wustl.edu/news) for a link to the article!

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# COVID-19



**For the latest updates on coronavirus (COVID-19), please visit here:**

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# Congratulations to Dr. Janetka



December 21<sup>st</sup>, 2021 – Drs. **Jim Janetka** and Makedonka Mitreva received two grants from the National Institutes of Health (NIH) totaling more than \$5.5 million to develop new treatments for two types of devastating parasitic infections common in sub-Saharan Africa and Central and South America: river blindness and intestinal worm infections.

You can visit [biochem.wustl.edu/news](https://biochem.wustl.edu/news) for a link to the article!

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**Congratulations to Matthew Cruz and Melanie Ernst for being selected for the 2021 MilliporeSigma Fellowship**



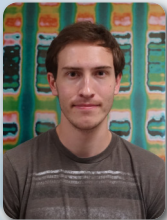
**Melanie** is a graduate student in the Biochemistry, Biophysics and Structural Biology program. She is completing her Ph.D. thesis work in the laboratory of Dr. Janice Robertson. Melanie uses single-molecule TIRF microscopy and electrophysiology to study the folding of the bacterial fluoride channel Fluc.



**Matthew** is a graduate student in the Biochemistry, Biophysics and Structural Biology program. He is completing his PhD thesis work in the laboratory of Dr. Greg Bowman. Matthew's thesis is focused on the relationship between an ebolavirus protein's structural dynamics and its function.

Visit [biochem.wustl.edu/news](https://biochem.wustl.edu/news) to read more!

# Congratulations to Daniel



September 15<sup>th</sup>, 2021 – **Daniel Griffith, BS**, Pre-Doc Trainee in the department of Biochemistry and Molecular Biophysics, and the laboratory of Alex Holehouse, PhD, received a new three-year Graduate Research Fellowship award from the National Science Foundation for his research entitled "***Investigating the molecular grammar driving the assembly of membraneless-organelles***".

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# December Publication



**Vishnu C. Damalanka**, Jorine J. L. P. Voss, Matthew W. Mahoney, Tina Primeau, Shunqiang Li, Lidija Klampfer, & **James W. Janetka**

***Macrocyclic Inhibitors of HGF-Activating Serine Proteases Overcome Resistance to Receptor Tyrosine Kinase Inhibitors and Block Lung Cancer Progression***

J Med Chem. 2021 Dec 13. doi: 10.1021/acs.jmedchem.1c01671. (2021)

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# Congratulations to Jhullian

August 23<sup>rd</sup>, 2021 – **Jhullian Jamille Alston, BA**, Pre-Doc Trainee in the department of Biochemistry and Molecular Biophysics, and the laboratories of Alex Holehouse, PhD and Andrea Soranno, PhD, received a Predoctoral to Postdoctoral Fellow Transition Award from the National Cancer Institute for his research entitled "***Single Molecule Biophysics of Intrinsically Disordered Proteins in Disease***".



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# November Publication



Maya Topf, Edina Rosta, **Gregory R. Bowman**, & Massimiliano Bonomi

***Editorial: Experiments and Simulations: A Pas de Deux to Unravel Biological Function***

Front Mol Biosci. 2021 Nov 29;8:799406. doi: 10.3389/fmolb.2021.799406. eCollection 2021. (2021)

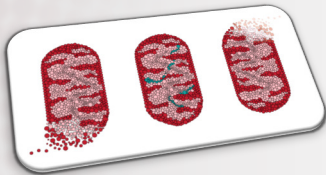
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# Spotlight on Research



The **Niemi Lab** investigates how mitochondria are built, regulated, and maintained across physiological contexts. We blend biochemistry, systems biology, and physiology to understand mechanisms of mitochondrial regulation and how they influence metabolism and organellar function. Using insights gained from our molecular studies, we aim to understand how mitochondrial dysfunction contributes to mammalian pathophysiology, with the long-term goal of translating our discoveries into new therapeutic options to restore mitochondrial function in human disease.

See more research:  
[biochem.wustl.edu/spotlight](https://biochem.wustl.edu/spotlight)

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# Congratulations to Dr. Garcia

August 24<sup>th</sup>, 2021 – **Benjamin Garcia, PhD**, Raymond H. Wittcoff Distinguished Professor and Head of Biochemistry and Molecular Biophysics, along with Matthew D. Weitzman, PhD, Professor of Microbiology, Professor of Pathology and Laboratory Medicine, University of Pennsylvania Perelman School of Medicine and Children's Hospital of Philadelphia, received a five year grant renewal from the National Institute of Allergy and Infectious Diseases for their research entitled "***Viral modulation of epitranscriptomic mechanisms***".



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# September Publication



Benjamin C. Stark, Yuanyuan Gao, Diane S. Sepich, Lakyn Belk, Matthew A. Culver, Bo Hu, Marlene Mekel, Wyndham Ferris, Jimann Shin, Lilianna Solnica-Krezel, Fang Lin, & **John A. Cooper**

***CARMIL3 is important for cell migration and morphogenesis during early development in zebrafish***

Dev Biol. 2022 Jan;481:148-159. doi: 10.1016/j.ydbio.2021.09.008. (2021)

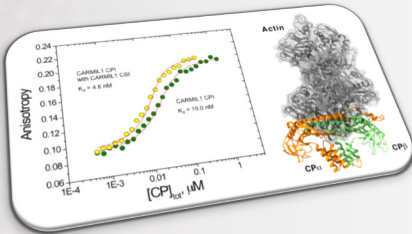
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# Spotlight on Research



The **Cooper Lab** is interested in how the actin filaments in cells assemble and how that assembly controls cell shape and movement. One focus is an actin-binding protein called "capping protein," which caps one end of the actin filament. Capping protein is in turn regulated by intrinsically disordered regions of the CARMIL family of proteins, which exhibit positive linkage in their binding interactions.

See more research:  
[biochem.wustl.edu/spotlight](http://biochem.wustl.edu/spotlight)

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# December Publication



Jie Sun, Xiaoran Roger Liu, Shuang Li, **Peng He**, **Weikai Li**, & Michael L. Gross

***Nanoparticles and photochemistry for native-like transmembrane protein footprinting***

Nat Commun. 2021 Dec 14;12(1):7270. doi: 10.1038/s41467-021-27588-8. (2021)

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**Are you paid **monthly**?**

**Please remember that your **time report** is  
**due by the 5th of each month.****

# Congratulations to Dr. Galletto



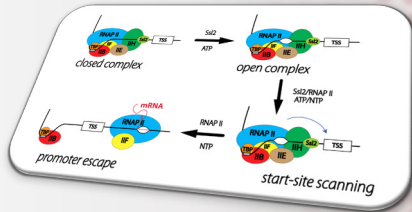
September 17<sup>th</sup>, 2021 – **Roberto Galletto, PhD**, Associate Professor in the department of biochemistry and molecular biophysics was awarded a new five year MIRA grant from the National Institute of General Medical Sciences for his research entitled ***"Functions of DNA helicases at hard-to-replicate sites and telomere regulation"***.

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# Spotlight on Research

The **Galburt Lab** strives to understand the physical mechanisms of transcription initiation and other important DNA-protein interactions. More specifically, we use a variety of single-molecule and ensemble biophysical techniques including both optical and magnetic tweezers and fluorescent microscopy to investigate how the assembly of initiation complexes on gene promoters leads to DNA unwinding and transcription. Our work is currently focused on the mechanisms of basal transcription initiation in Eukaryotes and on factor-regulated transcription in *Mycobacterium tuberculosis*.



See more research:  
[biochem.wustl.edu/spotlight](http://biochem.wustl.edu/spotlight)

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# November Publication



**Samantha K. Barrick & Michael J. Greenberg**

***Cardiac myosin contraction and mechanotransduction in health and disease***

J Biol Chem. 2021 Nov;297(5):101297. doi: 10.1016/j.jbc.2021.101297. (2021)

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# Congratulations to Dr. Hall

September 24<sup>th</sup>, 2021 - **Dr. Kathleen Hall** was promoted to serve as a senior member of the Washington University School of Medicine Committee on Admissions in recognition of her contributions and dedication to the WUSM Admissions process.

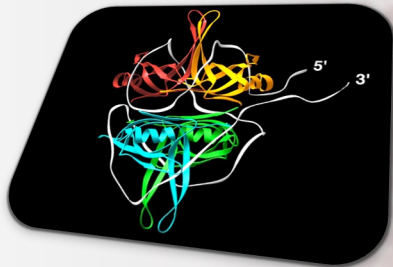


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# Spotlight on Research

Research in the **Lohman Lab** focuses on obtaining a molecular understanding of the mechanisms of protein-nucleic acid interactions involved in DNA metabolism, in particular, DNA motor proteins (helicases/translocases) and single stranded DNA binding proteins. Thermodynamic, kinetic, structural and single molecule approaches are used to probe these interactions at the molecular level.



See more research:  
[biochem.wustl.edu/spotlight](http://biochem.wustl.edu/spotlight)

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Jessica Kennedy – Title IX Director, [jwkennedy@wustl.edu](mailto:jwkennedy@wustl.edu), 314-935-3118

Jessica Kuchta-Miller – Staff/Postdoc/Graduate Student Ombuds, 314-379-8110

Karen O'Malley – Medical Student Ombuds, 314-660-2089

Jim Fehr – Faculty Ombuds, 314-660-2089



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**Congratulations to Jasmine Cubuk for being selected for the 2021 Elson  
Fellowship in honor of Dr. Elliot Elson**



Jasmine is a fifth-year graduate student in the Biochemistry, Biophysics, and Structural Biology (BBSB) program. She is doing her PhD thesis work in the lab of Dr. Andrea Soranno, where she studies how sequence composition of intrinsically disordered regions within a protein can affect interactions with both proteins and nucleic acids using single-molecule fluorescence spectroscopy.

Visit [biochem.wustl.edu/news](https://biochem.wustl.edu/news) to read more!

# Congratulations to Dr. Holehouse

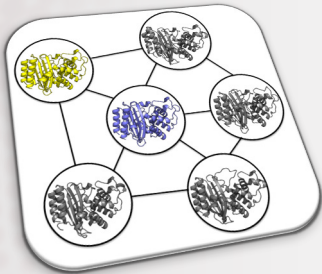
October 22<sup>nd</sup>, 2021 – **Alex Holehouse, PhD**, Assistant Professor of Biochemistry and Molecular Biophysics, received a one year renewal grant award from Longer Life Foundation for his research entitled “Predicting the functional impact of genetic variation within intrinsically disordered protein regions”



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# Spotlight on Research



The **Bowman Lab** seeks to understand the distribution of different structures a protein adopts and how this ensemble determines a proteins function. Examples of ongoing research projects include 1) understanding how mutations in the enzyme beta-lactamase change its specificity without changing the protein's crystal structure, 2) designing allosteric drugs, and 3) developing algorithms for quickly building models of the different structures a protein adopts.

See more research:

[biochem.wustl.edu/spotlight](http://biochem.wustl.edu/spotlight)

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# October Publication



Matthew Mahoney, **Vishnu C. Damalanka**, Michael A. Tartell, Dong Hee Chung, André Luiz Lourenco, Dustin Pwee, Anne E. Mayer Bridwell, Markus Hoffmann, Jorine Voss, Partha Karmakar, Nurit Azouz, Andrea M. Klingler, Paul W. Rothlauf, Cassandra E. Thompson, Melody Lee, Lidiya Klampfer, Christina Stallings, Marc E. Rothenberg, Stefan Pöhlmann, Sean P. Whelan, Anthony J. O'Donoghue, Charles S. Craik, & **James W. Janetka**

***A novel class of TMPRSS2 inhibitors potently block SARS-CoV-2 and MERS-CoV viral entry and protect human epithelial lung cells***

Proc Natl Acad Sci U S A. 2021 Oct 26;118(43):e2108728118. doi: 10.1073/pnas.2108728118. (2021)

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# Holiday Schedule

Holiday	Day Observed	Date Observed at WashU
Martin Luther King Jr. Day	Monday	January 17 <sup>th</sup> , 2022
<b>Memorial Day</b>	<b>Monday</b>	<b>May 30<sup>th</sup>, 2022</b>
Independence Day	Monday	July 4 <sup>th</sup> , 2022
Labor Day	Monday	September 5 <sup>th</sup> , 2022
Thanksgiving Day	Thursday	November 24 <sup>th</sup> , 2022
Day after Thanksgiving	Friday	November 25 <sup>th</sup> , 2022



# COVID-19



**For the latest updates on coronavirus (COVID-19), please visit here:**

**[coronavirus.wustl.edu](https://coronavirus.wustl.edu)**

**Don't forget to self-screen before coming into work!**

**[screening.wustl.edu](https://screening.wustl.edu)**

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# BMB SCIENCE FRIDAYS

a forum for new data, new ideas  
and works in progress

**Science Fridays and Happy Hour:  
EVERY FRIDAY, starting at 4PM.**



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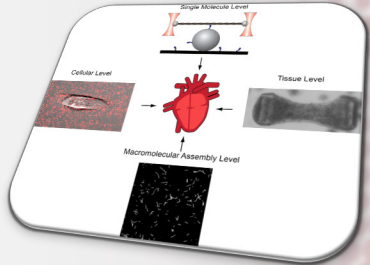


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# Spotlight on Research

The **Greenberg Lab** focuses on how cytoskeletal motors function in both health and disease. Currently, the lab is studying mutations that cause familial cardiomyopathies, the leading cause of sudden cardiac death in people under 30 years old. The lab uses an array of biochemical, biophysical, and cell biological techniques to decipher how these mutations affect heart contraction from the level of single molecules to the level of engineered tissues. Insights into the disease pathogenesis will guide efforts to develop novel therapies.



See more research:  
[biochem.wustl.edu/spotlight](http://biochem.wustl.edu/spotlight)

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# September Publication



Chia-Chen Liu, Melissa E. Murray, Xia Li, Na Zhao, Na Wang, Michael G. Heckman, Francis Shue, Yuka Martens, Yonghe Li, Ana-Caroline Raulin, Cassandra L. Rosenberg, Sydney V. Doss, Jing Zhao, Melissa C. Wren, Lin Jia, Yingxue Ren, Tadafumi C. Ikezu, Wenyan Lu, Yuan Fu, Thomas Caulfield, Zachary A. Trottier, Joshua Knight, Yixing Chen, Cynthia Linares, Xue Wang, Aishe Kurti, Yan W. Asmann, Zbigniew K. Wszolek, Glenn E. Smith, Prashanthi Vemuri, Kejal Kantarci, David S. Knopman, Val J. Lowe, Clifford R. Jack Jr., Joseph E. Parisi, Tanis J. Ferman, Bradley F. Boeve, Neill R. Graff-Radford, Ronald C. Petersen, Steven G. Younkin, John D. Fryer, Hu Wang, Xianlin Han, **Carl Frieden**, Dennis W. Dickson, Owen A. Ross, & Guojun Bu

## ***APOE3-Jacksonville (V236E) variant reduces self-aggregation and risk of dementia***

Sci Transl Med. 2021 Sep 29;13(613):eabc9375. doi: 10.1126/scitranslmed.abc9375.(2021)

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# Congratulations to Dr. Janetka

September 30<sup>th</sup>, 2021 – **Jim Janetka, PhD**, Professor of Biochemistry and Molecular Biophysics, Makedonka Mitreva, Professor of Medicine and Genetics, and Sara Lustigman, Professor and Head, Laboratory of Molecular Parasitology Member, Lindsley F. Kimball Research Institute, New York Blood Center have received a new multi-PI R01 award from the National Institutes of Health, National Eye Institute entitled ***"Integrative approach for accelerating filarial worm drug discovery to treat river blindness"***.



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locked if no one is in  
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**Don't forget your  
keys!**

**Please remember to  
take OFF your gloves  
when leaving the lab.**

