Welcome to the Department of Biochemistry and Molecular Biophysics

Washington University in St. Louis
School of Medicine

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3) Click Display TV Announcements
Characterization of missense mutations in the signal peptide and propeptide of FIX in hemophilia B by a cell-based assay

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)
Congratulations to **Dr. Jim Janetka**, whose promotion to Professor was officially approved on September 11, 2020.
Junctional Localization of Septin 2 Is Required for Organization of Junctional Proteins in Static Endothelial Monolayers

Joanna Kim & John A. Cooper

Arterioscler Thromb Vasc Biol. ATVBAHA120315472. doi: 10.1161/ATVBAHA.120.315472. (2020)
For the latest updates on coronavirus (COVID-19), please visit here:
coronavirus.wustl.edu

Don’t forget to self-screen before coming into work!
screening.wustl.edu
Congratulations to Jhullian Alston and Jasmine Cubuk for being selected for the 2020 MilliporeSigma Fellowship

Jhullian Alston (JJ) is a fourth-year graduate student in the Biochemistry, Biophysics, and Structural Biology (BBSB) program. He is completing his Ph.D. thesis work jointly between the labs of Dr. Andrea Soranno and Dr. Alex Holehouse.

Jasmine is a fourth-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.

Visit biochem.wustl.edu/news to read more!
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 organelle 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](http://biochem.wustl.edu/spotlight)

SARS-CoV-2 Infects Human Engineered Heart Tissues and Models COVID-19 Myocarditis

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August Publication

Weikai Li, Russell E. Bishop, & Filippo Mancia.

Integral Membrane Enzymes (2020)

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
Are you paid monthly?

Please remember that your time report is due by the 5th of each month.
Mathivanan Chinnaraj, David A. Barrios, Carl Frieden, Tomasz Heyduk, Robert Flaumenhaft, & Nicola Pozzi.

**Bioorthogonal Chemistry Enables Single-Molecule FRET Measurements of Catalytically Active Protein Disulfide Isomerase**

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box OneDrive Retrospect CODE42
November Publication

**Shixuan Liu, Shuang Li, Guomin Shen, Narayanasami Sukumar, Andrzej M. Krezel, & Weikai Li**

*Structural basis of antagonizing the vitamin K catalytic cycle for anticoagulation*

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)
Melanie A. Sparks, Peter M. Burgers, & Roberto Galletto.

Pif1, RPA and FEN1 modulate the ability of DNA polymerase δ to overcome protein barriers during DNA synthesis

Biol Chem. jbc.RA120.015699. doi: 10.1074/jbc.RA120.015699. (2020)
HAVING ISSUES AT WORK?
WE’RE HERE TO HELP.

Contact any of the following for help

Jayma Mikes, Business Manager, jmikes@wustl.edu, 314-362-0262
John Cooper, Department Head, jcooper11@gmail.com, 314-362-3964
Jessica Kennedy – Title IX Director, 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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Beyond genomics-technological advances improving the molecular characterization and precision treatment of heart failure

Kory J. Lavine & Michael J. Greenberg.

Heart Fail Rev. doi: 10.1007/s10741-020-10021-5. (2020)
The **Bowman Lab** seeks to understand the distribution of different structures a protein adopts and how this ensemble determines a protein’s 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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Mechanism of auto-inhibition and activation of Mec1 ATR checkpoint kinase

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)
Science Fridays and Happy Hour: EVERY FRIDAY, starting at 4PM.
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<thead>
<tr>
<th>Holiday</th>
<th>Day</th>
<th>Date Observed at WU</th>
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<tbody>
<tr>
<td>Thanksgiving Day</td>
<td>Thursday</td>
<td>November 26(^{th}), 2020</td>
</tr>
<tr>
<td>Day after Thanksgiving</td>
<td>Friday</td>
<td>November 27(^{th}), 2020</td>
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<tr>
<td>Christmas Eve</td>
<td>Thursday</td>
<td>December 24(^{th}), 2020</td>
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<td>Friday</td>
<td>December 25(^{th}), 2020</td>
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<tr>
<td>New Year’s Eve</td>
<td>Thursday</td>
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<td>New Year’s Day</td>
<td>Friday</td>
<td>Friday, January 1(^{st}), 2021</td>
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Yihu Yang, Xiaoran Roger Liu, Zev J. Greenberg, Fengbo Zhou, Peng He, Lingling Fan, Shixuan Liu, Guomin Shen, Takeshi Egawa, Michael L. Gross, Laura G. Schuettpelz, & Weikai Li

**Open conformation of tetraspanins shapes interaction partner networks on cell membranes**

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
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Don’t forget your keys!

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