Welcome to the Department of Biochemistry and Molecular Biophysics

Washington University in St. Louis
School of Medicine

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Neutralizing Antibody and Soluble ACE2 Inhibition of a Replication-Competent VSV-SARS-CoV-2 and a Clinical Isolate of SARS-CoV-2

Congratulations to Megan Cohan and Jonathan Lin for being selected as the 2020 Ceil M. DeGutis Prize Fellows

Ms. Megan Cohan is a Ph.D. Candidate in the lab of Dr. Rohit Pappu in the Biomedical Engineering Department at the McKelvey School of Engineering.

Dr. Jonathan Lin completed his Ph.D. thesis in the lab of Dr. Rajendra Apte in the Department of Ophthalmology and Visual Sciences.

Visit biochem.wustl.edu/news to read more!
Congratulations to Dr. Lohman

April 24th, 2020 – **Timothy M. Lohman, PhD**, Marvin A. Brennecke Professor of Biophysics and professor of biochemistry and molecular biophysics received a new five year MIRA grant award from National Institute of General Medical Sciences for his research entitled “Mechanisms of Helicases, Translocases and SSB Proteins involved in Genome Maintenance”.
Antagonism between substitutions in β-lactamase explains a path not taken in the evolution of bacterial drug resistance.

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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
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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
May Publication


Development of a Single-Stranded DNA-binding Protein Fluorescent Fusion Toolbox

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Modeling cancer genomic data in yeast reveals selection against ATM function during tumorigenesis.

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)
HAVING ISSUES AT WORK?
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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
June 25th, 2020 - The work by Dr. Greg Bowman on the Folding@home project and COVID-19 research was recently featured in The Source.

You can visit biochem.wustl.edu/news for a link to the article!
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,
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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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
James W Janetka, Allen T Hopper, Ziping Yang, Jennifer Barks, Mary Savari Dhason, Qiuling Wang, & L David Sibley

Optimizing Pyrazolopyrimidine Inhibitors of Calcium Dependent Protein Kinase 1 for Treatment of Acute and Chronic Toxoplasmosis

J Med Chem. doi: 10.1021/acs.jmedchem.0c00419. (2020)
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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.
<table>
<thead>
<tr>
<th>Holiday</th>
<th>Day</th>
<th>Date Observed at WU</th>
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<tbody>
<tr>
<td>Martin Luther King, Jr.</td>
<td>Monday</td>
<td>January 20(^{th}), 2020</td>
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<tr>
<td>Memorial Day</td>
<td>Monday</td>
<td>May 25(^{th}), 2020</td>
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<tr>
<td><strong>Independence Day</strong></td>
<td><strong>Friday</strong></td>
<td><strong>July 3(^{rd}), 2020</strong></td>
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<tr>
<td>Labor Day</td>
<td>Monday</td>
<td>September 7(^{th}), 2020</td>
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<tr>
<td>Thanksgiving Day</td>
<td>Thursday</td>
<td>November 26(^{th}), 2020</td>
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<tr>
<td>Friday after Thanksgiving</td>
<td>Friday</td>
<td>November 27(^{th}), 2020</td>
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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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REMEmBER TO
LOCK UP YOUR VALUABLES
Conformational Distributions of Isolated Myosin Motor Domains Encode Their Mechanochemical Properties