Welcome to the Department of Biochemistry and Molecular Biophysics

Washington University in St. Louis
School of Medicine

https://biochem.wustl.edu
View these slides online!

1) Go to biochem.wustl.edu

2) Click Media and Newsletters

3) Click Display TV Announcements
Join us for the
BMB Annual Holiday Party
Saturday, December 7, 2019
from 2:30–6pm
Saratoga Lanes
2725 Sutton Blvd, 63143

Enjoy bowling, pool, and food.

Please RSVP by November 30th at:
https://forms.gle/ipqvkSEH3YTeNzTX7

visit biochem.wustl.edu/links for more
Meisheng Ma, Mihaela Stoyanova, Griffin Rademacher, Susan K. Dutcher, Alan Brown, & Rui Zhang

Structure of the Decorated Ciliary Doublet Microtubule

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)
Singh S.P., Soranno A., Sparks M.A., & Galletto R.

Branched unwinding mechanism of the Pif1 family of DNA helicases.

On September 20th, 2019, the department held a special seminar to recognize the recipient of the 2018 Elliot Elson Fellowship. **Ms. Sarah Clippinger** shared her research on “Assembly and Binding of E. coli RecOR Proteins to SSB C-terminal tails”.

Visit [biochem.wustl.edu/events](http://biochem.wustl.edu/events) to read more and see photos from the event!
The work by Dr. Greg Bowman on the Folding@home project was recently featured in the magazine Outlook.

The feature goes into detail about Dr. Bowman’s research and some of the difficulties he faced.

You can visit biochem.wustl.edu/news for a link to the feature!
THE ROBERTSON LAB INVITES YOU TO THE

BMB COOKIE EXCHANGE

DECEMBER 12, 2019
3:00 PM
BMB BREAK ROOM

Show off your holiday baking skills!
Bring your favorite cookies and leave with an assortment of favorite cookies!

Please notify any of the Robertson lab members if you intend to participate.
Computer not working?
Not getting email on your smartphone?

We are here to help with the many computing issues that may pop up in your day-to-day operations.

Support email: support@biochem.wustl.edu

Support website: BMBSupport.wustl.edu

Just send us an email or visit our website and click on *Request Support* to get help!
The Research Infrastructure Services (RIS) group has begun piloting **WashU ELN**, an electronic lab notebook service powered by LabArchives.

The LabArchives Electronic Lab Notebook is a cloud-based application that facilitates the creation, storage, sharing and management of research data.

RIS invites the research community to participate in upcoming LabArchives training sessions.

Visit [biochem.wustl.edu/news](http://biochem.wustl.edu/news) to read more!
MYSM1 in B Cell Development and the DNA Damage Response

Brendan Mathias
(Bednarski lab)

Friday, December 6th, 2019
4:00 pm – 264 McDonnell Sciences
Host: Burgers Lab
Sparks J.L., Gerik K.J., Stith C.M., Yoder B.L., & Burgers P.M.

The roles of fission yeast exonuclease 5 in nuclear and mitochondrial genome stability.

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)
TEA TIME

for Faculty, Staff, Postdocs & Students

Tuesdays & Thursdays
3:00-4:00 pm

Biochemistry Break Room
201 McDonnell Sciences Building

Coffee, tea and cookies are served.
September 16th, 2019 – **Jim Janetka, PhD**, Associate Professor of Biochemistry and Molecular Biophysics, and Co-Founder of ProteXase Therapeutics, Inc., along with Lidija Klampfer, PhD, Co-Founder and Chief Scientific Officer of ProteXase Therapeutics, Inc., received a one-year SBIR grant award from the National Cancer Institute for their research entitled **“Inhibitors of pro-HGF activation overcome resistance to anti-EGFR therapy”**.
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)
Your **BMB ID** is used for network files shares, remote VPN access, and BMB WiFi.

You can now change your BMB ID password, reset it if you have forgotten it, or even recover your BMB ID if you don't remember what it is!

Just visit: 

bmbid.wustl.edu
October Publication

Alexander G. Kozlov, Min Kyung Shinn, & Timothy M. Lohman

Regulation of Nearest-neighbor cooperative binding of E. coli SSB protein to DNA

Don't Forget!

Please keep your lab locked if no one is in there when you leave.

Don’t forget your keys!

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

Department of Biochemistry and Molecular Biophysics
Washington University in St. Louis • School of Medicine
# Schedule of Events

**9:30-10:00 am**  
Registration, Coffee, and Networking

**10:00-10:15 am**  
Welcome & Opening Remarks

## Session I (50 min/talk)

**10:15-11:05 am**  
"Microscopic view of lipid regulation of membrane protein function using advanced simulation technologies"  
Emad Tjahjorshid, Ph.D.  
University of Illinois at Urbana-Champaign

**11:10 am-12:00 pm**  
"Mass spectrometry plays a role in structural proteomics and biophysics"  
Gaya Amarasinghe, Ph.D.  
Washington University School of Medicine

**12:00-1:00 pm**  
Complimentary Lunch (Allied Health Atrium)

## Session II (50 min/talk)

**1:00-1:50 pm**  
"Allosteric modulation of P-glycoprotein by membrane lipids, transport substrates, and inhibitors"  
Reza Dastvan, Ph.D.  
Saint Louis University School of Medicine

"Dynamic associations of proteases with partners from cell surfaces: Software for immediate insights from NMR"  
Steven Van Doren, Ph.D.  
University of Missouri-Columbia

**1:55-2:45 pm**  
Coffee Break (Allied Health Atrium)

**2:45-3:15 pm**  
"Regulation of DNA helicases"  
Timothy Lohman, Ph.D.  
Washington University School of Medicine

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**36th Robert E. Olson Lecture**

**3:15-4:15 pm**  
"Regulation of DNA helicases"  
Timothy Lohman, Ph.D.  
Washington University School of Medicine

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**Info and Free Registration:** biochem.slu.edu/event/smw-annual7/

**Friday, December 13, 2019**  
9:30 am-4:30 pm  
Allied Health Auditorium  
3437 Caroline St.
Join us for the BMB Annual Holiday Party

Saturday, December 7, 2019
from 2:30-6pm
Saratoga Lanes
2725 Sutton Blvd, 63143

Enjoy bowling, pool, and food.

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Are your files backed up?

If you are not keeping your files on a network file server, running a local backup client, or utilizing cloud storage, then it is possible that your files are not backed up!

Want to make sure your data is backed up? We provide several backup solutions.

BMBSupport.wustl.edu/backups
Science Fridays and Happy Hour: EVERY FRIDAY, starting at 4PM.
November 4\textsuperscript{th}, 2019 – Research by Dr. Carl Frieden appeared on the \textit{Alzforum} site in the article “Can an ApoE Mutation Halt Alzheimer’s Disease?” One of Dr. Frieden’s previous publications was also cited by the article.

You can visit \texttt{biochem.wustl.edu/news} for a link to the article!
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
The telomere-binding protein Rif2 and ATP-bound Rad50 have opposing roles in the activation of yeast Tel1\textsuperscript{ATM} kinase.

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BMB COOKIE EXCHANGE

DECEMBER 12, 2019
3:00 PM
BMB BREAK ROOM

Show off your holiday baking skills!
Bring your favorite cookies and leave with an assortment of favorite cookies!

Please notify any of the Robertson lab members if you intend to participate.
## Holiday Schedule

<table>
<thead>
<tr>
<th>Holiday</th>
<th>Day</th>
<th>Date Observed at WU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thanksgiving Day</td>
<td>Thursday</td>
<td>November 28&lt;sup&gt;th&lt;/sup&gt;, 2019</td>
</tr>
<tr>
<td>Friday after Thanksgiving</td>
<td>Friday</td>
<td>November 29&lt;sup&gt;th&lt;/sup&gt;, 2019</td>
</tr>
<tr>
<td>Christmas Eve</td>
<td>Tuesday</td>
<td>December 24&lt;sup&gt;th&lt;/sup&gt;, 2019</td>
</tr>
<tr>
<td>Christmas Day</td>
<td>Wednesday</td>
<td>December 25&lt;sup&gt;th&lt;/sup&gt;, 2019</td>
</tr>
<tr>
<td>New Year's Eve</td>
<td>Tuesday</td>
<td>December 31&lt;sup&gt;st&lt;/sup&gt;, 2019</td>
</tr>
<tr>
<td>New Year’s Day</td>
<td>Wednesday</td>
<td>January 1&lt;sup&gt;st&lt;/sup&gt;, 2020</td>
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Do you need assistance with your writing process?

Are you working on a manuscript for publication, grant, personal statement, or other writing piece?

**The Writing Center** staff are available to help you out! This is a free service provided to all students, faculty, staff, and postdocs.

Visit [writingcenter.wustl.edu](http://writingcenter.wustl.edu) for more information!
MYSM1 in B Cell Development and the DNA Damage Response

Brendan Mathias
(Bednarski lab)

Friday, December 6th, 2019
4:00 pm – 264 McDonnell Sciences
Host: Burgers Lab
Farmer’s Market

Inside the McDonnell Pediatric Research Building
or
Outside on the Plaza
(weather permitting)

Every Thursday!
10:00 am - 2:00 pm
Are you paid monthly?

Please remember that your time report is due by the 5th of each month.
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)
The Mutation R94C InTNNT2-encoded Troponin T Predisposes to Restrictive Cardiomyopathy and Pediatric Sudden Death Through Impaired Thin Filament Relaxation Resulting in Myocardial Diastolic Dysfunction

Running low on storage?

WashU IT Research Storage is available to all Faculty members (totally separate from BMB Network storage).

The first **5TB** of storage are provided at *no-cost* to you!

Visit for more information: BMBSupport.wustl.edu
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, jwckennedy@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

Cryo-EM Structure of Nucleotide-Bound Tel1ATM Unravels the Molecular Basis of Inhibition and Structural Rationale for Disease-Associated Mutations.

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)

A novel chlorophyll protein complex in the repair cycle of photosystem II.