

Welcome to the Department of Biochemistry and Molecular Biophysics



Washington University in St. Louis
School of Medicine

January Publication



Andrea Soranno, Franziska Zosel, and Hagen Hofmann

Internal friction in an intrinsically disordered protein—Comparing Rouse-like models with experiments

The Journal of Chemical Physics 148, 123326 (2018)

Department of Biochemistry and Molecular Biophysics



Washington University in St. Louis • School of Medicine



Save the Date

Symposium in Remembrance of Dr. John Majors

Friday, October 19, 2018

More information to come.

 Washington
University in St. Louis
SCHOOL OF MEDICINE

Hosted By:

Department of Biochemistry and Molecular Biophysics

2018 Ceil M. DeGutis Prize

In

Chemical Biology or Medicinal Chemistry

In memory of Ceil M. DeGutis

A \$250 award will be presented to a senior graduate student, in their fifth or sixth year of graduate study, who has made a significant contribution to the field of Chemical Biology or Medicinal Chemistry disciplines broadly defined.

Thesis Advisors of eligible students are invited to send nominations to the selection committee by March 9, 2018. The recipient will be announced in April/May.

Nominations should consist of:

- 1) A one-page letter of reference from the Thesis advisor summarizing the candidate's accomplishments.
- 2) The nominee's CV.

Please nominate only one student per lab.

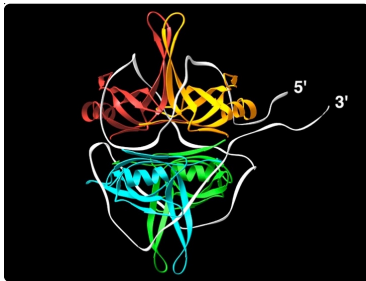
Nominations can be emailed to Melissa Torres, torresm@wustl.edu, in the Department of Biochemistry and Molecular Biophysics by March 9, 2018.

Questions regarding eligibility and/or selection may be directed to Melissa Torres, 314-362-0287.

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.



Congratulations to Jim Janetka



Congratulations to Drs. **Jim Janetka** and **Amarendar Maddirala**, whose publication was selected as the journal cover of the most recent issue of J. Med. Chem, and was the topic of a recent viewpoint entitled "*Novel Molecules To Treat Chronic Central Nervous System Toxoplasmosis*" by Sandhya Kortagere.

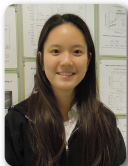
You can find the links to the viewpoint and referenced publication on our site:

biochem.wustl.edu/news

Department of Biochemistry and Molecular Biophysics

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February Publication



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

Allosteric Effect of E. coli SSB C-Terminal Tails on RecOR Binding to DNA

Biophysical Journal, Volume 114, Issue 3, Supplement 1, Page 441a (2018)

Department of Biochemistry and Molecular Biophysics



Washington University in St. Louis • School of Medicine

**Congratulations to Catherine Knoverek for being selected for the 2018
MilliporeSigma Fellowship in memory of Dr. Gerty Cori**



Catherine is a graduate student in the Biochemistry, Biophysics, and Structural Biology program. She is doing her PhD thesis work in the lab of Dr. Greg Bowman. Catherine is pursuing questions involving how mutations interact to affect the biophysical properties of proteins and how those interactions ultimately affect protein evolution.

Visit biochem.wustl.edu/news to read more!

Congratulations to Michael Greenberg

Michael Greenberg, PhD, Assistant Professor of Biochemistry and Molecular Biophysics, along with Kory Lavine, MD, PhD, Assistant Professor of Medicine, and Christopher M. Sturgeon, PhD, Assistant Professor of Medicine, received a 2018 Center of Regenerative Medicine (CRM) seed grant for their work entitled "*Leveraging macrophage ontogeny to engineer human cardiac tissues to model cardiomyopathy*".



Department of Biochemistry and Molecular Biophysics

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Office for All!

Members of the BMB Department can install the latest Microsoft Office on up to 5 of their personal computers.

Yes, this even includes your computers at home!

Just visit the following website, sign in with your WUSTL Key, then click "Install Office apps" to begin:

www.Office.com



Department of Biochemistry and Molecular Biophysics



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Congratulations to Weikai Li

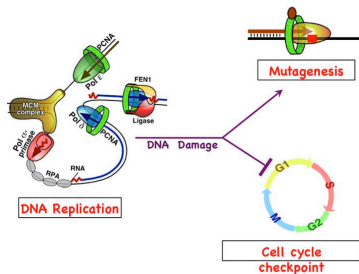


Weikai Li, PhD, assistant professor of biochemistry and molecular biophysics, along with Jayne S. Weiss, MD, Professor and Chair, Department of Ophthalmology, LSU Health Sciences Center received a new two year, grant award from the National Eye Institute for his research entitled "*Structural basis of Schnyder corneal dystrophy*".

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



December Publication



Stodola J.L. and **Burgers P.M.**

Mechanism of Lagging-Strand DNA Replication in Eukaryotes.

Adv Exp Med Biol. 1042:117-133. doi: 10.1007/978-981-10-6955-0_6 (2017)

Department of Biochemistry and Molecular Biophysics



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Holiday Schedule

Holiday	Day	Date Observed at WU
Martin Luther King, Jr. Day	Monday	January 15 th , 2018
Memorial Day	Monday	May 28th, 2018
Independence Day	Wednesday	July 4th, 2018
Labor Day	Monday	September 3rd, 2018
Thanksgiving Day	Thursday	November 22nd, 2018
Friday after Thanksgiving	Friday	November 23rd, 2018

Galburt Lab Publication Featured

One of the Eric Galburt's publications was recently featured on the **Saccharomyces Genome Database** (SGD) website.

You can find links to the article, abstract, and the piece from SGB on our website:

biochem.wustl.edu/news

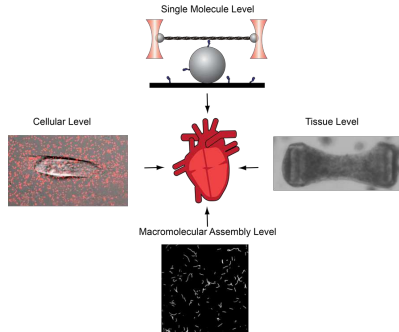


Department of Biochemistry and Molecular Biophysics

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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.



Congratulations to Michael Greenberg



Michael Greenberg, PhD, Assistant Professor of Biochemistry and Molecular Biophysics, received a two year, Basil O'Connor Starter Scholar Research grant award from the March of Dimes for his work entitled "*Understanding Congenital Heart Disease from the Ground Up*".

SHOES + WATER



Do you have unneeded pairs of gently used shoes? If so, please consider donating them to a great cause!

The Office of Sustainability and the WUSM Operations & Facilities Management Department is collecting shoes in partnership with Shoeman Water Projects, a locally owned nonprofit institution that exports shoes to street vendors in developing communities around the world. Funds generated provide well drilling rigs, water purification systems, hand pump repairs and training programs to bring clean, fresh water to community members. Please have the shoes matched and laced or tied together. You can drop shoes off from **February 5 to May 31, 2018** at the following locations:

Medical School Campus – CSRB/BJCIH Link, FLTC Atrium, 4444 Forest Park Lobby, Clayton Taylor Garage, TAB Lobby, McDonnell Science Lobby, MCC Link, Couch Building Lobby



Questions? Email Melanie Strowmatt at mstrowmatt@wustl.edu

Congratulations to Michael Greenberg



Michael Greenberg, PhD, Assistant Professor of Biochemistry and Molecular Biophysics received a 2018 CIMED P&F award from the Center for the Investigation of Membrane Excitability Diseases for his work entitled "**Effects of Mechanical Forces on Cardiac Excitability in Heart Disease**".

BMB SCIENCE FRIDAYS

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

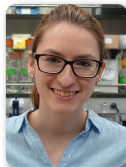
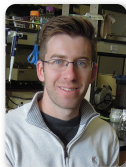
Science Fridays and Happy Hour:
EVERY FRIDAY, starting at 4PM.

Department of Biochemistry and Molecular Biophysics



Washington University in St. Louis • School of Medicine

November Publication



Maxwell I. Zimmerman, Kathryn M. Hart, Carrie A. Sibbald, **Thomas E. Frederick**, John R. Jimah, **Catherine R. Knoverek**, Niraj H. Tolia, and **Gregory R. Bowman**

Prediction of New Stabilizing Mutations Based on Mechanistic Insights from Markov State Models

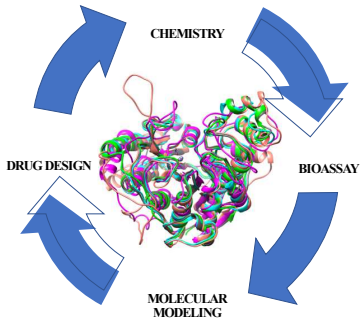
ACS Cent. Sci., 2017, 3 (12), pp 1311–1321, DOI: 10.1021/acscentsci.7b00465 (2017)

Department of Biochemistry and Molecular Biophysics



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Spotlight on Research



The [Marshall Lab](#) performs a synergistic application of organic synthesis (solution- and solid-phase chemistry), enzymatic assays (electrophoretic mobility shift assays (EMSA) and surface plasmon resonance (SPR)), and computational chemistry techniques (homology modeling, molecular docking, molecular dynamics simulations, QSAR and 3D QSAR models) to rationally develop novel isoform-selective Lysine Deacetylases Inhibitors (KDACIs) as new therapeutics for the treatment of cancer, HIV-1, schistosomiasis and malaria.



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.

Obituary: Raymond H. Wittcoff

Raymond H. "Ray" Wittcoff, an emeritus trustee of Washington University in St. Louis and a member of the School of Medicine's National Council since 2005, died Tuesday, Jan. 2, 2018, at his home in Phoenix. He was 96.

You can find a link to the full obituary on our site:
biochem.wustl.edu/news



January Publication



Yang B., Vasbinder M., Hird A.W., Su Q., Wang H., Yu Y., Toader D., Lyne P.D., Read J.A., Breed J., Ioannidis S., Deng C., Grondine M., DeGrace N., Whitston D., Brassil P., and **Janetka J.W.**

Adventures in Scaffold Morphing: Discovery of Fused Ring Heterocyclic Checkpoint Kinase 1 (CHK1) Inhibitors.

J Med Chem. doi: 10.1021/acs.jmedchem.7b01490. (2018)

Department of Biochemistry and Molecular Biophysics



Washington University in St. Louis • School of Medicine

Back Up Your Stuff!



Don't let your important files and data go up in flames!

If you are not putting your important files on our servers (such as BMBCore), then it is possible that they are NOT getting backed up!

ARE YOU COMFORTABLE WITH LOSING ALL YOUR RESEARCH DATA?

Make sure that your computer is running a backup program!

Want to make sure your computer is backed up?

We provide several backup solutions.

Just send an email: support@biochem.wustl.edu



Are you paid **monthly**?

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

2018 Ceil M. DeGutis Prize
In
Chemical Biology or Medicinal Chemistry
In memory of Ceil M. DeGutis

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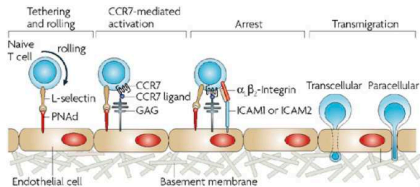
Please nominate only one student per lab.

Nominations can be emailed to Melissa Torres, torresm@wustl.edu, in the Department of Biochemistry and Molecular Biophysics by March 9, 2018.

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Spotlight on Research

The [Cooper Lab](#) is interested in how cells migrate, in particular how cells cross the endothelium as they move into or out of the blood stream. Immune cell migration is important for fighting infection, and cancer cell migration is important for combatting cancer metastasis. These cells use their actin cytoskeletons to accomplish this movement.



Farmer's Market

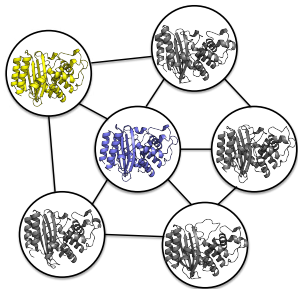
**Inside the McDonnell Pediatric
Research Building
or
Outside on the Plaza
(weather permitting)**

**Every Thursday!
10:00 am - 2:00 pm**



Spotlight on Research

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.



NEW WASTE SORTING GUIDELINES

ALWAYS EMPTY FOODS AND LIQUIDS BEFORE RECYCLING CONTAINERS



RECYCLE

WASTE SORTING GUIDE : 2-STREAM



◀ METAL & GLASS



◀ PLASTICS
NO #6 OR BAGS



◀ PAPER, CARTONS
& CARDBOARD



◀ NO
FOOD/LIQUIDS
TO-GO BOXES
PAPER CUPS

FOOD CONTAMINATES RECYCLING

LANDFILL



FOOD/LIQUIDS
TO-GO BOXES



PLASTIC UTENSILS



PLASTIC #6
PAPER CUPS
STYROFOAM



SNACK WRAPPERS
SOFT PLASTICS & BAGS

QUESTIONS? SUSTAINABILITY.WUSTL.EDU

 Sustainability
WASHINGTON UNIVERSITY IN ST. LOUIS



Department of Biochemistry and Molecular Biophysics



Washington University in St. Louis • School of Medicine

December Publication



Bartels P.L., Stodola J.L., **Burgers P.M.J.**, and Barton J.K.

A Redox Role for the [4Fe4S] Cluster of Yeast DNA Polymerase δ .

J Am Chem Soc. 139(50):18339-18348. doi: 10.1021/jacs.7b10284.

Department of Biochemistry and Molecular Biophysics



Washington University in St. Louis • School of Medicine

Don't Forget!



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

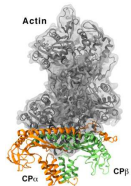
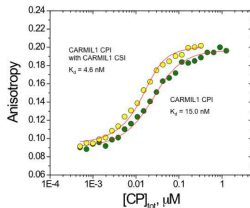
And take your keys with you!

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



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.



BMB Support

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: BiochemSupport.wustl.edu

Just send us an email or visit our website and click on ***Request Support*** to get help!



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*.

