



Keynote Speaker

Wednesday, May 11 @ 11:00 AM



Dr. Janet Smith

Martha L. Ludwig Distinguished University Professor
Biological Chemistry & Biophysics
University of Michigan Medical School

Two Molecular Systems for Human Defense against Viral Pathogens

Human hosts can detect viral pathogens with a variety of molecular surveillance systems that trigger the release of interferon proteins, resulting in the expression of interferon-stimulated genes. Some of these gene products are restriction factors that directly or indirectly destroy viral RNA. The talk will describe structure-function studies of two restriction factors for RNA viruses: APOBEC3H and ZAP. The APOBEC proteins (apolipoprotein B editing complex) are cytidine deaminases (C → U). APOBEC3F, G and H restrict retroviruses such as HIV-1 by hypermutation of retroviral DNA. The structure of an APOBEC3H - RNA complex showed how the protein associates with viral RNA and is positioned to act on single-stranded viral DNA upon synthesis by the viral reverse transcriptase. ZAP (zinc-finger antiviral protein) acts in a different manner by recognizing CpG dinucleotides in viral RNAs and targeting the RNAs for degradation. The structure of the ZAP RNA-binding domain with an RNA oligomer revealed how ZAP is specific for CpG, and subsequent studies demonstrate how ZAP recruits nucleases to the bound RNA.

Titles:

Associate Institute Director, Research Professor
and Center for Structural Biology Director, U-M
Life Sciences Institute
Margaret J Hunter Collegiate Professor in the Life
Sciences
Martha L. Ludwig Distinguished University Profes-
sor of Biological Chemistry, U-M Medical School
Professor of Biophysics, U-M College of Litera-
ture, Science, and the Arts

This is a reminder that registration is open for the **2022 Hitchhiker's Guide to the Biomolecular Galaxy!** Don't miss the abstract deadline for poster and oral presentations: **April 15, 2022.** The deadline to submit travel grants is **April 10, 2022.**

We are excited to announce our keynote speaker for this year's symposium, **Dr. Janet Smith**, from University of Michigan. Her talk, titled "Two Molecular Systems for Human Defense against Viral Pathogens", will take place on the first day of the symposium, May 11 at 11AM.

Dr. Smith has improved the field of structural biology by developing new methods like multiwavelength anomalous diffraction (MAD) for rapid structure determination and use many other biophysical approaches in her study of glutamine amidotransferases (GATs). As a former boilermaker, we are honored to have Dr. Janet Smith back at Purdue University as she was influential in establishing the structural biology program here.

If you have any questions for the committee, feel free to email the planning committee at hitchhikersguide2biogal@gmail.com. Also, all information will be updated regularly on our website: <https://hitchhikers.science.purdue.edu/2022/>

2022 Hitchhiker's Guide to the Biomolecular Galaxy Planning Committee

Mackenzie Chapman, *Dept. of Biological Sciences*, Chair

Gabriel Bury, *Dept. of Physics*

Emily David, *Dept. of Medicinal Chemistry & Molecular Pharmacology*

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Website: <https://hitchhikers.science.purdue.edu/2022/>

Registration Survey: https://purdue.ca1.qualtrics.com/jfe/form/SV_8Jk3mnmAhFNK0mi

Travel Grant Application: https://purdue.ca1.qualtrics.com/jfe/form/SV_5BZSm7XzUrrUOGy

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Hitchhiker's Guide to the Biomolecular Galaxy Symposium brings together undergraduate students, graduate student, post-doctorates, and faculty throughout the Midwest who are all striving to share and gain more insight into various biophysical approaches. The Hitchhiker's symposium will be held on **May 11-12, 2022**, in Armstrong at Purdue University. For those who would prefer to attend virtually, there will be a hybrid format to participate over Zoom as well. All poster and oral presentations will be in-person but also can be viewed virtually over Zoom. We are predicting over 150 participants from various institutions across the Midwest to attend this year!

Registration for the Hitchhiker's Symposium is completely free. Breakfast, lunch, coffee, and snacks will be provided both days. For those coming outside of Purdue University, there is the opportunity to be awarded a travel grant totaling \$200 to applicants to assist with hotel and travel costs. Travel grant applications are due April 10, 2022. This application is separate from registration. You can find all information for submitting a travel grant application on our website.

Our pre-symposium events will take place on Tuesday, May 10, 2022. We will have two virtual pre-symposium events during the day and an in-person social in the evening. Our virtual sessions are “The Importance of Mental Health Awareness in STEM” at 11:30 am and “Bridging the gap of academia and industry—Translational Research” at 3:00 pm. More information about the panelists for each of these events will come later!

Our symposium will begin on Wednesday, May 11, 2022. Each day of the symposium will consist of seminars from graduate students, post-doctoral researchers, and faculty about exciting results and research they have been performing. If you would like to present an oral presentation, please submit an abstract when registering by April 15, 2022. On the first day of the symposium, we are so excited to hear from our keynote speaker, Dr. Janet Smith, from the University of Michigan.

The first day will also include a two-hour workshop session with four technical workshops:

- Mastering your ‘Aims’—foundations of grant writing
- Making figures and movies with PyMOL and Chimera/X
- New instrumentation is revolutionizing structural biology
- Insights into AlphaFold—a revolution in protein structure prediction.

When registering for the symposium, participants will rank the order of workshops they are interested in. Participants will be placed in each workshop on a first-come, first-serve basis upon registering until the workshop reaches maximum capacity.

On the second day of the symposium, we will be hosting a two-hour poster session. If you would like to participate in this poster session, please submit an abstract by April 15, 2022, when registering for the symposium! Awards will be given to outstanding poster and oral presentations at the end of the second day.

Hope to see you in May!

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