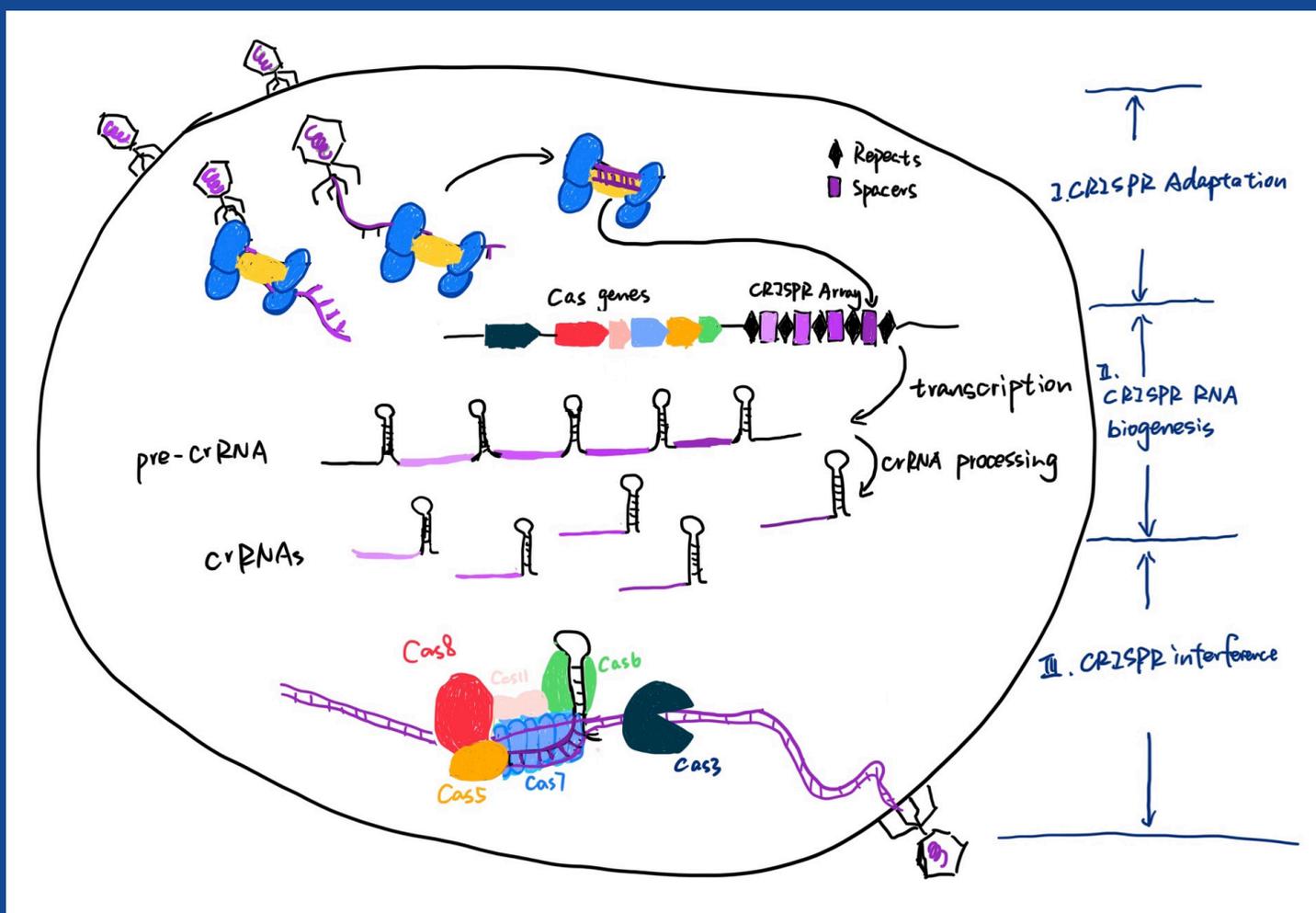


# BIOLOGICAL CHEMISTRY News & Review

2020



# Letter from the Chair *Phyllis Hanson, M.D., Ph.D*

Dear Friends,

Reflecting on the past year, a few words come to mind: challenges, innovation, tragedy, and inspiration. We have all faced significant obstacles in our lives and our work due to the COVID-19 pandemic, and yet, we all seem to be doing our part not only to manage but to excel through the difficulties. When our laboratories were shuttered during spring and early summer, faculty, students, and staff found creative ways to continue research and education. With help from our terrific staff many of us pivoted—over a long weekend—from in-person instruction to online teaching using platforms such as Zoom to ensure that our undergraduate and graduate classes continued in spite of the inability to meet in person. Our faculty paved the way for online lab meetings and virtual conversations to keep projects moving. Many groups within and between labs came together for “Zoom happy hours” to maintain and build our community. While away from normal bench work, lab members used the time to analyze data, read the literature, plan new projects, and write for publication and grant submissions. As a special bonus, our second year Ph.D. students used the time to tackle and successfully complete their preliminary exams. The staff worked remotely to support all of this. We were able to reopen our laboratories in phases over the summer and are happy to now be moving projects forward even as the pandemic continues. We are operating at reduced density to maintain physical distancing and ensure everyone’s safety, and we continue to meet and teach using Zoom. We anticipate continuing this through the coming semester. None of us would have imagined last year that this is where we would be in 2020, but I am very proud of every single member of our department for doing what it has taken, not only to make things work, but to make them succeed!



I invite you to browse this newsletter for a taste of the exciting things that have happened over this past year. To highlight just a few: Several of our faculty members have stepped in to contribute to cutting-edge research related to SARS-CoV-2 and the COVID-19 pandemic. You can read more about this in the section titled “Biological Chemistry During the Pandemic” on p. 3, and we invite you to visit a webpage with information about the virus and pandemic curated by the Medical School’s basic science departments: <https://medicine.umich.edu/dept/ebs/curated-information-covid-19-0>.

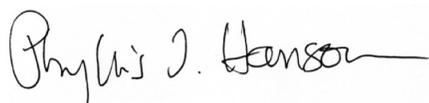
Congratulations to Zhonggang Hou, Ph.D., and Markus Ruetz, Ph.D., who were promoted to Research Investigators this year. Many of our trainees and faculty received distinguished awards, fellowships and other recognition, as detailed in the Achievements and Recognition section on p. 7. A major highlight was this spring’s election of Janet Smith, Ph.D., to the distinguished National Academy of Sciences; we congratulate Janet for this well-deserved recognition. And in late-breaking news, Renny Franceschi, Ph.D., and Ursula Jakob, Ph.D., have been elected as 2020 Fellows of the American Association for the Advancement of Science.

I would like to also take this opportunity to thank Robert Fuller, Ph.D., for heading up the Graduate Program in Cellular and Molecular Biology over the past eight years. Dr. Fuller is stepping down as Director of this program but will continue as Associate Director to assist in renewing the training grant that supports this program.

Despite the challenges of this year, our program graduated ten M.S. students and one Ph.D. student. We also welcomed in another outstanding class of 12 Ph.D. and 11 M.S. students. We continue to see some of the highest-level academic and scientific successes from the students that have chosen our program, and we are excited about the future of our department because of these brilliant minds!

Although our annual seminar series looks very different this year, we are still able to enjoy high caliber speakers in a virtual format. We are grateful that scientists from all over the country have participated via Zoom in a weekly seminar series so that faculty and students from our department and around the University of Michigan are able to learn about a wide range of new and exciting developments in Biological Chemistry. In addition to our Endowed Lectures, you will see on the following pages a summary of this fall’s Biological Chemistry 713 course, with a lineup of fantastic speakers in the area of membrane and lipid biology. The seminars and lectureships in our department happen in large part because of your generosity and donations. It is your support that allows us to enhance the education of faculty and students alike by presenting fascinating science from scientists who are leaders in their respective fields. We so very much appreciate that, especially in these challenging times.

Many of our “normal” activities are on hold at the moment due to COVID-19, including faculty recruiting and events such as our annual retreat, departmental holiday festivities, and in-person conferences. We look forward to resuming activities in all of these areas, but for now we will continue to look onward and upward and take each day as it comes. We know that we will all continue to face challenges related to COVID-19 as we enter 2021, but again, due to determination and innovation, we will come out ahead on the other side of this all!



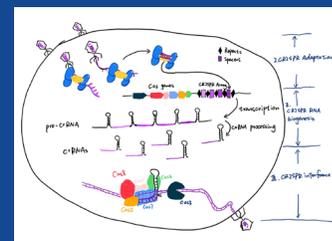
“Be brave enough to travel the unknown path, and learn what you are capable of.”  
 –Rachel Wolchin

## In This Issue

Letter from the Chair .....	1
Biological Chemistry During the Pandemic.....	3
Community Engagement .....	5
2020 Department Awards.....	6
Achievements and Recognition.....	7
Our 2020 Graduates .....	8
New Ph.D. Students.....	9
New M.S. Students .....	10
Cutting Edge Topics in Membrane and Lipid Biology .....	11
The Endowed Lectureships: 2020–2021 .....	12
Supporting Biological Chemistry.....	13

## On the Cover

Submitted by Renke Tan, a Ph.D. student in the research group of Yan Zhang.



*A sketch of the mechanism of CRISPR-Cas as an adaptive immune system in prokaryotes. The Zhang lab studies CRISPR-Cas biology, mechanism, and genome engineering applications; the development of CRISPR-Cas as a genome editing tool by Emmanuelle Charpentier and Jennifer Doudna was recognized with the 2020 Nobel Prize in Chemistry.*

# Biological Chemistry During the Pandemic

## Research Efforts

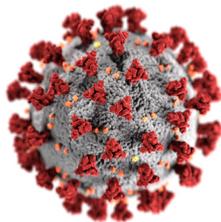


Image: CDC/Alissa Eckert, Dan Higgins

James Morrissey and collaborators are part of a major initiative aimed at understanding and intervening in COVID-19-associated thrombosis. The University of Michigan is one of several academic medical centers partnering with the NIH on three adaptive clinical trials to evaluate the safety and effectiveness

of varying types of blood thinners to treat patients with COVID-19. These trials, collectively known as ACTIV-4 Antithrombotics, are a component of the Accelerating COVID-19 Therapeutic Interventions and Vaccines (ACTIV) initiative, which is funded by Operation Warp Speed. Jim will oversee a Mechanistic Studies Center at UM to identify laboratory analyses to be performed on biosamples that have been collected by the trials. According to Jim, “The goal is to gain an understanding of the pathologic mechanisms that are driving this disease—especially with regard to the dysfunction of the blood clotting system in COVID-19 patients that results in blood clots (thrombosis) in their lungs and elsewhere in their bodies.”

The Center for Structural Biology (CSB), which includes Biological Chemistry faculty members Janet Smith and Jeanne Stuckey, has been part of an effort to advance the science of antibody testing that identifies people who have been infected with SARS-CoV-2, the coronavirus that causes COVID-19. CSB scientists have been optimizing production of the SARS-CoV-2 complete spike protein and an area at the tip of the spike protein, called the receptor-binding domain. Antibody tests that use these spike antigens are being validated by epidemiologists from the School of Public Health and members of the Special Chemistry Section of the Clinical Core Laboratory in the Department of Pathology at Michigan Medicine. Improved COVID-19 antibody tests are needed for selection of donor plasma to treat new infections, as well as to help measure the true rate of infection and the spread of the virus. The CSB has also produced spike protein from several seasonal coronaviruses to test for cross-reactivity with antibodies to SARS-CoV-2. Their work is supported by a grant from Open Philanthropy and a gift from University of Michigan alumni Deborah Klatskin and Burton Sutker.

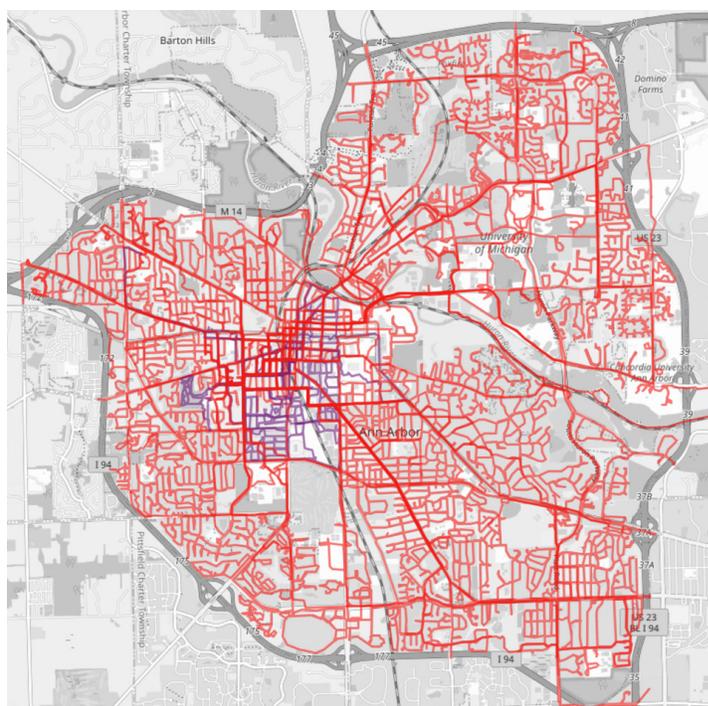
## The Streets of Ann Arbor



Kevin Bohannon

Most laboratory research at the University of Michigan came to a standstill from mid-March until late May, to comply with pandemic lockdown orders issued by the State of Michigan. Although teaching, learning, writing, and planning continued remotely, the daily schedules of faculty, staff, and students in the department changed.

During this period of increased flexibility Research Investigator Kevin Bohannon quite literally took to the streets of Ann Arbor. Kevin biked or walked every street inside the 26 square miles of Ann Arbor that is belted by I-94, M-14, and US-23, a feat that involved 783 miles of biking and 58 miles of walking. Kevin’s scientific accomplishments also continued during lockdown: “ESCRT Puts Its Thumb on the Nanoscale: Fixing Tiny Holes in Endolysosomes,” a review that he wrote with Phyllis Hanson, was published in *Current Opinion in Cell Biology* in August.



Kevin used his GPS data from Strava to generate this map of his spring exploration of Ann Arbor by bike (red) and on foot (purple).

## A Graduate Student's Perspective



**By Divyani Paul**  
**Ph.D. Candidate**  
**Morrissey Lab**

I first became acquainted with the perils of COVID-19 during a conversation in early January with my friend, who at the time was trapped in the lockdown in

the city of Hong Kong. As coronavirus continued to plague cities in China and Europe, I, living on the North American continent, was oblivious to its potential to spread across the globe. Very soon, in the time span of two months, the State of Michigan declared complete lockdown, shutting down the laboratories and all the socializing joints in towns. Putting everyone in self-isolation in that dire situation of COVID-19 cases rising steeply was absolutely necessary, but little did I know what our lives would be like in the coming months.

As scientists we love to plan our schedules beforehand, but the unpredictability of the pandemic added an uneasiness to my mind. Besides trying to keep myself safe from contracting the virus, I feared for the safety of my parents living far away from me, back home in India. Listening to the stories of people drowning in depression during self-isolation made it seem challenging at first, but strong will and technology definitely eased the experience of living in quarantine. It was saddening to lose precious time to conduct experiments and it made me wonder, what would I do with my time? Luckily the world discovered the potential of Zoom, and classes, meetings, and happy hours quickly moved to this online platform that automatically formed a schedule and gave more structure to the seemingly infinite time I suddenly had on my hands. It was ironic to me how I still wore gloves and sanitized surfaces with ethanol, but now not before starting experiments but for shopping at the grocery store!

Slowly as I got used to the quarantine life I started to dive deeper into thinking about my research and visiting the works of early scientists in my field. Along with reading and writing about science I revisited my hobbies of painting and photography. I also used this time to elevate my baking skills like many people did across the world and tested out many unique flavors. However, by far my most cherished experiences were in reconnecting with nature across Ann Arbor. I loved biking in the evening on the Border-to-Border Trail and discovered scenic sunset spots in the city.

In June we finally received the long-awaited news about the reopening of research buildings and going back to work. At first with new rules in place I could only imagine what it would be like to work under such unusual circumstances. Post-lockdown when I first stepped into our research building armored by a surgical mask, I was ushered towards a temperature check booth. As I made my way alone on the elevator and through the hallway to reach my lab, I noticed new signs everywhere. It felt different but also exciting to return to my experiments and friends at work. Although still socially distanced, I could finally talk to people outside my computer screen. It was great to be back at work, but as we transitioned into fall semester I found the same Zoom calls that had previously helped me stay organized and focused became more taxing to coordinate with lab work.

It is commendable how everyone has adapted quickly to changes in these unprecedented times. From my perspective life is always uncertain, and we all are going to get through this together.



*Divyani Paul and labmate Yuqi Wang, back at work in the lab.*

# Community Engagement

## CLICKS: Complementary Lessons in Community K-12 Schools

Members of the Biological Chemistry department, led by graduate student Beth Rousseau, volunteered in the five sections of a Forensics course at Ypsilanti Community High School in December 2019. The volunteers guided small groups of ~4 students each as the students collected their own DNA samples, assembled PCR reactions, and analyzed their PCR products on an agarose gel. The lab was performed over two class periods, and 89 students

participated in at least one day of the lab. Thank you to Fabienne Birkle, Cassie Dutcher, Benjamin Ide, Kip Kaitany, Karl Koebke, Cara Loomis, Allison Maebius, Anjali Patwardhan, Emily Roberts, Rosa Romero, Beth Rousseau, and Yun Zhang for making this scientific outreach event possible. CLICKS promotes science education in underserved and diverse schools by bringing biochemistry-focused lab activities to classrooms in order to supplement students' education, engage them in science, and build their confidence as emerging scientists.



Anjali Patwardhan helps a student load an agarose gel.



Rosa Romero teaches students how to use a pipette.



Kip Kaitany explains the lab protocol.

## Activities Hosted by the Diversity, Equity, and Inclusion Committee

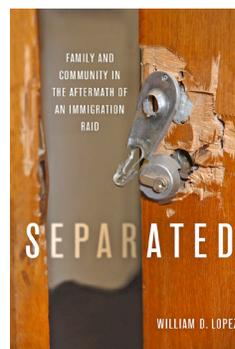
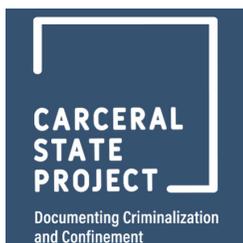
At the invitation of the DEI committee Dr. Ashley Lucas (Department of Theatre & Drama, University of Michigan) facilitated an online panel in July 2020 that featured

formerly incarcerated people of color. Dr. Lucas is part of a team of researchers who have designed [The Carceral State Project](#) to document the historical and contemporary processes of criminalization, policing, incarceration, immigrant detention, and other forms of carceral control

in the United States. During the panel discussion Dr. Lucas and her community collaborators Patrick Bates, Artaysia Mallisham, and Cozine Welch shared reactions to the documentary *13TH*, gave moving accounts of the transition out of prison into restricted freedom, and presented ideas to overcome systemic racism and mass incarceration. The Q&A session that followed the panel discussion included

questions from the audience about how to get involved in programs that serve current and former prisoners and ways to replace the armed enforcement model that permeates university and community policing with a service model. Thank you to the panelists, Dr. Lucas, and the DEI committee for creating this opportunity for members of the department to reflect on and respond to injustice on campus and in society.

During the upcoming year, the DEI committee (composed of students Anibal Tornes Blanco and Rosa Romero and faculty members Allison Lamanna and Kaushik Rangunathan) will host Dr. William Lopez (School of Public Health, University of Michigan), whose book *Separated: Family and Community in the Aftermath of an Immigration Raid* explores the question of immigration and the impact of policy on the lives of immigrant communities in the United



States. Using an immigration raid in Washtenaw County as his vantage point, Dr. Lopez introduces his readers to the ripple effects of immigration enforcement on families, communities and individuals. Our engagement with Dr. Lopez will give the department an opportunity to use an intersectional lens to critically understand issues of immigration justice and how we can be involved in positive change in the Ann Arbor community. The DEI committee will help students, faculty and staff access Dr. Lopez's book ahead of his seminar in March 2021.

The DEI committee also seeks to establish a one-on-one

mentoring initiative for Underrepresented Minority (URM) students applying to STEM graduate programs. Students from our Ph.D. and M.S. programs will have the opportunity to work as mentors in this effort to increase the flow of URM students into science. We will serve as a second pair of eyes for each student's application documents as well as offer practice interviews with faculty from our department to guarantee their success in every step of the application and admission process. This initiative will be expanded to include area high school students, since this near-peer mentoring may increase their awareness of research opportunities available to them.

## 2020 Department Awards

### THE HALVOR AND MARY CHRISTENSEN AWARD

for Demonstrated Excellence in Academic Scholarship and Research Contributions



Awardee: **Harsha Gouda**  
Mentor: Ruma Banerjee, Ph.D.

### THE ANTHONY AND LILLIAN LU AWARD

for Academic Achievement and Potential as a Scientist, Postdoctoral Level



Awardee: **Romila Mascarenhas, Ph.D.**  
Mentor: Ruma Banerjee, Ph.D.

### THE ADAM AND MARY CHRISTMAN AWARD

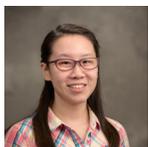
for Demonstrated Excellence in Academic Scholarship and Research Contributions



Awardee: **Michael Rankin**  
Mentor: Janet Smith, Ph.D.

### THE LEE MURPHY MEMORIAL PRIZE

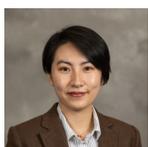
for Scientific Integrity and Publication of a Paper or a Series of Papers of High Significance



Awardee: **Yuqi Wang**  
Mentor: James Morrissey, Ph.D.

### THE MINOR AND MARY LOU COON AWARD

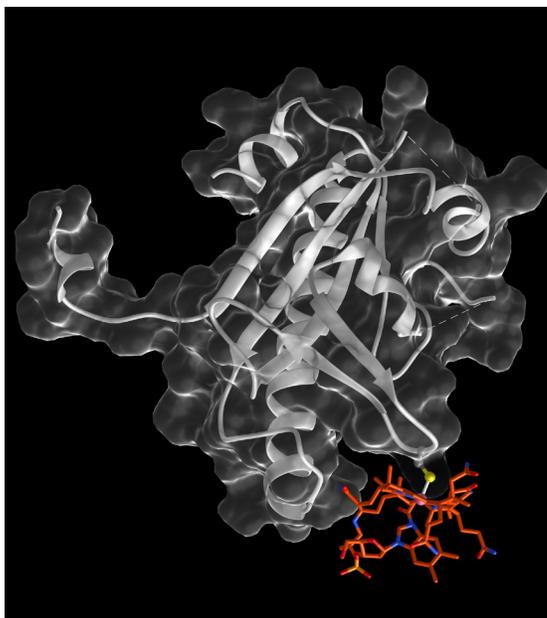
for Overall Excellence in Research, Teaching, and Service to the Department



Co-Awardee: **Liu Liu**  
Mentor: Stephen Ragsdale, Ph.D.



Co-Awardee: **Tyler McCullough**  
Mentor: Janet Smith, Ph.D.



*An unusual cobalt-sulfur bond visualized in the crystal structure of CblD bound to vitamin B<sub>12</sub>, relevant for cofactor translocation in the human B<sub>12</sub>-trafficking pathway. Submitted by Romila Mascarenhas, Banerjee laboratory.*

*Reference Article: Li Z, Mascarenhas R, Twahir UT, Kallon A, Deb A, Yaw M, Penner-Hahn J, Koutmos M, Warncke K, Banerjee R. An Interprotein Co-S Coordination Complex in the B<sub>12</sub>-Trafficking Pathway. *J Am Chem Soc.* 2020; 142: 16334–45.*

# Achievements and Recognition



**Fabienne Birkle**, a graduate student in James Morrissey's lab, received an American Heart Association Predoctoral Fellowship in December 2019 for her project "Substrate Selection by the Tissue Factor – Factor VIIa Complex."

**UC DAVIS** **Jennifer Cash, Ph.D.**, formerly a postdoctoral fellow in Michael Cianfrocco's lab, started a new position as a tenure-track assistant professor in the Department of Molecular and Cellular Biology at UC Davis.



**Cassandra Dutcher**, a graduate student in Tobias Giessen's lab, received a National Science Foundation Graduate Research Fellowship for her proposal "cNMP Regulation of a Novel Encapsulin Nanocompartment."



Assistant Research Scientist **Angela Fleischhacker, Ph.D.**, and Professor **Stephen Ragsdale, Ph.D.**, were the first author and corresponding author, respectively, of an Editors' Pick in the *Journal of Biological Chemistry*.

**Claire Griffith**, a graduate student in Stephen Ragsdale's lab, was appointed to the Chemistry Biology Interface Training Program for 2020–2021.

**David Hanna, Ph.D.**, was awarded a fellowship from the Michigan Postdoctoral Pioneer Program, which was established by the Endowment for Basic Sciences (EBS) to support innovative and collaborative work within the University of Michigan Medical School. Dr. Hanna will carry out his project "Sulfide Metabolism at the Host Microbiome Interface" in the laboratories of Ruma Banerjee and Ursula Jakob.

**Zhonggang Hou, Ph.D.**, was promoted to Research Investigator of Biological Chemistry.

**Benjamin Ide**, a graduate student in Patrick O'Brien's lab, was appointed to the Chemistry Biology Interface Training Program for 2020–2021.



Professor **Ursula Jakob, Ph.D.**, was elected to the German National Academy of Sciences, also known as the Leopoldina.



**Rachel Plumb, Ph.D.**, a postdoctoral fellow in Ryan Baldrige's lab, received a Ruth L. Kirschstein National Research Service Award (NIH-NRSA) for her project "Quality Control in the Secretary Pathway." Rachel also received a Best Poster Award at the annual symposium of the Protein Folding Diseases Initiative.

**Michael Rankin**, a graduate student in Janet Smith's lab, was appointed to the Cellular Biotechnology Training Program for 2020–2021.

**Rosa Romero**, a graduate student in Nils Walter's lab, was appointed to the Genetics Training Program for 2020–2021.



**Markus Ruetz, Ph.D.**, was promoted to Research Investigator of Biological Chemistry. In August 2020 Markus gave an invited talk entitled "Itaconyl-CoA Forms a Stable Biradical in Methylmalonyl-CoA Mutase and Derails Its Activity and Repair" at the FASEB Virtual Science Research Conference on Folic Acid, Vitamin B12 and One-Carbon Metabolism.



**Patrick Suess, Ph.D.**, a postdoctoral fellow in James Morrissey's lab, was appointed to the NIH/NHLBI-funded T32 Boxer Training Program in Molecular and Translational Hematology.

**Adam Thelen**, a graduate student in Patrick O'Brien's lab, received a 2020–2021 Rackham Predoctoral Fellowship for his project "DNA Searching and Damage Recognition by a Human DNA Glycosylase."



Professor **Debra Thompson, Ph.D.**, received the John A. Boezi Memorial Alumnus Award in Biochemistry and Molecular Biology from Michigan State University.



NATIONAL ACADEMY OF SCIENCES

In recognition of her distinguished and ongoing achievements in original research, **Janet Smith, Ph.D.**, was elected to the National Academy of Sciences in 2020. Throughout her scientific career Janet has sought to understand biological function at the molecular level through the discovery and analysis of three-dimensional enzyme structures and has helped advance methods for rapid determination of protein crystal structures using synchrotron X-ray sources. Janet has been a valued member of our department and the Life Sciences Institute since 2005, with a vibrant research and training program that sets a wonderful standard for our community. Election to the National Academy of Sciences is one of the highest honors that a scientist can receive, and we congratulate Janet for this well-deserved recognition!

# *Congratulations and Best Wishes to Our 2020 Graduates!*



**Francis DeVine, M.S.** (April 30, 2020)

M.S. Paper: *“An Investigation Into the Evolutionary History of Class I Envelope Viral Fusion Proteins”*

Course Track Mentor: Peter Freddolino, Ph.D.



**Sarah Ferris, M.S.** (April 30, 2020)

M.S. Thesis: *“Mechanisms of Resistance in Diffuse Intrinsic Pontine Glioma”*

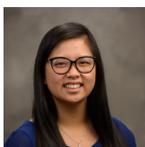
Research Track Mentor: Stefanie Galban, Ph.D.



**Cameron Fornwald, M.S.** (April 30, 2020)

M.S. Paper: *“Recent Advances in Genome Editing”*

Course Track Mentor: Patrick O’Brien, Ph.D.



**Megan Huynh, M.S.** (April 30, 2020)

M.S. Paper: *“A Review of Contact Pathway and the Intercession Between the Coagulation Cascade and the Inflammatory Pathway”*

Course Track Mentor: James Morrissey, Ph.D.



**Kipchumba Kaitany, Ph.D.** (August 3, 2020)

Ph.D. Thesis: *“Substrate Recognition Mechanism of Protein-Only RNase P”*

Mentor: Carol Fierke, Ph.D.



**Allison Maebius, M.S.** (April 30, 2020)

M.S. Thesis: *“Investigation of the Corticotropin-Releasing Hormone System in Drosophila melanogaster”*

Research Track Mentor: Audrey Seasholtz, Ph.D.



**Joseph Maniaci, M.S.** (April 30, 2020)

M.S. Paper: *“P2X7 Receptor Controls Inflammatory and Immune Responses in Cardiac Transplants: Could P2X7R be a Therapeutic Target for Immunosuppression in Heart Transplantation?”*

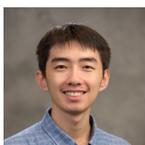
Course Track Mentor: Chang Kim, Ph.D.



**Madeline Motsinger, M.S.** (April 30, 2020)

M.S. Thesis: *“ESCRT Responds to Oxidative Membrane Damage”*

Research Track Mentor: Phyllis Hanson, M.D., Ph.D.



**Tianshu Pan, M.S.** (April 30, 2020)

M.S. Thesis: *“Role of Discoidin Domain Receptor 2 in Bone Regeneration”*

Research Track Mentor: Renny Francheschi, Ph.D.



**Kendall Perkins, M.S.** (April 30, 2020)

M.S. Thesis: *“FGF Regulation of Gene Expression in Stem Cell-Derived Inhibitory Neurons”*

Research Track Mentor: Michael Uhler, Ph.D.



**Mandra Quassis, M.S.** (April 30, 2020)

M.S. Paper: *“A Review of Cytochrome P450 Reductase: How Is Balance Maintained Between Cytochrome P450 Reductase and Its Known Cellular Binding Partners?”*

Course Track Mentor: Stephen Ragsdale, Ph.D.

# New Ph.D. Students



**Nicholas Bockhaus** is a graduate of the University of Wisconsin, Madison.  
Mentor: Janet Smith, Ph.D.



**Yulduz Rakibova** is a graduate of California State University, Northridge.  
Mentor: Peter Freddolino, Ph.D.



**Cassandra Dutcher** is a graduate of Michigan State University, East Lansing.  
Mentor: Tobias Giessen, Ph.D.



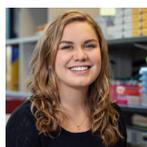
**Rosa Romero** is a graduate of California State University, San Marcos.  
Mentor: Nils Walter, Ph.D.



**Emily Ellinger** is a graduate of Indiana University, Bloomington.  
Mentor: Nils Walter, Ph.D.



**Renke Tan** is a graduate of Jiangsu University in Zhenjiang, China.  
Mentor: Yan Zhang, Ph.D.



**Sharon Garrett** is a graduate of the University of Virginia, Charlottesville.  
Mentor: Morgan DeSantis, Ph.D.

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# New M.S. Students



**Claire Griffith** is a graduate of Ohio Northern University in Ada, OH.  
Mentor: Stephen Ragsdale, Ph.D.



**Alexandria (Alexi) Chabez** is a graduate of Marquette University in Milwaukee, WI.  
Research Track Mentor: Patrick O'Brien, Ph.D.



**Natalia Harris** is a graduate of the State University of New York College at Geneseo.  
Mentors: David Sherman, Ph.D., and Janet Smith, Ph.D.



**Qiwei Lei** is a graduate of the University of Wisconsin, Madison.  
Research Track Mentor: Ursula Jakob, Ph.D.



**Benjamin Ide** is a graduate of the University of Tennessee, Martin.  
Mentor: Patrick O'Brien, Ph.D.



**Macy Lozen** is a graduate of Friends University in Wichita, KS.  
Research Track Mentor: Yan Zhang, Ph.D.



**Cara Loomis** is a graduate of the University of Kansas, Lawrence.  
Mentor: Emily Scott, Ph.D.



**Ivan Federico Mier** is a graduate of California State University, San Marcos.  
Research Track Mentor: Phyllis Hanson, M.D., Ph.D.



**Basila Moochickal Assainar** is a graduate of the Indian Institute of Science Education and Research in Pune, India.  
Mentors: Ryan Baldrige, Ph.D., and Kaushik Ragunathan, Ph.D.



**Juan Nevarez** is a graduate of the University of California, Riverside.  
Research Track Mentor: Raymond Trievel, Ph.D.

## New M.S. Students *(continued)*



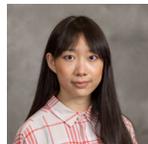
**Rachel Nicholas** is a graduate of Spring Arbor University in Spring Arbor, MI.  
Research Track Mentor: Peter Freddolino, Ph.D.



**Eleese Timiney** is a graduate of the University of Michigan, Ann Arbor.  
Course Track Mentor: Renny Franceschi, Ph.D.



**Deepa Raghavan** is a graduate of the University of Michigan, Ann Arbor.  
Course Track Mentor: Daniel Goldman, Ph.D.

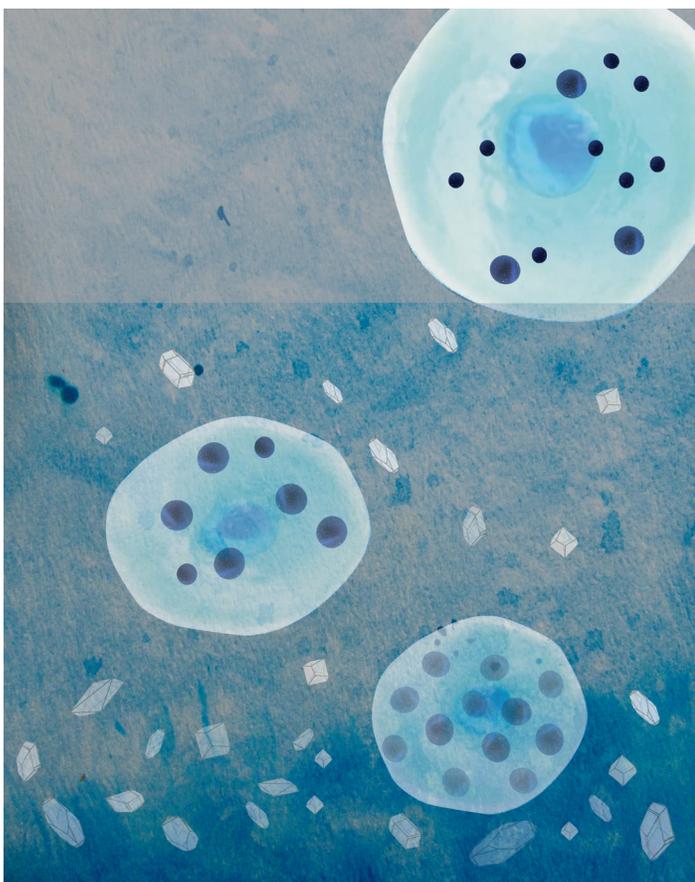


**Ying-Ting Weng** is a graduate of Kaohsiung Medical University in Kaohsiung, Taiwan.  
Research Track Mentor: Audrey Seasholtz, Ph.D.



**Sebastien Rauch** is a graduate of the University of Massachusetts, Amherst.  
Research Track Mentor: Michael Uhler, Ph.D.

**Jarred Howard** is a graduate of the University of Wisconsin, Whitewater.  
Research Track Mentor: Yan Zhang, Ph.D.



*A cell drops into a salty solution. The dark bodies are condensates that form as the cell shrinks in response to increasing salt, depicted as crystals. This rapid and reversible phase separation protects the cell against the dehydrating effects of salt. Submitted by Nils Walter, Francis S. Collins Collegiate Professor of Chemistry, Biophysics & Biological Chemistry. Created by Elisabeth Paymal, Center for RNA Biomedicine.*

*Reference Article: Jalihal AP, Pitchiaya S, Xiao L, Bawa P, Jiang X, Bedi K, Parolia A, Cieslik M, Ljungman M, Chinnaiyan AM, Walter NG. Multivalent Proteins Rapidly and Reversibly Phase-Separate upon Osmotic Cell Volume Change. *Mol Cell*. 2020; 79: 978-990.*

# Cutting Edge Topics in Membrane and Lipid Biology

A Fall 2020 graduate course that explored membrane and lipid biology was organized by Phyllis Hanson, Chair of the Biological Chemistry Department. The six invited speakers were all leaders in their fields, and their presentations were integrated into the departmental seminar series, which was provided via Zoom Webinar this fall. Students enrolled in BiolChem 713 attended the seminars, participated in online discussions with each speaker, and prepared a final written reflection. Course director Phyllis Hanson's research program focuses on understanding how proteins interact to regulate the structure and organization of cell membranes and has implications for a wide range of diseases, including Alzheimer's disease and the movement disorder dystonia.

## **Mechanisms of Coat Assembly and Regulation in Membrane Trafficking**

Lauren Parker Jackson, Ph.D.

Vanderbilt University  
September 3, 2020

## **Tips to Tame Stress: Lessons From Plant Endomembranes**

Federica Brandizzi, Ph.D.

Michigan State University  
September 22, 2020

## **snoRNAs: Novel Links to Metabolism**

Jean Schaffer, M.D.

Joslin Diabetes Institute, Harvard Medical School  
September 29, 2020

## **The Flip Side of Membrane Biology**

Adam Hughes, Ph.D.

Vanderbilt University  
October 20, 2020

## **Chemical Tools That IMPACT Lipid Signaling**

Jeremy Baskin, Ph.D.

Cornell University  
November 10, 2020

## **Therapeutic Opportunities in Glycoscience**

Carolyn Bertozzi, Ph.D.

Stanford University  
November 17, 2020

# BiolChem 7 3

# The Endowed Lectureships 2020–2021

## Rowena Matthews Lectureship in Biological Chemistry



**Michael O'Donnell, Ph.D.**  
Anthony & Judith Evnin Professor  
The Rockefeller University  
Investigator, HHMI

September 15, 2020

## William E.M. Lands Lectureship on the Biochemical Basis for the Physiology of Essential Nutrients



**Jean Schaffer, M.D.**  
Joslin Diabetes Institute  
Harvard Medical School

September 29, 2020

## George William Jourdian Lectureship in Biological Chemistry



**Matthew Vander Heiden,  
M.D., Ph.D.**  
Associate Professor of Biology  
MIT

November 3, 2020

## Irwin J. Goldstein Lectureship in Glycobiology



**Carolyn Bertozzi, Ph.D.**  
Anne T. & Robert M. Bass  
Professor of Chemistry  
Stanford University  
Investigator, HHMI

November 17, 2020

## G. Robert Greenberg Lectureship in Biological Chemistry



**Lori Passmore, Ph.D.**  
MRC Laboratory  
of Molecular Biology

March 9, 2021

## Martha L. Ludwig Lectureship in Structural Biology



**Eva Nogales, Ph.D.**  
Professor of Biochemistry,  
Biophysics, & Structural Biology  
University of California, Berkeley  
Investigator, HHMI

April 6, 2021

## The Distinguished Graduate Lectureship



**Vahe Bandarian, Ph.D.**  
Professor of Chemistry  
The University of Utah

April 13, 2021  
*(rescheduled from 2020)*

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The Department of Biological Chemistry relies upon the philanthropic generosity of donors to fund many aspects of its operations. Gift funds are essential to supporting activities beyond our basic operations. From endowed professorships and lectureships, to graduate student fellowships, seminar speakers, and gifts in direct support of research, donations help make the department an intellectually exciting and vibrant community. As a benefactor of the Department of Biological Chemistry, you can direct your gift in several ways:

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- George William Jourdian Lectureship
- G. Robert Greenberg Lectureship
- Irwin J. Goldstein Lectureship
- Martha L. Ludwig Lectureship
- William E.M. Lands Lectureship
- Rowena Matthews Lectureship

## Scholarship

- Prasanta Datta Memorial Research Travel Fund

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OR CONTACT:

Phyllis Hanson, Chair, or  
Amanda Howard, Executive Assistant to the Chair  
Department of Biological Chemistry  
1150 W. Medical Center Drive, 5301 MSRB III, SPC 5606  
University of Michigan Medical School  
Ann Arbor, Michigan 48109-0600  
Telephone: 734-647-6180 / Email: [amanhowa@med.umich.edu](mailto:amanhowa@med.umich.edu)

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