

What's New with BB
(July 1st, 2023 – September 30th, 2023)

Dear BB Community,

I hope you had a relaxing and productive summer and a great beginning of Fall. It is difficult for me to start with an uplifting positive message while watching the developments on the world stage. Once again, our world seems to be exploding, ongoing Russian invasion of Ukraine, earthquake in Afghanistan, flooding in Libya, and now the Hamas attack on Israel and the siege on Gaza. As someone who grew up in a place torn by conflict, I find it heartbreaking that escalating violence is still being considered the only solution and that in this situation there are no good solutions. In the face of these depressing events, we remain optimistic that the new generation we teach and mentor will make better decisions.

We had an eventful summer. Our local BPS Chapter organized and presented a series of demonstrations, visuals, and hands-on experiments at the Oregon State fair. We had a beautiful celebration honoring Chris and Kate Mathews' many years of contributions to Biochemistry and Biophysics pre- and post-retirement. We had our Fall retreat on the coast in the beautiful Seal Rock house, a place that we first stayed at in 2013. Going back for the first time after COVID brought lots of fond memories. The retreat was attended by almost all faculty and a record number of students.

I am looking forward to a very eventful Fall quarter with quite a few new beginnings. **Kimberly Webster** has taken on a new role as BB office manager, **Sarah Clark** is busy setting up her new lab, bringing new capabilities to the department by facilitating a nematode culturing room and cryo-EM sample preparation. **Juan Vanegas** is offering a new class in cell biophysics to both grads and undergrads, and to my delight, **Kari van Zee** is starting her new position as an Associate Head. Our incoming grad students will be doing 5-week rotations and taking a new onboarding professional development class. Multiple activities are available for all students including attending the BPS journal club every Friday at 9 am, the BB seminars every Wednesday at 4 pm, and a quarterly pizza with the department head.

I am happy to report that we have ongoing two open searches this year, advertised in *Science*, one with a research focus in neurodegenerative or infectious diseases and another for an instructor/advisor position.

BB once again scored big in the College of Science alumni awards, **Simon Johnson** (BS, 2009), currently at Northumbria University, will receive the young alumni award. Simon will be visiting in November, and giving a talk open to all on Nov 17th, 3 pm. We are planning an inaugural **Gathering with Alumni** in Portland on Dec 15th, 7-9 pm, at Growler Guys, so save the date and spread the word, more information will follow.

Important to note that this Wednesday, Oct 11th, at 4 pm in ALS 4001, our own Dave Hendrix will be giving his promotion to professor talk. I invite you all to attend. Contact Kimberly if you want a zoom option.

Below I list some of our successes and upcoming activities compiled by Kimberly. Enjoy reading and happy Fall.

Funded Grants:

Patrick Reardon and **Elisar Barbar**'s NSF MRI proposal for a helium recovery and liquefaction system in the NMR Facility was awarded \$500,408.

Grant Proposals Submitted:

Colin Johnson submitted a NIH R21 proposal titled "Overcoming Challenges in Characterizing Ferlin Proteins".

Nate Mortimer submitted a grant proposal titled "Investigating the link between amyloid biophysical properties and Alzheimer's disease pathogenesis in a *Drosophila* model" to the Bright Focus Foundation. The proposal also includes Afua Nyarko, Patrick Reardon, and Kristen Snitchler as Key Personnel.

Fritz Gombart submitted a subaward on SBIR phase 1 proposal (Gombart PI, Kathy Magnusson Co-I, LPI and Vet Med). "An Extra Virgin Olive Oil Nutraceutical for Prevention of Alzheimer's Disease"

Fritz Gombart submitted NIH proposal titled "Elucidating Toll-like receptor mediated suppression of cathelicidin expression"

Publications:

From the *Freitag* Group:

Möller M, Ridenour JB, Wright DF, Martin FA, **Freitag M**. H4K20me3 is important for Ash1-mediated H3K36me3 and transcriptional silencing in facultative heterochromatin in a fungal pathogen. PLoS Genet. 2023 Sep 25;19(9):e1010945. doi: 10.1371/journal.pgen.1010945. Online ahead of print.

From the *Gombart* Group:

N. K. Newman, Y. Zhang, J. Padiadpu, C. L. Miranda, A. A. Magana, C. P. Wong, K. A. Hioki, J. W. Pederson, Z. Li, M. Gurung, A. M. Bruce, K. Brown, G. Bobe, T. J. Sharpton, N. Shulzhenko, C. S. Maier, J. F. Stevens, **A. F. Gombart** & A. Morgun. Reducing gut microbiome-driven adipose tissue inflammation alleviates metabolic syndrome. Microbiome volume 11, Article number: 208 (September 2023)

From the *Johnson/Mehl/Reardon/Vanegas* Group:

Kwok E, Otto SC, Khuu P, Carpenter AP, Coddling S, **Reardon PN**, **Vanegas JM**, Kumar TM, Kuykendall CJ, **Mehl RA**, Baio J, **Johnson CP**. The dysferlin C2A domain binds PI(4,5)P2 and penetrates membranes. J Mol Biol. 2023 Jul 3:168193.

From the *Vanegas* Group:

Back D, O'Donnell TJ, Axt KK, Gurr JR, **Vanegas JM**, Williams PG, Philmus B. Identification, Heterologous Expression, and Characterization of the Tolypodiol Biosynthetic Gene Cluster through an Integrated Approach *CS Chem. Biol.* 2023, 18, 8, 1797–1807.
Publication Date: July 24, 2023
<https://doi.org/10.1021/acscchembio.3c00225>

Poudel B, Rajeshwar RT, **Vanegas JM**. Membrane mediated mechanical stimuli produces distinct active-like states in the AT1 receptor. *Nature Communications* volume 14, Article number: 4690 (2023)

Talks at conferences:

Elisar Barbar was an invited speaker at the:

1. 2023 ASBMB Motifs, Modules, Networks: Assembly and organization of regulatory signaling systems, July 11-14, 2023, Bolger Center, Potomac, Maryland,
2. The International Society of Magnetic Resonance ISMAR 2023, Aug 20-25, Brisbane, Australia.

**Reminder to let myself or Kimberly know if you have presented at conferences that you would like included!*

Poster Presentations:

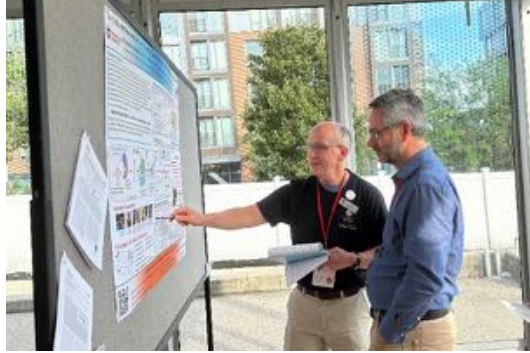
PhD student **Kristen Snitchler** (Nate Mortimer lab) presented her poster titled “How do the biophysical properties of Amyloid β contribute to the pathogenesis of Alzheimer’s disease?” at the International Diet and Optimum Health Conference in Sep 2023.

PhD student **Jesse Howe** (Elisar Barbar lab) presented her poster titled “*LC8 drives higher order oligomerization in 53BP1*” at the International Diet and Optimum Health Conference.

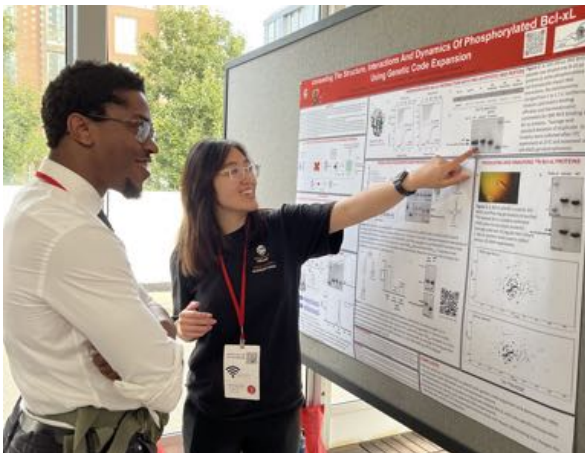
Graduate student **Hannah Stuwe** (Elisar Barbar lab) presented her poster titled Modifications to the SR-Rich Region of the SARS-CoV-2 Nucleocapsid Regulate Self-Association and Attenuate RNA Interactions, Asilomar Conference Grounds, Pacific Grove, California,

Protein Society Annual Symposium – July 13-16th Boston, Massachusetts

- **Andy Karplus** presented a poster, “The GCE4All Research Center: Promoting Your Ability to use Genetic Code Expansion in Your Research”.



- **Cat Vesely** presented a poster, “Unraveling the Structure, Interactions, and Dynamics of Phosphorylated Bcl-xL Using Genetic Code Expansion”, and her poster won an award!



Grad Awards:

Jesse Howe: 2023 Exceptional Mentoring Award

Sanjay Ramprasad: 2023 Exceptional Teaching Award

Cat Vesely: 2023 Distinguished Research Award

Newly Minted PhDs:



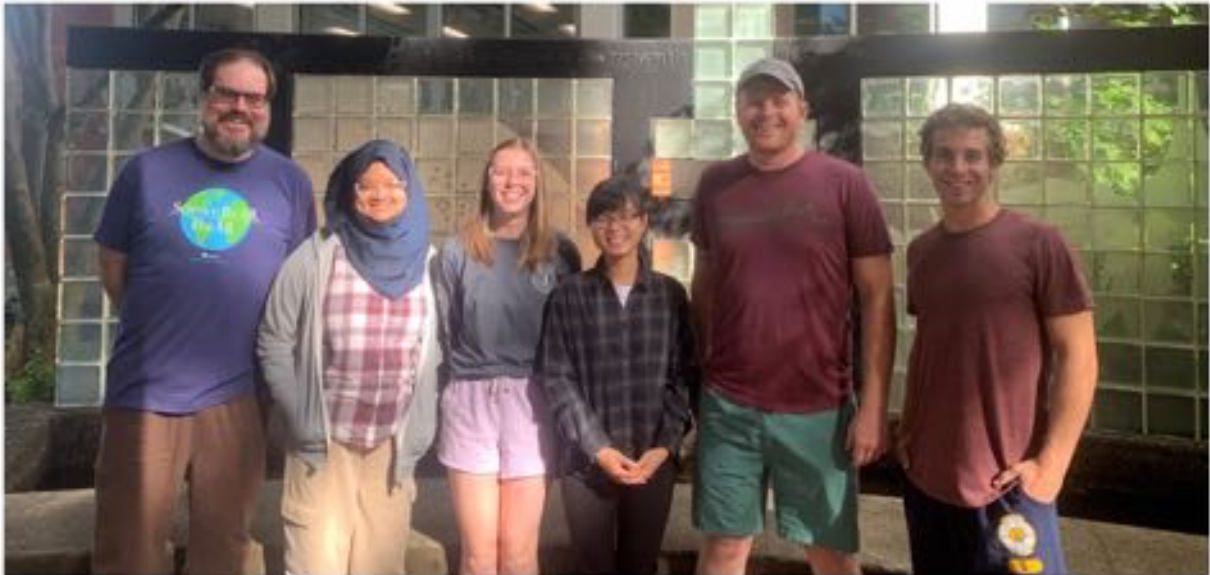
New Faces and New Roles



Assistant Professor Sarah Clark

The Clark lab studies the architecture and mechanism of mechanically-activated ion channels to understand the molecular basis of touch sensation. We use *C. elegans* as a model system and apply a variety of biophysical and biochemical methods to our work, including cryo-electron microscopy (cryo-EM), fluorescence microscopy, TIRF microscopy, and patch-clamp electrophysiology.

Welcome BB First-Year Graduate Students!



From left to right: Graduate advisor Dr. Nathan Mortimer, Samrin Shahnaz, Hannah Long, Joline Nguyen, Cameron Call, Ian Noonan

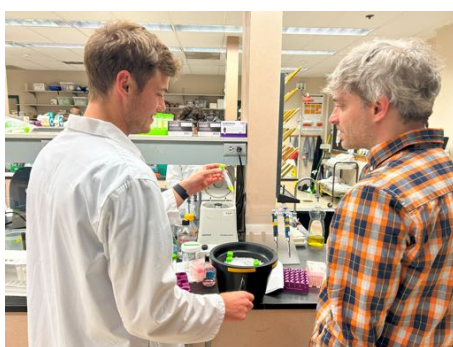
Isabelle Logan and **Douglas Walker** have stepped in to teaching roles this year! Isabelle will be teaching BB 315 Molecular Biology Laboratory, and Douglas is teaching BB 345 Python for Molecular Biologists. Wishing you both the best of luck this Fall!

Kimberly Webster, BB's Administrative Program Assistant, has begun transitioning into the role of the BB Office Manager. **Tony Reyna** has been the BB office manager since July of 2015. He has been extremely conscientious and supportive to students, faculty, and staff. In recognition of his extensive and excellent service during the pandemic he received the Outstanding Professional Faculty Award from the College of Science. We wish him and his family all the best in Texas!

GCE News:

The **GCE Workshop** was fantastic! We had 18 attendees join us during our 5-day intensive lecture and laboratory course titled “*Bioorthogonal Ligations – Clicking with GCE*”, August 8-12th. Attendees ranged in career level from undergraduate to full professors and included 5 folks from industry. We’re especially thankful for those who traveled internationally (Thailand, France, UK, Netherlands) to join us.

Thank you to **Ryan Mehl, Rick Cooley, John Lueck, and Riley Bednar** for preparing and presenting lecture material. To **Alex Eddins, Kari van Zee, Nathan Alexander, Lanelle Connolly, and Kayla Jara** for organizational coordination. And to the entire Mehl/Cooley group for making this workshop such a success!





We hosted OSU BB alumna, **Jenna Beyer**, on August 31st. Jenna is currently a PhD candidate in Dr. George Burslem's lab at the University of Pennsylvania. During her visit, Jenna updated the Mehl/Cooley Group on her current work and reconnected with past mentors, **Rick Cooley** and **Andy Karplus**.



Alumni News:

This fall, **Scout Osborne** (class of 2021) will begin a Fulbright research grant in Honduras to evaluate diagnostic methods for endemic viral infections, such as dengue and Zika fever. He is interested in these neglected tropical diseases since they target the most vulnerable members of our global society. In 2024, Scout will join the MD-PhD program at Case Western Reserve University to train to become a physician-scientist in infectious diseases.



Simon Johnson (BS, 2009) is the College of Science's Young Alumni awardee! He will be giving a special talk on Friday, November 17th.

Undergrads in the News:

Undergraduate researcher **Najeeb Marun** (Nate Mortimer lab) was named a LIFE Scholar by the Center for Healthy Aging Research and presented his project "The therapeutic potential of sulforaphane in Alzheimer's disease locomotor dysfunction in *Drosophila melanogaster*" at the International Diet and Optimum Health Conference.

Kaitlyn Kim, double degree in BMB and College of Business Innovation and Entrepreneurship was the student speaker in the President's Box at the football game against San Diego State on September 16th.



<https://biochem.oregonstate.edu/impact/2023/09/science-receives-record-breaking-12-awards-at-university-day>

Other News:

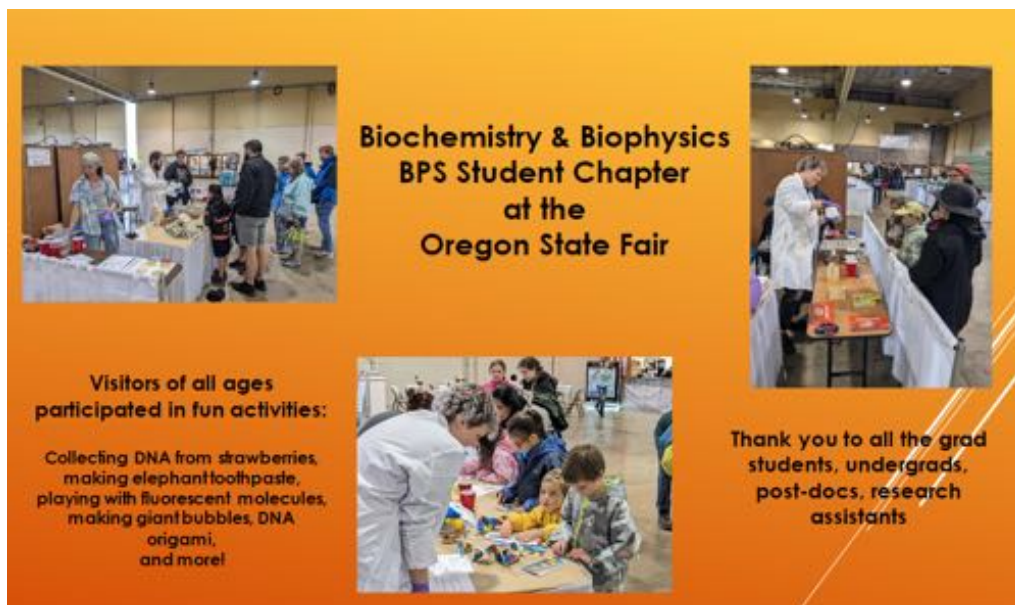
BB is hiring! There is a job opening for a tenure-track Assistant Professor position in Neurodegenerative/Infectious Diseases, a position that will have a focus on research and instruction that fits broadly within the areas of neurodegenerative and/or infectious diseases at the intersection of biochemistry, biophysics, molecular and cellular biology, or computational biology, with a targeted start date of September 16, 2024. More information can be found here: <https://biochem.oregonstate.edu/news-events/news-briefs/job-opening-assistant-professor-position-in-neurodegenerative-infectious>

UVM Materials Science Ph.D. student **Bharat Poudel** successfully defended his thesis and has now joined the **Vanegas lab** as a postdoc.

BPS Student Chapter News:

The BPS Student Chapter was given the 2023 Exceptional Service to the Department Award.

BPS Student Chapter had a booth at the Oregon State Fair, where they got to engage with the public and share fun science-related activities with people of all ages!



Celebrations and Events:

The Chris & Kate Mathews: Champions of Biochemistry Science Symposium was held on Monday, September 18. Elisar introduced Chris and Kate as Champions of Biochemistry, followed by talks from Phil McFadden, Fritz Gombart, and David Hendrix. Most of the Mathews Fellowship Awardees were present, and talks were given by Ally Erlendson, Isabelle Logan, Amber Vogel, and Sanjay Ramprasad. A gift signed by members of the department was presented to Chris by recent Mathews Fellow Moriah Mathis, and current Mathews Fellow Sarah Louie. Speaker videos can be accessed here: <https://oregonstate.box.com/v/mathewsvideos>



Chris & Kate Mathews: Champions of Biochemistry Science Symposium



Excellence in Mentoring and Advising

Kari van Zee, lead advisor for the Biochemistry and Biophysics Department, earned the Dar Reese Excellence in Advising Award. She has not only achieved profound success as the biochemistry and biophysics (BB) lead advisor, but also as a pre-med advisor and BB undergraduate coordinator.

Van Zee is responsible for spearheading the modernization of the Biochemistry and Biophysics major. She additionally helped create the Biochemistry and Molecular Biology major while helping secure national certifications for both the new major and the Biochemistry and Biophysics major.

Her peers credit her with going beyond implementing programmatic benefits for students as an advisor; she greatly prioritizes supporting them on an individual scale. She fosters an encouraging atmosphere through celebratory gatherings and the orientation class she both created and teaches. Her constant drive to go the extra mile when assisting students has left a lasting impression on many.

"Through her utmost devotion to student growth and community building, undergirded by a compassionate heart for student well-being, Kari lives out all the best qualities of an excellent advisor and an amazing teacher," one nominator wrote.



Past Events:

Every Tuesday during the summer: Tuesday BYO Lunch Department Events

August 8-12: GCE4All Workshop

August 20-23: UPPCON 2023

August 26-31 and September 2-4: BPS Student Chapter Booth at the Oregon State Fair

September 18: Chris & Kate Mathews “Champions of Biochemistry” Symposium

September 19: University Day

September 21-22: BB Retreat

September 27: Start of Fall Term

Upcoming Events:

Wednesday, October 11: BB Seminar Speaker, Dr. David Hendrix 4:00pm-5:00pm

Tuesday, October 17: PI Science Lunch Meeting, 12:00pm-1:00pm

Wednesday, October 18: BB Seminar Speaker, Dr. Brian Dolan 4:00pm-5:00pm

Tuesday, October 24: Faculty Lunch Meeting, 12:00pm-1:00pm

Wednesday, October 25: BB Seminar Speaker, Dr. Evan Forsythe, 4:00pm-5:00pm
October 26-27: SACNAS
Tuesday, October 31: Faculty Lunch Meeting, 12:00pm – 1:00pm
Wednesday, November 1: BB Seminar Speaker, Dr. Alysia Vrailas-Mortimer, 4:00pm-5:00pm
Friday, November 3: Faculty Meeting, BB Library, 3:00pm-5:00pm
Tuesday, November 7: Faculty Lunch Meeting, 12:00pm-1:00pm
Friday, November 10: University Closed – Veteran’s Day
Tuesday, November 14: PI Science Lunch Meeting, 12:00pm-1:00pm
Wednesday, November 15: BB Seminar Speaker Dr. Nicole Hams (BB Alum Johnson Lab)
Friday, November 17: BB Seminar Speaker Dr. Simon Johnson (hosted by Kari van Zee)
Tuesday, November 21: Faculty Lunch Meeting, 12:00pm – 1:00pm
Thursday, November 23 – Friday, November 24: University Closed – Thanksgiving
Tuesday, November 28: Faculty Lunch Meeting, 12:00pm-1:00pm
Friday, December 1: Faculty Meeting, BB Library, 3:00pm – 4:00pm
Tuesday, December 5: Faculty Lunch Meeting, 12:00pm-1:00pm
Wednesday, December 6: BB Seminar Speaker, Dr. Daniel Zuckerman, 4:00pm-5:00pm
Friday, December 8: Last day of Fall classes
Monday, December 11 – Friday, December 15: Finals Week
Tuesday, December 12: Faculty Lunch Meeting, 12:00pm – 1:00pm
Wednesday, December 13: NMR Symposium
Thursday, December 14 – Sunday, December 17: Chemical Biology and Physiology Conference
Friday, December 15: PDX Alumni Mixer, Growler Guys, 7-9 pm
Monday, December 18: First-year rotation talks; BB Holiday Party
Monday, December 25: University Closed – Christmas

Winter Break: December 16 – January 7

Thank you for reading this far, and we will catch up again beginning of Winter term.

Elisar