

What's New with BB  
(October 1, 2025 through December 31, 2025)

Dear BB Community,

Happy New Year! We wrapped up a busy Fall term with perfectly polished rotation talks and a delightful holiday lunch that brought the BB community together for good science and good food. Thank you to everyone who attended, brought food, offered feedback, and mentored and cheered on our first-year graduate students in conducting and presenting their research this Fall.

As I reflect on 2025, I search for rays of sunshine in what has been a very dark year. There were bright moments: we celebrated undergraduates earning the highest honors with Fulbright and Marshall scholarships, applauded graduate students reaching the finish line, secured major grants, welcomed new members to our community, and received prestigious awards -including the OSU Loyal Philanthropic Partner Award to Kari van Zee. I also had the honor of delivering the Gilfillan Public Lecture. Yet, it is impossible to ignore that 2025 stands out as one of the most challenging years in the history of American science marked by deep funding cuts, halted and delayed reviews due to government shutdown, restrictions on the international talent, and attacks on diversity and freedom of speech.

On a personal level, this year brought profound loss and pain. Losing a mother is one of the deepest sorrows a heart can know, and I have never known this much pain. My mom was smart as a whip and full of life and wisdom and the cornerstone of our family. She had so much love and vitality left to give. She was a woman of unmatched resilience, courage, generosity, and compassion. She was a role model—far ahead of her time—for superwomen who balance careers, raise large families, and hold generations together. Her parting words “I will live through you. Do good in the world” is the reason I still get up every morning and welcome a new day with optimism.

Both my parents were heroes. After enduring years of hardship during the Lebanese civil war, they made the courageous decision to leave Lebanon and start over in a new land, embracing an unfamiliar culture and leaving behind friends, respected careers, and family. They took a big leap of faith into the unknown, so they stay close to their children and keep our family together. As dedicated teachers, they viewed education as a calling and worked with the premise that education changes lives and gives hope. Losing them both within a year is a pain very hard to bear. In honor of their memory—and the memory of all the loved ones the BB community has lost—we continue our mission and look forward to brighter days ahead.

I hope 2026 brings joy to all of us, or at least equip us with the resilience to find joy in small victories. Every proposal that is submitted in this climate is a victory. Every paper we submit and is accepted is a victory. Every student we mentor to completion and success is a victory.

Below I list some of our activities and successes, and the many submitted proposals, compiled by Kimberly. Enjoy reading and keep up the good work.

## **Funded Grants**

**Jessica Siegel** received an Ecampus Research Fellows Grant to examine the use of Learning Assistants in online Ecampus courses.

**Dan Liefwalker** received \$50,000 in funding from the Medical Research Foundation.

## **Grant Proposals Submitted**

**Elisar Barbar** with Siva Kolluri as lead PI submitted a proposal to the NIH titled “Bcl-2 as a target in breast cancer” for \$2,906,241.

**Elisar Barbar** submitted to the NSF a proposal titled “Regulation of dynamic protein complexes in vitro and in cellular machines” for \$1,182,553.

**Myriam Cotten** submitted a USDA research proposal titled “Development of a Scalable Supercritical CO<sub>2</sub> Method for Isolating Milk Extracellular Vesicles to Enhance Essential Amino Acids Delivery” as Co-PI for \$650,000.

**Myriam Cotten** submitted an Agricultural Research Foundation proposal titled “From Ocean to Organ: Scalable Biomanufacturing of Seaweed-Derived Scaffolds for Regenerative Applications” as Co-PI for \$15,000.

**Nathan Mortimer** submitted an R01 titled “The impact of amyloid aggregation state on neuroinflammation in a *Drosophila* model of Alzheimer’s disease” to the NIA for \$2,785,200.

**Alysia Vrailas-Mortimer as lead PI** and **Nathan Mortimer** submitted to the NIH a proposal titled “A new model of parental age and offspring health” of the amount of \$388,190.

**Fritz Gombart** submitted an R01 proposal titled, “AMPing-Up Bone: Positive Impact of Antimicrobial Peptides on Bone & Healing” as Co-PI to NIAMS at the NIH for \$3,655,113.

**Dan Liefwalker** submitted a proposal for the NIH MIRA R35 for \$1,996,941.

**Dan Liefwalker** submitted a proposal for the American Cancer Society Research Scholar Award for \$946,000.

**Jenna Beyer** (Mehl Lab) submitted a postdoc fellowship application to the to the Life Sciences Research Foundation titled “Decoding Protein Kinase A Signaling via Genetic Encoding of Non-Hydrolyzable Phosphoserine” for \$255,000.

**Jenna Beyer** (Mehl Lab) submitted a postdoc fellowship application to the NIH titled “Resolving cardiac Protein Kinase A signaling via genetic encoding of a stable phosphoserine analog in mammalian cells” for \$228,612.

**Tilo Chatterjee** (Liefwalker Lab) submitted a postdoc fellowship proposal to the American Cancer Society titled: “How epigenetics influences metabolic reprogramming in cancer: Exploring the roles played by MYC and ATP-citrate lyase” for \$217,500.

**Sanjay Ramprasad** (Hendrix Lab) submitted a postdoc fellowship proposal to Simons Foundation, titled “Decoding How Circular RNA Structure and Topology Drive Pathogenicity in Minimal Plant Pathogens” for \$360,000.

### **Professional Service**

**Nathan Mortimer** served on the scientific review board for the Oregon Partnership for Alzheimer’s Research and reviewed funding proposal letters of intent.

**Ryan Mehl** was one of the organizers of the OHSU Chemical Biology and Physiology Conference, December 11-13<sup>th</sup>, 2025 in Portland, OR.

### **Publications**

From the *Barbar* Group

Walker DR, **Barbar EJ**. (2025) [Multifaceted multivalency with a hub protein](#). FEBS J. 2025 Nov 5. doi: 10.1111/febs.70320. Online ahead of print.

From the *Hendrix* Group

Pratt AA, **Hendrix DA**. [Unraveling Unbreakable Hairpins: Characterizing RNA secondary structures that are persistent after dinucleotide shuffling](#). RNA. 2025 Jul 1;31(7):885-95.

Lin LW, Jang HS, Song Z, Ebrahimi A, Yang J, Nguyen BD, O’Donnell EF, **Hendrix DA**, Maier CS, Kolluri SK. [Suppression of global protein synthesis and hepatocellular carcinoma cell growth by Benzimidazoisoquinoline, 4, 11-Dichloro-BBQ](#). Biochemical Pharmacology. 2025 Jun 1;236:116896.

Lasher B, **Hendrix DA**. [bpRNA-CosMoS: a robust and efficient RNA structural comparison method using k-mer based cosine similarity](#). Bioinformatics. 2025 Apr;41(4):btaf108.

Wu, L.F., Zhang, J., Cornwell-Arquitt, R., **Hendrix, D.A.**, Radakovic, A. and Szostak, J.W., 2025. [Selective nonenzymatic formation of biologically common RNA hairpins](#). *Angewandte Chemie*, 137(5), p.e202417370.

From the *Mehl* and *Cooley* Groups

Saleh, IG, Shimogawa, M, Ramirez, J, Abakah, B, Venkatesh, Y, Priya James, H, Li, M, Louie, SA, Lougee, MG, Chia, W, **Cooley, RB, Mehl, RA**, Baumgart, T, Mach, RH, Eliezer, D, Rhoades, E, Petersson, EJ. Genetic Code Expansion and Enzymatic Modifications as Accessible Methods for Studying Site-Specific Post-Translational Modifications of Alpha-Synuclein and Tau. Protein Science. 2025 Oct;34(10):e70302. doi: 10.1002/pro.70302  
<https://pubmed.ncbi.nlm.nih.gov/40944447/>

### **Faculty Talks**

**Elisar Barbar** gave a talk titled “The BPTI story: From the slow exchange core to intrinsically disordered proteins”, as part of Celebrating Professor George Barany’s Half Century in Science webinar. A link to the webinar is here: <https://cassyni.com/events/F2EkSC3wvbb3MCUpXv2QV>

**Elisar Barbar** and **Alysia Vrailas-Mortimer** both gave talks as part of the Murdock Site Visit, organized by **Jessica Siegel**.

**Sarah Clark** gave two talks:

- Eye on the Cure Cohen Syndrome Research Foundation Symposium in Los Angeles, CA, titled: “Strategies for structural studies of VPS13B.”
- CryoEM Current Practices Webinar Series, online seminar titled: “Architecture of a bridge-like lipid transfer protein.”

**Myriam Cotten** gave two talks at PacifiChem Conference on December 16<sup>th</sup>, 2025 in Honolulu, HI:

- “Leveraging 17O Solid-state NMR to Investigate the Interactions of Functionally-important Water Molecules with Membrane-interacting Peptides”
- “Investigating Synergistic Antimicrobial and Anticancer Effects Based on Membrane-active Peptides”

**Ryan Mehl** gave an invited seminar talk titled “The chemical limits of labeling proteins using genetic code expansion” at UCSD.

**Ryan Mehl** gave an invited platform talk, “Artificial intelligence-assisted design of a tRNA synthetase for genetic code expansion” at the PacifiChem Conference on December 16<sup>th</sup>, 2025 in Honolulu, HI.

### **Teaching and Learning News**

Students in BB 315: Molecular Biology Laboratory spent the term diving into hands-on research using *Drosophila melanogaster*, as a powerful model for understanding neurodegeneration. Their

challenge was to track down an unknown mutation tied to a neurodegenerative phenotype and figure out what's going on at the molecular level.



At the second annual BB 315 Fall Research Symposium, students shared their work with each other and with faculty. They didn't just present data, they told the story of their experiments: the troubleshooting, the unexpected turns, and the breakthroughs that made it all come together. It's amazing to see how much they accomplish in just one term and how excited they are to connect their work to big questions in biology.

### **Conferences and Poster Presentations**

Undergrad **Estifanos Berhe** (Mortimer Lab) presented a poster at the 2025 SACNAS NDiSTEM conference in Columbus, OH, titled "Identifying the Role of PS5 $\alpha$  Integrin in the Autoimmune Self-Recognition Pathway of *Drosophila melanogaster*"

Many members of the **Mehl/Cooley** labs attended the OHSU Chemical Biology and Physiology Conference, December 11-13<sup>th</sup>, 2025 in Portland, OR.

- **Ryan Mehl** – Conference Organizer
- **Rick Cooley**

- **Stanislau Stanisheuski** – “Cell-to-cell proteome changes induced by Bcl-2-overexpression in single TNBC-cells”
- **Jenna Beyer** – “Development of a next-generation GCE tool for stable phosphorylation in mammalian cells”
- **Alex Eddins** – “Surpassing the Boundaries of Mammalian Genetic Code Expansion: A Modular GCE Platform for Building Tailored and Optimized Stable Cell Lines”
- **Cat Vesely** – “PINBody: an inclusion body strategy for production of unmodified and phosphorylated intrinsically disordered proteins for mechanistic and structural studies”
- **Sarah McGee** – “Unveiling the Relationships between Nitration and Phosphorylation Using Genetic Code Expansion”
- **Sarah Louie** – “Building a more versatile genetic code expansion system for encoding phosphor-Threonine”
- **Patrick Allen** – Aminoacyl-Based Affinity Purification Enables Mapping of Host-Driven Modifications on Functional tRNAs for Genetic Code Expansion”
- **Nathan Palazzolo** – “Reliable Dual Encoding Systems for Genetic Encoding of Noncanonical Amino Acids”

## GCE News

The International GCE Webinar series will begin again soon! See our upcoming schedule and register for future webinars [here](#).

## Recruitment News

The graduate committee interviewed the top 18 candidates for admission to the BB PhD program beginning Fall 2026 and invited them to a recruitment weekend! We look forward to meeting the applicants **January 22<sup>nd</sup>-24<sup>th</sup>**, and we hope you join us to welcome them to Corvallis and to OSU!

## Grad Specific News

**Cat Hoang Vesely** (Cooley Lab) successfully defended her Ph.D. thesis titled “A Matter of Life and Death: Dissecting BAD Activation with Genetic Code Expansion” on December 4<sup>th</sup>. Congratulations, Dr. Vesely!

Congratulations to our first-year graduate students for completing their first lab rotations and rotation talks!

Name	Lab	Title
Eleni Vickers	Mortimer	The role of sAPPbeta in Drosophila behavior and memory
Dana Gaudette	Barbar	LC8 Binding Partners: From ITC to AlphaFold
Emelia Egbe	Liefwalker	MYC-dependent ETC Decoupling
Abigail Champlin	Johnson	Otoferlin Disordered Linker: Purification and ssNMR
Xingyi Guo	Mehl/Cooley	Nanobody Selection for PTM-Specific Protein Recognition
Izzy Montini	Clark	Playing with MagIC: Exploring a New Methodology in Cryo-EM
Ty Waldo	Clark	MagIC Cryo-EM

### Alumni News

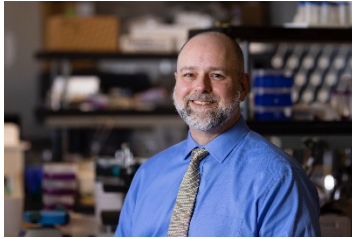


BB Alum William (Bill) Skach ('79) was honored with the College of Science's 2025 Distinguished Alumni Award. Read about the award [here](#), and about a breakthrough moment in his career [here](#).

Congratulations, Dr. Skach!

BB alum Dr. Ganapathy Sarma (2005) who obtained his PhD with Dr. Karplus and is now Director of Antibody-Drug Conjugates at Exelixis, gave a seminar on October 15<sup>th</sup>, titled "Molecules with a Mission: ADC Design to Optimization to Therapeutic Impact"





Dr. Zachary Wood who also obtained his PhD with Dr. Karplus and is now a full professor at University of Georgia gave a seminar on October 29<sup>th</sup>, titled “How Nature Harnesses Entropy to Tune Protein Function”

## Undergrads in the News



BMB alum Giulia Wood (class of 2023) was selected for the 2026 Marshall Scholarship, the first in OSU history!

<https://biochem.oregonstate.edu/impact/2025/12/science-alumna-giulia-wood-selected-for-2026-marshall-scholarship>

Every summer, Oregon State’s [Summer Undergraduate Research Experience](#) (SURE) in the College of Science empowers students to turn curiosity into discovery, and in many cases, personal experiences into purpose. Read BB student Ashley Tran’s story here: <https://biochem.oregonstate.edu/impact/2025/10/undergraduate-research-at-oregon-state-empowers-biochemistry-student-through>



Thank you to **Kari van Zee** for putting together a Fall Mingle for Family Weekend! There was a great turn out and it was wonderful to meet the families of so many of our students!

## Awards



**Kari van Zee**, was selected by the OSU Loyal Advisory Committee to receive the 2025-26 [OSU Loyal Philanthropic Partner Award](#), which honors employees who promote a culture of philanthropy at the university. Congratulations, Kari!! Photos: <https://www.youtube.com/watch?v=pEPB1mPbpuU>

**Douglas Walker** (Barbar Lab) received a \$500 travel award from the Biophysical Society.

### **New Addition to the BB Family**

Congratulations to **Jessica Siegel** and family on their new addition!! Kyël was born on 11/10, coming in at 7 lbs and 14 oz with a full head of spiky black hair.



### **From the BPS Student Chapter**

The BPS Student Chapter hosted a Trivia Night on December 9<sup>th</sup>, with fun snacks and prizes! Thank you to all who attended.

The BPS Student Chapter will continue to host our weekly Biophysics Journal Club, organized by Hannah Long, and will be back on **Fridays at 9am in ALS 2009A**. The list of presenters is below. We hope you'll join us!

- 01/09- Andrea Zourou
- 01/16- Sarah Louie
- 01/23- **No meeting**
- 01/30- Nadia Gonzalez
- 02/06- Sarah Perkel
- 02/13- Hannah Stuwe
- 02/20- Nolan Herron
- 02/27- Davis Sharts
- 03/06- Tepary Cooley

## Upcoming Events

### January

- 1: New Years Day, University Closed
- 5: First day of Winter Term classes
- 7: BB Student Talks: Ethan Beffert (Liefwalker Lab) and Sarah Louie (Cooley Lab)
- 9: Faculty Meeting, 3-5 PM
- 13: Tuesday Lunch
- 14: Seminar speaker Dr. Patrick Philips, University of Oregon
- 19: Martin Luther King Jr Day, University Closed
- 21: Seminar speaker Dr. Marina Guenza, University of Oregon
- 23: Grad recruiting day
- 27: Tuesday Lunch
- 28: Seminar speaker Dr. Peter Hsu, Genentech

### February

- 4: BB Graduate Student Hannah Long 3<sup>rd</sup> year talk
- 6: Winter Rotation Talks #1, 3 PM
- 10: Tuesday Lunch
- 11: BB Student Talks: Nolan Herron (Vanegas Lab) and Tepary Cooley (Purice Lab)
- 13: Faculty Meeting
- 18: Seminar speaker Dr. Binata Joddar, Oregon State University
- 20: BB Student Talks: Tilo Chatterjee (Liefwalker Lab) and Nadia Gonzalez (Vrailas-Mortimer Lab)
- 24: Tuesday Lunch
- 25: BB Graduate Student Joline Nguyen 3<sup>rd</sup> year talk

### March

- 4: BB Seminar speaker Dr. Sriram Subramaniam, University of British Columbia
- 10: Tuesday Lunch
- 11: BB Seminar speaker Dr. Bob Eisenman, Fred Hutchinson Cancer Research Center
- 13: Faculty Meeting
- 17: COS Inclusive Excellence Award Talk – Hannah Stuwe
- 18: BB Seminar speaker Dr. Ben Youngblood, St. Jude Children's Research Hospital
- 20: Winter Rotation Talks #2
- 23-27: Spring Break

**\*Please note that our Wednesday seminar space has changed to ALS 4000\***

Thank you for reading this far, and we will catch up again at the beginning of Spring 2026. Please let Kimberly know if your event/activity was not included so we add it in the next issue. Have a great Winter term!

Elisar