

# What's New with BB

(December 1<sup>st</sup>, 2020 through January 31<sup>st</sup>, 2021)

Dear BB community,

While I have often used this page to express my (sometimes too strong) political views, today I am taking a different path.

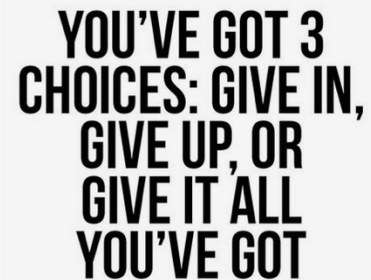
It has been a little over a year since I became department head on Jan 1<sup>st</sup>, 2020. I was starting a new position, confident, but also anxious to deliver on an ambitious agenda. I reassured myself that I would be prepared for whatever comes my way – that with my history of surviving and thriving through trauma, I had seen it all. Well, as this year has shown, I have not seen it all -- none of us has. Nothing could have prepared me to make decisions about remote teaching, safety, essential personnel, responding to mental health and personal life challenges, and how to balance all of these combined.

One year later, we are still here; stronger and smarter, and I might add, more forward thinking. Even though the events of last year made us more remote, they also brought us together. More than ever, it is acceptable to discuss race and gender disparities without fear of being labeled as attention seekers. Throughout my career, I always feared being seen as someone who was hired to fill a quota. For the first time, I am not worried about bringing these issues to the forefront. Similarly, I am not worried about talking about mental health, race inequities and advocating for diversity openly, and in all of its forms.

This year has shown that people step up when the need is at its greatest. The success of our department this year is a result of people being flexible, changing their teaching assignments, adding to their teaching load, working during adversity, coming to the lab masked without water or food -- and still excited to be there.

Becoming department head has helped me learn to be kind and accepting of each other's mistakes and challenges, to accept that we are all human and doing the best we can under very challenging circumstances. To me, knowing the limits of my abilities is a work in progress. I am learning that I do not always have to do everything, to trust that people will step up -- and our department did step up. I learned not only to rejoice for people's successes, but also to promote these successes. My most fun times of every week (after lab meetings, of course), is when I meet with the COVID team and discuss what we can do as a group, and figure out how to tailor questions to people's strengths. I learnt that leadership is about inspiring and motivating people to work together towards a goal, and in the process continuing to grow and develop, instead of just settling down into a comfortable and complacent routine.

In spite of COVID -- and perhaps because of COVID -- we are a stronger department, because we are a department that cares. We are becoming more open-minded and willing to listen to each other, not losing sight of our goals, and continuing to be passionate about what we do.



**YOU'VE GOT 3  
CHOICES: GIVE IN,  
GIVE UP, OR  
GIVE IT ALL  
YOU'VE GOT**  
—COMPETE EVERY DAY.COM—

### **Submitted Proposals:**

**Victor Hsu** submitted a proposal on Feb 1<sup>st</sup>, 2021, to the Mid-Career Advancement program of the NSF titled

“MCA: Machine learning the determinants of specific and promiscuous ligand binding” in collaboration with Sinisa Todorovic from ENG Elect/Comp Engr Prgm in the amount of \$301,362.00 for the 8/01/2021 - 7/31/2024 duration.

**Ryan Mehl** was the lead PI on a BTDD Center proposal to the NIH: GCE4All Center, “Unleashing the Potential of Genetic Code Expansion for Biomedical Research”, submitted on January 25<sup>th</sup>, 2021.

Other PIs are **Joe Beckman, Andy Karplus, Rick Cooley** and with a lot of help from **Kari van Zee**. Congratulations to all on getting something big like this out of the door, an amount of \$6,905,470.00 for the 12/01/2021 - 11/30/2026 duration.

**Afua Nyarko** submitted a proposal to the NSF Directorate for Biological Sciences, “Assembly of multivalent regulatory complexes in hippo signaling”, on December 11<sup>th</sup>, 2020, of the amount of \$610,000 for the 7/01/2021 - 6/30/2024 duration.

**Serving on NIH and NSF panels:** In my effort to acknowledge the incredible amount of work that goes in serving on panels, I am highlighting here those who are reviewing proposals over Dec/Jan and serving on panels or upcoming panels.

**Fritz Gombart:** NIH/NCCIH Training and Education Review Panel (2021)

**Ryan Mehl:** NSF panel

**Afua Nyarko:** NIH panel Macromolecular Structure and Function B Study Section

### **Publications**

*From the **Johnson** group:*

Golbek T.W, Otto S.C, Roeters S.J, Weidner T, **Johnson C.P**, and Baio J.E. (2020). [Direct Evidence That Mutations within Dysferlin’s C2A Domain Inhibit Lipid Clustering](#), *J Phys Chem B*. Dec 23. doi: 10.1021/acs.jpcc.0c07143. Online ahead of print.

*From the **Nyarko** group:*

Baker K, Kwok E, Reardon P, Rodriguez D.J, Rolland A.D, Wilson J.W, Prell J.S, and **Nyarko A**. (2020). [Yorkie-Warts complexes are an ensemble of interconverting conformers formed by multivalent interactions](#). *J Mol Biol*. Dec 28;166776. doi: 10.1016/j.jmb.2020.166776. Online ahead of print.

*From the **Qiu** group:*

Xian Y, Xie, Y, Silva S.M, Karki C.B, Qiu W, and Li L. (2021). [StructureMan: A Structure Manipulation Tool to Study Large Scale Biomolecular Interactions](#). *Front Mol Biosci*. Jan 11;7:627087. doi: 10.3389/fmolb.2020.627087. eCollection 2020.

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## **Invited Zoominars**

This is a new category that I am adding to the BB news, to acknowledge the work that goes in preparing seminars, and the recognition received in the process. I am including those that I know of that took place over the last year and the past two months.

**Afua Nyarko** Title: Multivalency and selectivity: How WW domain proteins compete for the same binding partners

University of Pittsburg, Pittsburg, Pennsylvania, October, 29<sup>th</sup> 2020

**Fritz Gombart** Title: “A Well-Functioning Immune System: The Fourth “W” in Combating Viral Infections”.

Academy for Lifelong Learning March 3, 2021 in Corvallis, OR.

## **Maria Franco**

Role of Nitrated Proteins in Tumor Biology” International Seminar Series, Instituto de Biología y Medicina Experimental (IBYME), Buenos Aires, Argentina, Sep 11, 2020.

“Nitrated Proteins as Tumor Directed Targets” Society for Redox Biology and Medicine 27<sup>th</sup> Annual Virtual Conference, Nov 18-20, 2020.

**Rick Cooley** "Adapting Genetic Code Expansion for Structural Biology: Leveraging the Benefits of Recoded Expression Hosts while Avoiding the Pitfalls"

Protein Engineering Summit, Boston, MA, Sept 2, 2020

**Andy Karplus** "Aha! moments in structural biology: from peroxide signaling and pi-helices to the ‘impossible’ experimental mapping of a conformational transition state."

University of Arkansas, Fayetteville Nov 30, 2020

## **Elisar Barbar and Heather Forsythe**

Title: Multivalency and Protein Disorder in Protein Interactions in Viruses: Rabies Virus and SARS-CoV2.

Heather and I gave a two part talk as part of the [Zoominars on Molecular Basis of Proteinopathies](#)

The talk was videotaped and posted on [YouTube](#)

## **New Faces in BB:**

### **Hannah Stuwe – Barbar Lab**

“I am an Oregon State graduate and received my bachelors in Biochemistry in 2019. I conducted my undergraduate research in Bob Mason's lab in the Integrative Biology Department where I primarily worked on determining the bactericidal properties of harderian gland secretion from the red sided garter snake. After graduating I went on to work in the CBD industry doing research and development. Now as part of the Barbar lab I will be working on projects related to SARS-CoV-2.”

### **Cat Hoang Vesley - 1<sup>st</sup> year graduate student**

“Cat grew up in Ho Chi Minh City, Vietnam, raised by supportive parents who allowed her to explore the world and study whatever intrigued her. Though Cat fell in love with every biological

discipline, she ended up going to Oregon State University for her B.S. studying Microbiology with a minor in Chemistry and Fermentation Science with a full-ride scholarship. The curriculum didn't give her a satisfying laboratory experience, so she applied for multiple awards that allowed her to do undergraduate research with Dr. Elisar Barbar. Following her graduation, she decided to continue her research interests including protein structure/function in the beloved BB department as a Ph.D. student.”

### **BB in the News—stars in our midst:**

#### [Heather Masson-Forsythe and her viral TikTok videos featured in the International Business Times](#)

Follow along with [@heycurlytop](#), as **Heather** creates science themed Tiktok videos, including her work on the Nucleocapsid SARS-CoV-2 protein. “Desperate times call for desperate measures, and for one biochemist, that means dancing to Megan Thee Stallion’s ‘Body’ with COVID-19 vaccination facts overlaid. The viral video had accumulated nearly 360,000 views on TikTok within a day.” - *Cullen Paradis IBT*.



Dr. **Fritz Gombart** was interviewed with [WBBM Radio](#) & [Fox 32 Chicago](#)

“Vitamin D could be a valuable supplement in the fight against coronavirus, research suggests.” - *WBBM Newsradio's Lisa Fielding reports*.

### **News from the Grads**

- 1) **Our BPS Student Chapter has officially been approved!** With Dr. **Afua Nyarko** serving as the faculty representative and **Kayla Jara, Aidan Estelle, and Jesse Howe** serving as the current executive committee, the chapter will be getting underway very soon. If you or your students are interested in joining the chapter contact Kayla ([jarak@oregonstate.edu](mailto:jarak@oregonstate.edu))
- 2) **Kyle Nguyen** has won the annual Trainee Award at the SfRBM conference! **Tzelzin Hernandez**, who was an REU undergrad in the Franco lab the Summer of 2020, won the undergraduate YIA at the SfRBM Conference for her poster presentation of the data analysis work she did with the Franco Lab. So far, undergraduate students in the Franco Lab have won this prestigious award three years in a row, and graduate students two years in a row!

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- 3) **Heather Forsythe-Masson** has entered the **Dance Your PhD** contest! This year a COVID19 specific category allowed Heather to finally show off her skills. View Heather's [video](#), or find out more about the Dance Your Ph.D. Contest [here](#).
- 4) **BPS Annual conference is Feb 22<sup>nd</sup>-26<sup>th</sup>**. We have numerous students presenting work at this conference in either a virtual poster or short talk.
- 5) **Amanda Radke** has put in an abstract to Experimental Biology in April.
- 6) **Shauna Otto** was co-authored on a published paper. J Phys Chem B. 2021 Jan 14;125(1):148-157.doi: 10.1021/acs.jpcc.0c07143. Epub 2020 Dec 23. Direct Evidence That Mutations within Dysferlin's C2A Domain Inhibit Lipid Clustering [Thaddeus W Golbek](#)<sup>1</sup>, [Shauna C Otto](#)<sup>2</sup>, [Steven J Roeters](#)<sup>1</sup>, [Tobias Weidner](#)<sup>1</sup>, [Colin P Johnson](#)<sup>2</sup>, [Joe E Baio](#).

## News from the alumni undergrads (relayed by Kari)

**Kendra Jackson**, who worked with **Michael Freitag**, has been accepted to Stanford Medical School, among others. She is waiting to hear if she was accepted into the Physician Scientist Stanford program—essentially a 5<sup>th</sup> year of research as an alternative to an MD/PhD program.

**Stephanie Schulden** was accepted into the OHSU/PSU joint Masters in Public Health.

**Rebecca France** has multiple offers from law schools across the nation, several with full tuition waivers.

## News from the teaching labs—the only in-person classes in BB!

I want to acknowledge the incredible effort of faculty and TAs (Ryan, Rick, Kari, Amber, Phil, Sanjay, Alex, Cat) in delivering these labs in a safe manner in spite of the couple COVID scares and quarantines that they had this term. In addition, **Kari Van Zee** has been indispensable in securing support from **Vernier** in the form of a loan of six spectrophotometers for a month to provide safe and efficient lab stations in BB 494.

## BB Outreach

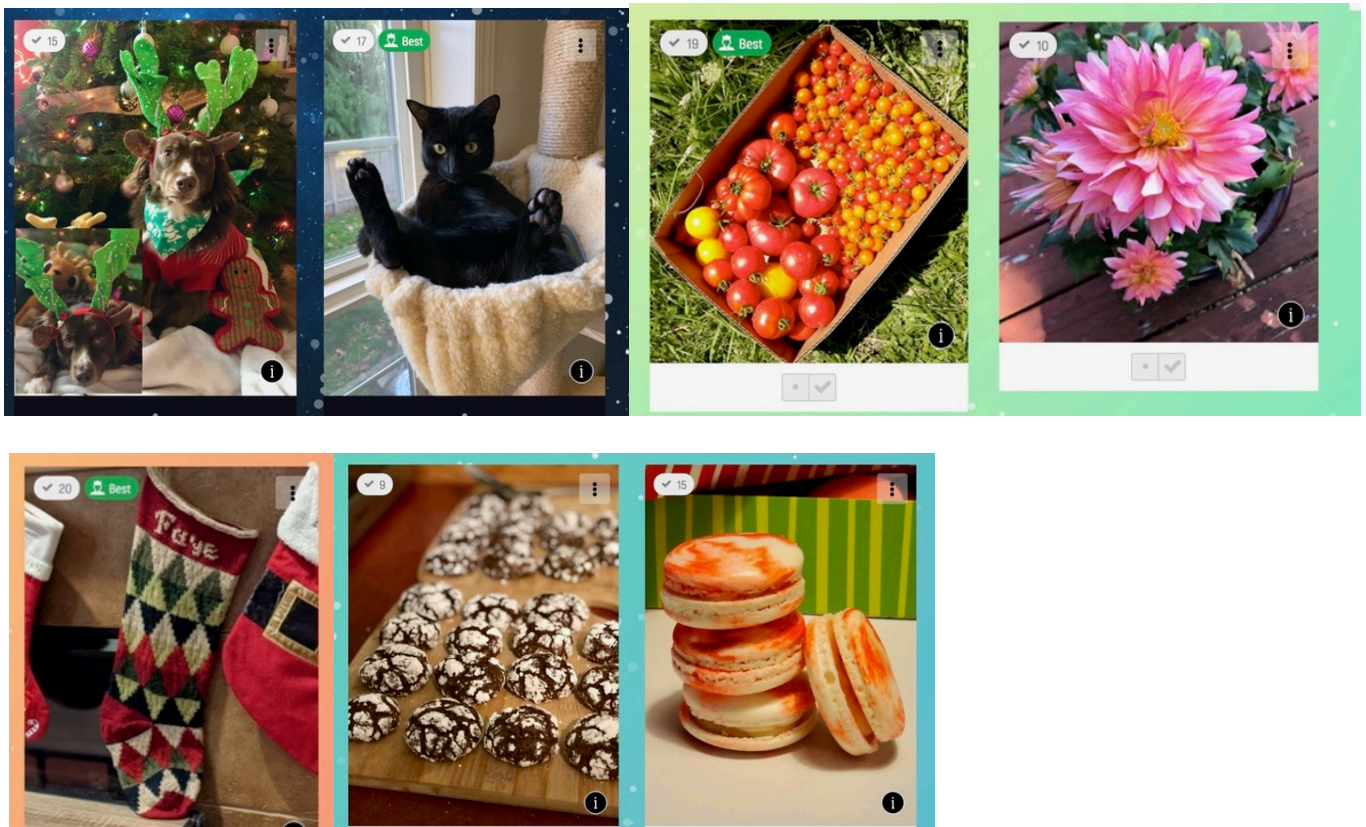
**Elisar Barbar** and **Heather Forsythe** gave a two-part talk at Hawaii Prep Academy for high school seniors in STEM, both about career paths and the struggles and rewards of a STEM career for women.

## Celebrations

At our annual holiday party organized by Fritz, Colin, Kari and Kate, we discovered our grad students' artistic talents; Ally from the Freitag's lab placing first with a most exquisite card! We also discovered our love of trivia, party favors, and playing Kahoot. As I recall, the winners were Jesse and Heather (but I am biased – please send me an email to correct me if am mistaken!) I also did not take pictures of us at the event, but we should duplicate it for end of winter term, and then take pictures. Remember, we are going to have trivia on the seminar speakers' presentations, so be sure to attend these seminars and take notes!



Here are some screenshots from the party of the winning entries:



## Updated website and social media

Please take a look at the updated BB website, and send suggestions and updates to Kayla. My goal is to feature something new every week!

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I am also very grateful that Lena Ferguson and Dave Hendrix will now be updating Twitter and Facebook! Please make sure to send your updates to them.

## Upcoming events

### This week

I encourage you to join an **exclusive College of Science discussion with President Alexander** and Provost Ed Feser, to hear firsthand President Alexander's long term vision for OSU and what he sees as the College's role in achieving that vision. The meeting will begin with a short intro talk and then open up for a live Q&A session. **Please join us February 4, 1:30 – 2:15 p.m. [on Zoom](#).**

Also on Thursday, February 4, is the [Provost Lecture Series](#) at 6:30 with **Dr. Mae C. Jemison**. A former NASA Astronaut and first woman of color in space, she plans to talk about the equally exciting work she does today leading 100 Year Starship.

### **Friday February 5<sup>th</sup>, 2021, 3-5 PM Department function, all are invited**

On the agenda:

Presentation from the OSU Foundation, followed by Q & A

Science talk by Fritz, followed by Q & A

Presentation by John Fowler: Update: Interdisciplinary Graduate Education in Life & Data Sciences at OSU, followed by Q & A

Science talk by Elisar, followed by Q & A (if time permits)

## Looking ahead

OMSI communication training – do not forget to sign up, the registration is quite a bit subsidized.

### [Introduction to Science Communication Series](#)

The department can cover registration for a couple of grad students and one senior undergrad. Discuss with your PI and let me know.

**Virtual Silent Auction** the week of February 15, (Please consider what you can donate to the auction) and a **Virtual Pub-Trivia** event held sometime the week of February 22-27. Look for more details on how to form or join a team in Dina's emails.

**Graduate students recruitment:** Look for details coming from the Grad committee

Thankful for all of you and hoping for an in person get together after we all get the vaccine!

Until then,  
Elisar