

What's New with BB

(June 1st, 2020 through July 31st, 2020)

Dear BB Community,

I hope you are enjoying this beautiful summer, while socially distancing, wearing masks, or working remotely and sheltering in place. As a nation these past two months have challenged us to address social and racial disparities in our culture. As a BB community we have made major strides in starting to address these disparities and these two months have been extremely productive on all fronts. I am happy to report some amazing progress: we have graduated the largest senior class in BB history, our third year grad students gave great talks, we have submitted several proposals and had many grants awarded, we have conducted a tenure track search - and are in the middle of conducting another, we have published a record number of papers, and are carefully resuming research with no reported cases. This year we have also developed our first PACE Biochemistry Blast class taken by 24 high school students, a very good number for first time around, with students attending from as far as Florida and Massachusetts! We have new beginnings: a new born, wedding and career moves, so all in all we have a lot to celebrate these two months, in spite of the uncertainties of our times.



How to Safely Wear and Take Off a Cloth Face Covering

WEAR YOUR FACE COVERING CORRECTLY

- Wash your hands before putting on your face covering
- Put it over your nose and mouth and secure it under your chin
- Try to fit it snugly against the sides of your face
- Make sure you can breathe easily
- Do not place a mask on a child younger than 2



USE THE FACE COVERING TO PROTECT OTHERS

- Wear a face covering to protect others in case you're infected but don't have symptoms
- Keep the covering on your face the entire time you're in public
- Don't put the covering around your neck or up on your forehead
- Don't touch the face covering, and, if you do, clean your hands



FOLLOW EVERYDAY HEALTH HABITS

- Stay at least 6 feet away from others
- Avoid contact with people who are sick
- Wash your hands often, with soap and water, for at least 20 seconds each time
- Use hand sanitizer if soap and water are not available



TAKE OFF YOUR CLOTH FACE COVERING CAREFULLY, WHEN YOU'RE HOME

- Untie the strings behind your head or stretch the ear loops
- Handle only by the ear loops or ties
- Fold outside corners together
- Place covering in the washing machine
- Wash your hands with soap and water



Cloth face coverings are not surgical masks or N-95 respirators, both of which should be saved for health care workers and other medical first responders.

For instructions on making a cloth face covering, see: [cdc.gov/coronavirus](https://www.cdc.gov/coronavirus)




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New Grants:

Nikolaus Loening of Lewis and Clark in collaboration with **Elisar Barbar** received from NSF \$300,000 over 3 years for a proposal titled: RUI: Exploring the Structural Basis of Dynein Regulation, based on work that Niko started while on sabbatical in the Barbar lab.

Elisar Barbar together with **Dave Hendrix** and **Rick Cooley** received an NSF 2-year \$300,000 EAGER grant to work on the “Structure and Assembly of SARS-CoV2 nucleocapsid”.

Michael Freitag received funding from the US-Israel Binational Science Foundation (BSF) for his project on “Influence of chromatin state and mismatch repair efficiency on genetic diversity” with Shay Covo (Hebrew University) as a collaborator for 320K for four years, of which Freitag’s part is \$125K.

Afua Nyarko’s RERF proposal was awarded for \$72,000 from the research office, and additional \$24,000 from the College of Science to support the purchase of the DAWN© Multiangle light scattering (Wyatt), and with a match from the College of Pharmacy and several investigators to a total of \$120K.

Colin Johnson received funding from Open Educational resources in the amount of 5K for an open book to be finished by Apr 2022

Kenton Hokanson along with Maude David (Micro) and Kathy Magnusson (Vet Med) has been awarded a SciRIS Stage II funding from the College of Science for his proposal entitled “An integrative investigation of the role of the gut-brain axis on sex differences in anxiety” for \$75,000.

Submitted Proposals:

Phil McFadden, together with DulseEnergy, has submitted an STTR Phase I program proposal to the NSF Directorate for Engineering for \$150K over 1 year to support work on “Development of a brightly detectable virus simulant for certifying how the COVID-19 virus moves in built environments”

Elisar Barbar submitted with OHSU collaborators, to NIH a multi-PI R01 proposal for \$1.5 M (Barbar’s share) to carry out “Multiscale Characterization of a Unique Class of Duplex, Multivalent IDP Systems”

Jaga Giebultowicz together with **Dave Hendrix** as a collaborator submitted for the NIH an R21 proposal for \$388K over 2 years to study the “Cellular mechanisms of blue light-induced aging .

Serving on panels:

Elisar Barbar chaired an NIH study section Special Emphasis panel for F04B proposals in Biological Chemistry and Macromolecular Biophysics in July.

Publications

From the Barbar group:

Mostofian, B., McFarland, R., Estelle, A., Howe, **Barbar, E.**, Reichow, SL., Zuckerman, DM (2020) *Automated and statistically corrected identification of flexible multivalent IDP-bound assemblies in electron micrographs* BioRxiv <https://doi.org/10.1101/2020.06.16.154096>

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From the Beckman group:

Vimer S, Ben-Nissan G, Morgenstern D, Kumar-Deshmukh F, Polkinghorn C, Quintyn R.S, Vasil'ev Y.V, **Beckman J.S**, Elad N, Wysocki V.H, and Sharon M. (2020). [Comparative Structural Analysis of 20S Proteasome Ortholog Protein Complexes by Native Mass Spectrometry](#). *ACS Cent Sci*. Apr 22;6(4):573-588. doi: 10.1021/acscentsci.0c00080. Epub 2020 Apr 10.

From the Freitag group:

Ridenour J.B, Möller M, and **Freitag M**. (2020). [Polycomb Repression Without Bristles: Facultative Heterochromatin and Genome Stability in Fungi](#). *Genes (Basel)*. Jun 9;11(6):E638. Doi: 10.3390/genes11060638.

From the Gombart group:

Paraiso I.L, Revel J.S, Choi J, Miranda C.L, Lak P, Kioussi C, Bobe G, **Gombart A.F**, Raber J, Maier C.S, and Stevens J.F. (2020). [Targeting the Liver-Brain Axis with Hop-Derived Flavonoids Improves Lipid Metabolism and Cognitive Performance in Mice](#). *Mol Nutr Food Res*. Jul 6;e2000341. doi: 10.1002/mnfr.202000341. Online ahead of print.

From the Hagen group:

Bobe G, Michels A.J, Zhang W, Purnell J.Q, Woffendin C, Pereira C, Vita J.A, Thomas N.O, Traber M.G, Frei B, and **Hagen T.M**. (2020). [A Randomized Controlled Trial of Long-Term \(R\)- \$\alpha\$ -Lipoic Acid Supplementation Promotes Weight Loss in Overweight or Obese Adults without Altering Baseline Elevated Plasma Triglyceride Concentrations](#). *J Nutr*. Jul 21;nxaa203. doi:10.1093/jn/nxaa203. Online ahead of print.

From the Hendrix group:

Long D.M, Frame A.K, Reardon P.N, Cumming R.C, **Hendrix D.A**, Kretzschmar D, and Giebultowicz J.M. (2020). [Lactate dehydrogenase expression modulates longevity and neurodegeneration in *Drosophila melanogaster*](#). *Aging (Albany NY)*. Jun 2;12. doi: 10.18632/aging.103373. Epub ahead of print.

From the Karplus/Mehl/Cooley groups:

Beyer J, Hosseinzadeh P, Gottfried-Lee I, Van Fossen E.M, Zhu P, Bednar R.M, **Karplus P.A**, **Mehl R.A**, and **Cooley R.B**. (2020). [Overcoming Near-Cognate Suppression in a Release Factor 1-deficient Host With an Improved Nitro-Tyrosine tRNA Synthetase](#). *J Mol Biol*. Jun 19;S0022-2836(20)30410-1. doi: 10.1016/j.jmb.2020.06.014. Online ahead of print.

From the Cooley group:

Tugaeva K.V, Remeeva A, Gushchin I, **Cooley R.B**, and Sluchanko N.N. (2020). [Design, expression, purification and crystallization of human 14-3-3 \$\zeta\$ protein chimera with phosphopeptide from proapoptotic protein BAD](#). *Protein Expr Purif*. Jul 16;105707. doi: 10.1016/j.pep.2020.105707. Online ahead of print

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From the Perez group:

Sunchu B, Riordan R.T, Yu Z, Almog I, Dimas-Munoz J, Drake A.C, and Perez V.I. (2020). [Aggresome-Like Formation Promotes Resistance to Proteotoxicity in Cells From Long-Lived Species.](#) *J Gerontol A Biol Sci Med Sci.* Jun 9;glaa069. Doi: 10.1093/gerona.glaa069. Epub ahead of print.

From the Barbar/Qiu groups:

Tseng KF, Mickolajczyk KJ, Feng G, Feng Q, Kwok ES, Howe J, Barbar EJ, Dawson SC, Hancock WO, Qiu W. (2020) [The Tail of Kinesin-14a in Giardia Is a Dual Regulator of Motility.](#) *Curr Biol.* Jul 29:S0960-9822(20)30942-8. doi: 10.1016/j.cub.2020.06.090. Online ahead of print.

Graduate students success:

Brittany Lasher has been selected as the 2020-21 Christopher and Catherine Mathews Graduate Fellow. According to criteria developed by the Biochemistry and Biophysics faculty, this Fellowship is awarded each summer to a student entering the second year of the Ph.D. program, with the award being based upon academic merit, teaching acumen and research potential. In her first year here, Brittany excelled in all these criteria.



Chris and Kate congratulated Brittany in person, pictured here holding masks and 6 ft apart on July 28th, 2020.

<https://biochem.oregonstate.edu/content/brittany-lasher-has-been-selected-2020-21-christopher-and-catherine-mathews-graduate-fellow>

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BB in the News:



[Biochemists receive NSF award to probe protein in coronavirus genome](#)

This is to announce a two-year \$300,000 grant from the NSF to pursue research on SARS-CoV-2. The research project will delve into the N-protein of the virus, and its essential functions in viral infection and transmission. David Hendrix, and Rick Cooley are collaborators on the project.

[From Botswana to Los Angeles, OSU biochemistry alum now on the front lines of COVID-19](#)

Zack Bango graduated from OSU with a degree in biochemistry and biophysics, and has had a “zig-zaggy path”. He remembers Kari van Zee as the first person he had ever met at OSU during START, and her introduction to Michael Freitag and Lanelle Connolly that allowed him to start working in Freitag's lab before he even started classes. He is now working on the front lines of SARS-CoV-2 testing in Los Angeles County, California.



Fritz Gombart was interviewed by Simon Adler from **Radiolab** about the connection between COVID-19 and Vitamin D. Excerpts from Fritz's interview did not make it into the final piece but helped informed the writing. You can listen to the story here: <https://www.wnycstudios.org/podcasts/radiolab/articles/invisible-allies>

BB Outreach

Biochemistry Blast for High School Students: Molecular Biology of Viral Disease

Kate Shay has developed and is instructing an exciting two-week course for high school students that will provide much needed college prep! The program focuses on how viruses work, and how the human body responds to infection. The program started on July 20th and is currently ongoing! The program is running again on August 3rd for another two weeks. For more information please visit [PACE](#), or our website [here](#). Students are registering from California and Oregon, and as far as Florida and Massachusetts. Amazing job by **Kate**, **Alex** for TA help, and **Heather** for the Tiktok advertisements!

<https://www.tiktok.com/@heycurllytop/video/6847587227447414022?lang=en>

COVID-19 & Biochemistry Tiktoks!

Heather (with other members from the Barbar lab who can't say no) have also been creating some enviable attention on Tiktok. Check it out and follow along at...

<https://www.tiktok.com/@heycurllytop?lang=en>.

BIOCHEMISTRY FREE FOR ALL 1.3 by **Kevin Ahern** is being taught all over the world and more recently in the Phillipine, where his ebook and powerpoints were requested .

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Celebrations/New Beginnings

Isaac Newton Mehl was born on June 29th, 2020, bringing joy and optimism to his proud parents and to our BB family.

For Isaac Newton Mehl

by Kevin Ahern

Here's a toast to Isaac Newton
Born this day and doing well
Admired by both his parents
Sarah Clark and Ryan Mehl

May you find life's path rewarding
May you do what you enjoy
Welcome to our bigger family
You bouncing BB boy



Isaac Newton seems like a very happy baby sleeping all the time, and giving his parents ample time to write proposals and publish papers! (I have inside knowledge that this is not the case, but here's hoping)

Farewell and new beginning to **Viviana Perez** :

Viviana has accepted a position at the NIH as of July 5th. I am happy for Viviana to move into this leadership position with NIH, and follow her passion to make a greater impact on aging research. Viviana Joined OSU as an assistant professor in 2011, and since then she built a very strong internationally recognized research program on aging that has been continuously funded by NIH, she has trained several grad and undergrad students, has advised and taught BB491, BB350 and was very well liked by our majors and non majors. She has served as the chair of the undergraduate committee that oversaw the establishment of the BMB program, served on the executive committee and was always extremely well organized and did her job to the best possible. I am sure we will all miss her, but wish her well in her new position.

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Heather Masson-Forsythe
@heycurllytop

Eloped on Mount Hood this weekend with [@MargauxCodes](#) ! And had a fellow woman in STEM as our officiant! Having a wedding certificate that says "married on Mount Hood by an aerospace engineer" is **100** on brand.

It is with great pleasure that I introduce **Heather Masson-Forsythe!** (formerly **Heather Forsythe**) Congratulations Heather and Margaux!



Upcoming events

Aug 19-20: Tenure Track potential hire interview of Antentor Othrell Hinton, Jr., Ph.D. Dr. Hinton, goes by AJ, is currently a postdoc at University of Iowa, and has been very active in diversity issues. Expect to hear more from me about this in preparation for his interview. More info about AJ in the following links:

- Twitter: [@phdgprotein86](#)
- LinkedIn: <https://www.linkedin.com/in/biogeek26/>
- <https://medicine.uiowa.edu/cardiovascular/content/antentor-o-hinton-jr-phd>

Sep 8-9: BB Retreat, also on zoom, more info will follow from Colin

COVID research meeting every Friday at 9 am

Coffee hour every Friday at 4 pm, ZOOM: <https://oregonstate.zoom.us/j/291484674>

I hope this newsletter serves as a diversion in these tumultuous times, and an encouragement to persevere and thrive. I am sure I have forgotten many important events, please send me your news to include in the next issue. (special thanks to Michael Goschie for help in compiling some of the content).

Thanks for reading this far! I will continue with my weekly briefing, and will catch up again in two months.

Till then

Elisar