



IMMUNOBIOLOGY NEWSLETTER

Fall 2022

In this issue:

- 2021-22 Graduates
- Awards and Laudatory Notes
- In the Public Spotlight
- Publications
- Presentations
- Outreach
- Grants and Funding
- IIDA T32 Grant
- General Announcements
- Changes in IMB Personnel

Hats Off to Our Summer 2022 Graduate!!



Shuaizhi Li, PhD
Summer 2022

Li accepted a position in the Antiviral Testing and Assay Development Services branch of Microbiologics in St. Cloud, Minnesota.

Awards and Laudatory Notes

Faculty



Nafees Ahmad, PhD, received the 2022 Outstanding Achievement in Teaching by a Block and Dean's Teaching for Excellence in Teaching Pre-clerkship Years.

Felicia Goodrum, PhD, was honored for being named co-Editor-in-Chief to the *Journal of Virology* by the American Society for Microbiology.



Michael Johnson, PhD, was honored with the 2022 COM-T Faculty Excellence in Diversity, Equity, and Inclusion Award.

Students



Dakota Reinartz (GPMM, Wilson Lab) was awarded a 2 year F31 Fellowship from the NIH/NIDCR, titled: "Contribution of Innate Immune Sensing on Head and Neck Squamous Cell Carcinoma (HNSCC)."

Tyler Ripperger (GPMM, Bhattacharya Lab) received the 2022-23 ARCS Scholarship.



Isabelle Tobey (CBIO, Campos and Van Doorslaer Labs) was selected as an 2022-23 Integrative Cancer Scholar (T32 grant) and received a CRTEC award for \$1000.

Stephanie Tribble (CTS, Wilson Lab) was selected as an 2022-23 Integrative Cancer Scholar (T32 grant).



In the Public Spotlight

Deeptha Bhattacharya, PhD, was featured in:

May 20 CNN article, “The Quest for Longer-Lasting COVID-19 Vaccines.”

June 9 UAHS “Tomorrow is Here” series, “A New Era: Creating Defenses Against Disease After COVID-19.”

June 13 New York Times guest essay, “New Tools Can Make Our Covid Immunity Even Stronger.”

June 28 NPR Morning Edition report, “The FDA considers the Nation’s next Round of Vaccines to Battle COVID-19.”

July 4 New York Times, “Updated Covid Shots are Coming. Will They Be too Late?”

July 14 NPR Morning Edition report, “Experts Question the FDA’s COVID Booster Strategy Ahead of Autumn.”

Aug. 6 Salon, “How Many Times Can You Get Reinfected with COVID? Here’s what Experts Say.”

Aug. 18 NPR story, “What’s Behind the FDA’s Controversial Strategy for Evaluating New COVID Boosters.”

Aug. 25 The Atlantic, “America’s Fall Booster Plan has a Fatal Paradox.”

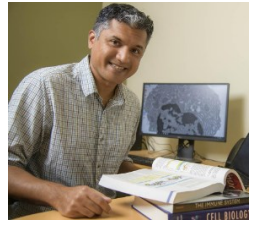
Aug. 31 KOLD News 13 report, “New COVID-19 Vaccine may Help Prevent Contracting the Virus.”

Sept. 1 Arizona Republic, “CDC Endorses New Omicron COVID-19 Booster Shots: What Arizonans Need to Know.”

Sept. 1 New York Times, “Updated Booster Shots Expected Within Days as CDC Signs Off.”

Sept. 3 CBC News, “What Protection to Expect from Updated COVID Vaccines this Fall.”

Oct. 1 NPR story, “How to Time Your Flu Shot for Best Protection.”



Felicia Goodrum, PhD, was featured in:

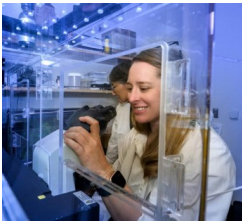
May 5 Arizona Republic Interview; USA Today, “There is a Good Chance You have a Virus Called CMV. It Might Seem to have No Effect or It Might be Life-Changing.”

May 16 Phoenix NPR KJZZ, “What Can the Few Who Don’t Get COVID-19 Teach Us?”

Michael Kuhns, PhD, was featured in:

July 2 Arizona Republic, “How ‘Autoantibodies’ Could Help Us Understand Long COVID and Other Autoimmune Diseases.”

Sept. 7 Medical Xpress, “Study Uncovers Possible Path for Improving T Cell Therapies.”



Kate Rhodes, PhD, was featured in the Sept. 22 UAHS “Tomorrow is Here” series, “Examining the Microbiota’s Role in Infection, Immune Response.”

Syed Shujaat Ali Zaidi, PhD, and **Rudramani Pokhrel, PhD**, were featured in the July 14 UAHS “Tomorrow is Here” series, “Harnessing the Power of Bioinformatics to Advance Research.”



Koenraad Van Doorslaer, PhD, was featured in the May 21 Arizona Republic, “What We Know about Monkeypox and How It’s Different from COVID-19.”

Janko Nikolich-Žugich, MD, PhD, was featured in:

May 5 KGUN Channel 9 News report, “FDA Restricts J&J’s COVID-19 Vaccine Due to Risk of Blood Clots .”

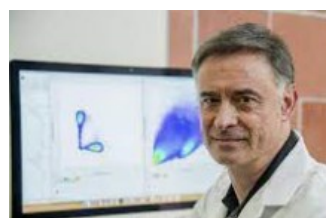
May 6 Arizona Republic “Arizona Scientists have Mapped 100,000 Coronavirus Genomes, but Say the Work Isn’t Done.”

June 10 Science Magazine, “Long Covid is a ‘National Crisis.’ So why are Grants Taking so Long to Get? ”

July 22 STAT article, “There’s No One ‘Long Covid’: Experts Struggle to Make Sense of the Continuing Mystery.”

Aug. 1 UAHS “Tomorrow is Here” series, Understanding Infectious Diseases to Improve Health.”

Aug. 26 Investor’s Business Daily, “The COVID Gambit: Pfizer, Moderna Struggle to Get the Jump on COVID.”



Publications

Akarapipad P, Kaarj K, Breshears LE, Sosnowski K, Baker J, Nguyen BT, Eades C, Uhrlaub JL, Quirk G, **Nikolich-Žugich J**, Worobey M, Yoon JY. Smartphone-based sensitive detection of SARS-CoV-2 from saline gargle samples via flow profile analysis on a paper microfluidic chip. *Biosens Bioelectron.* 2022 Jul 1;207:114192. doi: 10.1016/j.bios.2022.114192. Epub 2022 Mar 17. PMID: 35334331; PMCID: PMC8926431.

Bhattacharya D. Instructing durable humoral immunity for COVID-19 and other vaccinable diseases. *Immunity.* 2022 Jun 14;55(6):945-964. doi: 10.1016/j.immuni.2022.05.004. Epub 2022 May 10. PMID: 35637104; PMCID: PMC9085459.

Bhattacharya D, Victora GD. Boosting with updated COVID-19 mRNA vaccines. *Nat Med.* 2022 Oct 6. doi: 10.1038/s41591-022-02048-y. Epub ahead of print. PMID: 36203000.

Centuori SM, **Bhattacharya D**. Locally produced autoantibodies in cancer. *Cell.* 2022 Mar 31;185(7):1110-1111. doi: 10.1016/j.cell.2022.03.006. PMID: 35364029.

Chandrasekaran S, Kochanowsky JA, Merritt EF, Lagas JS, Swannigan A, **Koshy AA**. IFN- γ stimulated murine and human neurons mount anti-parasitic defenses against the intracellular parasite *Toxoplasma gondii*. *Nat Comm* 12(1):4605.

D'Souza LJ, Wright SH, **Bhattacharya D**. Genetic evidence that uptake of the fluorescent analog 2NBDG occurs independently of known glucose transporters. *PLoS One.* 2022 Aug 24;17(8):e0261801. doi: 10.1371/journal.pone.0261801. PMID: 36001583; PMCID: PMC9401136.

Jergović M, Coplen CP, Uhrlaub JL, Beitel SC, Burgess JL, Lutrick K, Ellingson KD, Watanabe M, **Nikolich-Žugich J**. Cutting Edge: T cell responses to B.1.1.529 (Omicron) SARS-CoV-2 variant induced by COVID-19 infection and/or mRNA vaccination are largely preserved. *J Immunol.* 2022 Jun 1;208(11):2461-2465. doi: 10.4049/jimmunol.2200175. Epub 2022 May 13. PMID: 35562119; PMCID: PMC9179171.

Jergović M, Uhrlaub JL, Watanabe M, Bradshaw CM, White LM, LaFleur BJ, Edwards T, Sprissler R, Worobey M, **Bhattacharya D**, **Nikolich-Žugich J**. Competent immune responses to SARS-CoV-2 variants in older adults following two doses of mRNA vaccination. *Nat Commun.* 2022 May 24;13(1):2891. doi: 10.1038/s41467-022-30617-9. PMID: 35610270; PMCID: PMC9130515.

Johnson HJ, **Koshy AA**. Understanding neuroinflammation through CNS infections. *Curr Opinion in Neurobiol* 76: 102619.

Klotz SA, Egurrola C, Love M, Miller MN, Bradley N, Smith SN, Najafi B, **Ahmad N**. Phenotypic frailty in people living with HIV is not correlated with age or immunosenescence. *Int J STD AIDS.* 2022 May;33(6):597-603. doi: 10.1177/09564624221091455. Epub 2022 Apr 4. PMID: 35377254; PMCID: PMC9024027.

Lee MS, Tuohy PJ, Kim CY, Lichauro D, Parrish HL, Van Doorslaer K, **Kuhns MS**. 2022. Enhancing and inhibitory Motifs Regulate CD4 Activity. *eLife* 11:e79508
Doi: <https://doi.org/10.7554/eLife.79508>

Menghani SV, Sanchez-Rosario Y, Pok C, Liu R, Gao F, O'Brien H, Neubert MJ, Ochoa K, Hellinger RD, Wang W, **Johnson MDL**. Compounds derived from N,N-dimethyldithiocarbamate are effective copper-dependent antimicrobials against *Streptococcus pneumoniae*. *bioRxiv* 2022 Sept 22. Doi: <https://doi.org/10.1101/2022.09.23.509297>

Pugh JL, Coplen CP, Sukhina AS, Uhrlaub JL, Padilla-Torres J, Hayashi T, **Nikolich-Žugich J**. Lifelong cytomegalovirus and early-LIFE irradiation synergistically potentiate age-related defects in response to vaccination and infection. *Aging Cell.* 2022 Jul;21(7):e13648. doi: 10.1111/acel.13648. Epub 2022 Jun 3. PMID: 35657768; PMCID: PMC9282846.

Read JF, Serralha M, Mok D, Holt BJ, Cruickshank M, Karpievitch YV, Broadhurst DI, Sly PD, Strickland DH, Reinke SN, Holt PG, **Bosco A**. Lipopolysaccharide-induced interferon response networks at birth are predictive of severe viral lower respiratory infections in the first year of life. *Front Immunol.* 2022 Aug 5;13:876654. doi: 10.3389/fimmu.2022.876654. PMID: 35990635; PMCID: PMC9389556.

Watanabe M, Jergovic M, Davidson L, LaFleur BJ, Castaneda Y, Martinez C, Smithey MJ, Stowe RP, Haddad EK, **Nikolich-Žugich J**. Inflammatory and immune markers in HIV-infected older adults on long-term antiretroviral therapy: Persistent elevation of sCD14 and of proinflammatory effector memory T cells. *Aging Cell.* 2022 Sep;21(9):e13681. doi: 10.1111/acel.13681. Epub 2022 Aug 16. PMID: 35975357; PMCID: PMC9470897.

Zemek RM, Chin WL, Fear VS, Wylie B, Casey TH, Forbes C, Tilsed CM, Boon L, Guo BB, **Bosco A**, Forrest ARR, Millward MJ, Nowak AK, Lake RA, Lassmann T, Joost Lesterhuis W. Temporally restricted activation of IFN β signaling underlies response to immune checkpoint therapy in mice. *Nat Commun.* 2022 Aug 19;13(1):4895. doi: 10.1038/s41467-022-32567-8. PMID: 35986006; PMCID: PMC9390963.

Zeltzer S, Longmire P, Svoboda M, Bosco G, **Goodrum F**[†]. 2022. Host translesion polymerases are required for viral genome integrity. *Proc Natl Acad Sci USA*, 119 (33):e2203203119. [PMID: 35947614](https://doi.org/10.1073/pnas.2203203119)

Zhang H, Domma A, **Goodrum F**, Moorman N, Kamil J. 2022. The AKT Forkhead box O transcription factor axis regulates human cytomegalovirus replication. *mBio*, Aug 10:e0104222. [PMID:35946797](https://doi.org/10.1128/mBio.01042-22)

Presentations

Hannah Johnson (Koshy Lab), presented a poster at the May 22-26, 16th International Congress on Toxoplasmosis and *Toxoplasma gondii* Research in Riverside, CA, “Single Cell Dissection and Isolation of Neurons in *Toxoplasma gondii*-infected Murine Brains.”

Michael Johnson, PhD, presented at the following:

May 2022 University of California Santa Cruz Department of Microbiology, Santa Cruz, CA, “Something Old, Something New, Something Borrowed, Copper II.”

May 2022 University of California San Diego Annual Institutional Research and Academic Career Development Awards (IRACDA) Retreat (Keynote), “Metals, Microbes, Media, Music, and Me.”

June 2022 Scientific Branding, Future Leaders Mentoring Program ASM MICROBE 2022, Washington D.C.

June 2022 ASM MICROBE, Washington D.C., “ASM MICROBE Hinton Lecture.”

June 2022 ASM MICROBE, Washington D.C., “Bedside to Bench: Exploiting Copper Antimicrobials to Understand Mechanisms of Copper Toxicity.”

June 20, 2022 University of Arizona’s Beyond Juneteenth, webinar panel of Black scholars.

August 2022 Gordon Research Seminar: Physiology, Host-Interactions and Vaccine Development and Epidemiology of Streptococci, Newry, ME, “Science Communication: Controlling Your Narrative.”

August 2022 University of Arizona Undergraduate Research Opportunities Consortium Research Conference Keynote Speaker.

August 2022 Gordon Research Conference: Evolving Genomes, Behavior and Pathogenic Mechanisms of Streptococci and Enterococci, Newry, ME, “How Pneumococcus Overcomes Copper Stress at the Host Pathogen Interface.”

Sept. 2022 University of Oklahoma Department of Microbiology and Plant Biology, Norman, OK, “Streptococcus vs Copper: Why You Should Care About this Fight at the Host Pathogen Interface.”

Sept. 2022 HHMI Gilliam Scholars Symposium Keynote, “The Power of Being Wrong, Negative Data, and Being Open to Learn from Your ~~mistakes~~ Mistakes.”

Dakota Reinartz (Wilson Lab) presented a poster at the July 16-20, International Congress for Mucosal Immunology conference in Seattle, Washington, “Role of AIM2 in Head and Neck Squamous Cell Carcinoma.”

Chandrasekaran Sambamurthy (Koshy Lab) presented a poster at the May 22-26, 16th International Congress on Toxoplasmosis and *Toxoplasma gondii* Research in Riverside, CA, “Using Strain-specific Differences in Encystment to Identify Novel Parasite Genes in Stage Conversion .”

Isabelle Tobey (Campos Lab) presented at the July 25-29, DNA Tumor Virus Meeting in Cambridge, UK, “HPV Inhibition of the cGAS/STING.”

Isabelle Tobey (Campos Lab) presented a poster at the Sept 16-17, ABBS Joint Biology Retreat, “HPV Inhibition of the cGAS/STING.”

Stephanie Tribble (Wilson Lab) presented a poster at the July 16-20, International Congress for Mucosal Immunology conference in Seattle, Washington, “The Innate Immune Sensor, AIM2, Promotes Type 2 Inflammation by Enhancing Tuft Cell Differentiation in the Small Intestine.”

Outreach

Felicia Goodrum, PhD,

- * Was an invited speaker for an NIH Listen Session: US Gov’t Oversight Framework for Research Involving Enhanced Potential Pandemic Pathogens (May 2022)
- * Participated in American Society for Microbiology (ASM) Advocacy Training and ASM Advocate, Hill Day (1.5 day meeting with offices of US Senators and Representatives to advocate for scientific policy) (May 2022)
- * Spoke at ASM Public Policy and Advocacy Townhall (May 2022)
- * Contributed, “The Viruses are Winning: There’s Still Time to Fight Back,” *The Hill*, 23Aug 2022, OpEd.

David Harris, PhD,

- * Elected, Co-Chair, BLCSA (Biotechnology Leadership Council of S. Arizona; now active participant in SALC) (through 2022)
- * Society for Leukocyte Biology, Publications Committee member (2022)
- * Consult with Univ. North Carolina-Wilmington regarding high-throughput COVID19 rapid antigen testing (June 2022)

Outreach, Continued

Michael Johnson, PhD,

- * National Summer Undergraduate Research Project (June 2022)
- * American Society for Microbiology: Chair for the Subcommittee on Minority Education (June 2022)
- * NIAID BACP Standing Member (July 2022)
- * NSF Research Opportunities for Undergraduate (REU) Council (Sept 2022)

Mike Kuhns, PhD, as a member of the ABBS executive committee, attends all related events for prospective trainees

Kathryn McGovern (Nikolich Lab), **Eileen Olaiz** (Nikolich Lab), and **Polly Haffner** (Admin) participated as MMI evaluators for the Fall 2022 Med School Interviews

Marta Schoenle (Bhattacharya lab) volunteers time with the Tucson Samaritans

Grants and Funding



Anthony Bosco, PhD

Sanofi-Aventis, Chang (PI); Role: Co-Investigator, *Targeting molecular airway remodeling and type 2 immune signals with Dupilumab to slow the clinical progression of CRSwNP*, 2022-2024

Kristian Doyle, PhD

1R56NS122710-01A1, *Inflammation and delayed cognitive dysfunction after stroke*, 8/1/2022 – 7/31/2023 (\$627,236)

Felicia Goodrum, PhD

Renewed: P01 grant AI127335 *Human Cytomegalovirus Dysregulation of Host Hematopoietic Progenitor Cell Signaling Pathways to Modulate Latency, Reactivation and Hematopoiesis During Transplantation*

Brea Hampton Brown, PhD, Postdoc, Nikolich Lab

4K00AG073570-02, *Evaluating the role of cytomegalovirus and age on lung immune homeostasis and responses to respiratory infections*, 9/1/2022 – 8/31/2026 (\$305,674)

Michael Johnson, PhD

Bill and Melinda Gates Foundation, *The National Summer Undergraduate Research Project*, 06/23/2022 – 05/22/2025 (\$273,471)

3R35GM128653-05S2, *Elucidating the Orchestrated Bacterial Response to Copper Toxicity Supplement*, 7/1/2022 – 6/30/2023 (\$376,062)

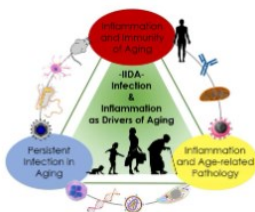
Research Experience for Post-Baccalaureate Students (REPS) in the Biological Sciences Supplement, *The National Summer Undergraduate Research Project (NSURP), a Virtual Platform for Engaging Underrepresented Minorities in STEM*, 07/22 – 07/23

Administrative Supplements to Recognize Excellence in Diversity, Equity, Inclusion, and Accessibility (DEIA), *Mentorship for Elucidating the Orchestrated Bacterial Response to Copper Toxicity*, 07/22 – 06/23

Michael Kuhns, PhD

1R21EB033841-01, *Engineering and Testing of Biomimetic Stimulators for Therapeutic Applications*, 9/16/2022 – 7/31/2024 (\$422,125)

IIDA T32 Grant



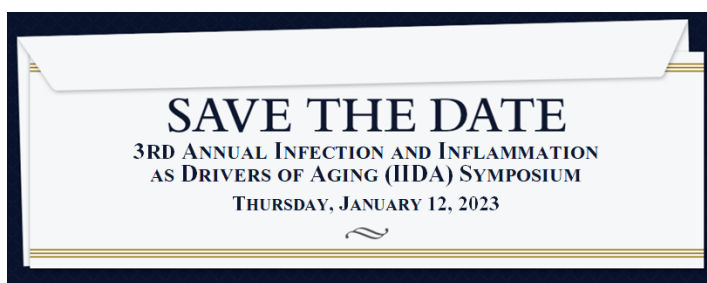
Announcing the 2022-2023 IIDA T32 Grant Awardees:

Christine Bradshaw (GPMM, Nikolich Lab)

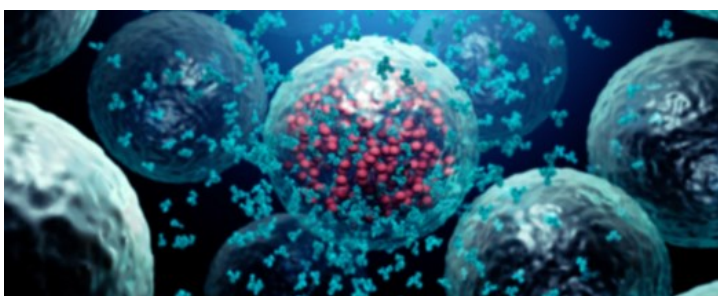
Luis Espejo (MCB, Sutphin Lab)

Ian Kline (GPMM, Purdy Lab)

William Pederson (PS, Ledford Lab)



General Announcements



The **Microbiology and Immunity Graduate Certificate** is now offered through AZ Online and Global Direct



DONUT TUESDAYS

Take the donut magnet if you plan on bringing donuts. On Tuesday, send out an email letting everyone know the donuts have arrived and where they can be found. Enjoy!!

Admin Help

Not sure who to contact for admin help? Use this [link](#) to see who is assigned what duties.

Room Scheduling

To request a room reservation, go to resource-scheduler.pharmacy.arizona.edu/s/roomgrid.pl

Well-Being Resources

Students can reach out to the [CAPS team](#) and employees and members of their households can work with [Employee Assistance Counseling](#). If you need help, or know someone who does, please use these resources. Creating community is important and you encouraged to look out for one another.

Changes in IMB Personnel

WELCOME to the following who have joined our department since May 2022:

Isabel Batres, Research Technician, Johnson Lab
Hwu Dau Rw (Dora) Chen, Research Professional, Doyle Lab
Natasha Cornejo, Student Worker, Johnson Lab
Talish Davoodian, Grad Student/Volunteer, Johnson Lab
Edgar Gutierrez, Research Specialist, Nikolich Lab
Brea Hampton Brown, PhD, Postdoc, Nikolich Lab
Olivia Ihedioha, PhD, Postdoc, Bothwell Lab
Meucci Ilunga, Research Technician, Johnson Lab
Emily Jamboretz, Undergrad/Volunteer, Goodrum Lab
Nicolas Johnston, Research Technician, Wilson Lab
Zoe Lyski, PhD, Postdoc, Bhattacharya Lab
Josie Martinez, Accountant
Astrid Maury, Research Technician, Johnson Lab
Elizabeth Sargent, Research Technician, Bhattacharya Lab
Nathan Schmidt, Research Technician, Purdy Lab
Philip Yost, PhD, Postdoc, Kuhns Lab

FAREWELL to the following who have left our department in since May:

Nicholas Armas, Purdy Lab
Rachel Crumpacker, Doyle Lab
Matthew Christofferson, Campos Lab
Vanessa Gonzalez, Admin
Nadia Hackett, Johnson/Wilson Lab
Caleb Kim, Kuhns Lab
Joshua Kochanowsky, Koshy Lab
Shuaizhi Li, Campos Lab
Zabdi Macias, Johnson Lab
Derek Resio, Koshy Lab
Alison Watson, Johnson Lab

Land Acknowledgment

We respectfully acknowledge the University of Arizona is on the land and territories of Indigenous peoples. Today, Arizona is home to 22 federally recognized tribes, with Tucson being home to the O'odham and the Yaqui. Committed to diversity and inclusion, the University strives to build sustainable relationships with sovereign Native Nations and Indigenous communities through education offerings, partnerships, and community service.