IMMUNOBIOLOGY NEWSLETTER

Spring 2025

From the Department Chair

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This edition of the newsletter is special (and especially bittersweet) because we are saying good-bye to two long-term members of our faculty – Drs David Harris (36 years at IMB) and Felicia Goodrum (19 years). David was one of the original faculty recruited by Jack Marchalonis, playing a long time role in our tripartite mission as well as in biobanking, and then contributing massively to our university's successful fight against COVID-19. Felicia arrived in 2006 and is in many ways synonymous with the IMB that we know today, not only being here throughout, but more importantly actively shaping and spearheading many initiatives, in addition to contributing the cutting-edge work on cytomegalovirus.

We wish them the very best at the next stages of their lives and thank them for the numerous contributions they made to IMB.

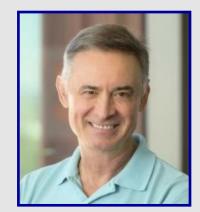
We also congratulate Professors Campos and Doyle on their promotions!!

- Janko Ž. Nikolich, MD, PhD Bowman Professor and Head, Department of Immunobiolog Regents Professor Director, the Aegis Consortium for Pandemic-Free Future Co-Director, University of Arizona Center on Aging

Janko Nikolich, MD, PhD, Honored

Dr. Nikolich was honored as a **Regents Professor** by the Arizona Board of Regents in April. This is the highest faculty award given to full professors whose accomplishments in scholarship, teaching, research, or creative work are highly acclaimed. He was also elected to the Serbian Academy of Sciences and Arts in November.

Bravo!!



Faculty Promotions

Sam Campos and Kristian Doyle have been promoted to Professor with Tenure.

Congratulations!





Caps Off to Our Winter 2024 Graduate!!



Christine Bradshaw, PhD
Christine is continuing in the
Nikolich Lab in a postdoctoral
position.

Awards and Laudatory Notes

Anita Koshy MD, received a COM-T Mentoring Award.



Mike Kuhns, PhD, was named to The Pew Charitable Trusts' 2024 class of Innovation Fund Investigators.

Rebekah Mokry, PhD, Purdy Lab, was a finalist for the 2025 Outstanding Postdoctoral Scholar Award and received an Honorable Mention from the review committee.





Christina Arnoldy, Van Doorslaer Lab, received an honorable mention for an NSF predoctoral fellowship.

Abby LoCascio, Kuhns Lab, received first place and a prize of \$250 in the Ecology and Evolutionary Biology Undergraduate Poster Session for "Engineering Biomimetic Stimulators to Bind to HER2+ Cells and Activate T Cell Defenses."



In the Public Spotlight





Deepta Bhattacharya, PhD, was featured in:

Oct 30 UAHS News and Arizona's Family website, "U of A Health Sciences Breaks Ground on the Center for Advanced Molecular and Immunological Therapies."

<u>Dec 11</u> UAHS News, "Maricopa County Doubles Support of CAMI with Additional \$4M Investment."

May 6 The Atlantic, "It's All Cronyism going Forward."



Felicia Goodrum, PhD, was featured in:

<u>Dec 11</u> UNDARK, Unleashed, "The Long, Contentious Battle to Regulate Gain-of-Function Work."

<u>Dec 24</u> LA Times, "Why Scientists Say we are Fighting H5N1 Bird Flu with One Hand Tied Behind our Backs."



Rob Jackson, PhD, (Van Doorslaer Lab) was featured in: Nov 1 BIO5 News, "Viruses, Cancer, and the Road to Research Independence."



Michael Johnson, PhD, was featured in:

<u>Jan 10</u> UAHS News, "\$1.9M NIH Grant will Allow Researchers to Explore How Copper Kills Bacteria."

Jan 13 KJZZ, "University of Arizona Researcher Using \$1.9M Grant to Study Copper's Impact on Bacteria."

Jan 15 KOLD-TV, "U of A Researcher Receives \$1.9M NIH Grant to Investigate Copper's Bacterial Properties."

Apr 10 AZPM, "Examining the Health Benefits of Copper."

Apr 16 UAHS News, "Researchers Launch Startup to Bring Novel Treatments to Patients with Asthma and COPD."

In the Public Spotlight





Michael Kuhns, PhD, was featured in:

 $\underline{\text{Nov } 6}$ UAHS News, Feature Story "Reimagining autoimmune Treatments with 5M-CAR T Cells Inspired by Nature."



Janko Ž. Nikolich, MD, PhD, was featured in:

Feb 10 UAHS News, "Janko Nikolich Elected to Servian Academy of Sciences and Arts."

Apr 10 News Arizona/KVOA, "Arizona Board of Regents Confirms Three New U of A Regents Professors."

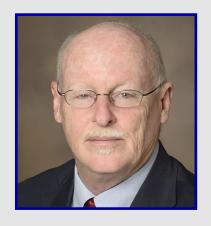
<u>Apr 11</u> Health Sciences Leadership Update, "Janko Nikolich Honored with Highest Faculty Award—Regents Professor."

Apr 21 Health Sciences Connect, "Janko Nikolich Named a Regents Professor."

Fond Farewell



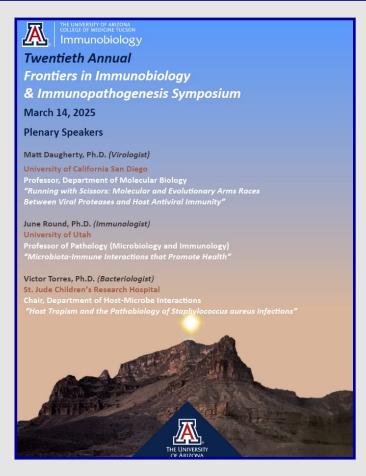
Felicia Goodrum, PhD, will be leaving the department at the end of June to take a position Dartmouth.



David Harris, PhD, retired from the University at the end of March; however, he will maintain emeritus status.



IMB Symposium



Held on March 14, 2025 our symposium featured three plenary speakers, 34 poster submissions, with nine selected for oral presentations and the remainder judged for awards by a panel of postdocs and research scientists.

Thanks to Drs. Rhodes and Arunachalam and the symposium committee for their hard work in organizing a successful event promoting scientific collaboration and excitement.

Poster Award Winners

Grad Trainees: 1st place, London McDougal (Simpson Lab); 2nd place, Sydney Verdugo (Wilson Lab) Undergrad Trainees: 1st place, Anita Garwolinska (Herbst-Kralovetz Lab); 2nd place, Jaden Todd-Nelson (Koshy Lab)



Jaden, Sydney, London, Anita



Publications

Alves E, Currenti J, Crawford K, Chopra A, Ram R, Barnett L, Read JF, Al-Kaabi M, James I, Carlson JM, Eton M, Stelmach S, Deshpande P, Pilkinton MA, McDonnell WJ, **Bosco A**, Mallal SA, John M, Kalams SA, Gaudieri S. HIV-1 adapts to HLA class II-associated selection pressure exerted by CD4+ and CD8+ T cells. Sci Adv. 2025 Feb 14;11(7):eadr4238. doi: 10.1126/sciadv.adr4238. Epub 2025 Feb 14. PMID: 39951541; PMCID: PMC11827868.

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Erlandson KM, Geng LN, Selvaggi CA, Thaweethai T, Chen P, Erdmann NB, Goldman JD, Henrich TJ, Hornig M, Karlson EW, Katz SD, Kim C, Cribbs SK, Laiyemo AO, Letts R, Lin JY, Marathe J, Parthasarathy S, Patterson TF, Taylor BD, Duffy ER, Haack M, Julg B, Maranga G, Hernandez C, Singer NG, Han J, Pemu P, Brim H, Ashktorab H, Charney AW, Wisnivesky J, Lin JJ, Chu HY, Go M, Singh U, Levitan EB, Goepfert PA, **Nikolich JŽ**, Hsu H, Peluso MJ, Kelly JD, Okumura MJ, Flaherman VJ, Quigley JG, Krishnan JA, Scholand MB, Hess R, Metz TD, Costantine MM, Rouse DJ, Taylor BS, Goldberg MP, Marshall GD, Wood J, Warren D, Horwitz L, Foulkes AS, McComsey GA; RECOVER-Adult Cohort. Differentiation of prior SARS-CoV-2 infection and postacute sequelae by standard clinical laboratory measurements in the RECOVER cohort. Ann Intern Med. 2024 Sep;177(9):1209-1221. doi: 10.7326/M24-0737. Epub 2024 Aug 13. PMID: 39133923; PMCID: PMC11408082.

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Publications, Continued

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Longmire P, Daigle O, Zeltzer S, Lee M, Svoboda M, Padilla-Rodriguez M, Bobak C, Bosco G, **Goodrum F**. Complex roles for proliferating cell nuclear antigen in restricting human cytomegalovirus replication. mBio. 2025 Mar 25:e0045025. doi: 10.1128/mbio.00450-25. Epub ahead of print. PMID: 40130902.

Maiyo BK, Loppi SH, Morrison HW, **Doyle KP**. Assessment and quantification of foam cells and lipid droplet-accumulating microglia in mouse brain tissue using BODIPY staining. Bio Protoc. 2024 Nov 5;14(21):e5107. doi: 10.21769/BioProtoc.5107. PMID: 39525975; PMCID: PMC11543782.

Mokry RL, **Purdy JG**. Glucose-independent human cytomegalovirus replication is supported by metabolites that feed upper glycolytic branches. Proc Natl Acad Sci U S A. 2024 Nov 26;121(48):e2412966121. doi: 10.1073/pnas.2412966121. Epub 2024 Nov 19. PMID: 39560652; PMCID: PMC11621781.

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Presentations

Omar Al-Ali, (Kuhns Lab) presented a poster at the <u>2025</u> Frontiers in Immunobiology & Immunopathogenesis Symposium, "Development of a 5MCAR-Based Strategy to Deorphanize TCRs."

Christina Arnoldy, (Van Doorslaer Lab) presented a poster at the <u>2025</u> Frontiers in Immunobiology & Immunopathogenesis Symposium, "HPV RNA Modifications Change with Host Keratinocyte Differentiation."

Lucas D'Souza, PhD, (Bhattacharya Lab) presented at the <u>2025</u> Frontiers in Immunobiology & Immunopathogenesis Symposium, "A Genome-Wide CRISPR Screen Reveals Novel Determinants of Long-Lived Plasma Cell Secretory Capacity."

Colin Fields, (Bhattacharya Lab) presented a poster at the <u>2024-25</u> Joint Biology Research Retreat, "The Optimization of In Vitro Plasma Cell Differentiation for Transplantable Humoral Immunity."

Felicia Goodrum, PhD, presented at the following:

<u>Feb 2025</u> Department of Molecular Microbiology (Invited Seminar Speaker) Washington University, St. Louis.

Apr 2025 Graduate Student Seminar (Invited Seminar Speaker) Auburn University.

Apr 2025 Baruch S. Blumberg Institute (Invited Seminar Speaker) Evrys Bio, Doylestown, PA.

Rob Jackson, PhD, (Van Doorslaer Lab) presented at the <u>2025</u> Frontiers in Immunobiology & Immunopathogenesis Symposium, "HPV 16 Induces Subsite-Specific Differentiation Trajectories in 3D Organotypic Tonsillar Epithelium."

Kelly King, (Van Doorslaer Lab) presented a poster at the <u>2025</u> Frontiers in Immunobiology & Immunopathogenesis Symposium, "HPV18 Alternative Splicing is Regulated by PRMT1-Dependent m6A Methylation of Viral mRNA."

Andrew Khalil, (Arunachalam Lab) presented a poster at the <u>2025</u> Frontiers in Immunobiology & Immunopathogenesis Symposium, "Systems Biological Assessment of Chronic Inflammation in Aging."

Sloane McVicker, (Rhodes Lab) presented a poster at the <u>2025</u> Frontiers in Immunobiology & Immunopathogenesis Symposium, "Investigating Regulation and Function of Putative Surface Lipoprotein Assembly Modulators (SLAM) in Commensal Neisseria."

Jeremy Meyers, (Bhattacharya Lab) presented a poster at the <u>2024-25</u> Joint Biology Research Retreat, "Uncovering the Epigenetic Factors that Drive Durable Antibody-Mediated Recall Responses."

Rebekah Mokry, PhD, (Purdy Lab) presented a poster at the <u>2025</u> COM Research Day, "Glucose-Independent Human Cytomegalovirus Replication is Supported by Glutamine Feeding Lipid Synthesis."

Evy Nguyen, (Rhodes Lab) presented a poster at the <u>2025</u> Frontiers in Immunobiology & Immunopathogenesis Symposium, "Regulatory Mechanisms of Neisseria subflava Capsule Polysaccharide Biosynthesis."

Katherine Rhodes, PhD, presented at the <u>2024-25</u> Joint Biology Research Retreat, "*N. gonorrhoeae* Infection and the Reproductive Microbiota."

Yamil Sanchez-Rosario, (Johnson Lab) presented at the <u>2024-25</u> Joint Biology Research Retreat, "Benzyl Methyl Dithiocarbamate Copper Dependent Toxicity Against MRSA Biofilms."

Fadi Sayegh, (Bhattacharya Lab) presented posters at the following:

<u>2024-25</u> Joint Biology Research Retreat, "Carbon Source Utilized by Pneumococcus Dictates Clearance by Macrophages."

<u>2025</u> Frontiers in Immunobiology & Immunopathogenesis Symposium, "Carbon Source Utilized by Pneumococcus Dictates Clearance by Macrophages."

Bao Thai, (Bhattacharya Lab) presented at the <u>2024-25</u> Joint Biology Research Retreat, "Multi-Omics Study Reveals Essential Regulators in the Development of Definitive Hematopoietic Progenitors."

Presentations, Continued

Isabelle Tobey, (Van Doorslaer Lab) presented at the following: 2024-25 Joint Biology Research Retreat, "HPV Suppression of the cGAS/STING Pathway." 2025 Frontiers in Immunobiology & Immunopathogenesis Symposium, "HPV Suppression of the cGAS/STING Pathway."

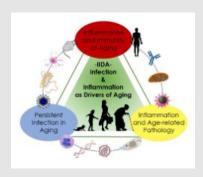
Jaden Todd-Nelson, (Koshy Lab) presented a poster at the <u>2025</u> Frontiers in Immunobiology & Immunopathogenesis Symposium, "Characterizing the Role of Ctr2 in Latent Toxoplasma gondii Infection."

Emily Vaslow, (Goodrum Lab) presented a poster at the <u>2024-25</u> Joint Biology Research Retreat, "Human Cytomegalovirus' Turnover of Low-Density Lipoprotein Receptor Confers a Replicative Advantage."

Sydney Verdugo, (Wilson Lab) presented a poster at the <u>2025</u> Frontiers in Immunobiology & Immunopathogenesis Symposium, "Toll-Like Receptor Adaptor WDFY1 Provides Protection Against Intestinal Inflammation."

Timothy White, PhD, (Goodrum Lab) presented at the <u>2025</u> Frontiers in Immunobiology & Immunopathogenesis Symposium, "HCMV pUL138 Drives Early Type I Interferon Signaling."

IIDA T32 Grant



IIDA Symposium:

The 5th Annual Symposium on Infection and Inflammation as Drivers of Aging was held on January 9. The symposium gives our grant recipients a chance to showcase their research and get feedback from members of the external academic community.





Three of our IIDA T32 trainees have been invited to participate in a rapid-fire data blitz at the Translational Medicine Symposium on **Friday, May 30**, from 9:00am-2:30 pm. More information can be found https://pers.nih.org/

Dr. Kristian Doyle was named co-PI on the grant, replacing Dr. Goodrum.

Applications for the 2025-26 training grant positions are in and selections will be announced

Online Master's Degree Program in Immunobiology



The Online Master's Degree Program in Immunobiology, Dr. Nafees Ahmad, Director, officially launched in January in connection with the Amrita dual –degree program.

The AZ Online program is now accepting applications for Fall 2025.

Grants and Funding







Rob Jackson, PhD/Koenraad Van Doorslaer, PhD

National Institute of Dental and Craniofacial Research (NIDCR) of the National Institute of Health, Assessing Human Papillomavirus Type 16 Transforming vs Productive Infections in Oral Epithelia (\$989,115).

Michael Johnson, PhD

National Institute of General Medical Sciences, *Elucidating the Orchestrated Bacterial Response to Copper Toxicity* (\$1,906,658).

Michael Kuhns, PhD

Pew Charitable Trusts, An Evolution-Directed Investigation of CD4 Ig-Domain and Function in Jawed Vertebrates (\$27,000).

General Announcements

Room Scheduling

To request a room reservation, use this <u>link</u>.

Well-Being Resources

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