Machine Learning in Immunology by Ekaterina Pylaeva

SOCIETY FOR LEUKOCYTE BIOLOGY

Vol 2 2025

In this issue.....

A Message from the President

Now is the Time to Show Your Support for SLB and the Biomedical Research Enterprise

As a member of SLB and the larger biomedical research community, now is the time to act to ensure the future of your society and science in general. You may ask yourself "*What can I do? I am just one person.*" You can do a lot; your involvement and voice matter to SLB and to the biomedical research community.

In particular, when it comes to SLB, you should consider supporting the society by attending the annual meeting if you are able. This is one of, if not the most, important way to support the society and the community of individuals who are members of SLB. This year the annual meeting will be held from October 29th to November 1st in Vancouver, BC at the Westin Bayshore Hotel, which is an amazing venue and a really fun city in which to spend a few days. Whether you are a trainee, an early career investigator or someone who has a well-established laboratory, the annual meeting is an outstanding opportunity to present your work and to receive feedback from your peers and some of the most well respected scientists from across the US and other countries. If you are a trainee, it is also an outstanding place to make connections to grow your network, to search out potential mentors and to talk with potential future employers. If you are an early career or established investigator, then the annual SLB meeting is the ideal place to build your network and to forge collaborations that will take your science to the next level. Most importantly, the annual meeting provides an opportunity to be part of the SLB community and to share your successes, challenges and vision for the future of leukocyte biology. It is not too late to register for the annual meeting this year and to submit an abstract. The Late Breaking abstract deadline is August 20th and there are still opportunities for posters, flash talks and Presidential Merit Finalist awards.

The program for the *SLB 2025 meeting "Inflammation: A Goldilocks Story"* meeting, Chaired by Laura Sly, University of British Columbia & Vidula Vachharajani, Cleveland Clinic, is outstanding includes plenary sessions on the following topics: Sepsis, Cancer Biology and Immunology, Metabolomics, and Inborn Errors of Immunity. In addition, there will be Concurrent Sessions that cover: Intestinal Organoids, Vaccines, Spatial Transcriptomics, Host-Pathogen Interactions, Ghost Cytometry, CAR in Innate Cells and Trained Immunity. In addition there will be 4 Special Interest Group sessions (SIGs), including SIG 1: The Role of Neutrophils in Chronic Inflammation, SIG 2: Novel Mediators Rejuvenating Innate Immune Homeostasis, and SIG 4: Alcohol Use Disorder and Its Impact on Immunity. Additional Program Elements in 2025 include: an Artificial Intelligence in Immunology workshop dinner, engagement and enrichment breakfast and networking sessions, poster sessions, trainee flash talks, and merit awards for all career and training levels. So, I hope to see you at the annual meeting in Vancouver this fall.

On the national front, Congress just passed "The Big Beautiful Bill", but that is NOT the bill that determines funding levels for NSF and NIH in fiscal year (FY) 2026. Earlier this year, the White House sent a budget to Congress in which the Administration wants to cut funding for the NIH and NSF. Administration recommendations for 2026 funding levels for these agencies are as follows: NIH FY 2026 appropriations are recommended at $27.5 billion, which is a 41% cut and NSF FY 2026 funding is recommended at $3.9 billion, which is a 57% cut! In addition, the Administration has tried to freeze Facilities and Administrative (F&A or indirect) costs at 15% for both NIH and NSF. If that were not bad enough, the Administration has recommended significant restructuring of both NSF and NIH to eliminate numerous Directorates, Centers and Institutes. Science is being intentionally attacked by the current Administration. Although this is very distressing, and will seriously damage the scientific enterprise in the US if carried out, none of these proposals by the Administration are fully in effect as of this time. In particular, we as a community, have the opportunity to try and make a difference regarding the FY 2026 budgets for NSF and NIH. Congress has just begun to work on the appropriations bills that determine funding for NSF and the NIH in FY 2026. The Senate and the House Appropriations Subcommittees that determine funding for NSF and NIH are currently in the process of deciding the level of funding for these federal agencies and this will continue throughout the summer at which time, presumably, the Senate and House Appropriations Committees will finalize a budget to be sent to the President.

If you have been able to listen to the Senate and House hearings pertaining to NIH and NSF funding, the good news is that members of Congress seem to appreciate the importance of the NIH and NSF, and the role they play in driving scientific research in the US. We, as a community, need to make every effort to reach out to our Senators and our Representative to let them know the critical role that funding for NSF and NIH plays in driving local economies across the country, providing funds to discover foundational knowledge that is used to create diagnostics and treatments for serious diseases and the effect that this has on the health and wellbeing of the American public. If you have not already done so, please take the time to call and/or write to your Senators and Representative to make the case for increasing funding to the NIH and NSF in 2026. Also, be on the lookout for e-action alerts that come from professional scientific associations and societies that are sent out. Organizations that provide resources to help you contact your representatives include SLB, FASEB, AAAS and others. You can go to GovTrack.us to obtain contact information also. So, please take the time to speak up for science and to advocate for increased funding to the NIH and NSF.

Spotlight on Unconventional T Cells

Please enjoy this new feature highlighting different cell types. This issue features a look at Unconventional T Cells as provided by Isabelle Berthelot and Namita Rout. Contact us if you have an idea for a future feature!

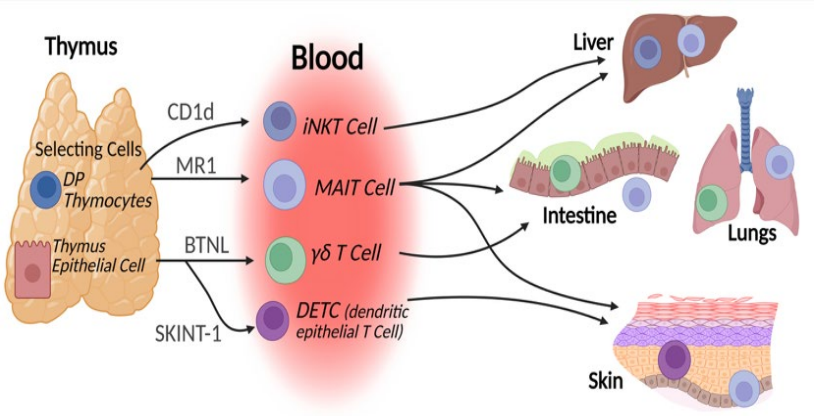
Unconventional T cells – Bridging Innate and Adaptive Immunity

Isabelle Berthelot1, Namita Rout1,2
1Division of Microbiology, Tulane National Primate Center, Covington, Louisiana
2Department of Microbiology and Immunology, Tulane University School of Medicine, New Orleans, Louisiana

Introduction: Unconventional T cells, including gamma delta (γδ) T cells, invariant NKT (iNKT), and mucosal-associated invariant T (MAIT) cells, are a distinct class of leukocytes that operate at the interface of innate and adaptive immunity. Unlike "conventional" CD4+ T cells and CD8+ T cells, which rely on MHC-restricted peptide recognition, unconventional T cells are characterized by their ability to recognize lipid, metabolite, or stress-induced antigens via non-polymorphic antigen-presenting molecules such as CD1d (iNKT)1, MR1 (MAIT)2, butyrophilin-like molecules (γδ T cells)3, or SKINT-1 (DETC; dendritic epidermal γδ T cells)4. Positioned at barrier sites and capable of responding rapidly to infection or injury, unconventional T cells play key roles in tissue homeostasis, immune surveillance, and early pathogen defense5. Their dual identity offers novel opportunities for therapeutic intervention in infections, cancer, and inflammatory diseases.

Phenotypic and Functional Characteristics: Unconventional T cells exhibit a hybrid phenotype, combining innate-like rapid response capabilities with adaptive-like specificity. γδ T cells, abundant in epithelial tissues such as the skin and gut, can recognize stress ligands and phosphoantigens in a TCR-dependent but MHC-independent manner3, 6. iNKT cells, restricted by CD1d, rapidly secrete cytokines such as IFN-γ, IL-4, and IL-17 upon activation, enhancing maturation and cytotoxic effector functions of dendritic cells, B cells, and NK cells1. MAIT cells recognize vitamin B metabolite derivatives presented by MR1 and are highly responsive to bacterial and fungal infections2. Unconventional T cells are pre-armed with effector molecules and can respond without prior clonal expansion, a hallmark of innate immunity. However, they also undergo antigen-driven expansion and can exhibit memory-like characteristics, anchoring them within the adaptive spectrum7, 8.

Developmental Pathways: The development of unconventional T cells is distinct from that of conventional αβ T cells, including unique selection cues and thymic programming9. γδ T cells diverge early in thymic development driven by ligand-mediated positive selection, a process that shapes their ability to home to specific tissues. iNKT and MAIT cells undergo agonist selection in the thymus, where strong TCR signaling in response to self-lipids (CD1d) or metabolite antigens (MR1) drives their expansion and functional programming. Unconventional T cells often express transcription factors such as PLZF, which endow them with innate-like effector profiles9. Post-thymic maturation of unconventional T cells, especially γδ T cells, further shapes their function, with peripheral cues and microbial exposure influencing their abundance and phenotype10. Understanding these developmental checkpoints is critical to manipulating unconventional T cells for therapeutic purposes.



The developmental origin and tissue distribution of unconventional T cells. These cells uniquely bridge innate and adaptive immunity, mediating rapid innate-like cytokine and cytotoxic responses, alongside adaptive-like antigen-specific and memory functions. While iNKT and MAIT cells acquire effector functions during thymic development, γδ T cells can also mature in the periphery, responding to tissue-specific self-ligands and pathogen-derived antigens to drive clonal expansion and memory.

Roles in Immunity and Homeostasis: At mucosal and epithelial surfaces, unconventional T cells function as sentinels, initiating immune responses to pathogens and contributing to tissue integrity. γδ T cells and MAIT cells produce IL-17 and IL-22, promoting barrier function and antimicrobial defense11, 12. iNKT cells modulate inflammation and assist in the resolution of infection through both cytotoxic and regulatory mechanisms1. Beyond infection, unconventional T cells influence tissue repair, angiogenesis, and metabolic homeostasis. However, their dysregulation can contribute to chronic inflammation, autoimmunity, and tissue pathology, as seen in inflammatory bowel disease, psoriasis, and asthma13, 14. Thus, they play a dual role, providing both protection and, in some contexts, pathogenic potential.

Clinical and Therapeutic Potential: The unique features of unconventional T cells have spurred growing interest in their clinical applications. γδ T cells are being explored in CAR-T cell therapy due to their MHC-independent targeting and tumor infiltration capacity6, 15. iNKT cells are being tested in cancer immunotherapy and vaccine adjuvant platforms, due to their potent cytokine responses and ability to shape broader immune activation16, 17. MAIT cells show promise in infectious disease contexts, though challenges remain in understanding their full antigen repertoire and tissue-specific roles18. A major hurdle in harnessing these cells is the limited mechanistic understanding and difficulty in expanding them ex vivo. Increased research investment is essential to unlock their translational potential.

Future Directions and Perspectives: Unconventional T cells are a small but powerful class of leukocytes that serve as a bridge between innate and adaptive immunity. Their rapid, tissue-targeted responses and non-classical antigen recognition mechanisms provide them unique roles in infection, inflammation, and immune regulation. Despite their critical functions, they remain understudied in both basic and translational immunology. With growing interest in tissue-resident immunity and immune-based therapies, unconventional T cells represent a promising yet understudied frontier for both scientific discovery and clinical advancement. Expanding research efforts to delineate the innate versus adaptive functions of these cells in both infectious and noninfectious disease contexts holds significant promise for informing the development of targeted immunotherapies.

References

2025 Honorary Life Members Inductees


Xin Chen

The SLB Awards and Honors Committee is pleased to announce the 2025 inductees for the society's Honorary Lifetime Awardee. Please join us in congratulating Xin Chen, and recognizing, Michael Cancro (posthumously) for their accomplishments and contributions to the science and community. You can learn more about them and see all the awardee members over the years here. Enjoy the interview feature with Xin Chen in this issue of iSLB and come see his presentation at SLB 2025 **"The Critical Role of TNFR2 in Immunosuppression Driven by Translocated Microbiota in Colorectal Cancer."**


Michael Cancro

Coming FREE FOR ALL Webinars

- July 16th 12-1pm eastern - Hind Rafei, *MD Anderson Cancer Center*, presents **"Targeting the tumor microenvironment to enhance CAR-based immunotherapies in solid tumors".** Learn more and register for this LIVE ONLY event.
- July 23rd 12-1pm eastern - Maria Casanova-Acebes, *CNIO*, presents **"TREMMing on lung metastatic immunity".** Learn more and register for this LIVE ONLY event.
- August 5th 12-1pm eastern - John Quinn, *Director, Science & Product Development, BD Bioinformatics, BD Life Sciences,* presents **"Data-Driven Insights and Future Trends in Cytometry: AI, Automation, and Beyond"** Learn more and register

Dr. Xin Chen Interview: A Lifetime of Discovery in Regulatory T Cell Biology

Dr. Xin Chen, recipient of the Society for Leukocyte Biology's Lifetime Honorary Membership Award, reflects on his groundbreaking research in regulatory T cells and the unexpected discovery that reshaped our understanding of TNFR2 signaling. *An interview by Elizabeth Fitzpatrick*

Career Timeline

1984-1991: Traditional Chinese Medicine Education (Bachelor's, Master's, and Doctorate degrees)

1991-1998: Clinical Practice and Research Leadership in China (Shenzhen Red Cross Hospital)

1998-1999: Postdoctoral Research, University of Portsmouth, UK

1999-2014: Research Career at U.S. National Cancer Institute (NIH) - From Visiting Fellow to Senior Scientist

2013: PhD in Immunology, Radboud University, Netherlands

2014-Present: University of Macau - Professor to Director of State Key Laboratory

2025: Society for Leukocyte Biology Lifetime Honorary Membership (First Asian recipient)

Q: What first drew you to the biology of Treg cells? Was there a particular moment or experience that sparked your fascination with these cells?

A: My journey into the world of regulatory T cells (Tregs) began with a fascination for the immune regulatory effects of Chinese herbs. While these herbs have been used for thousands of years to treat diseases, there is little known about their mechanisms of action. This curiosity led me to the Laboratory of Molecular Immunoregulation at National Cancer Institute (NCI) in the late 1990s, where I had the privilege of working under the guidance of Dr. Joost J. Oppenheim.

The immune system incredible complexity fascinated me, and I realized that understanding its central regulatory mechanisms would be key to unraveling both its mysteries and the therapeutic effects of traditional Chinese herbs. Regulatory T cells emerged as the perfect focus for my research, given their critical role in maintaining immune homeostasis. They act as peacekeepers, ensuring that our immune responses are appropriate and do not spiral out of control.

The discovery of Tregs as master regulators sparked a deep fascination that continues to drive my work today. Exploring how Treg cells function and their potential therapeutic applications has been an exciting and rewarding journey, one that I am eager to continue.

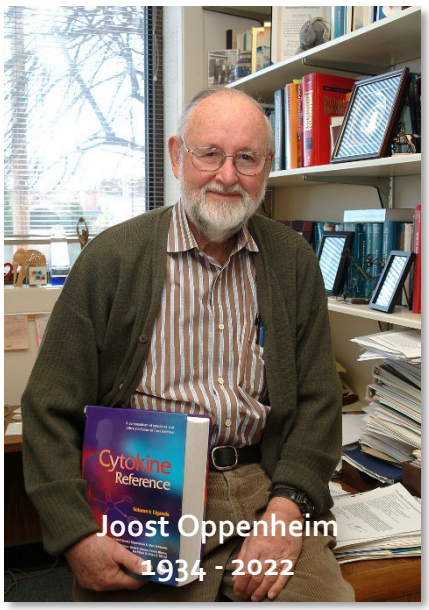
Q: Looking back at your early career, what surprised you most about the field as it evolved?

A: Reflecting on the early days of my career, one of the most surprising and exciting developments in the field has been the evolving understanding of Tregs in cancer immunotherapy. Early studies, particularly those using the PC61 antibody to deplete CD25+ cells in certain mouse tumor models, revealed something remarkable: depleting Tregs at the right time point could lead to tumor regression and even long-term survival.

This discovery highlighted the potential of targeting Tregs as a promising strategy for treating cancer. It's fascinating to see how these insights have opened new doors for innovative therapies, giving hope to patients and pushing the boundaries of what we thought was possible in immunotherapy. The progress has been truly inspiring!

Q: Who were your most influential mentors, and what lessons from them do you still carry today?

A: Throughout my academic journey, I had the privilege of learning from many remarkable mentors, each leaving a positive mark on my growth. Among them, Dr. Joost J. Oppenheim stands out as the most influential figure in shaping my scientific career. As a member of my PhD mentor panel in immunology, he not only guided me with his expertise but also imparted a lesson that continues to resonate deeply with me: the importance of asking "So what?" This simple yet profound question serves as a reminder to focus on the physiological relevance of research and emphasize its clinical and therapeutic implications. Dr. Oppenheim's approach encouraged me to think critically about the broader impact of scientific discoveries and to strive for work that contributes meaningfully to society. His mentorship has been instrumental in every endeavor, constantly aiming to bridge the gap between research and real-world application.



Q: What's your most unexpected or serendipitous discovery, and how did it change your thinking?

A: During my time at NCI, we were using the MOG-induced murine model of Experimental Autoimmune Encephalitis (EAE) to investigate Treg cells and their role in pathogenesis. We wanted to measure the effect of individual components of the immunogen (MOG33-55 peptide, Complete Freund's Adjuvant, Pertussis toxin (PTx) on the activity and frequency of the Tregs. Unexpectedly, administering PTx alone to IL-6 KO mice led to a significant expansion of Tregs, although the same treatment markedly reduced the number of Tregs in WT mice. Further investigation uncovered that TNF, through its interaction with TNFR2 (TNF Receptor type II), preferentially promoted Treg proliferation. This was counter intuitive as anti-TNF therapy is the first line treatment for autoimmune diseases and the prevailing view in 2007 was that TNF-TNFR2 signaling inhibited Treg activation. Our unanticipated findings were subsequently confirmed and had a profound impact on the field, laying the groundwork for the development of TNFR2-targeted therapies by pharmaceutical companies.

This experience taught me an essential lesson: even seemingly improbable results born from carefully performed experimentation have the potential to generate far-reaching and transformative insights.

Q: Of all your research contributions, which finding do you think will have the most lasting impact on the field?

A: One of the research discoveries I believe will leave a lasting impact is the role of TNFR2 signaling in the activation of Treg cells. Back in 2007, this concept challenged the dominant perspectives in the field, but I am proud to see it now widely validated and substantiated by many groups around the world. Even more thrilling is the ripple effect this finding has had in the pharmaceutical industry. Several companies have developed therapies targeting TNFR2, with seven agents already approved by the FDA for clinical trials. Remarkably, one of these therapeutics has been granted orphan drug status for the treatment of cutaneous T cell lymphoma by FDA. It's incredibly fulfilling to see how our work on TNFR2 and Tregs has become a foundation for progressing these therapies into clinical development, opening the door to cutting-edge treatments that could have a meaningful impact on patients' lives.

Q: How has your understanding of Treg biology (or leukocyte biology) changed from when you started to now?

A: My understanding of Treg biology has changed considerably since I first began exploring the topic. Early studies suggested that Tregs were more prone to death compared to effector T cells; however, later findings demonstrated that Tregs are actually more robust and resistant to death induction in many cases, as compared to effector T cells. It was also once presumed that Tregs lost their suppressive capacity during proliferation, but subsequent research confirmed that they retain their powerful immunosuppressive functions even while replicating. Another early misconception was that TNF exposure would compromise Treg activity. Yet, it is now well-established that TNF, through its interaction with TNFR2, is essential for activating, expanding, and stabilizing Tregs, as well as enhancing their functionality in vivo. I feel privileged to have worked alongside Dr. Oppenheim in contributing to breakthroughs that have helped reshape our understanding of Treg biology. It's incredible to witness how much progress has been made in this fascinating field!

Q: What keeps you energized about science after all these years?

A: I've always had a deep passion for science since my teenage years and has stayed with me ever since. Initially, I trained as a Chinese medical doctor, following a family tradition that spanned generations. While I respected and valued this path, my true dream was to become a scientist. This dream began to take shape when I received research training at the National Cancer Institute (NCI), which was an incredible opportunity, thanks to Dr. Joost J Oppenheim. Today, I feel fortunate to further my scientific endeavors at the University of Macau, with support from Macau funding agency FDCT (Science and Technology Development Fund), whose grants provide the foundation for advancing and fueling my research journey. Balancing reverence for traditional medicine with a drive to pursue new scientific horizons keeps me continually inspired and excited for the future of scientific discovery.

Q: How do you balance the demands of research with other aspects of your life?

A: Balancing the demands of research with other aspects of life can be quite challenging, but having a supportive family makes a world of difference. My wife is an incredible life partner who handles most of our family obligations, allowing me to dedicate more time and focus on my research work. Her support and understanding are invaluable, and I am truly grateful for that.

Q: What advice do you give to young scientists who are just starting their careers in immunology?

A: To all the young scientists stepping into the world of immunology, here's my key advice: keep your curiosity alive, stay dedicated, and be resilient. Pick research areas that you're passionate about and dive into them. Science is anything but a straight and simple path—it's an unpredictable journey full of twists and discoveries. Trust in the importance of your contributions to the ever-evolving field of immunology.

Q: What emerging areas in leukocyte biology excite you most?

A: I am quite excited about the expanding role of TNFR2 signaling in regulatory T cells (Tregs) beyond traditional immunology. Recent findings suggest that TNFR2-mediated activation of Tregs may result in the relief of neuropathic pain. This opens up fascinating possibilities for understanding how immune regulation intersects with neural pathways. Intriguingly, it raises the question of whether such mechanisms could underlie the analgesic effects observed in acupuncture therapy. Exploring this cross-disciplinary frontier could not only deepen our understanding of leukocyte biology but also pave the way for novel therapeutic strategies that harness immune-neural interactions.

Q: Can you tell us more about your current research?

A: Currently, my laboratory focuses on the translational aspects of TNFR2 – induced expansion of Treg cells and how this mechanism can be exploited to treat cancer, autoimmune diseases and other conditions. We are screening compounds, including traditional Chinese herbs, for their ability to interact with TNFR2 and subsequently expand Tregs and inhibit aberrant immune responses, or eliminate Tregs and enhance anti-tumor immune responses.

Q: If you could solve one major question in the field, what would it be?

A: Despite their immense potential in treating autoimmune and inflammatory diseases, clinical trials on Treg adoptive transfer therapies have largely failed. A key challenge lies in the difficulty of maintaining Treg stability and purity during ex vivo expansion. Current isolation methods lack reliable surface markers for viable human Tregs, often resulting in contamination with effector T cells that outcompete Tregs during expansion due to their higher proliferative capacity. I believe that uncovering the role of TNFR2 signaling in Treg biology could be transformative. Targeting this pathway may enable selective expansion and stabilization of Tregs, overcoming the limitations of current approaches. Moreover, TNFR2-targeted therapies could open new avenues for modulating immune responses by Targeting Tregs—either enhancing them in cancer or suppressing them in autoimmunity — yet no Treg cell-targeted therapies currently exist.

Q: What does receiving this lifetime honorary membership from the Society for Leukocyte Biology mean to you personally?

A: First and foremost, it feels like a powerful affirmation—being recognized by a prestigious scientific community with a long-standing history means I am no longer just a self-proclaimed scientist but truly accepted by my peers. This honor validates years of dedication and hard work, especially in my research on TNFR2 role in Tregs, which I consider my most significant scientific contribution to date. It's particularly gratifying to see this work officially acknowledged, especially as it has helped lay the foundation for clinical advances: the FDA has approved clinical trials for seven TNFR2-targeted drugs, with one receiving orphan drug designation. Our research has meaningfully influenced this development.

I'm deeply honored to be the first Asian scientist among the 52 recipients in SLB's history. This recognition sends a powerful and encouraging message to fellow scientists of Asian and other ethnic backgrounds: your contributions to science can be seen, valued, and celebrated—regardless of where you come from.

Q: How has your involvement with SLB shaped your career and the broader scientific community?

A: Ten years ago, I transitioned from the US (NCI) to the University of Macau, a school on a small island whose economy is largely driven by casino industry. Despite the geographic and institutional shift, my connection to the international research community has remained strong, thanks in large part to my continued involvement with the Society for Leukocyte Biology (SLB). The SLB has played a vital role in bridging the distance, consistently providing updates and fostering communication within this global network.

FASEB CORNER

FASEB
Federation of American Societies for Experimental Biology

Collaborative Advocacy for Biomedical Research – Amid ongoing disruptions to research related to actions of the new Administration, FASEB hosted the federation's annual Capitol Hill Day on March 19, 2025. More than 50 scientist advocates from 29 states representing all 22 FASEB member societies participated in meetings with 96 members of Congress (50 Senate and 46 House of Representatives offices). Organized and funded by FASEB's Office of Public Affairs, this annual event allows members of the FASEB Board of Directors, Science Policy Committee, and Howard Garrison Advocacy Fellows to build strong relationships with their members of Congress and bring the voice of scientists to Capitol Hill. SLB was represented by Lou Justement, PhD.

During their congressional meetings, advocates discussed the firing of federal employees from key federal science agencies such as the National Institutes of Health (NIH), and the issue of capping facilities and administrative costs and how this would impact institutions, as well as increasing the costs of research. Additionally, offices were given FASEB's fiscal year (FY) 2026 funding recommendations and factsheets with the latest data showing the impact of science funding by state and congressional districts. A video with highlights from FASEB's Capitol Hill Day is available on LinkedIn. Other Capitol Hill Day highlights were summarized on FASEB's X and Bluesky accounts.

FASEB Engages in Legal Advocacy – In May, the FASEB Board discussed and agreed FASEB should use the legal system as an advocacy tool in this challenging environment for science. Engaging with the judicial branch represents a substantial expansion of FASEB's advocacy activities which have traditionally focused on the legislative and executive branches of government. The Board's decision led to FASEB joining the American Society for Biochemistry and Molecular Biology, the American Society for Cell Biology, and the American Society for Microbiology in filing an amicus brief asking the court to hold recent executive orders resulting in termination of grants supporting young scientists as unlawful and to order NIH to restore funding speedily as requested in American Public Health Association v. NIH. FASEB and the other organizations were grantees of the NIH Maximizing Opportunities for Scientific and Academic Independent Careers (MOSAIC) program, whose awards were terminated in response to the administration's Executive Order on Diversity, Equity,

and Inclusion. MOSAIC was an initiative that helps promising scientists from rural and economically disadvantaged communities, as well as those underrepresented in medical research, make the transition into research-intensive career positions.

On June 16, a U.S. District Court ruled that directives leading to the termination of the MOSAIC grants (as well as other terminated NIH awards) were illegal. Although the judge's ruling will not immediately reinstate the terminated grants, it is an important first step in ensuring that scientists underrepresented in biomedical research have access to funding to pursue research-intensive careers. FASEB issued a statement applauding the judge's decision.

Science Policy Committee Comments on Key Regulations and Policy Issues – The Science Policy Committee (SPC) develops position statements on policy issues of interest to the Federation. Between March and June, the SPC issued a statement on the retirement and adoption of research animals, sent a letter to Jayanta Bhattacharya, MD, the new NIH Director, on the agency's initiative to reduce the use of animals in research, and responded to five Requests for Information (RFIs) and notices from federal agencies seeking stakeholder input on proposed regulations and policies related to the following issues:

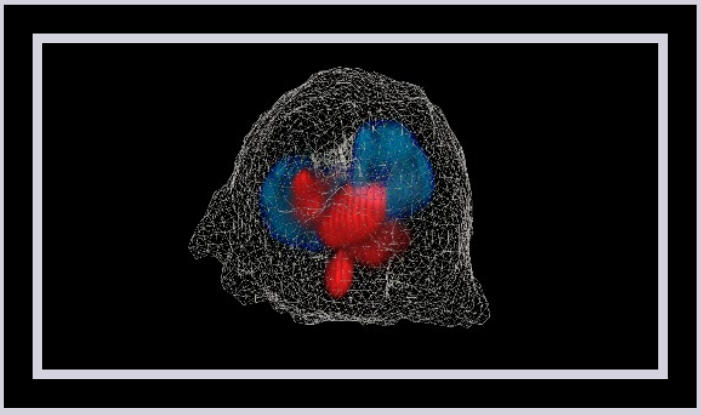
- The development of a Generative Artificial Intelligence Action Plan proposed by the National Science Foundation (NSF) and the White House Office of Science and Technology Policy
- The Department of Homeland Security's Information Collection Request to extend the current requirement for collecting training plans from STEM Optional Practical Training students
- NSF's Information Collection Request regarding the Education and Training Application Pilot
- A Notice of Proposed Rulemaking issued by the Office of Personnel Management seeking to reclassify senior policy-influencing positions within the civil service
- A RFI issued by the National Academies of Sciences, Engineering, and Medicine Committee on Improving the Regulatory Efficiency and Reducing Administrative Workload to Strengthen Competitiveness and Productivity of U.S. Research seeking community feedback on areas in greatest need of reform to clarify and streamline administrative oversight

FASEB is grateful to Robert A. Clark, MD, for his service as SLB's representative to the Science Policy Committee from 2019-2025.

Supporting International Scholars – FASEB issued a statement expressing concern about recent actions affecting international scholars studying in the U.S., including having visas terminated without due process or proper notification. Although visas were re-instated for many of the affected individuals, the State Department issued new guidance in June requiring additional vetting of all applicants for student and exchange visitor visas, including review of social media accounts.

FASEB's statement acknowledged that graduate students and postdoctoral scholars from around the world have played a critical role in the U.S. research enterprise and urged the administration to seek input from stakeholders prior to developing and implementing any new policies related to the provision of visas for international scholars.

Expanding FASEB's Presence on Social Media – FASEB recently joined Bluesky as part of our mission to promote collaborative advocacy and expand the federation's presence on social media. Follow FASEB on Bluesky to keep up with advocacy and science policy developments in real time, read about the latest updates on research, and connect with other FASEB member societies. FASEB's Bluesky account will also promote member society activities and priorities.



SLB's Annual Image Contest

Thank you to our members who participated in the annual Image Contest in celebration of the International Day of Immunology. Congratulations to our first-place winner, Stephania Libreros and her image titled "Ghostrophil". See all the winners and look for another opportunity to participate April 2026.

The iiSIAR Study Group: A Rising Community in Innate Immunity and Inflammation Research

by Esther Silberberg, iiSIAR News Bulletin editor

In 2023 The European Federation of Immunological Societies **(EFIS) has launched a Study Group on Innate Immunity in Sterile Inflammation, Autoimmunity, and their Resolution (iiSIAR). This endeavor** has quickly become an essential platform for innate immunity and inflammation researchers. The iiSIAR Study Group engages principal investigators, early-career scientists, and trainees across Europe and beyond, fostering collaboration, advancing knowledge and data dissemination, and inspiring translational breakthroughs in immune-mediated disease. At the heart of iiSIAR's success lies both its governing Scientific Board and its energetic young investigator teams. Under the guidance of seven leading European immunologists, Professors Amiram Ariel, Maciej Kurpisz, Jo Van Ginderachter, Sylvaine You, Ari Waisman, Adriano Rossi, and Annabel Valledor-Fernandez, the group receives robust scientific direction. Complementing this leadership are the Young Study Group (ySG) and the International Support Team (IST), whose initiatives empower postdoctoral researchers, promote cross-laboratory exchange, and enable industry partnerships.

The inaugural iiSIAR Forum Meeting, held June 24–26, 2024 in Poznań, Poland, offered concrete expression of the group's mission. The gathering welcomed a variety of scholars, including group heads, postdoctoral fellows, and graduate students. Over a span of three days, participants engaged in high-caliber lectures, poster sessions, and lively networking events. The program addressed critical themes in sterile inflammation, autoimmunity, and resolution biology, spotlighting novel macrophage effectors, intricate immune signaling, and pathways toward therapeutic modulation. Poznań, with its rich history and growing reputation as a center of biomedical innovation in Europe, symbolized iiSIAR's vision of scientific inclusivity and interdisciplinary exchange. The group's influence expanded this past April at the 4th Resolution Days meeting in Frankfurt, where the second iiSIAR forum served as a visible partner and scientific force. Dedicated to the theme "The Resolution of Inflammation: New Avenues and Opportunities for Innovative Therapeutics," the three-day gathering convened immunologists, clinicians, and pharmaceutical scientists. iiSIAR not only contributed lectures and discussion panels, but also facilitated trainee engagement through the award of SLB postdoc membership prizes. These awards, announced onsite, recognized excellence in abstract submissions from iiSIAR's young members, and were paired with travel scholarships from EFIS that supported their attendance. The event highlighted iiSIAR's growing role across immunology platforms and its dedication to amplifying the careers of emerging researchers. iiSIAR's expanding international activities also included organizing the EFIS symposium at the American Association of Immunologists (AAI) 2025 Annual Meeting in Hawaii. There, iiSIAR moderated an EFIS-sponsored symposium titled "*Myeloid Cells in Inflammation and Tissue Fibrosis*", featuring distinguished speakers Adriano Rossi (UK) and Aline Bozec (Germany), with chairs Annabel Valledor-Fernandez (Spain) and Amiram Ariel (Israel) also presenting talks. This marked iiSIAR's first official presence at AAI, further extending its collaborative reach across continents.

From left to right: Sylvain Perruche, Amiram Ariel; Janos Filep, 8 awardees; Andreas Weigert and Susanne Behlke

Alongside in-person events, iiSIAR's standing has been reinforced through a growing virtual seminar series. Held monthly as free, web-based webinars, the series features tandem lectures from experts around the globe. Recent talks have covered advanced imaging techniques, single-cell profiling, and novel pathways in immune cell regulation. The virtual format has allowed seamless participation from diverse time zones, furthering iiSIAR's global reach and fostering regular scientific exchange between major meetings. iiSIAR is also engaged in building educational and career-development resources. A soon-to-be-launched podcast series, produced by the ySG, will feature informal conversations with senior scientists on their own experience in navigating academic paths, making important decisions, and work–life balance. The series will aim to provide early-career researchers with candid insights and strategies for success in the biomedical sciences.

In a major expansion of its network, iiSIAR has formally partnered with the Society for Leukocyte Biology (SLB). As part of this collaboration, iiSIAR and Heel Ltd will host a guest symposium at the SLB Annual Meeting, to be held in Vancouver from October 29 to November 1, 2025. Chaired by Prof. Amiram Ariel, the symposium, titled "Immunomodulatory Ligands in Myeloid Inflammation and

Autoimmunity", will feature senior investigators as well as a selected national coordinator from the ySG, further emphasizing the group's mission to integrate early-career perspectives into high-profile international venues.

Central to iiSIAR's operations is its continually updated website which serves as a hub for event announcements, seminar announcements, membership applications, and professional resources. The website allows researchers to sign up for the iiSIAR mailing list and a monthly News Bulletin and offers sponsorship opportunities for the group's ongoing mission to advance innate immunity and inflammation research and education. Supporting its members remains central to iiSIAR's efforts. By offering travel scholarships, priority presentation opportunities, virtual training, and visibility through monthly newsletter highlights, iiSIAR empowers trainees to gain recognition and network effectively. Its International Support Team coordinates with industry and funding agencies to increase visibility and resources for young researchers, while the Young Study Group establishes peer mentorship and resource sharing networks across European labs. Looking ahead, iiSIAR is actively planning its 2026 Annual Forum, which will take place in Vilnius, Lithuania. Colleagues and Institutions across Europe interested in hosting future events, such as the annual forum, summer schools, or focused meetings can contact Prof. Ariel directly. In parallel, proposals are underway for a special issue in an immunological journal dedicated to sterile inflammation research. Further collaborative symposia with SLB and the Resolution Days series are also planned, alongside efforts to broaden ySG and IST representation in North and South America, Asia, Africa, and Australia. The group's ongoing emphasis on Sterile Inflammation, Autoimmunity, Cancer, and their associated resolution pathways and therapeutics promises to unify basic science, translational research, and multi-disciplinary collaboration through innovative events and publications.

For readers of the **iSLB newsletter,** iiSIAR offers both intellectual stimulation and tangible opportunities. By joining iiSIAR's mailing list, participating in its seminars, and engaging with its international network, members can enhance their scholarly impact and shape the future of innate immunity and inflammation research. In under two years, iiSIAR has carved out a significant presence in inflammation immunology. Through its engaging website, Annual Forums, ongoing webinar series, interaction with European COST actions, and partnership with SLB, it is cultivating a vibrant community of scientists committed to advancing therapeutic resolution of inflammation. Above all, iiSIAR's inclusive and excellence promoting approach positions it as a premier catalyst for progress in the field.

Science in the Forest: Reflections from the GRC Phagocyte Conference 2025

By Ramizah Mohd Sabri, PhD

Tucked in the mountains, Waterville Valley is the kind of place that makes you check your phone twice—first for reception, then to be sure the date has not rolled back to childhood summers at camp. Wooden lodges, rivers and a lake that glint through the trees set a refreshingly un-academic stage for five days devoted to the science of phagocytes. The setting calmed the usual "networking nerves" which proved to be advantageous for students and even post-docs like me when interacting with professors and project scientists.

It was not all relaxing though, as the GRC schedule is tight and condensed. Surprisingly, the quality of talks and discussions made time fly by as fast as the ski lift that was operating on the site. Stepping outside my own project for a week recalibrated my perspective as I did not find myself thinking about the nuances of a specific experiment, but instead the bigger picture of what I am studying. In the lab, it is easy to obsess over the next figure panel or the stubborn control that would not cooperate. Here, surrounded by complementary work—from cell death mechanisms to phagocyte-microbe interactions—I could see the broader tapestry our field is weaving. That mental zoom-out is liberating since it reframes my daily troubleshooting as one small node in a much larger effort to understand innate immunity.

What struck me most was the openness to talk science. Poster sessions were scheduled so that faculty stayed, not drifted off to dinner. I had fruitful conversations with scientists from different sectors and levels of their career, and no one was clouded with ingenuine interest. Moments like that remind me why scientific training needs spaces like GRCs: they show early-career researchers that big questions do not belong only to big names.

As the shuttle picked us up on the last day, I felt both exhausted and strangely re-energized. The camp-like seclusion, the laser-focused science, and the generosity of the community combined into something bigger than a conference. It was a reminder that progress happens not just at the bench, but in conversations that stretch outside of our lab coats, with coffee in our hands.

Member Interview:
Sylvain G. Bourgoin, PhD

by Carlos Rosales

Dr. Sylvain G. Bourgoin is Full Professor at the Department of Microbiology-Infectiology and Immunology in Laval University, Quebec, Canada. Dr. Bourgoin studied Physiology and Biochemistry at Dijon University in France and got a Ph.D. in Life Sciences from University Paris XI, also in France. Next, he relocated to Canada for postdoctoral training at the Rheumatology & Immunology Center in Quebec, and at the Hospital for Sick Children in Toronto. It was in Canada that he developed an interest on lipid mediators and cell signaling in innate immunity, particularly on neutrophils. Afterwards Dr. Bourgoin joined the Faculty of Medicine at Laval University, where he established his independent career, concentrating on studies of phagocytic cells. He rose through the ranks and became a full professor in 2002. He has published more than 110 articles and has mentored dozens of students.

As a young investigator interested in immune cells (leukocytes), Dr. Bourgoin attended his first Society for Leukocyte Biology (SLB) meeting and immediately felt excited by the high level of science presented and by the warm reception from other researchers. He remembers, "it was very nice because I could meet and connect with other researchers doing signal transduction on G proteins in neutrophils". Shortly after he joined the SLB and has been a regular member for many years. The main benefit of being a member is the opportunity of networking. Sharing ideas and establishing collaborations has always been easy with other SLB members, and some of them, like Dr. Bill (William) Nauseef, and Dr. Véronique Witko-Sarsat have also become long-lasting friends.

Dr. Bourgoin also underlines that the SLB not only provides a collaborative environment among its members but also is very generous in providing awards to help young members and members from countries with limited resources for attending the SLB annual meeting. In addition, the SLB offers the opportunity to create Special Issues related to a particular research topic or to other scientific meetings to be published in the Journal of Leukocyte Biology (JLB). "This is a fantastic way to be involved with the SLB and at the same time to promote good science through the JLB". One of the most rewarding experiences Dr. Bourgoin remembers with the SLB is the great support the society gave to create the Neutrophil International Symposium. He and several colleagues In Quebec, Canada noticed that in immunology meetings and in the SLB meetings there was not much content about neutrophils (innate immunity). Thus, they decided to create a scientific meeting dedicated mostly to neutrophil biology. The SLB supported the idea and provided scientific and logistic advice to launch the Neutrophil meeting. This symposium has grown and has become a famous international meeting on its own. The Neutrophil Symposium is held every two years and has taken place, besides Canada, in Italy, Mexico, and Germany. The next one will be in the USA. Dr. Bourgoin is very proud to be one of the founders of this meeting. The SLB remains an active partner of the Neutrophil Symposium by having a dedicated issue to be published in the JLB after each symposium.

Dr. Bourgoin invites young researchers to join the SLB because it presents fantastic networking opportunities among very nice and collaborative people, and assistance to publish in the JLB.

2025 SLB Elections

SLB is **your** society. This year, the membership will elect a new President Elect and 2 Councilors. Review the candidates, learn why they want to serve, and look for your invitation to vote in August!

For the Office of President Elect (1 position)

This year, we have one confirmed candidate for the position of President Elect. SLB welcomes additional qualified candidates. Qualifications include prior service on the society Council. Contact us for more details.

Anne Pereira

Full Bio

I am a long-standing member of SLB, having joined while I was a postdoctoral fellow at Emory University. I have always found the Society to be a very nurturing and inclusive one that is an outstanding environment for trainees as well as established investigators. The scientific talent, high standard of presentations and camaraderie at the annual meeting are seldom encountered at other Society meetings of this size. My involvement with SLB has included the post of Treasurer from 2021 to 2024, Chair of the Grants and Corporate Relations Committee from 2015 to 2018 and member of that committee from 2012 to 2015. During the time I was Chair of the Grants and Corporate Relations Committee I was successful in obtaining NIHR13 funding to support travel awards for trainees to attend our annual meetings. As Dean of the Graduate College, I am cognizant of the importance of attendance at scientific meetings for the growth and training of our graduate students as well as our postdoctoral fellows. Mentoring of junior investigators is an important part of my daily life, having served as the Associate Dean for Research in the College of Pharmacy for over a decade and for 10 years as the core director of the pilot grant program on the NIH funded Oklahoma Shared Clinical and Translational Research (OSCTR) award. My leadership as the core director has resulted in many successes for the pilot awardees that I have had the pleasure of mentoring. Many have gone on to obtain their independent funding and garnered more than $80.6 M in new peer reviewed grant support. I am passionate about entrepreneurship and started my biotech company based on intellectual property developed in my University Laboratory. The company is focused on the development of novel peptide therapeutics for treating severe multidrug resistant infections. I believe my long-standing research interests in neutrophils, innate immunity and inflammation, along with my commitment as a teacher, mentor, administrator and entrepreneur mesh well with the mission and vision of the Society. I look forward to making a tangible contribution to the Society if elected as President and I am eager to work with Council and the membership at large to build and advance our Society.

- ✓ Accurately and fairly assess manuscripts
- ✓ Write effective reviews
- ✓ Identify conflicts of interest and bias

Interested in improving your peer review skills? Not sure where to start when reviewing a manuscript? Need a structure for helping your own trainees learn peer review? SLB is proud to provide members a free, innovative peer-reviewing training course. In this course, you will learn from peer review experts and practice those skills in a simulated journal environment. Work at your own pace via asynchronous presentations.

These skills will be refined after you complete the asynchronous course when you are entered into the JLB Editorial Manager system as a "trainee reviewer". You will be assigned paired reviews and hone your skills by reviewing active manuscripts for our journal.

Learn more...

Qing Deng

Full Bio

I am honored to be considered for Councilor. As a lifetime member, I value SLB as a home for cutting-edge science, mentorship, and meaningful collaboration. I am committed to its mission and excited about the opportunity to help shape its future. My research focuses on neutrophil biology across multiple systems, including zebrafish, mouse, and human cell models. This cross-species approach has provided a broad perspective on immune function and disease mechanisms. Over the years, my lab and trainees have regularly attended the meeting and have been recognized with several SLB awards. I've seen firsthand the powerful role SLB plays in supporting young scientists. I have developed numerous collaborations through SLB events and connections, resulting in exciting interdisciplinary projects that integrate immunology, imaging, and cellular physiology. Looking ahead, I am particularly enthusiastic about promoting cross-disciplinary research, especially at the intersection of immunology and computational biology. As AI and data science continue to reshape the biomedical landscape, I believe SLB is uniquely positioned to lead conversations and initiatives that bridge traditional boundaries and prepare our field for the next generation of discovery. If elected, I will work to strengthen support for trainees, expand interdisciplinary and AI-related programming, and amplify SLB's impact as a welcoming and innovative community. It would be a privilege to serve and give back to the society that has been instrumental in my scientific journey.

Carlos Rosales

Full Bio

Having conducted research in the field for over 30 years, I appreciate the value of networking among scientist to drive science forward. SLB has offered me this opportunity throughout the years. In each SLB scientific meeting, participants can learn not only about recent discoveries in the field but also meet other members and establish new collaborations and even life-long friendships. Following this example, I organized the XVI Mexican Immunology Congress, and "The Neutrophil 2022" international symposium. In these meetings effort was made to include members from academia, early-career scientists, clinicians, and members from industry interested in leukocytes. The goal was to introduce participants to different aspects of research. Following this principle, as a member of Council, I would focus on emphasizing the value of immunology without borders as outlined in the following points: 1) It is important to spread the activities of SLB to scientists in other countries to provide networking opportunities by organizing workshops, courses, and webinars. 2). These activities also should promote the enrollment of new members by revealing to young scientists, fresh career opportunities not only in academia, but also in industry and government.3) Disseminate the SLB activities and members' discoveries to the public. Through educational programs for the public, SLB could gain further support for the academic activities of members. I believe these actions will strengthen the SLB community and offer opportunities for scientific development.

Darren Lee

Full Bio

Darren has been a member of SLB since 2013 and attended every meeting since then. From his first SLB meeting Darren has established collaborations and networked amongst immunologists from all around the world. He immediately joined the website committee and assisted with the organization of the new website in 2014. As Chair of the website committee, he was able to encourage the implementation of Whova, the conference app, and accomplish another redesign of the website, so understands the importance for SLB to have a virtual presence and how to lobby for the implementation of new technologies. He has also had the opportunity as a Program co-chair of the 2018 meeting to plan and organize the annual meeting in Chandler, Arizona, so understands the mechanics of putting together a meeting. As a Councilor for SLB he would like to accomplish several goals. First, to help with the continued growth of SLB membership and meeting attendance. Second, to expand his knowledge about the decision-making process that goes into SLB. Third, to educate the public on the importance and benefits of science, and importantly, the need to continue to support scientific research. Finally, he would like to assist in promoting the Society at local, national, and international levels.

Susu Zughaier

Full Bio

For more than two decades my career has centered on deciphering and leveraging leukocyte biology to combat infectious diseases. My research integrates macrophage biology, micronutrient immune metabolism, nanotechnology and artificial intelligence, therefore, I can help in advancing leukocyte science while mentoring an increasing diverse cadre of leukocyte biologists. As a Palestinian-American Muslim woman scientist who has worked across three continents, I bring a pluralistic perspective, strategic leadership, advocate for diversity and a proven record of building interdisciplinary networks. As a Counselor, I would be privileged to guide SLB programs, engage in trainee development, and expand the society's global reach.

JLB hard copies available!

Hard copies of JLB spanning from 1992 through 2020 are available for purchase. Build your own library or get a hard copy of an issue where your article appeared as a keepsake. Each issue is $5 USD *plus shipping* (total costs vary based on destination).

Contact us to request a specific issue, or issues, and arrange for shipping.

Requests must be submitted by September 1st, 2025. After this date, all unclaimed copies will be permanently discarded.

Behind the Science:
Interview with JLB Author Dan Hao by Subhash Arya

Read in JLB!

Trained immunity enhances host resistance to infection in aged mice

Q: What sparked your interest in science, and how did your journey in research begin?

A: My passion for science really took off after I earned my bachelor's degree in Chemistry. I got the chance to join a microbiology lab that focused on how diet and the microbiota influence healthy aging. I quickly became fascinated by the complex world of microbes—some are crucial for maintaining our health, while others cause infections and diseases. That blend of mystery and real-world impact pulled me in, and I've been hooked ever since. What started as a simple curiosity grew into a deeper drive to understand how these tiny organisms interact with our bodies, how the immune system responds, and how we can use that knowledge to improve health. That early experience set the course for my research career and continues to inspire me to tackle questions with real-world significance.

Q: What led you to choose your current research topic, and what excites you most about it?

A: During my Ph.D, I focused on relative adrenal insufficiency and strategies to improve treatment for sepsis, which deepened my understanding of how the body responds to severe infections and the critical role hormones play in regulating immune function. That work sparked my interest in finding new ways to strengthen immune defenses, particularly for vulnerable populations such as the elderly or immunocompromised patients. I first encountered the concept of trained immunity at a scientific conference and was immediately drawn to the innovative research coming out of Dr. Sherwood's lab, where they investigate how trained immunity modulates innate immune responses to enhance host defense and improve outcomes during infection. Excited by the chance to work in this innovative field and its potential to improve human health, I joined Dr. Sherwood's lab to investigate how innate immune cells—and the metabolic rewiring that drives trained immunity—can help the body mount more effective defenses against infection.

Q: Can you summarize the key findings of your paper in simple terms, as if explaining to a non-biologist?

A: As we get older, our immune systems tend to weaken, making infections more dangerous. In this study, we found that β-glucan, a natural compound, can "train" innate immune cells in both young and aged mice to respond more effectively to infection. This training led to faster bacterial clearance, enhanced immune cell activity, and reduced harmful inflammation. Importantly, these benefits were just as strong in older mice, suggesting that immune training could be a promising approach to improving infection defense across age groups.

Q: What was the most exciting or memorable moment during this research journey?

A: One of the most memorable moments was discovering that β-glucan immune training worked as well in aged mice as it did in young ones. Because aging is often associated with diminished immune responses, we were initially unsure what to expect. To ensure the accuracy and reliability of our findings, we expanded our sample size and carefully standardized the experimental conditions. As a result, we were able to confirm this surprising and encouraging finding, which was a highlight of the project.

Q: What was the biggest challenge you faced while working on this project, and how did you overcome it?

A: Interpreting the RNA-seq data was one of the greatest challenges in this study. The complexity of gene expression patterns—particularly when comparing young and aged immune cells—required careful analysis and interpretation. To address this, I sought guidance from my mentor and colleagues with expertise in bioinformatics and dedicated additional time to ensure the data were thoroughly analyzed and presented. This collaborative and methodical approach helped me overcome the challenge

Q: Beyond your PI or mentor, is there someone who played a significant role in shaping your path as a scientist?

A: I've been really lucky to have great support from my mentor, Dr. Sherwood, along with Dr. Julie Bohannon and my Ph.D. advisor, Dr. Xiang-an Li. They've all guided me and helped me stay focused on my path in science. I'm also especially thankful for my uncle, an outstanding scientist himself, who has given me invaluable advice and encouragement. His advice and

perspective have helped me navigate the challenges of research and reminded me of the value of perseverance in science.

Q: What advice would you give to junior or incoming Ph.D. students aspiring to build a career in science, especially in your field?

A: Pursuing a research career can be both rewarding and challenging. It is completely normal to face frustration, particularly when experiments fail or new concepts are difficult to grasp. My advice is to stay curious, seek guidance from mentors and have discussions with colleagues, and approach challenges with persistence and resilience. Over time, you'll see how much you've improved. At the same time, it's essential to maintain balance—taking breaks, exercising, or stepping away when needed can help you stay focused and productive in the long run.

Q: Outside of science, what is something interesting about you that our audience might enjoy knowing?

A: Outside of my research, I enjoy reading, traveling, and cooking—though I'll admit, not every cooking experiment goes as planned! I love trying out new recipes from different cultures, and while some turn out delicious, others end with us laughing and ordering takeout instead. Family time is really important to me, especially with my two-year-old son. Being a mom is both an incredible joy and a constant learning experience. He keeps me on my toes every day, reminding me to be patient, to find joy in the small things, and to look at the world with fresh eyes. Honestly, I think motherhood has taught me just as much about resilience, flexibility, and problem-solving as science has

Q: What are your next steps – whether in research, career goals, or new scientific pursuits?

A: Currently, I am wrapping up two research projects focused on the mechanisms of MPLA-induced antimicrobial function and trained immunity in the context of diabetes. I plan to submit those manuscripts this year while also preparing fellowship and grant applications. In the near future, I aim to secure an assistant professor position at a university or research institute.

Now accepting late breaking abstracts with flash talk and Presidential Merit award opportunities through August 20th. See the full list of SIGs, a new dinner workshop included in registration and more program details.

Announcing SLB 2026! Look for more details and confirmed speakers on the website.

References

1. Bendelac A, Savage PB, Teyton L. The biology of NKT cells. Annu Rev Immunol. 2007;25:297-336. doi: 10.1146/annurev.immunol.25.022106.141711. PubMed PMID: 17150027.
2. Godfrey DI, Koay HF, McCluskey J, Gherardin NA. The biology and functional importance of MAIT cells. Nat Immunol. 2019;20(9):1110-28. Epub 20190812. doi: 10.1038/s41590-019-0444-8. PubMed PMID: 31406380.
3. Melandri D, Zlatareva I, Chaleil RAG, Dart RJ, Chancellor A, Nussbaumer O, Polyakova O, Roberts NA, Wesch D, Kabelitz D, Irving PM, John S, Mansour S, Bates PA, Vantourout P, Hayday AC. The gammadeltaTCR combines innate immunity with adaptive immunity by utilizing spatially distinct regions for agonist selection and antigen responsiveness. Nat Immunol. 2018;19(12):1352-65. Epub 20181112. doi: 10.1038/s41590-018-0253-5. PubMed PMID: 30420626; PMCID: PMC6874498.
4. Barbee SD, Woodward MJ, Turchinovich G, Mention JJ, Lewis JM, Boyden LM, Lifton RP, Tigelaar R, Hayday AC. Skint-1 is a highly specific, unique selecting component for epidermal T cells. Proc Natl Acad Sci U S A. 2011;108(8):3330-5. Epub 20110207. doi: 10.1073/pnas.1010890108. PubMed PMID: 21300860; PMCID: PMC3044407.
5. Mayassi T, Barreiro LB, Rossjohn J, Jabri B. A multilayered immune system through the lens of unconventional T cells. Nature. 2021;595(7868):501-10. Epub 20210721. doi: 10.1038/s41586-021-03578-0. PubMed PMID: 34290426; PMCID: PMC8514118.
6. Willcox CR, Mohammed F, Willcox BE. The distinct MHC-unrestricted immunobiology of innate-like and adaptive-like human gammadelta T cell subsets-Nature's CAR-T cells. Immunol Rev. 2020;298(1):25-46. Epub 20201021. doi: 10.1111/imr.12928. PubMed PMID: 33084045.
7. Comeau K, Paradis P, Schiffrin EL. Human and murine memory gammadelta T cells: Evidence for acquired immune memory in bacterial and viral infections and autoimmunity. Cell Immunol. 2020;357:104217. Epub 20200916. doi: 10.1016/j.cellimm.2020.104217. PubMed PMID: 32979762; PMCID: PMC9533841.
8. Ravens S, Schultze-Florey C, Raha S, Sandrock I, Drenker M, Oberdorfer L, Reinhardt A, Ravens I, Beck M, Geffers R, von Kaisenberg C, Heuser M, Thol F, Ganser A, Forster R, Koenecke C, Prinz I. Human gammadelta T cells are quickly reconstituted after stem-cell transplantation and show adaptive clonal expansion in response to viral infection. Nat Immunol. 2017;18(4):393-401. Epub 20170220. doi: 10.1038/ni.3686. PubMed PMID: 28218745.
9. Pellicci DG, Koay HF, Berzins SP. Thymic development of unconventional T cells: how NKT cells, MAIT cells and gammadelta T cells emerge. Nat Rev Immunol. 2020;20(12):756-70. Epub 20200624. doi: 10.1038/s41577-020-0345-y. PubMed PMID: 32581346.
10. Gray JI, Caron DP, Wells SB, Guyer R, Szabo P, Rainbow D, Ergen C, Rybkina K, Bradley MC, Matsumoto R, Pethe K, Kubota M, Teichmann S, Jones J, Yosef N, Atkinson M, Brusko M, Brusko TM, Connors TJ, Sims PA, Farber DL. Human gammadelta T cells in diverse tissues exhibit site-specific maturation dynamics across the life span. Sci Immunol. 2024;9(96):eadn3954. Epub 20240607. doi: 10.1126/sciimmunol.adn3954. PubMed PMID: 38848342; PMCID: PMC11425769.
11. Dupraz L, Magniez A, Rolhion N, Richard ML, Da Costa G, Touch S, Mayeur C, Planchais J, Agus A, Danne C, Michaudel C, Spatz M, Trottein F, Langella P, Sokol H, Michel ML. Gut microbiota-derived short-chain fatty acids regulate IL-17 production by mouse and human intestinal gammadelta T cells. Cell Rep. 2021;36(1):109332. doi: 10.1016/j.celrep.2021.109332. PubMed PMID: 34233192.
12. Gibbs A, Leeansyah E, Introini A, Paquin-Proulx D, Hasselrot K, Andersson E, Broliden K, Sandberg JK, Tjernlund A. MAIT cells reside in the female genital mucosa and are biased towards IL-17 and IL-22 production in response to bacterial stimulation. Mucosal Immunol. 2017;10(1):35-45. Epub 20160406. doi: 10.1038/mi.2016.30. PubMed PMID: 27049062; PMCID: PMC5053908.
13. Kang I, Kim Y, Lee HK. Double-edged sword: gammadelta T cells in mucosal homeostasis and disease. Exp Mol Med. 2023;55(9):1895-904. Epub 20230911. doi: 10.1038/s12276-023-00985-3. PubMed PMID: 37696894; PMCID: PMC10545763.
14. Toussirot E, Laheurte C, Gaugler B, Gabriel D, Saas P. Increased IL-22- and IL-17A-Producing Mucosal-Associated Invariant T Cells in the Peripheral Blood of Patients With Ankylosing Spondylitis. Front Immunol. 2018;9:1610. Epub 20180713. doi: 10.3389/fimmu.2018.01610. PubMed PMID: 30057583; PMCID: PMC6053500.
15. Makkouk A, Yang XC, Barca T, Lucas A, Turkoz M, Wong JTS, Nishimoto KP, Brodey MM, Tabrizizad M, Gundurao SRY, Bai L, Bhat A, An Z, Abbot S, Satpayev D, Aftab BT, Herrman M. Off-the-shelf Vdelta1 gamma delta T cells engineered with glypican-3 (GPC-3)-specific chimeric antigen receptor (CAR) and soluble IL-15 display robust antitumor efficacy against hepatocellular carcinoma. J Immunother Cancer. 2021;9(12). doi: 10.1136/jitc-2021-003441. PubMed PMID: 34916256; PMCID: PMC8679077.
16. Romano C, Jiang H, Tahvili S, Wei P, Keiding UB, Clergeaud G, Skovbakke SL, Blomberg AL, Hafkenscheid L, Henriksen JR, Andresen TL, Goletz S, Hansen AE, Christensen D, Clausen MH. Chemical synthesis and immunological evaluation of cancer vaccines based on ganglioside antigens and alpha-galactosylceramide. RSC Med Chem. 2024;15(8):2718-28. Epub 20240621. doi: 10.1039/d4md00387j. PubMed PMID: 39149099; PMCID: PMC11324045.
17. Wolf BJ, Choi JE, Exley MA. Novel Approaches to Exploiting Invariant NKT Cells in Cancer Immunotherapy. Front Immunol. 2018;9:384. Epub 20180302. doi: 10.3389/fimmu.2018.00384. PubMed PMID: 29559971; PMCID: PMC5845557.
18. Wong EB, Ndung'u T, Kasprowicz VO. The role of mucosal-associated invariant T cells in infectious diseases. Immunology. 2017;150(1):45-54. Epub 20161026. doi: 10.1111/imm.12673. PubMed PMID: 27633333; PMCID: PMC5341498.