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A Message from the President



David Underhill

Welcome to the final issue of iSLB for 2023. As my term as SLB President comes to an end, I took the opportunity to look at my first iSLB message back in early 2021. In

the two years since then, I was struck by how much has changed for SLB and it has been my pleasure to help our community navigate the ever-changing landscape. In these past 2 years, we returned to in-person meetings, transitioned our journal to Oxford University Press along with a new Editor-in-Chief and vastly expanded Editorial Board, and welcomed over 500 new members to our community. Through volunteer efforts, SLB has also added over 100 hours of recorded content available to our members on-demand. This includes our Reviewer Training program which has attracted over 70 trainees. These accomplishments are just a few highlights on top of the daily efforts required to keep our society thriving.

I have always found SLB to be a welcoming organization and, in these past few years, it has been a true joy to see others discover SLB in this way. At the 2023 meeting, SLB had the pleasure of introducing a few undergraduate students to their first professional meeting and we, in turn, had the pleasure of learning about their work and being energized by their enthusiasm. Hearing such positive feedback about how attendees felt about the truly inclusive nature of SLB is very affirming in

knowing that SLB is headed in the right direction. We're very lucky to be able to expand that concept through our new Building Bridges Webinar series which features senior PhD students and postdocs, scientists from underrepresented groups, and those with caregiver roles who may not be able to join in-person events and present their research. We are thankful to Sofia De Oliveira for bringing this idea to fruition and leading the way in scheduling these interesting talks. I encourage you to join, or watch the recordings on-demand, and [contact Sofia](#) if you know of someone who would like to present their work in this way, or if YOU would like present.

A hearty welcome to Lou Justement who will take over the role of SLB President as of January 2024. Lou is very involved in many aspects of our society as well as other related organizations and will surely bring a breadth of ideas to SLB. Looking ahead to 2024, SLB is excited to continue riding a wave of energy from our members in many ways. Plans for SLB 2024 are underway and next year's meeting promises to build on the momentum that began this year. We will again welcome undergraduates to participate as well as hold another career panel workshop dinner which was very well attended in Georgia. In addition, we look forward to hosting several member-led Special Interest Group Satellites, and we are accepting proposals for those through January 8th. SLB is also excited to partner with ImmunoReach at the 2024 meeting, an initiative brought to our community by Lou Justement. You can read more about that in this issue of iSLB. We also look forward to partnering with our friends from IEIIS (International Endotoxin and Innate Immunity Society) with an "IEIIS Day" just prior to the main SLB conference. Look for these details and more on the meeting website and plan to submit your abstract in our new

streamlined system starting around March 2024.

Our society relies on the participation of our members; SLB is a true grassroots organization! Please look for the coming end of year member survey and consider volunteering for one of our active committees while also providing us direction for how SLB can continue, and grow, in serving all of our valued members.

Thank you for entrusting me to lead SLB for the past two years. I look forward to continuing on Council as Past President and plan to continue contributing however I can in the coming years. Our society is a true hidden gem, and it is imperative that we work together to ensure SLB continues to be the society that we all envision and value!

SLB 2023 Highlights

SLB 2023 was an amazing community event! Here are some resources to revisit the event.

- [Online resources](#)
- [Abstract Book](#)
- [Awardee list](#)
- [Slideshow](#)

Look for information about [SLB2024](#) and plan to join!

Call for 2024 SIG Proposals

SLB is pleased to provide a platform for society members to organize their own 2024 session. These Special Interest Group Satellites (SIGs) will be held on Tuesday, October 22nd, 2024 in association with the annual meeting. Proposals will be reviewed by the conference program chairs to ensure there is no conflict in topics and/or speakers. [Learn more...](#)

Submit Proposals by January 8, 2024

The ImmunoReach Network: A Community of Practice for Immunology Educators

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The **ImmunoReach Network** is a NSF-funded Community of Practice focused on bringing immunology focused, evidence-based pedagogical practices to the classroom. ImmunoReach coordinates a diverse, international network of educators representing two-year, four-year, R1 and R2-research post-secondary educational institutions. A two-pronged approach adopted by ImmunoReach aims to integrate immunology into undergraduate biology curricula by creating a common language that highlights the interdisciplinary nature of immunology and collaborating with and supporting instructors across life science disciplines to integrate immunology education into their curricula. ImmunoReach supports the creation, vetting, implementation and assessment of interdisciplinary, concept and/or competency focused learning modules for a variety of educational settings. The community gathers via Zoom on Fridays at 3 p.m. CST to share ideas and perspectives related to immunology education. Network participants present their pedagogical activities and receive support and feedback from network members. Members of the ImmunoReach Network collaborate to conduct educational research, to create and validate a wide range of immunology-focused learning activities and to publish the findings from these efforts. You may check out some of these resources [here](#).

If you are interested in becoming a member of a diverse and inclusive network of immunology educators engaged in developing, assessing and/or implementing learning activities, and fostering evidence-based pedagogical practices please contact us by e-mailing (sumali.pandey@mnsstate.edu, rtaylor@frostburg.edu or lbjust@uab.edu) or by filling out [this form](#) by January 15th. ImmunoReach encourages trainees who are interested in incorporating education into their future career to consider joining. The extent of involvement and time commitment in the ImmunoReach Community of Practice can vary, as depicted below. Each ImmunoReach designation comes with a modest stipend. In addition, you can find us at the Society for Leukocyte Biology 2024 Meeting.



ImmunoReach Fellow will work with an Immunobuddy to develop, implement, assess and disseminate a pedagogical resource



ImmunoReach Mentor will mentor a fellow or a training cohort to develop, implement, assess and disseminate a pedagogical resource.



ImmunoReach Advisor will advise the ImmunoReach team and/or review pedagogical activities



ImmunoReach Trainee will participate in training sessions or workshops to develop a plan for a pedagogical resource using evidence-based practices.

Check out the
Immunology now
available on CourseSource
thanks to ImmunoReach.

**It's Membership renewal season! Be sure to renew
with SLB for 2024! Check your email for a renewal
invoice or [contact us](#) for assistance!**

SLB is dedicated to ensuring access to our community and its resource without economic barrier. If you, or someone you know, would like to be a member and faces these hurdles, contact us for assistance.

Industry Partner Spotlight

SLB is appreciative of the support and participation of our industry partners. [SinoBiological US](#) was a welcomed participant at the SLB 2023 meeting and we are pleased to highlight one of their representatives in this issue of iSLB.



Mohammad Safiarian SinoBiological, Associate Product Manager

Embarking on my professional journey, I have traversed diverse landscapes, from the intricacies of pharmacy to the dynamic realms of biochemistry. Currently serving as an Associate Product Manager at Sino Biological US Inc., my career path is a narrative of over a decade of research experience fueled by a fervent passion for translating scientific exploration into tangible medical advancements.

My journey began with a solid foundation in pharmacy, culminating in a Doctor of Pharmacy (PharmD) from Tehran University of Medical Sciences in 2011. Overseeing pharmacies, providing patient guidance, and managing adverse drug reactions marked my initial exploration into the transformative impact of pharmaceuticals.

In pursuit of a deeper understanding of the molecular intricacies of life, I embarked on a journey through biochemistry, attaining both Master's and later, PhD degrees at Georgia State University. My research centered on exploring DNA interactions with small molecules, particularly for potential applications in photodynamic therapy (PDT). My doctoral research delved into the phototoxicity of anthracene-based photosensitizers, with a specific focus on investigating the role of chloride ions in the generation of reactive oxygen species (ROS).

After obtaining my PhD, I joined the Georgia Institute of Technology as a postdoctoral fellow, where I delved into the exploration of ribonucleotide reductase (RNR) and its interactions with small molecule drug candidates. Beyond contributing to cutting-edge research, I actively participated in shaping laboratory protocols and procedures, maintaining rigorous scientific standards. My journey led me to Texas, where I served as a Postdoctoral Associate at Baylor College of Medicine. In this role, I was responsible for designing constructs facilitating the expression of phospholipase C pleckstrin homology (PH) domain. Employing innovative protein tags, I visualized these constructs in mammalian cell lines, contributing to the dynamic exploration of cellular components and their functions.

In my current role as an Associate Product Manager (APM) at Sino Biological US Inc., I navigate the intersection of scientific expertise and market demands. Collaborating cross-functionally, I define product specifications aligned with customer needs and identify strategic market opportunities. Applying data-driven decision-making, I contribute to refining product strategies and expanding into new market segments. Moreover, I translate complex scientific concepts into compelling marketing materials, facilitating effective communication of product benefits to diverse audiences.

Reflecting on this journey - from the days at the pharmacy counter to my current position at the forefront of bioreagents and product management - fills me with an overwhelming sense of excitement. The continuous prospect to inspire others within the SLB community is a profound privilege. My narrative stands as a testament to the transformative influence of curiosity, unwavering dedication, and the relentless pursuit of innovative breakthroughs at the dynamic intersection of clinical and basic science.

Introducing the new Chair of the DEI Committee, Dr. Suzanne Bohlson, Professor of Teaching, Department of Molecular Biology and Biochemistry, University of California, Irvine



Hello members! I'm excited to continue the good work of the DEI committee to foster diversity and inclusivity for our membership. I have been involved with SLB since my postdoc days in the early 2000's. I remember going to those early meetings and wondering how scientists climbed the ladder and became productive faculty; seemingly comfortably integrated into the society and active doing good things for the membership. In Athens, GA at SLB 2023 I sat back and reflected, kind of in awe, that I was now one of those faculty members at an institution that I love. I watched my closest friends and most cherished colleagues present their science (including the keynote!) and lead SLB sessions and committees. Over the last couple of decades, I've experienced the tremendous benefit of being recognized, valued, and heard by SLB for not just myself, but also my trainees and mentors. It's time to give some of that back, and I think the DEI committee is a great place to do it. As opportunities in science continue to grow for the minoritized and marginalized, everyone benefits. My vision for SLB DEI, is that you and your most cherished colleagues all feel welcome, seen, promoted, and respected in our society.



Celebrating Leukocyte Labs Around the World

By Deborah Fraser



The Society for Leukocyte Biology Diversity, Equity, and Inclusion Committee hosted a photo challenge at SLB 2023 in Athens Georgia to celebrate 'Leukocyte Labs Around the World'. Our members certainly did not disappoint! We had attendees from Asia, Africa, North America, South America, Europe, and Australia participate, sharing their photos with @leukocytebiol and celebrating a true reflection of the diversity found in science. Of course, Diversity is much more than geography, and members also took the opportunity to share other scientific identities, for example by proudly celebrating being (or supporting!) a woman in science, parent in science, disabled in science, LGBTQ+ in science, first-gen in science, and immigrant in science etc. As scientists we know that it's important to foster belonging and that representation matters to our trainees, and our departments and community. The DEI Committee also hosted a networking breakfast at SLB 2023. From the results of the DEI survey of SLB members carried out this summer, one thing that really stood out was the number of members that spoke towards the importance of talking about how different science can be when people come from different backgrounds and with different resources. These types of inequities became glaringly obvious through the lens of the pandemic. We had research lab shutdowns, or clinical labs kicking into high gear. What an amazing time to be an immunologist, but immensely difficult time to be a scientist. Therefore, we wanted to use the breakfast as an opportunity to talk about these things. Attendees were encouraged to share with their table not just some challenges, but also advantages or things they love about being a scientist. We were so excited by the thoughtful and candid discussions this promoted and hopefully by sharing a little more about our backgrounds, we can help foster that inclusive environment that makes us stronger. Some examples of things people appreciated about being a scientist included the freedom to pursue your curiosities, interactions with the scientific community, and getting to learn new things every day. The challenges ranged from personal (feeling like I don't belong, navigating the hidden agenda in science), to the seemingly universal issues of workload and funding.

We all have a story, a journey in science, and things that helped us along the way or may be holding us back. Participants at SLB2023 shared some of those stories with us, and we hope to showcase more of these in the coming year. We also want to hear your story, if you feel comfortable sharing with the DEI committee. Through shared experiences I think it helps us appreciate what we have, and look for places we can strive to help out, or do better. Sometimes it can help just to hear that other people are going through the same issues we are. Other times it can be good for us to hear some things that are completely outside of our experience, so that our perspectives are broadened. We also welcome suggestions of topics you would like to see come up in future workshops, so we can better serve you, our members.

FASEB Corner

[New Fellowship Provides Advocacy & Policy Skills](#) – Nine individuals from five FASEB member societies were selected as the inaugural Howard Garrison Advocacy Fellows. [Announced](#) in September, the [fellows](#) include five graduate students, 2 postdocs, and two mid-career researchers. They are taking part in a 10-month cohort experience that provides instruction in advocacy, science policy, science communications, leadership development, and career exploration outside academia. The Howard Garrison Advocacy Fellowship is open to life sciences researchers in all career stages at any FASEB Full Member society. The Call for Applications for the 2024 cohort will be announced in the spring.

[Recognizing Female Scientists](#) – Nominations for the 2024 FASEB [Excellence in Science Awards](#) are open! The awards honor outstanding female scientists who are committed to the professional development of others, have served their scientific society, and contributed to the broader biological and biomedical science community. There are awards in three career stages: Lifetime Achievement (established investigators), Mid-Career (within 7-15 years of first independent scientist position), and Early-Career (within 7 years of first independent scientist position). Nominations are due December 4, 2023. Women who are current members of a FASEB [full member society](#) are eligible to be nominated. Nominators must also be a current member of a FASEB full member society. The award is presented with a cash prize and funds to present a lecture at a meeting of a FASEB member society of their choice. FASEB is dedicated to increasing diversity, equity, accessibility, and inclusivity within the life sciences. As part of this effort, we highly encourage nominations for individuals from historically underrepresented groups within the life sciences community. [Past recipients](#) can be viewed on FASEB's website. For information on eligibility, submission requirements, and nomination procedures, [click here](#).



FASEB

Federation of American Societies
for Experimental Biology

FASEB Corner Con't...

Continuing Advocacy for Biomedical Research – FASEB President Mary-Ann Bjornsti, PhD, was among the more than 300 participants at the [Rally for Medical Research](#) Capitol Hill Day in Washington, DC in mid-September. Rally participants urged Congress to support the fiscal year 2024 National Institutes of Health (NIH) funding level of at least \$49.2 billion, as the Senate Appropriations Committee recommended. Bjornsti met face-to-face with Representative Robert Aderholt (R-AL), the chairman of the House Labor, Health, and Human Services Appropriations Subcommittee that funds NIH. She also had meetings with senior policy staff from then Speaker Kevin McCarthy's (R-CA) office. In conjunction with the Rally, FASEB issued an e-action alert that generated nearly 600 email messages from scientists and research advocates from across the country. The emails echoed the messages about NIH funding that were shared by participants during the Rally for Medical Research. FASEB was a [co-sponsor](#) of the Rally.

Science Policy Symposium Highlights IDeA and EPSCoR Programs – FASEB's annual Science Policy Symposium [focused](#) on how the federation can facilitate improved support of the NIH [Institutional Development Award](#) (IDeA) and the National Science Foundation (NSF) [Established Program to Stimulate Competitive Research](#) (EPSCoR) programs which seek to broaden the geographic distribution of federal funding for states and territories that historically receive low levels of support. Keynote speaker Jon Lorsch, PhD, Director of NIH's National Institute of General Medical Sciences (NIGMS), described IDeA's history and purpose, emphasizing its goal to ensure cutting-edge biomedical research and training occur in every state. Sandra Richardson, PhD, Section Head of EPSCoR, highlighted NSF's targeted efforts to advance workforce development in EPSCoR regions by transforming the career trajectories of investigators and fostering mentorship opportunities for early- and mid-career investigators. Symposium participants engaged in discussions to brainstorm policy opportunities, identify ongoing barriers and challenges for states with limited research capacity, and develop strategies for expanding cross-regional partnerships, and metrics of success.

JLB Methods Focused Issue: A Member Led Initiative

Co-Chairs: Coy Allen and Xuewei Zhu

Consultant/Advisor: Sergio Catz

Members: Robert A. Clark, Peter Keyel, James A. Lederer, Darren J. Lee, Jean L. Scholz, and Silvia M. Uriarte

Methods are the backbone of science. We test our hypotheses with experiments and analyze data using materials, technologies, and procedures that can be repeated by independent researchers to yield reproducible results. For leukocyte biologists this is reflected in part by an expansion of methods-focused journals or journal issues. Discussions among the SLB Publication Committee, the Editor-In-Chief, and the Council culminated in the formation of a Methods Task Force (MTF) to investigate the possibility of launching a periodic methods-oriented issue of JLB. The MTF conducted a survey in 2022 to determine favorite resources for methods/protocols/guidelines, assay design and data interpretation, and the topics that would be most useful to individual labs and the broader leukocyte research community for this special JLB methods issue.

This initial survey indicated strong interest in methods-oriented issues of JLB and yielded dozens of good topic suggestions. Since the most popular methods topic was flow cytometry, and most-mentioned cell type was neutrophils, we narrowed the theme of a pilot methods-focused issue to **flow cytometry for neutrophil biology**. After discussing with field experts, MTF issued a second survey to solicit input on compelling topics in neutrophil biology, flow cytometry methods or methods analysis articles of interest for neutrophils, proposed author names and topics, and proposed editors.

MTF is poised to draft a call for papers – look for coming details! For future focus, other topics of interest for methods include:

- Basic multicolor flow cytometry: neutrophil isolation from tissues, preserving viability and activation state; phenotypic characterization - gating strategies; marker validation, standards and controls; intracellular staining; experimental design considerations for neutrophil FACS
- Markers - neutrophil heterogeneity and plasticity: development/maturation, neutrophil "subsets," assessing neutrophil purity; markers across species; evolution of neutrophils/neutrophil-like cells
- Flow cytometry to assess neutrophil activation/function: priming, phagocytosis, ROS, intracellular cytokines, membrane potential/kinetics
- Methods to integrate sorting with downstream applications like RNA-seq or other omics approaches

Topics of interest for methods analysis articles include:

- Unbiased, conceptual comparison of neutrophil heterogeneity and cell states derived from various methods
- Overview of applications of state-of-the-art flow cytometry methods to study neutrophils (CyTOF, imaging cytometry, omics cytometry)
- Method dependence of data interpretation, e.g., flow cytometry vs. IF
- Interpreting high/multi-dimensional neutrophil data for the big data non-expert (written at the senior trainee level)

In addition to the topics, MTF members also discussed and recommended two new article templates for the special methods issue. The new methods template makes three key changes to the standard article format. First, we replace the "Introduction" with a "Purpose and Applications". Second, we replace the "Discussion" with "Strengths, Weaknesses, and Caveats". Finally, the methods section will be expanded for ease of reproduction and data quality control. The methods analysis template focuses on an analysis and comparison of methods and results.

Stay tuned for the updates in the near future and contact MTF if you have any questions or other ideas for future JLB issues!

A Role Model for Global Science

Welcome New Member, and First Time SLB Conference Attendee, Demba Sarr, University of Georgia College of Veterinary Medicine, Associate Research Scientist. He shares his unique journey with us in this article along with a call to widen awareness and collaboration in the interest of global health.



I was born and raised in Ndianda, Senegal, Western sub-Saharan Africa. Following completion of my secondary education, I proceeded to pursue my undergraduate studies in biology at Cheikh Anta Diop University in Dakar (ucad.sn), Senegal. Thereafter, I attended graduate school and defended my master's and PhD, respectively, Class of 2000 and Class of 2005. While a PhD candidate, I participated in several workshops and meetings across Africa, Europe, and the USA. These workshops allowed me to build my network and stay connected with the scientific community. I was especially interested in placental malaria, which was my PhD research subject. After my PhD graduation, I accepted a postdoctoral research scientist position at the Institut Pasteur of Dakar, a non-profit foundation of public utility (institutpasteurdakar.sn) and member of the Institut Pasteur Network. After one year in this position, I decided to move to the United States and landed in Brooklyn, NY in December 2006. Coming from a tropical region, it was not a good idea to start my American adventure in New York in the month of December. The cultural shock and the freezing weather conditions pushed me to look for an alternative location. I opened my networking address book and dropped an email to Prof. Julie M. Moore who was a faculty member of the Center for Tropical and Emerging Global Diseases (ctegd.uga.edu) and the Department of infectious diseases in the College of Veterinary Medicine at the University of Georgia in Athens, GA (vet.uga.edu), whom I dreamed of working with. When I sent her an email, she gave me the opportunity to come to the University of Georgia (uga.edu) and present my research to her team. After my oral presentation and meeting with faculty members in the department and the center, I was offered the postdoctoral research position in the Moore Lab. After 5 years in this position, I was promoted to Assistant Research Scientist. While in the Moore Lab, I was also running some collaborative experiments in the Rada laboratory and learned a bit about his interests and research.

Since 2017, I have been working with Prof. Balazs Rada, also a faculty member of the Department of infectious diseases at the University of Georgia. We focus on basic biomedical research to understand early innate immune mechanisms and the pathogenesis of respiratory diseases. In the Rada Lab (radalaboratory.com), I lead investigations into the role of Dual Oxidase 1 (DUOX1), a member of the NADPH oxidase family, in respiratory infections. DUOX1, expressed in the apical membrane of epithelial cells in the airway, generates hydrogen peroxide and plays a crucial role in innate host defense against respiratory pathogens. In the presence of lactoperoxidase and thiocyanate anion, an antimicrobial compound called hypothiocyanite is produced with anti-viral properties *in vivo* (PMID: 34168077; PMID: 29858825; PMID: 35663985) despite a dispensable role in tuberculosis (PMID: 36936954). During respiratory infections including COVID-19 the respiratory epithelium is the primary target for pathogen replication and is the fastest responder to infection. Understanding the definitive role of DUOX1 in these infections and other infectious diseases is key for the discovery of better therapeutic and preventive options. Research to unveil the mechanistic role of DUOX1 *in vivo* during co-infections is ongoing and we have identified other pathogens/mechanisms of interest to this topic.

In September 2023, I attended my first Leucocyte Biology (leukocytebiology.org) Annual Meeting (SLB 2023) and enjoyed it because I learned new techniques and concepts applicable to our interests and I took advantage of the meeting to present our research on DUOX1 in respiratory infection and expand my scientific network.

I am passionately engaged in the fight against infectious diseases including malaria through basic research, policy and advocacy and I would like to take this opportunity to call for more training opportunities in basic research for African scientists. I realized that the pool of graduate students and postdoctoral research scientists in academia and other basic research institutions in the United States is mostly composed of Asians, South Americans, and Europeans. The African continent is lagging and if we want to build a healthier world, we must be inclusive in what we do in basic biomedical research. Training more African scientists in the North and investing in state-of-the-art technologies inside the African continent is not only the most efficient way to advance our mechanistic understanding of infectious diseases, but it is also the best way to protect every human being around the globe. Africa's population is 1.5 billion, representing 20% of the world population. While the population is young (median age 19), there are concerns associated with emerging and reemerging infectious diseases. Therefore, increasing the efforts in training young scientists in state-of-the-art research must be a priority for global health leaders and research funding agencies. We must train the next generation for surveillance and epidemic preparedness and for better readiness in the design, conduct, and reporting of more mechanistic investigations aimed at a better understanding of the biological and molecular mechanisms of the diseases that affect the continent and the world.

My intention for the rest of my career is to continue giving back to society through research, collaboration, leadership, teaching, mentoring, policy, advocacy, and empowerment.

Transitioning into an Industry Career: Advice from a Fellow SLB Member

By Albert Sek

Stephanie Silva-Del Toro is a scientist and immunologist who, after completing her Ph.D. at the Uni. of Iowa, transitioned into the biopharmaceutical industry. Stephanie has experience working across startups and medium-sized companies, and is an active member of SLB. We spoke to Stephanie about her career, insights into the biopharmaceutical industry, and advice for scientists looking to transition into industry.



Stephanie Silva-Del Toro
Scientist at Moderna, Inc.

Q: Tell us about your role, and how it contributes to the biopharmaceutical pipeline.

I am a scientist for the infectious disease research (IDR) department, specifically within the Cellular Immunology Flow Cytometry group. I collect the high dimensional flow cytometry data for clinical trials or help design and perform platform studies. I also sort samples, help teams develop and optimize panels, train people on different instruments, and maintain the flow cytometry instruments. I have 2 direct reports and our primary duty as a flow group is ensuring our flow core instruments, and the users, are happy.

Q: What do you like about your role?

No monotony, everyday is something different. I have the tools and exposure to become a great flow cytometrist, contribute to many fascinating topics, and all in a fast pace learning environment. I learned how to sort in 2 different platforms and got basic and advanced sorting training in less than 6 months. I also like all the humans I work with.

Q: What are some challenges to your role?

Priorities are constantly changing, some days will be short, others are long, a lot of responsibility (handling, staining, running precious samples), tight deadlines. However, they do compensate you if you have to work longer hours (rewards, additional time off). It is very humbling to see a big team (maybe 5-20 scientists) all pitching in to get a clinical trial done in a timely manner. It does not matter if you are a director or principal investigator, when it is all hands on deck, it means everyone is in the lab working on the same experiment.

Q: What is your day-to-day like?

I start the day early to beat traffic, I turn on the analyzers, warm them up, QC them and ensure they are working optimally. I can see if the instruments are going to behave or if we need to keep an eye on a laser. I export the files to be automatically graphed and tracked. Then, my calendar gets booked by people that need help (learning how to use an instrument, learn how to compensate, troubleshoot an experiment, analyze data). I could also have a full day sort for a different department/project or to troubleshoot an instrument or I might be running an experiment for a platform study or test a new reagent that will improve our panel. There is usually a meeting during the day, could be a scientific presentation from an outside speaker or a team meeting to discuss projects/experiments.

Q: What characteristics are helpful for succeeding in your role?

Adaptability, time management, positive attitude, questioning assumptions, willingness to constantly learn, and a passion to do the best possible science you can.

Q: Can you tell us about your professional training, and how you transitioned into this role?

For my bachelor's degree, I majored in Microbiology and Biology at the Uni. of Puerto Rico in Mayaguez. Following the PREP program at the Mayo Clinic, I joined the Allen lab at Uni. of Iowa where I completed a PhD in Immunology, focusing on host pathogen interactions in human neutrophils, T cells, and *Helicobacter pylori*. When I moved to the University of Missouri, I moved as well - completing my dissertation project as well as a one-year post-doc. I then transitioned to industry, first at a mid-level start up called TCR2 therapeutics, where I worked with the translational sciences team to analyze clinical samples and learned much about spectral flow cytometry. However, after 8 months, I was among the 40% of the company that was laid off. No one told me about layoffs before I started working in industry, but the more I've experienced industry, the more I realized that layoffs are an intrinsic part of industry; they are the equivalent of getting a grant or a paper rejected in academia. It will happen to almost everyone and it has nothing to do with you or your performance; it has to do with budgeting and data.

Even though the layoff was unpleasant, a lot of great things came from the layoff. I got an online gig as a subject matter expert at Scale AI to train an AI bot. I learned a lot about AI at the beginning of ChatGPT and that has been helpful in the job hunt and in my current job. I worked a lot on my mental and physical health during the layoff and after getting the job, I spent some time visiting family in Puerto Rico. During the job search, I wanted to find a job where I could learn a lot of new things and be exposed to different areas of industry research. I am currently involved in a mixture of all phases of research, but my focus is learning a variety of fascinating science, becoming the best possible flow cytometrist I can, and figure out what parts of industry research I like the most. I am learning how to be a manager and it is exciting. These are essential skills that anyone needs to have to be effective and productive.

I had never had interest in industry until I was a postdoc during COVID. I liked the idea of becoming a physician scientist in an academic setting because I would need to be constantly learning. I was sure I loved learning, but I was more interested in the mechanisms of infection and prevention, not necessarily directly interacting with patients. I thought about academia for a long time, because I wanted to pursue research for knowledge's sake.

Also, academic discoveries take a really long time. What I like about my job is that I am always learning new things, that it is extremely fast-paced without sacrificing quality, and that what you do on a daily basis can have a direct impact in human health. My transition was faster than I thought, but it worked out! I jumped into the start-up to learn how it was to work for industry and, in 8 months, I learned and experienced a lot.

Q: What advice do you have for trainees looking to transition into the biopharmaceutical industry?

- 1. Industry is very different from academia, your knowledge matters, but your people skills and desire to learn matter the most.** We are willing to hire people that don't have the background or the training, but that are willing to learn. The company will teach you how they do science, what you bring is your critical thinking, ability to solve problems, how fast you can learn, and how easy it is to work with you.
- 2. Keywords in your resume are key to getting called for an interview.** If you don't have 70% of your CV and LinkedIn look like the job description of the job you are applying for, you will not get called, even if you submitted a beautiful application. I had no idea how to do this, so I hired a company to help me with my CV, LinkedIn, negotiation, and interview prep, because I had not networked in the industry setting previously. I transitioned fairly quickly (6 months) and if I did it, you can do it too. Also, worth mentioning: if you don't like industry after you start your job, you can go back to academia. Fellowships exist for that.

- 3. Not sure if you are interested in industry but are curious?** There is really no way to tell if you like industry or not unless you experience it. I decided to try it and so far, I love it! I wish I had known that co-ops and internships exist during undergrad and grad school. That would have eased the fears of starting a completely different career path. Also, I do not recommend industry postdocs. They will not significantly increase your chances of getting hired and you get a pay-cut of 20-40% of the salary of a scientist; when you will be doing the same type of work as a scientist.
- 4. Scared about layoffs?** Make sure you join a company that takes care of its people. Talk to them about layoffs during your interview. TCR2 therapeutics took care of all of us. People from the leadership reached out to us to facilitate and help in any way they could. They also provided a severance package. However, not all companies are like that and it is worth asking questions and doing your homework about the company culture. If a company has a Chief People Officer (CPO), that is a good indication that they are people focused. I was lucky to join a company with an outstanding and award winning CPO, Dr. Angela Justice who took great care of us.
- 5. Don't be afraid to negotiate and talk about money - use a low risk job application to negotiate and practice.** The first offer I got was a "lowball"; which was a red flag and reason enough not to join the company. I had never negotiated a salary before and used the opportunity to practice and learn how to do it. You can find target salaries on glassdoors.com and indeed.com.

Meet the 2023 Poster Flash Talk Winners

Each year, the Members in Transition and Training Committee (MTTC) organizes the Poster Flash Talks at the annual meeting- A platform to encourage students, trainees, fellows, and junior investigators to share their research and gain experience talking at a scientific meeting. This year MTTC was proud to not only have graduate students, but also undergraduate students participate. We met with each of the awardees and asked them about their backgrounds, what drew them to research and their specific research interests, how they navigate roadblocks, where they see themselves in the future, and how they enjoyed SLB 2023.

Jack Drda, Undergraduate Student, Dickinson College

I am a fourth-year undergraduate research student in Professor Tiffany Frey's Lab at Dickinson College. At the Frey Lab, I study how lipid metabolites from the mevalonate pathway influence innate immunity. Outside of the lab, you can find me hiking in the forest while photographing wildlife. I found that research provided me with the tools to pursue my questions when I could not find answers. I chose to work in the Frey Lab because I am fascinated by the overlooked. When I open a biochemistry textbook, lipids are mainly described as having structural or storage functions—nothing more. However, by studying the rare autoinflammatory disorder mevalonate kinase deficiency, the Frey Lab emphasizes an overlooked aspect of lipids: their essential role in cell signaling. This research is a part of an exciting, emerging field called immunometabolism. I hit roadblocks all the time—that's science! There are some days where the positive control band doesn't even show up on my western blot. I rationalize these setbacks by acknowledging that those who truly support me as a future scientist will give me the time, resources, and mentorship to selectively test the confounding variables. My current plan is to continue my research while studying medicine. I hope to become a physician-scientist so I can explore immunometabolism while applying my results to the patient. I am partially interested in targeting metabolic pathways for potential cancer immunotherapies. The SLB meeting was simply fantastic! As a first-generation scientist, I often feel lost in the academic, procedural aspects of research. I would often feel that I was the only one experiencing these insecurities. At SLB, I met people that had similar experiences, and they were willing to provide their advice. I felt incredibly supported, and I cannot thank SLB enough.



2023 Poster Flash Talk Winners Con't...



Cloe Jepson, Undergraduate Student, University of Alabama at Birmingham

I am a junior in Dr. Masakazu Kamata's lab in the Microbiology Department at the University of Alabama at Birmingham. In my free time, I enjoy reading and spending time outdoors. I joined research because I wanted to experience the field as I was contemplating getting a PhD after graduating. I chose the Kamata lab because I have always enjoyed science on the cellular level, and the work that we do with immunotherapy was interesting to me, especially as we try to apply it to varying cancers. One of the bigger roadblocks that I have experienced in my research is autofluorescence in some cryosectioned tissues. I read a lot of articles, asked other scientists, and performed mini experiments to find the best solution for this; I learned that not everything will turn out perfectly after redoing it once, it can take a while for the best outcome. After I graduate, I am thinking of applying to MD-PhD programs. I have loved my time in research, and I would like to work with patients in clinical settings so that I'm able to see firsthand who could benefit from my benchtop efforts. This can help me be innovative and preventative in terms of care. My experience at SLB 2023 as a presenter was comforting and a lot of fun! I was able to give my first flash talk, and it gave me more confidence going to future conferences. It also led me to peers and other scientists who carry out related research, all of whom I was eager to learn from.

Tyler Pikes, Graduate Student, Purdue University

I am a 4th year PhD Candidate in Qing Deng's Lab in Biological Sciences at Purdue University. I love listening to music, going to the movies, and hanging out with friends! Our lab utilizes zebrafish, mice, and cells to study innate immune cell signaling. I initially joined the lab because I believed that Dr. Deng would be an excellent mentor who prioritizes my personal and professional growth. Once joining the lab, I fell in love with my research on Neutrophil migration and cell signaling. It amazes me how one cell can be involved in so many biological processes. I believe anyone conducting research has hit roadblocks. One way I work to move past mine is first taking a step back, breathe, to get rid of any frustration. Next, I go back to the basics, to check if I made a technical mistake. If that doesn't resolve the problem, then I discuss with my PI and collaborate with my lab mates to see if they have any suggestions on how to fix the problem. I am facing an internal dilemma about whether to pursue a career in academia or industry once I graduate. However, I am certain that I want to continue conducting research, possibly focusing on a particular disease like lupus. I enjoyed SLB 2023 and participated in the career workshop which I found enriching due to the diverse representation of individuals from both prominent R1 institutions and institutions with a stronger emphasis on teaching. One valuable lesson I learned from the workshop is the importance of identifying your priorities. Once you have determined what matters most to you, it is crucial to ensure that the places you apply to align with those priorities.



Madison Bunch, Graduate Student, University of Tennessee Knoxville

I am a 2nd year PhD student in Jeremiah Johnson's lab in the Microbiology department at the University of Tennessee Knoxville. In my free time, I love reading a good book and snuggling up with my two cats. Our lab works with the gastrointestinal pathogen *Campylobacter jejuni*. I was originally interested in joining the Johnson lab because I wanted to study bacterial pathogenesis. I ended up joining the lab because I wanted to further explore the interactions between this pathogen and the immune system. As a new graduate student, a roadblock I have hit is learning how to adapt to a new lab environment that uses an abundance of different techniques. I have been able to overcome this obstacle by shadowing the senior grad students in my lab and in the department to learn these new techniques. Once I graduate, I hope to pursue a post-doctoral position at another university and eventually enter a career in academia. I enjoyed SLB 2023 and the career workshop really emphasized the importance of taking advantage of every career opportunity offered to you as a young professional in the academic career.



2024 Legacy Awardee Announced

Please join us in congratulating Alfred Ayala as the recently named 2024 SLB Legacy Awardee! [Learn more about AI](#) and join us at [SLB 2024](#) where he will present the keynote lecture title "[Mechanisms of Immune Dysfunction in Sepsis/Shock: Some Unique Roles for Checkpoint Proteins](#)". AI is a clear example of not only a great scientific contributor, but also a keen supporter of the SLB community.

Behind the Science: An Interview with a JLB Author

Read the full article in JLB



Rac2 regulates immune complex–mediated granule polarization and exocytosis in neutrophils

Ramses Ilarraza, Danny V. Chao, James A.R. Bodman, Alexandra Chesley, Adam Humble, Farzana Shaheen, Gary Eitzen, and Paige Lacy

[Contact Ramses](#) to learn about his work...

Q: Where did your journey in science begin (what inspired you to pursue a career in science)?

A: Being a scientist is not easy. I am thankful for the people who have inspired me during my career, and those who have encouraged me. My first real-life incursion in a research lab happened when I was a third-year undergrad student at the second oldest university in the American continent, the National Autonomous

University of Mexico (UNAM), which was founded in 1551, predating Harvard University by roughly 125 years. One of my courses required participating in a research project, which I did in the lab run by Dr. Cecilia Montañez. I was involved in the sequencing of genes from the parasite *Giardia lamblia*, which we did manually by reading bands out of an autoradiography of a sequencing gel. I was fascinated by this, discovering something that was previously unknown, and contribute to a worldwide community. I knew I was hooked. I moved on to studying lambda phage antitermination. For my PhD in Genetics and Molecular Biology, I developed an *in vitro* model of the neuromuscular junction which I used to study the role of the human dystrophin isoform Dp71. My investigations in biomedicine led me to explore my passion for the immune system, inspired too by the work done by my wife, Dr. Nancy Arizmendi, who never ceases to amaze me.

For my first postdoctoral fellowship, I joined Dr. Darryl Adamko's lab at the University of Alberta. In this group I was fortunate to meet Dr. Dean Befus, who is an exemplary scientist and a great human being. With Dr. Adamko, we made great advances in the knowledge on the role of viruses in airway hyperresponsiveness and asthma. I am proudest of a particular discovery of an alternative mechanism of eosinophil degranulation mediated via T cell activation by rhinovirus that was shown to be independent of antigen presentation, an unexpected and intriguing finding. We published this in the *Journal of Allergy and Clinical Immunology*, and our work garnered the attention of the editor, who highlighted it as an Editor's Choice article. From there, I was invited for a second postdoc by a renowned eosinophil researcher and former president of the International Eosinophil Society, the late Dr. Moqbel. During this fellowship, we continued to study eosinophil and T cell activation, in the context of kynurenine-mediated glutamate receptors. Sadly, Dr. Moqbel became gravely ill during that time, and unfortunately passed away. I was fortunate to be able to complete my fellowship with Dr. Paige Lacy. This article is the product of that collaboration.

Q: How did you choose your current research topic and interest?

A: My journey has been long and I have come across some highs, and also some bumps in the road, like most of us do. That being said, I will never regret dedicating my career to it. At one point, I was recruited as a professor by a university in Mexico. However, I made the hard decision not to pursue that avenue, and instead started to work in changing my focus towards options that allowed me to multiply the impact of my work. I would have loved to continue my research as a professor at a university, focused on the mechanisms of adaptive immunity. However, after almost three decades of work, I made the decision to move on from the lab and apply my skills and experience into becoming a research catalyst, by pursuing roles that enabled me to lead others and foster the growth of early career researchers. During this stage in my career, in senior academic administration positions I was able to further develop my network and infuse some of my passion for research into the next generation. My current role at the University of Alberta, allows me to interact with dozens of researchers on a daily basis, learning from their investigations and helping pave the way for their own journey.

Q: Could you use a few lay sentences to describe/summarize your findings in this paper?

A: In this article, we described a mechanism for the activation of the most abundant type of white blood cell, one that is part of the first line of immune defense against infection: the neutrophil. Neutrophil activation is key for their function: when active, neutrophils are able to physically remove infectious agents (bacteria, virus, and parasites) by engulfing them through a process known as phagocytosis; just as important is their ability to release many immune-relevant substances that are stored in granules inside the neutrophils. Neutrophils have different types of granules inside them, divided into primary, secondary and tertiary granules, which contain different molecules inside them. This range of neutrophil granules enables them to exert different effects by regulating the release of different immune mediator molecules, all dependent on the stimuli to which they are subjected. The mechanisms for the intracellular transport of the different granules to the cell membrane, so that their contents can be released through the process known as degranulation, have been studied in the lab under conditions that are artificial to a certain degree. There may be significant differences between the activation mechanisms observed under these conditions, compared to what naturally occurs in the body, under physiological conditions. For the work in this report, we studied neutrophils from genetically-modified mice, and those obtained from human blood, which were activated under physiologically-relevant conditions. What we found was that neutrophils obtained from mice that were deficient in a particular enzyme, *Rac2*, exhibited impaired activation by immune-relevant molecules (i.e., immune complexes of antibodies and their target molecules), in particular in relation to the release of the contents of primary and tertiary, but not

secondary granules. We also found that, when exposed to stimulus, the neutrophils from Rac2-deficient mice were unable to generate filopodia, which are elongated protrusions of their membrane that are necessary for neutrophil degranulation. The generation of filopodia is the result of internal reorganization of the cytoskeleton, which can be considered as the scaffolding that maintains the cell shape and integrity. This reorganization serves a major role for the internal transport of granules and vesicles inside the cell. From a list of potential molecules known to be involved in the reorganization of the cytoskeleton, we identified the protein Coronin 1A to be associated to Rac2-mediated degranulation of neutrophils. The knowledge of the mechanisms that lead to the activation of neutrophil provides an opportunity for the development of novel therapeutic alternatives to help those who suffer from impaired immunity against infection.

Q: What was the most exciting or memorable moment(s) during the process of this research?

A: Research is a collective effort, from planning to execution and publication. Most of the findings of this work from the lab of Dr. Paige Lacy were done by a great undergrad student, Dr. Danny Chao who has since moved on to the next step in his career. For this research, the greatest hurdle was also the one that I appreciated most: telling a story. Scientists are, to some degree, storytellers. We design and execute research projects, but in the end, we share stories with our colleagues and others, in a continuous effort to enlighten ourselves and apply this knowledge to make the world a better place. The Rac2 story needed to see the light, and I am proud to be the one to tell the story.

Q: What was the biggest hurdle or challenge associated with this story?

A: Taking the lead of a project that predates you is a challenge, particularly when past participants are no longer available. I was pleased to have the support of Dr. Lacy, who helped fill in the gaps in the story and make it cohesive. In relation to the technical aspects of it, working with neutrophils is always complicated, from sourcing to handling, given their inherent sensitivity to become activated and short lifespan.

Q: Besides your PI is there anyone that significantly helped on your path to become a scientist?

A: My first and most important example has been my mother, who is a biologist too. From her, I learned the value of ethics and the pleasure of knowledge. I was asked this same question during an interview I gave for a newsletter, back when I was in high school, and I will respond as I did then: I got into science not because my mother did, but in spite of it. I did it knowing there were big steps in which to follow. I will forever be thankful for her inspiration to be always inquisitive and unafraid to pursue my dreams.

Q: What would your advice be for junior or incoming Ph.D. Students who want to pursue a career in science and perhaps your field?

A: A career in science can take many shapes, and it is important for new scientists to be aware of this. Science is an ever-evolving field, one in which new doors are constantly opening, while others transform or cease to exist. I believe the Cheshire Cat said it best, when Alice questioned him on what path to take: "That depends a good deal on where you want to get to". Science takes multiple shapes and forms, from the traditional academic work to new avenues in industry and entrepreneurship. Paths are forged based on conscious decisions, peppered with moments of sheer luck and inspiration, solidified by the relentless factor that is timeliness. While some achieve unquestionable success and, sometimes, fame, our greatest joy usually comes from being the first ones to know something new. In the end, we must keep in mind that the journey is as important as the destination, and we must make sure to take time to enjoy it. Prepare yourself for a life of continuous learning, evolution and amazement. Fearing that this may be considered a cliché, I would like to quote Thomas A. Edison: "Genius is one percent inspiration and ninety-nine percent perspiration". This is true for scientific research. Scientists dedicate long hours, frequently during stressful times in our lives, to unravelling the mysteries of the world and beyond. We do this, usually not for the sake of pecuniary benefits, but for our interest in being part of a collective effort to propel the world forward. My final advice would be to conduct themselves with the highest ethical standards, even when it would be easier and more rewarding to compromise. We owe it to ourselves and to those who look up to us.

Q: What's next for you?

A: As you can gather from the story of my life, I am in continuous evolution. At the moment, I have found that I am good at what I do, and I can have a pleiotropic impact on others, which effectively multiplies the results of my effort. While I sometimes miss working in the lab, I have dedicated close to three decades of my life to it. It is time for me to be involved in it, albeit at the next level. I plan to continue to take leadership roles of increasing effect in the research community, and that can take many different shapes. For now, being a leader in my community, able to apply what I have learned to help my peers in achieving their own discoveries sounds great.

**Not Lost in Translation:
Innate and Adaptive
Immunity**

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Aberrant Immune Programming in Neutrophils in Cystic Fibrosis

Yawen Hu, Christine M. Bojanowski, Clemente J. Britto, Dianne Wellems, Kejing Song, Callie Scull, Scott Jennings, Jianxiang Li, Jay K. Kolls, and Guoshun Wang

Contact [Yawen](#) to learn about her work...

Q: Where did your journey in science begin (what inspired you to pursue a career in science)?

A: I came to the US to pursue a MS degree in Biomedical Sciences at Iowa State University. During that time, I felt the most difficult course was immunology. Then, I spent lots of time learning in an immunology course, reading plenty of papers in different topics on immunology, and became interested in the research of immunology. Then, in my first year of my PhD, I caught a chance to join Dr. Masami Yoshimura's lab at the LSU Vet School, and started research in innate immune response in pulmonary inflammation with alcohol drinking.

Q: How did you choose your current research topic and interest?

A: Since I got experience in studying innate immune responses in lung injury in my PhD education, I would like to explore more about pulmonary immune responses and innate immunity. My current research focus is on pulmonary inflammation and infection in cystic fibrosis (CF). One of the hallmark symptoms of CF patients is persistent neutrophilic inflammation. Therefore, my current research extends my knowledge in neutrophil and neutrophilic inflammation in the lung.

Q: Could you use a few lay sentences to describe/summarize your findings in this paper?

A: Persistent neutrophilic inflammation is a major contributor to CF lung disease. However, CF neutrophils were intrinsically primed without stimulation, and became exhausted upon challenge.

Q: What was the most exciting or memorable moment(s) during the process of this research?

A: Since the majority of my PhD training was in wet lab training, it was a very big challenge for me to do scRNAseq data analysis

independently. I learned R programming and Python, and ran data analysis by myself. In the beginning, it was very time-consuming work, and I did not exactly know what I could get from programming scripts. The most exciting moments for me was when I became able to generate beautiful pictures by R and python, and this dry lab data analysis results was consistent with what we detected in the wet lab.

Q: What was the biggest challenge associated with this story?

A: The same as the previous question. I learned R programming and Python, and ran data analysis by myself.

Q: Besides your PI is there anyone that significantly helped on your path to become a scientist?

A: Yes, my PIs or major professors in my MS, PhD, and Postdoc period all helped me a lot to become a scientist. Additionally, the endless understanding and encouragement from my parents helped me significantly to obtain what I have achieved.

Q: What would your advice be for junior or incoming Ph.D. Students who want to pursue a career in science?

A: Find a target, and keep working until you achieve it.

Q: Tell us something interesting outside of being a scientist about yourself

A: Outside of being a scientist, I am very interested in exploring something different from my daily work and life. For example, I like traveling, reading, making friends who are not scientist and listening to their life stories.

Q: What's next for you?

A: I still have some very interesting on-going projects on my hands. I will keep working on them, and think about new research directions.



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