iSLB

Spring 2021

Vol 1



OFFICIAL NEWSLETTER OF THE SOCIETY FOR LEUKOCYTE BIOLOGY

From the President

Welcome to 2021 and this year's first iSLB issue! There are great things going on at SLB and many reasons to be optimistic. We have vaccines to SARS-CoV-2, NIH funding continues to be supported, and Science is again recognized as an important driver of policy. However, we continue to feel the effects of the pandemic, personally and professionally, in so many ways. We hope that SLB we can play a significant role in continuing to bring interactive collaborations, science discussions, and perhaps most importantly, a great venue for training and career development throughout 2021. Given the uncertainty of when the world will return to "normal", SLB has decided to hold this year's meeting, "Immunometabolism: Fueling the Flame of Aging, Cancer and Immunity", in a virtual format. The Conference Chairs, Drs. Laura Nagy and Vidula Vachharajani, have organized an exciting program, highlighted in this issue. SLB is privileged to provide outstanding talks along with abstract and awards opportunities to all participants. There are many advantages to SLB membership; the annual meeting is just one of the avenues where we can share our science, mentoring, and collaborations with one another.

In addition to the Symposium speakers, there are a number of workshops included in the virtual 2021 SLB meeting that continues our commitment to training and career development. These include the Diversity, Equity and Inclusion Workshop, Professional Development Workshop, as well as the Members in Transition and Training (MTTG) SLB SCHOOL program. You can learn more about all of these programs in this newsletter. While there is no substitute for the valuable interactions that occur at an in-person annual meeting, this alternate approach required for 2021 offers the



opportunity to participate in the virtual Annual meeting and to benefit from the outstanding program that has been organized. Please tell your colleagues and let them experience the great opportunities that are offered by SLB and the benefits of our community. <u>Sign up and submit your</u> <u>abstracts</u> and don't forget about the awards!

The success of Journal of Leukocyte Biology is central to our Society's success and includes SLB membership participation as Authors and Journal Reviewers. A new endeavor initiated by SLB and JLB partnering together is the formation of the Reviewer Training Task Force to develop training materials for manuscript reviewers. The Task Force, headed by Peter Keyel, is putting together a combination of didactic and power point driven modules to deliver content that will also include mentored assessment of trainee reviews and implicit bias training. The goal of the Task Force will be to have on-line content together by summer for use by SLB members at all levels to increase JLB Reviewer pools and expertise. We look forward to Society members participating in these efforts as both learners and mentors. Please participate in the survey and help in this important endeavor to extend Career development of our Society members.

As always, we look forward to your engagement in SLB activities. Please <u>email</u> <u>Jen Holland</u> with questions, ideas, and to get involved.

IN THIS ISSUE

Immunology Educators Resources RES Archive Behind the Science: JLB Author Interviews New Trainee Awardees JLB Impactful Science Perspectives from India Annual Image Contest

SOCIETY FOR LEUKOCYTE BIOLOGY

Welcome to our new iSLB Editor!

Henrique Serezani is the new chair of the Communications Committee and iSLB Editor. Henrique is an



Henrique Serezani, iSLB Editor

Associate Professor of Medicine, Infectious Disease, Pathology, Microbiology and Immunology at Vanderbilt. His research focuses on understanding host defense in pre-existing inflammatory conditions.

2 SPECIAL INTEREST GROUP SATELLITES COMING IN APRIL!

Wed., April 7th - 11am-12pm & 1pm-2pm EDT Maladaptive Host-Pathogen Responses and Autoimmunity in Airways Diseases Chairs: Lael Yonker, Massachusetts General Hospital and Balazs Rada, University of Georgia, Athens

Thurs., April 29th - 11am-12pm & 1pm-2pm EDT Innate Immune Training Chairs: Julia Bohannon, Vanderbilt University Medical Center, and Liwu Li, Virginia Tech

Learn more and register

Attention All Immunology Educators!

By Heather Bruns

As information in the field continues to increase exponentially and the workforce demand for individuals trained in immunology continues to grow, developing an educational infrastructure within the field of immunology is critical. One of the first steps in building that infrastructure is to create a platform that can bring immunology educators with diverse interests together to exchange ideas, initiate discussions, and share resources. The SLB Professional Development Committee, with key member Heather Bruns, (Associate Professor and Vice Chair of Education for the Department of Microbiology at the University of Alabama at Birmingham) is excited to provide a new platform for these essential conversations. The intention of creating the Immunology Educator Resources Webinar Series is to serve all educators in the SLB community and, from this platform, build an ongoing network of immunology educators.

In the last three decades, despite rapid discovery in the field, immunology, as a discipline, has seemingly made little progress in developing educational curricula or resources to support immunology educators. Compare immunology to both its content counterpart, microbiology, and the equally complex field of neuroscience. Both of these disciplines have created education-focused journals, meetings, and networks that support the development and dissemination of educational innovations, particularly at the undergraduate level.

Perhaps the dearth of resources in immunology education stems from a lack of emphasis on immunology at the undergraduate level. There is a scarcity of U.S. Institutions offering undergraduate degrees in immunology. Notably, in 2017, no U.S. Institution offered a Bachelor of Science in immunology, but a few offered "immunology-related" degrees (<15), compared to greater than 200 institutions offering a B.S. in neuroscience and more than 100 institutions offering a B. S. in microbiology.



SLB hopes to foster these conversations in support of our current members and also to strengthen and grow the future of our common discipline. <u>Review the coming webinars and sign-up</u> and <u>contact us</u> if you would like to get involved in future session planning!



RES Now Available Online! By Albert Sek

Issues of the *RES: Journal of the Reticuloendothelial Society* from 1973 – 1983 are now available to members of the Society for Leukocyte Biology by visiting the <u>RES Archive Section of the Society's Website</u>.

The *RES: Journal of the Reticuloendothelial Society* (1964 – 1983) served as the official journal of the Reticuloendothelial Society. First described for their ability to absorb and retain vital dyes, leukocytes, as well as endothelial cells, were thought to originate from common precursors in the liver and the spleen. However, work by Roger Baker and others demonstrated that these two cell types had distinct origins and could not be classified together. In recognition of this important distinction, the journal and the society reclassified as the Journal of Leukocyte Biology (1984 – present) and the Society for Leukocyte Biology, respectively.

While the title of the journal appears slightly different, the work contained within the RES: Journal of the Reticuloendothelial Society consists of high caliber and fascinating advances in the field of leukocyte biology. This year, we will be highlighting the work that is available through the digital archive; we invite you to log on to the website and to explore as well.

We begin by introducing the 5 most cited articles from the RES: Journal of the Reticuloendothelial Society:

- 1. Symoens, J., Rosenthal, M. Levamisole in the modulation of the immune response: the current experimental and clinical state (1977) <u>RES, 21 (3)</u>, pp. 175-221.
- 2. Tew, J.G., Thorbecke, J., Steinman, R.M. Dendritic cells in the immune response: Characteristics and recommended nomenclature. (A report from the RES committee on nomenclature) (1982) <u>RES, 31 (5)</u>, pp. 371-380.
- 3. van Oss, C.J., Absolom, D.R., Moore, L.L., Park, B.H., Humbert, J.R. Effect of temperature on the chemotaxis, phagocytic engulfment, digestion and O2 consumption of human polymorphonuclear leukocytes (1980) <u>RES</u>, <u>27(6)</u>, pp. 561-565.
- 4. Shepherd, V.L., Campbell, E.J., Senior, R.M., Stahl, P.D. Characterization of the mannose/fucose receptor on human mononuclear phagocytes (1982) <u>RES, 32 (6)</u>, pp. 423-431.
- 5. Lazar, G. The reticuloendothelial-blocking effect of rare earth metals in rats. (1973) <u>RES, 13 (3)</u>, pp. 231-237.

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In our next issue, we will be highlighting an *RES* article from the <u>2021 Society for Leukocyte Biology Awardee</u>, Charles (Cash) McCall – stay tuned!

Behind the Science: Interviews with Early Career JLB Authors by Alan Hsu



Effect of extracellular vesicles from S. aureus-challenged human neutrophils on macrophages

Edwina Allen, PhD student in the lab of Dr. Mallary Wacker, Department of Biology, Central Michigan University, Mount Pleasant, Michigan, USA

Online member article access

Contact Edwina to learn more about her work...

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

A: I came to science through a combination of factors. First, from my love of gardening and the natural world, where, as child I was always trying to grow one thing or another under different conditions. And second, following in my grandfather's footsteps in becoming a pharmacist. Through working as a pharmacist, I found that I also wanted to participate in building our understanding of how the immune system fights infection , leading me to pursue research.

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

A: Ever since I can remember, I have been passionate about diseases caused by infectious agents. As a pharmacist, was particularly interested in antimicrobial stewardship, and avidly followed literature on novel antibacterial drugs. Working in the hospital, L saw how inflammation during an infection often contributed substantially to disease severity, and my attention shifted from microbes to humans. My interest has since turned to focus on more host-directed therapies to fight infection, with a focus on dampening excessive inflammation

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

A: We studied extracellular vesicles (EVs) released from neutrophils when they are exposed to bacteria. The EVs are attached to both DNA and bacteria, and as expected, the bacteria contributes to inflammation. When the DNA and bacteria are removed, the vesicles are no longer inflammatory, and instead lead to an increase in macrophage antigen presentation proteins, which are proteins required to activate our more specific immune responses.

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

A: We were pretty excited by the clear-cut finding that when you remove the DNA and the bacteria from EVs, that they increase expression of macrophage presentation proteins.

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

2021 Workshops

The Art of Productive Research Mentoring: Best Practices for Meaningful Mentor/Mentee Relationships Look for coming details about these great workshops in June organized by the Professional Development and DEI

A: Earlier in the research project, we had an interesting result using a chemical inhibitor, and we were performing some follow-up where the results didn't make sense. So we went back to the first experiments and tried to repeat them using a different formulation of the inhibitor. To our surprise, we could never repeat those initial findings. Getting one result and then another with a different formulation really does stress the importance of rigor, controls, and good documentation in science.

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

A: My parents always encouraged my love of nature and my inquisitiveness. I have also watched my husband's research career grow over the years, and worked together with him on a project looking at historical tornadoes in Australia, which is where we are both from. I really love the detail-oriented elements of this research, and so I started down my own path in research at CMU. My PI is always so supportive, and we've also had a lot of fun with our research over the years.

Q: What's next for you?

A: In the short term, I am really interested in exploring how DNA is tethered to the EVs, and whether it plays a role in inflammation. Longer term, I hope to continue working with extracellular vesicles in the context of immunology, as this is the field I am really passionate about.

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: At CMU, I get to mentor undergraduate students frequently, and I see how important it is to be able to find a place where new lab members feel supported by colleagues in a positive environment. Also, one of the most valuable lessons I've learned is that failure is part of science, and that accepting and embracing failure can often lead to the best successes. It is different than anything in any other position I've held in life, where it could be acceptable that things could be wrong.

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

A: Outside of being a scientist, I really love gardening. Nothing tastes as good as a tomato you grew yourself. I also head out every summer to the Plains States to chase storms with my husband.

Q: Anything you would like to add.

A: Thank you for the opportunity to highlight our work, and I hope to encourage any other non-traditional scientists to follow their passion.

Celebrating Diversity and Supporting Inclusive Environments: Why is it Important?



CD40 signaling restricts RNA virus replication in $M\phi s$, leading to rapid innate immune control of acute virus infection

Kai Rogers, MD/PhD Student in the lab of Dr. Wendy J. Maury, Department of Microbiology and Immunology, University of Iowa, Iowa City, Iowa, USA

Online member article access

Contact Kai to learn more about his work...

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

Q: Where did your journey in science begin?

A: I initially got interested in science because my father was a scientist. I joined the Marine Corps directly after High School and got a later start at college. When it came time to pick a major I thought, "science worked for my dad, I guess I will probably like it too?" I have always had a passion for solving problems and science ended up being an excellent fit for me.

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

A: I have been interested in zoonotic viruses, specifically those that cause hemorrhagic fevers, for several years. When I came to lowa and found out that there was someone working on Ebola virus, I was immediately captivated. The topic itself was more related to what my PI was working on when I started in the lab, although I honed in on the projects relating to macrophages because I found I enjoyed working at the interface of virology and immunology.

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

A: Our lab has historically been interested in Ebola virus and the ways it interacts with the human immune system. We characterized a signaling pathway on a subset of white blood cells that is triggered by Ebola very early in infection. When this pathway is activated it results in the production of an anti-viral compound, called interferon gamma, which helps to control the replication of the virus. When this signaling pathway is broken the body is less capable of defending itself from infection and the virus is able to cause more severe disease.

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

A: The memory that jumps to mind stems from the very first experiment we performed. In trying to replicate the work of a previous student I accidentally infected the mice with an inappropriately low dose of the virus. This error actually unmasked the phenotype we then spent the next several years exploring. Sometimes it pays to make mistakes!

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

A: I would say the publication process itself was the most challenging aspect. It took us a very long time (with failures along the way) to refine this story and figure out how to best present it. We knew we had something interesting but really struggled with finding the narrative.

A: Too many people to name! Iowa is well known for its collaborative research environment and there have been many people that have helped mentor me along the way. Most importantly though would be my father. He taught me "how to learn" from a young age and constantly pushed me to be the best version of myself. I can confidently say I would have never considered a career in science without his support and example.

Q: What's next for you?

A: The MD/PhD career path is somewhat formulaic in the early stages. Once I finish up medical school in May I will start my residency in Pathology. I am planning on doing a research-focused program (Physician Scientist Training Program, PSTP) that combines residency training, postdoctoral work, and a fellowship in transfusion medicine. Ultimately I hope to stay in academia, covering the transfusion medicine service and running a lab. The subject of my life's work has yet to reveal itself, but I imagine I will stay in the realm of host-pathogen interactions or venture into clinical immunology.

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: Consider the merits of saying "yes" when presented with new opportunities, even if they take you outside your comfort zone or you don't immediately see the return on the investment of your time and efforts. There have been many instances in my short time in science that collaborations, speaking engagements, publications, etc have arisen from seemingly mundane tasks that were presented to me. That isn't to say you shouldn't be careful of your time, and certainly you don't want to spread yourself too thin, but opportunity tends to come knocking more often when you have a history of answering the door.

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

A: Probably the most interesting aspect of my life outside of science is my hobby as an amateur arthropod macro photographer. My interest in photography stems from a fascination with social insects (of the order Hymenoptera), specifically ants, and a desire to observe them more closely. I have been photographing arthropods for a couple of years now and find it to be a fun hobby that also gives me an excuse to travel. I tend to plan my vacations based on the local arthropod biodiversity, often paying little attention to more typical local attractions, much to the chagrin of my spouse and our children.

2021 SCHOOL Program week of June 14th

- Immunometabolism: A historical perspective to the latest developments with Luke O'Neill
- Covid 19: Understanding the virus and host responses
- Methods to study cellular metabolism: Seahorse and SCENITH

 A hands-on workshop covering tools used to analyze images

Learn more and register

 Best practices for job talks in academia: How to communicate your scientific value and future goals effectively

Welcome New SLB Trainee Awardees



Dale Allen has been selected as an SLB trainee awardee because of his enthusiasm for science and hard work in the lab. Since starting as a Research Assistant at The Scripps Research Institute, Dale has advanced the optimization of our labs' research techniques relating to COVID19. He has also mentored a young researcher and continues to develop his leadership skills. Dale is excited about his research and continues to be an important part of our team. – Sergio Catz



Isabel Gomez is a PhD student at the University of Paris at the Cochin Institute at the end of her third year PhD. Her studies are focused on the role of type IV Pili retraction in Neisseria meningitidis pathogenesis in inflammation directed by Dr Sandrine Bourdoulous and is supervised by Dr Philippe Morand. Isabel has been deeply involved in the collective research efforts during the first period of the SARS-COV2 pandemic. – Veronique Witko-Sarsat

Be an SLB Ambassador and award your own trainees!

<u>Contact us</u> to learn more.

Rodrigo Formiga is a PhD student at the University of Santa Catarina (Brasil). Rodrigo is doing one year mobility in Cochin Institute in Paris. He has received the Eiffel Award from Campus France, a very competitive fellowship to perform a one year PhD at the University of Paris. Rodrigo made an outstanding presentation in December 2020 on his findings on the role of Siglec receptors on neutrophils during the COVID-19-associated pneumonia from his lab directed by Pr Fernando Spiller. – Veronique Witko-Sarsat

Survey Opportunities

- <u>Provide input on the new Reviewer Training Program</u> SLB is planning as a service to our members and in securing the next generation of quality reviewers.
 - <u>Give your feedback on immunology curriculum</u> and be a part of the path forward for education in our science.

Impactful Science A sample of highly cited articles from JLB....

10.1002/JLB.3COVR0520-272R	CYTOKINE STORM AND LEUKOCYTE CHANGES IN MILD VERSUS SEVERE SARS-COV-2 INFECTION:
	REVIEW OF 3939 COVID-19 PATIENTS IN CHINA AND EMERGING PATHOGENESIS AND THERAPY
	<u>CONCEPTS</u> Montaner, Luis; Chen, Xin; Jiang, Mengmeng; Wang, Jin
10.1002/JLB.4Rl0818-311R	MONOCYTE HETEROGENEITY AND FUNCTIONS IN CANCER_Hedrick, Catherine; Dinh, Huy; Olingy,
	Claire
10.1002/JLB.MR0718-269R	MECHANISMS OF NATURAL KILLER CELL-MEDIATED CELLULAR CYTOTOXICITY Watzl, Carsten;
	Prager, Isabel
10.1002/JLB.MR0218-056RR	THE EMERGING ROLES OF MACROPHAGES IN CANCER METASTASIS AND RESPONSE TO
	<u>CHEMOTHERAPY</u> Karagiannis, George; Oktay, Maja; Condeelis, John; Etenberg, David; Borriello,
	Lucia; Sanchez, Luis
10.1002/JLB.3MIR1118-443R	EXTRACELLULAR CIRP (ECIRP) AND INFLAMMATION Wang, Ping; Aziz, Monowar; Brenner, Max
10.1002/JLB.3MIR1218-483RR	BELOW THE SURFACE: THE INNER LIVES OF TLR4 AND TLR9 Marongiu, Laura; Gornati, Laura;
	Artuso, Irene; Zanoni, Ivan; Granucci, Francesca
10 1002/II B 2MIP1218-(07P	LOCATION IS THE KEY TO FUNCTION: HMGB1 IN SEPSIS AND TRAUMA-INDUCED INFLAMMATION
10.1002/JED.3WIK1210-49/K	Billiar, Timothy: Fan, Jie: Scott, Melanie: Deng, Meihong
10.1002/JLB.4MIR1118-425R	NEW STRATEGIES FOR TREATMENT OF INFECTIOUS SEPSIS Fattahi, Fatemeh; Ward, Peter
10.1002/JLB.MR0818-319R	MICROGLIA IN ALZHEIMER'S DISEASE: A TARGET FOR IMMUNOTHERAPY_Colonna, Marco; Wang,
	Shoutang
10.1002/JLB.MR0519-143R	PHENOTYPIC IMPACTS OF CSF1R DEFICIENCIES IN HUMANS AND MODEL ORGANISMS Hume, David;
	Caruso, Melanie; Ferrari-Cestari, Michelle; Summers, Kim; Pridans, Clare; Irvine, Katherine
10.1002/JLB.MR0718-300R	TARGETING NKG2A TO ELUCIDATE NATURAL KILLER CELL ON TOGENESIS AND TO DEVELOP NOVEL
	Michela: Marcenaro, Emanuela: Mavilio, Domenico
10.1002/JLB.MR0318-095RR	MACROPHAGE HETEROGENEITY AND PLASTICITY IN TUBERCULOSIS Khan, Arshad; Singh, Vipul;
	Hunter, Robert; Jagannath, Chinnaswamy
10.1002/JLB.MR1218-478R	LEPTIN IN THE REGULATION OF THE IMMUNOMETABOLISM OF ADIPOSE TISSUE-MACROPHAGES
	Moraes-Vieira, Pedro; Monteiro, Lauar; Pereira, Jessica; Palhinha, Lohanna
10.1002/JLB.MR0618-226R	THE MULTIPLE FACES OF CD5 Soldevila, Gloria; Mier-Aguilar, Carlos; Burgueno-Bucio, Erica
10.1002/JLB.4MIR1018-397RR	A STING TO INFLAMMATION AND AUTOIMMUNITY Kumar, Vijay

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Perspectives from Around the World

Cuttack, Odisha, India By Rajeshwari Parida

Rajeshwari's research interest is focused on the contribution of microbiome molecular mimicry in the gut-lung axis. She received her PhD in May 2019 and would like to study the beneficial and adverse effects of those mimicked microbial antigens in various lung diseases that may include airway, lung tissue and lung circulation diseases. As a result, improved immunotherapeutic approaches can be developed to treat different lung as well as lung associated diseases. In addition, Rajeshwari is also interested in identifying whether any of those mimicked microbial antigens are able to act as significant autoimmune biomarkers in lung diseases.





My home in the city of Cuttack belongs to the state of Odisha in India. It is famous for its rich culture and silver pilgrimage. Cuttack holds the enigma of diversity and lavish festivities. Both Eid and Dussehera are celebrated with great enthusiasm bringing out the cosmopolitan spirit of India. The streets are always busy and adorned with exquisite lighting giving one a feeling of Diwali throughout the year. After completing my PhD in 2019, I joined Ravenshaw University as a guest faculty member. I was about to complete my first year when things took a turn. It was February and I was organizing a workshop for the upcoming International Day of Immunology celebration at my University. I was excited to organize this on behalf of the International Union of Immunological Societies and Indian Immunology Society. I was busy inviting teachers and students from different schools as part of the program. Amidst those preparations, I was also keeping an eye on SARS-CoV2 infections and deaths in Wuhan and Italy which were quite disturbing. Everything was going fine until March 2020 when the infections emerged everywhere else, in a world not ready for a global pandemic. A nationwide lockdown was declared and suddenly my city became quite still. The streets were empty and schools and Universities were shut down; it was quiet. And then the horrific noise of ambulances started to replace the silence. Hospitals and COVID rescue shelters started filling. Night curfews, patrolling, and stringent law and orders were enforced and it was difficult for some to understand about the power of masks and sanitization. Lockdown was a good decision indeed, but it threatened the livelihood of many poor people; zeroing in on a global economic crisis. The most affected were the migrant workers who were truly lost and who were forced to, through chaos, make their way back, on foot, to their native homes. It was a daily heart wrenching scene lightened by the kindness and generosity of our many heroes including rescue and medical teams.

Along with many parents, I navigated the education of my 6 year old via virtual platforms which was a cumbersome task. After some time, the combined efforts of our teachers, students and parents made primary education a grand success. Financial troubles continued however with several job openings cancelled abruptly for valid reasons. It was hard to see the path to my scientific career. News was an important medium to stayed updated on the world events and during those times, seeing Dr Anthony Fauci was highly motivating. It provided a broad vision about various ways to deal with the present pandemic and our faith in vaccines. Meanwhile, communication improved as I found opportunities to attend many virtual conferences organized by various academic societies including SLB and organizations like IEDB, NFID, IIS, IUIS, SIR and IOIS. These virtual platforms not only helped grow my knowledge, but they also reinforced my dedication to science. I am thankful for SLB's generosity in making their resources available and accessible to early career scientists like me. I enjoyed the 2020 virtual meeting and am looking forward to the 2021 program as well. Honestly, SLB has been a highly encouraging virtual platform for science lovers like me. I think almost everybody around the globe has learned a few basic concepts about virology and immunology with the pandemic. Now with vaccines available, we are hopeful that things will start to normalize, and our scientific career opportunities will return; all the while keeping in mind that viruses, by their own virtue, will keep mutating.

SLB's Third Annual Image Contest

April 29th is the International Day of Immunology! SLB welcomes members to participate in a little fun. Submit an original, self-made, unpublished image in any of these categories and be entered into a prize drawing. Formats accepted include jpegs, gifs, pngs, and pdfs.



iSLB

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contacts: <u>Membership</u> <u>Meetings</u> <u>Administrative Office</u>



VOLUNTEER OPPORTUNITY

The SLB Publication Committee is seeking new volunteers. <u>Contact us</u> if you would like to get involved in this committee's initiatives.

SLB 54TH Annual Meeting

Immunometabolism: Fueling the Flame of Aging, Cancer and Immunity

Registration, Abstract, and Award Systems now OPEN.

FREE for Members

Register today

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See the 2021 Welcome Video Presented by Nick Lukacs, SLB President, and the 2021 Program Chairs, Laura Nagy and Vidula Vachharajani