

SPECIAL ISSUE

# AAI NEWSLETTER IMMUNOLOGY 2016™

PROGRAM PREVIEW

MARCH/APRIL 2016



The American Association  
of Immunologists

AAI Annual Meeting

May 13-17, 2016

Seattle, WA

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# AAI President's Invitation to IMMUNOLOGY 2016™



Dan R. Littman  
AAI President

## Dear Colleagues,

It gives me great pleasure to invite you to attend the 100th\* annual meeting of the American Association of Immunologists (AAI) - IMMUNOLOGY 2016™ – to be held May 13 – 17 in Seattle, the jewel of the Pacific Northwest. At the beautiful Washington State Convention Center, we will be in a

majestic setting, surrounded by water and mountains — Puget Sound, Lakes Washington and Union, and the Olympic and Cascade mountain ranges. Reigning above all is mighty Mount Rainier originally known as Tahoma, its Native American name meaning “mother of waters,” as its glaciers feed many of the region’s rivers and lakes. Seattle itself is a cultured and hip city, with great restaurants, the Pike Place Market, Volunteer Park, and many other attractions. It is an ideal setting to take in great science while enjoying all the urban and recreational opportunities.

As detailed in the Program Preview section of this newsletter, beginning on page 27, attendees will hear from world leaders in their field and the most talented early-career scientists alike speaking in Major Symposia, Distinguished Lectures and Awards Lectures, Guest Society Symposia, NIH Institute-sponsored Symposia, 82 Block Symposia, and more than 1,800 poster presentations. I am particularly excited to host the President’s Symposium, which this year will focus on the interaction of viruses with the host immune system and will highlight opportunities for developing better therapies and vaccines. The relevance of this topic never fades, as we are

yet again reminded by the recent Zika virus epidemic. This great mix of exciting science will be complemented by special AAI-organized sessions on career development, changes in NIH procedures and expectations, and education, as well as a popular “Back to School” symposium on newly emerging technologies.

Our superb AAI staff members have organized, a whole series of opportunities for networking, engagement, and fun, culminating in the AAI Gala, generously sponsored by BioLegend. The 2016 AAI Gala offers something for Millennials and Baby Boomers alike. It’s to be hosted in the EMP (Experience Music Project), a shrine to popular music and science fiction, where you will see memorabilia from Seattle’s own Hendrix and Nirvana, have the opportunity to play in virtual bands, record your own music videos, see costumes and props from iconic science fiction shows, dance to the live band’s remix flair (retro and contemporary), and rock away the night with your friends and colleagues.

I especially want to thank our Program Chair, Wendy Havran, and her committee members, for organizing a magnificent scientific program and Michele Hogan along with the talented and enthusiastic AAI staff, who make this meeting so special year after year. It is a great time to be an immunologist, as ours is a discipline that binds us to biomedical scientists working on almost all aspects of human disease and on the latest cutting edge technologies. I look forward to meeting you at IMMUNOLOGY 2016™ and enjoying together the great science and the fun in Seattle.

*Dan R. Littman*

Dan R. Littman  
AAI President

\*AAI canceled annual meetings from 1943 to 1945 during the period of strict travel restrictions imposed by World War II.

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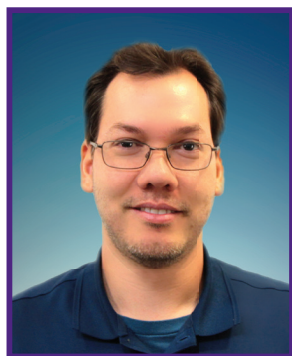
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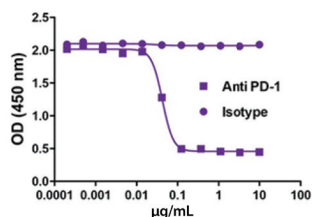
Workshop Room 1

**Miguel A. Tam, Ph.D.**

Senior Product Manager

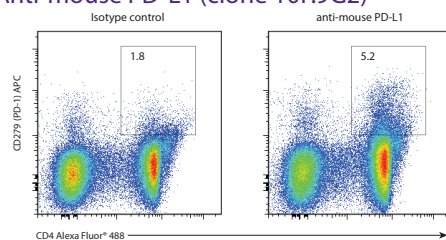


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# 2016 AAI Career Award Recipients

AAI proudly presents the 2016 AAI Awards for outstanding research and career achievements.

## Olivera Finn Honored with AAI Lifetime Achievement Award

**Olivera (Olja) J. Finn, Ph.D.,** University of Pittsburgh School of Medicine, is the recipient of the 2016 AAI Lifetime Achievement Award in recognition of a career of extraordinary scientific achievement coupled with exceptional leadership and service to AAI. This award is the highest honor bestowed by the AAI Council upon an AAI member.



*Olivera J. Finn*

Dr. Finn has been a world leader in the area of tumor immunology. She made the seminal identification in 1989 of the tumor-associated antigen Mucin 1 (MUC1) as a T cell target on human adenocarcinomas. She also found anti-MUC1 antibodies in breast, pancreatic, and colon cancer patients, illustrating spontaneous immunity against a developing tumor. She has since collaborated with clinical colleagues to complete eight Phase I/II clinical trials testing the potential of MUC1 vaccines to enhance immunity against adenocarcinomas. Her laboratory also characterized another tumor antigen, cyclin B1, as a potential target of the immune response against cancer and demonstrated that both MUC1 and cyclin B1 are expressed on premalignant lesions. Recent efforts have shown that vaccination against MUC1 generated MUC1-specific antibodies and immune memory in patients with a history of advanced colonic adenomas, a precursor to colon cancer, demonstrating a model of cancer immunoprevention.

An AAI member since 1983, Finn was elected to the AAI Council in 2002 and served as AAI president from 2007 to 2008. She also has served as a member of the AAI Program Committee and AAI Committee on Public Affairs and lent robust support to the Committee on the Status of Women and Education Committee as a mentor and keynote speaker at their career development programs; as a Major Symposium chair and speaker at the AAI annual meeting; and as a lecturer for the AAI Advanced Course. In addition, she has served as a member of the International Union of Immunological Societies (IUIS) Council, an AAI delegate to the IUIS General Assembly, and as chair of the IUIS Gender Equality and Career Development Committee.

Finn's commitment to the scientific community is further evident from her service on numerous scientific advisory boards, including service to the Wistar Institute, Colorado Comprehensive Cancer Center, Canadian Vaccines Program, Vaccine and Gene Therapy Institute of Florida, and the National Cancer Institute. She also has been a grant reviewer for the V Foundation for Cancer Research, Canadian Institutes of Health Research, American Cancer Society, European Research Council, and more and has served on the editorial board of multiple scientific journals, including *Cancer Research*, *Immunology and Cell Biology*, *Cancer Immunology Research*, and *Cancer Immunology and Immunotherapy*.

Finn received her Ph.D. from Stanford University and performed a postdoctoral fellowship at Stanford in the laboratory of Dr. Ronald Levy. Following a research assistant position at Duke University, she became an assistant professor in the Department of Microbiology and Immunology at Duke and then served as an affiliate scientist in the Division of Immunology at Emory University. In 1991, she moved to the University of Pittsburgh as a program leader and an associate professor. She currently serves as Distinguished Professor in the Department of Immunology and Department of Surgery at the University of Pittsburgh School of Medicine.

Finn has received many accolades for her contributions to the field. She has been honored with the Sadie Gerson Distinguished Scholar Award, Chancellor's Distinguished Research Award from the University of Pittsburgh, and Merrill Egorin Scientific Leadership Award from the University of Pittsburgh Cancer Institute, among others. She is a frequently invited speaker, having served as the Ralph Steinman Memorial Lecturer at the Trudeau Institute, Cepero Endowed Lecturer at the University of Miami Miller School of Medicine, Joseph S. Ingraham Classical Immunology Lecturer at Indiana University, Pendleton Distinguished Lecturer at the Massey Cancer Center at Virginia Commonwealth University, and Distinguished Lecturer at the Jonsson Comprehensive Cancer Center at UCLA. She also has been recognized with several outstanding mentoring awards from the University of Pittsburgh and was honored by the city of Pittsburgh with "Olivera J. Finn Day" on March 8, 2013.

For her career-long, ground-breaking scientific contributions and service to the field of immunology, it is most fitting that Dr. Finn be honored with the AAI Lifetime Achievement Award.

*The AAI Lifetime Achievement Award is given annually in recognition of distinguished scientific accomplishment and extraordinary service to AAI.*

## AAI Excellence in Mentoring Award Bestowed upon Richard Flavell

**Richard Flavell, Ph.D.,** Yale University School of Medicine, is the recipient of the 2016 AAI Excellence in Mentoring Award in recognition of his contributions to a future generation of scientists.



*Richard Flavell*

Dr. Flavell is renowned for his studies examining the molecular and cellular basis of immune responses. Flavell co-discovered introns in cellular genes and was instrumental in developing reverse genetics in mice, which he now uses to dissect molecular immune pathways. His lab has contributed widely to understanding the mechanisms behind CD4<sup>+</sup> and CD8<sup>+</sup> T cell differentiation

and activation, particularly with regards to the importance of costimulatory factors, including CD40L, CD62L, and ICOS, to these processes. His work also provided critical insight into the transcriptional control of T helper cell differentiation, as well as the signaling pathways used in triggering a particular T cell phenotype. However, his scientific interests extend far beyond T cell biology, evidenced by his prolific publication record (1,000+), which includes key findings on apoptosis, inflammasomes, Toll-like receptor signaling, interchromosomal association in gene activation, immune system–microbiota interactions, and autoimmune and Lyme disease models. Flavell is also known to be a generous and frequent collaborator, shown by his many co-authorship credits on journal articles.

His generosity also extends to the mentorship of his present and former trainees. Flavell has mentored over 150 postdocs and graduate students, many of whom have gone on to be incredibly successful scientists. Several of his former trainees have also achieved scientific acclaim, among them National Academy of Sciences members, a Lasker Award for Clinical Medical Research recipient, and Howard Hughes Medical Institute investigators. Many of his former mentees hold positions at academic institutions around the world, including Yale University, University of Crete, University of Hong Kong, University of Munich, University of Zurich, University of Michigan, Fred Hutchinson Cancer Research Center, Johns Hopkins School of Medicine, and the Universidad Nacional Autónoma de México. Others have become successful in careers at scientific corporations, hospitals, consulting organizations, and nonprofits, among others. His former lab members have continued Flavell's tradition of making influential contributions to immunology research, including, but not limited to, the fields of T cell biology, autoimmunity, and infectious diseases.

Flavell's former trainees regard his passion for science as key to his success as a mentor, a quality capable of reigniting their excitement about their own work during difficult times in their careers. This enthusiasm is also credited as a factor in creating a diverse, collaborative, and vibrant laboratory environment where his trainees are able to engage with each other to problem-solve and pitch ideas. His passion extends to initiating collaborations outside of the lab to help his trainees advance their research projects. One trainee recounted an instance in which Flavell helped him “cold call” a competitor to propose a collaboration to help move a project forward.

Several trainees described Flavell in terms of contagions—enthusiasm, optimism, and work ethic—and lauded his ability to draw in others, whether it be trainees, other faculty members, or scientists from other institutions, with his infectious personality. Hongbo Chi, member, St. Jude Children's Research Hospital, recounted Flavell's levity and tenacity with regard to publishing papers. “Richard has a great sense of humor, but his optimism extends beyond that. He is never afraid of trying new projects or facing rejections. In one lab meeting he told all of us, ‘Why are you afraid of your paper being rejected? I've had more rejections than all of you folks combined.’ In fact, one of his favorite songs that he sings with his band (and sometimes journal editors) is about this topic and is called ‘Rejected.’”

Erol Fikrig, Waldemar Von Zedtwitz Professor of Medicine, Microbial Pathogenesis, Epidemiology and Public Health, Yale University, recalled his first experiences upon joining Flavell's lab to pursue a research project in infectious diseases transmitted by arthropods and Flavell's excitement to learn about

a new area of research. “Richard knew very little about Lyme disease when we began, and I understood absolutely nothing about molecular biology, immunology, and basic research. His enthusiasm for experimental research and learning a new topic was contagious—so much that it made me believe I could actually become a basic researcher.” Fikrig's work in Flavell's lab contributed to technology for a vaccine that was approved by the FDA in 1996.

Flavell's former trainees also respect his scientific vision and generous nature in helping them establish their own independent research programs using projects and resources generated in his lab. “Richard is a visionary scientist capable of seeing the next big thing and fearlessly guides his trainees into it,” noted Chi. “When trainees are ready to move on, he never hesitates to give them whichever mice they generated or need for their new labs, including mouse strains on which research has not yet been published.”

Flavell continues to mentor his former trainees throughout their careers in a manner they respect and admire. Fikrig expressed gratitude for Flavell's guidance during Fikrig's ascent to professor of medicine at Yale University, “Richard really struck the perfect balance, close enough to help out but far enough away to let me grow and develop on my own. I can't imagine a more helpful and thoughtful mentor during those crucial years.”

Flavell obtained his Ph.D. from the University of Hull, Great Britain, in 1970. Following consecutive postdoctoral fellowships with Piet Borst at the University of Amsterdam and Charles Weissmann at the University of Zurich, Flavell became an assistant professor of biochemistry at the University of Amsterdam in 1974. He left this position to become the head of the Laboratory of Gene Structure and Expression at the National Institute for Medical Research in London, where he remained until he took the position of president at Biogen Research Corporation in Cambridge, Massachusetts, in 1982. During his tenure at Biogen, he also acted as chief scientific officer for Biogen N.V. (1984–88). Flavell became a Howard Hughes Medical Institute investigator and took a position as chairman and professor of immunobiology at the Yale University School of Medicine in 1988, where he currently also holds the title of Sterling Professor of Immunobiology. Flavell holds honorary professorships at Wuhan University, Nan Kai University, and Soochow University in China.

Flavell was the 2008 recipient of the AAI-Invitrogen Meritorious Career Award. He is a member of the National Academy of Sciences, National Academy of Medicine, European Molecular Biology Organization, and Henry Kunkel Society and is a fellow of the Royal Society and American Association for the Advancement of Science. He is a recipient of the William B. Coley Award for Distinguished Research in Basic and Tumor Immunology and the Vilcek Prize in Biomedical Science, among others. He is a frequent invited speaker, presenting his research in keynote lectures for the National Academy of Sciences, Mexican Congress of Immunology, German Society of Immunology, La Jolla Immunology Conference, and 12th International Congress of Immunology and has also given the Friedheim Lecture at Rockefeller University, Edsell Lecture at Harvard University, and Marsh Lecture in Molecular Medicine at the Feinstein Institute for Medical Research, among others. He has served on numerous scientific advisory and journal editorial boards.

A member of AAI since 1990, Flavell has served on the AAI Finance Committee and has spoken both as a Distinguished Lecturer and Major Symposium presenter at previous AAI annual meetings.

*The AAI Excellence in Mentoring Award is presented annually in recognition of exemplary career contributions to a future generation of scientists.*

## Lieping Chen Presented with the AAI-Steinman Award for Human Immunology Research

**Lieping Chen, M.D., Ph.D.**, Yale University School of Medicine, is the recipient of the 2016 AAI-Steinman Award for Human Immunology Research. Chen is recognized for his passionate dedication to understanding immune modulation and applying this knowledge to new therapies for the treatment of cancer.

Dr. Chen demonstrated in 1992 that inoculation of mice with a murine melanoma cell line expressing the costimulatory molecule B7 led to T cell-mediated B7-dependent tumor rejection, and he and speculated that the enhancement of T cell costimulation could have therapeutic efficacy in cancer patients. This early finding provided a springboard for Chen to expand his investigation into the immunotherapeutic potential of costimulatory molecules, a career-long theme in his research that has yielded seminal discoveries with lasting impact on the fields of immunology and cancer research, as well as human health. He has since demonstrated the therapeutic potential of 4-1BB antibodies in cancer, and his work studying the importance of the programmed death-1 (PD-1)/programmed death ligand-1 (PD-L1) pathway in mouse cancer models helped lay the foundation for the development of a number of drugs and antibodies targeting these molecules.

The promise of preclinical results on the PD-1 pathway led Chen to collaborate with colleagues to develop an anti-PD-1 monoclonal antibody (MDX-1106; nivolumab) for the treatment of patients with refractory solid tumors, a therapy that has since been FDA-approved for the treatment of melanoma, non-small cell lung cancer, and renal cell carcinoma. The promising early results derived from this and another PD-1 antibody have invigorated the interest of researchers and pharmaceutical companies alike, and the field of cancer immunotherapy research is burgeoning. As a result, several pharmaceutical companies have therapeutics targeting PD-1 in the clinical pipeline. There is great optimism concerning the currently available PD-1-targeted therapies, as approximately 30 percent of patients appear to benefit, and responses have been measured in years rather than months.

Richard Flavell, Sterling Professor and Chairman, Yale School of Medicine, says, "Lieping's ability to build and lead effective teams of clinical investigators as well as fundamental immunologists has been central to the success of this work. His ongoing research focus is to understand response and resistance of immune modulation therapy in cancer and discover new

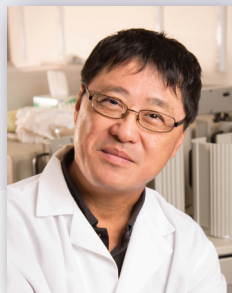
immune modulation pathways." More recent work by Chen has developed the concept of an adaptive resistance mechanism of tumor immune escape by showing that PD-L1 is regionally expressed in human tumors in areas of immune infiltration and IFN- $\gamma$  expression. Chen and his collaborators have also focused on elucidating positive and negative correlates in the response to PD-1 therapy, as with the demonstration that PD-L1 expression in a tumor predicts a higher response to PD-1 blocking antibodies. They work to extend the positive response to the therapy to a greater number of patients, as well as prolong the benefit to those currently undergoing treatment.

Chen received his M.D. from Fujian Medical University in China in 1982 and his Ph.D. from Drexel University College of Medicine in 1989. Following a postdoctoral fellowship at the University of Washington, he moved to Bristol-Myers Squibb and rose in the ranks to principal scientist before his departure in 1997. He then joined the faculty of the Mayo Clinic, first as associate professor and then as professor and consultant of immunology, before assuming appointments as professor of oncology and dermatology and director of dermatology at Johns Hopkins University School of Medicine in 2004. In 2011, he moved to Yale University, where he currently serves as professor of immunobiology, dermatology, and medicine; United Technologies Endowed Chair in Cancer Research; and co-director of the Cancer Immunology Program. He also co-directs the National Cancer Institute (NCI) Specialized Program of Research Excellence in Lung Cancer and the NCI Cancer Immunotherapy Trials Network at Yale. Furthermore, he serves as an adjunct professor at Johns Hopkins University School of Medicine and Sun Yat-Sen University; an adjunct investigator at Institut Pasteur of Shanghai, Chinese Academy of Sciences; and a founder and board observer of NextCure, Inc.

Chen previously was honored with the Presidential Award from Bristol-Myers Squibb, the William B. Coley Award for Distinguished Research in Basic and Tumor Immunology from the Cancer Research Institute, and the Lifetime Achievement Award from the Chinese American Hematologist and Oncologist Network. He has more than 300 publications to his credit and is a frequently invited speaker at national and international conferences, including the NCI Symposium in Cancer Immunology and Immunotherapy, the Cold Spring Harbor Asia Conference on Tumor Immunology and Immunotherapy, and the annual meeting of the Japanese Association of Cancer Immunology. He holds more than 30 patents and was a co-founder of Amplimmune, later acquired by MedImmune, a member of the AstraZeneca Group.

Chen has been an AAI member since 1992 and has served AAI as an associate editor for *The Journal of Immunology*.

*The AAI-Steinman Award for Human Immunology Research is presented annually for significant, sustained achievement in immunology research pertinent to human disease pathogenesis, prevention, or therapy.*



Lieping Chen

## AAI-Thermo Fisher Meritorious Career Award Conferred upon Kenneth Murphy

**Kenneth M. Murphy, M.D., Ph.D.**, Washington University School of Medicine, is honored with the 2016 AAI-Thermo Fisher Meritorious Career Award. Dr. Murphy is recognized for his outstanding research contributions to immune cell lineage commitment, particularly T cells, macrophages, and dendritic cells.



*Kenneth M. Murphy*

In his early work as a postdoctoral fellow in Dennis Loh's lab, Murphy created the DO11.10 mouse strain, a major histocompatibility complex II-restricted T cell receptor transgenic mouse engineered so that nearly all T cells specifically recognize a single ovalbumin peptide antigen. With the use of these mice, he conducted studies that provided evidence critical to demonstrating clonal deletion in immature thymocytes. This mouse strain is now one of the most widely used models in immunology research.

Murphy has also made other seminal contributions to immunology in the realm of T cell lineage commitment. He has made several discoveries crucial to defining the T helper cell 1 (Th1) and Th2 lineages, results integral to demonstrating that T cell lineage commitment and effector functions are driven by specific cytokine stimulus derived from antigen-presenting cells rather than predetermined genetic programming. Specifically, his work confirmed that IL-4 was a driving factor for Th2 differentiation and identified IL-12 as a key stimulator of Th1 differentiation. Furthermore, Murphy's research delineated the importance of IL-12 in T cell immunity to invading pathogens—previous studies had focused on IL-12 as a stimulatory factor for NK cells. Murphy's work has gone on to help define the transcriptional networks that control T cell lineages, including key discoveries regarding the function and control of Th2 programming and suppression of Th1 differentiation by the transcription factor GATA-3.

Murphy has also made important contributions to defining transcriptional control of dendritic cell and macrophage lineage commitment, discovering that the transcription factor SpiC is required for the development of splenic red pulp macrophages, as well as identifying roles for ZBTB46 and Batf3 in demarcating conventional dendritic cells and CD8 $\alpha^+$ CD103 $^+$  cross-presenting dendritic cells, respectively. His work on Batf3 and its other family members is ongoing, and he continues to dissect roles for these and other molecules in immune cell lineage commitment and immune responses.

Beyond his research contributions, his colleagues recognize Murphy's passion and prowess as an educator and mentor. Andrey Shaw, senior staff scientist at Genentech, attests to Murphy's skills as an instructor and advisor: "His laboratory is one of the most sought after for graduate students and his training record for both graduate students and postdoctoral fellows is exemplary. His former trainees have successful laboratories all over the world."

Abul Abbas, chair of pathology at the University of California, San Francisco, also points out that Murphy holds a

prestigious position as an educator in the field. "Remarkably, he is a [lead] author of one of the world's leading immunology textbooks, *JaneWAY's Immunobiology*, and his ability to manage this is a testament to his amazing breadth of knowledge and commitment to the field."

In 1984, Murphy received both his M.D. and Ph.D. degrees from Johns Hopkins University School of Medicine. From there, he moved to the Washington University School of Medicine in St. Louis for his residency and postdoctoral training before transitioning to an assistant professorship at the institution in 1989. He has risen through the ranks to his current position of Eugene Opie First Centennial Professor of Pathology and Immunology and is also a Howard Hughes Medical Institute investigator.

Previous honors received by Murphy include the David Israel Macht Memorial Prize from Johns Hopkins University School of Medicine, the Juvenile Diabetes Foundation Career Development Award, and a Distinguished Investigator Award from the Washington University School of Medicine. Most recently, Murphy received the William B. Coley Award for Distinguished Research in Basic Immunology from the Cancer Research Institute.

In addition, Murphy's stature as an internationally recognized scientist is evidenced by the numerous lectureship honors received from around the world. He has served as an editor and associate editor for *Immunity*, as transmitting editor for *International Immunology*, and on the editorial board of *The European Journal of Immunology*. He has also served on several NIH study sections.

Murphy has been a member of AAI since 1995. He has spoken at the AAI annual meeting on numerous occasions, both as a Major Symposium speaker and a Distinguished Lecturer. He has served as a member of the AAI Program and Nominating Committees and as an abstract programming chair for the AAI annual meeting.

*The AAI-Thermo Fisher Meritorious Career Award is given annually for outstanding research contributions to the field of immunology.*

## Ming Li Receives the AAI-BD Biosciences Investigator Award

**Ming Li, Ph.D.**, Memorial Sloan Kettering Cancer Center and Cornell University, is honored with the 2016 AAI-BD Biosciences Investigator Award. He receives the award for his fundamental contributions to our understanding of regulatory pathways in the immune system.



*Ming Li*

Dr. Li began his investigations on the requirement for transforming growth factor- $\beta$  (TGF- $\beta$ ) signaling in T cells with a highly productive postdoctoral fellowship in Dr. Richard Flavell's laboratory at Yale University. There, through use of cutting-edge, tissue-specific gene-targeting techniques,



Li demonstrated that TGF- $\beta$  was a critical regulator of T lymphocyte development, homeostasis, tolerance, and differentiation. Since setting up his own laboratory at Memorial Sloan Kettering Cancer Center, he has continued to study functions of TGF- $\beta$ , revealing its role in regulatory T cell differentiation, Th17 cell differentiation, CD8 T cell development, and maintenance of a tolerogenic environment in various tumor types. Li also found that Foxo transcription factors Foxo1 and Foxo3 facilitate expression of the regulatory T cell lineage specification factor Foxp3. In more recent studies, he has opened new avenues for exploring tumor immunology with his findings on the origins of tumor-associated macrophages, the graded Foxo activity for suppressor capacity in regulatory T cells, and a novel population of tumor-surveing innate lymphocytes and innate-like T cells.

In yet another line of investigation, Li showed the function of sestrins as guanine nucleotide dissociation inhibitors for Rag GTPases in mTOR signaling. Alexander Rudensky, chairman of the Immunology Program at Memorial Sloan Kettering Cancer Center, points to this discovery as illustrative of Li's talent: "This remarkable tour-de-force study is an example of impeccable and fearless biochemical exploration of this key pathway in control of cell and organ growth, size and aging. It is remarkable that Ming succeeded as a newcomer to this brutally competitive field, in which many large, high-profile laboratories are working, and succeeded brilliantly." Rudensky continues, "Ming's brilliance and accomplishments assure that in the future he will surely exceed the level of productivity we have witnessed so far."

Li earned his Ph.D. from Columbia University in 2001. Following his postdoctoral fellowship at Yale, he joined the Immunology Program at Memorial Sloan Kettering Cancer Center, where he currently holds the position of associate member. He also serves as associate professor in the Graduate School of Medical Sciences at Cornell University.

The impact of Li's work is evident from his impressive publication record in journals, including *Cell*, *Science*, *Nature*, and *Immunity*. He has previously been honored as an Arthritis Foundation Hulda Irene Duggan Investigator, a Rita Allen Foundation Scholar, and an American Cancer Society Scholar and has received the Louise and Allston Boyer Young Investigator Award for Basic Research from Memorial Sloan Kettering. He has been an invited speaker at national and international meetings, including the AAI annual meeting, Cold Spring Harbor meetings, and Keystone Symposia. He has also served as a grant reviewer for the NIH, French National Research Agency, and Austrian Cancer League, as well as a reviewer for numerous scientific journals.

An AAI member since 2010, Li has served as a member of the AAI Membership Committee.

*The AAI-BD Biosciences Investigator Award is presented annually for outstanding, early-career research contributions to the field of immunology.*

## AAI Distinguished Service Award Presented to Mitchell Kronenberg

**Mitchell Kronenberg, Ph.D.**, La Jolla Institute for Allergy and Immunology, is being honored with the 2016 AAI Distinguished Service Award in recognition of his invaluable service to AAI during his two terms as AAI secretary-treasurer, 2009–2015.



*Mitchell Kronenberg*

During his tenure as an AAI officer, Dr. Kronenberg provided vital guidance and leadership for maintaining the fiscal integrity of AAI. A member of the AAI Finance Committee at the time of his election to the AAI Council, Kronenberg then ably steered the committee during his concurrent tenures as committee chair and AAI secretary-treasurer, effectively articulating committee recommendations regarding budgets, investments, and the financial impact of proposed programs to the Council as they reviewed annual budgets and charted the fiscal course for AAI.

Even as Kronenberg emphasized responsible stewardship of AAI resources, he urged the association to use its strong financial position to institute new programs and expand existing programs to benefit members. Most notably, he was a proponent of growth of the AAI awards program, with expansion of the AAI travel awards program for the 2013 AAI centennial meeting in Honolulu and the launch of the AAI Careers in Immunology Fellowship Program in 2014, among others. During his time as secretary-treasurer, the AAI awards program budget dramatically increased from \$153,000 in 2009 to more than \$2.3 million in 2015. During the same time span, AAI increased its net assets from \$25 million to approximately \$45 million. AAI membership also grew during Kronenberg's term, from 6,000 to more than 7,700 members, a reflection, at least in part, of the expanded offerings for members afforded by the association's strong financial position.

Beyond his extensive contributions as AAI secretary-treasurer, Kronenberg has a long history of service to AAI. Since becoming an AAI member in 1984, he has served as a deputy editor and associate editor for *The Journal of Immunology*, a member of the AAI Membership and Nominating Committees, a lecturer for the AAI Advanced Course, a Distinguished Lecturer and Major Symposium speaker at the AAI annual meeting, and an AAI delegate to the International Union of Immunological Societies General Assembly.

Kronenberg completed his Ph.D. research and a postdoctoral fellowship in the laboratory of Leroy Hood at the California Institute of Technology. In 1986, he joined the faculty of the University of California, Los Angeles, School of Medicine as an assistant professor. He rapidly ascended the faculty ranks and was a professor at the time of his departure in 1997. He moved to the La Jolla Institute of Allergy and Immunology, where he currently serves as president and chief scientific officer.

Kronenberg is well recognized for his scientific contributions to the field. He is an elected fellow of the American Association for the Advancement of Science. He is a popular invited speaker in the United States and abroad, having served as

a keynote lecturer at the La Jolla Immunology Conference, Chiba University Global Center of Excellence Symposium, and Dutch Society of Immunology Meeting, among others. He also has served the immunology community as a consultant for various organizations, including the American Asthma Foundation Scientific Advisory Board; Howard Hughes Medical Institute, Science and Technology Policy Institute; and Sanford Consortium for Regenerative Medicine.

*The AAI Distinguished Service Award is presented for outstanding service to the AAI community and the immunology field as a whole.*

## The AAI-BioLegend Herzenberg Award Is Bestowed upon John F. Kearney

**John F. Kearney, Ph.D.**, University of Alabama at Birmingham, Department of Microbiology, is the recipient of the 2016 AAI-BioLegend Herzenberg Award. This award is given in recognition of his pioneering work in developing “true” monoclonal antibodies using a hybridoma fusion partner unable to produce any of its own immunoglobulin (Ig) and discoveries in the development and function of B cells.



*John F. Kearney*

Dr. Kearney dramatically improved hybridoma techniques used to produce monoclonal antibodies, an accomplishment that revolutionized the field of immunology. Before the instatement of his methods, B cells of interest were fused to an immortal plasma tumor cell (plasmacytoma) that produced its own Igs, in addition to those from the normal B cell fusion partner, yielding antibodies of mixed specificity. Kearney and his colleagues mutated a plasmacytoma cell line, rendering it unable to produce Ig so that the only source of antibodies was the B cell fusion partner. This work enabling the production of specific monoclonal antibodies against nearly any target for flow cytometry, enzyme-linked immunosorbent assays, immunohistology, and therapeutics has been named in more than 10,000 patents, cited thousands of times, and had a lasting impact on many scientific fields beyond immunology and B cell biology.

Among Kearney's other major contributions to the field of B cell biology are several findings in B cell ontogeny and differentiation. Kearney built on his initial technological successes in hybridoma studies by devising a method to induce B cell class switching *in vitro* by exposing B cells to lipopolysaccharide together with certain cytokines. With the use of this method in combination with anti-IgM antibodies, he determined that IgM-expressing cells are precursors to cells expressing other antibody isotypes and plasma cells. He also discovered that pre-B cells in the bone marrow express Ig heavy chains rather than light chains, as was generally assumed. This finding showed that heavy-chain synthesis precedes that of light chain in B cell development. Later studies revealed that pre-B cell heavy-chain genes were rearranged, whereas light-chain genes were in germline configuration—work fundamental to the understanding of the generation of antibody diversity.

He also showed that the long and short isoforms of terminal deoxynucleotidyl transferase have differing functions in N-region addition during VDJ rearrangement, the Ig heavy-chain binding protein BiP plays a role in regulating quality control of multi-subunit proteins in the endoplasmic reticulum, and the importance of IgM antibodies in modulation of allergic airway diseases. Lastly, Kearney was instrumental to determining the ontogeny and function of marginal zone B cells as a first-line defense against blood-borne pathogens.

Colleagues laud Kearney's willingness to collaborate, sharing both his time and reagents with his associates and competitors alike. Frances Lund (AAI '98), Charles H. McCauley Professor and Chair of the Department of Microbiology at the University of Alabama at Birmingham, explains, “John is a perfect example of that rare breed of the classic ‘gentleman scientist’ who works with passion, dedication, and vigor and freely shares what he learns with others to advance the field.” She also described how a personal experience with him when she was a fledgling scientist presaged his continued superiority as a mentor, colleague, and scientist. “I distinctly remember having the opportunity of speaking with John at a student luncheon when he was an invited lecturer at my institution. Unlike many ‘big shot’ scientists who visited our institution, he was fully engaged in the conversation and made me feel as though what I was studying was important and worthwhile, offering the kind of encouragement that can make all the difference in the world for a graduate student.”

Kearney earned his Ph.D. from the University of Melbourne, Australia, after attaining a Bachelor of Dental Surgery degree with honors from the University of Adelaide, South Australia. He began his uninterrupted, long-standing tenure at the University of Alabama at Birmingham in 1973 as a visiting foreign dental scientist in the Department of Pediatrics, rising through the ranks to his current position of distinguished professor in microbiology. He made his crucial hybridoma breakthrough in 1978 while on sabbatical as a European Molecular Biology Organization fellow in Klaus Rajewsky's lab at the University of Cologne, Germany.

Kearney received the Dean's Award for Excellence in Mentorship at the University of Alabama at Birmingham in 2010. He also received the University of Alabama Health Science Center Distinguished Faculty Lecturer Award in 2013 and became a distinguished professor of immunology at this institution in 2014. He has served on editorial boards for *International Immunology*, *Developmental Immunology*, and *Research in Immunology*; in NIH study sections; and as a consultant for Becton-Dickinson, IDEC, Inc., and Connaught Laboratories. In addition to holding an AAI membership, Kearney is a member of the American Association of University Professors, The American Association of Pathologists, and the American Association for the Advancement of Science.

Kearney has been a member of AAI since 1977 and has served AAI as a member of the Nominating Committee.

*The AAI-BioLegend Herzenberg Award was established in 2014 to honor the memory of Leonard A. Herzenberg. This award is presented annually for outstanding contributions to the field of immunology in the area of B cell biology.*



**The American Association  
of Immunologists**

1451 Rockville Pike, Suite 650  
Rockville, MD 20852  
Tel: 301-634-7178  
Fax: 301-634-7887  
E-mail: [infoaai@aai.org](mailto:infoaai@aai.org)  
[www.aai.org](http://www.aai.org)

**Member Services**

Tel: 301-634-7195  
E-mail: [members@aai.org](mailto:members@aai.org)

***The Journal  
of Immunology***

Tel: 301-634-7197  
E-mail: [infoji@aai.org](mailto:infoji@aai.org)  
[www.jimmunol.org](http://www.jimmunol.org)

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# FOCUS ON PUBLIC AFFAIRS

## President Obama Releases Budget Request for FY 2017

President Obama proposed an \$825 million increase for the National Institutes of Health (NIH) in his February 9 budget submission for fiscal year (FY) 2017. A president's budget is a blueprint that reflects his or her priorities, but it is not binding unless Congress adopts it.

President Obama's FY 2017 funding recommendation of \$33.1 billion for NIH is more complicated than past budget proposals. Although he is requesting an increase of about 2.5 percent over the current funding level, the entire increase would be allocated to just three priorities (described below), resulting in a decrease, after accounting for inflation, to all other NIH programs and activities. In addition, the president's request for NIH would require a combination of mandatory and discretionary funding to reach the \$33.1 billion level. Currently, NIH is funded almost entirely through discretionary funds, appropriated annually by Congress. The provision of new mandatory funding to NIH would require passage of a law to authorize that funding outside of the regular appropriations process.

The three recommended priorities for the entire \$825 million increase for NIH are the following: 1) \$680 million for the National Cancer Moonshot program (to build on the approximately \$195 million that was not appropriated in FY 2016 but has been redirected to this purpose); 2) \$100 million to continue recruitment of one million volunteer participants for the Precision Medicine Initiative (PMI) cohort and related PMI activities; and 3) \$45 million to continue support for the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) initiative.

NIH estimates that the proposed budget would support 807 fewer new and competing research project grants (RPGs) than in FY 2016, causing success rates to drop from 19.2 to 17.5 percent. Because there would also be an increase of 1,241 non-competing RPGs, however, there would be an overall increase of 600 RPGs above the FY 2016 estimate.

In developing his budget, the president was severely constrained by the caps still in place on discretionary spending: from FY 2016 to FY 2017, the cap on non-defense discretionary spending increases by just \$40 million, leaving very little opportunity to increase funding for any non-defense government programs or agencies (including NIH). So although AAI is concerned about the construction of this budget and the fact that increases for certain initiatives will reduce the funds available for basic investigator-initiated research, AAI recognizes and appreciates that the president included mandatory funding in his budget request to demonstrate his support for biomedical research.

Both houses of Congress are currently working toward developing their own FY 2017 budget proposals. If the same budget is passed by both chambers, it will guide legislators in developing the appropriations bills that actually provide money to departments and agencies.



# FOCUS ON PUBLIC AFFAIRS (CONTINUED)

## Federal Government Response to Zika Virus Threat

In early February, President Obama requested Congress to appropriate approximately \$1.9 billion in emergency funds to “respond to the Zika virus both domestically and internationally.” This funding would contribute to preparedness, research and development, and vector control programs. The funding would be allocated to a number of agencies, including the following:

- \$828 million to the Centers for Disease Control and Prevention (CDC) for readiness and response capacity, implementing surveillance efforts to track Zika virus, deploying targeted prevention, and education strategies
- \$250 million to the Centers for Medicare & Medicaid Services to provide Puerto Rico with additional federal assistance “to support health services for pregnant women at risk of infection or diagnosed with Zika virus and for children with microcephaly....”
- \$200 million to NIH for vaccine research and diagnostic development and procurement

As a result of this request and the recent outbreak, Congress has held a number of hearings on Zika virus. The hearings have broadly addressed the U.S. response to the Zika epidemic and President Obama’s emergency funding request for Zika. National Institute of Allergy and Infectious Diseases Director Anthony Fauci, M.D. (AAI ’73), CDC Director Thomas Frieden, M.D., and CDC Principal Deputy Director Anne Schuchat, M.D., were among the experts who testified at these hearings.

Regarding the funding for NIH, Fauci testified that the \$200 million requested for NIH is “adequate to do what we need.” Fauci, Frieden, and Schuchat were asked if they could redirect some of the money they received to combat the Ebola epidemic; all indicated that the Ebola

money is either spent or fully committed and warned that repurposing it would undermine the effort to fight Ebola. Nevertheless, Republican House Appropriations Committee and Subcommittee leaders have urged the administration to use some of the unobligated Ebola funds to pay for the Zika response.

## CPA Session to Address “Hot Topics in NIH Funding and Research Policy”

NIH, having recently changed grant application submission requirements to improve rigor and reproducibility in research, will soon implement changes to the peer review process to ensure better evaluation of these application components. These topics and other changes at NIH, including the adoption of new grant mechanisms at several NIH institutes that fund investigators rather than project proposals, will be the focus of a policy session hosted by the AAI Committee on Public Affairs (CPA) at IMMUNOLOGY 2016™. The session, entitled, “Hot Topics in NIH Funding and Research Policy,” will be chaired by CPA Chair Clifford V. Harding, M.D., Ph.D., and will feature three guest speakers:

Gail A. Bishop, University of Iowa, *Challenges and Concerns from an Investigator’s Perspective*

Richard K. Nakamura, Director, Center for Scientific Review, NIH, *Peer Review and Grant Mechanisms at NIH: What is Changing?*

Richard J. Hodes, Director, National Institute on Aging, NIH, *Analysis of Research Impact and Implications for Funding Policy*

The session will take place on Saturday, May 14, from 10:15 a.m. to 12:15 p.m. in Rooms 615-617 of the Seattle Convention Center.



# Members in the News

## Jean-Laurent Casanova is Korsmeyer Award Recipient



Jean-Laurent Casanova

**Jean-Laurent Casanova, M.D., Ph.D., AAI '12**, is the recipient of the 2016 Stanley J. Korsmeyer Award for his work investigating the genetic basis of pediatric infectious diseases. Presented by the American Society for Clinical Investigation, the award recognizes Casanova for discovering that vulnerability to life-threatening infectious diseases in otherwise healthy

children and young adults can arise from single-gene inborn errors.

A Howard Hughes Medical Institute (HHMI) investigator, Dr. Casanova serves as professor, senior attending physician, and head of the St. Giles Laboratory of Human Genetics of Infectious Diseases at the Rockefeller University. In investigating the immunological basis of childhood infectious diseases, Casanova and his research group have identified and characterized a new group of genetic defects that predisposes otherwise healthy children to a single type of infection. These studies have modified how research on severe childhood infections is approached. His work challenges the longstanding assumption that single genes cause general susceptibility to multiple types of infections by demonstrating that multiple genes might work together to determine susceptibility to common infections. The lab has deciphered the molecular genetic basis of a variety of pediatric infectious diseases, including mycobacterial diseases, invasive pneumococcal disease, herpes simplex encephalitis, and chronic mucocutaneous candidiasis. In addition to revealing much about the redundancy and evolution of the immune system, Casanova's studies have important clinical implications by providing a basis for genetic counseling and a rationale for developing new therapeutic approaches targeted to specific gene defects.

Casanova is a member of the National Academy of Medicine and president of the Henry Kunkel Society. He serves as deputy editor-in-chief of the *Journal of Clinical Immunology*; holds editorial board appointments with *Journal of Experimental Medicine*, *Current Opinion in Pediatrics*, *Current Opinion in Immunology*, *Journal of Medical Genetics*, *JAK-STAT*, and *Clinical Immunology*; and has held past such appointments with *Annual*

*Review of Immunology*, *Seminars in Immunology*, *Annals of the New York Academy of Sciences*, and *Philosophical Transactions of The Royal Society B*. He has served as an ad hoc reviewer for *Science*, *Nature*, *Cell*, *New England Journal of Medicine*, *Journal of Experimental Medicine*, *Journal of Clinical Investigation*, *Nature Medicine*, *PLoS Medicine*, *Lancet*, *Proceedings of the National Academy of Sciences USA*, *Nature Genetics*, *American Journal of Human Genetics*, *PLoS Genetics*, *Nature Immunology*, *Immunity*, and *Blood*.

Casanova has served on multiple NIH special emphasis panels as well as advisory/review panels for the New York Stem Cell Foundation, Jeffrey Modell Centers Network, European Research Council, Fondazione Cariplo, Thrasher Research Fund, AXA Research Fund, Fred Rosen-Jeffrey Modell Research Award, Technology Research Institute, Sanofi, Care-for-Rare Foundation, HHMI, Foundation for Primary Immunodeficiency Diseases, The Treilles Foundation, Dautrebande Foundation Award, Research Centre of the University of Montreal Hospitals, Midwest Regional Center of Excellence for Biodefense and Emerging Infectious Diseases Research, Singapore Network of Immunology, MUGEN European Network of Excellence, International Union of Immunological Societies, and Hong Kong Research Grant Committee.

Casanova's additional career honors and appointments include: Sanofi-Institut Pasteur International Mid-Career Award; Robert Koch Prize; Clinical Immunology Society Presidential Award; Norman J. Siegel New Member Outstanding Science Award, American Pediatric Society; Seymour and Vivian Milstein Award, International Society for Interferon and Cytokine Research; Ilse and Helmut Wachter Foundation Award; InBev-Baillet Latour Health Prize, Immunology and Infectious Diseases; E. Mead Johnson Award for Research in Pediatrics, Society for Pediatric Research; Oswald Avery Award, Infectious Diseases Society of America; Richard Lounsbery Award, French Academy of Sciences; Laboratory Award, Académie de Médecine; AGF Institut de France Prize; president, European Society for Primary Immunodeficiencies; International Scholar, HHMI; Jacques Oudin Prize, Société Française d'Immunologie; International René Descartes Prize, European Union; International Lucien Dautrebande Prize, Academy of Medicine, Belgium; World Technology Network 2003 Award; Roy-Vaucouloux Prize, Académie des Sciences; Jean Hamburger Prize, City of Paris/Assistance Publique-Hôpitaux de Paris; laureate, Schlumberger Foundation for Education and Research; honorary member, Scandinavian Society for Immunology; honorary doctorates, University of Debrecen and University of Zürich; and visiting professor, King Saud University and Shanghai Jiaotong University.

# Members in the News *(continued)*

Casanova received his M.D. from Cochin Medical School, University Paris Descartes, and Ph.D. (biology) from University Paris Pierre et Marie Curie, based on research conducted there and at the Ludwig Institute for Cancer Research (Lausanne, Switzerland). His postdoctoral training (mentors: Claude Griscelli; Alain Fischer) included service as a resident in pediatrics, Assistance Publique-Hôpitaux, Paris, and as a research fellow in pediatric immunology/hematology, Necker Hospital and School of Medicine, Assistance Publique-Hôpitaux, University Paris Descartes. After serving as professor and head of laboratory at Necker School of Medicine, Casanova joined the Rockefeller University as professor and laboratory head (2008) and senior attending physician (2009). An HHMI investigator since 2014, he retains appointments as visiting professor and laboratory head at Necker Hospital for Sick Children, University Paris Descartes.

## Dan Littman Awarded Vilcek Prize



Dan R. Littman

**Dan R. Littman, M.D., Ph.D., AAI '87**, has received the 2016 Vilcek Prize in Biomedical Science for a wealth of insight into HIV pathogenesis, the specificity of the human immune response, and the interplay of the immune system with the human microbiome.

A Howard Hughes Medical Institute (HHMI) investigator since 1995, Dr. Littman

is the Helen L. and Martin S. Kimmel Professor of Molecular Immunology and a professor of pathology and microbiology at the New York University (NYU) School of Medicine's Skirball Institute of Biomolecular Medicine, where he also serves as coordinator of the Molecular Pathogenesis Program.

Littman has made impactful contributions to the field of immunology throughout his career. As a postdoctoral fellow, his work was integral to the cloning of CD4 and CD8, and in later studies, he conducted experiments that led to the identification of gamma delta T cells. He continued a career that has included elucidating the intricacies of the CD4<sup>+</sup> and CD8<sup>+</sup> T cell lineage determination in the thymus and those of effector T cell differentiation programs in the periphery, identifying the receptors that HIV uses to enter T cells and macrophages, and exploring the complex relationship between immune

cells and microbiota in mucosal tissues. Following up on his lab's identification of the transcription factor ROR- $\gamma$ t as the master regulatory protein governing T helper (Th) 17 differentiation, Littman's group continues to dissect the mechanisms that influence the delicate balance between regulatory and Th17 inflammatory immune responses at the mucosal interface. Specifically, his lab has identified a role for segmented filamentous bacteria (SFB) in inducing pathogenic SFB antigen-specific Th17 cells implicated in the development of autoimmunity. These pursuits are crucial to the development of therapeutics to combat autoimmune diseases, including inflammatory bowel disease.

Having served on AAI Council since his election in 2010, Littman currently serves as AAI president. He was the 2010 recipient of the AAI-Invitrogen Meritorious Career Award, is a past AAI Distinguished Lecturer, and has served as a President's Symposium speaker and Major Symposium chair and speaker at the AAI annual meeting. He has also served as a member of the AAI Awards Committee, AAI Nominating Committee, and AAI Program Committee.

Littman is an elected member/fellow of the National Academy of Sciences, Institute of Medicine, American Academy of Arts and Sciences, Association of American Physicians, and American Academy of Microbiology. His additional career honors and appointments include: keynote lecturer, Lasker Lessons in Leadership; Senior Fellow, Simons Foundation Society of Fellows; Bernard Amos Memorial Lecture, Duke University; Richard C. Parker Memorial Lecture, Columbia University; Carl Vernon Moore Memorial Lecture, Washington University; Ross Prize in Molecular Medicine; Newton-Abraham Visiting Professor, University of Oxford; Harvey Society Lecture, New York; Peter Doherty Lecture, St. Jude Children's Research Hospital; Charles A. Stuart Memorial Lecture, Brown University; Sidney Leskowitz Memorial Lecture, Tufts University; Beirne B. Carter Lecture in Immunology, University of Virginia; Stephen Max Memorial Lecture, University of Maryland; Bob Smith Lecture, MD Anderson Cancer Center; Blumenthal Memorial Lecture, University of Minnesota; New York City Mayor's Award for Excellence in Science and Technology; NIH Director's Lecture; NIH MERIT Award; Bio-Mega/Boehringer Ingelheim Lecture, University of Montreal; Heidelberg Lecture, NYU Medical Center; Searle Scholar Award, Chicago Community Trust; Jane Coffin Childs Fellowship; and Alexander Berg Prize in Microbiology and Immunology, Washington University. Littman serves on a variety of journal editorial boards and as a member of the Jane Coffin Childs Memorial Fund for Medical Research Board of Scientific Advisors and Research Institute of Molecular Pathology (Vienna) Scientific Advisory Board. His past review panel appointments include service on behalf of

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NIH (AIDS Vaccine Research Committee; National Cancer Institute Board of Scientific Councilors; Immunobiology Study Section), the Pew Scholars program, Damon Runyon Rachleff Innovation Award, and Jackson Laboratories Board of Scientific Overseers.

A native of Bucharest, Romania, Littman received his A.B. in biochemical sciences from Princeton University and his M.D. and Ph.D. (molecular biology) from Washington University School of Medicine, where he served as a graduate fellow in the Medical Scientist Training Program. He completed his medical residency in pathology at the Columbia University College of Physicians and Surgeons and served as a postdoctoral fellow in the laboratory of Richard Axel at Columbia University, where he became an HHMI associate in 1984. He joined the University of California, San Francisco, faculty as an assistant professor in 1985 and became an assistant HHMI investigator in 1987. He was appointed associate professor and associate HHMI investigator in 1991 and full professor in 1994. He became a full HHMI investigator one year later upon joining the faculty at NYU.

## Laurie Glimcher to Lead Dana-Farber Institute



Laurie H. Glimcher

**Laurie H. Glimcher, M.D., AAI '83**, has been named the next president and CEO of the Dana-Farber Cancer Institute. Dr. Glimcher will begin her new post at Dana-Farber in January 2017 and will also resume her long-held professorship at Harvard Medical School. Her roles will include serving as president of Dana-Farber/Partners Cancer Care, principal investigator of Dana-Farber/

Harvard Cancer Center, and trustee of Dana-Farber/Boston Children's Hospital Cancer Care.

Glimcher is currently the Stephen and Suzanne Weiss Dean of the Medical College at Weill Cornell Medicine in New York City and professor of medicine and provost for medical affairs at Cornell University. Her research involves the use of biochemical and genetic approaches to elucidate the complex molecular pathways that regulate CD4<sup>+</sup> T helper (Th) cell development and activation. The Glimcher laboratory defined the genetic bases of both IL-4 and IFN- $\gamma$  expression in T cells,

identifying c-maf as the transcription factor responsible for Th2-specific IL-4 expression and T-bet as the master regulator of IFN- $\gamma$  gene expression and the Th1 phenotype. Further studies have focused on the function of T-bet in T cells and dendritic cells in mucosal immunity and tumorigenesis. Glimcher has expanded her interest in lymphocyte lineage commitment to B cells with the discovery of a transcription factor, X-box binding protein 1, which controls plasma cell differentiation and the unfolded protein response, and she has demonstrated functions of this factor in neurodegenerative disease, innate immunity to pathogens, lipid disorders, and anti-tumor immunity. Most recently, her laboratory has identified new proteins that control osteoblast and osteoclast commitment and activation, with significant implications for diseases of bone, including osteoporosis, osteoarthritis, and cancer metastasis to bone. This body of work may provide a conceptual framework to manipulate these responses therapeutically in human disease.

Glimcher served as AAI president from 2003 to 2004 and as a member of the AAI Council from 1998 to 2005. While AAI president, she proposed and secured National Institute of Allergy and Infectious Diseases (NIAID) funding for the "Primary Caregiver Technical Assistance Supplements" pilot program, providing supplementary grants for postdoctoral fellows who are primary caregivers of dependents. Glimcher received the 2008 AAI Excellence in Mentoring Award and the 2006 AAI-Huang Foundation Meritorious Career Award. She is a past Distinguished Lecturer and Major Symposium chair and speaker at the AAI annual meeting. In her extensive service to AAI, she served on the AAI Awards Committee (including as chair), the AAI Committee for Liaison with the NIH Division of Research Grants, and the AAI Liaison Committee with Research Granting Agencies and is a past associate and section editor for *The Journal of Immunology*.

Glimcher's additional career honors and appointments include: member, Institute of Medicine and National Academy of Sciences; fellow, American Academy of Arts and Sciences; L'Oreal/UNESCO for Women in Science Award; Margaret L. Kripke Legend Award; Steven C. Beering Award, Indiana University School of Medicine; Vanderbilt Prize in Biomedical Science, Vanderbilt University School of Medicine; Luis Federico Leloir Prize for International Cooperation in Science, Technology and Innovation (Argentina); William B. Coley Award, Cancer Research Institute; Ernst W. Bertner Memorial Award, MD Anderson Cancer Center; Distinguished Investigator Award, American College of Rheumatology; Dean's Award for Leadership in the Advancement of Women Faculty, Harvard Medical School; American Association of University Women Senior

## Members in the News *(continued)*

Scholar Award; Klemperer Award, New York Academy of Medicine; Investigator Award, American Society for Clinical Investigation; Excellence in Science Award, Federation of American Societies for Experimental Biology; Lee S. Howley Award, Arthritis Foundation; Stohlman Memorial Scholar Award, Leukemia Society of America; Distinguished Young Investigator Award, American College of Rheumatology; and Soma Weiss Award for Undergraduate Research, Harvard Medical School.

Current and past corporate/advisory board appointments held by Glimcher include service on behalf of the American Asthma Foundation, Cancer Research Institute, Immune Diseases Institute, Health Care Ventures, Burroughs Wellcome Fund, Memorial Sloan Kettering Cancer Center, Ragon Institute of Massachusetts General Hospital/Massachusetts Institute of Technology/Harvard, the Broad Institute, Bristol-Myers Squibb Pharmaceutical Corporation, and the Waters Corporation.

Glimcher received her B.A. with high honors from Radcliffe College and her M.D. with honors from Harvard Medical School. She undertook postdoctoral training at Harvard and in the Laboratory of Immunology at NIAID, NIH. Before joining the Weill Cornell Medical College and Cornell University in January 2012, Glimcher served as the Irene Heinz Given Professor of Immunology at the Harvard School of Public Health, professor of medicine at Harvard Medical School, and senior rheumatologist at the Brigham and Women's Hospital. In addition to her current Weill Cornell Medical College and Cornell University appointments, Glimcher serves as an attending physician at New York Presbyterian Hospital/Weill Cornell Medical Center.

For additional information about Dr. Glimcher, visit [www.aai.org/about/History/Notable\\_Members/Presidents/Glimcher\\_Laurie.html](http://www.aai.org/about/History/Notable_Members/Presidents/Glimcher_Laurie.html).

## AAI Career Advisory Board

Starting your first lab? Facing new and puzzling issues? If so, you probably wish to turn to a more senior scientist for guidance—but perhaps not one at your own institution. The AAI Career Advisory Board (CAB) is tailored specifically for you.

The CAB is a referral service to match early faculty who submit requests for guidance on specific career issues with more senior PIs having experience and insight in those areas, excluding members of your own faculty. You may also specify individuals not to be contacted on your behalf.

**Eligibility:** Although the CAB is sponsored by the Committee on the Status of Women, it is open to all early-faculty AAI members, both men and women.

**Advisors:** A pool of senior scientists—men and women—are volunteering to be “on call.” Topics include recruiting, handling personnel issues, timing for first grant submissions, building networks, teaching, balancing family and work, serving on NIH study sections, and more.



Visit [www.aai.org/CAB.html](http://www.aai.org/CAB.html) to submit a request.



## Kerri A. Mowen, AAI '06

1974 – 2016

*AAI extends condolences to the family, friends, and colleagues of Kerri A. Mowen, Ph.D., AAI '06, an authority on the biology of protein-arginine deiminase (PAD) enzymes, who died on February 14.*

*Dr. Mowen was the recently named director of biology at Padlock Therapeutics, a company she co-founded with colleagues at The Scripps Research Institute (TSRI), where she served since 2005 as a faculty member in the departments of immunology and chemical physiology. A past member of the AAI Membership Committee (2010 – 2015), Mowen was the recipient of an AAI Travel for Techniques Award and multiple AAI Junior Faculty Travel Awards.*

*The following remembrance, first published on the Scripps website, appears courtesy of the author, Scripps professor and Department of Chemical Physiology chair Benjamin F. Cravatt, Ph.D.*

It is with much sorrow that we learned Dr. Kerri Anne Mowen passed away Sunday, February 14, 2016, at her home. Her death was unexpected as she was only 41 years old.

Kerri was born in Burlington, Iowa, on May 19, 1974, and received bachelor and doctorate degrees in biology from Southern Illinois University (1996) and the University of California, San Diego (2000). After performing research in molecular and cellular immunology at Harvard University as a Damon Runyon postdoctoral fellow, Kerri returned to San Diego to join our faculty in 2005 as a member of the Department of Immunology and Department of Chemical Physiology.

At TSRI, Kerri built a highly innovative research program at the interface of protein biochemistry, immune cell biology, and inflammation, with a particular interest in the role of post-translational modifications, such as arginine methylation and citrullination, in immunology and immune system disorders. Most recently, her research formed the basis for the launch of Padlock Therapeutics, a biotechnology company focused on developing drugs that target PAD enzymes (or protein arginine deiminases) to treat autoimmune disorders. Kerri had decided to join this exciting venture not only as a co-founding scientist but also as director of biology.



Kerri A. Mowen

During her time at TSRI, Kerri was recognized for her scientific achievements by a Donald and Delia Baxter Foundation Young Career Scientist Award and an Arthritis Foundation Hulda Irene Duggan Arthritis Award.

However, as all of us who were fortunate enough to know Kerri can attest, the mark that she has left on our campus and the greater scientific community extends far beyond her many research discoveries. Kerri was a bright light of unbridled enthusiasm for science and education, and her indelible smile and positivity were fixtures on our campus that will be sorely missed. She will be

fondly remembered for the kindness and generosity that she always displayed to her colleagues and friends.

Kerri is survived by her parents, Ron and Renee Mowen of Savoy, Illinois, her grandmother, JoAnne Baxter of Stronghurst, one brother, Brandon (Laura) Mowen of Cadiz, Kentucky, two nieces, Morgan and Hope Howard of Cadiz, Kentucky, and several aunts, uncles and cousins.

A celebration of life is being planned by friends and colleagues. The date and time will be announced after final arrangements have been made.

In remembrance of Kerri and her passion for research, the family is asking that donations be made to the American Cancer Society or Lupus Foundation of America.

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### *See also:*

“Padlock Therapeutics Creates West Coast Operations, Appointing Scientific Co-founder Kerri Mowen, Ph.D., as Director of Biology Based in San Diego:” <http://uk.reuters.com/article/ma-padlock-therapeutics-idUKnBw045366a+100+BSW20160104>

Obituary and condolences page:  
<http://banksandbeals.com/ob160214mowen>

2011 profile, “A Scientist's Life: Tree Frogs, Trump, and Cinderella,” Gary Robbins, San Diego Union-Tribune: <http://www.sandiegouniontribune.com/news/2011/dec/14/lifted-giant-tsris-mowen-reaches-high/>



# A Century of Excellence: Celebrating 100 Years of *The Journal of Immunology*

AAI proudly celebrates the 2016 centennial of *The Journal of Immunology*, publishing fun and informative pieces on the journal's history and the AAI members who have helped it become the largest, most cited journal in the field. An editorial published in the February 1 issue of *The JI* announced the AAI celebration of this milestone. We re-publish the editorial here for the insights it offers into the proud legacy of *The JI*.

February 1916 saw publication of the first issue of *The Journal of Immunology (The JI)*. Immunology was just emerging as a field apart from the interconnected endeavors in vaccinology, serology, and pathology. The first name that the founders considered was The Journal of Immunity, but *The Journal of Immunology* prevailed by the first publication date. In the 1940s, the collective wisdom gave rise to yet another name: *The Journal of Immunology: Virus Research and Experimental Chemotherapy*. On January 1, 1950, the title returned to *The Journal of Immunology*, a simple title that has endured for the last 65 years.

What besides this enviable longevity distinguishes *The JI* in reporting original data of immunological import? First and foremost, *The JI* is owned and published by the oldest and largest professional association representing individual researchers in the field, The American Association of Immunologists (AAI). AAI, founded in 1913, is a nonprofit association dedicated to advancing the careers of scientists and promoting the field of immunological research. Second, *The JI* Editorial Board is comprised entirely of leading scientists who are also AAI members and care deeply about the quality of the science reported in *The JI*, the careers of their colleagues, and the future of the field as a whole. These experienced investigators are committed to publishing research that is rigorously performed and moves the field forward. This focus on foundational research underlies the third distinguishing trait, namely, the long half-life of *The JI* citations. At 8.6 years, this citation half-life

is one of the longest of any journal in the field! Finally, one of our missions as a society journal is to provide full reviews for almost every manuscript submitted to *The JI*. A large pool of tireless reviewers who give generously of their time means that every manuscript is reviewed by experts in the field without bias toward institution, career stage, or journal promotion.

AAI is marking this centennial in a number of ways. We are publishing articles that highlight the founding of *The JI* and its evolution as a publication, the impact of world events on the conduct of science through the century, evolving image technology, and controversial editorial issues. We also list the 100 most-cited articles in *The JI*, as well as information about Nobel laureates who have published with us over the years. Look for these articles online on our special centennial page on *The JI* web site ([www.jimmunol.org](http://www.jimmunol.org)) and in the *AAI Newsletter* throughout the year. Important to the history of the society's journal has been the influence of editors-in-chief (EICs), each of whom has left an indelible signature that has improved and advanced the journal. The earliest EICs are mentioned in coming articles, and you can find links to video interviews with recent editors-in-chief to hear their perspectives on science and *The JI* in their own words. During IMMUNOLOGY 2016™ in Seattle, May 13–17, *The JI* will have a booth featuring a gallery of more than 100 stunning covers of

*The JI*, from the very first to some of the most recent. Every attendee will have the opportunity to own a piece of this historic art. Tickets within registration packages will entitle

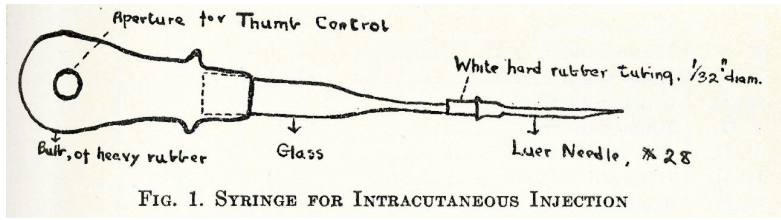


FIG. 1. SYRINGE FOR INTRACUTANEOUS INJECTION

Figure 1



Now, do eight 12-step serial dilutions in 60 seconds

by hand or by handle, by gosh!

Figure 2

attendees to the chance of winning one of the displayed covers from drawings held throughout the meeting. Also, a centennial coffee mug will be available to every scientific registrant visiting *The JI* booth.

As we look back over the past 100 years, it is quickly apparent that the field of immunology has come a long way. Read some of the early articles (the entire collection of articles published in *The JI* is available online at <http://jimmunol.org/content/by/year>) to catch a glimpse into science that was at once both simpler and more challenging. For example, Fig. 1 illustrates a pipette devised for inexpensive outpatient allergy testing as described in an article published in 1922.<sup>1</sup> While an article that solely described “observations” might have a difficult time getting published in *The JI* now, authors today seldom face the need to head to their toolboxes to devise such pieces of equipment!

As time went by, equipment became more sophisticated, as exemplified by the microtiter system ad from 1966 shown in Fig. 2, (the advertised equipment, however, seems less outdated than the advertisement itself.) Some contemporary equipment is similar to that used in 1966, but now it is mass produced and disposable (Fig. 3). Coincident with changes in equipment, articles now increasingly dissect the biological mechanisms behind what would have been simply observations made during earlier years. Reflecting the evolution of the field, the Table of

Contents has also changed over the years to include topics never imagined in 1916, including those that have laid the basis for various immunotherapies now used in increasing measure to treat a variety of diseases.

As the field of immunology has grown, so has the size of *The JI*. For its first ten years, *The JI* was published five to six times a year. This changed in 1926 when the journal began publishing each month. In 1986, the frequency of publication changed to two monthly issues in two volumes annually; two volumes of 12 issues each remains the current print publishing schedule, although thrice-weekly online publication-ahead-of-print has been a staple since June 2009.

The advent of the digital age has brought significant changes for all publishing, including scholarly publishing. Beginning with the July 1 issue in 1995, abstracts of all articles in *The JI* were published online. In addition, the first *Cutting Edge* full text articles were published in that issue and were among some of the first biomedical research reports published online. The entirety of each issue was published online beginning in January 1998. Since that time, all earlier content (1916 to 1997) has also been put online, such that the entire corpus of research published in *The JI* is now available digitally.

In addition, a version of *The JI* designed specifically for mobile phones is available for those who need to quickly check an article while “on the go.” Online submission of manuscripts began in May 2004. As a result, the mailman no longer delivers boxes piled high with multiple copies of manuscripts to *The JI* office and the average time from submission to first decision for full-length manuscripts has dropped from 46 days in 2003 to 30 days in 2014.

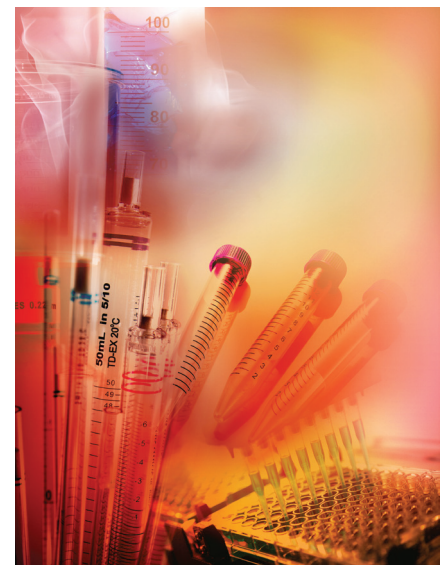


Figure 3

Image provided by Santa Cruz Biotechnology, Inc.

## A Century of Excellence: Celebrating 100 Years of *The Journal of Immunology* (continued)

A number of new features have been introduced in *The JI* over the past 15 years. These include the *In This Issue* summaries to highlight the top articles, introduced with the January 1, 2003, issue by Editor-in-Chief Robert Rich. Rich was also responsible for the introduction of *Brief Reviews* and the *Pillars of Immunology*. Editor-in-Chief Jeremy Boss introduced the *Translating Immunology* section to highlight immunological discoveries that have evolved all the way from the bench to successful treatment of human disease. Boss also introduced the popular ImmunoCasts (podcasts) and expanded the Table of Contents categories to reflect the growth in the field. He also instituted a number of other innovations that gave authors access to metrics of their articles. Details of these and other advances are listed in an earlier editorial.<sup>2</sup> Editor-in-Chief Pamela Fink, whose tenure began in July 2013, has used the ImmunoCasts for fun and informative interviews with authors of the *Pillars of Immunology* commentaries. Fink has also introduced a number of other enhancements to *The JI*, including the addition of the *Novel Immunological Methods* and *Systems Immunology* sections.

We hope that this brief overview of the development of *The JI* will entice you to join us—online and at IMMUNOLOGY 2016™—in celebrating the 100th anniversary of *The JI*. Continue to submit your best science to *The JI*, and we will all join together to cheer *The Journal of Immunology* on to another century of excellence!

Pamela J. Fink  
*Editor-in-Chief*

M. Michele Hogan  
*Executive Director/Executive Editor*

Kaylene J. Kenyon  
*Publication Director*

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### References

1. Larsen, N. P., R. Paddock, and H. L. Alexander. 1922. Bronchial asthma and allied conditions: clinical and immunological observations. *J. Immunol.* 7: 81–95.
2. Boss, J. M., and K. J. Kenyon. 2012

# *The Journal of Immunology*

Booth 256

Join us to celebrate the centennial year of  
*The Journal of Immunology (The JI)*!

First published in February 1916, *The JI* celebrates its centennial this year. Stop by *The JI* booth to view a gallery of more than 100 stunning covers of *The JI*, from the very first to some of the most recent. Every attendee will have the opportunity to own a piece of this historic art. Tickets within registration packages will entitle attendees to the chance of winning one of the displayed covers from drawings held throughout the meeting. Also, every scientific registrant visiting *The JI* booth will receive a centennial coffee mug!

For insight on the history of *The JI*, visit [www.jimmunol.org](http://www.jimmunol.org) and click on the centennial banner.



100  
Years

# Centennial Timeline

## Skybridge (Exhibit Hall)

Back by Popular Demand and Updated for 2016!

Travel the AAI Centennial Timeline, depicting important developments for AAI and immunology, science and technology, and U.S. and world history. The Centennial Timeline, which spans the years 1913 through 2016, is located on the Skybridge in the Exhibit Hall.



1913



1914



1915

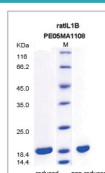


1916

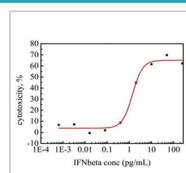
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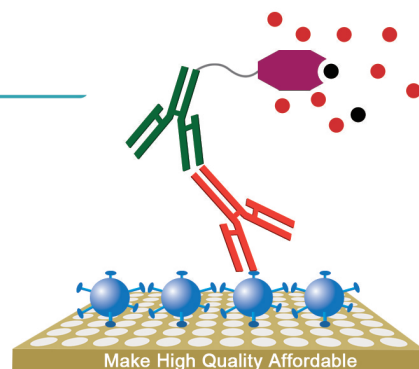
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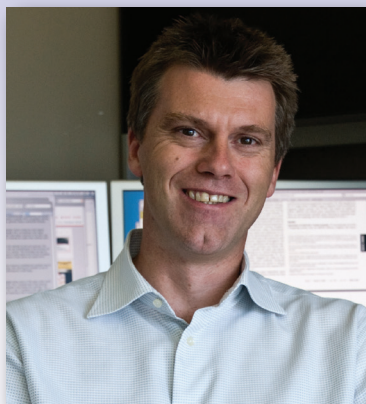
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# Uli von Andrian Appointed AAI Advanced Course Director

**U**lrich H. von Andrian, AAI '97, is the newly appointed director of the AAI Advanced Course in Immunology to be held this year from July 31 to August 5 at the Seaport World Trade Center in Boston, Massachusetts.

Dr. von Andrian is the Mallinckrodt Professor of Immunopathology in the Department of Microbiology and Immunobiology at Harvard Medical School, where his laboratory studies the migration, communication, differentiation, and function of immune cells in living animals. He has previously served on the faculty of both the advanced and introductory AAI summer courses.



Ulrich H. von Andrian

Dr. von Andrian is a pioneer in the development of multi-photon intravital microscopic techniques to visualize cellular interactions in the intact animal; technical advances in the ability to observe cells in their native environment have produced a series of seminal discoveries. Early von Andrian research defined the cellular interactions that underlie the trafficking of immune cells through the body. This work elucidated the multistep adhesion and signaling cascade that is required for immune cells to migrate from the microvasculature into the underlying tissue. This migratory process is required both for constitutive immune surveillance and rapidly inducible inflammatory reactions. More recently, von Andrian has used intravital microscopy in conjunction with genetically engineered animals to characterize the cellular interactions that underlie the adaptive immune response, natural killer cell memory, viral pathogenesis, and circulatory patterns of stem cells.

Dr. von Andrian assumes direction of the AAI Advanced Course following the successful four-year course leadership of University of Massachusetts Medical School Professor and Past AAI President Leslie Berg. Continuing its long history of serving advanced trainees and scientists who wish to expand or update their understanding of the field, the course this summer will mark its fifth consecutive year at the Seaport site in Boston.

"The advanced course has attained record registration in Boston, a testament to the leadership of Dr. Berg and outstanding roster of faculty, as well as the convenient and beautiful location on the Boston waterfront," says

Michele Hogan, AAI executive director. "Dr. von Andrian's experience makes him eminently suited to direct the course and continue this success. His scientific acumen will be invaluable in advancing the course's reputation for providing the field's most compelling content while spotlighting the latest advances at the forefront of immunology," Hogan adds.

The 2007 recipient of the AAI-BD Biosciences Investigator Award, von Andrian is a member of the AAI Nominating Committee and a past member of the AAI Program Committee. He has served on multiple occasions as a major symposium chair and speaker at the AAI annual meeting.

His additional career honors include: elected member, European Academy of Science, American Association of University Pathologists ("Pluto Society"), and Henry S. Kunkel Society; Eugene Landis Award, Microcirculatory Society; Cox Program for Entrepreneurial Initiative Award, Harvard Medical School; Henry Pickering Bowditch Award, American Society of Physiology; Amgen Outstanding Investigator Award, American Society for Investigative Pathology; Iacocca Faculty Fellowship, Joslin Diabetes Center/Harvard Medical School; and Wiederhielm Award, Microcirculatory Society. Among other accomplishments, he has been an organizer of the Keystone Symposium on Leukocyte Trafficking plenary symposium organizer and chair, 35th Annual Autumn Immunology Conference; keynote speaker, 4th Leukocyte Signal Transduction Workshop, 21st European Network of Immunological Institutes, and Keystone Meeting on HIV Vaccines & HIV Pathogenesis; and David Pall Visiting Lecturer, Cold Spring Harbor Laboratory Watson School of Biological Sciences.

His current and past editorial appointments include service on behalf of, *Cell*, *Current Immunology Reviews*, *Immunity*, *The Journal of Experimental Medicine*, *Journal of Vascular Research*, *Microcirculation*, *The Open Microbiology Journal*, *Science*, *The Year in Immunology* (NY Academy of Sciences), and *American Journal of Physiology: Heart and Circulatory Physiology*.

Dr. von Andrian received his M.D. and Ph.D. (neurology/neurosurgery) from Ludwig-Maximilians University in Munich, where he conducted research on blood-brain barrier dysfunction following brain injury.

***Uli von Andrian Appointed AAI Advanced Course Director (continued)***

He trained as a postdoctoral fellow at the La Jolla Institute for Experimental Medicine, serving concurrently as a visiting scholar at the University of California, San Diego; his research in the laboratory of Karl Arfors involved the development of intravital microscopy techniques that led to the discovery of the multi-step leukocyte adhesion cascade in vivo. He later completed a second postdoctoral fellowship in the laboratory of Eugene Butcher at Stanford University's Department of Pathology.

In 1994, he was named assistant professor of pathology at Harvard Medical School (HMS) and junior investigator at the CBR Institute for Biomedical Research (CBRI; known today as the Immune Disease Institute). He was appointed associate professor and CBRI investigator in 1999 and full professor and CBRI senior investigator in 2003. He has been the Mallinckrodt Professor since 2006, an HMS professor of microbiology and immunology since 2011, and the basic immunology program leader and a steering committee member at the Ragon Institute of MGH, MIT and Harvard since 2013.



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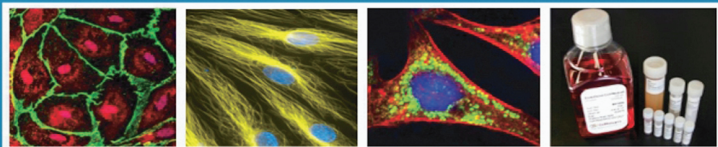
AAI 2016

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# IMMUNOLOGY 2016™: The 100th AAI Annual Meeting

by John Emrich

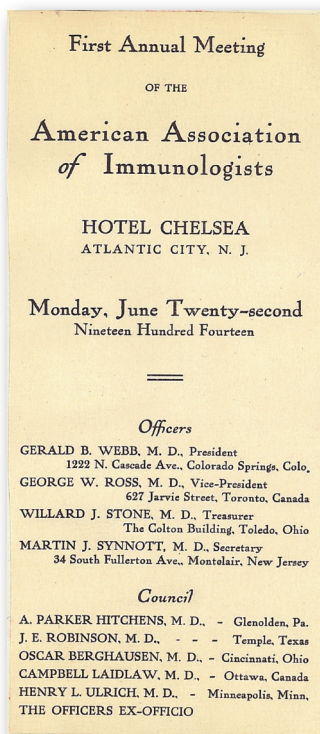
*Having Marked Its 100th Anniversary in 2013, AAI Celebrates the Centennials of Its Annual Meeting and The JI in 2016*

On a pleasantly warm Monday, June 22, 1914, 40 attendees arrived at the Hotel Chelsea in Atlantic City, New Jersey, for the first annual meeting of The American Association of Immunologists (AAI).<sup>1</sup> This May, 102 years later, the association will hold its 100th annual meeting in Seattle, Washington, with attendance expected to exceed 3,000.

The scientific program for the 100th AAI annual meeting, IMMUNOLOGY 2016™, is to span four full days, with presentations by nearly 100 plenary session lecturers and panelists in major symposia, plus the panelists in 16 guest society symposia, NIH symposia, and career development sessions. Approximately 2,000 scientists at every career stage will present their work in 82 block symposia and poster presentations on 22 abstract topics. In addition to sessions on leading-edge research in established fields, the meeting will feature sessions on emerging fields of immunology and technology. Almost 150 exhibitors will be present to showcase the newest tools and resources available to researchers in the field.

At IMMUNOLOGY 2016™, *The Journal of Immunology* (*The JI*) will celebrate its own centennial with special exhibits and events and will host its own booth in the Skybridge portion of the AAI Exhibit Hall.

Why is the 2016 meeting in Seattle the 100th annual



AAI Archive, Rockville, MD

meeting if the first was in 1914? A historical hiccup caused by the Second World War is the reason that the AAI annual meeting is currently in sync with the age of *The JI* and not AAI itself. In 1943, 1944, and 1945, wartime travel restrictions in the United States forced the cancellation of national annual meetings for scientific societies large and small, including AAI and all members of the Federation of American Societies for Experimental Biology (FASEB). The AAI meeting in 1943, scheduled to be held in Cleveland, was to be the first annual meeting of AAI as a member society of FASEB, but the meeting was canceled less than one month out. The 1944 and 1945 meetings were also scheduled for Cleveland, but each had to be canceled as well. Since the end of the war, however, all scheduled AAI annual meetings have occurred as planned.

The location of the first annual meeting was determined by the location of the American Medical Association (AMA) meeting, as was the case for the AAI founders' meeting in Minneapolis the previous year.<sup>2</sup> In that most AAI members were physicians and also members of the AMA, the first AAI Council resolved to hold the smaller AAI meeting one day before the AMA meeting began with its anticipated 4,000 attendees.<sup>3</sup> Among the 40 AAI attendees was a particularly engaged Victor C. Vaughan (AAI '15), then



Boardwalk and bathers, Atlantic City, N.J., 1915  
Library of Congress Prints and Photographs Division

1. "Today's Sun and Tide Table," *New York Times*, June 23, 1914. The number of attendees at the meeting was calculated using the meeting program, a roll of charter members, and the report of the proceedings in the *Medical Record*. "Society Reports: American Association of Immunologists," *Medical Record* 86, no. 22 (1914): 942-46.  
2. For more information about the founding of AAI, see "The Founding of AAI," *AAI Newsletter*, May/June 2012.  
3. "M.D.'s at Atlantic City," *New York Times*, June 22, 1914.



the current AMA president. Others in attendance included future AAI Presidents William H. Park and Jacque J. Bronfenbrenner.<sup>4</sup>

A one-hour-long AAI Council meeting preceded the 10:00 AM formal opening of the inaugural annual meeting. The “Address of Welcome” by AAI President Gerald B. Webb was followed by a roll call, an election of officers and members, and the adoption of a constitution and bylaws. Martin J. Synnott, AAI secretary, reported on how the association had been founded and presciently predicted that the AAI would soon be “one of the most important medical organizations on this continent.”<sup>5</sup>

The first scientific session began with George H. Smith of H. K. Mulford Company, Glenolden, Pennsylvania, delivering his paper, “The Production, through Immunization, of Specific Ferments against Bacteria: as Detected by the Abderhalden Test.” The meeting lasted one full day, consisting of three sessions and a total of 19 basic and clinical research talks, including the president’s address.<sup>6</sup> Each presentation was followed by an open discussion led by an invited scientist.<sup>7</sup>

(To learn more about the science at the meeting, see “Science at the First AAI Meeting,” *AAI Newsletter*, May/June 2012.) At the meeting, the editor of the *Journal of the American Medical Association* requested a report of the proceedings for publication in the journal.<sup>8</sup>

During the next four decades the AAI meeting was held as a stand-alone meeting or concurrently with other societies, including multiple times with the American Association of Pathologists and Bacteriologists (now American Society for Investigative Pathology). Following

the acceptance of membership in FASEB and the resumption of meetings after the Second World War, the AAI annual meeting took place as part of the FASEB annual meeting (now Experimental Biology) from 1946 through 2005 with the exception of eight meetings that were joint meetings with other societies or stand-alone meetings. Since 2005, AAI has held stand-alone meetings, with the exception of its co-location with Experimental Biology in 2008.

Geographically, the AAI annual meetings remained exclusively in the East and Midwest for four decades, with Atlantic City; Philadelphia; New York City; Chicago; Washington, DC; and Toronto each hosting multiple times. In 1955 the first meeting west of the Mississippi River took place in San Francisco. The first meeting in the Pacific Northwest did not occur until IMMUNOLOGY 2000™ in Seattle, but with IMMUNOLOGY 2016™, AAI will have met a third time in Seattle since 2000. The 100 annual meetings have included stops in 27 different cities in 18 states; the District of Columbia; and Ontario, Canada.

More information on the early years of AAI will be featured in the updated AAI Centennial Timeline

to be displayed in the Skybridge portion of the Exhibit Hall at the 2016 AAI annual meeting. Attendees will also be able to view a special exhibit on the first AAI annual meeting as well as the leading immunology scientists and institutions in Seattle. The History Exhibit will be located on the 6th floor of the Washington State Convention Center. ■



**Beach and boardwalk, Atlantic City, N.J., c. 1908**  
*Detroit Publishing Company Photograph Collection, Library of Congress*

**Author:** John S. Emrich, Ph.D., *AAI Historian*

**Contributor:** Charles Richter, *AAI History Intern*

**Editor:** Mary I. Bradshaw, *AAI Senior Director of Communications and Development*

4. William H. Park was elected in 1916 and served as AAI president in 1918–1919. Jacque J. Bronfenbrenner was elected in 1920 and would serve as AAI president from 1942 to 1946.

5. “Society Reports,” 942.

6. Gerald Webb’s president’s address was “The History of Immunity.” The complete text of the address does not seem to have survived, but a description was included in “Society Reports,” 945.

7. “Program of the First Annual Meeting of the American Association of Immunologists, June 21, 1914,” AAI Archive, Rockville, MD.

8. As AAI did not yet have a journal (*The Journal of Immunology* was first published in 1916), the proceedings of the annual meeting were published in other scientific journals, including the *Medical Record*, *Journal of the American Medical Association*, and the *New England Journal of Medicine*. AAI was required to pay for the publication of the full proceedings but not for summaries of its meetings.



First Annual Meeting

OF THE

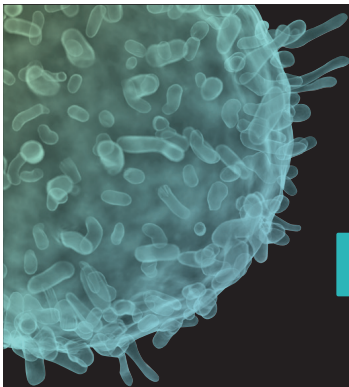
American Association  
of Immunologists

HOTEL CHELSEA  
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# Visit the AAI History Exhibits

- Featuring AAI members and institutions that have shaped immunology research in Seattle (Floor 6)
- Celebrating the 100th annual meeting of AAI (Floor 6)
- Presenting the Updated AAI Centennial Timeline (Skybridge of Exhibit Hall)

And visit *The JI Centennial Exhibit* in Booth 256, also in the Skybridge.



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# IMMUNOLOGY 2016™



## AAI PRESIDENT'S PROGRAM

### AAI President's Address

FRIDAY, MAY 13, 5:00 PM  
Washington State Convention Center, Ballroom 6BC

**Dan R. Littman**

HHMI, New York University School of Medicine, AAI President

*From the thymus to the mucosa: a three-decade journey*

Arthur Weiss, HHMI, University of California, San Francisco  
*Introduction*



Dan R. Littman

### AAI President's Symposium:

#### Host Immune Responses to Viruses

MONDAY, MAY 16, 12:30 PM – 2:30 PM  
Washington State Convention Center, Ballroom 6BC

**Chair:**

Dan R. Littman, HHMI, New York University School of Medicine, AAI President

**Speakers:**

**Adolfo Garcia-Sastre**, Mount Sinai School of Medicine  
*Regulation of innate immune pathways during RNA virus infections*

**Akiko Iwasaki**, HHMI, Yale School of Medicine  
*Antiviral immune responses at mucosal surfaces*

**Louis J. Picker**, Oregon Health & Science University  
*CD8<sup>+</sup> T cell recognition of cytomegalovirus: who is in charge?*

**E. John Wherry**, University of Pennsylvania  
*Development and reversal of T cell exhaustion*



Adolfo  
Garcia-Sastre



Akiko Iwasaki



Louis J. Picker



E. John Wherry

## AAI President's Symposium



**Dan R. Littman**  
AAI President

It has been a privilege to serve the immunology community during my years as an AAI Council member and officer. It is a particular pleasure to organize the President's Symposium for this year's annual meeting - a milestone meeting being the 100th!\* I have chosen a theme that remains dear to my heart. While I was a postdoctoral fellow working on cloning genes encoding T cell surface molecules, the AIDS epidemic struck, and it quickly became clear that the virus attacks T helper cells. Because of my work on CD4, called T4 at that time, the mechanism of viral entry became a major focus of my new laboratory.

In the 20 years since the discovery of CCR5 as the major "co-receptor" required for HIV entry, awareness has grown of the importance of diverse innate signaling pathways in protecting the host from pathogenic viruses, and our interest has shifted toward elucidating the roles of dendritic cells in HIV pathogenesis. At the same time, it has become increasingly clear that development of an HIV vaccine would be a monumental task requiring a much better understanding of how both adaptive and innate immune system components interact with the virus and its products. Although progress in this area has been slow, there have been very encouraging advances during the past few years, and there is renewed hope that effective vaccines will be developed.

I have chosen to highlight some of the recent exciting work in virus-host interactions by inviting four investigators who are doing pioneering work on diverse viruses and their interactions with innate and adaptive branches of the immune system.

**Adolfo Garcia-Sastre** is a consummate virologist and one of the leading authorities on influenza virus. His studies have led to an understanding of how diverse negative strand RNA viruses evade host innate immune responses and provided key insights toward developing better vaccines. His laboratory pioneered approaches to generate recombinant influenza viruses which led to major breakthroughs in revealing the molecular basis of influenza virus pathogenicity.

**Akiko Iwasaki** studies how viruses interact with the host immune system at mucosal surfaces. She has studied immune responses to herpes simplex viruses in the genital tract and to influenza virus infection in the lung. Her laboratory has characterized the role of pattern recognition receptors and of autophagy in antiviral responses and host tolerance to virus-induced damage. Her research also has revealed the mechanism by which mucosal dendritic cells prime virus-specific T cell responses. Akiko's recent innovative work on developing mucosal vaccines that elicit resident memory T cells holds great promise.

**Louis Picker** studies antiviral effector and memory T cell responses in humans and non-human primates. His group has developed approaches to elicit lasting antiviral immunity against pathogenic SIV and has studied the potential of CMV vectors for this purpose. They have investigated the properties of CMV genes in priming T cell responses in macaques and shown that they can use CMV vectors to generate diverse T cell responses, including CD8 T cells specific for primate lentiviral antigens presented by MHC-II and MHC-E. These advances have provided valuable insights for developing effective HIV vaccines.

Investigation of antiviral T cell responses has provided invaluable insights into mechanisms of tumor-specific immunity. **John Wherry** has been a key contributor in this area. His early studies of CD8 T cell responses to LCMV revealed the phenomenon of "T cell exhaustion" and the role of inhibitory receptors such as PD-1 in this process. Wherry's ongoing studies on the molecular and epigenetic underpinning of T cell exhaustion are relevant for developing both antiviral and antitumor therapies.

\* AAI canceled three successive annual meetings (1943-1945) because of travel restrictions imposed during World War II.

## AAI DISTINGUISHED LECTURERS

SATURDAY, MAY 14  
6:00 PM, BALLROOM 6BC



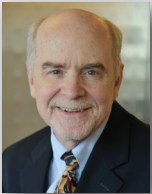
**Ulrich H. von Andrian**  
Harvard Medical School  
*Career decisions: how T cells remember pathogens*

SUNDAY, MAY 15  
6:00 PM, BALLROOM 6BC



**Susan K. Pierce**  
NIAID, NIH  
*How B cells adapt in a changing world*

MONDAY, MAY 16  
6:00 PM, BALLROOM 6BC



**John J. O'Shea**  
NIAMS, NIH  
*Cytokine signaling: genes, genomes, and drugs*

## AAI BUSINESS MEETING &amp; AWARDS PRESENTATIONS

SATURDAY, MAY 14, 1:00 PM - 2:30 PM

At this session, AAI will report on the “state of the association” to its members and a number of AAI awards will be presented. Members will hear from the Executive Director, the Secretary-Treasurer, the Editor-in-Chief of *The Journal of Immunology (The JI)*, and the Chair of the Committee on Public Affairs as they report on the financial standing of AAI, the status of *The JI*, important public policy issues, and other items of interest to the membership.

## AAI Distinguished Service Award Presentation



SATURDAY, MAY 14, 1:00 PM

**Mitchell Kronenberg**, La Jolla Institute for Allergy & Immunology

*For outstanding service to AAI and the immunology community as the AAI Secretary-Treasurer for two terms, 2009-2015*

AAI annually provides more than 800 AAI meeting travel awards and grants to recognize the promise and bolster the professional development of investigators of all career stages, including underrepresented scientists and trainees. Travel award and grant presentations and acknowledgments will include:

**Presentations**

- AAI-Thermo Fisher Trainee Achievement Awards
- Chambers-eBioscience Memorial Award
- Lefrançois-BioLegend Memorial Award
- Lustgarten-eBioscience Memorial Award
- Pfizer-Showell Travel Award

**Acknowledgments**

- AAI Early Career Faculty Travel Grants
- AAI Laboratory Travel Grants
- FASEB MARC Poster/Platform (Oral) Presenter Travel Awards  
*Sponsored by FASEB MARC Program under a grant from NIGMS, NIH [FASEB MARC Program: T36-GM08059-32 NCE]*
- AAI Undergraduate Faculty Travel Grants
- AAI Trainee Abstract Awards
- AAI Trainee Poster Awards

## AAI AWARD LECTURES AND PRESENTATIONS

### AAI Lifetime Achievement Award Presentation

FRIDAY, MAY 13, 5:00 PM

Ballroom 6BC

**Chair:**

**Dan R. Littman**, HHMI, New York University School of Medicine,  
AAI President



**Award Recipient:**

**Olivera J. Finn**, University of Pittsburgh  
School of Medicine

AAI President Dan R. Littman will introduce the awardee and present the award prior to the start of the President's Address.

*The AAI Lifetime Achievement Award is the highest honor bestowed by the AAI Council upon an AAI member. This award recognizes a deserving member for a career of scientific achievement and for contributions to AAI and fellow immunologists.*

### AAI Distinguished Service Award Presentation

SATURDAY, MAY 14, 1:00 PM

AAI Business Meeting, Room 615-617

**Chair:**

**M. Michele Hogan**, AAI Executive Director



**Award Recipient:**

**Mitchell Kronenberg**, La Jolla Institute for  
Allergy & Immunology

AAI Executive Director M. Michele Hogan will introduce the awardee and present the award.

*This award recognizes Dr. Kronenberg for outstanding service to AAI and the immunology community as the AAI Secretary-Treasurer for two terms, 2009-2015.*

### AAI-BD Biosciences Investigator Award Presentation and Lecture

Generously supported by BD Biosciences

SATURDAY, MAY 14, 4:30 PM – 5:30 PM

Ballroom 6BC

**Chair:**

**Dan R. Littman**, HHMI, New York University School of Medicine,  
AAI President



**Award Recipient:**

**Ming Li**, Memorial Sloan Kettering Cancer  
Center and Cornell University  
*Immunity and tolerance in cancer*

AAI President Dan R. Littman and a representative of BD Biosciences will introduce the awardee and present the award immediately prior to Dr. Li's lecture.

*The AAI-BD Biosciences Investigator Award recognizes an early-career investigator who has made outstanding contributions to the field of immunology.*

### AAI-BioLegend Herzenberg Award Presentation and Lecture

Generously supported by BioLegend

SUNDAY, MAY 15, 1:30 PM – 2:30 PM

Ballroom 6E

**Chair:**

**Dan R. Littman**, HHMI, New York University School of Medicine,  
AAI President



**Award Recipient:**

**John F. Kearney**, University of Alabama,  
Birmingham

*B cell repertoire ontogeny influences allergy and autoimmunity*

AAI President Dan R. Littman, Gene Lay, Chief Executive Officer, BioLegend, and Craig Monell, Vice President of Sales, Marketing, and Business Development, BioLegend, will introduce the awardee and present the award immediately prior to Dr. Kearney's lecture.

*The AAI-BioLegend Herzenberg Award recognizes outstanding research contributions to the field of immunology in the area of B cell biology.*

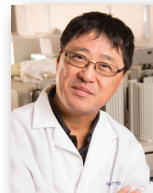
### AAI-Steinman Award for Human Immunology Research Presentation and Lecture

SUNDAY, MAY 15, 4:30 PM – 5:30 PM

Ballroom 6BC

**Chair:**

**Dan R. Littman**, HHMI, New York University School of Medicine,  
AAI President



**Award Recipient:**

**Lieping Chen**, Yale School of Medicine  
*PD-1/PD-L1 blockade therapy for human  
cancer: past, present and future*

AAI President Dan R. Littman will introduce the awardee and present the award immediately prior to Dr. Chen's lecture.

*The AAI-Steinman Award for Human Immunology Research recognizes an individual who has made significant contributions to the understanding of immune processes underlying human disease pathogenesis, prevention, or therapy.*



## AAI Excellence in Mentoring Award Presentation

MONDAY, MAY 16, 12:30 PM

Ballroom 6BC

### Chair:

**Dan R. Littman**, HHMI, New York University School of Medicine,  
AAI President



### Award Recipient:

**Richard A. Flavell**, HHMI, Yale School  
of Medicine

AAI President Dan R. Littman and Hongbo Chi, St. Jude Children's Research Hospital, will introduce the awardee and present the award prior to the start of the President's Symposium.

*The AAI Excellence in Mentoring Award recognizes exemplary career contributions to a future generation of scientists.*

## AAI-Thermo Fisher Meritorious Career Award Presentation and Lecture

Generously supported by Thermo Fisher Scientific

MONDAY, MAY 16, 4:30 PM – 5:30 PM

Ballroom 6BC

### Chair:

**Dan R. Littman**, HHMI, New York University School of Medicine,  
AAI President



### Award Recipient:

**Kenneth M. Murphy**, HHMI, Washington  
University School of Medicine

*Proper responses to pathogens – a DC / T cell  
dialog*

AAI President Dan R. Littman and Christoph Hergersberg, Senior Director, Molecular Biology,

Thermo Fisher Scientific, will introduce the awardee and present the award immediately prior to Dr. Murphy's lecture.

*The AAI-Thermo Fisher Meritorious Career Award recognizes a mid-career scientist for outstanding research contributions to the field of immunology.*

# GRIP

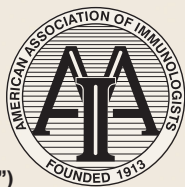
## Grant Review for Immunologists Program

### Get a GRIP: An AAI program designed to help new investigators prepare their NIH grant proposals

The AAI Grant Review for Immunologists Program (GRIP) offers new principal investigators (PIs) access to established PIs for guidance in preparing grant proposals as they embark on their independent careers. Early-career PIs (assistant professors or equivalents) are invited to submit their grants' "Specific Aims" pages to the GRIP coordinator who, with the assistance of a small volunteer subcommittee, will attempt to match each topic of the proposal with the research experience of an established PI. Matches will be made as quickly as possible to allow participants to meet upcoming NIH grant deadlines. Participation is open only to AAI regular members and is strictly voluntary. The program is not intended to supplant internal mentoring programs at applicants' institutions.

To apply, please send your CV and the grant's "Specific Aims" page to [infoaai@aai.org](mailto:infoaai@aai.org). (please write "GRIP" in the subject line)

To volunteer as a mentor, please send your CV and a brief description of your grant-reviewing experience to [infoaai@aai.org](mailto:infoaai@aai.org). (subject line "GRIP")



Program details at [aai.org/Education/GRIP](http://aai.org/Education/GRIP)

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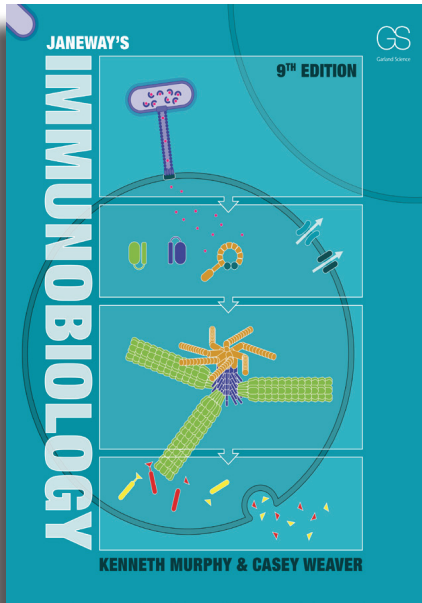
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**SATURDAY, MAY 14, 8:00 AM****Major Symposium A: Macrophage Development and Function in Health and Disease***Ballroom 6BC***Chairs:****Jessica A. Hamerman**, Benaroya Research Institute**Marco Colonna**, Washington University School of Medicine**Speakers:****Christopher K. Glass**, University of California, San Diego  
*Influence of tissue environment on macrophage identity and function***Frederic Geissmann**, Memorial Sloan Kettering Cancer Center  
*In vivo analysis of macrophage functions***Jeffrey W. Pollard**, University of Edinburgh  
*Tumor associated macrophages: from mechanism to therapy***Catherine C. Hedrick**, La Jolla Institute for Allergy and Immunology  
*Monocyte subsets in cancer***Jessica A. Hamerman**, Benaroya Research Institute  
*Macrophage differentiation during inflammation***Marco Colonna**, Washington University School of Medicine  
*Brain macrophages and neurodegeneration***Major Symposium B: Unconventional T Cells and Innate-Like Lymphocytes***Ballroom 6E***Chairs:****Rebecca L. O'Brien**, National Jewish Health**Luc Teyton**, Scripps Research Institute**Speakers:****Rebecca L. O'Brien**, National Jewish Health  
*Gammadelta T cells prevent autoimmune attack by enhancing Treg development***Yueh-Hsiu Chien**, Stanford University  
*Gamma-delta T cells: first line of defense and beyond***Luc Teyton**, Scripps Research Institute  
*New lipids for old T cells***Dale I. Godfrey**, University of Melbourne  
*The development and diversity of MR1-restricted MAIT cells***James McCluskey**, University of Melbourne  
*The conundrum of MAIT cells***Richard M. Locksley**, HHMI, University of California, San Francisco  
*Allergic immunity: new cells, new pathways***SUNDAY, MAY 15, 8:00 AM****Major Symposium C: A Breath of Fresh Air: New Developments in Respiratory Tract Immunity***Ballroom 6BC***Chairs:****Nicole Baumgarth**, University of California, Davis**Anuradha Ray**, University of Pittsburgh School of Medicine**Speakers:****Anuradha Ray**, University of Pittsburgh School of Medicine  
*Maintenance of lung immune homeostasis***Thomas J. Braciale**, University of Virginia School of Medicine  
*Early innate immune response to virus infection in the respiratory tract***Nicole Baumgarth**, University of California, Davis  
*Innate and adaptive B cell immunity in the respiratory tract***Bart N. Lambrecht**, University Ghent  
*Epithelial and dendritic cell communication in type 2 immunity***Dennis W. Metzger**, Albany Medical College  
*Immune dysfunction during influenza and susceptibility to secondary bacterial lung infections***Shabaana A. Khader**, Washington University in St. Louis  
*Vaccine immunity to tuberculosis: what to target?***Major Symposium D: Transcriptional Networks in Immune Cell Development***Ballroom 6E***Chairs:****Barbara L. Kee**, University of Chicago**Jinfang (Jeff) Zhu**, NIAID, NIH**Speakers:****H. Leighton Grimes**, Cincinnati Children's Hospital Medical Center  
*Using single-cell RNA-Seq for unbiased analysis of developmental hierarchies***Boris Reizis**, New York University Langone Medical Center  
*Transcriptional control of dendritic cell differentiation***Hai-Hui (Howard) Xue**, University of Iowa  
*Regulation of T cell identity by Tcf/Lef transcription factors***Dorina Avram**, University of Florida  
*Bcl11b in transcriptional control of T cells and innate lymphoid cells***Jinfang (Jeff) Zhu**, NIAID, NIH  
*Heterogeneity of innate and adaptive lymphocytes regulated by intricate balance between master transcription factors***Barbara L. Kee**, University of Chicago  
*Regulation of natural killer cell effector fate by the Ets1-E/Id protein transcription factor network*

# New From Garland Science

## JANEWAY'S IMMUNOBIOLOGY NINTH EDITION



**Kenneth Murphy**, Washington University School of Medicine

**Casey Weaver**, University of Alabama at Birmingham School of Medicine

**Janeway's Immunobiology** is a textbook for students studying immunology at the undergraduate, graduate, and medical school levels. As an introductory text, students will appreciate the book's clear writing and informative illustrations, while advanced students and working immunologists will value its comprehensive scope and depth. **Janeway's Immunobiology** presents immunology from a consistent point of view throughout—that of the host's interaction with an environment full of microbes and pathogens. The Ninth Edition has been thoroughly revised bringing the content up-to-date with significant developments in the field, especially on the topic of innate immunity.

Also new to the Ninth Edition is a Question Bank available to adopting instructors, and the Garland Science Learning System which allows instructors to assign online tutorials with assessments on specific immunology topics and review the performance of the entire class, as well as individual students, via the instructor dashboard.

April 2016 • 928 pp • 621 illus

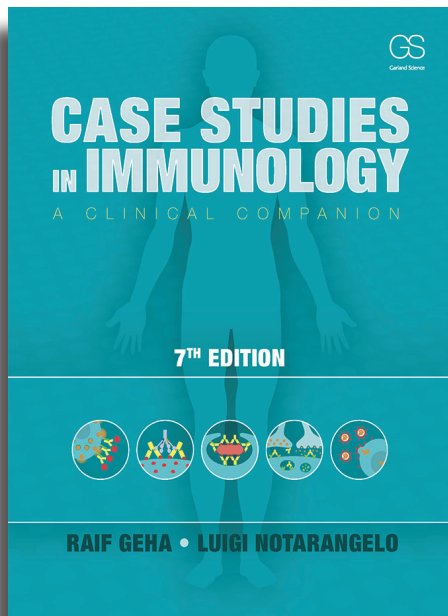
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Paperback • 978-0-8153-4505-3 • \$190

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## CASE STUDIES IN IMMUNOLOGY SEVENTH EDITION



**Raif Geha**, Harvard Medical School

**Luigi Notarangelo**, Harvard Medical School

**Case Studies in Immunology, Seventh Edition** is intended for medical students and undergraduate and graduate students in immunology. It presents major topics of immunology through a selection of clinical cases that reinforce and extend the basic science. Each case history is preceded by essential scientific facts about the immunological mechanisms of that specific disorder. The cases demonstrate how immunological problems are deconstructed in the clinic and each one is followed by a concise summary of the clinical finding and questions which can serve as discussion points.

The book includes a total of 55 cases and can be used as either a stand-alone text, review aid, or as a companion to **Janeway's Immunobiology, Ninth Edition** and **The Immune System, Fourth Edition**. Six new cases have been added to this edition: DOCK8 deficiency, activated PI3K delta syndrome, increased susceptibility to candida infections, LRBA deficiency, T cell signaling defects, and channelopathies.

February 2016 • 358 pp • 255 illus

Paperback • 978-0-8153-4512-1 • \$59

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To view a list of all the cases and a sample case, please visit [www.garlandscience.com/product/isbn/9780815345121](http://www.garlandscience.com/product/isbn/9780815345121)

**MONDAY, MAY 16, 8:00 AM****Major Symposium E: Cell-Cell Communication during Viral Infection**

Ballroom 6BC

**Chairs:**

Tania H. Watts, University of Toronto

Susan M. Kaech, HHMI, Yale University

**Speakers:**

John R. Teijaro, Scripps Research Institute

*Employing activity-based chemoproteomic approaches to understand virus-immune interactions*

Frances E. Lund, University of Alabama, Birmingham

*Regulation of virus specific B cell fate decisions by the T-box transcription factor, T-bet*

Shane Crotty, La Jolla Institute for Allergy and Immunology

*Follicular helper T cells in infections and antiviral vaccines*

Tania H. Watts, University of Toronto

*The where, when, and why of GITR/GITRL in control of viral infection*

Susan M. Kaech, HHMI, Yale University

*Immunosuppressive vs. immunosupportive roles of IL-10 in antiviral immunity*

Rama Rao Amara, Emory University

*The dynamics of follicular CD4 and CD8 T cells during chronic SIV infection***Major Symposium F: Putting the Biology into Systems Biology**

Ballroom 6E

**Chairs:**

Bali Pulendran, Emory Vaccine Center at Yerkes

W. Nicholas Haining, Harvard Medical School, Dana-Farber Cancer Institute

**Speakers:**

Harinder Singh, Cincinnati Children's Hospital Medical Center

*Viewing the immune system through the lens of gene regulatory networks*

W. Nicholas Haining, Harvard Medical School, Dana-Farber Cancer Institute

*Epigenetic landscape of T cell exhaustion*

Nir Yosef, University of California, Berkeley

*Identification of dendritic cell subsets in HIV-1 elite controllers using single-cell RNA-Seq*

Galit Alter, Ragon Institute of MGH, MIT, and Harvard

*Mining for mechanisms of humoral immune protection using Systems Serology*

Bali Pulendran, Emory Vaccine Center at Yerkes

*Systems vaccinology*

Mark M. Davis, HHMI, Stanford University

*Nature, nurture, and the alpha beta TCR repertoire***TUESDAY, MAY 17, 8:00 AM****Major Symposium G: T Cell Specialization in Tissues: From Thymus to Periphery (and Back)**

Ballroom 6BC

Generously sponsored by BD Biosciences

**Chairs:**

Stephen C. Jameson, University of Minnesota

Donna L. Farber, Columbia University Medical Center

**Speakers:**

Stephen C. Jameson, University of Minnesota

*Regulation of memory T cell residency and recirculation*

Thomas S. Kupper, Brigham and Women's Hospital,

Harvard Medical School

*Protective memory T cells in barrier tissues*

Donna L. Farber, Columbia University Medical Center

*Human T cell tissue compartmentalization: from naïve to memory*

Martin Prlic, Fred Hutchinson Cancer Research Center

*Human T cell function in healthy and inflamed mucosal tissues*

Jonathan D. Powell, Johns Hopkins School of Medicine

*Dissecting and targeting mTOR signaling in T cells*

Paola Romagnoli, Institut National de la Santé et de la Recherche

Médicale U1043, Toulouse, France

*Peripheral regulatory T lymphocytes recirculating to the thymus**suppress the development of their precursors***Major Symposium H: Novel Concepts in Neuroimmunology**

Ballroom 6E

**Chairs:**

Jonathan Kipnis, University of Virginia School of Medicine

Zsuzsanna Fabry, University of Wisconsin

**Speakers:**

Jonathan Kipnis, University of Virginia School of Medicine

*The role of meningeal lymphatics in CNS autoimmunity*

Joan M. Goverman, University of Washington

*Do T cells shape neuroinflammatory patterns in multiple sclerosis?*

Dorian McGavern, NINDS, NIH

*Dynamics of immune interactions that contribute to health and disease in the living brain*

Zsuzsanna Fabry, University of Wisconsin

*Novel roles for cytokines regulating neuroimmune interactions in CNS trauma*

Francisco J. Quintana\*, Brigham and Women's Hospital,

Harvard Medical School

*Regulation of CNS inflammation*

\*Supported by the British Society for Immunology

Claudia F. Lucchinetti, Mayo Clinic

*NFκB signaling drives pro-granulocytic astroglial responses to the neuromyelitis optica IgG: pathogenic and therapeutic implications*

### AAI CLINICAL IMMUNOLOGY COMMITTEE

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#### *Translational Research Toward Putting the Immune System to Sleep in Human Disease*

MONDAY, MAY 16, 3:45 PM – 5:45 PM

**Chairs:**

**Robert L. Modlin**, University of California, Los Angeles; Chair, AAI Clinical Immunology Committee

**Agnes M. Azimzadeh**, University of Maryland

**Speakers:**

**Fred D. Finkelman**, University of Cincinnati College of Medicine  
*Rapid suppression of IgE-mediated allergy*

**Emma Guttman-Yassky**, Icahn School of Medicine at Mount Sinai Medical Center  
*A paradigm shift in the pathogenesis and treatment of atopic dermatitis*

**Jeffrey V. Ravetch**, Rockefeller University  
*Immunomodulation by types I and II Fc receptors*

**Stephen D. Miller**, Northwestern University Medical School  
*From bench to bedside: translation of a novel nanoparticle approach for tolerogenic therapy of immune-mediated diseases*

Advances in translational immunology research have led to new tactics to dampen inappropriate or excessive immune responses as therapeutic approaches for autoimmune and inflammatory diseases. This session will include discussion of present approaches and future directions that will be valuable to immunologists interested in translational research.

### AAI COMMITTEE ON PUBLIC AFFAIRS

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#### *Hot Topics in NIH Funding and Research Policy*

SATURDAY, MAY 14, 10:15 AM – 12:15 PM

**Chair:**

**Clifford V. Harding**, Case Western Reserve University  
AAI Committee on Public Affairs Chair

**Speakers:**

**Gail A. Bishop**, University of Iowa  
*Challenges and concerns from an investigator's perspective*

**Richard K. Nakamura**, Director, Center for Scientific Review, NIH  
*Peer review and grant mechanisms at NIH: what is changing?*

**Richard J. Hodes**, Director, National Institute on Aging, NIH  
*Analysis of research impact and implications for funding policy*

Change at NIH continues to happen at a rapid pace, driven by the president, Congress, NIH, and the scientific community. This session will explore several recent changes, including new funding mechanisms offered by several NIH institutes that fund investigators rather than specific projects; changes—and proposed changes—to the peer review system, including a pilot program

to expand the pre-application process; and efforts to enhance the reproducibility (through improved rigor and transparency) of research. Speakers will discuss the mechanisms and policies that have already been implemented and provide insight into what may come next. Ample time will be provided for questions and answers.

### AAI EDUCATION COMMITTEE

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#### *Careers in Biotech: Panel Discussion and Networking*

SATURDAY, MAY 14, 7:00 PM – 9:00 PM

**Chair:**

**Nandita Bose**, Biothera

**Panelists:**

**Fiona Coats**, Vice President of Marketing, Meso Scale Diagnostics

**Catherine M. Sanders**, Director-Scientific Liaison, Adaptive Biotechnologies

**Jose Luis Vela**, Research Scientist, Novo Nordisk

**Clifford D. Wright**, Founder, RespirPharm Solutions

Many opportunities exist in industry for scientists with advanced degrees. There are positions in laboratory research, program management, business development, regulatory affairs, clinical trials oversight, medical liaison, and more. This panel features scientists employed in a variety of positions in industry discussing their career paths and the skills required for success in each. Following the panel discussion, enjoy casual conversation with the speakers and other scientists from industry at a networking reception.

#### *Immunology Teaching Interest Group*

SATURDAY, MAY 14, 11:00 AM – 12:30 PM

**Chair:**

**Julie M. Jameson**, California State University, San Marcos

**Discussion Leaders :**

**Pierette M. Appasamy**, Chatham University  
*Analogies and role-playing to “experience” immunology in an undergraduate immunology course*

**Anil K. Bamezai**, Villanova University  
*Strategies to promote active learning culture in the classroom*

**Deborah M. Brown**, University of Nebraska, Lincoln  
*Just-in-Time Teaching strategies for an upper level immunology course*

**Jason S. Rawlings**, Furman University  
*Incorporating primary literature discussion in an undergraduate immunology course*

**Laurie P. Shornick**, Saint Louis University  
*A systems and Goldilocks approach to teaching immunobiology*

Are you looking for new ideas or strategies to enliven and improve your teaching? If so, please join us for this informal and interactive special interest group to focus on strategies to successfully convey immunology concepts at the undergraduate and graduate level. Topics will include the concept and implementation of Just-in-Time Teaching, strategies to incorporate primary literature discussion into an undergraduate course, the use of a flipped classroom and peer instruction to promote active learning in the classroom, and more. The session will include ample time for open discussion and networking. Current educators, new faculty, and trainees with an interest in teaching are welcome.

## AAI EDUCATION COMMITTEE & AAI COMMITTEE ON THE STATUS OF WOMEN

### Careers in Science Roundtable

SUNDAY, MAY 15, 11:30 AM – 1:00 PM

#### Chair:

**Virginia Shapiro**, Mayo Clinic; Chair, AAI Committee on the Status of Women

At this always popular session, you'll have the opportunity to meet with scientists at your own career stage and with more experienced scientists to explore specific career issues important to men and women in science today. Learn what others are thinking and gain insights into issues you are confronting in your own situation. Recently added topics offer insights into NIH Study Sections, considerations for scientists in M.D., Ph.D. careers, and a number of ways scientists contribute to the field in non-research careers. Choose from these and the other vital topics related to the environment you work in (academic research, biotech industry, governmental agencies, non-profits), the transitions from specific career stages, or issues in balancing career and family in any career path. Don't miss this great networking opportunity! *Registration Fee: \$20 (Lunch included)*

#### Discussion topics and table leaders:

##### Research Careers in Academia

- Graduate Student to Postdoc: finding a postdoc, interviewing  
*Table Leaders:* **Pooja Jain**, Drexel University; **Yue-Ming Loo**, University of Washington; **Michelle A. Parent**, University of Delaware; **Chander Raman**, University of Alabama, Birmingham; **James L. Riley**, University of Pennsylvania  
**Carol F. Webb**, University of Oklahoma Health Sciences Center
- Postdoc to PI: finding a position, interviewing, negotiating, lab start-up  
*Table Leaders:* **Shane Crotty**, La Jolla Institute for Allergy & Immunology; **Lisa K. Denzin**, Child Health Institute of N.J., Rutgers; **Michael A. Farrar**, University of Minnesota  
**Paula M. Kavathas**, Yale School of Medicine; **Mitchell Kronenberg**, La Jolla Institute for Allergy & Immunology; **Michele A. Kutzler**, Drexel University College of Medicine; **Ricardo Rajsbaum**, University of Texas Medical Branch, Galveston; **Malini Raghavan**, University of Michigan Medical School; **Amariliz Rivera**, Rutgers-New Jersey Medical School

- New PI:
  - Attracting students and postdocs  
*Table Leaders:* **Robin Stephens**, University of Texas Medical Branch; **Emma H. Wilson**, University of California, Riverside
  - Preparing for promotion  
*Table Leaders:* **Edward A. Clark**, University of Washington  
**Mitzi Nagarkatti**, University of South Carolina School of Medicine
- Negotiating an Academic Position  
*Table Leaders:* **Olivera J. "Olja" Finn**, University of Pittsburgh School of Medicine; **Roland K. Strong**, Fred Hutchinson Cancer Research Center
- Undergraduate Institutions: finding the balance in teaching, doing research  
*Table Leaders:* **Paula M. Lutz**, University of Wyoming  
**Laurie P. Shornick**, St. Louis University
- Mentoring Effectively  
*Table Leaders:* **Gail M. Bishop**, University of Iowa  
**Klaus Ley**, La Jolla Institute for Allergy & Immunology

#### Networking Skills: how to build a network

*Table Leaders:* **Jane H. Buckner**, Benaroya Research Institute  
**Madeleine W. Cunningham**, University of Oklahoma Health Sciences Center; **Catherine C. "Lynn" Hedrick**, La Jolla Institute for Allergy & Immunology; **Ashok Kumar**, Wayne State University

#### Career and Family: balancing parenthood and career; the dual career couple

*Table Leaders:* **Yueh-Hsiu Chien**, Stanford University Medical School; **Janice J. Endsley**, University of Texas Medical Branch, Galveston; **Jessica A. Hamerman**, Benaroya Research Institute  
**Susan Kovats**, Oklahoma Medical Research Foundation

#### Careers in Biotech and Industry: moving from academia to industry and vice versa

*Table Leaders:* **Heather A. Arnett**, Amgen; **Tamar Boursalian**, Novo Nordisk; **Andrew C. Chan**, Genentech; **Marc A. Gavin**, Benaroya Research Institute; **Gabriela Hernandez-Hoyos**, Emergent BioSolutions; **Mary E. Keir**, Genentech; **Steven D. Levin**, Implicit Bioscience; **Mandy J. McGeachy**, University of Pittsburgh; **Catherine J. McMahan**, Emergent BioSolutions

#### Careers at Governmental Agencies

*Table Leaders:* **Timothy A. Gondre-Lewis**, NIAID/NIH; **Dorian B. McGavern**, NINDS/NIH; **John J. O'Shea**, NIAMS/NIH; **Susan K. Pierce**, NIAID/NIH

#### NIH Study Section Insights

- Grant Writing for Fellowships/Transition Awards  
*Table Leaders:* **Kristin A. Hogquist**, University of Minnesota Center for Immunology; **Scheherazade Sadegh-Nasseri**, Johns Hopkins Medical Institute
- Grant Writing for PIs  
*Table Leaders:* **Virginia Shapiro**, Mayo Clinic  
**Steven M. Varga**, University of Iowa

#### The Physician Scientist: balancing clinical and research duties

*Table Leaders:* **Thomas Hawn**, University of Washington  
**Penelope A. Morel**, University of Pittsburgh

## AAI COMMITTEE SYMPOSIA AND SESSIONS

### Research from the M.D., Ph.D. Perspective

*Table Leaders:* **David D. Chaplin**, University of Alabama, Birmingham; **Christopher Glass**, University of California, San Diego

### Non-Research Careers for Scientists: careers enabling scientists to advance the field away from the bench

- Careers in Scientific Journals

*Table Leaders:* **Peter T. Lee**, *Immunity*; **Jennifer H. Meyers**, *The Journal of Immunology*; **Marjorie Cohn**, *The Journal of Immunology*; **Jamie Wilson**, *Nature Immunology*

- Opportunities for Scientists in Foundations, Societies, and Schools

*Table Leaders:* **Catherine Grubin**, Juanita High School  
**Thandi M. Onami**, Gates Foundation; **Mary T. Litzinger**, AAI (Awards and Educational Programs); **Elizabeth R. Walsh**, AAI (Awards and Outreach Programs)

- Careers in Technology Transfer

*Table Leader:* **Nicole C. Robinson**, Fred Hutchinson Cancer Research Center

- Careers in Science Policy

*Table Leader:* **Lauren Gross**, AAI (Public Policy and Government Affairs)

## AAI MINORITY AFFAIRS COMMITTEE

### Careers Roundtable and Speed Networking Session

*Supported in part by a grant to the Federation of American Societies for Experimental Biology (FASEB) from the National Institute of General Medical Sciences (NIGMS), National Institutes of Health [FASEB MARC Program: T36-GM08059-32 NCE]*

SATURDAY, MAY 14, 11:45 AM – 2:15 PM

#### Chair:

**Cherié L. Butts**, Biogen; Chair, AAI Minority Affairs Committee

Networking skills have never been more crucial to ensure success for early/mid-career scientists, including those traditionally under-represented in biomedical research. At the roundtable, take advantage of the opportunity to meet in small-group format with accomplished, senior immunologists to hear how they have handled the career challenges you now face and learn what they believe will work for you today. Then practice networking in a relaxed environment offering a structured networking exercise and personalized feedback on communicating your scientific interests/objectives most effectively. *Registration Fee: \$20 (Includes lunch; coffee/cookies during networking hour.)*

#### Discussion topics and table leaders:

##### Grad Student: finding a mentor; taking aim at postdoc training

*Table Leaders:* **Margaret Bynoe**, Cornell University College of Veterinary Medicine; **Eduardo Davila**, University of Maryland Greenebaum Cancer Center; **Tonya Webb**, University of Maryland School of Medicine

##### Postdoc: finding a mentor; taking aim at a faculty position

*Table Leaders:* **Robert J. Binder**, University of Pittsburgh  
**Mireia Guerau-de-Arellano**, Ohio State University

**Joseph Larkin, III**, University of Florida

##### Junior Faculty: preparing for promotion and tenure

*Table Leaders:* **Avery August**, Cornell University College of Veterinary Medicine; **Prosper Boyaka**, Ohio State University; **Floyd L. Wormley, Jr.**, University of Texas, San Antonio

##### Academia or Industry: how to decide (or switch sides)

*Table Leaders:* **Robert Balderas**, BD Biosciences; **James W. Lillard**, JYANT Technologies, Inc.; **Karel Otero Gutierrez**, Biogen

##### Government Agency Careers: CDC, FDA, NIH

*Table Leaders:* **Marta Catalfamo**, NIAID, NIH; **Charles Egwuagu**, NEI, NIH; **Alison Mawle**, CDC

##### Non-Bench-Research Science Careers

*Table Leaders:* **Peter T. Lee**, Cell Press Editor, *Immunity*  
**Thandi Onami**, Bill & Melinda Gates Foundation (Program Officer, Global Health – HIV Vaccines); **Jaconda Wagner**, Wagner, Law LLC (intellectual property attorney)

### AAI Vanguard Lecture

*Supported in part by a grant to the Federation of American Societies for Experimental Biology (FASEB) from the National Institute of General Medical Sciences (NIGMS), National Institutes of Health [FASEB MARC Program: T36-GM08059-32 NCE]*

MONDAY, MAY 16, 11:15 AM – 12:15 PM

#### Chair:

**Cherié L. Butts**, Biogen; Chair, AAI Minority Affairs Committee



#### Speaker:

**Prosper N. Boyaka**, Ohio State University  
*Diversity: Lessons from regulation of mucosal immunity by toxins and microbiota*

Since 2003, the AAI meeting has featured a scientific lecture presented by an AAI member who is an underrepresented minority investigator.

Selected for their achievements in the field of immunology, presenters are among the most prominent investigators in the field and models of successful career development.

## AAI PROGRAM COMMITTEE

### Back to School: A Review of Four Fast-Moving Fields

FRIDAY, MAY 13, 2:30 PM – 4:30 PM

#### Chairs:

**Wendy L. Havran**, Scripps Research Institute; Chair, AAI Program Committee

**Frances E. Lund**, University of Alabama, Birmingham

#### Speakers:

**John T. Chang**, University of California, San Diego  
*Single-cell approaches in immunology*

**Garry P. Nolan**, Stanford School of Medicine  
*High dimensional immune system imaging and the heterogeneity illusion*

**Leonard D. Shultz**, The Jackson Laboratory  
*Humanized mice in translational immunology*

**Helen C. Su**, NIAID, NIH  
*Inborn errors in human immunity: recent advances*

This workshop intends to bring a broad audience up-to-date on a few emerging or rapidly changing fields or areas of technological innovation. Expert lecturers will provide an overview of each trending topic with an emphasis on communicating big picture concepts.

## AAI PUBLICATIONS COMMITTEE

### *Scientific Publishing: Writing, Responding to Reviewers, and Adhering to Ethical Standards*

SUNDAY, MAY 15, 12:30 PM – 2:30 PM

#### Chairs:

**Eugene M. Oltz**, Washington University School of Medicine  
Chair, AAI Publications Committee

**Pamela J. Fink**, University of Washington School of Medicine  
Editor-in-Chief, *The Journal of Immunology*

#### Speakers:

**Pamela J. Fink**, University of Washington School of Medicine  
*That's the way it was: the first 100 years of The Journal of Immunology*

**Eugene M. Oltz**, Washington University School of Medicine  
*Putting your data in the best light: tips on writing a scientific manuscript*

**Kristin A. Hogquist**, University of Minnesota  
*Responding to reviewers: what you want to say and what you should say*

**Pamela J. Fink**, University of Washington School of Medicine  
*Much harder to correct than to avoid: ethical problems in scientific publishing*

In this session sponsored by the AAI Publications Committee, the Editor-in-Chief will look back at some fun facts from 100 years of *The Journal of Immunology* – things were not always the way they are now! In addition, experienced editors will address factors to consider when preparing a manuscript, as well as advice on responding to reviewers' comments. Finally, the Editor-in-Chief will discuss items that could constitute ethical problems and describe how authors can avoid such missteps in scientific publishing.



## AAI VETERINARY IMMUNOLOGY COMMITTEE & AMERICAN ASSOCIATION OF VETERINARY IMMUNOLOGISTS (AAVI) JOINT SYMPOSIUM

### *Vaccination: The Balance between Immunity and Pathogenesis*

SATURDAY, MAY 14, 12:30 PM – 2:30 PM

#### Chairs:

**Laurel J. Gershwin**, University of California, Davis

**Laura C. Miller**, National Animal Disease Center, ARS, USDA

#### Speakers:

**Linda J. Saif**, Ohio Agricultural Research and Development Center, The Ohio State University  
*Gut reactions to probiotics, commensals, and antibiotics influence immunity to rotavirus in neonates*

**Jeffrey L. Stott**, University of California, Davis, School of Veterinary Medicine  
*Controlling epizootic bovine abortion (foothill abortion): development and application of a live virulent vaccine*

**Julia F. Ridpath**, National Animal Disease Center, ARS, USDA  
*BVDV vaccines: the yin and yang of immunosuppression versus immune response*

**Shafiqul I. Chowdhury**, Louisiana State University School of Veterinary Medicine  
*Targeting immunosuppressive and virulence genes for genetically engineered BHV-1 vaccine: walking a fine line between reduced pathogenicity and protective immune responses*

Drawing from both human and veterinary research, this year's symposium will focus on the challenge in viral vaccine design of attenuating virulence while retaining protective immunogenicity. Research highly relevant to infant immunization will cite the use of probiotics to enhance vaccine responses to human rotavirus in a germ-free piglet model. The story of "foothill abortion" in western states cattle will be used to illustrate the ways that understanding the unique pathogenesis of a pathogen can ultimately lead to a successful vaccine. Finally, researchers studying pestiviruses and bovine herpes viruses will share how understanding protective immunity and viral pathogenesis is critical for development of effective vaccines.



NIH INSTITUTE-SPONSORED SYMPOSIA

**National Cancer Institute (NCI) Symposium:  
*Extracellular RNA Communication in the  
Immune System***

MONDAY, MAY 16, 3:45 PM – 5:45 PM

**Chairs:**

**K. Mark Ansel**, University of California, San Francisco

**T. Kevin Howcroft**, NCI, NIH

**Speakers:**

**Gyongyi Szabo**, University of Massachusetts Medical School  
*Extracellular vesicles and microRNAs in innate immune cell  
communication in the liver*

**Ryan M. O'Connell**, University of Utah  
*MicroRNA-containing exosomes and the regulation of  
inflammatory responses*

**Amy S. Major**, Vanderbilt University Medical Center  
*HDL-associated small RNA communication in autoimmunity*

**K. Mark Ansel**, University of California, San Francisco  
*Regulated microRNA release within extracellular vesicles during  
T cell activation*

**National Institute of Allergy and Infectious  
Diseases (NIAID) Symposium: *Development  
and Function of the Infant Immune System***

SATURDAY, MAY 14, 12:30 PM – 2:30 PM

**Chairs:**

**Mercy PrabhuDas**, NIAID, NIH

**Wendy Davidson**, NIAID, NIH

**Speakers:**

**Joseph (Mike) McCune**, University of California, San Francisco  
*Human fetal immune development and its impact on neonatal  
immune function*

**Kristina De Paris**, University of North Carolina, Chapel Hill  
*Cytokine signaling in the first year of life*

**James E. Gern**, University of Wisconsin, Madison  
*Progressive development of the human immune system*

**Nicholas W. Lukacs**, University of Michigan  
*Microbiome, immune function, and pulmonary disease*

**National Institute on Aging (NIA) Symposium:  
*The Interplay between Chronic Viral Infection and  
Immunosenescence***

SUNDAY, MAY 15, 3:45 PM – 5:45 PM

**Chairs:**

**Rebecca A. Fuldner**, NIA, NIH

**Beth D. Jamieson**, University of California, Los Angeles

**Speakers:**

**Beth D. Jamieson**, University of California, Los Angeles  
*The impact of HIV infection on aging of the human immune  
system*

**Graham P. Pawelec**, University of Tübingen  
*The impact of CMV infection on immunity and survival in older  
humans*

**Janet E. McElhaney**, Advanced Medical Research Institute of Canada  
*CMV and frailty: contributions to immune senescence*

**Sean X. Leng**, Johns Hopkins University School of Medicine  
*Impact of CMV on T cell immunity in HIV infection and aging*

**National Institute of Environmental Health Sciences  
(NIEHS) Symposium: *Environmental Triggers of  
Autoimmunity***

SATURDAY, MAY 14, 10:15 AM – 12:15 PM

**Chairs:**

**Michael C. Humble**, NIEHS, NIH

**Keith B. Elkon**, University of Washington

**Speakers:**

**Keith B. Elkon**, University of Washington  
*Impact of UV light on innate immunity in lupus*

**DeLisa Fairweather**, Mayo Clinic  
*Endocrine disruptors alter inflammatory heart disease by  
activating mast cells*

**Tai Guo**, University of Georgia  
*Exacerbation of type I diabetes in female NOD mice following  
developmental exposure to bisphenol A and genistein*

**James P. Luyendyk**, Michigan State University  
*Mechanisms at the interface of environmental exposure and  
autoimmunity*





## GUEST SOCIETY SYMPOSIA

**American Association of Veterinary Immunologists (AAVI) and AAI Veterinary Immunology Committee  
Joint Symposium: *Vaccination: The Balance between Immunity and Pathogenesis***

SATURDAY, MAY 14, 12:30 PM – 2:30 PM

**Chairs:**

**Laurel J. Gershwin**, University of California, Davis

**Laura C. Miller**, National Animal Disease Center, ARS, USDA

**Speakers:**

**Linda J. Saif**, Ohio Agricultural Research and Development Center,  
The Ohio State University

*Gut reactions to probiotics, commensals, and antibiotics influence  
immunity to rotavirus in neonates*

**Jeffrey L. Stott**, University of California, Davis, School of Veterinary  
Medicine

*Controlling epizootic bovine abortion (foothill abortion): development  
and application of a live virulent vaccine*

**Julia F. Ridpath**, National Animal Disease Center, ARS, USDA  
*BVDV vaccines: the yin and yang of immunosuppression versus  
immune response*

**Shafiqul I. Chowdhury**, Louisiana State University School of  
Veterinary Medicine

*Targeting immunosuppressive and virulence genes for genetically  
engineered BHV-1 vaccine: walking a fine line between reduced  
pathogenicity and protective immune responses*

**American Society of Gene & Cell Therapy (ASGCT)  
Symposium: *Genetic Engineering of T Cells***

MONDAY, MAY 16, 10:15 AM – 12:15 PM

**Chairs:**

**Michel Sadelain**, Memorial Sloan Kettering Cancer Center

**Stanley Riddell**, Fred Hutchinson Cancer Research Center

**Speakers:**

**Michel Sadelain**, Memorial Sloan Kettering Cancer Center  
*Genetic engineering of chimeric antigen receptors*

**Gwendolyn Binder-Scholl**, Adaptimmune LLC  
*T cell receptors*

**Stanley Riddell**, Fred Hutchinson Cancer Research Center  
*What is the best T cell subset?*

**Ann M. Leen**, Baylor College of Medicine  
*Genetically modified virus-specific cells*

**Canadian Society for Immunology (CSI)  
Symposium: *Mechanisms of Tolerance  
and Autoimmunity***

SUNDAY, MAY 15, 8:00 AM – 10:00 AM

**Chairs:**

**Colin C. Anderson**, University of Alberta

**Megan K. Levings**, University of British Columbia

**Speakers:**

**Amit Bar-Or**, McGill University  
*GM-CSF expressing B cells in autoimmune disease*

**Jan P. Dutz**, University of British Columbia  
*Regulation of immunity and tolerance in the skin*

**Sylvie Lesage**, University of Montreal  
*Immunogenetics of CD4<sup>+</sup>CD8<sup>+</sup> T cells that confer immune tolerance  
in NOD mice*

**Megan K. Levings**, University of British Columbia  
*Functions and therapeutic applications of regulatory T cells*

**Colin C. Anderson**, University of Alberta  
*Co-inhibitory control of homeostasis*

**Chinese Society of Immunology (CSI) Symposium:  
*Innate Immunity in Stress and Homeostasis***

SATURDAY, MAY 14, 8:00 AM – 10:00 AM

**Chairs:**

**Zhigang Tian**, University of Science and Technology of China

**Weiping Zou**, University of Michigan School of Medicine

**Speakers:**

**Chengjiang Gao**, Shandong University  
*Feedback regulation of innate antiviral signaling*

**Rongbin Zhou**, University of Science and Technology of China  
*The mechanisms for the regulation of NLRP3 inflammasome*

**Zhihua Liu**, Institute of Biophysics of the Chinese Academy  
of Sciences  
*Commensal bacteria direct selective cargo sorting to promote  
symbiosis*

**Hongyan Wang**, Shanghai Institutes for Biological Sciences,  
Chinese Academy of Sciences  
*Identification of VEGFR3 and STK4 as new targets for  
inflammation-related diseases*

**Dawang Zhou**, Xiamen University  
*The kinases Mst1 and Mst2 positively regulate phagocytic  
induction of reactive oxygen species and bactericidal activity*

# IMMUNOLOGY 2016™ GALA



**EMP MUSEUM**

Seattle Center  
325 Fifth Avenue North  
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**AAI GALA**  
**MONDAY, MAY 16, 2016**  
**7:00 PM-9:30 PM**

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Whether your idol is Jimi Hendrix or Han Solo, you'll enjoy this world famous museum of popular music and science fiction. See guitars signed by rock legends, hand-written lyrics, costumes and props from popular sci-fi films, and more. Dance to live bands, record your own performance in the EMP's Sound Lab, and enjoy drinks and food by Wolfgang Puck! Your meeting badge enables you to take the 90-second Monorail ride to the Gala for free!

Open to all IMMUNOLOGY 2016™ attendees.  
Come as you are, directly from the Center.  
Attendees must be at least 21 years of age.  
Meeting badge required.



**Chinese Society of Immunology, Taiwan (CSIT)  
Symposium: Glycoimmunology: Glycans and  
Lectins as Therapeutic Targets**

SATURDAY, MAY 14, 12:30 PM – 2:30 PM

**Chairs:**

**Jenny P. Ting**, University of North Carolina, Chapel Hill

**Shie-Liang Hsieh**, Academia Sinica

**Speakers:**

**Chi-Huey Wong**, Academia Sinica  
*Chemistry and biology of glycosylation: carbohydrate-based  
cancer vaccine*

**Fu-Tong Liu**, Academia Sinica  
*Galectins in innate immunity*

**Alice Yu**, Chang Gung University  
*Cancer immunotherapy targeting tumor-associated  
glycosphingolipids*

**Shie-Liang Hsieh**, Academia Sinica  
*Targeting CLEC5A for the treatment of flaviviral infection*

**German Society for Immunology (DGfI)  
Symposium: Intracellular Immunosensors**

MONDAY, MAY 16, 10:15 AM – 12:15 PM

**Chairs:**

**Hans-Martin Jäck**, University of Erlangen-Nürnberg

**Jürgen Wienands**, University of Göttingen

**Speakers:**

**Jürgen Wienands**, University of Göttingen  
*Immunology in Germany*

**Olaf Groß**, Technical University of München  
*Activation of the Nlrp3 inflammasome*

**Axel Roers**, University of Dresden  
*Aicardi-Goutières syndrome: inappropriate intracellular sensing of  
endogenous nucleic acids*

**Angela Rösen-Wolff**, University of Dresden  
*The role of caspase-1 in intracellular immunosensing*

**Gunther Hartmann**, University of Bonn  
*Immune sensing of RNA by RIG-I*

**International Complement Society (ICS)  
Symposium: Specific Targeting of Complement  
Pathways for Clinical Benefit**

MONDAY, MAY 16, 10:15 AM – 12:15 PM

**Chairs:**

**V. Michael Holers**, University of Colorado, Denver

**Jessy J. Alexander**, University at Buffalo

**Speakers:**

**Menno Van Lookeren Campagne**, Genentech, Inc.  
*Illuminating targets for age-related macular degeneration*

**Beth Stevens**, Children's Hospital, Harvard Medical School  
*Immune mechanisms of synapse loss in health and disease*

**Joshua M. Thurman**, University of Colorado, Denver  
*The point of no return: IgM, complement, and the progression of  
kidney disease*

**Antonio Risitano**, University of Naples  
*Lessons from treatment of paroxysmal nocturnal hemoglobinuria  
(PNF): multiple dimensions of complement*

**Japanese Society for Immunology (JSI)  
Symposium: Immune System Regulation, Function,  
and Related Diseases: Symposium by JSI Awardees**

MONDAY, MAY 16, 3:45 PM – 5:45 PM

**Chairs:**

**Kenji Kabashima**, Kyoto University

**Yoshiyuki Goto**, Chiba University

**Speakers:**

**Kensuke Takada**, University of Tokushima  
*Thymoproteasome-dependent positive selection of CD8 T cells*

**Kiyoshi Hirahara**, Chiba University  
*Molecular mechanism for the maintenance of immune  
homeostasis via CD4<sup>+</sup> T cells*

**Noriko Komatsu**, University of Tokyo  
*Plasticity of Foxp3<sup>+</sup> T cells and its impact on autoimmune arthritis*

**Yoshiyuki Goto**, Chiba University  
*Commensal bacteria and ILC3 regulate intestinal homeostasis*

**Kenji Kabashima**, Kyoto University  
*Cutaneous immune responses to external antigens*



**Korean Association of Immunologists (KAI) and Association of Korean Immunologists in America (AKIA) Symposium: Immune Regulation of Viral Pathogenesis**

SUNDAY, MAY 15, 12:30 PM – 2:30 PM

**Chairs:**

**Young S. Hahn**, University of Virginia School of Medicine

**Eui-Cheol Shin**, Korea Advanced Institute of Science and Technology

**Speakers:**

**Eui-Cheol Shin**, Korea Advanced Institute of Science and Technology  
*IL-15 and NKG2D in virus-induced immunopathogenesis*

**Sang-Jun Ha**, Yonsei University  
*Role of PD-1 in regulatory T cells during chronic virus infection*

**Heung Kyu Lee**, Korea Advanced Institute of Science and Technology  
*Dysbiosis contributes to impaired antiviral immunity in the genital mucosa*

**Sujin Lee**, Emory University  
*Broadly neutralizing antibodies induced by multivalent inactivated rhinovirus*

**Michael W. Cho**, Iowa State University  
*Developing vaccine strategies to modulate immunogenicity of B cell epitopes*

**Society for Glycobiology (SfG) Symposium: Glycobiology of Immune Responses**

SATURDAY, MAY 14, 10:15 AM – 12:15 PM

**Chairs:**

**Fikri Y. Avci**, University of Georgia

**Linda G. Baum**, University of California, Los Angeles

**Speakers:**

**Linda G. Baum**, University of California, Los Angeles  
*Regulation of immune cell function by galectin-glycoprotein lattices on the cell surface*

**Bruce S. Bochner**, Northwestern University  
*Airway glycans that control allergic lung inflammation by interacting with eosinophil siglecs*

**Taia Wang**, Rockefeller University  
*IgG Fc glycoforms in protective and pathogenic antibody responses*

**Brian A. Cobb**, Case Western Reserve University  
*Carbohydrate-mediated immune regulation*

**Fikri Y. Avci**, University of Georgia  
*New insights on carbohydrate antigens and immune responses*

**Society for Immunotherapy of Cancer (SITC) Symposium: Overcoming Failure of Immune Checkpoint Inhibition in Patients with Cancer**

SUNDAY, MAY 15, 12:30 PM – 2:30 PM

**Chairs:**

**Martin A. Cheever**, Fred Hutchinson Cancer Research Center

**Augusto C. Ochoa**, Louisiana State University Health Sciences Center

**Speakers:**

**Martin A. Cheever**, Fred Hutchinson Cancer Research Center  
*Introduction: immune checkpoint failures: gravity of the problem*

**Davide Bedognetti**, Sidra Medical and Research Center  
*Cancer genetic program and immune responsiveness*

**Antoni Ribas**, University of California, Los Angeles  
*Adaptive immune resistance*

**Lisa M. Coussens**, Oregon Health and Science University  
*Neutralizing cancer: promoting chronic inflammation*

**Augusto C. Ochoa**, Louisiana State University Health Sciences Center

*Metabolism and immune suppression in cancer*

**Martin A. Cheever**, Fred Hutchinson Cancer Research Center  
*Agents to overcome failure*

**Society for Leukocyte Biology (SLB) Symposium: Metabolic Regulation of Immunity**

SUNDAY, MAY 15, 12:30 PM – 2:30 PM

**Chairs:**

**Mark A. Wallet**, University of Florida

**Matthew J. Delano**, University of Michigan

**Speakers:**

**C. Henrique Serezani**, Indiana University  
*Understanding impaired host defense in type 1 diabetes by looking at the PGE2/DC/Th17 axis*

**Daniel J. Perry**, University of Florida  
*Metabolic profiling of human PBMC subsets*

**Emily L. Goldberg**, Yale University  
*Beta-hydroxy butyrate, an alternate metabolic fuel, inhibits neutrophilic inflammation by blocking NLRP3 inflammasome activation*

**Joseph E. Qualls**, Cincinnati Children's Hospital  
*Macrophage L-citrulline metabolism improves anti-mycobacterial host defense in vivo*

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## OTHER SUPPORT

HENRY J. SHOWELL

**Society of Mucosal Immunology (SMI) Symposium:  
*Innate Regulation of Th2 Immunity***

SATURDAY, MAY 14, 3:45 PM – 5:45 PM

**Chairs:**

**Cathryn Nagler**, University of Chicago

**Marsha Wills-Karp**, Johns Hopkins Bloomberg School of Public Health

**Speakers:**

**David Artis**, Weill Cornell Medical College  
*Immunity at barrier surfaces*

**Cathryn Nagler**, University of Chicago  
*Regulation of allergic responses to food by commensal bacteria*

**Marsha Wills-Karp**, Johns Hopkins Bloomberg School of Public Health  
*Novel role for the SAA-FPR2-IL-33 axis in allergic asthma*

**B. Brett Finlay**, University of British Columbia  
*The role of the microbiota in asthma*

**Society for Natural Immunity (SNI) Symposium:  
*NK Cells and ILCs: Development and Disease***

SUNDAY, MAY 15, 3:45 PM – 5:45 PM

**Chairs:**

**Adelheid Cerwenka**, German Cancer Research Center

**Andreas Diefenbach**, University of Mainz Medical Center

**Speakers:**

**Adelheid Cerwenka**, German Cancer Research Center  
*Harnessing natural killer cells against tumors*

**Andreas Diefenbach**, University of Mainz Medical Center  
*Transcriptional control of innate lymphoid cell fate decisions*

**Todd A. Fehniger**, Washington University School of Medicine  
*microRNA regulation of NK cells*

**Aharon G. Freud**, Ohio State University  
*Human innate lymphoid cell development in secondary lymphoid tissues*

**The Obesity Society (TOS) Symposium:  
*Inflammation Fuels Obesity-Associated Cancers***

SUNDAY, MAY 15, 10:15 AM – 12:15 PM

**Chairs:**

**Gerald V. Denis**, Boston University School of Medicine

**Barbara S. Nikolajczyk**, Boston University School of Medicine

**Speakers:**

**Kristy A. Brown**, Hudson Institute, Melbourne  
*Inflammation and breast cancer: driving tumor growth through dysregulated metabolism and estrogen regulation*

**Mario Kratz**, Fred Hutchinson Cancer Research Center  
*Adipose tissue inflammation: a potential link between obesity and cancer*

**Lydia Lynch**, Brigham and Women's Hospital, Harvard Medical School  
*Obese NK cells lack energy to kill cancer cells*

**Neil M. Iyengar**, Memorial Sloan Kettering Cancer Center  
*Local and systemic effects of white adipose tissue inflammation: linking obesity and cancer*



## CAREER DEVELOPMENT SESSIONS

Through workshops, roundtables, and one-on-one counseling, IMMUNOLOGY 2016™ provides critical career development programs.

Career sessions and services this year include:

- Careers in Biotech: Panel Discussion and Networking
- Careers and Networking Roundtables (2)
- How to Convert Your CV into a Resumé (followed by one-on-one consulting)
- Immunology Teaching Interest Group
- Interviewing for a Job
- NIH Grants Workshop
- Scientific Publishing
- Secrets for a Successful Postdoctoral Fellowship

AAI is also offering an online and on-site Jobs Board free to meeting registrants and exhibitors and a new NIH Grant Review and Funding Information Room!

### **NEW! NIH Grant Review and Funding Information Room**

NIH program and review staff will be available in Room 400 for individual conversations and consultations. A schedule of specific times staff members will be available to answer questions about the scientific review process, grant/fellowship opportunities, and NIH institute-specific interests is available at [www.IMMUNOLOGY2016.org/careers](http://www.IMMUNOLOGY2016.org/careers).

### **How to Convert Your CV into a Resumé**

SATURDAY, MAY 14, 9:00 AM – 10:00 AM

#### **Speaker:**

**Derek Haseltine**, Director, Career Development Center, Baylor College of Medicine

For anyone seeking a job outside of academe, how you present yourself on paper is critical. A well prepared resumé can make all the difference in securing that interview. The focus of this session will be on the important elements of a resumé, the differences between a resumé and the standard academic curriculum vitae, and the information needed to make a good impression. In this special career development session, attendees will be instructed in how to transform their CVs into professional resúmes. Small breakout sessions for individual consulting will follow from 10:30 AM to 12:30 PM. Bring your CV!

### **Immunology Teaching Interest Group**

*Sponsored by the AAI Education Committee*

SATURDAY, MAY 14, 11:00 AM – 12:30 PM

#### **Chair:**

**Julie M. Jameson**, California State University, San Marcos

#### **Discussion Leaders:**

**Pierette M. Appasamy**, Chatham University

**Anil K. Bamezai**, Villanova University

**Deborah M. Brown**, University of Nebraska, Lincoln

**Jason S. Rawlings**, Furman University

**Laurie P. Shornick**, Saint Louis University

Are you looking for new ideas or strategies to enliven and improve your teaching? If so, please join us for this informal and interactive special interest group which will focus on strategies that instructors can use to successfully convey immunology concepts to students at the undergraduate and graduate level. Topics will include the concept and implementation of Just-in-Time Teaching, strategies to incorporate primary literature discussion into an undergraduate course, the use of a flipped classroom and peer instruction to promote active learning in the classroom, and more. The session will include ample time for open discussion and networking. Current educators, new faculty, and trainees with an interest in teaching are welcome.

### **Careers Roundtable and Speed Networking Session**

*Sponsored by the AAI Minority Affairs Committee*

*Supported in part by a grant to the Federation of American Societies for Experimental Biology (FASEB) from the National Institute of General Medical Sciences (NIGMS), National Institutes of Health [FASEB MARC Program: T36-GM08059-32 NCE]*

SATURDAY, MAY 14, 11:45 AM – 2:15 PM

#### **Chair:**

**Cheríe L. Butts**, Biogen; Chair, AAI Minority Affairs Committee

Networking skills have never been more crucial to ensure success for early/mid-career scientists, including those traditionally under-represented in biomedical research. At the roundtable, take advantage of the opportunity to meet in small-group format with accomplished, senior immunologists to hear how they have handled the career challenges you now face and learn what they believe will work for you today. Then practice networking in a relaxed environment offering a structured networking exercise and personalized feedback on communicating your scientific interests/objectives most effectively. *Registration Fee: \$20 (Includes lunch; coffee/cookies during networking hour.)*

#### **Discussion topics and table leaders:**

- Grad Student: finding a mentor; taking aim at postdoc training
- Postdoc: finding a mentor; taking aim at a faculty position
- Junior Faculty: preparing for promotion and tenure
- Academia or Industry: how to decide (or switch sides)
- Government Agency Careers: CDC, FDA, NIH
- Non-Bench-Research Science Careers

*Table Leaders: See Committee Symposia and Sessions*

### ***Careers in Biotech: Panel Discussion and Networking***

*Sponsored by the AAI Education Committee*

SATURDAY, MAY 14, 7:00 PM – 9:00 PM

**Chair:**

**Nandita Bose**, Biothera

**Panelists:**

**Fiona Coats**, Vice President of Marketing, Meso Scale Diagnostics

**Catherine M. Sanders**, Director-Scientific Liaison, Adaptive Biotechnologies

**Jose Luis Vela**, Research Scientist, Novo Nordisk

**Clifford D. Wright**, Founder, RespirPharm Solutions

Many opportunities exist in industry for scientists with advanced degrees. There are positions in laboratory research, program management, business development, regulatory affairs, clinical trials oversight, medical liaison, and more. This panel features scientists employed in a variety of positions in industry discussing their career paths and the skills required for success in each. Following the panel discussion, enjoy casual conversation with the speakers and other scientists from industry at a networking reception.

### ***Interviewing for a Job***

SUNDAY, MAY 15, 9:00 AM – 10:00 AM

**Speaker:**

**Derek Haseltine**, Director, Career Development Center, Baylor College of Medicine

This session will be focused on tips and techniques to help you successfully navigate the interview process. Emphasis will be on how you can present yourself in the best possible light. You will also learn how to respond to unexpected questions. This session is open to anyone but is especially intended for student and postdoctoral attendees.

### ***Careers in Science Roundtable***

*Sponsored by the AAI Education Committee & AAI Committee on the Status of Women*

SUNDAY, MAY 15, 11:30 AM – 1:00 PM

**Chair:**

**Virginia Shapiro**, Mayo Clinic; Chair, AAI Committee on the Status of Women

At this always popular session, you'll have the opportunity to meet with scientists at your own career stage and with more experienced scientists to explore specific career issues important to men and women in science today. Learn what others are thinking and gain insights into issues you are confronting in your own situation. Recently added topics offer insights into NIH study sections, considerations for scientists in M.D.-Ph.D. careers, and a

number of ways scientists contribute to the field in non-research careers. Choose from these and the other vital topics related to the environment you work in (academic research, biotech industry, governmental agencies, non-profits), the transitions from specific career stages, or issues in balancing career and family in any career path. Don't miss this great networking opportunity! *Registration Fee: \$20 (Lunch included)*

**Discussion topics:**

**Research Careers in Academia**

- Graduate Student to Postdoc: finding a postdoc, interviewing
- Postdoc to PI: finding a position, interviewing, negotiating, lab start-up
- New PI:
  - Attracting students and postdocs
  - Preparing for promotion
- Negotiating an Academic Position
- Undergraduate Institutions: finding the balance in teaching, doing research
- Mentoring Effectively

**Networking Skills: how to build a network**

**Career and Family: balancing parenthood and career; the dual career couple**

**Careers in Biotech and Industry: moving from academia to industry and vice versa**

**Careers at Governmental Agencies**

**NIH Study Section Insights**

- Grant Writing for Fellowships/Transition Awards
- Grant Writing for PIs

**The Physician Scientist: balancing clinical and research duties**

**Research from the M.D., Ph.D. Perspective**

**Non-Research Careers for Scientists: careers enabling scientists to advance the field away from the bench**

- Careers in Scientific Journals
- Opportunities for Scientists in Foundations, Societies, and Schools
- Careers in Technology Transfer
- Careers in Science Policy

*Table Leaders: See Committee Symposia and Sessions*

### ***NIH Grants Workshop: Demystifying the Grant Application Submission, Review, and Funding Processes***

SUNDAY, MAY 15, 12:30 PM – 2:30 PM

**Chairs:**

**Tina McIntyre**, Center for Scientific Review, NIH

**Joseph Breen**, NIAID, NIH



**Panelists:**

**Tina McIntyre**, Scientific Review Officer, III Study Section, Immunology IRG, DPPS, Center for Scientific Review, NIH

**Deborah Hodge**, Scientific Review Officer, Immunology Fellowships and AREA Study Section, Immunology IRG, DPPS, Center for Scientific Review, NIH

**Joseph Breen**, Section Chief, Basic Immunology Branch, Division of Allergy, Immunology and Transplantation, NIAID, NIH

**T. Kevin Howcroft**, Chief, Cancer Immunology and Hematology Etiology Branch, Division of Cancer Biology, NCI, NIH

This workshop will provide participants with an overview of NIH grant submission, assignment, review, and funding opportunities. Emphasis will be given to identification of the most appropriate funding agencies and mechanisms available through NIH, how to make an application “reviewer friendly,” and other strategies that contribute to applications that succeed in obtaining research funding. The workshop will also provide information on how to understand the peer review system, which is essential to competing successfully for funding, with a focus on recent changes to the review process. NIH review and program staff will provide a broad array of expertise and encourage questions from seminar participants. This workshop is open to anyone interested in learning more about preparing an NIH grant application and obtaining NIH funding. Trainees and independent investigators are welcome.

***Scientific Publishing: Writing, Responding to Reviewers, and Adhering to Ethical Standards***

*Sponsored by the AAI Publications Committee*

SUNDAY, MAY 15, 12:30 PM – 2:30 PM

**Chairs:**

**Eugene M. Oltz**, Washington University School of Medicine, Chair, AAI Publications Committee

**Pamela J. Fink**, University of Washington School of Medicine, Editor-in-Chief, *The Journal of Immunology*

**Speakers:**

**Pamela J. Fink**, University of Washington School of Medicine

**Eugene M. Oltz**, Washington University School of Medicine

**Kristin A. Hogquist**, University of Minnesota

**Pamela J. Fink**, University of Washington School of Medicine

In this session sponsored by the AAI Publications Committee, the Editor-in-Chief will look back at some fun facts from 100 years of *The Journal of Immunology* – things were not always the way they are now! In addition, experienced editors will address factors to consider when preparing a manuscript, as well as advice on responding to reviewers’ comments. Finally, the Editor-in-Chief will discuss items that could constitute ethical problems and describe how authors can avoid such missteps in scientific publishing.

***Secrets for a Successful Postdoctoral Fellowship***

MONDAY, MAY 16, 1:30 PM – 2:30 PM

**Speaker:**

**Daniel J. Campbell**, Full Member, Benaroya Research Institute; Affiliate Associate Professor and Graduate Program Coordinator, Department of Immunology, University of Washington

A postdoctoral fellowship is the time to develop research skills you will need to succeed as an independent scientist. It is, however, just as important to realize that you need to prepare for a career path at the same time. This session will highlight ways of getting the most out of your postdoctoral fellowship, relating successfully with your mentor, and understanding how to use the resources available to you to ensure that your training prepares you adequately for a seamless transition into the next phase of your career.



## 2015–2016 AAI PROGRAM COMMITTEE

AAI gratefully acknowledges the efforts of the Program Committee for IMMUNOLOGY 2016™.

*Wendy L. Havran*, Chair  
The Scripps Research Institute

*Marlene Bouvier*  
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*Daniel H. Kaplan*  
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University of Chicago

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AAI gratefully acknowledges the efforts of the Abstract Programming Chairs for IMMUNOLOGY 2016™.

**Antigen Processing and Presentation**

*Malini Raghavan*  
University of Michigan  
Medical School

*Scheherazade Sadegh-Nasseri*  
Johns Hopkins School  
of Medicine

**Basic Autoimmunity**

*Laura Mandik-Nayak*  
Lankenau Institute for  
Medical Research

*Chandra Mohan*  
University of Houston

**Cellular Adhesion, Migration, and Inflammation**

*Minsoo Kim*  
University of Rochester

*Yoji Shimizu*  
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**Cytokines and Chemokines and Their Receptors**

*Laurie E. Harrington*  
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*Mandy J. McGeachy*  
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**Hematopoiesis and Immune System Development**

*José Alberola-Ila*  
Oklahoma Medical Research  
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*Michael A. Farrar*  
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**Immediate Hypersensitivity, Asthma, and Allergic Responses**

*Paul J. Bryce*  
Northwestern University  
Feinberg School of Medicine

*Mitchell H. Grayson*  
Medical College of Wisconsin

**Immune Mechanisms of Human Disease**

*Clara Abraham*  
Yale University

*Jane H. Buckner*  
Benaroya Research Institute

**Immune Response Regulation: Cellular Mechanisms**

*Andrew L. Mellor*  
Newcastle University

*Thomas C. Mitchell*  
University of Louisville  
School of Medicine

**Immune Response Regulation: Molecular Mechanisms**

*Rachel M. Gerstein*  
University of Massachusetts  
Medical School

*Mark H. Kaplan*  
Indiana University  
School of Medicine

**Innate Immune Responses and Host Defense: Cellular Mechanisms**

*Thirumala-Devi Kanneganti*  
St. Jude Children's Research  
Hospital

*David M. Underhill*  
Cedars-Sinai Medical Center

**Innate Immune Responses and Host Defense: Molecular Mechanisms**

*Gregory M. Barton*  
University of California,  
Berkeley

*Katherine A. Fitzgerald*  
University of Massachusetts  
Medical School

**Lymphocyte Differentiation and Peripheral Maintenance**

*Nicole Baumgarth*  
University of California, Davis

*Ross M. Kedd*  
University of Colorado,  
Denver

**Microbial, Parasitic, and Fungal Immunology**

*George S. Deepe*  
University of Cincinnati  
College of Medicine

*Joanne Turner*  
Ohio State University

**Mucosal and Regional Immunology**

*Timothy L. Denning*  
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*Dana J. Philpott*  
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**Therapeutic Approaches to Autoimmunity**

*Jennifer H. Anolik*  
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University of Texas  
Southwestern Medical Center

**Transplantation Immunology**

*Donna L. Farber*  
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*Pavan Reddy*  
University of Michigan  
Medical Center

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Carolina

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*Jeffrey A. Yoder*  
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**Viral Immunology**

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# IMMUNOLOGY 2016™

Annual Meeting of The American Association of Immunologists



MAY 13–17, 2016  
WASHINGTON STATE CONVENTION CENTER  
SEATTLE, WASHINGTON

## Jobs Board

*A Free Recruiting Service for Registrants and Exhibitors*

**Post Online and Meet On-site**

AAI is offering career services to both job seekers and employers through a Jobs Board free to meeting registrants and exhibitors at [www.immunology2016.org/jobs-board](http://www.immunology2016.org/jobs-board).

**Job Seekers!** Whatever your career stage, use this career service at **IMMUNOLOGY 2016™** to enhance your professional development!

- **Job Postings.** Review the online AAI Jobs Board to identify postings you wish to pursue. (View new Advance Postings through May 4. Watch for On-site Postings, online or on paper in the Exhibit Hall!)
- **Direct Access to Recruiters.** Job postings will include recruiters' e-mail addresses so that you can contact them directly.

**Employers!** Advertise your position on a virtual Jobs Board located on the **IMMUNOLOGY 2016™** website. By including a contact email, you will receive inquiries directly.

- **Advance Postings.** Postings will be accepted as of February 15 and will remain online until the end of the meeting. To post job listings in advance of the meeting, contact [meetings@aai.org](mailto:meetings@aai.org). Advance Postings must be submitted to AAI by May 4, 2016.
- **On-site Postings.** After May 4, 2016, employers wishing to advertise a job on the **IMMUNOLOGY 2016™** Jobs Board may still do so by visiting the AAI Office in the Washington State Convention Center between 9:00 AM and 5:00 PM. Ads submitted on-site will be posted on the bulletin board in the Exhibit Hall.

**Save Thousands of Dollars in Recruiting Expenses.** Take advantage of this complimentary hiring opportunity at **IMMUNOLOGY 2016™**. To register for the meeting, visit [www.immunology2016.org/register](http://www.immunology2016.org/register).

[www.IMMUNOLOGY2016.org](http://www.IMMUNOLOGY2016.org)



## POSTER SESSIONS & BLOCK SYMPOSIA

### POSTER SESSIONS & BLOCK SYMPOSIA

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Abstracts of unpublished, original research are presented during Poster Sessions and Block Symposia (oral presentations of poster data). This is perhaps the most dynamic aspect of the AAI annual meeting. Take part in face-to-face discussions with abstract authors and learn about their most recent, unpublished research. Poster Sessions will be held daily (unopposed by any other sessions) in the Exhibit Hall from 2:30 PM – 3:45 PM.

### VISIT THE AAI BOOTH (250) TO LEARN ABOUT AN EXCITING NEW AAI CAREER DEVELOPMENT RESOURCE

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#### The Career Advisory Board (CAB)

A referral service for connecting young PIs with more senior PIs for advice on how to manage your first lab!

The CAB is sponsored by the Committee on the Status of Women but is open to all junior faculty in AAI.

### EXHIBITOR HALL PASSPORT PROGRAM

**FILL OUT YOUR EXHIBIT HALL PASSPORT FOR A CHANCE TO WIN ONE OF THREE \$250 AMERICAN EXPRESS GIFT CARDS!**

Entries must be received by Monday, May 16, at 2:00 PM. The drawing will be held during the Poster Presentations on Monday, May 16 from 2:30 PM – 3:45 PM. You'll find your Passport in your meeting bag or you may pick one up at the AAI Booth (250).

### EXHIBITOR WORKSHOPS

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Be sure to take advantage of the knowledge-building opportunities presented in Exhibitor Workshops. Located on the Exhibit Floor, these workshops explore exhibitors' latest technologies, products, and services through demonstrations and discussions.

*Workshops are planned and conducted by exhibitors; the listing of those workshops does not constitute endorsement of any products or services by AAI.*



## *The* Journal of Immunology

Submit to the new

### **Systems Immunology**

section of *The Journal of Immunology*

This section includes:

- Analyses of novel large data sets that draw concrete conclusions about the biology of the system under study.
- Novel methods of data analysis, applied to publicly available data sets.



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IMMUNOLOGY 2016™ GALA

MONDAY, MAY 16 • 7:00 PM – 9:30 PM

*Service Appreciation Reception*

*Lefrançois-BioLegend Memorial Award*

*AAI-BioLegend Herzenberg Award and Lecture*

*Meeting Lanyards*

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IMMUNOLOGY 2016™

May 13 – 17, 2016 • Seattle, Washington • Washington State Convention Center

### SOCIAL EVENTS

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#### **New Member Reception (*By Invitation Only*)**

*Sponsored by the AAI Membership Committee*

FRIDAY, MAY 13, 4:00 PM – 4:45 PM  
(BADGE AND INVITATION REQUIRED)

AAI welcomes new Regular, Associate, and Postdoctoral Fellow members to meet each other at a relaxed gathering. Members of the AAI Membership Committee, AAI President Dan Littman, and fellow Council members will join the new members for casual conversation and light refreshments.

#### **Opening Night Welcome**

FRIDAY, MAY 13, 6:00 PM – 8:00 PM  
WASHINGTON CONVENTION CENTER ATRIUM – 4TH FLOOR

Connect with friends, make new acquaintances, and plan your week. Enjoy the Atrium's park setting and, weather permitting, stroll through the gardens to enjoy reunions and relax from your travels. Bring the complimentary drink ticket included with your meeting badge.

#### ***The Journal of Immunology (The JI) Editorial Board Dinner and Meeting (By Invitation Only)***

*Generously sponsored by Sheridan Journal Services*

SATURDAY, MAY 14, 7:00 PM – 10:00 PM

Editorial Board members meet to discuss items of interest and concern regarding *The JI* specifically, and scientific publishing in general.

#### **Service Appreciation Reception (*By Invitation Only*)**

*Generously sponsored by BioLegend*

SUNDAY, MAY 15, 7:45 PM – 9:30 PM  
(BADGE AND INVITATION REQUIRED)

At this important event, AAI leadership honors the association's dedicated member volunteers—the committee members, editors, mentors, instructors, and others—who work on the membership's behalf throughout the year by giving generously of their time in support of the AAI mission. Open by invitation to 2015–2016 AAI volunteers.

#### **IMMUNOLOGY 2016™ Gala**

*Generously sponsored by BioLegend (BADGE REQUIRED)*

MONDAY, MAY 16, 7:00 PM – 9:30 PM  
EMP MUSEUM  
325 FIFTH AVENUE NORTH  
SEATTLE CENTER

Whether your idol is Jimi Hendrix or Han Solo, you'll enjoy this world famous museum of popular music and science fiction. See displays of guitars signed by rock legends, hand-written lyrics, costumes and props from popular sci-fi films, and more. Dance to live bands, record your own performance in the EMP Sound Lab, and enjoy drinks and food by Wolfgang Puck!

Your meeting badge enables you to take the 90-second Monorail ride to the Gala for free!

### GUEST SOCIETIES

#### **AAI welcomes the following Guest Societies presenting symposia at IMMUNOLOGY 2016™**

American Association of Veterinary Immunologists (AAVI)

American Society of Gene & Cell Therapy (ASGCT)

Canadian Society for Immunology (CSI)

Chinese Society of Immunology (CSI)

Chinese Society of Immunology, Taiwan (CSIT)

German Society for Immunology (DGfI)

International Complement Society (ICS)

Japanese Society for Immunology (JSI)

Korean Association of Immunologists (KAI) and Association of Korean Immunologists in America (AKIA)

Society for Glycobiology (SfG)

Society for Immunotherapy of Cancer (SITC)

Society for Leukocyte Biology (SLB)

Society of Mucosal Immunology (SMI)

Society for Natural Immunity (SNI)

The Obesity Society (TOS)



# The American Association of Immunologists

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IMMUNOLOGY 2016™

May 13 – 17, 2016 • Seattle, Washington • Washington State Convention Center

## 2016 AAI Travel Award Recipients

### Pfizer-Showell Travel Award

**Li-Fan Lu, Ph.D.**

Assistant Professor  
University of California, San Diego

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### Lustgarten-eBioscience Memorial Award

**Margaret S. Bynoe, Ph.D.**

Associate Professor  
Cornell University

---

### Chambers-eBioscience Memorial Award

**Vinit Kumar, Ph.D.**

Staff Scientist  
The Wistar Institute

---

### Lefrançois-BioLegend Memorial Award

**Michael G. Constantinides, Ph.D.**

Postdoctoral Fellow  
NIAID, NIH

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### AAI-Thermo Fisher Trainee Achievement Awards

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Postdoctoral Fellow  
MRC Laboratory of Molecular Biology

**Timothy E. O'Sullivan, Ph.D.**

Research Scholar  
Memorial Sloan Kettering Cancer Center

**Emma L. Kuan, Ph.D.**

Postdoctoral Research Associate  
Benaroya Research Institute

**Xiaodi Wu**

Graduate Student  
Washington University School of Medicine

**Si Ming Man, Ph.D.**

Postdoctoral Fellow  
St. Jude Children's Research Hospital

**Zhenyu Zhong, Ph.D.**

Postdoctoral Fellow  
University of California, San Diego



**Awarded to AAI Trainee Members (students and postdoctoral fellows) whose first-author abstracts are selected for presentation in AAI Block Symposia. Award amounts vary according to recipient's years of consecutive membership.**

### THIRD-YEAR (OR LONGER) MEMBERS

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Jackson Laboratory

**Joselyn Allen**

Pennsylvania State University

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Indiana University School  
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Rutgers New Jersey Medical  
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University of Florida

**Chun Chou**

Washington University School  
of Medicine in St. Louis

**Sara Cohen, Ph.D.**

Center for Infectious Disease  
Research

**Guoliang Cui, Ph.D.**

Yale School of Medicine

**Elizabeth M. Dam, Ph.D.**

Benaroya Research Institute

**Payal Damani-Yokota**

University of Massachusetts,  
Amherst

**Pritesh Desai**

University of Florida

**Jessica L. Doerner**

Albert Einstein College of Medicine

**Rodney Dorand, Jr.**

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**Avijit Dutta, Ph.D.**

Chang Gung Memorial Hospital  
and Chang Gung University

**Jie Geng, Ph.D.**

University of Michigan Medical  
School

**Sara Gibson**

University of Alabama, Birmingham

**Jacqueline J. Glascock, Ph.D.**

University of Missouri

**Donald Gracias, Ph.D.**

La Jolla Institute for Allergy  
and Immunology

**Timotheus Halim, Ph.D.**

MRC Laboratory of Molecular  
Biology

**Daehee Han, Ph.D.**

Institute for Basic Science

**Mohammad Haque, Ph.D.**

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College of Medicine

**Gerard Hernandez Mir, M.S.**

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**Kirsten M. Hooper**

Temple University School of  
Medicine

**Fany M. Iseka**

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Washington University School  
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University of Minnesota Medical  
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**Chantal Kuhn, Ph.D.**

Brigham and Women's Hospital

**Ping-Chang Kuo, Ph.D.**

Indiana University School  
of Medicine

**Masayuki Kuraoka, Ph.D.**

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**Brandon Kwong, Ph.D.**

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**Tyler Landrith, M.P.H.**

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Emory University School  
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**Ke Liu**

Cincinnati Children's Hospital  
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University of Pittsburgh

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NIAID, NIH

**Levi Rupp, Ph.D.**

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**Shirdi E. Schmiel**

University of Minnesota

**Mark Singh, Ph.D.**

Benaroya Research Institute

**Roberto Tinoco, Ph.D.**

Sanford-Burnham Medical  
Research Institute

**Alexander Tong**

Case Western Reserve University

**Alexander Tsai**

University of Maryland, Baltimore

**Siva Karthik Varanasi**

University of Tennessee

**Jocelyn Wang**

Cornell University

**Rui Yang, M.B.Ch.B.**

University of Vermont

**Shuyu Yao, D.V.M., Ph.D.**

Indiana University

**Karim Yatim, M.D.**

University of Pittsburgh

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University of California,  
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**Mary H. Young, Ph.D.**

Center for Infectious Disease  
Research

**Yevgeniy Yuzepolskiy**

Pennsylvania State University

**Jun Zhang, Ph.D.**

Oregon Health and Science  
University

### SECOND-YEAR MEMBERS

**Priti Agarwal, M.B.B.S., M.P.H.**

University of Massachusetts  
Medical School

**Swadhinya Arjunaraja, Ph.D.**

Uniformed Services University of  
the Health Sciences

## 2016 AAI TRAINEE ABSTRACT AWARDEES

**Bianca Baker, Ph.D.**  
Virginia Commonwealth University

**Tessa Bergsbaken, Ph.D.**  
University of Washington

**Semir Beyaz**  
Harvard Medical School

**Andrew Borkowski, Ph.D.**  
Scripps Research Institute

**Amanda Burmeister**  
University of North Carolina,  
Charlotte

**Catherine Cai**  
Saint Louis University

**Weirong Chen, D.V.M.**  
University of Missouri

**Liang Cheng, Ph.D.**  
University of North Carolina,  
Chapel Hill

**Talyn Chu**  
University of Washington

**Curtis A. Clark**  
University of Texas Health Science  
Center, San Antonio

**Chelsea Corradetti**  
Temple University School  
of Medicine

**Stacey A. Cranert, Ph.D.**  
Cincinnati Children's Hospital  
Medical Center

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**Barsha Dash**  
Mayo Graduate School

**Christopher Davitt, Ph.D.**  
Tulane University

**Priyadharshini Devarajan, Ph.D.**  
University of Massachusetts  
Medical School

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Mayo Graduate School

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University of Texas Health Science  
Center, San Antonio

**Jeffrey M. Duggan**  
Benaroya Research Institute

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Emory University

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University of Michigan

**Erica Fleming-Trujillo**  
Loyola University Chicago

**Ramya Ganesan**  
Wright State University

**Nicholas Giovannone**  
Brigham and Women's Hospital

**Harshita Gupta, Ph.D.**  
University of Texas Health Science  
Center, San Antonio

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Stanford University

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University of Oklahoma Health  
Science Center

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University of Washington

**Matthew A. Huggins**  
Mayo Clinic

**April M. Huseby**  
Mayo Graduate School

**Terri Iwata, D.V.M., Ph.D.**  
University of Washington

**Nathan Jacobs**  
Emory University School  
of Medicine

**Laura K. Johnston**  
Northwestern University

**Ahmad Karim, Ph.D.**  
Case Western Reserve University

**Thayer King**  
Emory University School  
of Medicine

**Purna Krishnamurthy, M.S.**  
Indiana University School  
of Medicine

**Abirami Kugadas, D.V.M., Ph.D.**  
Brigham and Women's Hospital,  
Harvard Medical School

**Sanjay Kumar, Ph.D.**  
Alabama State University

**Xin Li, D.V.M.**  
University of Georgia

**Baoming Liu**  
University of Tennessee Health  
Science Center

**Yang Liu**  
University of Texas Health Science  
Center, San Antonio

**Chunchi Lu, M.D.**  
University of Washington

**Si Ming Man, Ph.D.**  
St. Jude Children's Research  
Hospital

**Rebecca Martin, Ph.D.**  
Virginia Commonwealth University  
School of Medicine

**Saomya Maru**  
Pennsylvania State University  
College of Medicine

**Paul W. McDonald, Ph.D.**  
Virginia Tech Carilion School of  
Medicine and Research Institute

**Arnav Mehta, Ph.D.**  
David Geffen School of Medicine,  
University of California,  
Los Angeles

**Joshua Moreau**  
University of Toronto

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University of New Mexico

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University of Minnesota

**Saisha Nalawade, M.S.**  
University of Texas, San Antonio

**SuFey Ong, Ph.D.**  
Benaroya Research Institute

**Timothy O'Sullivan, Ph.D.**  
Memorial Sloan Kettering  
Cancer Center

**Patrick A. Paez, M.S.**  
Virginia Commonwealth University

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University of Alabama, Birmingham

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Northwestern University

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Washington University School  
of Medicine in St. Louis

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Medical University of  
South Carolina

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University of Iowa

**Neekun Sharma, Ph.D.**  
University of Kansas Medical  
Center

**Akhilesh K. Singh, Ph.D.**  
Seattle Children's Research  
Institute

**Vishal Singh, Ph.D.**  
Pennsylvania State University

**Timothy T. Spear**  
Loyola University Chicago

**J. Michael Stolley**  
University of Washington

**Kavya Swaminathan, Ph.D.**  
Stanford University School  
of Medicine

**Alexandru Tatomir, M.D.**  
University of Maryland School  
of Medicine

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University of Vermont

**Tania Velez**  
Feinberg School of Medicine,  
Northwestern University

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University of Rochester School  
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University of Minnesota

**Julie Wang**  
Pennsylvania State University  
College of Medicine

**Daniel Wikenheiser**  
University of Arkansas for  
Medical Science

**Caylin G. Winchell**  
University of Arkansas for  
Medical Science

**Cheng-Jang Wu, Ph.D.**  
University of California, San Diego

**Lihong Wu, Ph.D.**  
Texas Tech University Health  
Science Center

**Yongyong Yan, M.D.**  
Texas Tech University Health  
Science Center

**Beng San Yeoh**  
Pennsylvania State University

**Miao Yu, Ph.D.**  
Georgia Regents University

**Zeb Zacharias, M.S.**  
University of Iowa

**Michael Zhang**  
University of Iowa Carver College  
of Medicine

**Chao Zhong, Ph.D.**  
NIAID, NIH

**Qifan Zhu**  
St. Jude Children's Research  
Hospital

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**Kristin N. Adams, Ph.D.**  
Center for Infectious Disease  
Research

**Nicholas M. Adams**  
Memorial Sloan Kettering Cancer  
Center

**Renan A. Aguilar-Valenzuela,  
M.D., Ph.D.**  
Emory University

**Billur Akkaya, M.D., Ph.D.**  
NIAID, NIH

**Munir Akkaya, M.D., Ph.D.**  
NIAID, NIH

**Cindy Audiger, M.S.**  
University of Montreal

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Emory University

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Beth Israel Deaconess Medical  
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University of Guelph

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University of Minnesota

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Perelman School of Medicine,  
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University of Iowa

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Roswell Park Cancer Institute

**Wanjiao Chen**  
University of Texas Health Science  
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Perelman School of Medicine,  
University of Pennsylvania

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University of California, San Diego

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Stanford University School  
of Medicine

**Basak B. Cicek**  
University of Connecticut Health  
Center

**Teresa Collins**  
University of Florida

**Marjorie Cote, Ph.D.**  
La Jolla Institute for Allergy and  
Immunology

**Amy N. Courtney, Ph.D.**  
Baylor College of Medicine

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Children's Hospital of Philadelphia

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University of Washington

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Benaroya Research Institute

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Northwestern University

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University of Maryland School  
of Medicine

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Mayo Clinic

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University of Montreal

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University of Toronto

**Zhichao Fan, Ph.D.**  
La Jolla Institute for Allergy  
and Immunology

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University of Texas Health Science  
Center, San Antonio

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Pennsylvania State University  
College of Medicine

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NIEHS, NIH

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Drexel University College  
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Yale School of Medicine

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Roswell Park Cancer Institute

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Center for Infectious Disease  
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University of North Dakota

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Rockefeller University

**Atsushi Kadowaki, M.D.**  
National Center of Neurology  
and Psychiatry, Japan

**Jong Hoon Kim, M.D.**  
Korea Advanced Institute  
of Science and Technology

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Indiana University School  
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University of Chicago

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Benaroya Research Institute

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Washington University School  
of Medicine in St. Louis

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Washington University in St. Louis

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Uniformed Services University of  
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Center for Drug Research and  
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Roswell Park Cancer Institute

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Baylor College of Medicine

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Albany Medical College

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University of Texas Southwestern

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Scripps Research Institute

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Cleveland Clinic

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University of Minnesota Medical  
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Ohio State University

**Amit Mehta, Ph.D.**  
La Jolla Institute for Allergy  
and Immunology

**Genita Metzler**  
University of Washington

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University of Massachusetts  
Medical School

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University of Washington

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University Mainz

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NIAID, NIH

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Trudeau Institute

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University of Pennsylvania

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University of Arkansas for  
Medical Science

**Ruth J. Napier, Ph.D.**  
Oregon Health and Science  
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University of Washington
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Brigham and Women's Hospital
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Hospital for Sick Children
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Rutgers University
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University of Pittsburgh School of Medicine
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University of Pennsylvania
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British Columbia Cancer Agency
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University of Iowa
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University of Washington
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U.S. Army Medical Research Institute of Infectious Diseases
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University of Toronto
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NINDS, NIH
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Albert Einstein College of Medicine
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University of California, San Diego
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Oklahoma State University Center for Veterinary Health Science
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University of Nebraska Medical Center
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University of Virginia
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University of Michigan
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NHGRI, NIH
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Columbia University Medical Center
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Washington State University
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Qu Biologics Inc.
- Ting-ting Zhang, Ph.D.**  
Yale School of Medicine
- Ying Zhang**  
University of Pennsylvania
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University of Toronto
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University of California, San Diego
- Dihan Zhu, Ph.D.**  
Nanjing University

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**Daniel Abebayehu**  
Virginia Commonwealth University

**Alaa Ali**  
University of Ottawa

**Gunjan Arora, Ph.D.**  
NIAID, NIH

**Mariam Bakshi**  
Texas A&M University

**Mark A. Barnes, Jr., Ph.D.**  
University of California, Riverside

**Mireya Becerra-Diaz, Ph.D.**  
Johns Hopkins University School of Medicine

**David F. Boyd, Ph.D.**  
St. Jude Children's Research Hospital

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Indiana University School of Medicine

**Claire M. Buchta**  
University of Virginia

**Thomas Burn**  
Perelman School of Medicine, University of Pennsylvania

**Samantha Chalmers**  
Albert Einstein College of Medicine

**Krishan D. Chhibra**  
Feinberg School of Medicine, Northwestern University

**Kibaek Choe**  
Korea Advanced Institute of Science and Technology

**William E. Coyne, M.S.**  
Chatham University

**Sudipta Das, Ph.D.**  
University of Pittsburgh School of Medicine

**Jared L. Delahaye**  
Center for Infectious Disease Research

**Adwitia Dey**  
Pennsylvania State University

**Skyla Duncan**  
Alabama State University

**Allison Ehrlich, Ph.D.**  
Oregon State University

**Yanjun Feng**  
Emory University

**Mayara Fernanda Maggioli, D.V.M.**  
Iowa State University

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Duke University

**Karl Fischer, M.S.**  
University of Nebraska Medical Center

**Jennie A. Hamilton**  
University of Alabama, Birmingham

**Luke Heil**  
University of Kentucky

**Rana Herro, Ph.D.**  
La Jolla Institute for Allergy and Immunology

**David J. Holthausen**  
Emory University

**Yu-Hsuan Huang, M.S.**  
University of British Columbia

**Li-Yin Hung, Ph.D.**  
University of California, San Francisco

**Tracy In**  
Sunnybrook Research Institute

**Michael Lee**  
Temple University

**Yuejin Liang, Ph.D.**  
University of Texas Medical Branch, Galveston

**Chih-Chung Lin**  
Washington University School of Medicine in St. Louis

**Stefanie N. Linch, Ph.D.**  
Earle A. Chiles Research Institute, Providence Cancer Center

**Brandon M. Linz**  
University of North Carolina, Chapel Hill

**Deepali Malhotra, Ph.D.**  
University of Minnesota Medical School

**Nurbek Mambetsariev**  
University of Iowa Carver College of Medicine

**Laura Mathae**  
University of British Columbia

**Pegah Mehrpouya-Bahrami, Ph.D.**  
University of South Carolina

**Marit Melssen**  
University of Virginia

**Andrew S. Mendiola**  
University of Texas, San Antonio

**Rabinarayan Mishra, Ph.D.**  
University of Massachusetts Medical School

**Taryn E. Mockus**  
Pennsylvania State University College of Medicine

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Oregon Health and Science University

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Purdue University

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University of Alabama, Birmingham

**Kishan K. Nyati, Ph.D.**  
Osaka University

**Amy V. Paschall**  
Georgia Regents University

**Rhiannon Penkert, Ph.D.**  
St. Jude Children's Research Hospital

**Kushal Prajapati, M.S.**  
Loyola University Chicago

**Kendra Quicke**  
Emory University School of Medicine

**Jingjing Ren, M.D., Ph.D.**  
Virginia Polytechnic Institute and State University

**Justin Roby, Ph.D.**  
University of Washington

**Kelsey Roe, Ph.D.**  
University of Washington

**Rejane Rua, Ph.D.**  
NINDS, NIH

**Carolyn Rydyznski**  
Cincinnati Children's Hospital Medical Center

**Unni Krishna Samavedam, Ph.D.**  
University of Cincinnati College of Medicine

**Abigail L. Sedlacek, Ph.D.**  
University of Pittsburgh

**Goo-Young Seo, Ph.D.**  
La Jolla Institute for Allergy and Immunology

**Kevin Shim**  
Mayo Graduate School

**Deann Snyder**  
Montana State University

**Neetu Srivastava, Ph.D.**  
State University of New York Upstate Medical University

**Jenna M. Sullivan**  
University of Washington

**Lina Sun, Ph.D.**  
University of Georgia

**Erin M. Theisen**  
University of Wisconsin, Madison

**Kerri R. Thomas**  
University of Washington

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Case Western Reserve University

**Te-Chen Tzeng, Ph.D.**  
University of Massachusetts Medical School

**Adam Utley**  
Roswell Park Cancer Institute

**Janine van Duijn**  
Leiden University

**Jennifer L. Vella, M.S.**  
Dartmouth College

**Daniel Verbaro**  
Washington University School of Medicine in St. Louis

**Xianxiu Wan, Ph.D.**  
University of Texas Medical Branch, Galveston

**Rui Wang**  
University of Texas Health Science Center, San Antonio

**Pamela T. Wong, Ph.D.**  
University of Michigan Medical School

**Yee Wu, Ph.D.**  
MRC Laboratory of Molecular Biology

**Ying-Yu Wu, Ph.D.**  
Oklahoma Medical Research Foundation

**Zhanli Xie**  
Soochow University

**Jintao Xu, Ph.D.**  
University of Michigan

**Sudhir Yadav, Ph.D.**  
Robert Wood Johnson Medical School, Rutgers University

**Rolando E. Yanes, Ph.D.**  
Stanford University School of Medicine

## SCHEDULE OF BLOCK SYMPOSIA

### FRIDAY, MAY 13

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2:30 PM – 4:30 PM

End Organ Disease in Autoimmunity  
Inflammation and Tumor Immunity  
Lymphocyte Subset Development and Regulation  
Metabolic Function in Immune Cells  
Mucosal Immunity to Bacterial Pathogens  
Virus-specific T Cell Activation, Differentiation,  
and Exhaustion

### SATURDAY, MAY 14

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8:00 AM – 10:00 AM

Cellular Immune Responses at the Mucosa  
Cytokine Regulation of Immunity to Eukaryotic Pathogens  
Micro RNAs and RNA Control  
Novel Vaccines/Immunotherapy Protect from Viral  
and Bacterial Infection  
T Cells and Therapeutics in Autoimmunity

10:15 AM – 12:15 PM

Host-Bacterial Interactions  
Mast Cells and IgE  
Metabolism and Immune Regulation in Tumor Therapy  
T Cell Responses during Acute and Chronic Virus Infections

12:30 PM – 2:30 PM

Antigen Processing and Presentation 1  
Innate Cells in Autoimmunity  
T Cell Development  
T Cell Subsets, T Cell Therapy, and Vaccines for Cancer

3:45 PM – 5:45 PM

Altered Immune Pathways in Disease  
B Cell and CD4 T Cell Responses during Viral Infections  
Innate Immune Regulation  
Leukocyte Trafficking  
Molecular Signatures of Eukaryotic Pathogens  
T Cell Activation: The Early Events  
Transplantation Immunology

### SUNDAY, MAY 15

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8:00 AM – 10:00 AM

Bacterial and Parasitic Infection and Immunity 1  
Genetic Dysregulation in Immunodeficiencies and Immune-  
mediated Diseases  
Immune Cell Trafficking and Immune Responses in the Tumor  
Inflammation and Disease  
Lymphocyte Development, Homeostasis, and Aging

10:15 AM – 12:15 PM

B Cell Development  
Improving Antitumor Efficacy of T Cells  
Inflammation and Infection at Mucosal Surfaces  
Innate and Cellular Immune Responses to Viruses  
T Cell Cytokines and Autoimmunity  
Veterinary and Comparative Immunology

12:30 PM – 2:30 PM

Emerging Treatment Approaches in CNS Autoimmunity  
Innate Immune Sensing and Signaling

3:45 PM – 5:45 PM

Allergic Mechanisms  
Bacterial and Parasitic Infection and Immunity 2  
Cytokines in Immune Regulation  
Immune Regulation at Mucosal Surfaces  
Regulation of CD8 T Cell Activation and Differentiation  
Regulatory Mechanisms of Innate Immune Responses

### MONDAY, MAY 16

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8:00 AM – 10:00 AM

Asthma and Airway Inflammation  
B Cells and Autoimmunity  
Host Defense and Immune Mechanisms  
Immunosuppressive Mechanisms in Cancer  
Metabolic and Mucosal Control of Immunity  
T Cells in Health and Disease

10:15 AM – 12:15 PM

Innate Immune Cells and B Cells in Cancer  
Molecular Pathways in Autoimmunity  
Regulation of Immunity at the Lung Mucosa  
Regulation of T Cell Responses

12:30 PM – 2:30 PM

Eukaryotic Host Defenses  
Immune Responses in Cancer Therapy  
Molecular Mechanisms of Innate Immunity  
Novel Therapeutic Mechanisms in Systemic Autoimmunity  
Regulating the Outcome of T Helper Cell Differentiation  
Regulation of B Cell Responses  
Technological Innovations in Immunology 1

3:45 PM – 5:45 PM

Cancer Immunotherapy: Novel Strategies and Targets  
Immunity to Viruses  
Molecular Basis for Mucosal Vaccines: Novel Strategies and  
Mechanisms  
Natural Born Killers: A Cytotoxic Approach  
Regulatory T Cells  
Tissue-specific Effects of Cytokines and Chemokines

### TUESDAY, MAY 17

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8:00 AM – 10:00 AM

Autoimmunity Triggers and Regulation  
B Cell Activation and Terminal Differentiation  
Checkpoints and Immune Regulation for Tumor Immunity  
Hematopoiesis and Myeloid Cell Development  
Novel Regulators of Cytokine Production and Functions  
Respiratory Viruses and the Host Immune Response  
The Microbiota and Mucosal Immunity

10:15 AM – 12:15 PM

Adoptive Cell Therapy and CAR T cells  
Antigen Processing and Presentation 2  
Consequences of Antigen Recognition by Lymphocytes  
Immunoregulatory Roles for T and B Cell Responses Induced  
by Vaccines/Immunotherapy  
Inflammasomes  
Pathogen Control and Evasion Strategies  
Technological Innovations in Immunology 2

AAI (The American Association of Immunologists, Inc.)	Cellular Technology Limited	International Congress of Immunology (ICI) 2016	Rockefeller University Press
Abcam	Chimerigen, Inc.	InvivoGen	Rockland Immunochemicals
ACEA Biosciences, Inc.	Chondrex, Inc.	iRepertoire, Inc.	RURO Inc.
ACROBiosystems	Cloud Clone Corp.	Jackson ImmunoResearch Laboratories, Inc.	Sarstedt, Inc.
Adaptive Biotechnologies	Cyagen Biosciences Inc	JPT Peptide Technologies, GmbH	Science/AAAS
Adipogen Life Sciences	Cytek Biosciences Inc.	KRONUS, Inc.	SCIENION US, Inc.
Advanced Targeting Systems	Cytobank	LEINCO TECHNOLOGIES INC	Seahorse Bioscience
AID Autoimmun Diagnostika GmbH	DartMouse	LifeSensors	Shenandoah Biotechnology, Inc.
AimPlex - YSL Bioprocess Development Co.	eBioscience, an Affymetrix business – <b>Gold Sponsor</b>	List Biological Laboratories, Inc.	Sino Biological Inc.
AllCells	Elsevier B.V.	Logos Biosystems, Inc.	Society for Immunotherapy of Cancer
Ancell Corp	Embi Tec	Lonza	SoftGenetics
Axis-Shield PoC	Enzo Life Sciences, Inc.	Lophius Biosciences GmbH	Sony Biotechnology Inc. – <b>Supporting Sponsor</b>
Azure Biosystems	Epigentek Group Inc	Luminex Corporation	SouthernBiotech
BD Biosciences – <b>Silver Sponsor</b>	Essen Bioscience	Mabtech, Inc.	Springer
Beckman Coulter Life Sciences – <b>Contributing Sponsor</b>	Essential Pharmaceuticals, LLC	MBL International Corporation	St. Jude Children's Research Hospital
Bio X Cell – <b>Contributing Sponsor</b>	Expedeon	Meridian Life Science, Inc.	Stellar Biotechnologies Inc
Biocompare	FASEB MARC – <b>Gold Sponsor</b>	Meso Scale Discovery	STEMCELL Technologies Inc. – <b>Bronze Sponsor</b>
Biocytogen LLC	FiberCell Systems, Inc.	MilliporeSigma (formerly EMD Millipore and Sigma Aldrich) – <b>Silver Sponsor</b>	Stratedigm
BioLegend – <b>Platinum Sponsor</b>	FlowJo	Miltenyi Biotec – <b>Sustaining Sponsor</b>	Studylog Systems
BioMedTech Laboratories, Inc.	Fluidigm Corporation	Myriad RBM	SurModics, Inc.
BioPorto Diagnostics A/S	Fred Hutchinson Cancer Research Center	NanoString Technologies – <b>Contributing Sponsor</b>	Sysmex
Bio-Rad Laboratories – <b>Contributing Sponsor</b>	Freezerworks	Nature Publishing Group	Taconic Biosciences
BioreclamationIVT	Frontiers	Norgen Biotek Corp.	Taylor & Francis
Bioss, Inc.	Garland Science – <b>Contributing Sponsor</b>	Novoprotein	The Jackson Laboratory
Bio-Techne - R&D Systems, Novus, Tocris	GENE TOOLS, LLC	PEPperPRINT	<b>The Journal of Immunology</b>
Biovendor	GL Biochem (Shanghai) Ltd.	PeproTech	The Lab People, Inc
Boster Biological Technology – <b>Contributing Sponsor</b>	handyem Inc.	PerkinElmer	Thermo Fisher Scientific – <b>Silver Sponsor</b>
BrandTech Scientific, Inc.	HistoTox Labs, Inc. – <b>Contributing Sponsor</b>	ProImmune Limited	TissueGnostics USA
BTS Research	Hycult Biotech Inc.	Promega Corporation	Tonbo Biosciences
Bulldog Bio, Inc.	Illumina Inc.	ProteinSimple	UVP LLC
Caprico Biotechnologies	Immudex USA	Proteintech Group Inc	VDJServer
CEDARLANE	Immune Epitope Database & Analysis Resource (IEDB)	Quad Technologies – <b>Contributing Sponsor</b>	Vector Laboratories
Cell Press	IMMUNOLOGY 2017™ Washington DC	Quidel Corporation	VitaScientific
Cell Signaling Technology	Innova Biosciences Ltd	RayBiotech, Inc.	WaferGen Biosystems
Cellecta	IntelliCyt Corporation – <b>Contributing Sponsor</b>	ReachBio Research Labs	Worthington Biochemical Corp
CELLTREAT Scientific Products		Research Diets, Inc.	WuXi AppTec
			ZenBio, Inc.
			Zephyrus Biosciences

### SATURDAY, MAY 14

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#### *Considerations in Determining Targets for Cancer Immunotherapy*

10:00 AM - 10:45 AM EXHIBITOR WORKSHOP ROOM 1

**MilliporeSigma**

*Presenters:*

**Chandra Mohan, Ph.D.**, Senior Manager, Technical Writing and Documentation Development, MilliporeSigma, the Life Sciences business of Merck KGaA, Darmstadt, Germany

**Kevin Long, Ph.D.**, Senior Manager, Technical & Science Content Marketing, MilliporeSigma, the Life Sciences business of Merck KGaA, Darmstadt, Germany

**Wayne Speckmann, Ph.D.**, Head of Antibody Development, MilliporeSigma, the Life Sciences business of Merck KGaA, Darmstadt, Germany

Antibodies have gained importance as powerful therapeutic armamentarium for a wide range of human diseases, including many types of cancer. Cancer immunotherapy offers advantages of high specificity, fewer side effects, and long-term benefits in some patients. However, it also creates challenges because subtle changes that make cancer cells immortal are not sufficient enough to elicit an immune reaction. Although the number of therapeutic options are growing, monoclonal antibodies offer a clear advantage of specificity and shorter life-span, which limits undesirable side effects. However, there is still need to understand target pathways and develop validated antibodies for research use to first reveal appropriately differentiated targets. This presentation will discuss some new research antibodies developed by MilliporeSigma to key tumor specific antigens that may be valuable in identifying novel cancer pathway targets.

#### *Multiplex Assays of Fifteen Human Complement Factors Using New MILLIPLEX® map Panels*

10:00 AM - 10:45 AM EXHIBITOR WORKSHOP ROOM 2

**MilliporeSigma**

*Presenter:*

**Robert Keith**, R&D Research Scientist, MilliporeSigma, the Life Sciences business of Merck KGaA, Darmstadt, Germany

The complement system's multiple plasma proteins assist phagocytic cells and antibodies in clearing pathogens. The complement system plays a key role in diseases with an immune component, such as asthma or sepsis, and in autoimmune diseases, including SLE, IBD, RA, JIA, and MS. Understanding how this system affects complex states demands measurement of multiple proteins simultaneously ("complement profiles") in patient serum or plasma. Using Luminex xMAP® technology, we developed two multiplex panels to quantitate 15 complement proteins simultaneously in serum or plasma. Significant differences were observed for several complement proteins when

comparing SLE, JIA, and sepsis patients to healthy subjects. Join our exhibitor workshop for the presentation of these data and tips on using the new MILLIPLEX® map Human Complement Panels to save time, money, and sample, compared to ELISAs.

#### *Advancements in Immunotherapeutic Research with Magnetic Cell Separation*

11:15 AM - 12:00 PM EXHIBITOR WORKSHOP ROOM 1

**Miltenyi Biotec**

*Presenter:*

**Anne Richter, Ph.D.**, Research & Development Scientist

Advancements in cell selection and gene editing have reshaped the reality of immunotherapy. New advances in tissue regeneration and effective treatment of cancer and autoimmune diseases depend on the further advancement of highly specialized cellular products. Medical progress is, therefore, dependent on complete and versatile solutions for GMP-compliant cell manufacturing, including cell separation, differentiation, expansion, formulation, and cryopreservation. In order to realize the goal of cellular therapy, our R&D team members collaborate closely with the world's leading immunologists to develop unique solutions. This session will highlight the work of two extraordinary scientists whose research exemplifies scientific excellence, biomedical innovation, and potential therapeutic impact.

#### *Cell-based Assays for T cell Metabolism: Understanding the Drivers of Immunity*

11:15 AM - 12:00 PM EXHIBITOR WORKSHOP ROOM 2

**Seahorse Bioscience**

*Presenters:*

**David Ferrick, Ph.D.**, Chief Scientific Officer

**Kacey Caradonna, Ph.D.**, Project Manager

With all the new information coming out about metabolism driving lymphocyte function, the metabolic phenotype of T cells is now recognized as a critical piece in the immune response picture. In this workshop you will learn how researchers are using Seahorse XF technology to detect metabolic switches that enable T cell differentiation and activation, monitor metabolic reprogramming driven by mTOR and other key signaling pathways, and identify the metabolic requirements for T cell development and function. Please join us for this informative session to get practical advice on designing and performing Seahorse XF metabolic assays with T cells, determining which nutrients/substrates are required by different T cell subsets, and generating and interpreting metabolic phenotypes of primary immune cells.



### ***Massively-Parallel Sequencing for Immunology and Complex Disease: A Systems Biology Approach with RNA-Seq and Other Methods***

12:30 PM - 1:15 PM EXHIBITOR WORKSHOP ROOM 1

***Illumina, Inc.***

*Presenter:*

**Jason Smith**, Senior Sequencing Specialist

The use of next-generation sequencing and epigenetics in biological research can provide unique insights into the mechanisms and pathways of complex, multifactorial diseases. To take full advantage of the increasing capabilities of massively parallel sequencing, a holistic approach is needed. The ability to probe the genomics space from multiple perspectives, including targeted sequencing, transcriptomics, and epigenetics, unlocks new insights into the molecular mechanisms of disease. With a single sequencing platform, each of these genomics areas can be explored and combined to advance our understanding of complex disease. This workshop will provide you with an introduction to next-generation sequencing technology and to the many applications that are possible using next-generation sequencing. Learn about the sample to answer solutions to many different applications that Illumina offers. Join us for what is sure to be an interesting session!

### ***Development of Immunotherapy Potency Assays Using Real-Time Cell Analysis and Flow Cytometry***

12:30 PM - 1:15 PM EXHIBITOR WORKSHOP ROOM 2

***ACEA Biosciences, Inc.***

*Presenters:*

**Garret Gunther**

**Fabio Cerignoli**

Immunotherapy is one of the most promising approaches in cancer treatment, allowing specific elimination of cancer cells through activation of the immune response. However, despite the necessity of in vitro characterization of efficacy and potency of reagents and protocols before moving to more expensive animal models and clinical studies, current in vitro assays are difficult to implement in a high throughput environment, are not very quantitative and are based mainly on end point methods that are unable to capture the full dynamics of the immune response. In this workshop we will present a complete workflow that combines the power of xCELLigence real-time cell analysis together with the NovoCyte flow cytometer for a comprehensive effector-mediated potency assay. We will show the validation conducted with antibodies and effector cells such as NK, CTLs, and CART on both solid and liquid tumor cell lines. Furthermore, we will also present data that demonstrates how this system could be used for evaluating antibodies in ADCC assays, Bi-specific T cell engagers, and checkpoint inhibitors.

### ***Time to GoInVivo™: Validated Checkpoint Functional Antibodies for Cancer Research***

1:45 PM - 2:30 PM EXHIBITOR WORKSHOP ROOM 1

***BioLegend***

*Presenter:*

**Miguel A. Tam, Ph.D.**, Senior Product Manager

The immune system plays an essential role in controlling tumor growth. Tumor cells can communicate with immune checkpoint receptors to trick the response into suppression, allowing the tumor cell to grow without immune cell intervention. To interfere with this process, bioactive antibodies can deplete targeted immune cell populations or block important checkpoint interactions. Well-studied combinations include PD-1/PD-L1, CTLA-4/CD80 and CD86, LAG-3/MHC II, and Tim-3/Galectin 9. BioLegend's GoInVivo™ antibodies against immune checkpoint molecules offer several advantages. They have been validated in both flow cytometry and in vitro bioassays, are pathogen-free as tested by qPCR, and have excellent pricing for large sizes. Here we present our portfolio, validation methods, as well as in vitro and in vivo applications. Specificity is characterized via flow cytometry staining and blocking capacity via target-ligand inhibition bioassays. The effect of in vitro stimulation and in vivo injection on the activation phenotype and percentage of lymphocytes, as well as the cytokine profile are shown.

### ***The Role of Flow Cytometry in an Advanced Era of Immuno-Therapeutic Discovery***

1:45 PM - 2:30 PM EXHIBITOR WORKSHOP ROOM 2

***Miltenyi Biotec***

*Presenter:*

**Matt McBrien, Ph.D.**, Product Manager

Progress in harnessing the power of the immune system is ushering in a new era of immunotherapy. A better understanding of the immune response and advancements in the manufacture of genetically-modified immune cells have been critical drivers of this progress. The discovery of effective translational findings relies strongly on robust and reproducible characterization of the cells that mediate the immunological response. Flow cytometry provides an effective methodology for this characterization although the standardization of the process can be a challenging endeavor. This session will demonstrate usage of an innovative platform and reagents from Miltenyi Biotec in the exciting and groundbreaking work from two labs that illustrate the utility of flow cytometry for effective cellular characterization utilizing the innovative platform and reagents available from Miltenyi Biotec.

**SUNDAY, MAY 15**

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### *Multiplex-microarray Immunoassays and the Serological Confirmation of Chagas Disease*

10:00 AM - 10:45 AM EXHIBITOR WORKSHOP ROOM 1

**SCIENION US, Inc. and InfYnity Biomarkers**

*Presenters:*

**Claude Dufresne**, President

**Maan Zrein**, CEO, InfYnity Biomarkers

**Elodie Granjon**, Chargée de recherche, InfYnity Biomarkers

Immunoassays are usually performed in 96-well plates, with each well coated with a single mixture of antibodies or antigens, resulting in a single data point. Multiplexed assays involve both miniaturization and the measure of multiple analytes. Instead of a single reactant covering the well bottoms, an array of different molecules is 'printed' and immobilized. Multiple measurements are then obtained from a single well. Advantages include reductions in reagent usage, turn-around time and sample consumption. This workshop illustrates multiplexing using an innovative implementation by SCIENION and InfYnity Biomarkers. Using antigen arrays, antibody-profiling responses can be performed versus hundreds of antigens in a single assay. Such high-throughput studies have uncovered new antigenic targets, new insights into vaccine research and into immunoreactivity against most of the proteome of some pathogens. This response pattern is often associated with a clinical infection, such as Chagas.

### *Quantitation of MCHII Trafficking Using Imaging in Flow*

10:00 AM - 10:45 AM EXHIBITOR WORKSHOP ROOM 2

**MilliporeSigma**

*Presenters:*

**Sherree Friend, Ph.D.**, Product Manager, Amnis®, MilliporeSigma, the Life Sciences business of Merck KGaA, Darmstadt, Germany

**Edith Janssen, Ph.D.**, Cincinnati Children's Hospital Medical Center

Imaging flow cytometry applies the speed, sensitivity, and phenotyping abilities of flow cytometry with the detailed imagery and functional insights of microscopy to address complex inquiries in immunology. In this workshop, you will learn how Amnis® imaging flow cytometers have been used to examine the trafficking of MHC class II (MHCII) in dendritic cells. The abundance of antigenic peptide-MHCII complexes on antigen presenting cells is determined by many factors that include the balance between the expression of newly generated complexes, complex internalization and subsequent re-emergence or degradation. However, the molecular mechanisms that govern these interactions are still poorly understood. Here, we discuss how multispectral imaging in flow can be used to visualize MHCII trafficking and elucidate the molecular mechanisms that regulate MHCII homeostasis in primary mouse and human dendritic cells.

### *Leveraging 3D Biology for Development of Cancer Immuno-Oncology/Immuno-Therapy Biomarkers - Simultaneous Digital Counting of Nucleic-Acids and Proteins at 800-plex*

12:30 PM - 1:15 PM EXHIBITOR WORKSHOP ROOM 1

**NanoString Technologies**

*Presenter:*

**TBD**

The ability of mutated cells to give rise to cancer relies upon the ability to evade immune recognition, suppress immune activity, and persist in a chronically inflamed environment. NanoString has developed an all-digital 3D technology for cancer immune-profiling by simultaneously measuring 770 mRNAs (from 24 infiltrating immune cell types plus numerous immune-signaling pathways) plus 60 key immune system-associated proteins (cell surface markers, immune checkpoints, cytokines, chemokines, etc.) in small amounts of clinically relevant samples. This technology forms the basis for multi-year collaborations between NanoString and MD Anderson Cancer Center and the Cancer Immunotherapy Trials Network (CITN) to discover multi-analyte-type (mRNA + protein) biomarker signatures to guide cancer immunotherapy. In this session, NanoString will present hidden biological information locked in DNA, RNA and protein.

### *Molecular Profiling of Tumor Microenvironment Using CancerNet Targeted NGS Panel*

12:30 PM - 1:15 PM EXHIBITOR WORKSHOP ROOM 2

**Collecta**

*Presenters:*

**Sunitha Sastry, Ph.D.**, Senior Product Manager

**Alex Chenchik**, Research Director

The clinical importance of tumor immune infiltrates has been an emerging area, particularly in triple negative breast cancer (TNBC) where increased immune infiltrate predicts both response to chemotherapy and improved survival. To this end, we have developed CancerNet, a comprehensive targeted RNA-Seq cancer immuno-panel that profiles ~2,000 genes and distinguishes 37 human hematopoietic cell phenotypes (including naïve and memory B cells, seven T-cell types, dendritic cells, plasma cells, natural killer (NK) cells and myeloid subsets), genes involved in checkpoint blockade and immunotherapy biomarkers, immune cell activation, and canonical immune pathway genes. The assay panel characterizes the cellular composition of the immune/stromal/cancer cell tumor microenvironment and determines the activation status of infiltrating immune cells in primary tumor tissues from TNBC patients. Preliminary data demonstrate the assay's unparalleled specificity and sensitivity as well as an improved cost-effectiveness for high-throughput clinical Next-Gen applications.

## *Accelerating Innovation with Immunosequencing*

1:45 PM - 2:30 PM EXHIBITOR WORKSHOP ROOM 2

*Adaptive Biotechnologies Corporation*

*Presenter:*

**Catherine Sanders**, Director, Scientific Liaison

Adaptive Biotechnologies' commercial products combine the capabilities of a multiplex PCR with high-throughput sequencing and a sophisticated bioinformatics pipeline to profile T cell and B cell receptor repertoire. This unprecedented capability is complemented by powerful analytical software tools that facilitate analysis, visualization, comparison and reporting of TCR or BCR sequence data. Adaptive's immunoSEQ assay is applicable in various fields, including autoimmunity, infectious disease, allergy, oncology, drug development, and transplantation. Come and learn how immune profiling can be applied to your research.

## *Time to GoInVivo™: Validated Checkpoint Functional Antibodies for Cancer Research*

1:45 PM - 2:30 PM EXHIBITOR WORKSHOP ROOM 1

*BioLegend*

*Presenter:*

**Miguel A. Tam, Ph.D.**, Senior Product Manager

The immune system plays an essential role in controlling tumor growth. Tumor cells can communicate with immune checkpoint receptors to trick the response into suppression, allowing the tumor cell to grow without immune cell intervention. To interfere with this process, bioactive antibodies can deplete targeted immune cell populations or block important checkpoint interactions. Well-studied combinations include PD-1/PD-L1, CTLA-4/CD80 and CD86, LAG-3/MHC II, and Tim-3/Galectin 9. BioLegend's GoInVivo™ antibodies against immune checkpoint molecules offer several advantages. They have been validated in both flow cytometry and in vitro bioassays, are pathogen-free as tested by qPCR, and have excellent pricing for large sizes. Here we present our portfolio, validation methods, as well as in vitro and in vivo applications. Specificity is characterized via flow cytometry staining and blocking capacity via target-ligand inhibition bioassays. The effect of in vitro stimulation and in vivo injection on the activation phenotype and percentage of lymphocytes, as well as the cytokine profile are shown.



## **MONDAY, MAY 16**

### *Optimize your ELISA and Multiplex Immunoassays for Sensitive and Reliable Results*

10:00 AM - 10:45 AM EXHIBITOR WORKSHOP ROOM 1

*Abcam*

*Presenter:*

**Russell Neuner**, Senior Scientist

Optimization strategies for ELISA and multiplex immunoassays to achieve sensitive, specific and accurate quantification of biomarkers will be discussed. These strategies are critical for the use of assays in research and also in assay development. Many commercial assay kits perform with high sensitivity and a broad dynamic range using purified proteins but fail to perform in experimental sample types. Development of robust assays using matched antibody pairs can fail if the right steps are not taken. Strategies that will be discussed, include how to: titrate antibody pairs to improve signal to noise, formulate diluents to alleviate matrix effects, calibrate protein standards and validate for antibody pair cross-reactivity. Key fundamentals for use of ELISA and multiplex immunoassays will also be addressed, including how to optimize sample dilutions based on your sample type, control for matrix effects, normalize for batch variability, and test for recovery and linearity of dilution.

### *Accelerating Immuno-oncology and Antibody Discovery Research Through Large Scale Profiling of Suspension Cells Using the iQue Screener Platform*

10:00 AM - 10:45 AM EXHIBITOR WORKSHOP ROOM 2

*IntelliCyt Corporation*

*Presenters:*

**David Sykes MD, PhD.**, Researcher at the Broad Institute

**Markus Vähä-Koskela, Ph.D.**, Senior Researcher at FIMM (Institute for Molecular Medicine Finland)

IntelliCyt offers an integrated solution that enables simultaneous screening of cells and secreted proteins in suspension for maximum insight into complex biology. Our iQue Screener platform is a benchtop instrument, software, and reagent system that optimizes the entire workflow to deliver the fastest time to results. Use of the lowest volume assays provides rich and insightful data in minutes. Two end-users will highlight how IntelliCyt's high throughput approach to assay phenotypic endpoints enabled them to identify compounds for myeloid differentiation and large scale anti-myeloma drug screening.

### *Unexpected Roles for Intracellularly-Operating Innate Immune Networks in Human Th1 Responses – Do We Need to Think ‘Outside the Box’ and ‘Inside the Cell’?*

11:15 AM - 12:00 PM EXHIBITOR WORKSHOP ROOM 1

*Hycult Biotech Inc*

*Presenters:*

**Claudia Kemper, Ph.D.**, Trust Investigator/ Professor of Innate Immunology, MRC Centre for Transplantation, King's College London

**Erik Toonen, Ph.D.**, R&D Scientist

For a long time, studying the adaptive immune system has been central in the design of therapeutics. New insights indicate that complement activation also regulates fundamental processes of the cell, such as metabolic activity and homeostasis. It also serves as a nexus for the interaction with other effector systems. Specifically, an intracellular complement/NLRP3 inflammasome crosstalk emerges as critical for normal IFN-g secretion by T cells. Advancing insights have not only shown that innate immune regulators are present but are also key in directing immunological responses. This is of great significance to our understanding of the biology of immune cells and immune system evolution. It also helps explain why targeting just one arm of the immune system is insufficient for disease treatment. This workshop will give an overview of the emerging key roles of autocrine complement activity in the regulation of Th1 responses and then invites discussion about their implications for design of next generation therapeutics and monitoring.

### *Powerful Tools to Enhance, Streamline and Simplify Dynamic Single Cell Analysis of Immune Function*

11:15 AM - 12:00 PM EXHIBITOR WORKSHOP ROOM 2

*MilliporeSigma*

*Presenters:*

**Amedeo Cappione, Ph.D.**, Senior Scientist, MilliporeSigma, the Life Sciences business of Merck KGaA, Darmstadt, Germany

**Paul Ju-Sung Hung, Ph.D.**, R&D Manager, MilliporeSigma, the Life Sciences business of Merck KGaA, Darmstadt, Germany

Precise regulation of lymphocyte function is critical to mounting a specific immune response; this complex process requires exquisite control over cell migration and expression of effector capabilities. Understanding these mechanisms is essential for development of therapeutics that enhance endogenous immune function. The ELISpot assay offers quantitative assessment of effector function(s) at the single cell level with superior sensitivity. MilliporeSigma and collaborators have significantly improved the venerable but tricky ELISpot technology with advanced membrane plates, multiparameter fluorescent reporting (fluorospot), and optimized protocols. Cell migration models suffer from the inability to establish continuous gradients and are not amenable to real-time studies. The microfluidic-based ONIX cell culture system offers real-time environmental control, including media perfusion

and gradient formation, and can be paired with a microscope for dynamic live-cell imaging. Together, these platforms enable functional profiling of single immune cells with unparalleled control and sensitivity.

### *Fast and Easy Isolation of Highly Pure Unique Immune Cell Subsets Using EasySep™ Release*

12:30 PM-1:15 PM EXHIBITOR WORKSHOP ROOM 2

*STEMCELL Technologies Inc.*

*Presenters:*

**Andy Kokaji, Ph.D.**, Senior Scientist

**Hannah Lee, Ph.D.**, Senior Product Marketing Manager

The isolation of unique immune cell subsets is often difficult and time-consuming. Explore how to easily and quickly isolate your non-standard subset of cells using the new EasySep™ Release cell isolation products by STEMCELL Technologies. EasySep™ Release is an immunomagnetic, column-free cell isolation platform featuring a rapid, no-wash and gentle method for the removal of magnetic particles on positively-selected cells. EasySep™ Release cell isolation products can be used sequentially with our extensive portfolio of positive- or negative-selection EasySep™ kits to create endless antigen-targeting combinations for the isolation of your unique immune cell types. The workshop will describe different applications and cell types that use EasySep™ Release cell isolation products for the fast and easy isolation of highly purified unique immune subsets.

### *Detection Sensitivity Is Enhanced by More Powerful Lasers and Expanded Optical Configurations in a Benchtop Flow Cytometer*

1:45 PM - 2:30 PM EXHIBITOR WORKSHOP ROOM 1

*MilliporeSigma*

*Presenter:*

**Katherine Gillis**, Senior Scientist, MilliporeSigma, the Life Sciences business of Merck KGaA, Darmstadt, Germany

Multilaser flow cytometers with the capacity for simultaneous measurement of sufficient targets for immunological analysis have traditionally required extensive operator expertise and are often housed in select or shared labs due to cost. Guava® easyCyte systems offer four enhanced-power modulated lasers, including a unique 532 nm green excitation laser, in a benchtop instrument priced for accessibility by individual labs. The microcapillary fluidics employed by all Guava® systems uniquely enable absolute cell counts with small sample volumes in single tube or 96-well plate format, rendering them ideally suited for precious biological samples from patients or transgenic models. The Guava® InCyte software includes a heat map view of high-throughput plate results, making simultaneous visualization of multiple parameters possible and permitting assessment of multisample activation, synapse formation, and other immunomodulation in a single view. Data will be shown demonstrating how signal from up to twelve fluorophores can be accurately resolved for autoimmunity studies, immunogenic/tolerogenic responses, and intracellular immune activity.

# Visit The AAI Booth

## BOOTH 250

Visit the AAI booth in the Exhibit Hall to learn about exciting new AAI programs supporting your professional life! During the Poster Hour each day, you'll be able to meet with AAI members as well as staff to help you explore new opportunities for career advancement and service.

**Here's what is featured each day:**

### Saturday

**2:30 PM – 3:45 PM (Poster Hour)**

Learn About AAI Minority Affairs Committee (MAC) Activities

### Sunday

**2:30 PM – 3:45 PM (Poster Hour)**

Meet the AAI Public Policy Fellows!

### Monday

**2:30 PM – 3:45 PM**

Learn About the AAI Career Advisory Board (CAB)

**3:45 PM – 4:30 PM**

Meet the AAI Public Policy Fellows!

**Check at the booth for additional information about these and the many other AAI programs. At all times, AAI staff will be present to identify the many benefits of membership. And you'll enjoy the "Best of StoryBooth" segments airing on the monitor there.**



# GRANT AND AWARD DEADLINES

## April 1

### Cancer Research Institute Irvington Postdoctoral Fellowships

- **Prize/Award:** Fellowships of up to \$164,500 over three years to fund and train young immunologists/cancer immunologists at leading universities and research centers; funding supports the cost of stipend or salary, insurance, and other research-related expenses, such as travel to conferences and meetings
- **Eligibility:** Applicants working in areas directly related to cancer immunology, who, at the time of award activation, have a doctoral degree but less than five years of relevant postdoctoral experience (note to M.D. applicants: residency years are not included in this calculation); an eligible project must fall into the broad field of immunology and show relevance to solving the cancer problem
- **Details:** <http://www.cancerresearch.org/grants-programs/grants-fellowships/cri-irvington-postdoctoral-fellowships>
- **Contact:** [grants@cancerresearch.org](mailto:grants@cancerresearch.org); (212) 688-7515

## April 29

### ASM Award in Clinical and Diagnostic Immunology

- **Prize/Award:** Award of discretionary amount recognizing outstanding contributions in clinical or diagnostic immunology
- **Eligibility:** distinguished scientists in clinical or diagnostic immunology meriting recognition for significant contributions to the understanding of the functioning of the host immune system in human disease, clinical approaches to diseases involving the immune system, or development or clinical application of immunodiagnostic procedures
- **Details:** <http://www.asm.org/index.php/awards2/10-awards-a-grants/awards/52-abbott-laboratories-award-in-clinical-and-diagnostic-immunology>
- **Contact:** [awards@asmusa.org](mailto:awards@asmusa.org)

## May 1

### Thomas E. Starzl Prize in Surgery and Immunology

- **Prize/Award:** To annually honor the clinical and scientific contributions of Dr. Thomas E. Starzl, a \$10,000 honorarium, the Starzl crystal award, and travel expenses to the University of Pittsburgh School of Medicine to present the award lecture in the spring of 2017
- **Eligibility:** Outstanding national and international leaders who have made significant contributions to the fields of organ transplantation and immunology
- **Details:** <https://stiresearch-health.secure.pitt.edu/node/427>
- **Contact:** [starzlprize@upmc.edu](mailto:starzlprize@upmc.edu); (412) 383-8884

## May 5

### Gustav O. Lienhard Award

- **Prize/Award:** Presented by the Institute of Medicine with support from the Robert Wood Johnson Foundation, \$40,000 and the Lienhard Medal in recognition of outstanding achievement in improving health care services in the United States
- **Eligibility:** Nominees meriting recognition for innovative, creative, and/or pioneering achievement of national scope in endeavors that have appreciably improved personal health services, whether through clinical or leadership activities; points of emphasis may include nominee's unique contribution to the achievement, positive change over a sustained period through the nominee's achievement, a qualitative and quantitative impact, and/or success in overcoming barriers based on resources available
- **Details:** <http://iom.nationalacademies.org/Activities/Quality/Lienhard.aspx>
- **Contact:** [LienhardAward@nas.edu](mailto:LienhardAward@nas.edu); (202) 334-2177

## May 15

### SACNAS Distinguished Awards

- **Prize/Award:** In recognition of those with a demonstrated record of encouraging minority students to pursue advanced science degrees, awards in four categories (listed below) honoring achievement in scientific research, mentoring, and fostering the advancement of minorities in science

- **Eligibility:**

*Distinguished Scientist:* Holders of a doctoral degree in a STEM research field who are 45 years of age or older, have 10 or more years' experience as a principal investigator, are currently conducting an active research project, and participate in research and educational activities at the national level

*Professional Mentor:* Holders for at least 10 years of a staff/administrative position in academia, government, or industry who participate in minority education, advocacy, or mentoring activities at the local or national level

*Research Mentor:* Holders of a doctoral degree who have a faculty position at a research intensive institution where mentoring is focused on research training and enabling students to make science discoveries

*Undergraduate Mentor:* Holders of a Ph.D. who have a faculty position at a four-year undergraduate institution, community college, or tribal college and participate in minority education activities at the local or national level

- **Details:** <http://sacnas.org/about/how-we-work/honors/distinguished-nominations>

- **Contact:** [eben@sacnas.org](mailto:eben@sacnas.org)

# Future AAI Annual Meetings

Mark Your Calendar for the Premier Annual Immunology Event!

## 2016



IMMUNOLOGY 2016™  
May 13–17  
Seattle, Washington

## 2017



IMMUNOLOGY 2017™  
May 12–16  
Washington, D.C.

## 2018



IMMUNOLOGY 2018™  
May 4–8  
Austin, Texas



# You have the power.

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- The best and brightest minds today.
- The world's largest annual all-immunology meeting.
- *The Journal of Immunology*, the pre-eminent peer-reviewed journal in the field.
- Many occasions and opportunities to present your research.
- Awards/fellowships/grants to support talented scientists in every career stage.

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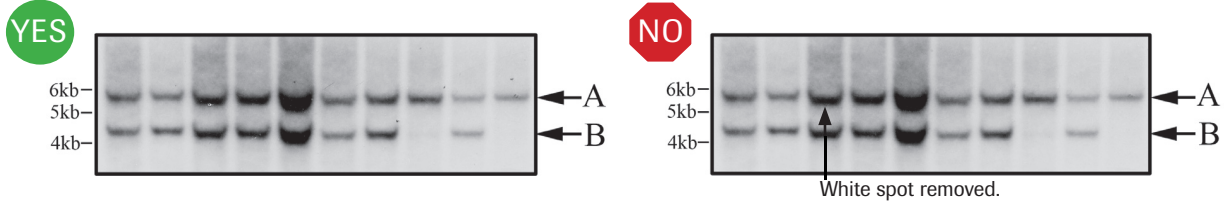


# Digital Image Dos and Don'ts

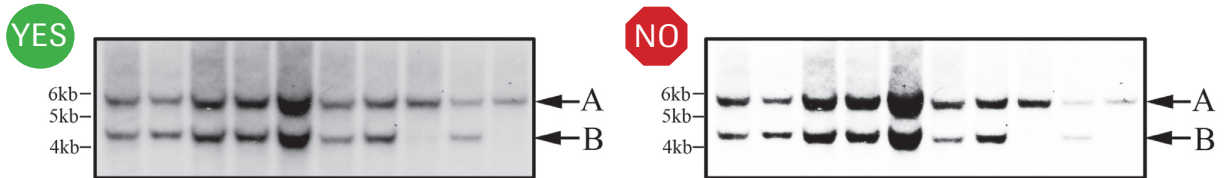


Before preparing manuscript figures, please read the Information for Authors at <http://www.jimmunol.org/site/misc/authorinstructions.xhtml#mspreparation>

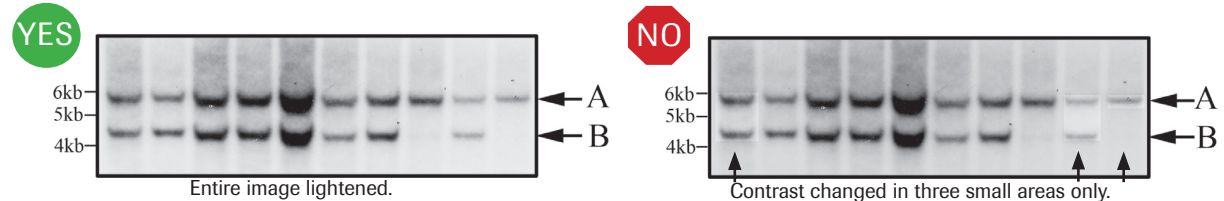
## 1. Do not erase any part of the image, including the background.



## 2. Do not use excessive contrast that removes background.

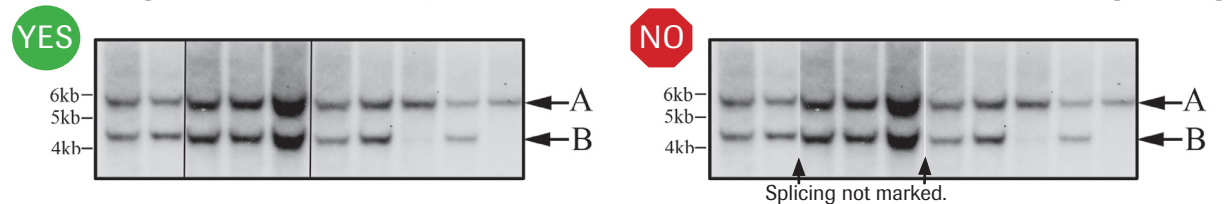


## 3. Make any adjustments to brightness or contrast equally across the entire image.

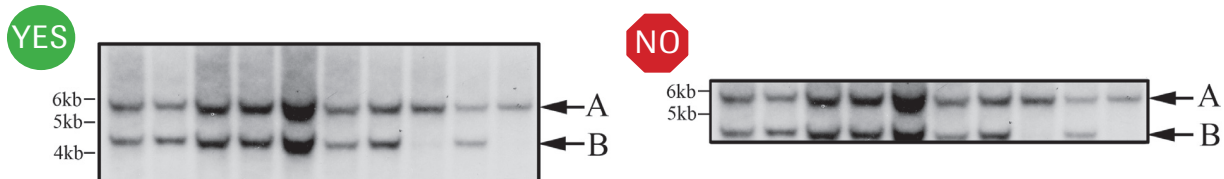


## 4. Indicate any splicing of data from a single experiment by contrasting (black or white) lines; state the manipulation in the legend.

Images from different experiments should not be spliced to form a new single image.



## 5. Crop gels and blots conservatively, retaining important bands.



- All images submitted to *The Journal of Immunology* must accurately represent the original data.
- Original data (digital files, autoradiographs, films, etc.) for all experiments should be fully annotated, secured, and retrievable for up to 10 years.
- The original image file (raw data file) should be kept in an unprocessed and non-compressed file format.
- Figures that are compiled into multi-figure panels should be kept individually.

# Meetings and Events Calendar

Mark Your Calendar for These Important Dates!

## 2016

### April 2–6, 2016

Experimental Biology (EB) 2016 (APS, ASPET, ASIP, ASN, AAA, ASBMB)  
San Diego Convention Center  
San Diego, CA  
[www.experimentalbiology.org/](http://www.experimentalbiology.org/)

### April 2–6, 2016

29th Annual Canadian Society of Immunology Spring Meeting  
The Westin Hotel  
Ottawa, Ontario  
[www.csi-sci.ca/scientific\\_meeting\\_2016.html](http://www.csi-sci.ca/scientific_meeting_2016.html)

### April 6–10, 2016

10th International Congress on Autoimmunity  
Leipzig, Germany  
[www.autoimmunity.kenes.com](http://www.autoimmunity.kenes.com)

### April 13–14, 2016

Disease Drivers of Aging: 2016 Advances in Geroscience Summit  
New York Academy of Sciences  
New York, NY  
[www.nyas.org/events/default.aspx](http://www.nyas.org/events/default.aspx)

### April 15–17, 2016

American Physician Scientists Association 12th Annual Meeting  
The Fairmont Chicago Millennium Park  
Chicago, IL  
<http://meeting.physicianscientists.org/>

### April 18–20, 2016

2016 Annual Conference on Vaccine Research  
Baltimore, MD  
<http://www.nfid.org/acvr>

### May 13–17, 2016

IMMUNOLOGY 2016™  
AAI Annual Meeting  
Seattle, WA  
[www.immunology2016.org/](http://www.immunology2016.org/)

### June 2–3, 2016

Postdoctoral Preparation Institute: Career Transitions, sponsored by the FASEB MARC Program through a grant from NIGMS, NIH  
Bethesda North Marriott Hotel & Conference Center  
Bethesda, MD  
<http://twdprograms.org/>

### June 2–5, 2016

Eastern Allergy Conference  
The Breakers  
Palm Beach, FL  
[www.easternallergyconference.org](http://www.easternallergyconference.org)

### June 3, 2016

immunologyLA  
The Skirball Cultural Center  
Los Angeles, CA  
[www.immunologyla.com/](http://www.immunologyla.com/)

### June 5–9, 2016

ThymUS 2016  
Wailea Marriott Beach Resort & Spa  
Maui, HI  
[www.thymusmeeting.org/2016/](http://www.thymusmeeting.org/2016/)

### June 6–11, 2016

Development and Homeostasis of Skeletal Muscle in Health and Disease  
Asilomar Conference Grounds  
Pacific Grove, CA  
[www.musclebiology.org/](http://www.musclebiology.org/)

### June 13–17, 2016

Jacques Monod Conference, "Optical imaging of brain connectivity: from synapses to networks in action"  
Roscoff (Brittany), France  
[www.cnrs.fr/insb/cjm/2016/Mulle\\_e.html](http://www.cnrs.fr/insb/cjm/2016/Mulle_e.html)

### June 16–19, 2016

Regulatory Myeloid Suppressor Cells Conference  
The Wistar Institute  
Philadelphia, PA  
[www.myeloidsuppressors.com/](http://www.myeloidsuppressors.com/)

### June 18–19, 2016

Southeastern Immunology Symposium  
Duke University  
Durham, NC  
<http://sites.duke.edu/sis2016/>

### June 22–24, 2016

VLPNPV 2016 - Virus-Like Particle and Nanoparticle Vaccines  
Leiden, the Netherlands  
<http://meetingsmanagement.cmail19.com/t/d-l-jiurdkl-vckugr-j/>

### July 1–4, 2016

9th International Conference of the Frontiers in Immunology Research Network  
Grand Hotel Union  
Ljubljana, Slovenia  
[www.firnweb.com/2016-conference/](http://www.firnweb.com/2016-conference/)

### July 9–14, 2016

AAI Introductory Course in Immunology  
Long Beach, CA  
[www.aai.org/Education/Courses/Intro/index.html](http://www.aai.org/Education/Courses/Intro/index.html)

### July 24–29, 2016

IgE and Allergy, 50 Years and Onward (FASEB Science Research Conference)  
West Palm Beach, FL  
[www.faseb.org/SRC](http://www.faseb.org/SRC)

### July 31–August 5, 2016

AAI Advanced Course in Immunology  
Boston, MA  
[www.aai.org/Education/Courses/Advanced/index.html](http://www.aai.org/Education/Courses/Advanced/index.html)

### August 4–8, 2016

Society for Developmental Biology 75th Annual Meeting/  
International Society of Differentiation 19th International Conference  
Marriott Copley Place  
Boston, MA  
[www.sdbonline.org/2016mtg](http://www.sdbonline.org/2016mtg)

Track updated meeting listings anytime via the online Meetings and Events Calendar – visit [www.aai.org/Careers/Calendar/index.html](http://www.aai.org/Careers/Calendar/index.html).

# Meetings and Events Calendar

Mark Your Calendar for These Important Dates!

## 2016 *(Continued)*

### August 16–19, 2016

#### IVIS 2016: International Veterinary Immunology Symposium

Gold Coast Convention Centre  
Gold Coast, Australia  
[www.ivis2016.org/](http://www.ivis2016.org/)

### August 21–26, 2016

#### ICI 2016: International Congress of Immunology 2016

Melbourne, Australia  
<http://ici2016.org>

### August 24–27, 2016

#### APS Conference: Inflammation, Immunity and Cardiovascular Disease

Westminster, CO  
[www.the-aps.org/inflammation.aspx](http://www.the-aps.org/inflammation.aspx)

### August 31–September 2, 2016

#### Colorado Immunology Conference

Steamboat Springs, CO  
[www.ucdenver.edu/academics/colleges/medicalschoo/departments/ImmunologyMicrobiology/calendar/Pages/2016ImmunologyConferenceSchedule.aspx](http://www.ucdenver.edu/academics/colleges/medicalschoo/departments/ImmunologyMicrobiology/calendar/Pages/2016ImmunologyConferenceSchedule.aspx)

### September 15–17, 2016

#### The Society For Leukocyte Biology's 49th Annual Meeting and "Neutrophil 2016"-Inflammation, Immunity and Cancer: Neutrophils and Other Leukocytes

University of Verona Congress Center  
Verona, Italy  
<http://leukocytebiology.org/Meetings/2016-Meeting.aspx>

### September 21–24, 2016

#### European Society for Immunodeficiencies (ESID) 2016

Centre Convencions Internacional de Barcelona (CCIB)  
Barcelona, Spain  
[www.esid.org](http://www.esid.org)

### September 26–28, 2016

#### Immunogenomics 2016

HudsonAlpha Institute for Biotechnology  
Huntsville, AL  
<http://hudsonalpha.org/immunogenomicsconference/>

### September 27–30, 2016

#### 46th Annual Meeting of the German Society for Immunology

Congress Center Hamburg (CCH)  
Hamburg, Germany  
[www.immunology-conference.de/](http://www.immunology-conference.de/)

### October 3–5, 2016

#### 4th International Conference on HIV/AIDS, STDs and STIs

Orlando, FL  
[www.hiv-aids-std.conferenceseries.com/](http://www.hiv-aids-std.conferenceseries.com/)

### October 15–16, 2016

#### The New England Immunology Conference

The Marine Biological Laboratory  
Woods Hole, MA  
[www.newenglandimmunology.org/](http://www.newenglandimmunology.org/)

### October 16–19, 2016

#### Cytokines 2016: 4th Annual Meeting of the International Cytokine and Interferon Society (ICIS)

San Francisco, CA  
<http://www.cytokines2016.com/>

### October 24–27, 2016

#### 19th Annual Upstate New York Immunology Conference

The Sagamore Resort and Conference Center  
Bolton Landing, NY  
[www.amc.edu/NYIC/index.cfm](http://www.amc.edu/NYIC/index.cfm)

### November 18–21, 2016

#### Autumn Immunology Conference (AIC) 2016

Chicago Marriott Downtown  
Chicago, IL  
[www.autumnimmunology.org/](http://www.autumnimmunology.org/)

### December 6–9, 2016

#### Joint British Society for Immunology (BSI) and Dutch Society for Immunology (NVVI) Congress 2016

Arena Conference Centre, Liverpool, UK  
[www.bsicongress.com/2016](http://www.bsicongress.com/2016)

### December 8–9, 2016

#### International Conference on Lupus

Phoenix, AZ  
[www.lupus.conferenceseries.com/](http://www.lupus.conferenceseries.com/)

## 2017

### April 7–10, 2017

#### 30th Annual Canadian Society of Immunology Spring Meeting

The Banff Centre  
Banff, Alberta  
[www.csi-sci.ca/scientificmeeting.aspx](http://www.csi-sci.ca/scientificmeeting.aspx)

### May 12–16, 2017

#### IMMUNOLOGY 2017™ AAI Annual Meeting

Washington, D.C.  
[www.aai.org/Meetings/Future\\_Meeting.html](http://www.aai.org/Meetings/Future_Meeting.html)

### November 17–20, 2017

#### Autumn Immunology Conference (AIC) 2017

JW Marriott  
Chicago, IL  
[www.autumnimmunology.org/](http://www.autumnimmunology.org/)

## 2018

### May 4–8, 2018

#### IMMUNOLOGY 2018™ AAI Annual Meeting

Austin, TX  
[www.aai.org/Meetings/Future\\_Meeting.html](http://www.aai.org/Meetings/Future_Meeting.html)

### November 16–19, 2018

#### Autumn Immunology Conference (AIC) 2018

Chicago Marriott Downtown  
Chicago, IL  
[www.autumnimmunology.org/](http://www.autumnimmunology.org/)

## 2019

### May 9–13, 2019

#### IMMUNOLOGY 2019™ AAI Annual Meeting

San Diego, CA  
[www.aai.org/Meetings/Future\\_Meeting.html](http://www.aai.org/Meetings/Future_Meeting.html)



# 2016 Introductory Course in Immunology

July 9–14, 2016 • Long Beach Convention Center, Long Beach, California

Director: Juan Carlos Zuñiga-Pflücker, Ph.D.  
University of Toronto and Sunnybrook Research Institute

## Don't miss the most comprehensive introduction to immunology available!

This intensive two-part course, taught by world-renowned immunologists, provides a comprehensive overview of the basics of immunology. This course is for students new to the discipline or those seeking more information to complement general biology or science training. **Part I (July 9–11)** is a detailed introduction to the basic principles of immunology and is suitable for students with a general biology background. **Part II (July 12–14)** is a clinically oriented lecture series focusing on specialty areas.

Parts I and II may be taken independently at the discretion of the student.

## Faculty

**Juan Carlos Zuñiga-Pflücker**, *University of Toronto and Sunnybrook Research Institute*  
*Introduction to the Immune System*

**Lewis L. Lanier**, *University of California, San Francisco*  
*Innate Immunity: Introduction to the Cells*

**Deborah A. Fraser**, *California State University Long Beach*  
*Complement*

**Helen S. Goodridge**, *Cedars-Sinai Medical Center*  
*Innate Immunity: Introduction to Pattern Recognition and Intracellular Signaling*

**Wendy L. Havran**, *The Scripps Research Institute*  
*Introduction to Adaptive Immunity*

**Nilabh Shastri**, *University of California, Berkeley*  
*Antigen Processing and Presentation*

**Juan Carlos Zuñiga-Pflücker**, *University of Toronto and Sunnybrook Research Institute*  
*MHC Restriction and Thymic Selection*

**David Nemazee**, *The Scripps Research Institute*  
*B Cell Development and Maturation*

**Shannon J. Turley**, *Genentech, Inc.*  
*Dendritic Cells: The Bridge Between Innate and Adaptive Immunity*

**Michael Croft**, *La Jolla Institute for Allergy and Immunology*  
*Effector T Cell Differentiation and Response*

**Shane Crotty**, *La Jolla Institute for Allergy and Immunology*  
*B Cell Activation and Humoral Immunity*

**Arthur Weiss**, *University of California, San Francisco*  
*Signaling in the Immune System*

**Wenjun Ouyang**, *Amgen*  
*Cytokines*

**Stephen M. Hedrick**, *University of California, San Diego*

*Host-Pathogen Co-evolution in Human Beings: the Red Queen and the Grim Reaper*

**David C. Parker**, *Oregon Health and Science University*  
*T and B Cell Tolerance*

**Matthias G. von Herrath**, *La Jolla Institute for Allergy and Immunology*  
*Autoimmunity*

**Olivia M. Martinez**, *Stanford University School of Medicine*  
*Transplantation*

**Peter B. Ernst**, *University of California, San Diego*  
*Mucosal Immunology*

**Marion Pepper**, *University of Washington*  
*Type 2 Immunity*

**Linda A. Sherman**, *The Scripps Research Institute*  
*Tumor Immunology*

**Robert L. Modlin**, *University of California, Los Angeles David Geffen School of Medicine*  
*Immunity to Bacterial Pathogens*

**Steven M. Varga**, *University of Iowa*  
*Immunity to Viruses*

**Martin Prlic**, *Fred Hutchinson Cancer Research Center*  
*Immunologic Memory*

**Nicole Frahm**, *Fred Hutchinson Cancer Research Center*  
*Vaccination*

**Jennifer M. Puck**, *University of California, San Francisco*  
*Genetic Approaches to Immune-Mediated Diseases*

**Andrew C. Chan**, *Genentech, Inc.*  
*Bench to Bedside to Bench: Current Issues in Immunology*

For complete course details and registration, visit: [www.aai.org/Education/Courses](http://www.aai.org/Education/Courses)

For assistance, contact (301) 634-7178 or [meetings@aai.org](mailto:meetings@aai.org). Overseas applicants are advised to apply early for visas; for details, visit [www.aai.org/Education/Courses/Visa.html](http://www.aai.org/Education/Courses/Visa.html).



# 2016 Advanced Course in Immunology

July 31–August 5, 2016 • Seaport World Trade Center, Boston, Massachusetts

Director: Ulrich H. von Andrian, M.D., Ph.D., Harvard Medical School

## Don't miss the premier course in immunology for research scientists!

This intensive course is directed toward advanced trainees and scientists who wish to expand or update their understanding of the field. Leading experts will present recent advances in the biology of the immune system and address its role in health and disease. This is not an introductory course; attendees will need to have a firm understanding of the principles of immunology.

### Faculty

**Ulrich H. von Andrian**, *Harvard Medical School*  
*Anatomy of the Immune Response*

**Jonathan C. Kagan**, *Children's Hospital Boston*  
*Harvard Medical School*  
*Innate Immunity: Pattern Recognition and Anti-microbial Mechanisms*

**Bruce Horwitz**, *Brigham & Women's Hospital, Harvard Medical School*  
*Innate Immunity: Gene Regulation*

**Albert S. Bendelac**, *University of Chicago*  
*Innate Immunity: Cellular Mechanisms*

**Wayne M. Yokoyama**, *Washington University School of Medicine*  
*NK Cells — Their Receptors and Function in Health and Disease*

**Michael C. Carroll**, *Immune Disease Institute*  
*Harvard Medical School*  
*Molecular and Cellular Mediators of Inflammation*

**Brian T. Edelson**, *Washington University School of Medicine*  
*Dendritic Cells*

**Eugene M. Oltz**, *Washington University School of Medicine*  
*The Generation and Modification of Lymphocyte Antigen Receptor Genes*

**Kay L. Medina**, *Mayo Clinic*  
*B Cell Development*

**Avinash Bhandoola**, *NCI, NIH*  
*T Cell Development*

**Kenneth L. Rock**, *University of Massachusetts Medical School*  
*MHC-Restricted Antigen Presentation to T Cells*

**Leslie J. Berg**, *University of Massachusetts Medical School*  
*Signaling from Antigen Receptors*

**Stephen C. Jameson**, *University of Minnesota Center for Immunology*  
*T Cell Memory*

**Patrick C. Wilson**, *University of Chicago*  
*B Cell Memory*

**Arup K. Chakraborty**, *Massachusetts Institute of Technology*  
*Computational Modeling of Immunological Processes*

**Brian A. Cobb**, *Case Western Reserve University School of Medicine*  
*Glycoimmunology*

**Richard S. Blumberg**, *Brigham & Women's Hospital, Harvard Medical School*  
*Mucosal Immunity*

**Joel D. Ernst**, *New York University School of Medicine*  
*Immune Response to Pathogens*

**TBA**  
*B Cell Tolerance and Autoimmunity*

**Vijay K. Kuchroo**, *Brigham & Women's Hospital, Harvard Medical School*  
*T Cell Tolerance and Autoimmunity*

**Kevin J. Tracey**, *Feinstein Institute for Medical Research*  
*Neuroimmunology*

**Lisa H. Butterfield**, *University of Pittsburgh*  
*Tumor Immunology*

**Dania Rabah**, *Biogen Idec*  
*Immunotherapeutics*

**Dennis W. Metzger**, *Albany Medical College*  
*Vaccines*

For complete course details and registration, visit: [www.aai.org/Education/Courses](http://www.aai.org/Education/Courses)

For assistance, contact (301) 634-7178 or [meetings@aai.org](mailto:meetings@aai.org). Overseas applicants are advised to apply early for visas; for details, visit [www.aai.org/Education/Courses/Visa.html](http://www.aai.org/Education/Courses/Visa.html).



# The Journal of Immunology Influence Statement

*Comprehensive • Authoritative • Foundational*

The largest and oldest journal in the field offers unparalleled reporting of major advances in immunology research. Fully peer-reviewed by working scientists, reports are rapidly published and broadly cited.

## Comprehensive

- Your “first stop” for major advances
- No triage! Every manuscript is peer-reviewed
- Fair, in-depth evaluation of each manuscript
- Submission to first decision: 29 days
- Average time to online publication: 4 weeks
- 4th most frequently used journal for NIH-supported publications<sup>5</sup>

## Authoritative

- Cited more than any other immunology journal<sup>1</sup>
- 5-year Impact Factor of 5.264, top 18% of immunology journals<sup>1</sup>
- Ranked #1 for Eigenfactor<sup>2</sup> among immunology journals<sup>1</sup>
- Google Scholar h5-index is 107, 6th in the Immunology category<sup>3</sup>
- The Scimago H-index is 298, 5th of the 520 like journals<sup>4</sup>

## Foundational

- At 8.6 years<sup>1</sup>, the citation half-life is one of the longest in the field!
- Committed to rigorously performed research that moves the field forward
- Over 1.8 million page views and 395,000 PDF downloads per month

*The Journal of Immunology (The JI)* is owned and published by The American Association of Immunologists, Inc., a non-profit association founded in 1913 that is dedicated to advancing the careers of scientists and promoting the field of immunological research.

1. 2014 Journal Citation Reports
2. Eigenfactor is a “metric that uses citing journal data from the entire Journal Citation Report file to reflect the prestige and citation influence of a journal by considering scholarly literature as a network of journal-to-journal relationships”. <http://thomsonreuters.com/content/dam/openweb/documents/pdf/scholarly-scientific-research/fact-sheet/esi-jcr-brochure.pdf>, accessed 12/23/15
3. [https://scholar.google.com/citations?view\\_op=top\\_venues&hl=en&vq=med\\_immunology](https://scholar.google.com/citations?view_op=top_venues&hl=en&vq=med_immunology), accessed 12/21/15
4. [http://www.scimagojr.com/journalrank.php?area=2400&category=0&country=all&year=2014&order=s-jr&min=0&min\\_type=cd](http://www.scimagojr.com/journalrank.php?area=2400&category=0&country=all&year=2014&order=s-jr&min=0&min_type=cd), accessed 12/21/15
5. <http://nexus.od.nih.gov/all/2016/03/02/nih-publication-impact-a-first-look/>, accessed 3/2/16



# INNATE IMMUNITY



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Antibodies & ELISA

STING Products

PRR Ligands

PRR & Related Genes

Vaccine Adjuvants

Inhibitors

And more...

### CLIENT TESTIMONIAL



**Stephane Daffis**

Research Scientist  
Gilead Sciences

*“InvivoGen is the leading expert in the field of innate immunity. The quality and innovation of their research products is a key asset in developing some of my research projects.”*

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[www.invivogen.com](http://www.invivogen.com)

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