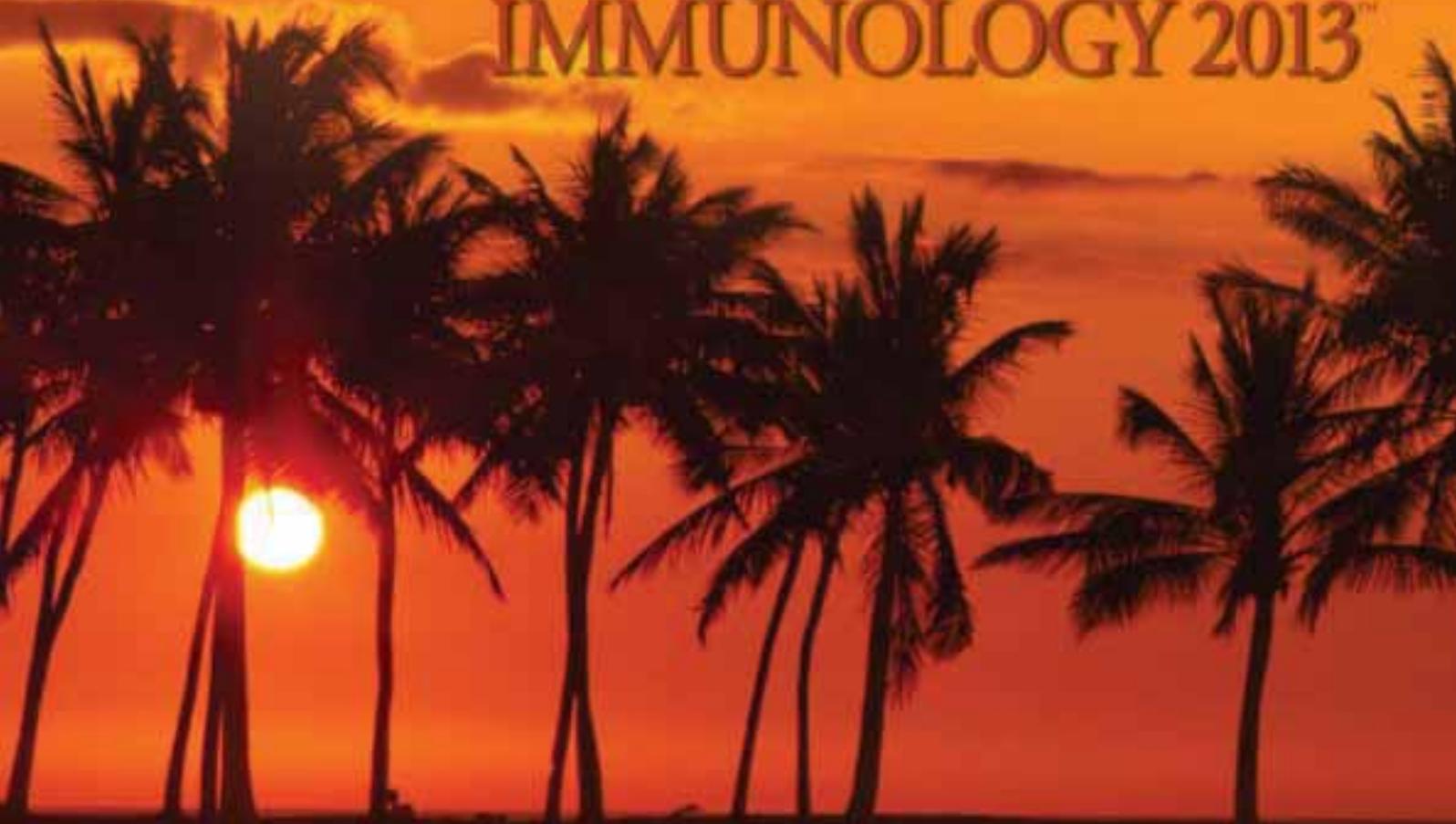


SPECIAL ISSUE

PROGRAM PREVIEW

AAI NEWSLETTER

IMMUNOLOGY 2013™



MARCH/APRIL 2013

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Celebrating *100 Years*

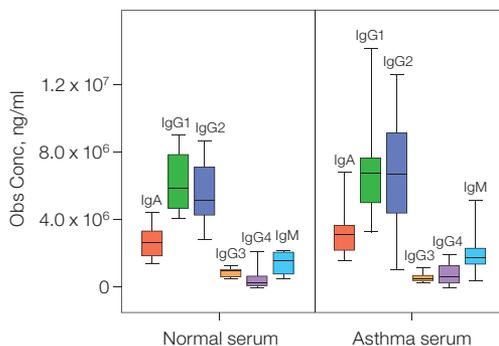
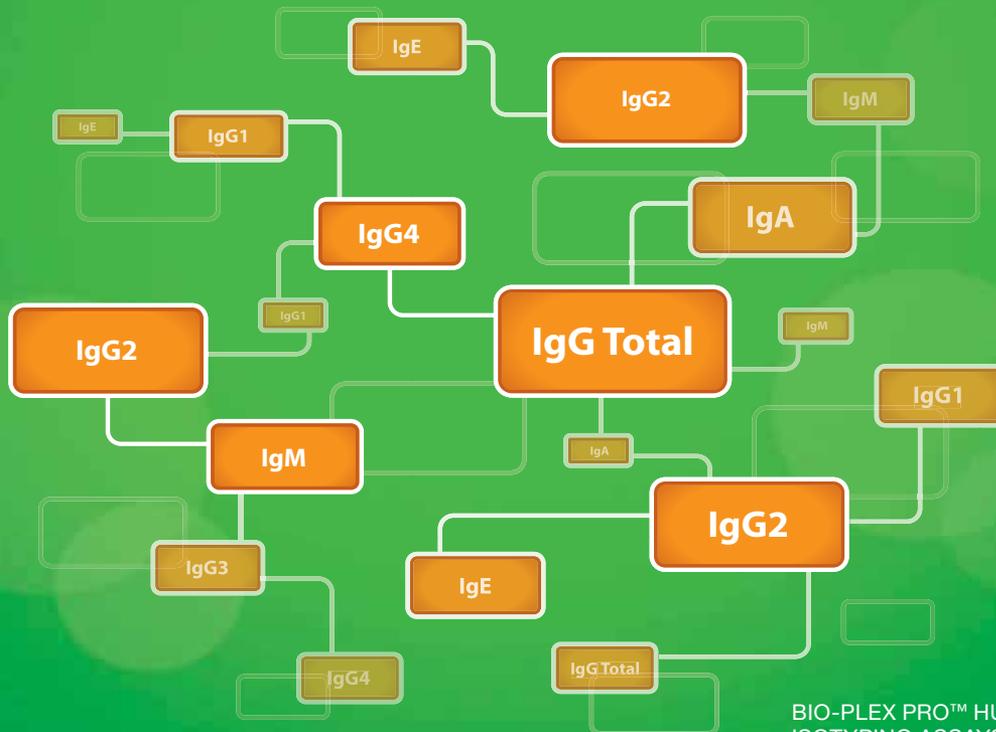


The American Association of Immunologists
AAI Annual Meeting
May 3–7, 2013 | Honolulu, Hawaii

PROFILE

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An Invitation to *IMMUNOLOGY 2013™*



Gail A. Bishop
AAI President

Dear Colleagues~

It is with great delight and anticipation that we invite you all to participate in IMMUNOLOGY 2013™, May 3–7, in beautiful Honolulu, Hawaii. We'll be meeting in this unique location to celebrate a very special occasion: the 100th anniversary of AAI!

Perhaps you are wondering why we chose to meet in Hawaii — our beautiful but distant 50th state — in this time of fiscal challenges for biomedical research. Here are a few of the many good reasons for this choice:

Outstanding Hotel Rates. AAI was able to negotiate outstanding hotel rates for attendees (the lowest in the past four years!) and keep abstract submission rates and members' registrations fees from rising this year. And to assist members with travel costs, AAI awarded an unprecedented number (almost 750) and variety of travel grants and awards.

Accessible Location for Our International Members. This location allows us to welcome even more of our international colleagues! Sixteen guest societies from around the globe will be sponsoring symposia and their members will otherwise participate, making this a truly international immunology event.

It's Family Friendly. For the first time at an AAI meeting, a fantastically fun day camp is available for accompanying children.

It's Time to Relax! The fabulous social events this year, sponsored by BioLegend and eBioscience, will be enhanced by balmy island breezes, swaying palm trees, and a turquoise ocean. What a setting for enjoying friends and colleagues, and making new connections — something we need most when times are stressful.

As always, our annual meeting will feature the most timely and exciting science. The Program Committee has put together a great Scientific Program, including a President's Symposium on a never-before-featured topic, three Distinguished Lectures, three NIH-sponsored Symposia, and eight Major Symposia. There will also be Award Lectures, special sessions, and 84 Block Symposia. And we are delighted that a record number of submitted abstracts (2,491!) will be presented in the Exhibit Hall during dedicated times allowing for uninterrupted viewing and visiting with presenters.

The wonderful AAI staff, AAI Council, and many AAI volunteer committee members worked very hard to make this a meeting to remember. The question is not really how could AAI choose such a locale for its Centennial Celebration, but how could anyone afford to miss it?



Leo Lefrançois
AAI Program Chair

It's Our 100th Anniversary! Our centennial offers us an extraordinary opportunity to celebrate an accomplished history and a promising future. Immunology has made astounding strides during the past century in our understanding of how the immune system works, as well as how to apply that knowledge to new and better measures to prevent and treat disease. During this time, 26 AAI members have been awarded the Nobel Prize, 48 have received Lasker Awards, and many others have earned prestigious recognition for all our field has accomplished. This proud legacy will be celebrated in special sessions, displays, and activities during the meeting.

Attendees can become a part of "AAI history" by telling their stories in the AAI StoryBooth. Other special events include a special Centennial Symposium featuring four of our most distinguished members who will share their insights and retrospectives, and an awe-inspiring, "life-sized" Timeline of Immunology that will be prominently featured on the Exhibit Floor, walking you through important immunology and technological milestones during the past century. Career advancement events will be featured and there will be a presentation by special guest NPR Science Correspondent Joe Palca on how to more effectively communicate our science and its importance to the public. This is especially important during this difficult funding climate when effective public advocacy could benefit us all.



Michele Hogan
AAI Executive
Director

Come join us in Hawaii!

Gail A. Bishop
AAI President

Leo Lefrançois
AAI Program Chair

M. Michele Hogan
AAI Executive Director

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100th AAI Anniversary Activities to Culminate at IMMUNOLOGY 2013™ Celebration

In this, our centennial year, we look back and appreciate the incredible advances in the field since 1913. IMMUNOLOGY 2013™ will be the setting for a great celebration of our history. In addition to spotlighting the newest developments in the field, the meeting will feature the **Special Centennial Symposium: A Legacy of Excellence**, offering perspectives from four leading scientists on defining issues and developments in immunology research. Many other activities will engage attendees actively in the AAI Centennial celebration. Be sure you are there to:

- Travel the **Centennial Timeline** spanning the exhibit hall floor, depicting important developments for AAI and immunology, science and technology, and U.S. and world history.
- Hear interviews of **AAI Presidents** in our media lounges.
- Take the **Walk of Notables** to learn about the many Nobel, Lasker, and other distinguished awardees in the rich AAI legacy.
- Visit the **StoryBooth** with friends, colleagues, or mentors to record your stories and become part of AAI history.
- Stop by the **VIP Lounge** for casual conversation with preeminent immunologists.
- And enjoy the special festivities and entertainment scheduled for the AAI Centennial at the **Opening Night Welcome Reception** and the **Centennial Gala Luau**.



Medical College, University of Minnesota (c. 1908)

On June 19, 1913, a group of physician-scientists gathered on the University of Minnesota campus to form a society devoted to a nascent medical specialty: immunology. These founders and the society they established—The American Association of Immunologists (AAI)—led in defining and forging this new biomedical field. At IMMUNOLOGY 2013™ AAI will celebrate the many notable advances and innovators among AAI members during the past 100 years.

Image: Library of Congress, Prints & Photographs Division, Detroit Publishing Company Collection



Commemorative Literature. AAI staff historians and scientists are rigorously researching and archiving materials to preserve the proud heritage of the association, and the *AAI Newsletter* has featured a number of articles this past year recounting our history. Posted in the history section of the AAI website, www.aai.org/About/History, they include:

- Immunologists during the First World War: One Soldier-Scientist's Experience
- The 1918–1919 Influenza Pandemic as covered in *The Journal of Immunology*
- The Founding of AAI
- The Science at the First AAI Annual Meeting
- Anna Wessels Williams, M.D.: Infectious Disease Pioneer and Public Health Advocate
- Elise Strang L'Esperance, M.D.: Pioneer in Cancer Prevention and Recipient of Lasker Award
- The Founding of *The Journal of Immunology*
- “Studies in Anaphylaxis”: The First Article in *The Journal of Immunology*
- Rebecca Lancefield, Ph.D. (AAI 1933; President 1961–62): PI in the Scotland Yard of Streptococcal Mysteries

AAI Website. The www.aai.org/About/History section of the AAI website, developed and launched in 2011 in anticipation of the AAI Centennial, will continually evolve as a living archive, adding resources produced for, during, and after the Hawaii celebration. Current and future resources, including oral history interviews of AAI presidents, profiles of AAI Nobel and Lasker recipients, AAI history articles (published in the *AAI Newsletter*), and an eBook of “Pillars” articles from *The Journal of Immunology*, will continue to chronicle the history of AAI and the role immunology has played in advancing biology and medicine.

Visit www.aai.org/About/History to enjoy the history of AAI



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FOCUS ON PUBLIC AFFAIRS



Sequestration Officially Takes Effect

Automatic across-the-board cuts to most government agencies and programs, more commonly known as sequestration, took effect on March 1, 2013. Unless Congress modifies or eliminates the sequester, NIH will be cut by at least \$1.56 billion (5.1 percent) in fiscal year (FY) 2013, and may face even deeper cuts in the sequester's subsequent nine years.

AAI has advocated against sequestration since December 2011 when it first became apparent that the rarely used budgetary process might actually be implemented as a result of Congress's failure to reach a deficit reduction agreement. Most recently, AAI sent letters to nine House and Senate leaders expressing deep concern about the impact of sequestration on NIH and biomedical research. That letter, signed by Committee on Public Affairs Chair Elizabeth Kovacs, can be viewed by visiting AAI.org > Public Affairs > Letters and Comments.

In February, NIH released an "operation plan" broadly outlining how it plans to function under sequestration. The plan states that "NIH likely will reduce the final FY 2013 funding levels of non-competing continuation grants and expects to make fewer competing awards... Although each NIH Institute and Center (IC) will assess allocations within their portfolio to maximize the scientific impact, non-competing continuation awards that have already been made may be restored above the current level ... but likely will not reach the full FY 2013 commitment level." According to the plan, each IC will be responsible for determining how to achieve a 5.1 percent cut.

The Secretary of the Department of Health and Human Services, Kathleen Sebelius, expressed her concerns about sequestration in a February 2013 letter to the Senate Appropriations Committee: "We expect that some existing research projects [at NIH] could be difficult to pursue at reduced levels and some new research could be postponed as NIH would make hundreds fewer awards."

A Look at the 113th Congress

New House and Senate members were sworn into office on January 3, 2013, bringing 94 fresh faces to Congress. Though the faces are different, the overall makeup of the legislative branch is largely the same, with the Democratic Party gaining 10 seats in total and maintaining control of the Senate, and the Republican Party losing 9 seats in total and maintaining control of the House.

Membership of the 113th Congress

The Senate continues to be largely comprised of lawyers (45) and businesspeople (22). Although there are no research scientists in the Senate, the body continues to have three medical doctors: John Barrasso, M.D. (R-WY), an orthopedic surgeon; Tom Coburn, M.D. (R-OK); an obstetrician; and Rand Paul, M.D. (R-KY), an ophthalmologist.

FOCUS ON PUBLIC AFFAIRS *(continued)*

The House of Representatives is also composed largely of lawyers (128) and businesspeople (108). However, the House does have two physicists and one microbiologist. Rush Holt, Ph.D. (D-12th, NJ), former assistant director of the Princeton Plasma Physics Laboratory, was reelected to his 8th term in the House in November. Rep. Holt serves as co-chair of the Congressional Biomedical Research Caucus. Rejoining the House after losing his seat in 2010 is Bill Foster (D-14th, IL), who worked for 22 years in high-energy physics at a Department of Energy national laboratory before being elected to the House in 2008. The lone microbiologist in the House is Louise Slaughter (D-25th, NY), who was reelected to her 14th term in Congress.

Key Committee Appointments

Sen. Barbara Mikulski (D-MD) will take over as chair of the powerful Senate Appropriations Committee following the recent death of Sen. Daniel Inouye (D-HI). Sen. Mikulski is the first woman to chair the Senate Appropriations Committee and has long been a vocal advocate for the National Institutes of Health (NIH). The Committee's ranking member continues to be Sen. Thad Cochran (R-MS). As previously reported, the Senate Labor, Health and Human Services, Education, and Related Agencies Appropriations Subcommittee (which funds NIH) will continue to be chaired by Sen. Tom Harkin (D-IA). The subcommittee has a new ranking member, Sen. Jerry Moran (R-KS).

The House Appropriations Committee will continue to be chaired by Rep. Hal Rogers (R-5th, KY). The new ranking member of the full committee is Rep. Nita Lowey (D-17th, NY). The Labor, Health and Human Services, Education, and Related Agencies Appropriations Subcommittee has a new chair, Rep. Jack Kingston (R-1st, GA), who has taken over for former Rep. Denny Rehberg (R-At large, MT), who left the House to pursue an unsuccessful run for a Montana Senate seat.

U.S. Supreme Court Declines to Take Stem Cell Case

On January 7, 2013, the U.S. Supreme Court denied review of an appeal filed by two scientists seeking to prohibit the use of federal funding to support human embryonic stem cell (hESC) research. The Court's decision brings an end to the lawsuit and clears the way for NIH to continue funding hESC research indefinitely.

The plaintiffs in *Sherley v. Sebelius*, James Sherley and Theresa Deisher, are adult stem cell researchers. They originally filed their lawsuit in 2009, arguing that Congress had completely banned federally-funded hESC research through the Dickey-Wicker amendment, which prohibits using federal funds for research in which a human embryo is destroyed. Although Congress had enacted this amendment every year since 1996, the Obama Administration was permitting the use of federal funding for research on existing stem cell lines.

In August of 2010, U.S. District Court for the District of Columbia Chief Judge Royce Lamberth issued a preliminary injunction temporarily blocking federal funding for hESC research. However, in July of 2011, Judge Lamberth changed course and dismissed the lawsuit. The plaintiffs appealed to the U.S. Court of Appeals for the District of Columbia. A three-judge panel of the U.S. Court of Appeals ruled against Sherley and Deisher, who then sought Supreme Court review.

NIH Director Francis Collins released the following statement on the U.S. Supreme Court ruling: "I am very pleased with today's decision by the U.S. Supreme Court to decline to review the *Sherley v. Sebelius* U.S. Court of Appeals ruling. This decision allows the ruling to stand, and enables NIH to continue conducting and funding stem cell research, following the strict ethical guidelines put in place in 2009. Patients and their families who look forward to new therapies to replace cells lost by disease or injury, or who may benefit from new drugs identified by screening using stem cells, should be reassured that NIH will continue supporting this promising research."

AAI Public Affairs ONLINE

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- Discover how you can help AAI in its advocacy initiatives

Go to www.aai.org and click on Public Affairs.



2013 AAI Career Award Recipients

AAI proudly presents the 2013 AAI Awards for outstanding research and career achievements.

Katherine L. Knight Honored with AAI Lifetime Achievement Award

Katherine L. Knight, Ph.D., Loyola University Chicago, Stritch School of Medicine, has been named recipient of the 2013 AAI Lifetime Achievement Award in recognition of a career of extraordinary scientific accomplishment as well as outstanding leadership and service to AAI. This award is the highest honor bestowed by the AAI Council upon an AAI member.



Knight has been a leader in the field of B cell development. She is well known for her discoveries of molecular mechanisms that control rabbit antibody diversity and her generation of the first hybridoma for production of rabbit monoclonal antibodies. She has continued to be on the leading edge of research, with more recent work examining the role of the intestinal microbiota in regulating the development of gut-associated lymphoid tissues and the primary antibody repertoire; she has also investigated the mechanisms through which intestinal microbes can protect the host from infection.

Knight has been an AAI member since 1968. She was elected to AAI Council in 1991 and served as AAI President from 1996 to 1997. In addition to her service on the AAI Council, Knight has served as an associate editor for *The Journal of Immunology* and a member of the Awards, Education, Membership, and Nominating Committees. She has served AAI as its delegate to the International Union of Immunological Societies and its representative to the Federation of American Societies of Experimental Biology Board, serving on its Executive, Finance, and Public Affairs Committees.

After earning her Ph.D. in chemistry from Indiana University, Knight, in 1968, was appointed to the faculty of the University of Illinois Medical Center, where she rose to the rank of full professor in 1975. In 1989, she was recruited to Loyola University Chicago where she is now professor and chairperson of the Department of Microbiology and Immunology at the Stritch School of Medicine. In addition, she is a co-founder and co-director of the Infectious Disease and Immunology Institute at Loyola University Chicago.

Knight is an elected fellow of the American Association for the Advancement of Science and was honored as Senior Scientist of the Year by Loyola University Chicago in 2012.

She has been recognized for her scientific achievements through her numerous invited speaking engagements at meetings and universities in the U.S. and abroad, as well as her service on many scientific review boards, including NIH panels, institutional program review boards, and corporate advisory panels.

Dr. Knight has also received accolades for her teaching and mentoring. She has been named by her peers to serve currently as president of the American Association of Medical School

Microbiology and Immunology Chairs (AMSMIC). She was honored as Graduate Faculty Member of the Year by Loyola University Chicago in 2004. She has spoken often on the subject of mentoring, including in her AAI President's Address at the AAI annual meeting in 1997.

Dr. Knight's career exemplifies the dedication to science and service honored by 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 Suzanne Ostrand-Rosenberg

Suzanne Ostrand-Rosenberg, Ph.D., University of Maryland, Baltimore County (UMBC), is the recipient of the 2013 AAI Excellence in Mentoring Award in recognition of her contributions to a future generation of scientists.



Ostrand-Rosenberg has been a highly productive researcher in the field of tumor immunity. She has shown the contribution of CD4 T cells in mediating tumor rejection, the importance of peptide-MHC transfer from tumor cells to dendritic cells (termed "cross-dressing") in antigen presentation, and the tumor-enhancing properties of myeloid-derived suppressor cells in the tumor microenvironment.

Ostrand-Rosenberg has trained over 100 students and fellows in her laboratory during the course of her career—a total which includes mentoring postdoctoral fellows, Ph.D. students, M.S. students, and undergraduates. Most impressively, she has provided meaningful research opportunities for over 65 undergraduates, including many underrepresented minority students. She has been a steadfast supporter of the Meyerhoff Scholars Program, a program at UMBC which prepares underrepresented minority students to pursue a Ph.D. and career in scientific research. Ostrand-Rosenberg has mentored 23 Meyerhoff fellows in research in her laboratory since the program's inception in 1988, and is the first honored to hold the position of Robert and Jane Meyerhoff Chair of Biochemistry in recognition of her efforts for the program. She has further impacted the lives of undergraduate minority students as a member of the steering committee and a research mentor for the MARC-U-STAR Program at UMBC, another program to support the advancement of underrepresented minority students in the sciences.

As a testament to the success of her mentoring, her undergraduate students have gone on to doctoral programs at Johns Hopkins University, New York University, Stanford University, and University of Pittsburgh, among other institutions, while her former Ph.D. students hold faculty and staff scientist positions at

prominent research institutions, including Cornell University, Johns Hopkins University, Medical University of South Carolina, Oregon State University, and the Dana-Farber Cancer Institute. In addition to the mentoring of students and fellows in her laboratory, Ostrand-Rosenberg has advised many more students on thesis committees, and she has acted as an informal mentor to new women faculty members.

“Dr. Ostrand-Rosenberg gives every person who comes through the lab her full attention, not only regarding their research, but also at a personal level,” says a former postdoctoral fellow, Pratima Sinha, assistant research scientist at UMBC. Sinha expounds, “Despite all of her other responsibilities, Dr. Ostrand-Rosenberg has a true open-door policy and can often be seen chatting with lab members about their families, helping her undergraduate students select their courses for the next semester, or discussing the always difficult decision of a future career step.”

A former graduate student in the Ostrand-Rosenberg laboratory, Brian P. Dolan, assistant professor at Oregon State University, recalls mentoring provided by Ostrand-Rosenberg when he was offered a faculty interview on short notice: “Unfortunately she was away at the time, but rather than say, ‘sorry, but I am sure you’ll be fine,’ she told me to call her. So, late at night, while she stared at her laptop and listened to me through the receiver, we went over my entire seminar. Three hours later, the talk was fantastically better, I had outlined all the questions I would likely be asked during the interview, and we had gone over all the qualities I needed to convey in the interview, not to mention the pitfalls to be avoided.”

It is fitting that Ostrand-Rosenberg be recognized for her remarkable record of mentorship with the 2013 AAI Excellence in Mentoring Award.

Ostrand-Rosenberg obtained her Ph.D. in immunology from the California Institute of Technology. Following a postdoctoral fellowship at Johns Hopkins University, she joined the faculty of the University of Maryland, Baltimore County, in 1977, where she rose through the ranks to become Professor of Biological Sciences in 1992 and Robert and Jane Meyerhoff Chair of Biochemistry in 2000.

Ostrand-Rosenberg is an appointed member of the National Cancer Institute Board of Scientific Counselors and the State of Maryland Human Stem Cell Commission, and an elected member of the Johns Hopkins University Society of Scholars. Among other prestigious honors she has received in recognition of her scientific accomplishment is the University System of Maryland Regents’ Award for Excellence in Research.

A member of AAI since 1979, Ostrand-Rosenberg currently serves as an abstract programming chair for the AAI annual meeting. She previously was an associate editor and a section editor for *The Journal of Immunology*.

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

Barton F. Haynes Receives AAI-Steinman Award for Human Immunology Research

Barton F. Haynes, M.D., Duke University School of Medicine, has been selected to receive the 2013 AAI-Steinman Award for Human Immunology Research. This award is given in recognition of Haynes’s groundbreaking work in the fields of thymic transplantation and HIV vaccination.



Haynes’s early work in human thymic transplantation spanned fundamental investigation to clinical treatment, encompassing his basic work describing T cell development and thymic epithelial biology, his demonstration in SCID mice that transplanted human postnatal thymic epithelium could support stem cell maturation, and his collaboration on the first thymic transplants in patients with DiGeorge Syndrome. This demonstration that postnatal thymus transplants could promote T cell development has been hailed as a medical triumph. Prior to the thymic transplants, children with complete DiGeorge Syndrome died, while the majority of these children can now be successfully treated.

In the last 20 years, Haynes has been at the forefront of the field of HIV vaccine development. He was the first to show the polyreactive nature of HIV-1 neutralizing antibodies and the role of tolerance mechanisms in limiting their induction. His work has opened new avenues in vaccine development.

Haynes distinguished himself in his service as director from 2005-2012 of the Center for HIV/AIDS Vaccine Immunology (CHAVI), an NIH-funded international consortium of scientists. Anthony S. Fauci, NIAID Director, says, “...with the leadership of Haynes, the CHAVI has been an extraordinary force in directing the effort to develop an HIV vaccine...His work has led to new vaccine components for two new efficacy trials, one in Thailand and one in South Africa, each including Env designs from his laboratory.”

Haynes earned his M.D. from Baylor College of Medicine in 1973. Following his internship and residency at Duke University Medical Center, he served in positions as a clinical associate, medical officer, and senior investigator at the Laboratory of Clinical Investigation, NIAID, NIH. In 1980, he returned to Duke University Medical Center, where he now holds the positions of Frederic M. Hanes Professor of Medicine and Professor of Immunology. He also serves as director of the Duke Human Vaccine Institute and the NIH-funded Duke Center for HIV/AIDS Vaccine Immunology-Immunogen Discovery.

Haynes is a member of the Institute of Medicine, National Academy of Sciences, and a fellow of the Infectious Diseases Society of America, American College of Physicians, and American Academy of Arts and Sciences. Among his many awards are the Lee C. Howley Senior Prize for Arthritis Research from the National Arthritis Foundation, the Distinguished Investigator Award from the American College of Rheumatology, and the Alexander Fleming Award from the Infectious Diseases Society of America.

Dr. Haynes has been an AAI member since 1980 and has served AAI as an associate editor and section 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. The award, previously named the AAI Award for Human Immunology Research, was renamed in 2012 in honor of deceased AAI member and Nobel laureate Ralph M. Steinman (1943–2011).

AAI-Life Technologies Meritorious Career Award Conferred upon Jenny P-Y. Ting

Jenny P-Y. Ting, Ph.D., University of North Carolina at Chapel Hill, is being honored with the 2013 AAI-Life Technologies Meritorious Career Award for her seminal contributions to a number of research fields. Early in her career, she elucidated mechanisms of MHC class II gene transcription, with her characterization of the promoter for the HLA-DR gene, identification of the class II transactivator (CIITA), and description of the key role of CIITA in the transcriptional regulation of numerous proteins involved in MHC class II antigen presentation. Ting creatively expanded this initial focus on class II gene regulation into investigations in other areas. She demonstrated a role for class II expression in the central nervous system in neurodegenerative diseases and showed the beneficial effect of inflammatory mediators during remyelination.



Ting's interest in CIITA also led to her discovery of the large NLR/CATERPILLAR gene family. Ting has since characterized the functions of many of the individual family members in, variously, apoptosis, antiviral immunity, inflammatory disease, and cancer. The NLR family is now a major focus of the field of innate immunity and has the potential to profoundly impact human health. According to Bonnie N. Dittel, senior investigator at BloodCenter of Wisconsin, "Discoveries of this scale represent large conceptual leaps, and the impact will be long-lasting."

Jenny maintains a remarkable breadth of interests while managing to explore each of them in depth," says Laurie H. Glimcher, Stephen and Suzanne Weiss Dean at Cornell University. "I would note her especially for her creative abilities, her fearlessness in taking on new technologies and her versatility in moving between hardcore transcription and biochemistry, cellular immunology and animal models."

Ting received her Ph.D. from Northwestern University in 1979 and continued her training with postdoctoral fellowships at the University of Southern California and Duke University. After a short appointment as a Research Assistant Professor at Duke University, she joined the faculty of the University of North Carolina at Chapel Hill in 1984. She currently holds the positions of William Rand Kenan Professor of Microbiology and Immunology, Co-Director of the Inflammatory Disease Institute, and Director of the Center for Translational Immunology.

Ting is a current member of the NIAID Council and has served on numerous study sections for the NIH, National Multiple Sclerosis Society, Burroughs Wellcome Trust, and others. She is the recipient of an NIH MERIT Award and has previously been recognized for her research accomplishments by the National Multiple Sclerosis Society and the American Society for Microbiology.

A member of AAI since 1997, Ting has served as a lecturer for the AAI Advanced Course, an associate editor and a section editor for *The Journal of Immunology*, and a member of the Publications Committee.

The AAI-Life Technologies Meritorious Career Award is given annually for outstanding research contributions to the field of immunology.

David Artis Presented with the AAI-BD Biosciences Investigator Award

David Artis, Ph.D., University of Pennsylvania, Perelman School of Medicine, was chosen to receive the 2013 AAI-BD Biosciences Investigator Award. Artis has made fundamental contributions to our understanding of host-microbial interactions at the body's barrier surfaces. When most investigators were focused on cellular interactions between the innate and specific immune systems in instructing the immune response, he hypothesized that the interactions between microbes and the epithelium might be equally critical. This hypothesis was borne out in his and his colleagues' demonstration that the NF κ B pathway functions cell-intrinsically in epithelial cells to regulate intestinal immune homeostasis. He subsequently showed the importance of epithelial-derived cytokines, including interleukin-25 and thymic stromal lymphopoietin, in mobilizing novel cell lineages to mediate type-2 immunity at the barrier interface.



In addition to showing the critical role of epithelial-immune cell interactions in achieving host defense and barrier homeostasis, Artis has identified ways in which commensal organisms directly shape innate immunity. His group has recently shown a role for commensal-derived signals in regulating allergic inflammation through effects on basophil development and establishing the activation threshold of innate antiviral immunity.

"As an early-career investigator, Artis has been extraordinarily productive and influential," says Ruslan Medzhitov, David W. Wallace Professor of Immunobiology at Yale School of Medicine. Medzhitov further submits, "He is internationally recognized as one of the major figures in the field of mucosal immunology, and he has been the leading architect of the field of epithelial-immune cell interactions, placing him at the forefront of the early-career immunologists of the world today."

Artis earned his Ph.D. in Immunology from Manchester University Medical School in the United Kingdom. In 1999, he moved to the University of Pennsylvania as a research fellow. Promoted to instructor in 2003 and assistant professor in 2005, he assumed his current position of associate professor in 2010.

Other prestigious awards and honors Artis has received in recognition of his scientific accomplishments include his selection as an Investigator in the Pathogenesis of Infectious Disease by the Burroughs Wellcome Fund and his receipt of The Lady Barbara Colyton Prize for Autoimmune Research from the University of Pennsylvania.

An AAI member since 1997, Artis has served as a lecturer at the AAI Introductory Course and a Major Symposium speaker at the AAI annual meeting.

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

2013 AAI Distinguished Service Award Winners

For their outstanding service to the AAI community and the immunology field as a whole, AAI is pleased to present Prosper Boyaka and Derry Roopenian with the 2013 AAI Distinguished Service Award.

Prosper N. Boyaka, Ph.D. The Ohio State University

Prosper N. Boyaka, AAI '98, has provided vital leadership to AAI in his service on the AAI Minority Affairs Committee from 2006 to 2012. As chair of the committee from 2009 to 2012, Boyaka initiated multiple enhancements to the annual AAI Minority Affairs Committee Careers and Networking Roundtable at the AAI meeting. These included formalizing table leader briefing materials and the opening orientation for attendees, initiating post-event distribution of the attendee list to foster participants' continuing networking and mentoring, and enhancing the annual survey of roundtable attendees to maximize the value of future events. He was also instrumental in expanding the AAI List of Minority Members, the online networking resource comprised of AAI minority members (regular and trainee) who volunteer to be listed and participate in mentoring and information sharing.

More recently, Boyaka initiated a collaborative effort by the AAI Minority Affairs Committee and the AAI Committee on Public Affairs (CPA) in response to a 2011 study documenting a racial disparity in the awarding of NIH grant funding. The effort resulted in the 2012 submission of AAI feedback to the NIH Director's Diversity in the Biomedical Research Workforce working group. Based in part on AAI and broader biomedical research community feedback, NIH is implementing initiatives to increase diversity in the scientific workforce, including enhanced data collection to track outcomes, a new National Research Mentoring Network to connect young scientists with experienced mentors, and the NIH Building Infrastructure Leading to Diversity Consortium, to increase graduate training enrollment among college graduates from diverse backgrounds underrepresented in biomedical research.

Boyaka currently serves AAI as an abstract programming chair for the annual meeting, having previously served as an associate editor for *The Journal of Immunology*.

Boyaka received his Ph.D. from Université de Paris in 1994. He continued his training at the University of Alabama at Birmingham (UAB) as a postdoctoral fellow in the Immunobiology Vaccine Center. He remained at UAB as a research associate and then research assistant professor. In 2006, he moved to The Ohio State University, where he holds the appointment of professor in the Department of Veterinary Biosciences.



Derry C. Roopenian, Ph.D. The Jackson Laboratory

Derry C. Roopenian, AAI '90, has provided immeasurable service to AAI during his tenure on the AAI Committee on Public Affairs (CPA) from 2005 to 2012, serving the last year as chair. As a member of the CPA and chair of its relevant subcommittee, Roopenian was instrumental in the creation and implementation of the AAI Research Advocacy Program (RAP), an important program which enables policy leaders from relevant patient advocacy organizations to learn about basic immunology, meet leading researchers, connect with young investigators, and learn about public policy issues of concern to AAI. He also led CPA activities involving animals in research, including developing AAI comments on proposed revisions to the Guide for the Care and Use of Laboratory Animals and serving for six years as the AAI representative to the board of directors of AAALAC (the Association for Assessment and Accreditation of Laboratory Animal Care) International.

As committee Chair, Roopenian was a strong advocate for sustained and predictable NIH funding, and for articulating, particularly in Congressional testimony, the economic benefits of investing in biomedical research. He led the successful development of AAI comments on three separate NIH efforts: eliciting ideas about how to better manage NIH resources in fiscally challenging times; addressing issues involving the future research workforce and; in conjunction with the AAI Minority Affairs Committee, finding ways to increase diversity in the biomedical research workforce. Following its receipt of comments from AAI and others in the biomedical research community, NIH began implementing several new initiatives designed to address these matters.

Roopenian also presided over, and was a key participant in, the successful first year of the AAI Public Policy Fellows Program (PPFP), a program which provides postdoctoral fellows and other junior scientists with the opportunity to learn about and participate in the public policy and legislative activities of AAI.

Roopenian earned his Ph.D. from the University of Minnesota in 1984. Following postdoctoral fellowships at Harvard Medical School and the Dana Farber Cancer Institute, he joined the faculty of The Jackson Laboratory in 1985 and has risen through the ranks to his current appointment as professor.



Members in the News

Richard Flavell, Ruslan Medzhitov Receive Vilcek Prize Honors

Richard A. Flavell, Ph.D., AAI '90, and Ruslan M. Medzhitov, Ph.D., AAI '00, have been named co-recipients of the 2013 Vilcek Prize for Biomedical Science. The award recognizes their pioneering research elucidating the fundamental nature of the innate immune system, mechanisms of the immune response, and the immune system's role in a range of diseases, including Type 2 diabetes.

Awarded annually, the Vilcek Prizes recognize immigrants who have made significant contributions to American arts and sciences. Each prize confers a cash award of \$100,000.

Richard A. Flavell, Ph.D., AAI '90
Sterling Professor and Chair, Department of Immunobiology,
and Howard Hughes Medical Institute Investigator,
Yale School of Medicine

Richard Flavell has utilized genomic and gene-targeting approaches to elucidate the roles of a variety of cell molecules involved in both innate and adaptive immune responses. He has advanced our understanding of the molecular basis of T cell differentiation, defining the critical role of the GATA-3 transcription factor in Th2 differentiation and elucidating signaling pathways which control helper T cell differentiation. He established a new paradigm for gene regulation in T cells whereby regulatory sequences control gene expression on other chromosomes. He also has been a leader in the field of apoptosis, as shown by his findings on the function of caspases in cell death. Further, he has examined regulatory mechanisms in the immune response, with his studies of TGF- β and Th17 cells, among others.



Richard Flavell

Contributions underlying his Vilcek honors include Flavell's elucidation of fundamental mechanisms through which the immune system senses pathogens and responds to infection. He identified Toll-like receptor (TLR) 3 as a sensor of double-stranded RNA and showed the role of TLR7, TLR5, and TLR1/2 in sensing single-stranded RNA, flagellar protein, and lipoprotein, respectively. Further, his laboratory generated Nod2-deficient mice and showed their susceptibility to infection with pathogenic microorganisms in the gut, due to their reduced ability to produce antimicrobial peptides. He also has contributed to the understanding of Nod-like receptors (NLRs), showing that multiple stimuli activate the Nalp inflammasome, identifying a new function for NLRP6 in IL-18 activation, and demonstrating a role for NLRP10 in helper T cell-driven responses. His laboratory has variously shown the importance of innate immune sensors in infection, autoimmunity, and tumorigenesis. Collectively, Flavell's studies have broadened our

fundamental knowledge of the immune system and opened up new possibilities for the treatment of disease.

A native of the United Kingdom, Flavell was the AAI-Invitrogen Meritorious Career Award recipient and lecturer in 2008. He is a past AAI Distinguished Lecturer (2002) and has been a major symposium speaker on multiple occasions at the AAI annual meeting. Flavell is a member of the National Academy of Sciences, Institute of Medicine, and Henry Kunkel Society and a fellow of The Royal Society.

Flavell's additional career honors include: William B. Coley Award for Distinguished Research in Basic and Tumor Immunology, Cancer Research Institute; Gold Medal and Certificate of Honor, Cell Signaling Networks 2011; Honorary Professor, Division of Infection and Immunity, University College London; Andrew Lazarovitz Award, Canadian Society of Transplantation; founding member, European Academy for Tumor Immunology; Honorary Professor, Suzhou University, China; member, European Research Institute for Integrated Cellular Pathology; Rabbi Shai Shacknai Memorial Prize and Lectureship in Immunology and Cancer Research; J.S. and H.R. Blumenthal Lectureship; elected fellow, American Association for the Advancement of Science; Darwin Trust Prize and Visiting Professor, University of Edinburgh; and Colworth Medal.

Past and present journal editorial appointments held by Flavell include those with *Immunity*, *Genes to Cells*, *Journal of Experimental Medicine*, *Epigenetics and Chromatin*, *Journal of Clinical Investigation*, *Biochimica et Biophysica Acta*, *EMBO Journal*, *International Immunology*, *Journal of Autoimmunity*, and *Proceedings of the National Academy of Sciences (PNAS)*. His review panel appointments include service for the International Union of Biochemistry and Molecular Biology; Imperial Cancer Research Fund; Medical Research Council-National Institute for Medical Research (NIMR), London; Wellcome Trust; Netherlands Cancer Institute/Antoni van Leeuwenhoek Hospital; Gwen Knapp Center for Lupus and Immunology Research; Jane Coffin Childs Memorial Fund; NIH Reviewers Reserve; NIH study section (AIDS and Related Research Review Group, NIAID); Zentrum für Molekulare Biologie der Universität, Heidelberg; Harold C. Simmons Arthritis Research Center; and European Molecular Biology Organization.

Flavell received his Ph.D. in biochemistry from University of Hull, Great Britain, and completed postdoctoral fellowships in molecular biology at the University of Amsterdam and University of Zurich. After serving as an assistant professor at the University of Amsterdam and later as a lab head at the NIMR in London, Flavell was appointed president, chief scientific officer, and molecular biology director at Biogen. In 1988, he was named to his current appointments as an HHMI investigator and Department of Immunobiology chair and professor at Yale School of Medicine.

Ruslan M. Medzhitov, Ph.D., AAI '00
David W. Wallace Professor of Immunobiology,
Department of Immunobiology, and Howard Hughes Medical
Institute Investigator, Yale School of Medicine

Ruslan Medzhitov is known for his pioneering research in innate immunity, including an early pivotal role in establishing the field of Toll-like receptors (TLRs). This early involvement has developed into a broad research program investigating the roles of TLRs and the innate immune system in myriad physiological processes. Medzhitov's lab studies interactions between the host and both pathogenic and commensal organisms and how these interactions are modulated to ensure optimal protection from infection while minimizing inflammatory pathology and, additionally, controlling intestinal epithelial homeostasis. His group also explores the regulation of inflammatory responses and the effects of chronic inflammation on processes including tumor growth, aging, and metabolic homeostasis. Addressing how the innate and adaptive immune systems interact, Medzhitov investigates mechanisms of peripheral tolerance and allergen-induced immune responses. Finally, his lab works to better understand macrophage biology, particularly the mechanisms of inducible gene expression in these cells.



Ruslan Medzhitov

Medzhitov was the 2006 recipient of the AAI-BD Biosciences Investigator Award and has been a major symposium speaker on multiple occasions at the AAI annual meeting. He is a past member of the AAI Program Committee and has served as an instructor at the AAI Advanced Course in Immunology.

Medzhitov's additional professional honors and appointments include: member, National Academy of Sciences; member, Yale Cancer Center; co-recipient of the Shaw Prize in Life Science and Medicine; Lewis S. Rosenstiel Award for Distinguished Work in Basic Medical Science; Emil von Behring Prize, Philipps University, Marburg; Honorary doctoral degree, University of Munich; William B. Coley Award for Distinguished Research in Basic and Tumor Immunology, Cancer Research Institute; Ellison Medical Foundation Senior Scholar Award in Global Infectious Disease; Searle Scholar Award; Blavatnik Award for Young Scientists, New York Academy of Sciences; Howard Taylor Ricketts Award, University of Chicago; and UNESCO/TWAS (the academy of sciences for the developing world) Fellowship.

Medzhitov has held editorial board appointments for *Cell*, *Current Opinion in Immunology*, *Cell Host and Microbe*, *International Immunology*, and *Journal of Experimental Medicine (JEM)* and served as a manuscript reviewer for *Cell*, *Nature*, *Science*, *Nature Medicine*,

Nature Immunology, *Immunity*, *Molecular Cell*, *Cell Metabolism*, *Cancer Cell*, *PNAS*, *Genes and Development*, *Current Biology*, *PLOS Biology*, *JEM*, and *Journal of Clinical Investigation*. He has served as an advisory panel appointee or reviewer for organizations including RIKEN Research Center for Allergy and Immunology, Cancer Research UK, LRI, Cleveland Clinic Foundation, VaxInnate Corporation, Lycera Corporation, Catabasis Pharmaceuticals, NIH, Wellcome Trust, and other European funding agencies.

A native of Tashkent, Uzbekistan, and a biology graduate of Tashkent State University, Medzhitov received his Ph.D. in biochemistry from Moscow State University. Medzhitov emigrated from Russia in 1993 to train as a UNESCO fellow in the Russell Doolittle lab at the University of California, San Diego. The following year, he joined the Charles Janeway lab at Yale as a postdoctoral fellow. In 1999, he was appointed to the Yale School of Medicine faculty as an assistant professor and has been a full professor since 2003. He has been an HHMI investigator since 2000.

Leroy Hood, Jan Vilcek Are National Medal Recipients

Leroy E. Hood, M.D., Ph.D., AAI '69, and **Jan T. Vilcek, M.D., AAI '78**, were recently honored as recipients of the National Medal of Science and National Medal of Technology and Innovation, respectively, for 2011. The awards, conferred by President Obama at a White House ceremony on February 1, represent the highest honors bestowed upon scientists, engineers, and inventors by the United States government.

Leroy E. Hood, M.D., Ph.D. **President, Institute for System Biology, Seattle**

Lee Hood works to integrate biology, technology, and computation to create an approach to medicine designated "P4" for predictive, personalized, preventive, and participatory. The goal of the P4 approach is to treat and prevent disease by identifying and therapeutically addressing disease-related perturbations in biological networks. Early in his career, Hood and his colleagues developed the DNA gene sequencer and synthesizer and the protein synthesizer and sequencer: four instruments that paved the way for the successful mapping of the human genome. The Hood laboratory is now working to develop computational tools to allow large-scale comparative analyses of human genomes, along with multiple other high-throughput technologies aimed at effective P4 medicine. Application of their systems approach to analysis of prion disease in mice identified biological networks whose dynamics explained the cellular pathology of the disease. This approach is now being applied to the study of several other neurodegenerative diseases, and the lab has begun the application of this technology to the clinic by analyzing whole genome sequences from families with genetic diseases to identify the genetic elements involved in disease development and progression.

Members in the News *(continued)*



Lee Hood with President Obama after receiving the National Medal of Science on February 1, 2013, at the White House.

Photo by Ryan K Morris/National Science & Technology Medals Foundation

Hood is a past AAI Distinguished Lecturer and served on the AAI Awards Committee. A member of the National Academy of Sciences, the National Academy of Engineering (NAE), and the Institute of Medicine, Hood is among the 15 people accepted to all three. He is also a member of the American Philosophical Society and a fellow of the American Academy of Arts and Sciences. He has published more than 700 peer reviewed articles, numerous textbooks and textbook chapters, and a popular book on the human genome project, *The Code of Codes*.

Among his more than 140 career awards and honors, he is the recipient of the Lasker Award for studies of immune diversity; Kyoto Prize (in advanced technology); Heinz Award, for pioneering work in systems biology; and NAE Fritz J. and Delores H. Russ Prize, for automating DNA sequencing that revolutionized biomedicine and forensic science. Hood is the recipient of 17 honorary degrees, 185 invited lectureships, and 30 journal editorial board appointments (13 ongoing). The holder of 36 patents, Hood has played a role in founding more than a dozen biotechnology companies, including Amgen, Applied Biosystems, Darwin, The Accelerator, and Integrated Diagnostics, and he currently serves on 29 scientific and corporate advisory panels.

A biology graduate of the California Institute of Technology (Caltech), Hood received his M.D. from the Johns Hopkins School of Medicine and Ph.D. in biochemistry from Caltech, where he held NIH pre- and postdoctoral fellowships. Hood served as a senior investigator in the Immunology Branch at the National Cancer Institute, NIH before joining the Caltech faculty as an assistant professor of biology in 1970. He was appointed a full professor in 1975 and held additional Caltech appointments as chair of the university's Division of Biology, director of its Cancer Center, and head of its NSF Science and Technology Center for Molecular Biotechnology.

In 1992, Hood joined the University of Washington (UW) as chair and founder of its Department of Molecular Biotechnology and director of its NSF Science and Technology Center for Molecular Biotechnology. In 1999, Hood founded the Institute for Systems Biology and has served as its president since. He holds multiple appointments within various UW departments, as well as with the University of British Columbia and Keck Graduate Institute of Applied Life Sciences.

The National Medal of Science was created by statute in 1959 and is administered for the White House by the National Science Foundation. Awarded annually, the Medal recognizes individuals who have demonstrated extraordinary knowledge in and made outstanding contributions to fields including chemistry, engineering, computing, mathematics, or the biological, behavioral/social, and physical sciences.

Jan Vilcek **Professor of Microbiology, New York University (NYU)** **School of Medicine**

Jan Vilcek is recognized as a leader in the area of cytokine research. Early in his career, he was among the first to study interferons, and his findings contributed to the development of their clinical applications. He and his colleagues showed that human alpha and beta interferon are distinct, and they developed methods for the production of human interferon- β in cell culture, allowing for production for clinical trials. Interferon- α and interferon- β are now used to treat hepatitis and multiple sclerosis, respectively. Vilcek and his colleagues also contributed to the characterization of IFN- γ .

In the 1980s, Vilcek and his colleagues focused on tumor necrosis factor (TNF), the function of which was still poorly understood. Recognizing its role in disease, Vilcek and his colleague,



Jan Vilcek with President Obama after receiving the National Medal of Science on February 1, 2013, at the White House.

Photo by Ryan K Morris/National Science & Technology Medals Foundation

Junming Le, generated an artificial antibody to TNF that, in collaboration with Centocor (now Janssen Biotech), they then developed into the anti-inflammatory drug infliximab or Remicade®. Remicade® has since been approved for the treatment of Crohn's disease, rheumatoid arthritis, ankylosing spondylitis, ulcerative colitis, psoriasis, and psoriatic arthritis, and it is estimated that over 1 million patients to date have been treated with the drug. The success of Remicade® spurred the development of a new class of TNF blockers used to treat a variety of inflammatory diseases.

Vilcek was a 2011 AAI President's Symposium speaker and is a past associate editor for *The Journal of Immunology*. He has served as president of the International Cytokine Society and is a fellow of the American Association for the Advancement of Science. His other career honors include awards from the U.S. Citizenship and Immigration Services; Biotechnology Hall of Fame; Slovak Republic (Ministry of Foreign Affairs); Czech Immunology Society; Czech Academy of Sciences; Michigan State Medical Society; NYU School of Medicine (multiple); Crohn's and Colitis Foundation of America; International Society for Interferon and Cytokine Research; International Cytokine Society; Comenius University, Bratislava; Israel Cancer Research Fund; National Cancer Institute (NCI); and Japanese Inflammation Society.

Vilcek holds editorial board appointments with five journals and has held past such appointments with over 20 others, including as editor-in-chief of *Cytokine and Growth Factor Reviews* and *Archives of Virology*. His past and continuing scientific and award review panel appointments include service with the Marine Biological Laboratory (Woods Hole, MA); Paul and Daisy Soros Fellowships for New Americans; Prix Galien USA; NCI (multiple review committees); Morehouse School of Medicine/University of Alabama Cancer Center; Israel Cancer Research Fund; American Heart Association; Max-Planck-Institute for Biochemistry; World Health Organization (panels on biological standardization, interferon nomenclature); and American Cancer Society (multiple advisory committees, including as chair).

The holder of 45 patents, Vilcek founded The Vilcek Foundation in 2000 and has since served as its president. The foundation honors and supports foreign-born scientists and artists who have made outstanding contributions to society in the United States.

Vilcek received his M.D. from Comenius University Medical School, Bratislava, Czechoslovakia, and Ph.D. from the Institute of Virology, Czechoslovak Academy of Sciences, Bratislava. During his Ph.D. training, he served as a fellow of the Czechoslovak Academy and as a research associate with its Institute of Virology; after earning his Ph.D., he served the institute as head of laboratory. In 1965, he was appointed an assistant professor of microbiology at NYU; he served as an associate professor and U.S. Public Health Service Career Development awardee from 1968–1973, and has been a full professor since 1973. He has held additional NYU appointments

as director of the microbiology graduate training program and co-director of the Cancer Center Core Clinical (Behavioral Research Methods—BRM) Laboratory.

Created by Congress in 1980 and administered for the White House by the U.S. Department of Commerce's Patent and Trademark Office, the National Medal of Technology and Innovation recognizes individuals who have made lasting contributions to America's competitiveness and quality of life and helped strengthen the nation's technological workforce.

Andrea Cooper Named First Francis Trudeau Chair

Andrea M. Cooper, Ph.D., AAI '96, has been named the inaugural Francis B. Trudeau Chair in Tuberculosis and Related Research at the Trudeau Institute. The chair was established in recognition of Frank Trudeau's four decades of dedicated service to the institute founded by his grandfather, E. L. Trudeau.



Andrea Cooper

Cooper joined the Trudeau Institute in 2002 and has been a full member since 2007. After beginning her career studying the host response to *Leishmania* parasites, Cooper turned her attention to the cellular immune response to the pulmonary pathogen *Mycobacterium tuberculosis* in mice. Having previously identified the essential role of the IFN- γ /IL-12 pathway in protection from mycobacterial disease, Cooper has continued to address the roles of cytokines, particularly IL-12, IL-17, IL-23, and IL-27, in the host response to this persistent, inflammatory pathogen. Her lab works to characterize the initiation of cellular immune responses to *M. tuberculosis* following infection or vaccination and the potential for lung-resident IL-17-producing memory cells to accelerate the development of the host response to infection. Cooper also studies the role of factors including IL-27 in the control of lung inflammatory responses to *M. tuberculosis*. To address the impaired vaccine efficacy and increased inflammation observed in elderly individuals, Cooper's lab also investigates how CD4+ T cell responses to chronic infection are influenced by age. The overarching goal of her research is a clearer understanding of tuberculosis pathogenesis that can be applied to the development of improved vaccines against this and other diseases of the lung.

Currently a member of the AAI Program Committee and an abstract programming chair for the AAI annual meeting, Cooper has been appointed a deputy editor for *The Journal of Immunology* (*The JI*) effective July 1. She is a past section editor for *The JI* and has served as a major symposium speaker at the AAI meeting and as a member of the faculty for the AAI Advanced Course in

Members in the News *(continued)*

Immunology. She is a member of the NIH grant review committee for AIDS and Opportunistic Infections; has served on the editorial board of *Infection and Immunity* and as an executive editor for the *European Journal of Immunology*; and is a past adjunct associate professor at the University of Vermont College of Medicine. She received the DeSouza Research Award from the American Lung Association of the Southwest in 2008.

A zoology graduate of University College London, Cooper received her Ph.D. in immunoparasitology from the London School of Hygiene and Tropical Medicine, where she helped describe the interaction between macrophages and protozoan parasites of the genus *Leishmania*. She undertook postdoctoral training in the Laboratory of Parasitic Disease at NIAID, NIH, where she expanded her investigation of leishmaniasis and leishmanial antigens to include the T cell-mediated response of patients suffering from

cutaneous, mucocutaneous, and visceral forms of this disease. Her postdoctoral training continued in the Department of Microbiology and Mycobacterial Research Labs at Colorado State University (CSU), where she studied the protective immune response to *M. tuberculosis*, a pathogen with a similar lifestyle to *Leishmania* but with a much greater impact on world health. She subsequently held successive CSU appointments as senior research scientist, assistant professor, and associate professor before joining the Trudeau Institute as an associate member in 2002.

The Trudeau Institute is a nonprofit biomedical research center founded in 1884 by E. L. Trudeau. The institute's fundamental research on immunity fosters the development of vaccines, treatments, and cures for many life-threatening diseases, including cancer, tuberculosis, and influenza. For details, visit www.trudeauinstitute.org.



FASEB

Federation of American Societies
for Experimental Biology

On the Occasion of the 100th Anniversary OF The American Association of Immunologists

The Federation of American Societies for Experimental Biology extends to The American Association of Immunologists its most sincere congratulations and appreciation for a century of outstanding service to science.

Your association's preeminence in the field of immunology, and its dedication to fostering the interchange of ideas and information among scientists, has pushed forward the boundaries of knowledge in the field and contributed immeasurably to advancements in clinical medicine.

We salute your dedication to promoting better public understanding of immunology as a field and its importance to human health worldwide.

We consider it a privilege to work with you toward our common goal of advancing the quality of life through the support of biomedical research, and we are confident your illustrious record will garner many more commendations in the years to come.

Shyr-Te Ju, Ph.D., AAI '81 (1947–2012)

The following tribute was authored by David H. Sherr, Man-Sun Sy, Shu Man Fu (AAI '75), and Ann Marshak-Rothstein (AAI '85), friends and colleagues of Shyr-Te Ju. AAI gratefully acknowledges the submission.

Shyr-Te Ju, a member of AAI since 1981, passed away on September 24, 2012, at the age of 65 after a valiant 7-year battle with lung cancer. Over a scientific career spanning 42 years, Ju published 140 manuscripts, trained many young investigators, and continually led the field in critical areas of investigation.

Ju was born in Beijing, China, in 1947. When he was 2 years old, his family moved to Taiwan, where his father was a member of the Taiwanese Air Force. Ju went on to earn degrees from the National Taiwan University, including his master's degree under the tutelage of Jung-Yaw Lin. He then undertook his doctoral research with Alfred Nisonoff (AAI '60) at the University of Illinois, from which he received his Ph.D. in immunology in 1977.

Ju undertook his postdoctoral training at Harvard Medical School, with Martin Dorf (AAI '74) and Baruj Benacerraf (AAI '57). After only two years as a postdoctoral fellow, Ju became an instructor of pathology at Harvard and was promoted to assistant professor in 1980.

In 1986, Ju joined the Boston University (BU) School of Medicine as an associate professor in the Department of Medicine and a member of the BU Arthritis Center. He was promoted to full professor in 1997 before moving to the University of Virginia (UVA) in 2002 as a tenured professor in the Department of Internal Medicine, Division of Rheumatology, with a joint appointment in the Department of Microbiology.

At the time of his death, he was also a member of the University of Virginia Center for Immunity, Inflammation, and Regenerative Medicine and the Beirne B. Carter Center for Immunology Research.

Ju published his first paper in 1970 on the pharmacokinetics of ¹³¹I-labeled abrin; he spent the next few years evaluating the potential use of abrin and another plant toxin, ricin, as cancer therapeutics. Most of his colleagues became aware of Shyr-Te's work in immunology in the mid-1970s when he was working with Nisonoff on antibody responses to synthetic haptens, particularly with regard to cross-reactive antibody idiotypes. These were among the first studies of his generation to investigate how immune tolerance is established and how lymphocyte subsets regulate one another. These studies led to the publication of 39 manuscripts in top-tiered journals, including *The Journal of Immunology* (14 publications), *Journal of Experimental Medicine* (8 publications), and *PNAS* (6 publications), in the eight-year period between 1977 and 1985.



Shyr-Te Ju

Throughout the remainder of the 1980s, Ju worked with many immunology luminaries on immune tolerance and development of T cell subsets. He exploited B and T cell hybridoma technology to study the production of what was then a new class of leukocyte-derived regulatory proteins, i.e., cytokines, and to define signaling requirements for T cell activation. These studies evolved into the area for which Ju was best known, cytotoxic T cell effector function.

In landmark papers published throughout the 1990s, Ju, together with his close collaborator, Ann Marshak-Rothstein (AAI '85), demonstrated a critical role for Fas and Fas ligand in activation-induced cell death. Indeed, his manuscript published in *Nature* in 1995 on AICD (Ju et al., *Nature* 373: 444) established this apoptosis process as a critical mechanism limiting T cell responses, particularly autoimmune T cells. It was the sixth most cited manuscript in 1995-1996 and has been cited more than 1,200 times.

From 2005 to 2012, he turned his attention to the role of Treg cells in autoimmunity. During that seven-year period, while fighting cancer, he published 16 papers on the subject.

Shyr-Te will be remembered by his colleagues and friends (those being generally one and the same) for his scientific intensity, honesty, and good nature. There was no time in which he did not want to talk or do science. As a mentor, he was unfailingly loyal to his students and instilled in them a palpable enthusiasm for, and pure glee in, scientific discovery.

Colleague Ann Marshak-Rothstein remembers Shyr-Te's "...enthusiasm, rigorous analysis, and breadth of knowledge, which inspired all of us, faculty and students alike. I remember his patience, his kind spirit, and his determination to lead both his scientific and non-scientific life as fully as possible."

David Sherr, a colleague of Ju's at both Harvard and Boston University, remembers Shyr-Te as "the most productive scientist, dollar for dollar, that I've ever known" and as "the best scientific partner one could ever hope for."

Man-Sun Sy, a Ju colleague for over 30 years, said "Losing Shyr-Te was like losing my own brother."

Shu Man Fu, who recruited Shyr-Te to Virginia, remembered him "...as a generous collaborator with tireless enthusiasm for science and a devotion to immunology. He was a loyal friend with impeccable integrity."

Beyond his stature as a scientist, Ju was deeply appreciated by close friends and lab mates for his wonderful, light-hearted

dimension. He was a basketball fanatic and ready political commentator who made his opinions known. He was a lover of 1970s hit singles—and unabashed in his penchant for singing out a tune while working in the culture hood.

Ju is survived by his constant companion, partner, and wife of 40 years, Chiao-Ying Angela Ju, with whom he worked side-by-side in the laboratory for many years; his son Peter and Peter's wife Miki; his daughter Mindy Ju, M.D., and her husband Andrew Whitehead; and by his first grandchild, Jack. Additional survivors include Ju's brother, Semmy Ju of New Orleans, and two sisters, Ching-cko

Chen and Jean Ju, both of Taipei, Taiwan; many sisters- and brothers-in-law; and numerous, beloved nieces and nephews.

The Shyr-Te Ju Research Award for Excellence in Immunological Research has been established at the University of Virginia, to be awarded to the best immunology abstract in the Department of Medicine's Annual Research Day.

Memorial contributions may be made to the Shyr-Te Ju Immunology Research Award Fund, Department of Medicine, care of UVA Nephrology/CIIR, P.O. Box 800133, Charlottesville, VA 22908-0133.

Brigitte A. Askonas, Ph.D., D.Sc., AAI (Hon.) '77 (1923–2013)

Brigitte Askonas, an AAI honorary member since 1977 and longtime head of the Division of Immunology at the UK's National Institute of Medical Research (NIMR), died on January 9. The following tribute, published on the NIMR website, is reprinted here with the kind permission of that institution.

Brigitte Askonas died on 9 January 2013, aged 89. She was a member of staff at NIMR from 1952 and was Head of the Division of Immunology from 1976 until her retirement in 1988.

Brigitte Askonas, widely known as Ita, made seminal contributions to our understanding of the molecular basis of lymphocyte responses to proteins, and especially to infectious agents. One of the foremost British immunologists, Ita was elected to become a Fellow of the Royal Society in 1973, and was Vice President from 1989-1990. In 2007, she was elected as a foreign associate of the National Academy of Sciences of the USA. Ita had a profound and sustained influence in the field of immunology and in the development and advancement of internationally acclaimed investigators.

Ita was born in Vienna to Czech parents in 1923. Her family left Austria in 1938 and settled in Canada in 1940. Educated at McGill University in Montreal, she moved to the United Kingdom in the late 1940s to do a PhD in biochemistry at the University of Cambridge. In 1952 she obtained a position in the Biochemistry Division at NIMR, to study how milk proteins are made.

In the mid-1950s, Ita started studying antibody synthesis and secretion, showing that after immunization, antibody secreting cells were



"Ita was passionate about introducing young scientists to immunology and worked hard to support students from many countries, especially in the developing world. Many of the PhD students and postdocs she trained are now eminent scientists. She also trained many physicians in experimental immunology. She continued to actively advise scientists at all levels taking a great interest in young researchers, giving them advice on experimental and career approaches. Her lifelong deep interest in scientific questions and the future of immunology research in the UK inspired us all."

—Anne O'Garra, Head of NIMR's
Division of Immunoregulation

not only present in lymphoid tissue, but also in bone marrow and lung. In 1957 John Humphrey set up the first Immunology Division at NIMR, and invited Ita to be one of the founding members. In 1960 she was given a permanent staff position, in recognition of her "distinguished reputation in this country and abroad for her research in protein synthesis and particularly on antibody formation."

After studying the assembly and secretion of antibodies—also known as immunoglobulins—Ita Askonas focused on the behaviour of B cells, the cells that produce antibodies. In particular, she looked at which antibodies were produced after different antigens were administered to animals.

Her work in the 1970s on the role of T lymphocytes in infection, especially infections with the influenza and respiratory syncytial viruses, is seen as her major contribution. Her work paved the way to understanding viral antigen presentation to T cells. In 1976 she became the head of the Division of Immunology at NIMR, a post she held until she retired in 1988.

Source:

NIMR—www.nimr.mrc.ac.uk/news/brigitte-askonas-1923-2013. Copyright image courtesy of National Institute for Medical Research, London

See also:

Nature tribute, authored by Anne O'Garra: www.nature.com/nature/journal/v494/n7435/full/494037a.html

The Guardian obituary, authored by Bridget Ogilvie: www.guardian.co.uk/science/2013/jan/10/brigitte-askonas-obituary

PI in the Scotland Yard of Streptococcal Mysteries

Rebecca Lancefield, Ph.D. (AAI 1933, President 1961–62)

Among early members of the American Association of Immunologists (AAI), few left a more enduring legacy than that of Rebecca Craighill Lancefield. A world-renowned authority on streptococcal bacteria, Lancefield developed the classification system of streptococcus bearing her name and still in use today. Her identification of streptococcal types proved essential to revealing the complexities of the immune response to the bacteria and elucidating streptococci as the primary infectious agent for many diseases—understandings that enabled improved methods for identifying and controlling streptococcal infections. Recognized broadly for her outstanding scientific achievements, Lancefield, in 1961, was elected by her peers to serve as president of AAI, becoming the first woman elected to this office.

Lancefield's distinguished career path was all the more remarkable for having been an indirect one. A number of changes in her life could have diverted her progress, but, at each juncture, she turned perceived interruptions into opportunities.

Early education

Rebecca Craighill was born in Fort Wadsworth, Staten Island, New York, on January 5, 1895, one of six daughters of Colonel William Craighill, U.S. Army Corps of Engineers. A West Point graduate, William married the sister of one of his classmates, Mary Byram Craighill. Mary, an early proponent of female education, encouraged her daughters to devote themselves to their schooling—and with good results.¹ In addition to Rebecca's successful research career, one of Rebecca's sisters became an accomplished physician.



Rebecca Craighill, ca. 1914

Image courtesy of Rockefeller Archive Center

In the fall of 1912, Rebecca entered Wellesley College with the intention of studying French and English literature. She soon became fascinated by her roommate's freshman zoology course, however, and changed her major to zoology. She attacked the subject zealously, taking as many additional courses in biology, including bacteriology, and chemistry as she could while meeting the requirements for graduation.²



Rebecca C. Lancefield, AAI president 1961–62, ca. 1961

Image courtesy of the Center for Biological Sciences Archives, UMBC

By the time of her college graduation in 1916, her father had died, and the family was in financial straits. To help support her mother and younger sisters, she spent her first year out of college teaching mathematics and basic science at a girls' boarding school in Burlington, Vermont. Even as she sent money home, Rebecca managed to put aside a bit toward tuition for further studies.³

Continued next page



Wellesley College, c. 1908—It was here that Lancefield found her passion for science.

Library of Congress, Prints & Photographs Division, Detroit Publishing Company Collection

¹ Judith N. Schwartz, "Mrs. L.," *Research Profiles*, Rockefeller University, Summer 1990, <http://hdl.handle.net/10209/347>.

² Elizabeth M. O'Hern, "Rebecca Craighill Lancefield, Pioneer Microbiologist," *ASM News* 41, no. 12 (1975): 805.

³ *Ibid.*



Oswald Avery, ca. 1929

Image courtesy of the Center for Biological Sciences Archives, UMBC



Alphonse R. Dochez, ca. 1931

Image courtesy of the Center for Biological Sciences Archives, UMBC

In the fall of 1917, she was able to combine her meager savings with a scholarship from the Daughters of Cincinnati for daughters of Army and Navy officers. The scholarship was to help her attend Teachers College, Columbia University, preparing for the conventional occupation of the time for educated, unmarried women. The scholarship, however, did not specify that Rebecca must take her classes at Teachers College, only that she should matriculate there, and so, she took the liberty of enrolling in courses in the Department of Bacteriology at Columbia's College of Physicians and Surgeons (P&S).⁴

Although she was entering the field obliquely, she was beginning her graduate studies in a rarified environment. At the P&S, she entered the department of prominent immunologist and bacteriologist Hans Zinsser (AAI '17, president 1919–20), although, at the time of her arrival, he was stationed in France as part of the U.S. Army Medical Corps. Aware that students in Zinsser's lab were expected "to spend all of their waking hours in class or in the

⁴ Maclyn McCarty, "Rebecca Craighill Lancefield, 1895–1981," *Biographical Memoirs* (Washington, DC: National Academy of Sciences, 1987), 227–28.

⁵ O'Hern, "Rebecca Craighill Lancefield, Pioneer Microbiologist," 806.

⁶ Merrill W. Chase, "Rebecca C. Lancefield: Luncheon 3/6/75," American Association of Immunologists Records, Box 8, Folder 43, University of Maryland, Baltimore County.

⁷ A. R. Dochez and O. T. Avery, "Soluble Substance of Pneumococcus Origin in the Blood and Urine During Lobar Pneumonia," *Proceedings of The Society for Experimental Biology and Medicine* 14 (1917): 126–27; "The Elaboration of Specific Soluble Substance by Pneumococcus During Growth," *Journal of Experimental Medicine* 26, no. 3 (1917): 477–93; "The Elaboration of Specific Soluble Substance by Pneumococcus During Growth," *Transactions of the Association of American Physicians* 32 (1917): 281–98.

⁸ Chase, "Rebecca C. Lancefield."

⁹ It is unclear where Wollstein went to carry out her research in the summer of 1918. As an authority on Pfeiffer's bacillus (now known as *Haemophilus influenzae*), she was involved in research and clinical projects throughout the 1918 influenza pandemic. Until 1933, Pfeiffer's bacillus was considered the causative agent of the 1918 influenza pandemic. See John M. Barry, *The Great Influenza: The Epic Story of the Deadliest Plague in History* (New York: Penguin, 2005), 411–12.

¹⁰ Chase, "Rebecca C. Lancefield."

laboratory,"⁵ Rebecca spent much time in the laboratory at Presbyterian Hospital, typing strains of pneumococci from patients. In addition to her classes, she was encouraged to attend other lectures by distinguished New York scientists. Rebecca was particularly impressed by a lecture given by Oswald Avery (AAI '20, president 1929–30) on the lag phase of pneumococcal cultures.⁶ Upon reading Avery's 1917 articles on the specific soluble substance of pneumococcus,⁷ she decided to look for an analogue in staphylococcus. She now had the topic for her thesis, which she succeeded in completing that same year.⁸

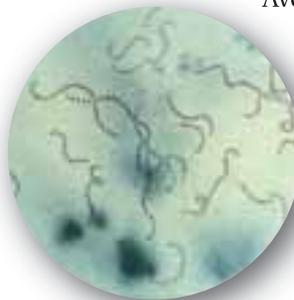
In the spring of 1918, she graduated from Columbia with an M.A., married Donald Lancefield, a zoology graduate student in the laboratory of eminent geneticist Thomas Hunt Morgan at Columbia, and applied for a position at the Rockefeller Institute for Medical Research (RIMR). With her degree in hand, she interviewed with the director, Simon Flexner (AAI '20), who hired her as a technician for Martha Wollstein (AAI '18), who had previously worked closely with Flexner on early experimental polio research and Pfeiffer's bacillus. But Wollstein soon left RIMR to carry out research on the influenza pandemic,⁹ and Flexner suggested that Alphonse R. Dochez (AAI '20, president 1931–32) may have use for Lancefield in his ongoing research under a U.S. Army grant to study streptococcal infections at military bases. She interviewed with Dochez and with Avery, a collaborator on the project, and was quickly taken on as their laboratory technician.¹⁰

Oswald Avery and the techniques of classification

Lancefield's arrival at RIMR in the summer of 1918 occurred just as two transformative events began to change the direction of research for many scientists, including Avery and Dochez. The United States had begun sending troops to the European front for the First World War, and the 1918 influenza pandemic was sweeping the nation. The previous winter, Avery and Dochez had been asked by U.S. Surgeon General William C. Gorgas to put their studies of pneumococcus on hold to consult on a serious outbreak of measles and streptococcal infections at military camps in Texas. It was this shift in focus for

Avery and Dochez that led Lancefield to the study of streptococcus, the organism that would command her attention throughout her career.

Avery and Dochez collected samples of streptococci from the camps in Texas for further study in their New York laboratory. At that time, streptococci had not been classified and were widely



Streptococcus

Image courtesy of the Centers for Disease Control and Prevention

believed to be the causative agent of secondary infections, such as pneumonia, puerperal fever, rheumatic fever, and wound infections, which typically followed measles and influenza. Avery and Dochez had been enlisted precisely because of their success in classifying four types of pneumococci,¹¹ as well as for their clinical understanding of the disease. The researchers sought to determine whether streptococci, like pneumococci and some other bacteria, were comprised of only one or several distinct types.

Shortly before Lancefield joined their laboratory, Dochez and Avery described their frustration with typing their samples from Texas at an early June 1918 Rockefeller conference on hemolytic streptococci. They indicated that they still did not know whether they were dealing with distinct strains, citing problems with both agglutination and mouse protection. Dochez explained to those in attendance that, “[u]p to now... we have been unable to obtain immune serum which affords any considerable degree of protection for white mice against experimental infection. We are still working along this line and it is possible that the proper combination of immune serum and test animal may be obtained.”¹²

Lancefield assisted Avery and Dochez in the laboratory with their typing problem. Within one year, the lab had classified 70 percent of the 125 samples they had collected in Texas into four distinct serological types of streptococcus. Lancefield’s role in this process was, no doubt, significant. Avery and Dochez cited her as a co-author in the resulting article, “Studies on the Biology of Streptococcus: I. Antigenic Relationships Between Strains of *Streptococcus hemolyticus*.”¹³



Rebecca and Donald Lancefield, c. 1928

Image courtesy of Rockefeller Archive Center

A slight diversion

Shortly after their results were published, funding for the Army-supported streptococcal project ceased with the war’s end, and Dochez and Avery gladly returned to their pneumococcal research. Dochez accepted a position at Johns Hopkins University, and Lancefield, no longer funded at RIMR, accompanied her husband and the Columbia zoology group to their annual summer trip to the Marine Biological Laboratory at Woods Hole, Massachusetts.¹⁴ While there, Lancefield met Morgan and was hired to work as a technician in his lab at Columbia University.¹⁵ She worked there for two years on a *Drosophila* genetics study under Charles W. Metz. Taking advantage of the access her employment at Columbia provided her, she took Morgan’s genetic course as well as the pioneering cytology course taught by notable cell biologist Edmund B. Wilson.¹⁶

When, in 1921, her husband, Donald, was offered the opportunity to teach zoology at the University of Oregon, both Lancefields made the move. For Donald, it was a homecoming to a state that his mother had entered aboard a covered wagon at the age of ten. Rebecca was also able to secure an appointment teaching bacteriology. The homecoming was short-lived, though, for, at the end of the school year, Donald accepted an offer to join Morgan’s Department of Zoology at Columbia University. The Lancefields returned to New York where Rebecca seized the opportunity to begin her doctoral training in bacteriology under Zinsser at Columbia.¹⁷

Return to streptococcus

Lancefield returned to working on streptococcus, not only at Columbia but also at RIMR. Zinsser was not fond of women in the laboratory and was quick to recommend that Rebecca find laboratory space at RIMR with Homer Swift (AAI ’20), who was beginning a new study of rheumatic fever.¹⁸ Lancefield obtained a position under Swift, an arrangement that she later recalled required her to



Hans Zinsser, ca. 1919

Image courtesy of the Center for Biological Sciences Archives, UMBC

¹¹ Dochez established a biological classification of pneumococci into specific types in 1913, and, as part of an ongoing study of the immunological classification of pneumococci, he worked with Avery through 1917 in identifying the four distinct types by identifying the specific soluble substance that confers type specificity upon the pneumococci.

¹² McCarty, “Rebecca Craighill Lancefield,” 229.

¹³ A. R. Dochez, O. T. Avery, and R. C. Lancefield, “Studies on the Biology of Streptococcus: I. Antigenic Relationships Between Strains of *Streptococcus hemolyticus*,” *Journal of Experimental Medicine* 30, no. 3 (1919): 179–213; McCarty, “Rebecca Craighill Lancefield,” 228–30.

¹⁴ O’Hern, “Rebecca Craighill Lancefield, Pioneer Microbiologist,” 806.

¹⁵ Chase, “Rebecca C. Lancefield.”

¹⁶ Chase, “Rebecca C. Lancefield”; O’Hern, “Rebecca Craighill Lancefield, Pioneer Microbiologist,” 806.

¹⁷ O’Hern, “Rebecca Craighill Lancefield, Pioneer Microbiologist,” 806.

¹⁸ Ibid.

Continued next page

carry “my racks of test tubes back and forth between the two labs” during these years.¹⁹

At the time, the causative agent of rheumatic fever was unknown, and Swift and Lancefield’s first study attempted to isolate the “specific soluble substance”—polysaccharides, such as those being identified on pneumococcus, or other antigens—species specific for streptococci.²⁰ When this study proved inconclusive, Swift next suspected that the α -hemolytic class of streptococcus (also called “green” or viridans streptococci) was the causative agent.²¹ Lancefield’s doctoral research consisted of testing this hypothesis. After two years of painstaking laboratory work, she had proved conclusively that the α -hemolytic streptococci were not responsible for rheumatic fever, and she had earned her Ph.D.²²

After completing her doctorate in bacteriology in 1925, Lancefield returned to her research on hemolytic streptococci at RIMR by returning to a more basic approach to understanding which classes of streptococci caused diseases in humans. Although Dochez, Avery, and she had identified four distinct serological types in 1919, there had been little research on understanding the determining chemical and biological properties of the antigens on the surface of the bacteria that were responsible for the virulence and pathogenesis of many of the now-known streptococcal infections, such as strep throat, scarlet fever, rheumatic fever, and mastitis.²³



Rockefeller Institute for Medical Research, c. 1925

Image courtesy of Rockefeller Archive Center



Pneumococcus

Image courtesy of the Centers for Disease Control and Prevention/Dr. M. S. Mitchell

Developing a classification system

Having been immersed in Avery’s methodology, Lancefield adopted many of the typing techniques she had used for typing pneumococci. She began her research by resurrecting the 125 dried streptococcal cultures collected by Dochez and Avery in Texas.²⁴ She soon began to make progress in classifying β -hemolytic streptococci through her laborious and detailed serological grouping and typing. But, the classification system that she was beginning to develop was not her ultimate objective. Instead, it was a means to her goal of identifying the antigens and determining their role in the pathogenic capability of the bacteria.²⁵

In a series of articles in 1923, Avery and Michael Heidelberger (AAI ’35, president 1946–47, 1948–49) demonstrated that type-specific antigens in pneumococcus were composed of polysaccharides. Their conclusions were verified

subsequently by other researchers, who also identified similar capsular polysaccharides on pathogenic bacteria determining type specificity. In the mid-1930s, Lancefield isolated two soluble surface antigens from streptococci. The first was type-specific for the various strains of the 1918 epidemic, and the second was species-specific, present in all of the strains taken from infected humans. Lancefield, working just down the hall from Avery, expected to find that the type-specific antigens of streptococci were also composed of complex carbohydrates.

In further experimentation, she was surprised to discover that the type-specific antigen was a protein. She identified the protein and later called it the M-protein, in reference to the growth of a matt colony when the bacteria sample is exposed to the antigen on an agar medium. She further concluded that this protein was responsible for the virulence factor of streptococci.

The species-specific antigen, however, was comprised of carbohydrates, which she called the C-carbohydrate.

¹⁹ Lawrence K. Altman, “Dr. R. C. Lancefield, Bacteriologist, Dies,” *New York Times*, 4 March 1981.

²⁰ Chase, “Rebecca C. Lancefield.”

²¹ Termed “green” because they cause oxidization of iron in hemoglobin molecules on blood agar plates.

²² Rebecca C. Lancefield, “The Immunological Relationships of *Streptococcus viridans* and Certain of Its Chemical Fractions: I. Serological Reactions Obtained with Antibacterial Sera,” *Journal of Experimental Medicine* 42, no. 3 (1925): 377–95; “The Immunological Relationships of *Streptococcus viridans* and Certain of Its Chemical Fractions: II. Serological Reactions Obtained with Antinucleoprotein Sera,” *Journal of Experimental Medicine* 42, no. 3 (1925): 397–412.

²³ McCarty, “Rebecca Craighill Lancefield,” 231.

²⁴ Chase, “Rebecca C. Lancefield.”

²⁵ McCarty, “Rebecca Craighill Lancefield,” 231–32.

After receiving and testing streptococcal strains from human and animal subjects across the country, she soon realized that the antigen she believed to be species-specific was actually group-specific. This differentiation in group provided the basis for her classification system and the study of streptococcal diseases. Lancefield did not publish her results as the M-protein and C-carbohydrate discoveries were made. She did, however, author a series of five articles in 1928 reporting these discoveries.²⁶

She soon began to differentiate and classify her samples, separating them into groups and specific serotypes within each group based on variations in the M-protein and C-carbohydrate. Initially, she designated group A for highly virulent streptococcal infections in humans and group B largely for bovine streptococcal infections.²⁷ By 1940, Lancefield and other researchers were refining the classification system to the extent that Lancefield had defined, or been consulted about, groups A through H and K (later dropped), L, and M.²⁸

Research after classification

Through her careful studies of group A streptococci, she classified over 50 types and revealed that the M-protein played a central role in streptococcal infections by inhibiting the phagocytosis of white blood cells. She also discovered that a single serotype could cause a variety of streptococcal diseases and that the M-protein varied across serotypes, a conclusion revealing that immunity from one type of streptococcal infection does not prevent infection by streptococcus of another serotype. This latter discovery explained why streptococcal infections, such



Streptococcus pneumoniae

Image courtesy of the Centers for Disease Control and Prevention/ Dr. Richard Facklam; Photo: Janice Haney Carr

as strep throat and rheumatic fever, are so often recurring. She also identified two new surface proteins on group A streptococci: T-antigen in 1940,²⁹ which she later determined, in 1957, meant that the new antigen did not contribute to virulence, and R-antigen.³⁰

Lancefield later turned her attention to group B streptococci—bacteria once thought to infect only bovine but soon discovered to be responsible for neonatal pneumonia and meningitis. Lancefield found that

streptococci of this group did not contain the M-protein; instead, she found that their virulence was determined by surface polysaccharides. Her research was an important first step in preventing the life-threatening diseases in newborns caused by group B streptococci.³¹

Career at Rockefeller

For nearly six decades, Mrs. L., as she became affectionately known to her colleagues, left her mark on RIMR and on immunology. During the Second World War, she served on the Commission on Streptococcal and Staphylococcal Diseases of the Armed Forces Epidemiological Board, and her willingness to answer queries and type streptococcal samples from around the country, and later from around the world, earned her laboratory at RIMR the nickname, “the Scotland Yard of streptococcal mysteries.”³² After the war, in 1946, she was promoted to an associate member at RIMR and became a full member and professor in 1958.

Lancefield’s years at Rockefeller not only allowed her to work under such early luminaries in the field as Avery, Dochez, and Swift, but they also afforded her the

Continued next page

²⁶ Rebecca Lancefield, “The Antigenic Complex of *Streptococcus haemolyticus*. I. Demonstration of a Type-Specific Substance in Extracts of *Streptococcus haemolyticus*,” *Journal of Experimental Medicine* 47 (1928): 91–103; “II. Chemical and Immunological Properties of the Protein Fractions,” 469–80; “III. Chemical and Immunological Properties of the Species-Specific Substance,” 481–91; “IV. Anaphylaxis with Two Non-Type-Specific Fractions,” 843–55; “V. Anaphylaxis with the Type-Specific Substance,” 857–75; Rebecca Lancefield and E. W. Todd, “Variants of Hemolytic Streptococci; Their Relation to Type-Specific Substance, Virulence, and Toxin,” *Journal of Experimental Medicine* 48, no. 6 (1928): 751–67; Rebecca Lancefield and E. W. Todd, “Antigenic Differences Between Matt Hemolytic Streptococci and Their Glossy Variants,” *Journal of Experimental Medicine* 48, no. 6 (1928): 769–90.

²⁷ Rebecca Lancefield, “A Serological Differentiation of Human and Other Groups of Hemolytic Streptococci,” *Journal of Experimental Medicine* 57, no. 4 (1933): 571–95; Rebecca Lancefield, “A Serological Differentiation of Specific Types of Bovine Hemolytic Streptococci,” *Journal of Experimental Medicine* 59, no. 4 (1934): 441–58; McCarty, “Rebecca Craighill Lancefield,” 233–34.

²⁸ O’Hern, “Rebecca Craighill Lancefield, Pioneer Microbiologist,” 809.

²⁹ Rebecca Lancefield, “Type-Specific Antigens, M and T, of Matt and Glossy Variants of Group A Hemolytic Streptococci,” *Journal of Experimental Medicine* 71, no. 4 (1940): 521–37.

³⁰ Rebecca Lancefield, “Differentiation of Group A Streptococci with a Common R Antigen into Three Serological Types, with Special Reference to the Bactericidal Test,” *Journal of Experimental Medicine* 106, no. 4 (1957): 525–44.

³¹ McCarty, “Rebecca Craighill Lancefield,” 233.

³² Schwartz, “Mrs. L.”

AAI LOOKS BACK

opportunity to collaborate with and influence subsequent generations of immunologists: she was a long-time colleague and collaborator of Maclyn McCarty (AAI '47), who replaced Swift upon his retirement, and she served as a mentor to Emil Gotschlich (AAI '69).³³ Both McCarty and Gotschlich were recipients of Lasker Awards.³⁴ In 1965, Lancefield became professor emeritus but continued to work in her old laboratory until she suffered a broken hip in a November 1980 fall. She died on March 3, 1981, at the age of 86.³⁵

Legacy

Toward the end of her career, Lancefield received numerous honors and awards thought by many to be long overdue.³⁶ She was elected to the National Academy of Sciences (1970), which, by that time, had elected only ten women, and was awarded the T. Duckett Jones Memorial Award of the Whitney Foundation (1960), the American Heart Association Achievement Award (1964), the New York Academy of Medicine Medal (1973), and a Doctor of Science (honoris causa; 1973), the highest recognition from Rockefeller.³⁷ Perhaps the most



Rebecca Lancefield accepting the T. Duckett Jones Memorial Award; Maclyn McCarty (right), Walter Bauer (left), c. 1960

Image courtesy of the Smithsonian Institution Archive



Rebecca Lancefield in her laboratory

Image courtesy of Rockefeller Archive Center

significant honor bestowed upon her was the decision of both the national and international organizations devoted to the study of streptococcus to adopt the name, "The Lancefield Society," in 1972 and 1977, respectively.³⁸

Lancefield was an internationally renowned research scientist, but she was also a devoted wife and mother. (She and Donald had one daughter, Jane.) Her success in balancing career and family was rare among female immunologists in the first half of the twentieth century, but she seems not to have wanted emphasis to fall on her role as a pioneering woman in science. According to a colleague, she did not relish "honors that recognized her as the 'first woman' to do this or that and preferred those that came without reference to her sex."³⁹

Far more satisfying for her, one imagines, would be Maclyn McCarty's tribute, crediting her as "the scientist most responsible for the well-organized state of our present knowledge of streptococci."⁴⁰

³³ "Emil C. Gotschlich," Faculty, Rockefeller University, <http://www.rockefeller.edu/research/faculty/labheads/EmilGotschlich>.

³⁴ Emil Gotschlich was awarded the 1978 Albert Lasker Clinical Medical Research Award, and Maclyn McCarty received the 1994 Albert Lasker Award for Special Achievement in Medical Science.

³⁵ McCarty, "Rebecca Craighill Lancefield," 233.

³⁶ *Ibid.*, 238.

³⁷ *Ibid.*; O'Hern, "Rebecca Craighill Lancefield, Pioneer Microbiologist," 810.

³⁸ Schwartz, "Mrs. L."

³⁹ McCarty, "Rebecca Craighill Lancefield," 240.

⁴⁰ Altman, "Dr. R. C. Lancefield, Bacteriologist, Dies." *New York Times*.

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AAI PRESIDENT'S PROGRAM

AAI President's Address

FRIDAY, MAY 3, 6:00 PM
KĀLAKAUA BALLROOM AB

Gail A. Bishop, University of Iowa; AAI President

The Many Faces of TRAF Molecules in Immune Regulation

Introduction: Jeffrey A. Frelinger, University of Arizona



AAI President's Symposium

SUNDAY, MAY 5, 3:15 PM
KĀLAKAUA BALLROOM AB

The TNF Receptor Superfamily in Immune Regulation and Disease

Chair: Gail A. Bishop, University of Iowa; AAI President

Speakers:



Michael Croft, La Jolla Institute for Allergy & Immunology
Immunoregulatory activity in the TNF family



Tania H. Watts, University of Toronto, *The TNFR family member GITR: striking a chord in anti-viral immunity*



Carl F. Ware, Sanford-Burnham Medical Research Institute
Bending LIGHT and cytokines



Linda C. Burkly, Biogen Idec
The TWEAK/Fn14 pathway: a story from bench to bedside

SPECIAL CENTENNIAL SYMPOSIUM

MONDAY, MAY 6, 4:15 PM-6:15 PM
KĀLAKAUA BALLROOM AB

A Legacy of Excellence

Chairs:

M. Michele Hogan, AAI Executive Director

Leo Lefrançois, University of Connecticut Health Center
AAI Program Committee Chair

Four leaders in the field offer perspectives on defining issues and developments in immunology research.

Speakers:



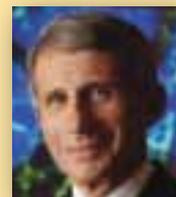
Philippa Marrack
HHMI, National Jewish Health, *The basics of immunology: where sb(c)ould we go next?*



David Baltimore
California Institute of Technology, *Viruses and immunity: the tension of desire*



Roger M. Perlmutter
Santa Barbara, CA
Building better medicines: immunology research and biopharmaceuticals



Anthony S. Fauci
NIAID, NIH, *Three decades of HIV/AIDS science and policy: a personal journey*



The TNF Receptor Superfamily in Immune Regulation and Disease



Gail A. Bishop
AAI President



Specific recognition of antigens is a pivotal component of immunity. It is, therefore, understandable that immunology researchers have placed much emphasis upon studies of lymphocyte antigen receptors. However, many other important families of receptors make critical contributions to immune cell functions, both alone and in cooperation with antigen receptors. My own longstanding interest in B cell-T cell interactions induced me several decades ago to begin to study the CD40 receptor, which, in turn, drew me into a fascination with the large and diverse family to which it belongs, the Tumor Necrosis Factor Receptor (TNFR) superfamily. Various members of this superfamily are expressed on all mammalian cells as well as those of a number of lower organisms, but their functions are especially important to the immune system.

The President's Symposium this year features immunologists who have made, and are continuing to make, important contributions to our understanding of how members of the TNFR superfamily regulate immune responses in normal immunity, pathologic responses in chronic inflammatory and autoimmune diseases, and malignancies. The findings of these scientists run the gamut from basic mechanistic investigations to their application to clinical problems.

Carl Ware is one of the pioneers in the study of members of the TNFR superfamily in immune function and has long served as a role model for me in his research. He has made a large number of important discoveries and is especially well-known for his work on understanding the mechanisms of function of lymphotoxin receptors and their Herpesvirus-encoded counterpart, HVEM. His studies have important implications for the understanding of not only normal immunity and formation of secondary lymphoid structures, but also autoimmune diseases and cancer.

The work of **Tania Watts** has been key in elucidating how TNFR superfamily members serve as co-regulators of the function of T cell antigen receptors. Her studies of 4-1BB and GITR in particular have made pivotal contributions to understanding the roles of these molecules in immune responses, with a recent focus on responses to infection.

Another key contributor to our understanding of how TNFR superfamily molecules regulate T cell functions is **Michael Croft**, who has provided important new insights into the functions of OX40, 4-1BB, and other receptors in regulating inflammatory reactions and immune responses to viruses.

Linda Burkly developed her distinguished career in the biotechnology industry, working on clinical translation of immune interventions involving various TNFR superfamily members. She has been a leader in the development of new therapies that target the TWEAK/Fn14 pathway in various chronic inflammatory conditions, successfully translating basic knowledge to clinical application.

Please plan to join me at the IMMUNOLOGY 2013™ President's Symposium to hear how understanding the roles of TNFR superfamily receptors enhances our knowledge of the mechanisms of immune responses and how this knowledge can be applied to clinical problems.

AAI DISTINGUISHED LECTURES



SATURDAY, MAY 4, 5:15 PM
KĀLAKAUA BALLROOM AB

Ruslan Medzhitov, HHMI
Yale School of Medicine

*Inflammation in health
and disease*



SUNDAY, MAY 5, 5:15 PM
KĀLAKAUA BALLROOM AB

Jenny P-Y. Ting, University of
North Carolina at Chapel Hill

*The broad impact of NLRs
on immunity and beyond*



MONDAY, MAY 6, 3:15 PM
KĀLAKAUA BALLROOM AB

Stephen M. Hedrick, University
of California, San Diego

*The unique habitat of human
beings and how this impacts
our understanding of persistent
infections, epidemics, and the
evolution of memory*

AAI Excellence in Mentoring Award Presentation

SATURDAY, MAY 4, 5:15 PM, KĀLAKAUA BALLROOM AB

Chair: **Gail A. Bishop**, University of Iowa; AAI President



Award Recipient:

Suzanne Ostrand-Rosenberg, Ph.D.,
University of Maryland, Baltimore County

Introduction: **Pratinia Sinha**, University
of Maryland, Baltimore County

The AAI Excellence in Mentoring Award recognizes exemplary career contributions to a future generation of scientists. The award will be presented prior to the start of Saturday's AAI Distinguished Lecture.

AAI Lifetime Achievement Award

SUNDAY, MAY 5, 3:15 PM, KĀLAKAUA BALLROOM AB

Chair: **Gail A. Bishop**, University of Iowa, AAI President



Award Recipient:

Katherine L. Knight, Ph.D., Loyola
University Chicago, Stritch School of
Medicine

Introduction: **Gail A. Bishop**, University of
Iowa; AAI President

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. The award will be presented prior to the start of the AAI President's Symposium.



On the occasion of the
100th Anniversary of The American Association of Immunologists

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extends its good wishes and most sincere congratulations.

Your Association has been at the forefront of the pursuit of scientific understanding and has rendered conspicuous service to the prevention, treatment, and cure of disease to improve human health worldwide. We salute you for your leadership in the cultivation of public understanding of the importance of biomedical research for the good of all mankind.

It is altogether fitting for the occasion of your Centennial to be marked by great fanfare and commendation.

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The American Association of Immunologists

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IMMUNOLOGY 2013™ Gala
AAI Centennial Celebration Luau
at the Hilton Hawaiian Village, Great Lawn

MONDAY, MAY 6 ■ 6:30 PM–9:00 PM

President's Service
Appreciation Reception

SUNDAY, MAY 5 ■ 7:00 PM–8:30 PM

By invitation only

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Celebrating
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The American Association of Immunologists

May 3–7, 2013 ■ Honolulu, Hawaii ■ Hawaii Convention Center

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Hawaii Convention Center Rooftop Garden • Friday, May 3, 2013 • 7:00pm–9:00pm

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SATURDAY, MAY 4, 8:00 AM - 11:30 AM

Major Symposium A: Tissue-Resident Lymphocytes*Generously sponsored by Kyowa Hakko Kirin California, Inc.*

KĀLAKAUA BALLROOM B

Chairs:

Francis R. Carbone, University of Melbourne
Wendy L. Havran, Scripps Research Institute

Speakers:

Francis R. Carbone, University of Melbourne
Tissue-resident memory T cell involvement in local immune protection

Wendy L. Havran, Scripps Research Institute
Crosstalk between epidermal-resident $\gamma\delta$ T cells and epithelial cells

Adrian C. Hayday, King's College London and London Research Institute of Cancer Research UK
Beneficial autoimmunity: the responses and regulation of intraepithelial T cells

Leo Lefrançois, University of Connecticut Health Center
Cooperation between TCR $\alpha\beta$ and TCR $\gamma\delta$ T cells provides protective intestinal immunity

David Masopust, University of Minnesota
Resident memory CD8 T cell function in mucosal tissues

Hilde Cheroutre, La Jolla Institute for Allergy & Immunology
CD4 CTL: a major new player in health and disease

Major Symposium B: Antigen Receptor Signaling: Triggering Eruptions on Quiescent Cell Surfaces

KĀLAKAUA BALLROOM A

Chairs:

Susan K. Pierce, NIAID, NIH
Arthur Weiss, HHMI, University of California, San Francisco

Speakers:

Susan K. Pierce, NIAID, NIH
The initiation of B cell receptor signaling

Facundo Batista, Cancer Research UK London Research Institute
Dynamic imaging of lymphocyte activation: from single molecule to living tissue

Louis M. Staudt, NCI, NIH
Pathological B cell receptor signaling in lymphoid malignancies

Arup K. Chakraborty, Massachusetts Institute of Technology
Early events in TCR signaling at the membrane

Takashi Saito, RIKEN Research Center for Allergy and Immunology, Yokohama, Japan
Dynamic regulation and modulation of T cell activation

Arthur Weiss, HHMI, University of California, San Francisco
Regulating tyrosine phosphorylation pathways controlled by antigen receptors

SUNDAY, MAY 5, 8:00 AM - 11:30 AM

Major Symposium C: CD4 T Cell Commitment and Plasticity: Fundamental Processes and Translational Applications

KĀLAKAUA BALLROOM B

Chairs:

William E. Paul, NIAID, NIH
Anuradha Ray, University of Pittsburgh School of Medicine

Speakers:

William E. Paul, NIAID, NIH
The CD4 T cell differentiation system

John J. O'Shea, NIAMS, NIH
Transcriptional and epigenetic control of helper cell specification

K. Mark Ansel, University of California, San Francisco
MicroRNA regulation of helper T cell responses

Shimon Sakaguchi, Immunology Frontier Research Center, Osaka University
Epigenetics and plasticity of regulatory T cells

Megan K. Levings, University of British Columbia
CD4 T cell plasticity in health and chronic skin disease

Anuradha Ray, University of Pittsburgh School of Medicine
Challenges to Treg commitment influencing disease susceptibility

Major Symposium D: Innate Immune Surveillance of Cellular Stress and Injury

KĀLAKAUA BALLROOM A

Chairs:

Kenneth L. Rock, University of Massachusetts Medical School
Julie Magarian Blander, Mount Sinai School of Medicine

Speakers:

Julie Magarian Blander, Mount Sinai School of Medicine
Introduction

Kenneth L. Rock, University of Massachusetts Medical School
Inflammasome-dependent and independent pathways of sterile inflammation

Guido Kroemer, University of Paris Descartes
Immunogenic cell death and its perception by innate immune effectors

Tiffany Horng, Harvard School of Public Health
Mitochondria, stress responses, and inflammation

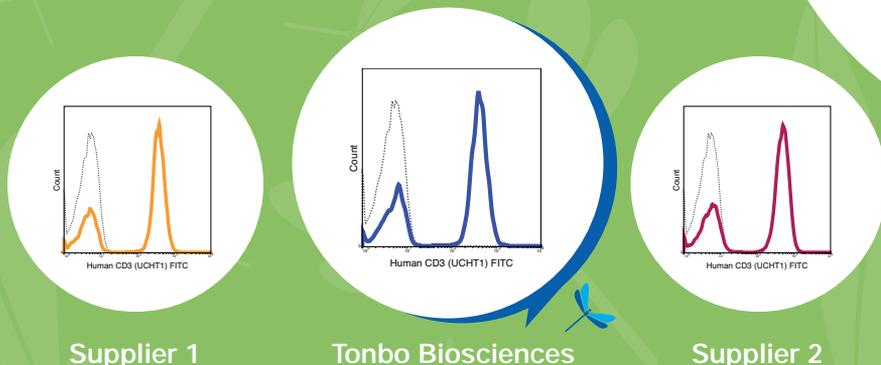
Kodi S. Ravichandran, University of Virginia
Metabolic connections during apoptotic cell clearance

Kevin J. Tracey, Feinstein Institute for Medical Research
Neural arcs that control HMGB1, sterile inflammation, and innate immunity

Thirumala-Devi Kanneganti, St. Jude Children's Research Hospital
Mediators of inflammatory responses

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MONDAY, MAY 6, 8:00 AM - 11:30 AM

Major Symposium E: The Battle Within: Viral and Intracellular Bacterial Pathogenesis

KĀLAKAUA BALLROOM B

Chairs:

Bruce D. Walker, Ragon Institute of MGH, MIT, and Harvard
Denise M. Monack, Stanford University

Speakers:

Denise M. Monack, Stanford University
The tug-of-war between intracellular Salmonella and the macrophage

Mary O'Riordan, University of Michigan Medical School
Dealing with stress: mobilization of antimicrobial defenses through engagement of ER stress circuitry

Gregory M. Barton, University of California, Berkeley
Microbes and innate immunity

Bruce D. Walker, Ragon Institute of MGH, MIT, and Harvard
T cell control of HIV

Sara Cherry, University of Pennsylvania, Perelman School of Medicine
Using RNAi screening to identify cell-intrinsic innate immune pathways

Herbert W. Virgin, Washington University School of Medicine
The virome in health and disease

Major Symposium F: Therapy of Human Autoimmune and Inflammatory Diseases: Emerging Concepts

KĀLAKAUA BALLROOM A

Chairs:

Andrew C. Chan, Genentech, Inc.
Anne Davidson, Feinstein Institute for Medical Research

Speakers:

Anne Davidson, Feinstein Institute for Medical Research
The predictive value of SLE animal models: the story of belimumab

Brian L. Kotzin, Amgen, Inc.
Development of new therapeutics for inflammatory diseases

Jeffrey A. Bluestone, University of California, San Francisco
Bringing Tregs to the clinic in autoimmunity and transplantation

Tamiko R. Katsumoto, University of California, San Francisco
The tyrosine phosphatase CD148 reveals a role for Src family kinases in asthma and pulmonary fibrosis

Judy H. Cho, Yale University
Do patterns of genetic associations predict therapeutic responses across immune-mediated diseases?

Andrew C. Chan, Genentech, Inc.
Personalizing medicine to meet the challenges of drug discovery and development

TUESDAY, MAY 7, 8:30 AM - 11:30 AM

Major Symposium G: Understanding Interactions between the Immune System and Cancer: The Road to Immunotherapy

KĀLAKAUA BALLROOM B

Chairs:

José R. Conejo-Garcia, Wistar Institute
Olivera J. Finn, University of Pittsburgh School of Medicine

Speakers:

José R. Conejo-Garcia, Wistar Institute
Polymorphisms in pattern recognition receptors modulate antitumor immunity and alter malignant progression

David G. DeNardo, Washington University School of Medicine
Targeting tumor infiltrating macrophages decreases pancreatic tumor-initiating cells and improves chemotherapeutic response

Randolph J. Noelle, Geisel School of Medicine at Dartmouth and King's College London
Liberating the immune system by interrupting VISTA function

Ronald Levy, Stanford University School of Medicine
Monoclonal antibodies for the treatment of cancer: targeting the tumor and the immune system

Crystal L. Mackall, NCI, NIH
Emerging immunotherapies for pediatric cancer

Olivera J. Finn, University of Pittsburgh School of Medicine
Immunosurveillance and immunoprevention of non-viral cancers

Major Symposium H: TGF- β : Master Regulator of Immunity

KĀLAKAUA BALLROOM A

Chairs:

Ming Li, Memorial Sloan-Kettering Cancer Center
Elina Zuniga, University of California, San Diego

Speakers:

Ming Li, Memorial Sloan-Kettering Cancer Center
TGF- β control of immune homeostasis

Adam Lacy-Hulbert, Massachusetts General Hospital/Harvard Medical School
Regulation of TGF- β activation by DCs in immunity

Michael J. Bevan, HHMI, University of Washington
Controlling T cell responses against self

Alexander Y. Rudensky, HHMI, Memorial Sloan-Kettering Cancer Center
Regulatory T cells and TGF- β

Paula M. Oliver, University of Pennsylvania
Ubiquitin regulation of iTreg differentiation

Elina Zuniga, University of California, San Diego
Immune regulation during chronic viral infection

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AAI-Steinman Award for Human Immunology Research Presentation and Lecture

SATURDAY, MAY 4, 2:15 PM – 3:15 PM
KĀLAKAUA BALLROOM C

Chair:

Gail A. Bishop, University of Iowa; AAI President



Award Recipient:

Barton F. Haynes, M.D., Duke University School of Medicine
The path to development of an HIV-1 vaccine

AAI President Gail A. Bishop will introduce the awardee and present the award immediately prior to Dr. Haynes's lecture.

AAI-BD Biosciences Investigator Award Presentation and Lecture

Generously sponsored by BD Biosciences, Inc.

SATURDAY, MAY 4, 4:00 PM – 5:00 PM
KĀLAKAUA BALLROOM C

Chair:

Gail A. Bishop, University of Iowa; AAI President



Award Recipient:

David Artis, Ph.D., University of Pennsylvania, Perelman School of Medicine
Regulation of innate and adaptive immunity at barrier surfaces

AAI President Gail A. Bishop and BD Biosciences Vice President of Biological

Sciences Robert Balderas will introduce the awardee and present the award immediately prior to Dr. Artis's lecture.

AAI-Life Technologies Meritorious Career Award Presentation and Distinguished Lecture

Generously sponsored by Life Technologies Corporation

SUNDAY, MAY 5, 5:15 PM – 6:00 PM
KĀLAKAUA BALLROOM AB

Chair:

Gail A. Bishop, University of Iowa; AAI President



Award Recipient:

Jenny P-Y. Ting, Ph.D., University of North Carolina at Chapel Hill
The broad impact of NLRs on immunity and beyond

AAI President Gail A. Bishop and a representative of Life Technologies

Corporation will introduce the awardee and present the award immediately prior to Dr. Ting's lecture.

AAI BUSINESS MEETING AND AWARD PRESENTATIONS

MONDAY, MAY 6, 1:00 PM – 2:30 PM
ROOM 316B

This session will include the annual report to AAI members on AAI and *The Journal of Immunology* business affairs and will feature special 2013 AAI award presentations and acknowledgments. Refreshments will be provided.

AAI Distinguished Service Award Recipients



Prosper N. Boyaka, Ph.D.
Ohio State University

For outstanding service to AAI and the immunology community as member and chair of the AAI Minority Affairs Committee, 2006–2012



Derry C. Roopenian, Ph.D.
Jackson Laboratory

For outstanding service to AAI and the immunology community as member and chair of the AAI Committee on Public Affairs, 2005–2012

AAI annually provides travel awards and grants to recognize the promise and bolster the professional development of young investigators, trainees, and under-represented minority scientists and trainees.

- AAI-Life Technologies Trainee Achievement Awards
- Chambers-eBioscience Memorial Award
- Lustgarten-eBioscience Memorial Award
- Pfizer-Showell Travel Award
- AAI Early Career Faculty Travel Grants
Sponsored in part by BD Biosciences
- AAI Undergraduate Faculty Travel Grants
- AAI Laboratory Travel Grants
Sponsored in part by BD Biosciences
- AAI Minority Scientist Travel Awards
Sponsored by FASEB MARC Program under a grant from NIGMS, NIH [FASEB MARC Program: T36-GM08059-30]
- AAI Trainee Abstract Awards
Sponsored in part by BD Biosciences
- AAI Trainee Poster Awards

For information on all AAI Awards, visit www.aai.org/Awards



IMMUNOLOGY 2013™ OPENING NIGHT WELCOME RECEPTION

Generously sponsored by eBioscience, An Affymetrix Company

FRIDAY, MAY 3, 7:00 PM – 9:00 PM
ROOFTOP GARDEN, HAWAII CONVENTION CENTER

The Opening Night Welcome Reception opens the historic AAI Centennial Celebration! Come directly from the President's Address to the stunning Rooftop Garden of the Hawaii Convention Center to reunite with friends, make new acquaintances, enjoy the spectacular beauty of Hawaii, and plan your week.

PRESIDENT'S SERVICE APPRECIATION RECEPTION

Generously sponsored by BioLegend

SUNDAY, MAY 5
7:00 PM – 8:30 PM

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 to 2012–2013 AAI volunteers, by invitation only.*



AAI NEW MEMBER BREAKFAST

SATURDAY, MAY 4, 6:45 AM – 7:30 AM

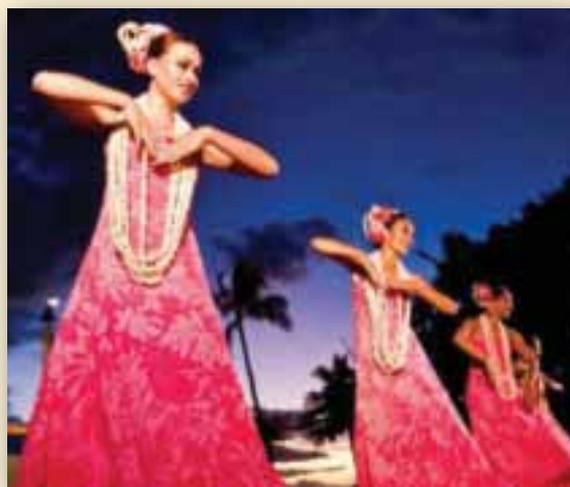
AAI wishes to welcome new Regular and Trainee members joining AAI for the first time. AAI President Gail Bishop and other AAI leaders look forward to meeting you personally. Please join us for light refreshments and casual conversation. *Event by invitation only.*

IMMUNOLOGY 2013™ GALA AAI CENTENNIAL CELEBRATION LUAU

Generously sponsored by BioLegend

MONDAY, MAY 6, 6:30 PM – 9:00 PM
HILTON HAWAIIAN VILLAGE, GREAT LAWN

The IMMUNOLOGY 2013™ Gala will be an enchanting evening honoring the 100th anniversary of AAI. You'll revel in the splendor and soft breezes of the lagoon setting while feasting sumptuously on our Polynesian luau buffet. Your options during the evening can include learning how to make leis, weave palms, and, of course, hula. Festivities will also include the "Escape to Paradise" program, featuring vibrant Hawaiian singers and colorfully costumed dancers whose precision movements portray the proud history of the Hawaiian people. Capping this most memorable evening will be a magnificent display of fireworks across the evening sky. *Meeting badge required for entry. Tickets required for guests. Attendees must be 21 years of age or older.*



AAI COMMITTEE ON PUBLIC AFFAIRS

SATURDAY, MAY 4, 1:00 PM – 2:30 PM, ROOM 314

The Importance of Communicating Science in an Era of Doubters and Deniers**Chair:****Elizabeth J. Kovacs**, Loyola University Chicago;
Chair, AAI Committee on Public Affairs**Speakers:****Joe Palca**Science Correspondent, NPR
*Will you listen to me if
I pay you \$1,000?***Olivera (Olja) J. Finn**University of Pittsburgh School
of Medicine
*Do scientists misunderstand the public?
Rules of engagement*

As scientists, we conduct research not simply for the thrill of discovery but in the fervent hope that our findings will one day improve human and/or animal health. But our work—and the entire scientific enterprise—depends on the federal funding that flows from taxpayer dollars. And many taxpayers do not understand what we do, while others doubt fundamental scientific theories. We must communicate better what we do, what it means, and why it matters to the public.

In this session, NPR Science Correspondent Joe Palca and Olja Finn, former AAI president, will share their views on, and experiences with, communicating science and discuss the challenges of bringing important scientific information to lay audiences. Attendees will have the opportunity to ask questions.

AAI Clinical Immunology Committee Symposium**Immunotherapy: Past, Present, and Future**

SATURDAY, MAY 4, 3:15 PM – 5:15 PM, ROOM 315

Chairs:**Robert L. Modlin**, UCLA**Anna Karolina Palucka**, Baylor Institute for Immunology
Research and Mount Sinai School of Medicine**Speakers:****Robert L. Modlin**, UCLA, *The history of adjuvants***Anna Karolina Palucka**, Baylor Institute for Immunology
Research and Mount Sinai School of Medicine
*Reprogramming the immune system via dendritic cells***Lawrence Steinman**, Stanford University*Antigen-specific therapy for autoimmune disease: experience in
humans***Marsha Wills-Karp**, Johns Hopkins Bloomberg School of Public
Health*Use of biologics in the treatment of asthma***Thomas A. Waldmann**, NCI, NIH*The roles of IL-2 and IL-15 in the life and death of lymphocytes:
implications for immunotherapy*

A major goal of immunology research is to develop new strategies to prevent and treat disease. This session will focus on advances in immunotherapy with relevance to infectious, autoimmune, neoplastic, and allergic disease.

AAI Education Committee Symposium**Careers in Biotech: Panel Discussion and Networking**

SATURDAY, MAY 4, 6:30 PM – 8:00 PM, ROOM 323

Chair:**Steven M. Varga**, University of Iowa**Panelists:****Kerry A. Casey**, Scientist I, MedImmune**Michael P. Crowley**, Director, Business Development,
Genentech, Inc.**Jonathan A. Deane**, Research Investigator II, Genomics Institute
of the Novartis Research Foundation**Joanne L. Viney**, Vice President, Immunology Research,
Biogen Idec

Many opportunities exist in industry for a scientist with advanced degrees. There are positions in laboratory research, program management, business development, regulatory affairs and clinical trials oversight, medical liaison, and more. This panel features scientists employed in a variety of positions in industry sharing their career paths and highlighting the skills required to succeed in these careers. Following the panel discussion, enjoy casual conversation with the panelists and other industry connections at a networking reception.

AAI Education Committee & AAI Committee on the Status of Women

Careers in Science Roundtable

SUNDAY, MAY 5, 1:00 PM – 2:00 PM, ROOM 323

Chair:

Scheherazade Sadegh-Nasseri, Johns Hopkins University School of Medicine; Chair, AAI Committee on the Status of Women

Registration Fee: \$20 (Lunch included)

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. Choose from topics related to the environment in which you work (academic research, biotech industry, governmental agencies), the transitions between specific career stages, or issues in balancing career and family in any career path. Don't miss this great networking opportunity!

Discussion topics and table leaders:

- **Research Careers in Academia**
 - **Graduate Student to Postdoc: finding a postdoc, interviewing**
Table Leaders: Michele M. Kosiewicz, University of Louisville; Michelle A. Parent, University of Delaware
 - **Postdoc to PI: finding a position, interviewing, negotiating, lab start-up**
Table Leaders: Carolina B. Lopez, University of Pennsylvania School of Veterinary Medicine; Shabaana A. Khader, Children's Hospital of Pittsburgh, UPMC
 - **New PI: attracting students and postdocs, preparing for tenure**
Table Leader: Nilabh Shastri, University of California, Berkeley
 - **So I Won't Get Tenure: now what?**
Table Leader: Virginia Shapiro, Mayo Clinic
 - **Undergraduate Institutions: finding the balance in teaching, doing research**
Table Leaders: James E. Riggs, Rider University; Devavani Chatterjea, Macalaster College
- **Mentoring Effectively**
Table Leaders: Janice S. Blum, Indiana University School of Medicine; Dorina Avram, Albany Medical College
- **Networking Skills**
Table Leader: Donna L. Farber, Columbia University Medical Center
- **Career and Family: time management, family leave, professional couples**
Table Leaders: Scheherazade Sadegh-Nasseri, Johns Hopkins University School of Medicine; Susan Kovats, Oklahoma Medical Research Foundation
- **Careers in Biotech and Industry: moving from academia to industry and vice versa**
Table Leader: Mary E. Keir, Genentech
- **Careers at Governmental Agencies (FDA/NIH/USDA/CDC)**
Table Leaders: Carol H. Pontzer, NCCAM, NIH; A. Andrew Hurwitz, NCI, NIH
- **Non-research Careers: focus for 2013, science writing**
Table Leaders: Jamie D. K. Wilson, Nature Immunology; Kaylene J. Kenyon, The Journal of Immunology
- **The Physician Scientist: balancing clinical and research duties**
Table Leader: Marcus R. Clark, University of Chicago

AAI Membership Committee

New Member Breakfast

SATURDAY, MAY 4, 6:45 AM – 7:25 AM

AAI wishes to welcome new Regular and Trainee members joining AAI for the first time. AAI President Gail Bishop and other AAI leaders look forward to meeting you personally. Please join us with your invitation in-hand for light refreshments and casual conversation. *Event by invitation only.*

AAI Minority Affairs Committee

Careers and Networking Roundtable

SATURDAY, MAY 4, 1:00 PM – 2:30 PM, ROOM 323 C

Chair:

Adriana T. Larregina, University of Pittsburgh; Chair, AAI Minority Affairs Committee

Registration Fee: \$20 (Lunch included)

Don't miss this opportunity to meet one-on-one with accomplished, senior minority immunologists to hear how they have handled the career challenges you now face. Learn what they believe will work for you today.

Discussion topics and table leaders:

- **Grad Student: finding a mentor; taking aim at postdoc training**
Table Leaders: Gregory B. Carey, University of Maryland, Baltimore; Santiago Partida-Sanchez, Nationwide Children's Hospital
- **Postdoc: finding a mentor; taking aim at a faculty position**
Table Leaders: José Conejo-García, Wistar Institute; José A. Guevara-Patino, Loyola University Chicago; Margaret S. Bynoe, Cornell University
- **Junior Faculty: preparing for promotion and tenure**
Table Leaders: Adriana T. Larregina, University of Pittsburgh; Esteban Celis, Moffitt Cancer Center, University of South Florida
- **Academia or Industry: how to decide (or switch sides)**
Table Leader: Jonathan A. Deane, Genomics Institute of the Novartis Research Foundation
- **Government Agency Careers: CDC, FDA, NIH**
Table Leader: Cherie L. Butts, Biogen Idec
- **Non-research Careers: science journalism, non-profits, patent law, biomedical entrepreneurship**
Table Leader: John Emrich, AAI

AAI Minority Affairs Committee Guest Lecture

MONDAY, MAY 6, 2:00 PM – 3:00 PM, ROOM 318 B

Generously supported through a grant to the Federation of American Societies for Experimental Biology (FASEB) from the National Institute of General Medical Sciences, NIH [FASEB MARC Program: T36-GM08059-30]

Chair:

Adriana T. Larregina, University of Pittsburgh; Chair, AAI Minority Affairs Committee

Speaker:

Esteban Celis, Moffitt Cancer Center, University of South Florida
The long road to effective peptide vaccines for cancer: learning from infectious diseases and autoimmunity

AAI Publications Committee Symposium**Editor's Choice: *The JI* 2012**

SATURDAY, MAY 4, 1:00 PM – 3:00 PM, ROOM 317

Chair:

Jeremy M. Boss, Emory University; Editor-in-Chief,
The Journal of Immunology

Speakers:

Mark H. Kaplan, Indiana University School of Medicine
Transcriptional regulation in Th9 cells

Jane H. Buckner, Benaroya Research Institute at Virginia Mason
*Genetic variants associated with autoimmunity result in altered
B cell homeostasis and function*

Hirohito Kita, Mayo Clinic Rochester
*Innate type 2 lymphoid cells in immunity and allergic airway
inflammation*

Emily Corse, MD Anderson Cancer Center
*Expression of Helios in peripherally induced Foxp3⁺
regulatory T cells*

This symposium will feature speakers whose work, published in *The Journal of Immunology* in 2012, was selected by the editors as outstanding reports of general interest to the immunology community. The authors will give a brief overview of the published results and then bring the audience up to date on research carried out on these topics since the articles appeared.

**AAI Veterinary Immunology Committee & American Association of Veterinary Immunologists (AAVI) Joint Symposium****Natural Animal Models of Human Disease**

MONDAY, MAY 6, 1:00 PM – 3:00 PM, ROOM 317

Chairs:

Simon M. Barratt-Boyes, University of Pittsburgh; Chair,
AAI Veterinary Immunology Committee

Susan D. Eicher, Livestock Behavior Research Unit, ARS, USDA

Speakers:

Wendy C. Brown, Washington State University College of
Veterinary Medicine
*Dysregulated T cell responses induced by a persistent bacterial
pathogen of cattle*

Guido Silvestri, Yerkes National Primate Research Center, Emory
University School of Medicine
Understanding AIDS by studying natural SIV infections

Daniel R. Perez, University of Maryland, College Park
Of men, pigs, birds, and...flu

Carol Reinero, University of Missouri College of Veterinary
Medicine
*What spontaneous and experimental feline asthma can teach us about
human asthma*

Traditional rodent models often do not recapitulate human disease, and performing research directly in humans presents its own set of practical limitations and ethical concerns. Research in nonhuman primates and domestic animal species fills this void and has provided major advances in our understanding of diseases of both humans and animals. This symposium will illustrate the value of a range of natural animal models of human infectious and immunologic diseases.



National Institute of Allergy and Infectious Diseases (NIAID) Symposium

Current Progress: Development and Maintenance of Long-Lived Plasma Cells

SUNDAY, MAY 5, 1:00 PM – 3:00 PM, ROOM 316 A

Chairs:

Stacy E. Ferguson, NIAID, NIH

Michael G. McHeyzer-Williams, Scripps Research Institute

Speakers:

Christopher C. Goodnow, Australia National University
IgD, anergy, and the germinal center versus plasma cell decision

Michael G. McHeyzer-Williams, Scripps Research Institute
Programming effective plasma cell responses

David M. Allman, University of Pennsylvania
Role of short-lived bone marrow plasma cells in long-lived immunity

Jan Erikson, Wistar Institute
Plasma cell induction following respiratory tract infection

Discussion with all participants, *Discussion of gaps in understanding plasma cell biology*

National Institute of Environmental Health Sciences (NIEHS) Symposium

Impact of Environmental Exposures on Immune Function

SATURDAY, MAY 4, 1:00 PM – 3:00 PM, ROOM 316 B

Chairs:

Michael C. Humble, NIEHS, NIH

Prakash Nagarkatti, University of South Carolina at Columbia

Speakers:

Scott W. Burchiel, University of New Mexico Health Sciences Center
Immunosuppression associated with the combined exposure to polycyclic aromatic hydrocarbons (PAHs) and arsenite

Nancy I. Kerkvliet, Oregon State University
TCDD: an environmental toxicant reveals novel pathways of immune regulation

Mitzi Nagarkatti, University of South Carolina at Columbia
The role of microRNA and epigenetic regulation of T cell dysfunction following prenatal exposure to DES

Stephen B. Pruetz, Mississippi State University
Mechanisms of immunotoxicity of sodium methylthiocarbamate: unexpected observations on the role of oxidative stress in inflammation and innate immunity

National Institute on Aging (NIA) Symposium

Aging, Cancer, and Immunosenescence

MONDAY, MAY 6, 9:45 AM – 11:45 AM, ROOM 316 B

Chairs:

Rebecca A. Fuldner, NIA, NIH

Graham Pawelec, University of Tübingen

Speakers:

Graham Pawelec, University of Tübingen
Is there an "Immune Risk Profile" in cancer and aging?

Judith Campisi, Buck Institute for Research on Aging
Inflammation caused by senescent cells: a link between age-related cancer and degeneration?

Tyler J. Curiel, University of Texas Health Science Center, San Antonio
Tailoring age-optimized cancer immunotherapy: early insights

Marcel R. M. van den Brink, Memorial Sloan-Kettering Cancer Center and Weill Medical College of Cornell University
Strategies to reverse thymic involution

GUEST SOCIETY SYMPOSIA

American Association of Veterinary Immunologists (AAVI) & AAI Veterinary Immunology Committee Joint Symposium

Natural Animal Models of Human Disease

MONDAY, MAY 6, 1:00 PM – 3:00 PM, ROOM 317

Chairs:

Simon M. Barratt-Boyes, University of Pittsburgh; Chair, AAI Veterinary Immunology Committee

Susan D. Eicher, Livestock Behavior Research Unit, ARS, USDA

Speakers:

Wendy C. Brown, Washington State University College of Veterinary Medicine
Dysregulated T cell responses induced by a persistent bacterial pathogen of cattle

Guido Silvestri, Yerkes National Primate Research Center, Emory University School of Medicine
Understanding AIDS by studying natural SIV infections

Daniel R. Perez, University of Maryland, College Park
Of men, pigs, birds, and...flu

Carol Reinero, University of Missouri College of Veterinary Medicine
What spontaneous and experimental feline asthma can teach us about human asthma

American Society of Transplantation (AST) Symposium**Achieving and Detecting Tolerance in Transplant Patients**

SUNDAY, MAY 5, 1:00 PM – 3:00 PM, ROOM 317 AB

Chairs:**Jonathan S. Maltzman**, University of Pennsylvania**Maria-Luisa Alegre**, University of Chicago**Speakers:****Bruce R. Blazar**, University of Minnesota
*Regulatory T cell therapy in clinical bone marrow transplantation***Sandy Feng**, University of California, San Francisco
*Withdrawal of immunosuppression from the operationally tolerant patient***Joseph R. Leventhal**, Northwestern University
*Inducing tolerance in mismatched kidney transplant recipients***Kenneth A. Newell**, Emory University School of Medicine
*Identifying tolerance signatures in kidney transplant recipients***Australasian Society for Immunology (ASI) Symposium****Lymphocyte Differentiation following Immunization**

SUNDAY, MAY 5, 1:00 PM – 3:00 PM, ROOM 316 B

Chairs:**Meredith O'Keefe**, Burnet Institute**John Stambas**, Deakin University**Speakers:****Scott N. Mueller**, University of Melbourne
*Dynamic intravital imaging of tissue-resident memory T cells during immunosurveillance and recall responses***Kim L. Good-Jacobson**, Walter & Eliza Hall Institute
*c-Myb is required for plasma cell migration to the bone marrow during an immune response***Jonathan M. Coquet**, Flanders Institute, Ghent
*The CD27 and CD70 costimulatory pathway inhibits effector function of Th17 cells and attenuates associated autoimmunity***Susan Johnson**, University of Geneva
*Functionally "exhausted" CD8⁺ T cell populations help resolve chronic viral infection***Stephanie Gras**, Monash University
*Structural basis of viral escape in influenza***Canadian Society for Immunology (CSI) Symposium****Cytokine Regulation of Immunity**

SUNDAY, MAY 5, 9:45 AM – 11:45 AM, ROOM 316 B

Chairs:**Ninan Abraham**, University of British Columbia**Nathalie Labrecque**, Université de Montréal**Speakers:****Ninan Abraham**, University of British Columbia
*Immune regulation by the IL-7-related cytokines***Valérie Abadie**, Sainte-Justine Hospital Research Centre
*Impact of IL-15 dysregulation on celiac disease pathogenesis***Georgia Perona-Wright**, University of British Columbia
*Cytokine versus receptor in the control of cytokine signaling***Christopher J. Paige**, Ontario Cancer Institute
*IL-12 conducts an anti-cancer quartet***Nathalie Labrecque**, Université de Montréal
*Circadian regulation of cytokine production by T cells***Chinese Society of Immunology (ChSI) Symposium****Molecular Regulation of Innate Response and Inflammation**

SATURDAY, MAY 4, 3:15 PM – 5:15 PM, ROOM 316 A

Chairs:**Xuetao Cao**, Chinese Academy of Medical Sciences, Beijing**Olivera J. Finn**, University of Pittsburgh School of Medicine**Speakers:****Xuetao Cao**, Chinese Academy of Medical Sciences, Beijing
*Regulation of innate signaling in immunity and inflammation***Zhengfan Jiang**, Peking University
*Regulation of virus-induced innate immunity***Youcun Qian**, Institutue of Health Sciences, Chinese Academy of Sciences, and Shanghai Jiaotong University School of Medicine
*IL-17 family cytokines and inflammation***Wenwei Tu**, University of Hong Kong
*Gammadelta T cells: unpolished sword in human antiviral immunity***Jiyan Zhang**, Chinese Academy of Military Medical Sciences
*RACK1 in cytokine production and inflammation***German Society for Immunology (DGfI) Symposium****Innate Lymphocytes in Health and Disease**

SUNDAY, MAY 5, 3:15 PM – 5:15 PM, ROOM 316 A

Chairs:**Hans-Martin Jäck**, University of Erlangen**Andreas Radbruch**, Rheumatism Research Center (DRFZ), Berlin**Speakers:****Andreas Diefenbach**, University of Freiburg
*Transcriptional control of innate lymphocyte fate decision***Barbara Rehermann**, NIDDK, NIH
*Natural killer cells in hepatitis C virus infection***Immo Prinz**, Medical University Hannover
*Immune regulation by interleukin-17-producing $\gamma\delta$ T cells***Dieter Kabelitz**, University of Kiel
Plasticity of human V γ 9V δ 2 T cells

International Cytokine and Interferon Society (ICIS) Symposium

Interferons and Innate Immunity

TUESDAY, MAY 7, 9:45 AM – 11:45 AM, ROOM 316 B

Chairs:

Eleanor N. Fish, University Health Network and University of Toronto

Bryan R. G. Williams, Monash Institute of Medical Research

Speakers:

Eleanor N. Fish, University Health Network and University of Toronto

Type I IFNs: master regulators of the immune response to virus infection

Meredith O’Keeffe, Burnet Institute

The role of IFN- λ in dendritic cell activation

Iain L. Campbell, University of Sydney

Type I IFN signaling in the host response to virus infection

Hilario Ramos, University of Washington

The convergence of IL-1 and type I IFN signaling in antiviral immunity

Bryan R. G. Williams, Monash Institute of Medical Research
Regulation of IFN and cytokine signaling and action of PLZF

Dane Parker, Columbia University Medical Center

Type I IFNs and Staphylococcus aureus

Laurel L. Lenz, National Jewish Health and University of Colorado Denver

Regulation of myeloid cell responsiveness to IFN- γ by type I IFNs

Japanese Society for Immunology (JSI) Symposium

Molecular Basis of Chronic Inflammation

SUNDAY, MAY 5, 3:15 – 5:15 PM, ROOM 313 B

Chairs:

Takashi Saito, RIKEN Center for Allergy and Immunology

Toshinori Nakayama, Chiba University

Speakers:

Kensuke Miyake, University of Tokyo

TLR logistics by Unc93B1 as a mechanism regulating autoimmunity

Akira Shibuya, University of Tsukuba

Inhibitory immunoreceptors in inflammatory diseases

Kiyoshi Takeda, Osaka University

Regulation of gut homeostasis by innate immunity

Toshinori Nakayama, Chiba University

Generation and maintenance of pathogenic memory CD4 T cells

Korean Association of Immunologists (KAI) Symposium

Regulatory Mechanism of Immune Homeostasis

MONDAY, MAY 6, 9:45 AM – 11:45 AM, ROOM 317 AB

Chairs:

Myung-Shik Lee, Samsung Medical Center

Eun Sook Hwang, Ewha Womans University

Speakers:

Myung-Shik Lee, Samsung Medical Center

Autophagy, inflammation, and metabolism

Eun-Kyeong Jo, Chungnam National University School of Medicine

Autophagy and innate immunity in mycobacterial infection

Chang-Duk Jun, Gwangju Institute of Science and Technology (GIST)

IGSF4/CADM1 regulates both T cell activation and homing

Eun Sook Hwang, Ewha Womans University

Crucial roles of Lysine 313 of T-box in T-bet

Sin-Hyeog Im, Gwangju Institute of Science and Technology (GIST)

Role of NFAT1 transcription factor in experimental myasthenia gravis

Mexican Society for Immunology (MSI) Symposium

Development of Novel Adjuvants and Immunomodulators

SUNDAY, MAY 5, 3:15 PM – 5:15 PM, ROOM 314

Chairs:

Constantino López-Macías, National Medical Centre “Siglo XXI,” Mexican Social Security Institute

Laura Bonifaz, National Medical Centre “Siglo XXI,” Mexican Social Security Institute

Speakers:

Laura Bonifaz, National Medical Centre “Siglo XXI,” Mexican Social Security Institute

Skin immunization using the cholera toxin as adjuvant

Gladys Fragoso, National Autonomous University of Mexico

The cysticerci-derived peptide GK1 is able to modulate the immune response: considerations of its adjuvant properties for vaccine development

Ignacio Terrazas, National Autonomous University of Mexico

Regulation of inflammatory diseases by cestode antigens: multiple receptors and a possible common pathway

Mayra Pérez, National School of Biological Sciences, National Polytechnic Institute (Mexico)

Present and future of immunomodulatory peptides obtained from dialyzable leukocyte extracts

Constantino López-Macías, National Medical Centre “Siglo XXI,” Mexican Social Security Institute

Use of Salmonella porins as novel adjuvants for vaccine development

Society for Glycobiology (SFG) Symposium**Glycan Recognition in Regulation of Innate and Adaptive Immunity**

SUNDAY, MAY 5, 9:45 AM – 11:45 AM, ROOM 316 A

Chair:**James C. Paulson**, Scripps Research Institute**Speakers:****Dennis R. Burton**, Scripps Research Institute
*How antibodies breach the glycan shield of HIV***Gabriel A. Rabinovich**, Institute of Biology and Experimental Medicine (IBYME-CONICET)
*Regulatory circuits in autoimmunity and cancer mediated by galectin-glycan interactions***Yvette van Kooyk**, Vrije Universiteit Medical Center Amsterdam
*Glycans for improving skin vaccination strategies***Matthew S. Macauley**, Scripps Research Institute
*Siglec-induced B cell tolerance and therapeutic potential***Jeffrey V. Ravetch**, Rockefeller University
*The role of glycans in antibody activity***Society for Immunotherapy of Cancer (SITC) Symposium****Cancer Immunotherapy 2013: Overcoming Barriers to Adaptive Immunity**

SATURDAY, MAY 4, 9:45 AM – 11:45 AM, ROOM 316 A

Chairs:**Thomas F. Gajewski**, University of Chicago**Francesco M. Marincola**, NIH**Speakers:****Robert D. Schreiber**, Washington University School of Medicine
*Cancer immunoediting: antigens, mechanisms, and therapeutic implications***Nicholas P. Restifo**, NCI, NIH
*T cell adoptive transfer***Philip D. Greenberg**, University of Washington
*Creating high avidity T cells for targeting tumors***Thomas F. Gajewski**, University of Chicago
*Innate and adaptive immune regulation within the tumor microenvironment***Julie R. Brahmer**, Johns Hopkins University School of Medicine
*PD-1/PD-L1 axis***Society for Natural Immunity (SNI) Symposium****Natural Killer Cells: Evolution, Development, Differentiation, Function, and Clinical Use**

SATURDAY, MAY 4, 1:00 PM – 3:00 PM, ROOM 316 A

Chairs:**Hans-Gustaf Ljunggren**, Karolinska Institute**Sarah Cooley**, University of Minnesota**Speakers:****Peter Parham**, Stanford University School of Medicine
*Diversity of NK cell genotype and phenotype: an evolutionary perspective***Ashley Moffett**, University of Cambridge
*Natural killer cells and the outcome of human pregnancy***Karl-Johan Malmberg**, Karolinska Institute
*Human KIR repertoire diversity and its adaptation to viral infection***Sarah Cooley**, University of Minnesota
*Therapeutic applications of NK cells***Society of Mucosal Immunology (SMI) Symposium****Innate Immunity at Mucosal Surfaces**

Partially supported by Mucosal Immunology Studies Team (MIST)

MONDAY, MAY 6, 1:00 PM – 3:00 PM, ROOM 316 A

Chairs:**Ifor Williams**, Emory University**Joanne Viney**, Biogen Idec**Speakers:****Marco Colonna**, Washington University School of Medicine
*Innate lymphoid cells in mucosal immunology***Hiroshi Ohno**, RIKEN Research Center for Allergy and Immunology
*Function and differentiation of M cells, a unique subset of intestinal epithelial cells specialized for mucosal antigen uptake***Yasmine Belkaid**, NIAID, NIH
*Memory responses against commensals***Charles L. Bevins**, University of California, Davis
*Strategies of defensin-mediated innate immunity in the small intestine***The Obesity Society (TOS) Symposium****Immunometabolism: The Role of the Immune System in Obesity and Type 2 Diabetes**

SATURDAY, MAY 4, 9:45 AM – 11:45 AM, ROOM 316 B

Chairs:**Barbara S. Nikolajczyk**, Boston University School of Medicine**Gerald V. Denis**, Boston University School of Medicine**Speakers:****Carey N. Lumeng**, University of Michigan
*Adipose tissue macrophage activation in obesity***Alyssa Hasty**, Vanderbilt University
*Function of resident macrophages in adipose tissue homeostasis***Barbara S. Nikolajczyk**, Boston University School of Medicine
*Lymphocyte functions in type 2 diabetes***Gerald V. Denis**, Boston University School of Medicine
*Unresolved, chronic inflammation as a critical link between insulin-resistant obesity and the obesity-associated cancers***Bonnie B. Blomberg**, University of Miami Miller School of Medicine
Biomarkers for human B cell responsiveness to influenza vaccine in elderly and type 2 diabetics

Through workshops, roundtables, and one-on-one counseling, IMMUNOLOGY 2013™ provides critical career development programs. Career sessions and services this year include:

- Careers in Biotech: Panel Discussion and Networking
- Careers in Science Networking Roundtables (2)
- How to Convert Your CV into a Resumé (followed by one-on-one counseling)
- Interviewing for a Job
- Secrets for a Successful Postdoctoral Fellowship
- Online and on-site Jobs Board free to meeting registrants and exhibitors

Careers in Biotech: Panel Discussion and Networking

SATURDAY, MAY 4, 6:30 PM – 8:00 PM, ROOM 323

Chair:

Steven M. Varga, University of Iowa

Panelists:

Kerry A. Casey, Scientist I, MedImmune

Michael P. Crowley, Director, Business Development, Genentech, Inc.

Jonathan A. Deane, Research Investigator II, Genomics Institute of the Novartis Research Foundation

Joanne L. Viney, Vice President, Immunology Research, Biogen Idec

Many opportunities exist in industry for a scientist with advanced degrees. There are positions in laboratory research, program management, business development, regulatory affairs and clinical trials oversight, medical liaison, and more. This panel features scientists employed in a variety of positions in industry sharing their career paths and highlighting the skills required to succeed in these careers. Following the panel discussion, enjoy casual conversation with the panelists and other industry connections at a networking reception.

Networking Roundtables

Careers and Networking Roundtable

Sponsored by the AAI Minority Affairs Committee

SATURDAY, MAY 4, 1:00 PM – 2:30 PM, ROOM 323 C

Chair:

Adriana T. Larregina, University of Pittsburgh;
Chair, AAI Minority Affairs Committee

Registration Fee: \$20 (Lunch included)

Don't miss this opportunity to meet one-on-one with accomplished, senior minority immunologists to hear how they have handled the career challenges you now face. Learn what they believe will work for you today.

Discussion topics:

- **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-research Careers: science journalism, non-profits, patent law, biomedical entrepreneurship**

Table leaders: see AAI Committee-sponsored Sessions

Careers in Science Roundtable

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

SUNDAY, MAY 5, 1:00 PM – 2:00 PM, ROOM 323

Chair:

Scheherazade Sadegh-Nasseri, Johns Hopkins University School of Medicine; Chair, AAI Committee on the Status of Women

Registration Fee: \$20 (Lunch included)

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. Choose from topics related to the environment in which you work (academic research, biotech industry, governmental agencies), the transitions between specific career stages, or issues in balancing career and family in any career path. Don't miss this great networking opportunity!

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 tenure**
 - **So I Won't Get Tenure: now what?**
 - **Undergraduate Institutions: finding the balance in teaching, doing research**
- **Mentoring Effectively**
- **Networking Skills**
- **Career and Family: time management, family leave, professional couples**
- **Careers in Biotech and Industry: moving from academia to industry and vice versa;**
- **Careers at Governmental Agencies (FDA/NIH/USDA/CDC)**
- **Non-research Careers: focus for 2013, science writing**
- **The Physician Scientist: balancing clinical and research duties**

Table leaders: see AAI Committee-sponsored Sessions

How to Convert Your CV into a Resumé

SATURDAY, MAY 4, 10:30 AM – 11:30 AM, ROOM 318 AB

Speaker:

Derek Haseltine, Director, Career Services, George Washington University

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 1 PM to 3 PM. Bring your CV!

Interviewing for a Job

SUNDAY, MAY 5, 8:00 AM – 9:00 AM, ROOM 318 AB

Speaker:

Derek Haseltine, Director, Career Services, George Washington University

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.

Secrets for a Successful Postdoctoral Fellowship

SUNDAY, MAY 5, 10:00 AM – 11:30 AM, ROOM 318 AB

Speaker:

Bill Lindstaedt, Director, Office of Career and Professional Development, University of California, San Francisco

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.



IMMUNOLOGY 2013™

Annual Meeting of The American Association of Immunologists

May 3–7, 2013 | Hawaii Convention Center | Honolulu, Hawaii



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.immunology2013.org/Attendees/jobsboard.html.

Job Seekers! Whatever your career stage, use this career service at IMMUNOLOGY 2013™ 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 April 22. Watch for On-site Postings displayed online or on paper in the AAI Booth!)

■ **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 2013™ website. By including a contact email, you will receive inquiries directly.

■ **Advance Postings.** Postings will be accepted as of February 1, 2013, and will remain online until the end of the meeting. To post job listings in advance of the meeting, contact meetings@aai.org. Advance postings must be submitted to AAI by April 22, 2013.

■ **On-site Postings.** After April 22, 2013, employers wishing to advertise a job on the IMMUNOLOGY 2013™ website may still do so by visiting the AAI Office in the Hawaii Convention Center, Room 327, between 9:00 AM and 5:00 PM.

You may also post a paper announcement on the bulletin board in the AAI Booth in the Exhibit Hall.

Save Thousands of Dollars in Recruiting Expenses. Take advantage of this complimentary hiring opportunity at IMMUNOLOGY 2013™. To register for the meeting, visit www.immunology2013.org/Registration/attendee.html.

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Hawaii Tourism Authority/Joe Solem

www.IMMUNOLOGY2013.org

BLOCK SYMPOSIA

Selected abstracts are programmed into oral sessions called Block Symposia. Each Block Symposium is made up of approximately eight selected abstracts. Approximately 84 Block Symposia are programmed for this annual meeting.



POSTERS

The most interactive part of the meeting!

Discuss data and research issues firsthand with authors at the Poster Sessions. Posters will be displayed Saturday through Monday in the Hawaii Convention Center Kamehameha II & III Exhibit Halls from 9:30 AM to 3:30 PM.

- **Dedicated Daily Poster Presentations from 11:45 AM to 1:00 PM!**
No concurrent symposia, presentations, or other sessions will be held during the poster presentations at this time.
- **Accepted posters may be displayed for the duration of the meeting!** Authors are encouraged to leave their posters up throughout IMMUNOLOGY 2013™.

Visit www.IMMUNOLOGY2013.org for further details.

EXHIBITOR WORKSHOPS

Take advantage of the opportunity provided by the Exhibitor Workshops to explore exhibitors' latest technologies, products, and services. Workshops are planned and conducted by exhibitors; the listing of these workshops does not constitute endorsement of any products or services by AAI.



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 6, at 11:00 AM!

You'll find your Passport in your meeting bag or you may pick one up at the AAI Booth.



PROMOTIONAL VIDEOS

Be sure to catch the promotional videos of exhibitors' new products. Videos will be run on video monitors located throughout the convention center.

Promotional videos are planned and created by exhibitors; the listing of these videos does not constitute endorsement of any products or services by AAI.

Saturday, May 4

7:30 AM – 9:30 AM

Innate Immunity and Viral Vaccines
 Myeloid Cells in Anti-microbial Defense
 Regulation of T Cells in Autoimmunity
 Restoring Immunocompetence in the Tumor Microenvironment
 Toll-like Receptor Regulation
 Veterinary and Comparative Immunology

9:45 AM – 11:45 AM

Antigen Processing and Presentation: Molecular Insights
 Cellular and Molecular Biology of the Innate Immune Response
 Costimulatory Pathways in Immunity and Tolerance
 Innate Control of Microbial Disease
 Interplay of Virus and Immune Effectors: Part 1
 T Cell Development and Maturation

1:00 PM – 3:00 PM

Immune Regulation in Allergic Disease and Impact of Pathogens
 Immunotherapy and Vaccines: Infectious Diseases 1
 Pathogen-mediated Regulation of Immunity
 Technological Innovations in Immunology 1
 Therapeutic Approaches to Autoimmunity: Targeting Cytokines and Immune Regulators

3:15 PM – 5:15 PM

Generation of Effector and Memory CD8 T Cells
 Germinal Centers and Tfh Cells in Autoimmunity
 Homeostasis and Aging of Lymphocytes
 Immunoregulatory Mechanisms
 Immunotherapy and Vaccines: Infectious Diseases 2
 Lymphocyte Adhesion: To Adhere or Not to Adhere

Sunday, May 5

7:30 AM – 9:30 AM

Cancer Immunobiology
 Cytokine Signaling and Mechanisms
 Dynamics of T Cell and NK Cell Activation/Contraction during Viral Infection: Part 1
 HSCs and B Cell Development
 Human Immunodeficiencies and Genetics
 Immunosuppression by Myeloid and Dendritic Cells
 Immunotherapy and Vaccines: Infectious Diseases 3
 Therapeutic Approaches to Autoimmunity: Pharmacologic Interventions and their Mechanisms

9:45 AM – 11:45 AM

Generation, Selection, and Function of B Cells
 Immunotherapy and Vaccines: Adoptive Transfer Approaches
 Innate Immunity and Autoimmunity 1
 Regulation of Immunity by the Host and Co-infections
 Respiratory Viruses and the Immune System: Part 1
 Therapeutic Approaches to Autoimmunity: Targeting APC and Costimulation

1:00 PM – 3:00 PM

Dendritic Cell Vaccines
 Immunotherapy and Vaccines: Basic Science
 Innate Defense Mechanisms
 Lymphocytes and Lymphoid Cells in Innate Immunity
 Microbiota and Mucosal Homeostasis

3:15 PM – 5:15 PM

Cellular Factors in Inflammation and Tissue Remodeling
 Induction of Host Responses against Mucosal Pathogens
 Interplay of Virus and Immune Effectors: Part 2
 Mechanisms of Human Autoimmunity
 T and B Cell Receptor Signaling
 Th17 and IL-17 Family Cytokines

Monday, May 6

7:30 AM – 9:30 AM

Cytokines in Cancer, Transplantation, and Autoimmunity
 Generation and Death of Effector, Memory, and Regulatory CD4 T Cells 1
 Innate Cytokines and Mediators in Promotion of Allergic Inflammation
 New Mechanisms of Pattern Recognition and Signaling
 Regulation of T Cell Effector Mechanisms: Relevance to Disease
 T Cell Subsets in Autoimmunity

9:45 AM – 11:45 AM

Antigen Processing and Presentation: Understanding the Immune Response
 Crosstalk in Innate Immune Regulation
 Immunosuppression in the Tumor Microenvironment
 Inflammatory Cytokines and Chemokines
 Mast Cells in Allergic Inflammation
 Regulation of Lymphoid Function

1:00 PM – 3:00 PM

Developments in Immunotherapy
 Dynamics of T cell Activation/Contraction during Viral Infection: Part 2
 Human Immunity in Cancer, Infection, and Inflammation
 Lymphocyte Trafficking to Paths Less Traveled
 Therapeutic Approaches to Autoimmunity: Targeting T cells and Tregs
 Transplantation and Alloimmunity

Tuesday, May 7

7:30 AM – 9:30 AM

Antigen Processing and Presentation: Cellular Insights
 Mechanisms of T, NK, and NKT Lymphocyte Differentiation and Repertoire Selection
 Pathogens and Host Defense
 Regional and Systemic Innate Immune Responses
 Regulatory Mechanisms in Immune Cells
 Technological Innovations in Immunology 2

9:45 AM – 11:45 AM

Control of Immune Effector Cells in Mucosal Tissues
 Generation and Death of Effector, Memory, and Regulatory CD4 T Cells 2
 Genetic Susceptibility to Autoimmunity
 HIV, AIDS, and the Immune System
 NK, NKT, and $\gamma\delta$ T Cell Development
 T Cells and Microbes

12:00 PM – 2:00 PM

Innate Immunity and Autoimmunity 2
 Models of Allergic Disease
 Respiratory Viruses and the Immune System: Part 2
 The Induction and Resolution of Inflammation in Epithelial Tissues
 Treg Cell Stability and Plasticity
 Tumor Microenvironment Modulation

The most interactive part of the meeting! Discuss data and research issues firsthand with authors at the Poster Sessions.

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Dedicated Daily Poster Presentation Time from 11:45 AM – 1:00 PM

Saturday, May 4

Antigen Processing and Presentation: Molecular Insights
 Autoantibodies and Autoantigens
 Autoimmune and Inflammatory Disease Pathogenesis
 B Cell Signaling and Tolerance Regulation
 Cancer Vaccines
 Cytokine Regulation of Cancer, Autoimmunity, and Transplantation
 Dendritic Cell Vaccines
 Developments in Immunotherapy
 Dynamics of T Cell Activation/Contraction during Viral Infection: Part 2
 Generation and Death of Effector, Memory, and Regulatory CD4 T Cells
 Genetics of Autoimmunity
 Hematopoiesis and Immune System Development
 Immunosuppression in the Tumor Microenvironment
 Immunotherapy and Vaccines: Infectious Diseases 3
 Innate Immune Responses to Viruses
 Infectious Disorders and Vaccination
 Innate Immune Response to Bacteria and Parasites
 Leukocyte Trafficking
 Mast Cells in Allergic Inflammation
 Mechanisms of T, NK, and NKT Lymphocyte Differentiation and Repertoire Selection
 Microbiota and Mucosal Homeostasis
 Models of Allergic Disease
 Molecular Mechanisms of Leukocyte Activation in Innate Immune Responses
 Regulation of Lymphoid Function
 Regulation of T Cell Effector Mechanisms
 Respiratory Viruses and the Immune System: Part 1
 Therapeutic Approaches to Autoimmunity: APCs and Tolerance
 Therapeutic Approaches to Autoimmunity: Pharmacologic Interventions
 Transplantation and Alloimmunity

Sunday, May 5

Antigen Processing and Presentation: Cellular Insights
 Antigen Processing and Presentation: Understanding the Immune Response
 Cellular and Molecular Biology of the Innate Immune Response
 Costimulatory Pathways in Immunity and Tolerance
 Cytokines and Cellular Interactions

Cytokines and Chemokines in Inflammation and Immunity
 Cytosolic Sensing and Inflammasomes
 Generation of Effector and Memory CD8 T Cells
 HIV, AIDS, and the Immune System
 Homeostasis and Aging of Lymphocytes
 Immune Regulation in Allergic Disease and Impact of Pathogens
 Immunoregulatory Mechanisms
 Immunoregulatory Signaling Pathways
 Immunotherapy and Vaccines: Infectious Diseases 2
 Induction of Host Responses against Mucosal Pathogens
 Innate Control of Microbial Disease
 Innate Immunity and Viral Vaccines
 Innate Regulation of Autoimmunity
 Interplay of Virus and Immune Effectors: Part 2
 Leukocyte Adhesion
 Myeloid Cells in Anti-microbial Defense
 Regional and Systemic Innate Immune Responses
 Restoring Immunocompetence in the Tumor Microenvironment
 T Cell Tolerance and Signaling
 T Cells and Microbes
 Technological Innovations in Immunology 1
 The Induction and Resolution of Inflammation in Epithelial Tissues
 Therapeutic Approaches to Autoimmunity: Tackling Oxidative Stress, Vitamins, and Biochemistry
 TLR Signaling and Function
 Treg Cell Stability and Plasticity
 Tumor Microenvironment Modulation
 Veterinary and Comparative Immunology

Monday, May 6

Cancer Immunobiology
 Control of Immune Effector Cells in Mucosal Tissues
 Cytokines and Cellular Networks in Autoimmunity
 Dynamics of T Cell and NK Cell Activation/Contraction during Viral Infection: Part 1
 Generation, Selection, and Function of B Cells
 Genetics and Immune-mediated Diseases
 Immunotherapy and Vaccines: Adoptive Transfer Approaches
 Immunotherapy and Vaccines: Basic Science
 Immunotherapy and Vaccines: Infectious Diseases 1
 Inflammation and Disease
 Innate Cytokines and Mediators in Promotion of Allergic Inflammation

Interplay of Virus and Immune Effectors: Part 1
 Lymphocytes and Lymphoid Cells in Innate Immunity
 Mechanisms of Cytokine Regulation and Signaling
 Myeloid Lineage Suppressor Cells
 Pathogen-mediated Regulation of Immunity
 Regulation of Immunity by the Host and Co-infections
 Regulatory Mechanisms in Immune Cells
 Respiratory Viruses and the Immune System: Part 2
 T and B Cell Receptor Signaling
 T Cell Subsets in Autoimmunity
 Technological Innovations in Immunology 2
 Th17/IL-17 Cytokine Axis
 Therapeutic Approaches to Autoimmunity: Targeting Costimulation
 Therapeutic Approaches to Autoimmunity: Targeting Cytokines
 Late Breaking Antigen Processing and Presentation
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(Schedule as of March 1, 2013)

SATURDAY, MAY 4

Longitudinal Study on Phenotypic Changes of Cryopreserved Murine T Cells Using BD FACSVerser™ System

BD Biosciences

10:00 AM – 11:00 AM EXHIBITOR WORKSHOP ROOM 1

Presenter: Yibing Wang, Systems Validation Specialist

The elucidation of questions on whether the phenotypic lymphocytes can be equally cryopreserved following analysis by flow cytometry has been limited by the instrument-related variations over time. The BD FACSVerser™ system is a high-performance flow cytometer designed to address the need for instrument standardization. In this tutorial, we will present a workflow of using BD FACSVerser™ system in conducting a longitudinal study to demonstrate utilizing the build-in standardization capability of the system. Impact of cryopreservation on phenotypically different murine lymphocyte populations will be discussed.

A Novel RNA ISH Assay for Flow Cytometry

eBioscience, An Affymetrix Company

10:00 AM – 11:00 AM EXHIBITOR WORKSHOP ROOM 2

Presenter: Sue Reynolds, Application Scientist

Designed for the detection of up to three RNA transcripts using flow cytometry, QuantiGene® Flow RNA Assay is an in situ hybridization assay that offers robust detection of RNA in individual cells and retains compatibility with antibody surface staining for simultaneous detection of protein. Incorporating dual oligonucleotide probe design with branched DNA signal amplification, this novel chemistry provides unique transcript expression in specific cell populations to develop biosignature profiles highly applicable in studying immune response.

Randox BIOCHIPS — Next Generation Microarrays

Randox Laboratories, Ltd.

11:00 AM – 12:00 PM EXHIBITOR WORKSHOP ROOM 1

Presenter: Rajneesh Mathur, National Manager — US, MSc. Endocrinology, MBA

Biochip arrays offers innovative multiplexing of patient samples using 9x9mm solid phase chips. Contrary to all the other multiplex or ELISA methods, our biochips do not require samples to be run in replicates. Extensive off-the-shelf and custom panels are available to cover cytokines, adhesion molecules and various other biomarkers.

EVOS® FL Auto Cell Imaging System: The Power of Automation with the Simplicity of EVOS

Life Technologies, Inc.

11:00 AM – 12:00 PM EXHIBITOR WORKSHOP ROOM 2

Presenter: Christopher Freson, MBA — TSS Manager

By removing the complexities of fluorescence microscopy, the affordable, intuitive EVOS® cell imaging systems have revolutionized the way researchers use fluorescence microscopy to image cells. The latest addition to the EVOS® line, the EVOS® FL Auto brings the simplicity of EVOS to an automated imaging platform capable of plate scanning, image stitching, and time lapse imaging with a simple touch of the monitor. This workshop will show you how simple and affordable it is to bring automated cell imaging to your lab with the EVOS® FL Auto Cell Imaging System.

Isolation of Mouse Immune Cells in as Little as 15 Minutes

STEMCELL Technologies, Inc.

12:00 PM – 1:00 PM EXHIBITOR WORKSHOP ROOM 1

Presenter: Nooshin Tabatabaei-Zavareh, Ph.D.

In this seminar, learn how to isolate mouse cells in as little as 15 minutes using STEMCELL Technologies' next-generation EasySep™ mouse cell isolation kits. This fast, easy and column-free immunomagnetic cell isolation system yields untouched, highly purified, functional and viable cells. Workshop highlights include an introduction to our Streptavidin RapidSphere™ technology as well as data on several new kits for the isolation of B cells, T cells, CD4+, CD8+, naïve CD4+ and naïve CD8+ T cells.

Immudex

Session Description Not Available at Press Time

12:00 PM – 1:00 PM EXHIBITOR WORKSHOP ROOM 2

T Cell Activation and Immunological Synapse with the Amnis® ImageStreamX Mark II Imaging Flow Cytometer

EMD Millipore

1:00 PM – 2:00 PM EXHIBITOR WORKSHOP ROOM 1

Presenter: Sherree Friend, Ph.D., Amnis, a division of EMD Millipore

Adaptive immune responses require the formation of an immunological synapse triggering the translocation of nuclear factors across the cell membrane for gene activation. Immunological synapse is measured by imaging cell conjugates. We used the Amnis® ImageStreamX Mark II imaging flow cytometer to collect large and statistically significant populations of images of synapse complexes. We evaluated the specific location of the adhesion and signaling molecules LFA-1 and Lck within the immunological synapse complex in T cells when presented with SEB, as well as T cell activation via measurement of nuclear localization of NFkB in the T cell.

Modulating In Vivo T Cell Activation: 15 Color Immunophenotyping, Cytokine Analysis, and Cellular Redistribution

BioLegend

1:00 PM – 2:00 PM EXHIBITOR WORKSHOP ROOM 2

Presenters: Kelly Lundsten, Miguel Tam, Naomi Urbina, Jeanette Ampudia, John Ransom

Understanding the mechanisms for modulating T cell and dendritic cell activation is important in our attempt to control key aspects of immune regulation. In this application, modulation of T cell-specific activation was achieved in vivo in a murine model through the injection of anti-CD3 low endotoxin azide free (LEAF) antibody with or without LEAF purified anti-PD-1H/VISTA co-injected. Using a 15 color flow cytometric assay and ELISA, the kinetics of activation were monitored through multiple cell surface markers, cytokine production and changes in cellular distribution in tissue were compared. We demonstrate that anti-PD-1H antibody administration successfully modulates CD3-induced T cell activation.

High-Throughput Sequencing of T Cell and B Cell Receptors Using immunoSEQ

Adaptive Bio Technologies Corporation

2:00 PM – 3:00 PM EXHIBITOR WORKSHOP ROOM 1

Presenter: Catherine M. Sanders, Senior Research Scientist

Adaptive Biotechnologies' commercial product, immunoSEQ (www.immunoseq.com), combines the capabilities of a proprietary multiplex PCR methodology with ultra high-throughput sequencing to provide exceptionally deep access to T cell and B cell receptor repertoires. This unprecedented capability is complemented by powerful analytical software tools that facilitate analysis, visualization, comparison and reporting of TCR or BCR sequence data. This technology is applicable in various fields including autoimmunity, infectious disease, vaccine development, allergy, oncology, drug development, and transplantation. Come learn how immune profiling can be applied to your research.

iRepertoire

2:00 PM – 3:00 PM EXHIBITOR WORKSHOP ROOM 2

Presenter: Jian Han, Ph.D.

Learn how to perform immune repertoire amplification using a proprietary multiplex PCR method! Our streamlined process is inclusive, semi-quantitative, and easy to use. From a typical blood sample, you will obtain 100,000–300,000 unique CDR3 sequences. Amplified libraries are pooled and submitted for NGS using either Illumina or Roche454. Up to 60 samples can be pooled per sequencing lane to reduce cost. We have established an online data analysis pipeline that applies stringent filters to remove errors and provides many types of analyses free-of-charge. We will also discuss the non-profit initiative R10K that aims to study the immunorepertoire of 100 diseases.

SUNDAY, MAY 5

Incorporating Brilliant Violet Dyes into Multicolor Flow Cytometry Panels

BD Biosciences

10:00 AM – 11:00 AM EXHIBITOR WORKSHOP ROOM 1

Presenter: Maria C. Jaimes, Senior Staff Scientist

Careful antibody panel design is a mandatory step for successful polychromatic flow cytometry. Factors to consider include instrument performance, level of antigen expression, fluorochrome brightness and spillover. Until recently the limited availability of bright fluorochromes created a challenge when designing panels aimed at identifying several low expressed antigens simultaneously. The development of the Brilliant Violet polymer dyes opens a new era in flow cytometry due to their considerable brightness as compared to conventional dyes, allowing for easier design and implementation of 10–12 color panels. Moreover, because of the brightness of these fluors, the resolution of dim markers can be greatly improved allowing the development of high sensitivity immunophenotyping.

The Immune Epitope Database and Analysis Resource: Introduction and New Feature Highlights

Immune Epitope Database and Analysis Resource (IEDB)

10:00 AM – 11:00 AM EXHIBITOR WORKSHOP ROOM 2

Presenter: Kerrie Vaughan, Ph.D.

The Immune Epitope Database and Analysis Resource (IEDB) is a free online resource supported by NIAID. The IEDB contains data related to antibody and T cell epitopes for humans, non-human primates, rodents, and other animal species. Curation of peptidic and non-peptidic epitope data relating to all infectious diseases, allergens, autoimmune diseases, and transplant/alloantigens is current and constantly being updated. The IEDB contains data derived from over 14,500 references. The IEDB also hosts tools to analyze data and predict T cell and antibody epitopes. The workshop will present an introduction to the website's features and highlights of the latest IEDB release.

Randox BIOCHIPS — Next Generation Microarrays

Randox Laboratories, Ltd.

11:00 AM – 12:00 PM EXHIBITOR WORKSHOP ROOM 1

Presenter: Rajneesh Mathur, National Manager — US, MSc. Endocrinology, MBA

Biochip Arrays offers innovative multiplexing of patient samples using 9x9mm solid phase chips. Contrary to all the other Multiplex or ELISA methods — “Biochips do not require samples to be run in replicates”. Extensive off-the-shelf and custom panels are available to cover Cytokines, Adhesion Molecules and various other Biomarkers.

Advanced Technology for Improving the Development of Monoclonal Antibodies and DNA Vaccine Delivery

BTX Harvard Apparatus

11:00 AM – 12:00 PM EXHIBITOR WORKSHOP ROOM 2

Presenter: Robin Butler, Business Development Manager

BTX advanced technologies effectively improve monoclonal antibody production by 10-fold compared to traditional methods and increase DNA vaccine uptake and gene expression for overall improved immune responses in vivo.

Fluidigm Corporation

12:00 PM – 1:00 PM EXHIBITOR WORKSHOP ROOM 1

Session Description Not Available at Press Time

Measuring Immunological Synapse and Actin Organization Using the FlowSight Imaging Flow Cytometer

EMD Millipore

1:00 PM – 2:00 PM EXHIBITOR WORKSHOP ROOM 1

Presenter: *Haley Pugsley, Ph.D., Amnis, a division of EMD Millipore*

Sustained adhesion of T cells to APCs and formation of the immunological synapse after T cell receptor stimulation are required for the antigen-specific response. Immunological synapses are often rare and therefore difficult to analyze by traditional microscopy methods. We employed the Amnis® FlowSight® imaging flow cytometer to collect imagery of large numbers of cells to assess the percentage of T cells involved in an organized immunological synapse. Using this method we demonstrate the image-based parameters used to assess the frequency of conjugates with an organized immunological synapse in an objective and statistically significant manner.

Modulating In Vivo T cell Activation: 15 Color Immunophenotyping, Cytokine Analysis, and Cellular Redistribution

BioLegend

1:00 PM – 2:00 PM EXHIBITOR WORKSHOP ROOM 2

Presenters: *Kelly Lundsten, Miguel Tam, Naomi Urbina, Jeanette Ampudia, John Ransom*

Understanding the mechanisms for modulating T cell activation and inhibiting activated dendritic cell migration is important in our attempt to control key aspects of T cell regulation, from how to most effectively combat immune response dysregulation to the suppression of transplant rejection. The efficacy of models for T cell activation and suppression can vary in vivo vs. in vitro. Modulation of T cell-specific activation was achieved in vivo in a murine model through the injection of anti-CD3 low endotoxin azide free (LEAF) antibody with or without LEAF purified anti-PD-1H/VISTA co-injected. Using a 15 color flow cytometric assay, the kinetics of activation were monitored through multiple cell surface markers, and changes in cellular distribution were compared.

Novel Benchtop Solutions for Immunology: The Muse™ Cell Analyzer

EMD Millipore

2:00 PM – 3:00 PM EXHIBITOR WORKSHOP ROOM 1

Presenter: *Kamala Tyagarajan, Ph.D., Senior R&D Manager*

The Muse™ Cell Analyzer is an innovative, ultra compact, affordable cell analyzer that can rapidly provide quantitative cellular data using a guided touchscreen interface along with simple, easy-to-use protocols. This workshop will focus on the Muse™ Cell Analyzer assays designed for immunology research applications, including those assays developed for the identification and enumeration of CD4 T cells, CD8 T cells or B cells in whole blood or

PBMC samples. Additional assays also allow for obtaining information on activation status of lymphocytes based on CD69 or CD25 expression levels. Cell health assays on the platform permit the easy characterization and enumeration of PBMC or whole blood samples.

Transcriptome or Proteome? Analyze It All

eBioscience, An Affymetrix Company

2:00 PM – 3:00 PM EXHIBITOR WORKSHOP ROOM 2

Presenter: *Sue Reynolds, Application Scientist*

Measurement of transcriptional and protein expression levels in tissues, cells or sub-cellular compartments is limited by the inability to simultaneously correlate these levels in a complex population within the native context of a cell. Multi-dimensional assessment of active transcriptional and protein states, in combination with surface markers and other flow cytometric detectable parameters (e.g. cytokines), provides a functional assessment on a single cell level leading to unique cellular biosignatures with utility in addressing disease progression.

MONDAY, MAY 6, 2013

Of Mice, Men, and Microbiota and Case Studies of Emerging Humanized Mouse Models in Oncology Drug Discovery

Taconic

10:00 AM – 11:00 AM EXHIBITOR WORKSHOP ROOM 1

Presenters: *Tamara Goode, Ph.D., Associate Director, Veterinary Sciences and Dawn Jelley-Gibbs, Ph.D.*

Part 1: Of Mice, Men, and Microbiota: Gut Flora in Discovery and Preclinical Case Studies. The impact of health status and gut flora on immune response, including emerging microbes of interest such as segmented filamentous bacteria and the overall impact of gut flora on immune response. Part 2: Case Studies of Emerging Humanized Mouse Models in Oncology Drug Discovery. The presentation will focus on case studies utilizing the CIEA NOG mouse® to establish patient-derived cancer models, as well as study-ready mice reconstituted with a human immune system for applications in oncology drug discovery.

Protein Purification and Immunoprecipitation in a Pipette Tip

RAININ Instrument, LLC

11:00 AM – 12:00 PM EXHIBITOR WORKSHOP ROOM 1

Presenters: *Suparna Mundodi, Ph.D., Global Product Manager*

Molecular characterization of the immune response and how this process is implemented requires the purification of native proteins and antibodies. There are numerous purification methods to isolate proteins of interest, but these methods usually require multiple steps to attain the level of purity required for most studies. The RAININ PureSpeed Protein Purification System utilizes pipette tips containing purification resin at their distal end interfaced with an E4 XLS pipette to simplify enrichment procedures for virtually all proteins. The E4 XLS pipette, when set up within a 96-deepwell plate, is able to carry out semi-automated purification of antibodies and other native or recombinant proteins.

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2013 Introductory Course in Immunology

July 13–18, 2013 • The University of Pennsylvania, Philadelphia, Pennsylvania

Director: Michael P. Cancro, Ph.D., *University of Pennsylvania, Perelman School of Medicine*

Co-Director: Christopher A. Hunter, Ph.D., *University of Pennsylvania School of Veterinary Medicine*

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 13–15)** is a detailed introduction to the basic principles of immunology and is suitable for students with a general biology background. **Part II (July 16–18)** 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

Christopher A. Hunter, *University of Pennsylvania School of Veterinary Medicine*

Introduction to the Immune System

Kathleen E. Sullivan, *Children's Hospital of Philadelphia*
Innate Immunity: Introduction to the Cells

Oriol J. Sunyer, *University of Pennsylvania School of Veterinary Medicine*
Complement

Igor E. Brodsky, *University of Pennsylvania School of Veterinary Medicine*
Innate Immunity: Introduction to Pattern Recognition and Intracellular Signaling

Jennifer A. Punt, *Haverford College*
Introduction to Adaptive Immunity

Terri M. Laufer, *University of Pennsylvania, Perelman School of Medicine*
MHC Restriction and Thymic Selection

Laurence C. Eisenlohr, *Jefferson Medical College*
Antigen Processing and Presentation

Edward M. Behrens, *Children's Hospital of Philadelphia*
Dendritic Cells: The Bridge Between Innate and Adaptive Immunity

Jonathan D. Powell, *Johns Hopkins University School of Medicine*
Effector T Cell Differentiation and Response

Michael P. Cancro, *University of Pennsylvania, Perelman School of Medicine*
B Cell Activation and Humoral Immunity

Gary A. Koretzky, *University of Pennsylvania, Perelman School of Medicine*
Signaling in the Immune System

Andrew D. Luster, *Massachusetts General Hospital, Harvard Medical School*
Trafficking of Immune Cells

Ethan M. Shevach, *NIAID, NIH*
T and B Cell Tolerance

Cathryn Nagler, *University of Chicago*
Mucosal Immunology

David Artis, *University of Pennsylvania, Perelman School of Medicine*
Type 2 Immunity and Parasite Infections

Christopher A. Hunter, *University of Pennsylvania School of Veterinary Medicine*
Cytokines

Jonathan S. Maltzman, *University of Pennsylvania, Perelman School of Medicine*
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Immunologic Memory

David B. Weiner, *University of Pennsylvania, Perelman School of Medicine*
Vaccination

Vijay K. Kuchroo, *Brigham & Women's Hospital, Harvard Medical School*
Autoimmunity

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July 28–August 2, 2013 • Seaport World Trade Center, Boston, Massachusetts

Course Director: Leslie J. Berg, Ph.D., *University of Massachusetts Medical School*

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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

Marc K. Jenkins, *Center for Immunology,
University of Minnesota Medical School*
Anatomy of the Immune Response

Jonathan C. Kagan, *Children's Hospital Boston,
Harvard Medical School*
Innate Immunity

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

Shannon J. Turley, *Dana Farber Cancer Institute,
Harvard Medical School*
Dendritic Cells

Frederick W. Alt, *Children's Hospital Boston,
Harvard Medical School*
*The Generation and Modification of Lymphocyte
Antigen Receptor Genes*

Shiv Pillai, *Massachusetts General Hospital Cancer
Center, Harvard Medical School*
B Cell Development

Avinash Bhandoola, *University of Pennsylvania,
Perelman School of Medicine*
T Cell Development

Thorsten R. Mempel, *Massachusetts General Hospital,
Harvard Medical School*
Lymphocyte Trafficking

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Medical School*
MHC-Restricted Antigen Presentation to T Cells

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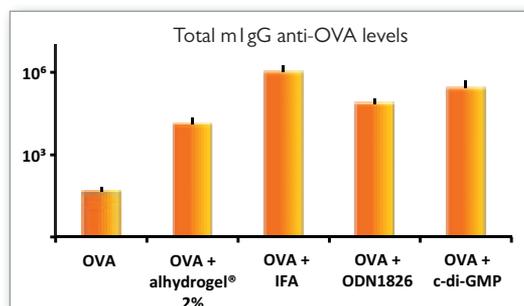
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