

Signals

THE INTERNATIONAL CYTOKINE & INTERFERON SOCIETY NEWSLETTER

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APRIL 2018 | VOLUME 6 | NO. 1



What is the most valuable aspect of our Society? It's the talent, enthusiasm, and dedication of our members. Our members who continuously dedicate their time and talents to lead our Society are invaluable to our success. Those of you who serve on our committees and organize annual conferences are the bedrock of our Society. For new members and young investigators, I encourage you to reach out to us with your ideas, and volunteer on committees. You can effect change. It will transform your career.

As incoming President of ICIS, I want to extend my thanks to our past ICIS President, Tada Taniguchi, for his leadership and encouragement of my participation as President-Elect to influence the course of ICIS. Many thanks also go to our past Secretary, Sarah Gaffen, and Treasurer, Karen Mossman. They guided the direction of the Society and initiated events at our conferences to encourage involvement of young investigators.

Advances in cytokine and interferon research are moving at an ever-accelerating pace. Technologies that include next generation sequencing, CRISPR/Cas9 genome editing, imaging in living systems, are now available to individual laboratories. These and other advances have contributed to major developments in cancer immunotherapy, resolution of inflammation, defense against emerging pathogens, regulation of microbiota and autoimmunity, and many more discoveries. We share these major accomplishments at our international conference. One of the benefits of membership in our Society is the ability to personally interact every year at our conference. Not only do we learn from eminent keynote speakers, but by attending workshops and poster sessions, we can take the opportunity to network with other scientists and initiate collaborations. These new connections and friendships will last a lifetime.

Each annual conference also provides a venue to recognize and celebrate the achievements of our fellow researchers with prestigious Awards. We are grateful to all of the sponsors of these Awards, in particular, the long-standing generosity of the Seymour and Vivian Milstein family. Please see the Donors Hall of Fame in this Signals Newsletter. Kouji Matsushima and his team organized a wonderfully successful Cytokines2017 in Kanazawa Japan last year.

This year, Chris Hunter, Kate Fitzgerald and Anne O'Garra are organizing a terrific program for Cytokines2018 in Boston.

I am very excited to announce a new initiative on our horizon...the launch of an official ICIS open access Signals journal. The publisher of the Signals journal will be BioMed Central Ltd-Springer, and all of your peer-reviewed research articles will be immediately accessible online. Timely communication and accessibility of our discoveries is vital. We want to acknowledge the generosity of Jan Vilcek who contributed funding to kick-start the Signals journal. Scott Durum and Christina Bergamaschi have taken on the responsibility of its oversight and will serve as Co-Editors-in-Chief. Their plan is to focus on high impact reviews during its inaugural year. Subsequently, it will aim to publish pioneering peer-reviewed articles in cytokine, interferon, chemokine, and growth factor biology. Our Society continues to support the publications, Cytokine, and the Journal of Interferon and Cytokine Research, as our members serve as editors, reviewers, and authors.

I look forward to working closely with our new team, President-Elect Kate Fitzgerald, Secretary John Schoggins, and Treasurer Cem Gabay, as well as the members of the Executive Council and Committees. A special thank you extends to our Managing Director, Joan Oefner. Joan's energy is a vitalizing force for our future.

I hope to meet each of you personally in Boston at Cytokines2018. Together, we can make all the difference.

Nancy C. Reich

Future Meetings

Cytokines 2019 Oct. 20-23, 2019 Vienna, Austria	Cytokines 2020, November 1 - 4 2020 Hyatt Regency Seattle, Seattle, USA
Cytokines 2018 Oct. 27-30, 2018 Boston, USA	

Newsletter Editors:

Howard Young
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Managing Director:

Joan Oefner

International Cytokine & Interferon Society



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HALL OF
FAME

*We are grateful for the generous
support of our Donors*

(in alphabetical order)

BioLegend William E. Paul Award

Christina Fleischmann Award to Young Women Investigators

Jan Vilček, Signals Open Access Journal Donation

Seymour & Vivian Milstein Awards

Excellence in Interferon & Cytokine Research, Young Investigator & Travel Awards

Sidney & Joan Pestka Awards

Graduate and Post-Graduate, Excellence in Interferon & Cytokine Research

www.cytokinesociety.org for more information

Cytokines 2017 Organizers



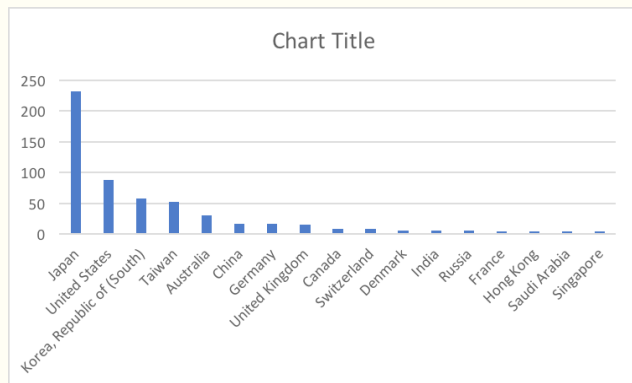
Dr. Naofumi Mukaida, Dr. Kouji Matsushima and Dr. Akihiko Yoshimura receiving their plaques (Dr. Kishimoto not pictured) from the ICIS in honor of their outstanding job as Organizers of Cytokines 2017. (From L-R) Secretary General, Naofumi Mukaida; President, Kouji Matsushima and Program Chair, Akihiko Yoshimura. Honorary President, Tadimitsu Kishimoto (not in the picture).

The 5th Annual Meeting of the International Cytokine & Interferon Society was held October 29-November 2, 2017 in Kanazawa, Japan. ICIS-related international meetings that have been held in Japan previously include the Cytokine Workshop in Kobe in 1993, organized by Professor Tadimitsu Kishimoto, and the Cytokine and Interferon Workshop in Tokyo, also in 1993, organized by Professor Fumimaro Takaku. Cytokines 2017 was co-organized with the Japanese Society of Interferon and Cytokine Research (JSICR) and the Japanese Society of Molecular Cell Biology of Macrophages (MMCB).

The ICIS Council is grateful to the Organizers for their efforts and execution of a very successful conference.

Kouji Matsushima provided a final report for the 5th Annual Meeting of the International Cytokine and Interferon Society. Through the strong efforts of the organizers, the meeting resulted in a surplus which will be divided among the three organizing societies: the ICIS, the JSICR and the MMCB. Special thanks go to the Milstein Family and Dr. Kishimoto for their support of travel awards which were critical in helping **135 attendees** participate in this wonderful meeting. In addition to the four Milstein Young Investigator Awards, the Christina Fleischmann Award and the two Sidney & Joan Pestka Awards, 61 ICIS members received Milstein Travel Awards and 41 international young investigators as well as 26 young investigators from Japan, received Kishimoto Travel Awards distributed to worthy presenters at Cytokines 2017 in Kanazawa!

Attendance was ~850 people, 350 Japanese. Good representation from Taiwan and South Korea.



Breakdown of Presentations:

Oral Presentation.....	94
Poster Presentation	380
Keynote Speaker.....	7
Invited Speaker.....	84
Chair.....	3
Total:	568

2017 THE MILSTEIN YOUNG INVESTIGATOR AWARDEES

Every year up to five awards are granted to individuals who have made notable contributions to either basic or clinical research. These awards are provided by a generous gift of the Milstein Family.



**ARI B. MOLOFSKY,
MD, PHD**

**Assistant Professor, Dept. of Laboratory Medicine,
University of California San Francisco, USA**

Dr. Molofsky's research lab, set up in 2015, is focused on the impact of tissue-resident lymphocytes in normal tissue development, remodeling, and the initiation of pathology. The Molofsky lab studies how resident lymphocytes such as group 2 innate lymphoid cells (ILC2) and regulatory T cells (Treg) are supported at tissue niches, using a combination of advanced microscopy, genetic tools, and transcriptomics. The lab has been studying the cellular sources and regulation of the cytokine IL-33, which potently activates ILC2 and Treg, in systemic metabolic function, allergic lung disease, and neurodevelopment. They are also exploring how resident lymphocytes interact and compete at tissue niches to determine immunologic outcomes. In addition to the Milstein Young Investigator award, Dr. Molofsky is the recipient of the Larry L. Hillblom Young Investigator Award, a career development award from the NIDDK, and a UCSF New Frontiers Research Award.



**CHRISTIAN
KANSTRUP
HOLM, PHD**

**Associate Professor, Aarhus University,
Department of Biomedicine, Aarhus C, Denmark**

Christian Kanstrup Holm received his PhD in December 2009 from Faculty of Health Sciences at Aarhus University. Christian completed his postdoc work in the laboratory of professor Søren R. Paludan, also at Aarhus University. This work was focused on a new DNA independent mechanism for the activation of the adaptor protein STING by infection with enveloped viruses. Christian started his own research group in December 2014 and is currently focusing on regulatory mechanisms of cellular innate immune responses to infection. His work is based on in vivo models for viral and bacterial infection supported by cellular in vitro work.

The perspective of Christians focus is to exploit built-in regulatory mechanisms of the immune system to dampen immunopathology in infectious as well as in chronic inflammatory diseases.

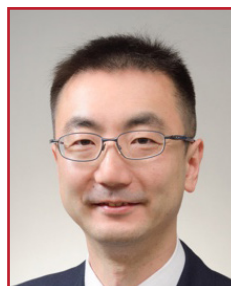
2017 THE MILSTEIN YOUNG INVESTIGATOR AWARDEES



**TATSUMA BAN,
PHD**

**Assistant Professor, Department of Immunology,
Yokohama City University Graduate School of Medicine,
Yokohama, Japan**

Dr. Ban received his Ph.D. in 2012 from the University of Tokyo, Japan under the mentorship of Prof. Tadatsugu Taniguchi. During his Ph.D. course, he studied the innate immune sensing mechanisms of nucleic acids derived from viruses or other pathogens, and contributed to publishing two Nature papers and three Proc Natl Acad Sci USA papers. After receiving his Ph.D., Dr. Ban joined the laboratory of Prof. Tomohiko Tamura at the Department of Immunology, Yokohama City University Graduate School of Medicine, and has been studying the activation mechanism of the IRF transcription factor family, and developing novel therapeutics for autoimmune diseases. He showed in a mouse model of systemic lupus erythematosus (SLE) that hyperactivation of IRF5 causes the development of an SLE-like disease, and that the selective suppression of IRF5 is key to the new therapeutics for SLE. His work was published in Immunity in 2016. He recently works on a project for the development of the IRF5 inhibitor as an innovative drug for SLE.



**KIYOSHI
HIRAHARA, MD,
PHD**

**Associate Professor, Department of Immunology, Graduate
School of Medicine, Chiba University, Chiba, JAPAN**

Dr. Hirahara graduated from Niigata University school of Medicine in 2001. He was engaged in clinical practice as a physician, specifically in respiratory medicine for more than three years and he started a Ph.D. course supervised by Prof. Toshinori Nakayama in the Department of Immunology at Chiba University in 2004. His project was to study the role of repressor of GATA3, which regulates the expression of Th2-related cytokines and he completed the Ph.D. program in 2008. From 2009 to 2013, he worked as a postdoctoral fellow with Dr. John J. O'Shea at the Molecular Immunology and Inflammation Branch of the US National Institute of Arthritis and Musculoskeletal and Skin Diseases. He identified new immunosuppressive mechanisms of a critical immunoregulatory cytokine, Interleukin (IL)-27. He also identified a crucial link between the role of a transcription factor, BACH2 and the immune balance of CD4 T cells.

In 2013, he joined the Department of Immunology at Chiba University as a faculty member and continued working on IL-27 and IL-6. He found that STAT1 contributes to transcriptomic diversity in response to cytokines and that the functional abnormality of STAT1 is involved in the pathogenicity of human primary immunodeficiency. Dr. Hirahara is now mainly carrying out research on the identification of the pathogenic roles of CD4+ T cells in intractable respiratory diseases, such as pulmonary fibrosis.

Dr. Hirahara acquired a grant from the JSPS Research Fellowship for Japanese Biomedical and Behavioral Researchers at NIH from January 2012 to March 2013. He also received the 10th Young Investigator Award from Japanese Society for Immunology in 2015.

**2017
CHRISTINA
FLEISCHMANN AWARD
TO YOUNG WOMEN
INVESTIGATORS**

This award is made possible through the generosity of the Fleischmann Family and is dedicated to the memory of ISICR member and outstanding interferon research scientist Christina Fleischmann.



SUSAN CARPENTER, PHD

Assistant Professor, Department of Molecular, Cell and Developmental Biology, University of California Santa Cruz., Santa Cruz, United States

Dr. Susan Carpenter received her Ph.D. from Trinity College Dublin, Ireland for her work on the identification of a novel protein named TRIL and its role as a co-receptor in Toll like receptor signaling.

Dr. Carpenter obtained a prestigious Health research board/ Marie Curie fellowship to carry out her postdoctoral work in the laboratory of Dr. Kate Fitzgerald at UMASS Medical School where she began to investigate the role of long noncoding RNAs (lncRNAs) within the innate immune system. Her published work (Science, 2013) provided the first evidence that a lncRNA (lincRNA-Cox2) could function to control innate immune genes. She completed her postdoctoral work at the laboratory of Dr. Michael McManus at the University of California, San Francisco where she worked on developing high throughput genomic approaches to study lncRNAs important for human innate immune signaling in host defense. Dr. Carpenter started her independent research group at the University of California, Santa Cruz in 2015 where they focus on the identification

of novel genes involved in regulating the inducible inflammatory response. This is achieved through the use of high throughput Cas9 screening techniques in addition to more focused approaches generating animal models to study specific lncRNA genes and their roles in host defense against infection and inflammatory diseases. Her work has been supported by the Arthritis National Research Foundation where she was named the Sontag Foundation Fellow in 2014 and the James Klinenberg Scholar in 2016. The long-term goals of the Carpenter Lab are to provide critical and novel insights into how immune cells develop and respond during infection with the aim to identifying novel drug targets leading to improved therapeutics for infectious and inflammatory diseases.

2017 SIDNEY AND JOAN PESTKA POST- GRADUATE AWARDEE

These Awards are generously sponsored by PBL Assay Science, are targeted to graduate students and post-doctoral fellows who have begun to make an impact in interferon and cytokine research.



E. ASHLEY MOSEMAN

Postdoctoral Fellow, National Institute of Neurological Disorders and Stroke, National Institutes of Health, Bethesda, United States

After growing up in southern Indiana, Ashley graduated magna cum laude from Carleton College with B.A. in Biology.

After working for two years at the University of Minnesota and another year at Indiana University, Ashley headed to Boston to pursue a Ph.D. in Immunology from Harvard University under the supervision of Ulrich von Andrian. His graduate work focused on the biology and antiviral functions of lymph node subcapsular sinus macrophages with a particular interest in how B cells and macrophages cooperate to orchestrate both innate and adaptive immune responses following cytopathic vesicular stomatitis virus infection. Ashley's work showed that productive viral replication within subcapsular sinus macrophages was required for them to produce locally neuroprotective type I IFN. In addition, he showed that this protective, virally susceptible, macrophage phenotype relied on lymphotoxin expression by B cells. Since joining Dorian McGavern's lab at the National Institute of

Neurological Disorders and Stroke (NINDS) in 2012, he has sought to understand the factors regulating the development of neutralizing humoral responses to chronic viral infection, as well as understanding how the central nervous system prevents and combats cytopathic viral infections. Unlike most acute viral infections, chronic viral infections often fail to drive neutralizing antibody responses. Recently, Ashley has shown that, during chronic viral infection, type I IFN drives the deletion of lymphocytic choriomeningitis virus neutralizing B cell specificities through the differentiation of cytotoxic CD8+ T cells. Ashley's ongoing interest focus on how the central nervous system protects itself during viral infections, particularly those infections which seek to gain access via the olfactory route.



**2017
SIDNEY AND JOAN
PESTKA GRADUATE
AWARDEE**

These Awards are generously sponsored by PBL Assay Science, are targeted to graduate students and post-doctoral fellows who have begun to make an impact in interferon and cytokine research.



CHARLOTTE NEJAD

Centre for Innate Immunity and Infectious Diseases, Hudson Institute of Medical Research, Clayton, Australia

Charlotte received her Master of Science (M.Sc.) in Pharmaceutical Bioprocess Engineering from the Technical University in Munich, Germany at the end of 2014.

Following this, Charlotte joined the laboratory of Dr. Michael Gantier at the Hudson Institute of Medical Research, Australia to pursue her postgraduate studies.

Charlotte's Ph.D. investigates the modulation of microRNA function by immune responses, with a specific focus on the control of microRNA stability and its consequence for the use of microRNAs as biomarkers.

Her work, recently published (Nejad et al. RNA. 2018 Mar;24(3):332-341), highlights a novel effect of type-I IFN on the stability of long microRNA isoforms. As such, type-I IFN stimulation promotes the sequence-specific decrease

of select microRNA isoforms. These findings establish that microRNA variants can be dynamically regulated, thereby increasing the breadth of microRNA potentially used as biomarkers in disease contexts.

Charlotte was awarded a Young Investigator Award from the Victorian Infection and Immunity Network (VIIN) in 2016 and she was presented an award for best postgraduate presentation by the Australian Society of Medical Research (ASMR) in recognition of this work. Charlotte has accepted a new position with Shire, Germany to support patients with rare diseases, which she will commence on the 3rd of April 2018.

ANNUAL AWARDS

NOMINATION/SUBMISSION DEADLINES:

- › 15 March 2018: The Milstein Award and the ICIS-BioLegend William E. Paul Award
- › 17 April 2018: Honorary Lifetime Membership & Distinguished Service Awards
- › 1 June 2018: All Young Investigator Awards & Milstein Travel Awards

More information/submission site: cytokinesociety.org/icis-prestigious-awards/

Presented by:



Seymour & Vivian Milstein Award for Excellence in Interferon and Cytokine Research

The preeminent Seymour & Vivian Milstein Award for Excellence in Interferon and Cytokine Research, commonly known as The Milstein Award, recognizes individuals who have made exceptional contributions to interferon and cytokine research, either in a basic or applied field. Many of these achievements have led to the advancement of human health. **Award:** \$10,000 from the Milstein Family Grant. ICIS Crystal and travel reimbursement from ICIS as well as meeting registration waived for the year of the Award. Oral presentation at the Annual Meeting of the International Cytokine & Interferon Society, Cytokines 2018, 27-30 October, in Boston, USA. www.boston.cytokinesociety.org The Milstein family also supports The Milstein Young Investigator Awards and The Milstein Travel Awards for ICIS members presenting abstracts at Cytokines 2018.



www.milstein-award.org

ICIS BioLegend William E. Paul Award

This prestigious award is given to an investigator that has made significant contributions to cytokine and interferon research throughout their career. Through the generosity of BioLegend the award consists of \$2500, ICIS Crystal (3 D structure of IL-4), travel reimbursement and meeting registration waived for the year of the Award. Oral presentation at Cytokines 2018.



The Sidney & Joan Pestka Graduate & Post-Graduate Awards for Excellence in Interferon and Cytokine Research

These awards are targeted to graduate students and post-doctoral fellows who have begun to make an impact in interferon and cytokine research. The Awards are designed to fill the gap among the awards currently offered by the ICIS to more senior investigators. Candidates must be actively working in interferon/cytokine research. Each award includes a \$3500 cash award, \$1500 travel grant to attend **Cytokines 2018**, a \$2500 PBL Assay Science product credit for each awardee, and a complimentary one-year ICIS membership.

Sponsored by:



The Christina Fleischmann Award to Young Women Investigators

This award is open to young women investigators working in the cytokine, chemokine and interferon biology, thanks to the generosity of the Fleischmann Foundation in memory of outstanding interferon research scientist Christina Fleischmann. The award includes a \$2000 cash award through a grant from the Fleischmann Family Fund.

Other ICIS Awards

- › **Honorary Lifetime Membership Award**
- › **Distinguished Service Award**
- › **Milstein Travel Awards**
- › **Milstein Young Investigator Awards**

2018 ICIS Awards

The Seymour and Vivian Milstein Awards



For over 30 years, the Milstein Awards have represented the pinnacle of scientific achievement in interferon and cytokine research and are conferred each year by the International Cytokine & Interferon Society (ICIS) at a special event during its annual meeting. The Milstein family—Vivian, her late husband Seymour, their son Philip and their daughter Connie—are well-known philanthropists in the United States and abroad. For more than 50 years they have provided essential support for institutions and organizations at a time when funds from government agencies have been drying up. The preeminent Seymour & Vivian Milstein Award for Excellence in Interferon and Cytokine Research, commonly known as The Milstein Award, recognizes individuals who have made exceptional contributions to interferon and cytokine research, either in a basic or applied field. Many of these achievements have led to the advancement of human health. The Milstein family also supports The Milstein Young Investigator Awards to recognize the work of individuals who have made an impact on interferon and cytokine research early in their careers, and The Milstein Travel Awards to give those who may not otherwise be able to attend the Annual Meeting of the ICIS an opportunity to share the most current interferon and cytokine knowledge with peers from around the world.

Honorary Life Membership Award

Nominations are solicited for Honorary Life Memberships in the ICIS. Each year an individual will be awarded Life Membership as a tribute to his/her contributions to the field. Nominees should be individuals who have made substantive contributions to the cytokine/chemokine/interferon field over much of their careers, either in basic, clinical or applied research. Honorary members are esteemed members of the Society and provide us with an historical perspective and valued research tradition. Honorary Life Members are accorded all rights and privileges of active members, are exempted from Society dues and are listed in the dedicated Honorary Life Members section of the Society web site. The winner(s) is elected by vote of the ICIS Council. Nominations should be communicated to the Awards Committee of the ICIS.

ICIS Distinguished Service Award

The ICIS will on occasion bestow this honor on an ICIS member who has made an extraordinary contribution to the Society. The individual will have devoted significant time and energy over a period of years to elevating the goals of the Society in furthering research on interferon, cytokines and chemokines. Nominations should be communicated to the Awards Committee of the ICIS.

ICIS BioLegend William E. Paul Award



This new award is given to an investigator that has made significant contributions to cytokine and interferon research throughout their career. Through the generosity of BioLegend the award consists of \$2500 and a crystal block with the 3 D structure of IL-4, the cytokine most associated with Dr. Paul's research.

2018 ICIS Awards

The Milstein Young Investigator Award

ICIS members who attend the 2018 ICIS meeting in Boston and who have received a Ph.D or M.D. within the previous 10 years are eligible. Every year up to five awards are granted to individuals who have made notable contributions to either basic or clinical research. This award is provided by a generous gift of the Milstein Family. ICIS members may either apply themselves or nominate other eligible members for Milstein Young Investigator Awards. A CV and letter of recommendation (including confirmation of eligibility) should accompany the application. Deadline to submit your 2018 application is **1 June, 2018**.

The Christina Fleischmann Award to Young Women Investigators



The rules for this ICIS award are the same as for the Milstein Young Investigator Award (see above) except for gender and the candidate must have received a Ph.D or M.D. degree within the previous 10 years. This award is made possible through the generosity of the Fleischmann Foundation and is dedicated to the memory of ISICR member and outstanding interferon research scientist Christina Fleischmann. This award is open to young women investigators working in cytokine, chemokine and interferon biology. Deadline to submit your 2018 application is **1 June 2018**.

The Sidney & Joan Pestka Graduate and Post-Graduate Awards for Excellence in Interferon and Cytokine Research Sponsored by PBL InterferonSource



The Sidney & Joan Pestka Graduate and Post-Graduate Awards are targeted to graduate students and post-doctoral fellows who have begun to make an impact in interferon and cytokine research. The Awards

are designed to fill the gap among the awards currently offered by the ICIS to more senior investigators—The Milstein Young Investigator Award, the Christina Fleischmann Award, Honorary Membership, and The Seymour & Vivian Milstein Award. Candidates must be actively working in interferon/cytokine research. The award includes a \$3500 cash award, \$1500 travel grant, a \$2500 PBL Assay Science product credit for each awardee, and a complimentary one-year ICIS membership. This is an annual award and a recipient may receive an award only once. However, an individual who receives the Graduate Award remains eligible for the Post-Graduate Award. In years where a suitable candidate is not identified, an award will not be bestowed. Applicants should submit a CV, a letter of support from their mentor, including confirmation of trainee status, and a statement of research and accomplishments. No proprietary or confidential information can be included in the application. Deadline to submit your 2018 application is **1 June 2018**.

2018 ICIS Awards

The Milstein Travel Awards

ICIS members who attend the annual meeting are eligible for Travel Awards. They are provided through a grant from the Milstein Family based on the scientific merit of the abstract and financial necessity. This award does not exempt payment of the conference registration fee. There are no age restrictions to this award. However, if both senior and junior members from the same laboratory apply for an award, preference is given to the junior member. This award is dependent on availability of funds. Deadline to submit your 2018 application is

1 June 2018.

Call for Nominations for Prestigious Awards of the International Cytokine & Interferon Society (ICIS)

All members of the Society are invited to submit nominations for the following awards:

- The Seymour and Vivian Milstein Awards (deadline was 15 March)
- Honorary Membership Award (deadline 17 April, 2018)
- Distinguished Service Award (deadline is 17 April, 2018)
- ICIS-BioLegend William E. Paul Award (deadline was 15 March)

Nominations will be accepted until the deadlines listed above for these prestigious symbols of recognition by our society for outstanding achievements furthering research on interferon, cytokines and chemokines.

Full details about the awards and nomination submission can be found here <http://cytokinesociety.org/icis-prestigious-awards/>

Awards will be presented at Cytokines 2018 in Boston, Oct 27-30.



What a great meeting. Good bye and thank you glorious Kanazawa! I will miss this place... tweet from Akiko Iwasaki Lab (@VirusesImmunity)

WELCOME

NEW ICIS MEMBERS

We welcome these new members to the ICIS and we look forward to their attendance at the annual meeting and involvement in the society.

Torki A. Alothaimen
Canada

Sarder Arifuzzaman
Hanyang University,
Republic of Korea

Marina Babic Cac
Deutsches Rheuma-
Forschungszentrum Berlin,
Germany

Stanley Cohen
Rutgers-NJMS, Also
Adjunct Prof. at U. Penn &
Jefferson, United States
Sponsoring Member: **Marion
Cohen**

Nadia Deen
Australia
Sponsoring Member: **James
Harris**

Paul S. Foster
The University of Newcastle,
Australia

Keiji Hirota
Japan
Idoko Sunday Idoko
University of Abuja, Nigeria

Akiko Iwasaki
Yale University School of
Medicine, United States

Ali Jaafar
University of Sheffield,
United Kingdom

Manfred Kopf
Swiss Federal Institute of
Technology (ETH) Zurich,
Switzerland
Sponsoring Member: **Dusan
Bogunovic**

Masato Kubo
Tokyo University of Science,
Japan

Vijay K. Kuchroo
Harvard Medical School
and Brigham and Women's
Hospital, United States
Sponsoring Member: **Dusan
Bogunovic**

Christopher LaRock
Emory University School of
Medicine, United States

Juan Luis Mendoza
Stanford University, United
States
Sponsoring Member: **Joan
Oefner**

Masaaki Murakami
IGM, Hokkaido University,
Japan
Sponsoring Member:
Takashi Fujita

Olena Odnokoz
University of Pennsylvania,
United States

Ricardo Rajsbaum
University of Texas Medical
Branch, United States

Vijay Rathinam
UConn Health School of
Medicine, United States

Mukut Sharma
Kansas City Veterans
Administration Medical
Center, United States

Jenny Ting
The University of North
Carolina at Chapel Hill,
United States
Lifetime Member

Anthony T. Vella
UCONN School of Medicine,
United States

Akash Verma
University of Pittsburgh,
United States
Sponsoring Member: **Sarah
Gaffen**

Chun Kwok Wong
The Chinese University of
Hong Kong, Hong Kong

New Member MINIBIOs



Stanley Cohen, M.D.

Emeritus Professor of Pathology & Emeritus Founding Director,
Center for Biophysical Pathology, Rutgers-NJMS
Adjunct Professor of Pathology
Feinberg Med. Sch., Northwestern U.
Perelman Med. Sch., U. Penn., &
Kimmel Sch. of Medicine, Jefferson U.

My interest in intercellular mediators began with my observation that virus-infected cells produced not only interferon but a number of other factors that had functional physicochemical, and antigenic similarity to known lymphokines such as MIF. We demonstrated that this occurred in vivo as well as in vitro, and in diseases that did not involve virus infection at all. We postulated that most, if not all cells, when appropriately triggered could do this, and antigen-triggered lymphocyte derived factors previously described were but a small subset of a general phenomenon involved in many aspects of homeostasis and disease, which has turned out to be true. I named these mediators of cellular interactions "Cytokines" and the term came to be generally used. I recently moved to a study of the biophysical properties of tumor cells that correlate with malignant behavior. I am currently interested in the potential integration of computationally intensive, physical probe-based imaging technologies with digital analysis, and am now beginning to explore the use of deep learning to identify complex cytokine networks in cancer. I co-chaired six International Lymphokine Workshops and was a co-chair of the Nomenclature Committee of the IUIS.

I previously served as President of the American Society for Investigative Pathology (ASIP) and Treasurer and Member of the Executive Board of FASEB. Science-related activities also include chairmanships of study sections for the NIH and DOD and membership on multiple editorial boards, including prior stints as Assoc. Editor-in-Chief of Clinical Immunol. & Immunopath. and Editor-in-Chief of Analytical Cellular Pathology. I am a Senior Fellow of the Association of Pathology Chairs. I am currently Co-Chair of the Special Interest Group on Computational Imaging for the ASIP and have been awarded the Gold-Headed Cane by ASIP (their lifetime achievement award). I am a member of the Digital Pathology Association and the Board of the International Academy of Digital Pathology.



Barbara Detrick, PhD

Professor of Pathology and Medicine, Johns Hopkins
University, SOM
Professor in Feinstone Department of Molecular Microbiology
and Immunology, JHU Bloomberg School of Public Health,
Baltimore, USA

During her career, Dr. Detrick has focused her immunology interests in 2 areas; clinical laboratory immunology and basic research. Her clinical laboratory background includes: serving as Director of the Clinical Immunology Laboratory at JHU, as Chief of Immunology Lab at George Washington University Medical Center and Walter Reed Army Medical Center. For the past 17 years, she has directed the JHU Cytokine Laboratory; one of the first CLIA approved cytokine laboratories in the country. Here, she is involved in deciphering the basic and molecular mechanisms of cytokines in neurologic, malignant and autoimmune diseases.

In addition to her clinical appointments, she also studied basic research at the NIH. For over 30 years, she concentrated much of her research on exploring immunologic mechanisms in ocular pathology including, AMD, AIR, uveitis and viral induced ocular disorders. Her work reveals important immunologic findings in retinal degenerative diseases. One major discovery was the original identification and characterization of RPE-65, a critical protein, which now is used in gene therapy to treat retinal degeneration in congenital Leber's amaurosis. Her laboratory developed the first model of a viral induced retinal degeneration, ECOR, which proves that a virus can trigger retinal autoimmunity. Other studies examining cytokines in the retina underscore their power in augmenting or depressing retina immunity. For example, her laboratory discovered that RPE induced IFN- η downregulates retinal inflammation and its presence contributes to ocular immune privilege. More recent work identifies an inflammatory cytokine signature that correlates with disease activity in patients with autoimmune retinopathy.

Her professional activities include: Editor-in-Chief of the internationally recognized reference, "Manual of Molecular and Clinical Laboratory Immunology," the 7th and 8th editions, Chair-Immunology Division -V at ASM and President of the Association of Medical Laboratory Immunologists. Dr. Detrick is a Diplomate in the American Board of Medical Laboratory Immunology (ABMLI), served as of the Chair of ABMLI Board and a Fellow elected into the American Academy of Microbiology. She currently serves on numerous advisory committees: Federation of Clinical Immunology Societies Steering Committee and JHU Diversity Leadership Council.

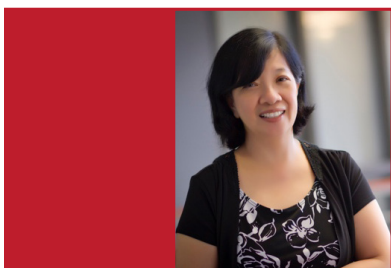
New Member MINIBIOs *Continued*



Wan-Wan Lin, PhD

Professor, Department of Pharmacology, College of Medicine,
National Taiwan University, Taipei, Taiwan

I work in the Department of Pharmacology, College of Medicine, National Taiwan University and I have been working on inflammation-related signaling pathways, cytokines, innate receptors, cell death mechanisms and stress responses for many years. Non-receptor tyrosine kinase Syk can differentially regulate TLR4 signaling by inhibiting MyD88-TRAF6 pathway but enhancing TRIF-TRAF3 pathway. Syk mediates NLRP3 inflammasome activation by phosphorylating ASC and inducing ASC oligomerization and inflammasome assembly. Syk is an upstream signaling molecule of EGFR and IL-17R in keratinocytes, EPO receptor in K562 cells, and mediates keratinocyte proliferation, CCL20 release and erythropoiesis, respectively. DcR3 is an immunomodulatory which induces angiogenesis and osteoclast differentiation via decoy neutralization of TL1A and a non-decoy action, respectively. IgE-mediated Fc RI activation results in AMPK inhibition through activation of Lyn-Syk-Akt pathway, and as such Fc RI receptor can efficiently propagate Lyn-mediated allergic signaling and response. AMPK-dependent activation of pyruvate dehydrogenase kinase contributes to Warburg effect upon nutrient deprivation. I received the Outstanding Research Award from the National Science Council in 1998 and 2003 and the 1998 Excellent Research Award from the Pharmacological Society in Taiwan as well as the 2016 Excellent Research Award from the Chinese Society of Immunology.



Jenny Ting, Ph.D.

William Rand Kenan Professor of Genetics
Lineberger Comprehensive Cancer Center
The University of North Carolina at Chapel Hill
Chapel Hill, USA

Dr. Jenny Ting received her Ph.D. in Microbiology and Immunology from Northwestern University in Chicago, IL and postdoctoral training at the University of Southern California and Duke University. She joined the faculty at the University of North Carolina, Chapel Hill as an Assistant Professor and has been there since that time. Currently she is a William Rand Kenan Professor of Genetics and the UNC Lineberger Comprehensive Cancer Center's Immunology Program Leader. She is also the Director of the UNC Center for Translational Immunology and the co-Director of the Institute of Inflammatory Diseases.

From 2008 to 2014, she served as the co-Director of the Southeast Regional Center for Excellence in Emerging Infections and Biodefense (SERCEB). She is currently the Program Director of an NIAID-funded Center for Translational Research, NIAID-funded Center for Immune-mediated Viral Control, a National Multiple Sclerosis Society (NMSS) funded Collaborative Multiple Sclerosis Center and an NIH training grant. She has trained over 90 postdoctoral fellows and students who have gone on to successful scientific careers ranging from deanship, chairmanship, professors and industrial leaders.

She has been awarded the American Society of Microbiology Award for Outstanding Contributions to the Field of Immunology and Immunity, and selected as the 2013 American Association of Immunology prestigious Life Technologies Awardee. She is an elected member of the Academia Sinica in Taiwan and the American Association of Immunologists council. She has served on the NIH-NIAID extramural Council and the intramural Board of Scientific Council. She also serves on the advisory board of the American Asthma Foundation, the Board of Directors of the Burroughs Wellcome Fund and the Tang Prize Committee.

Early in her career, she performed fundamental studies in the regulation of class II Major Histocompatibility Genes and the importance of immune genes in glial cells in the brain. Later, she pioneered new areas of innate immunity, most notably reporting the first study describing the entire human NOD-like receptor family. She continues to be a leader in the field of innate immune receptors. Her recent work combines fundamental innate immunology with molecular biology and she has reported extensively on the impact of innate immunity in infection, autoimmunity, cancer, microbiome composition and metabolic disorders. She has published over 290 articles, many in top journals.

New Member MINIBIOs *Continued*



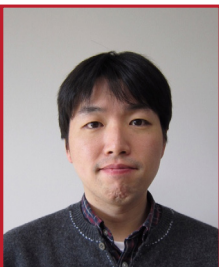
Paul S Foster
Laureate Professor
The University of Newcastle
School of Biomedical Sciences & Pharmacy
New Lambton NSW Australia

Laureate Professor Paul Foster FAHMS, is the Director of the Priority Research Centre for Healthy Lungs; and the Virus, Infection/Immunity, Vaccines and Asthma Program at the Hunter Medical Research Institute. Professor Foster has been appointed as the Visiting Professor at the National University of Singapore (NUS) for 2018, and currently holds the Chair of Immunology, School of Biomedical Sciences and Pharmacy. Prof Foster was a visiting Professor at Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA from 2010-2013. He served on the Editorial Boards of a number of leading international immunology/allergy journals. Professor Foster's research focuses on understanding the molecular and cellular basis of asthma, allergy, respiratory infection, and chronic inflammation. His research program focuses on translational approaches directed towards the development of novel anti-inflammatory therapies.



Masato Kubo, Ph.D.
Professor
Research Institute for Biomedical Sciences, Tokyo University of Science
Noda, Japan
RIKEN Yokohama Center for Integrated Medical Science
Yokohama, Japan

Dr. Masato Kubo is head of the Division of Molecular Pathology, Research Institute for Biomedical Sciences, Tokyo University of Science and team leader of Laboratory for cytokine regulation, RIKEN Yokohama Center for Integrated Medical Science (IMS), His scientific goal is to understand a role of cytokine in innate and adaptive immunity. He focuses on IL-4 and IL-13 to understand their role in helper T cell subsets, including TH1, TH2, TH17, and follicular helper T cells (TFH) and in innate immune cells, including mast cells, basophils, eosinophil and group 2 innate lymphoid cells (ILC2s) in antibody response and allergic responses.



Hideyuki Yanai, Ph.D.
Project Assistant Professor
Department of Molecular Immunology, Immunology Social
Cooperation Program, Institute of Industrial Science
University of Tokyo
Tokyo, Japan

Hideyuki Yanai is currently a Project Associate Professor in department of Molecular Regulation of Inflammation in Institute of Industrial Science at the University of Tokyo. He is also a junior fellow of Max Planck-The University of Tokyo Center for Integrative Inflammation. His current research projects focus on the fundamental mechanisms that underlie innate immune receptor signaling and gene expression, and how host-derived danger signals stimulate or suppress inflammatory responses. He also tries to develop new methods and drugs for the prevention and treatment of inflammation-associated diseases, including autoimmunity and cancer. He has authored several highly cited journal publications, and has received young investigator awards from The Japan Society of Immunology and has been named 2014 ISI Highly Cited Researchers.

New Member MINIBIOs *Continued*



Sarder Arifuzzaman

PhD research fellow (PhD candidate)
Department of Bionanotechnology,
Hanyang University, Republic of Korea

Sarder Arifuzzaman is currently perusing PhD degree in the Department of Bionanotechnology, Hanyang University, Republic of Korea, where he is highly accomplished to study the dysregulation of cytokines and interferons in brain macrophage microglial cells, using inflammation model of different neuroinflammatory diseases. He is studying those dysregulation in the context of gene expression, identification of different mRNA isoforms and the discovery of novel transcripts. He is emphasizing to identify the key regulatory factors especially transcription factors responsible for these gene expression dynamics under non-disease and disease conditions as well. To get deep understanding at the chromatin level of gene transcription he is not only examining the promoter and enhancer binding pattern, but also associated histone modifications. The overall focus is to delineate the pathways of cytokine and interferon activation and their influence on other cellular factors that might have potential for future therapeutic development of pharmacological intervention of neuroinflammatory diseases.



Sunday Idoko DVM

Department of Veterinary Pathology,
Faculty of Veterinary Medicine,
University of Abuja, Abuja, Nigeria

Dr. Idoko Sunday Idoko, DVM, MSc, is an academic staff in the Department of Veterinary Pathology and Head, Laboratory Medicine Clinics, Veterinary Teaching Hospital, University of Abuja, Nigeria. Idoko is a Veterinary graduate of Ahmadu Bello University, Zaria, Nigeria. He completed his MSc. Veterinary Pathology (Veterinary Clinical Pathology) in 2015 and immediately enrolled for doctorate in the same programme and School. Idoko is a 2010 fellow of the Toxicology and Drug Development Internship of Africa Education Initiative, Mystic, USA/National Veterinary Research Institute, Vom, Nigeria. Idoko taught pathology in University of Nigeria Nsukka from 5th January, 2015 to 24th August, 2015 before transferring his services to the current position where he teach Clinical Pathology, General Pathology, Systemic Pathology and Pathology of Tropical Diseases. Idoko's PhD research is on "Evaluation of Erythrocytes Alteration and Molecular Characterization of Theileria equi in naturally infected Horses in Nigeria". Idoko is currently at Department of Veterinary Microbiology and Pathology, USDA-ARS, Animal Diseases Research Unit, Washington State University, Pullman for his PhD bench work. He is working in specialized laboratory to characterize and sequence T. equi from horses in Nigeria under the mentorship of Ueti Wilson Massaro and Knowles Patrick Donald. Idoko's research interests include diagnostic clinical pathology with emphasis on haematology, haematopathology and immunopathology of vector-borne diseases.

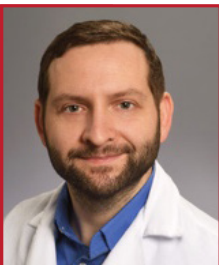
New Member MINIBIOs *Continued*



Manfred Kopf, PhD

Professor
Institute of Molecular Health Sciences,
ETH Zürich, Switzerland

Manfred Kopf earned his PhD at the Max Planck Institute of Immunobiology, Freiburg, Germany in 1994, mentored by the Nobel laureate Georges Köhler. Subsequently, he became scientific member at the legendary Basel Institute of Immunology, where he carried out research until its closure in 2001. He then moved on to take a position as full professor of Molecular Biomedicine at the Swiss Federal Institute for Technology (ETH) Zürich. He and his group have been investigating the underlying mechanisms of inflammatory and infectious diseases with a particular and long-standing interest in the role of cytokines in these processes. By generating and phenotyping a number of cytokine and cytokine receptor knockout mice, he contributed essentially in unraveling the pleiotropic functions of IL-1, IL-4, IL-5, IL-6, IL-12, IL-21, IL-36, and GM-CSF, and their roles in development, immune responses and inflammatory diseases. Recent highlights of his cytokine research include identification of the function of IL-21 in chronic viral infection, the roles of IL-1 and IL-36 in development of atherosclerosis and psoriasis, and GM-CSF in fetal development of alveolar macrophages.



Christopher N. LaRock, Ph.D.

Assistant Professor, Department of Microbiology &
Immunology
Emory University School of Medicine
www.larocklab.com

Christopher LaRock joined the Emory University Department of Microbiology and Immunology and the Department of Medicine, Division of Infectious Disease as an assistant professor in 2017. He received his Ph.D. from the University of Washington working with Dr. Brad Cookson and completed postdoctoral studies at the University of California San Diego with Dr. Victor Nizet. His research focuses on how bacterial pathogens modulate the regulation and signaling of IL-1 family cytokines.



Olena Odnokoz, Ph.D.

Postdoctoral Researcher
School of Veterinary Medicine
Department of Biomedical Sciences
University of Pennsylvania

Dr. Olena Odnokoz is a postdoctoral researcher in the Department of Biomedical Sciences at the University of Pennsylvania, USA. She is a member of the American Association for Cancer Research and the American Association of Immunologists. She received her Ph.D degree in Molecular and Cellular Biology from Southern Methodist University in Dallas, TX USA in 2017. Her Ph.D. research was on the role of mitochondrial redox signaling in regulating the relationship between the immune system and aging. Her current research focuses on the role of type I interferons and other cytokines in anti-cancer immunity. Particularly, she aimed at determining mechanisms controlling dormancy of malignant cells and identifying the role of gut microbiota in mediating tumor responses to immunotherapy.

New Member MINIBIOs *Continued*



Akash Verma, PhD

University of Pittsburgh
Rheumatology and Clinical Immunology
Pittsburgh, USA

I am interested in identifying host-defense mechanisms that counter life-threatening fungal infections. Specifically, I study how the body activates innate IL-17 immunity during oral candidiasis. Activation of the IL-17 pathway is crucial for elimination of *Candida* and several other fungal infections. In our recent work, we have identified a fungal toxin called Candidalysin that is the primary instigator of type-17 immunity in the oral cavity. Prior to this, my graduate work examined the detrimental effects of type-2 cytokines on pulmonary fungal infections. Disclosing these previously unrecognized mechanisms advance our current knowledge of the immune defense network at barrier sites in the body and ultimately move us a step closer to developing antifungal vaccines.



Anthony T. Vella, PhD

Professor and Chair
Associate Dean of Research Mentoring and Career Development
Boehringer Ingelheim Chair in Immunology
Department of Immunology | MC1319
UConn HEALTH | School of Medicine
Farmington, USA

Dr. Anthony Vella is a Professor and Chairman in The Department of Immunology, The School of Medicine, University of Connecticut, Farmington Connecticut. Dr. Vella currently holds the Boehringer Ingelheim Chair in Immunology, and is the Associate Dean of Research Mentoring and Career Development. He received his PhD from Cornell University, Ithaca New York and postdoctoral training in the laboratory of Drs. Marrack and Kappler at The National Jewish Center for Immunology Respiratory Medicine, Denver Colorado. His research program has developed methods to stimulate or impede T cell responses during inflammatory-based diseases that include cancer and lung inflammation. While much of his research has relied on immunobiological approaches other strategies include proteomics and systems methods to discover fundamental mechanisms of T cell function. Dr. Vella's research program has been team oriented with collaborators in both basic and clinical fields.



Vijay A. K. Rathinam, DVM., PhD

UConn Health School of Medicine
Farmington, USA

Assistant Professor, Immunology Dr. Vijay Rathinam is An Assistant Professor of Immunology and the Associate Director of Immunology Graduate Program at UConn Health School of Medicine. He received his Doctorate of Veterinary Medicine from Madras Veterinary College, India and Ph.D. from Michigan State University. He completed his postdoctoral training in innate immunity in Dr. Kate Fitzgerald's laboratory at the University of Massachusetts Medical School. His laboratory at UConn Health aims to identify key molecular mechanisms in innate immune sensing and inflammasome signaling that govern the regulation of immune responses. His lab recently uncovered how LPS gains access to the cytosol during bacterial infections and identified outer membrane vesicles (OMV) produced by Gram-negative bacteria as a vehicle that delivers LPS into the cytosol triggering caspase-11-dependent inflammasome responses. He is a recipient of the Herbert Tabor Young Investigator Award in 2012 from the American Society for Biochemistry and Molecular Biology. The Rathinam lab is supported by the National Institutes of Health.

6TH ANNUAL MEETING OF THE INTERNATIONAL CYTOKINE & INTERFERON SOCIETY

27-30 October 2018

Westin Boston Waterfront, Boston, USA



Abstract Submission, Travel Award, Young Investigator Awards Submission & Early Bird Registration

Deadline: 1 June 2018

www.boston.cytokinesociety.org

Cytokines play critical roles in human health and are dysregulated in a wide range of neoplastic, infectious and inflammatory conditions. Manipulation of cytokine levels and functions has proven to be of tremendous clinical benefit in many of these settings. Cytokines 2018 will bring together leading investigators across many different research disciplines in the field of cytokine biology that impact all aspects of medicine. One aim of the meeting is to bridge the gap between the scientists performing basic research on molecular and cellular mechanisms of immune cell activation and function with those working to develop this knowledge into novel therapies. It is our hope that attendees will gain a deeper understanding of how cytokine networks maintain health, and gain an appreciation for the many potential strategies for targeting these pathways to create better drugs.

A major goal of the meeting will be to promote the interactions between scientists that focus on cytokine signaling and function in diverse areas of cytokine biology, such as:

- host-microbiota interactions
- innate immunity
- host-defense
- immunometabolism
- primary immunodeficiencies
- cancer immunotherapy
- epigenetic regulation of cytokine expression

– and how these can be translated into therapeutic approaches to better manage human disease. The meeting will also provide an opportunity for updates on the development of cytokine based novel therapeutic interventions.

Another goal of the Annual Meeting is to facilitate interactions between young investigators and trainees with established

researchers in the interferon and cytokine field. Outstanding junior investigators, postdoctoral researchers, and graduate/medical students will be encouraged to participate, and awards will be given to young researchers in each of these categories. Particular attention will be paid to providing junior investigators an opportunity to present their work with up to 500 poster or oral presentations chosen from submitted abstracts.

A special effort will be made to support the career development of under-represented minorities, women and young investigators and an important part of the 2018 meeting is to have 3 workshops and a special reception exclusively for trainees and young (1st year) faculty, designed to foster these interactions. Senior investigators and invited speakers will be available to give advice and support as well as challenge those who will be responsible for translating all the work of the past into new therapies, drugs and patient care.

Organizing Committee Co-Chairs:



Christopher Hunter, PhD
University of Pennsylvania
School of Veterinary
Medicine, Philadelphia, USA



Katherine Fitzgerald, PhD
University of Massachusetts
Medical School,
Worcester, USA



Anne O'Garra, PhD
Francis Crick Institute
London, UK

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Harvard Medical School
Boston Children's Hospital
Boston, USA

Carolina Lopez, Bs/Ms, PhD
University of Pennsylvania
School of Veterinary Medicine
Philadelphia, USA

Nancy Reich, PhD
Stony Brook University
Stony Brook, USA

Ganes Sen, Ph.D.
Cleveland Clinic
Cleveland, USA

Tadatsugu Taniguchi, PhD
The University of Tokyo
Tokyo, Japan

Hiroki Yoshida, MD, PhD
Saga Medical School
Saga, Japan

Elina Zuniga, PhD
University California San Diego
San Diego, USA

Abstract Submission Topics:

1. Cytokine regulation

*Keywords: signal transduction, epigenetics, ncRNA, transcription factor, kinase, phosphatase, ubiquitination, metabolism, mTOR, oxygen

2. Innate immunity

*Keywords: Pathogen recognition, host defense, PRR, PAMPs, Inflammasome, IFNs, virus, bacteria, infection, vaccines, ILC, NK, mast cell and $\gamma\delta$ T cells

3. Cytokines in Allergy and Th2 Immunity

*Keywords: Th2, helminth, allergy, asthma, airway inflammation, food allergy, tolerance, chemical mediators, mast cell,

4. Cytokines in skin inflammatory diseases

*Keywords: psoriasis, skin barrier, atopic dermatitis, DC, Langerhans cell,

5. Mucosal immunity

*Keywords: IBD, IEL, lamina propria, DC, macrophage, oral tolerance, colitis, IL-17, IL-22, IL-23, resident microbes

6. Autoinflammation and Autoimmunity

*Keywords: autoinflammation, inflammasome, immunodeficiency, neuro inflammation, kidney disease, blood vessels

7. Anti-cytokine therapy

*Keywords: RA, lupus, anti-cytokine therapy, IL-6, TNFa, RANKL, IL-23, IFN

8. T cell differentiation and function

*Keywords: Th1, Th2, Th17, Tfh, Treg, transcription factors, Foxp3

9. Cytokines in cancer development and antitumor immune therapy

*Keywords: immune checkpoints, IFN, CART, Tregs, Myeloid suppressors, CTL, tumor growth factors

KEYNOTE SPEAKERS



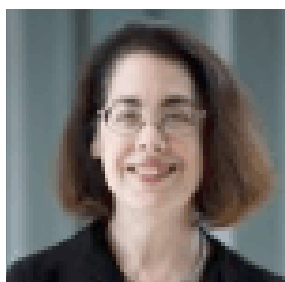
David Artis, PhD

Director, Jill Roberts Institute for Research in Inflammatory Bowel Disease, Michael Kors Professor of Immunology, Department of Medicine, Professor of Microbiology and Immunology, Department of Microbiology and Immunology Co-Director, Evergrande Center for Immunologic Diseases, **Weill Cornell Medicine, Cornell University, New York City, USA** Dr. Artis is a highly regarded, prominent scientist whose work represents the most exciting, fast moving area of biomedical research. He investigates the interface between commensal bacterial populations and host immune responses. His laboratory has shown that inflammatory diseases such as IBD are profoundly affected by the resident bacteria in the Gut. And such inflammatory diseases are strongly regulated by the newly identified cell type, innate lymphoid cells. It is remarkable that in these efforts, Dr. Artis bridges preclinical research to patient based studies, skillfully executing translational research, critically required in the field.



Sarah Gaffen, PhD

Gerald P. Rodnan Professor of Rheumatology, Division of Rheumatology & Clinical Immunology, **University of Pittsburgh**. Sarah Gaffen is one of the world experts on the structure and function of the interleukin-17 receptor system, and the consequences of IL-17 signaling for in human health and disease. The Gaffen Lab works on understanding the basis for immunity to infections and autoimmunity. Specifically, the lab is trying to define mechanisms of signal transduction by cytokines and their receptors. The main focus is the interleukin-17 superfamily of receptors. Her research is aimed at defining the molecular and biochemical structure-function relationships in the IL-17R complex, as well as the role of Th17 cells at the oral mucosa.



Arlene Sharpe, MD, PhD

George Fabyan Professor of Comparative Pathology, Interim Co-Chair, Microbiology and Immunobiology, Co-Director, Evergrande Center for Immunologic Diseases, **Harvard Medical School, Boston, USA** The major interest of the Sharpe laboratory is to study functions of T cell costimulatory pathways and their immunoregulatory roles in controlling the balance between T cell activation and tolerance. Costimulation is of therapeutic interest because manipulation of T cell costimulatory pathways may provide a means either to enhance immune responses (to promote anti-microbial or tumor immunity) or terminate immune responses (to control autoimmune diseases or achieve tolerance for tissue transplantation).

PRELIMINARY PROGRAM *continued*

Saturday, 27 October 2018

17:00 – 19:50	Opening ceremony <i>(Chris Hunter)</i> President's Lecture <i>(Nancy Reich)</i> Awards ceremony Keynote lecture <i>(Arlene Sharp)</i>
19:50 – 22:00	<i>Welcome Reception & Networking</i>

Sunday, 28 October 2018

08:30 – 10:30	Plenary Session 1 Immunoregulation <i>(Anne O'Gara, Maria Grazia Roncarolo, Alexander Rudensky, Luke O'Neill)</i>	
10:30 – 11:00	<i>Coffee Break & Visit the Exhibition</i>	
11:00 – 12:35	Symposium 1 Innate Sensing & Signaling <i>(Kate Fitzgerald, Ken Rock, James Chen)</i>	Symposium 2 Antiviral responses <i>(Elina Zuniga, Carolina Lopez, Steve Varga)</i>
12:35 – 12:45	<i>Break</i>	
12:45 – 13:45	Sponsored Lunch Symposium <i>(Jochen Salfeld)</i>	
13:45 – 14:00	<i>Break</i>	
14:00 – 16:00	Symposium 3 Inflammasomes & IL-1 Family Members I <i>(Thirumala Kanneganti, Igor Brodsky, Clare Bryant, Feng Shao)</i>	Symposium 4 Infection & Inflammation in the Lung <i>(Clare Lloyd, John Silver, Andrew McKenzie, Andreas Wack)</i>
16:00 – 16:30	<i>Coffee Break & Visit the Exhibition</i>	
16:30 – 18:30	Symposium 5 Cytokines in Neuronal Inflammation <i>(Burkhard Becher, Douglas Golenblock, Glen Rall, Marco Colonna)</i>	Symposium 6 Intestinal Homeostasis <i>(Greg Sonnenberg, Ivan Zanoni, Manuela Rafatellu, Nicola Gagliani)</i>
19:00 – 20:00	<i>Young Investigator Mixer</i>	
20:00 – 22:00	<i>POSTER SESSION I</i>	

Monday, 29 October 2018

08:30 – 10:30	Plenary Session 2 Advances in Pathogenic Th17 axis of evil <i>(Sarah Gaffen, John O'Shea, Diane Mathis, Brigitta Stockinger)</i>
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PRELIMINARY PROGRAM *continued*

10:30 – 11:00	<i>Coffee Break & Visit the Exhibition</i>	
11:00 – 12:35	Symposium 7 Type II Immunity (Judith Allen, De'broski Herbert, Elia Tait Wonjo)	Symposium 8 Innate Cytokines and Cancer (Tadatsugu Tanguichi, Andy Minn, Brendan Jenkins)
12:30 – 12:45	<i>Break</i>	
12:45 – 13:40	<i>Sponsored Lunch Symposium</i>	
13:45 – 14:00	<i>Break</i>	
14:00 – 16:00	Symposium 9 Immunoregulation II (Christina Stallings, Mandy McGeechy, Carla Rothlin, Henrique Veiga-Fernandez)	Symposium 10 Type III and other IFNs (Ram Savan, Paul Hertzog, Caroline Coyne, Bryan Williams)
16:00 – 16:30	<i>Coffee Break & Visit the Exhibition</i>	
16:30 – 18:10	Symposium 11 Cytokines and Cancer II (Xiaoxia Li, Steve Ziegler, Marina Pajic, Reshma Singh)	Symposium 12 Type I IFNs in Disease (Daniel Stetson, Yanick Crow, Michael Carroll)
18:10 – 19:40	<i>POSTER SESSION II</i>	
20:00 – 23:00	<i>Conference Dinner – CRUISE on the BOSTON SPIRIT</i>	

Tuesday, 30 October 2018

08:30 – 10:30	Symposium 13 Philip I. Marcus Symposium (Michael Gale, Michaela Gack, Ganes Sen, John Schoggins)	Symposium 14 Dermal Responses and Cytokines (John Harris, Brian Kim, Daniel Kastner, Jennifer Towne)
10:30 – 10:45	<i>Coffee Break & Visit the Exhibition</i>	
10:45 – 12:20	Symposium 15 Inflammasome and IL1 Family members II (Vijay Rathinam, Jonathan Kagan, Cem Gabay)	Symposium 16 Infection and Immunity (Hiroki Yoshida, Chris Hunter, Katrin Mayer-Barber)
12:30 – 13:30	<i>SELECTED ABSTRACTS WORKSHOPS – 3 Parallel Sessions</i>	
13:45 – 15:45	Symposium 17 T cell regulation in Cancer (Ananda Goldrath, Andrew Luster, Wenjun Ouyang)	Symposium 18 Sponsored Symposium - Japanese Society for Interferon and Cytokine Research (JSICR) (Masato Kubo, Masaaki Murakami, Masato Tanaka, Akinori Takaoka)
15:35 – 15:50	<i>Coffee Break & Visit the Exhibition</i>	
16:15 – 16:50	Plenary Session 3 Tissue specific responses - Gut, Lung and lymph nodes (Yasmine Belkaid, David Artis)	
16:50 – 17:00	<i>Conference Wrap Up & Invitation to Cytokines 2019 in Vienna, Austria</i>	

INVITED SPEAKERS

Judith Allen (UK)	Diane Mathis (US)	Marina Pajic (AU)
David Artis (US)	Katrin Mayer-Barber (US)	Manuela Rafatellu (US)
Burkhard Becher (CH)	Mandy McGeechy (US)	Glen Rall (US)
Yasmine Belkaid (US)	Andrew McKenzie (UK)	Vijay Rathinam (US)
Igor Brodsky (US)	Andy Minn (US)	Nancy Reich (US)
Clare Bryant (UK)	Masaaki Murakami (JP)	Kenneth Rock (US)
Michael Carroll (US)	John O'Shea (US)	Maria Grazia Roncarolo (US)
James Chen (US)	Anne O'Garra (UK)	Carla Rothlin (US)
Marco Colonna (US)	Luke O'Neill (IE)	Alexander Rudensky (US)
Caroline Coyne (US)	Wenjun Ouyang (US)	Ram Savan (US)
Yanick Crow (UK)	Marina Pajic (AU)	John Schoggins (US)
Herbert De'broski (US)	Manuela Rafatellu (US)	Ganes Sen (US)
Kate Fitzgerald (US)	Glen Rall (US)	Feng Shao (CN)
Cem Gabay (CH)	Vijay Rathinam (US)	Arlene Sharp (US)
Michaela Gack (US)	Nancy Reich (US)	John Silver (US)
Sarah Gaffen (US)	Kenneth Rock (US)	Reshma Singh (US)
Nicola Gagliani (DE)	Maria Grazia Roncarolo (US)	Greg Sonnenberg (US)
Mike Gale (US)	Jon Kagan (US)	Christina Stallings (US)
Ananda Goldrath (US)	Thirumala Kanneganti (US)	Daniel Stetson (US)
Douglas Golenbock (US)	Brian Kim (US)	Gitta Stockinger (UK)
John Harris (US)	Xiaoxia Li (US)	Elia Tait Wojno (US)
Paul Hertzog (AU)	Clare Lloyd (UK)	Akinori Takaoka (JP)
Chris Hunter (US)	Carolina Lopez (US)	Masato Tanaka (JP)
Brendan Jenkins (AU)	Andrew Luster (US)	Tadatsugu Tanguchi (JP)
Jon Kagan (US)	Diane Mathis (US)	Steve Varga (US)
Thirumala Kanneganti (US)	Katrin Mayer-Barber (US)	Henrique Veiga-Fernandez (PT)
Daniel Kastner (US)	Mandy McGeechy (US)	Andreas Wack (UK)
Brian Kim (US)	Andrew McKenzie (UK)	Bryan Williams (AU)
Masato Kubo (JP)	John O'Shea (US)	Hiroki Yoshida (JP)
Xiaoxia Li (US)	Anne O'Garra (UK)	Ivan Zanoni (US)
Clare Lloyd (UK)	Luke O'Neill (IE)	Steve Ziegler (US)
Carolina Lopez (US)	Wenjun Ouyang (US)	Elina Zuniga (US)
Andrew Luster (US)		

NETWORKING – POSTER SESSIONS – FINAL NIGHT **SPIRIT DINNER CRUISE**



Cast off with new friends and long-time colleagues aboard the Spirit of Boston for a dinner cruise with a great view of Boston harbor on Monday night, reserved exclusively for Cytokines 2018! Enjoy breathtaking views, unlimited beverages, a delicious buffet dinner, music and dancing (two different DJ's on separate floors) or quiet dining on the lower level), while sailing around Boston's famous harbor on Monday 29 October following the poster session (ticket required). We need to confirm that we will take the entire boat by the early registration deadline of 1 June. For this reason we are reducing the price of registration for regular attendees to \$25 and student/postdocs \$15 up until 1 June. After 1 June, the price will go up to \$50/\$25 respectively (still less than 60-75% of the actual costs of the Spirit Dinner Cruise).



CYTOKINES 2017 IN KANAZAWA: Professor Serge Y. Fuchs (left), (Department of Biomedical Sciences, University of Pennsylvania) L discusses Dr. Olusegun Onabajo's poster, (National Cancer Institute, NIH) R. More photos from Cytokines 2017 Poster Sessions (center and right)

REVIEWS OF INTEREST



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DISCOVERY OF IL-40 **Albert Zlotnik**

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Albert Zlotnik and Peter Hevezi at Eos Biotechnology, 2003

Cytokines are some of the main players in the immune system. They represent the way one subpopulation of immune system cells tells another one what to do in order to develop and regulate immune responses, and many of them are also involved in the development of the immune system. Furthermore, many cytokines have effects beyond the immune system, in areas such as metabolism, neurobiology, and cancer.

Little wonder then, that during the 1980s, when modern molecular biology techniques were becoming commonplace, the few known cytokines at that time (identified through biological assays) were among the first genes that many teams were eager to identify and clone. At that time, biotechnology was in its infancy, and several biotech organizations were founded (most of them by pioneer academicians) precisely with the goal of identifying new cytokines.

I should mention that time has proven the initial hypothesis correct. This hypothesis was that cytokines, or antibodies against them, would prove extremely important as therapeutics. Today, antibodies against TNF α , IL17A, IL23 and other cytokines are among the most efficacious therapeutics for several autoimmune diseases. In fact, some represent the best selling drugs in the world.

But back in the early 1980s we did not know how many cytokines existed and we could only guess at the processes they controlled. At Stanford, Paul Berg, Arthur Kornberg and Charlie Yanofsky founded DNAX Research Institute. Its goal was to identify novel cytokines. I was lucky to have had the opportunity to be part of the original 'DNAX team' that was given this assignment. We were separated into biological assays, molecular biology and biochemistry. Shortly thereafter Schering-Plough Corporation (now part of Merck) bought DNAX and sent a colorful character (Allan Waitz) to run it. Allan created an atmosphere where the principal investigators (most of them very young, fresh out of a postdoc when we joined DNAX) were free to do research without having to worry about grants. This 'scientific experiment' (in the words of one of the DNAX founders) transformed immunology. From DNAX came indeed many cytokines including IL-3, IL4, IL10, IL-17 (the family), GM-CSF, IL-23, IL-27, and Flt3ligand. From my lab came many chemokines including XCL1, CCL15, CCL19, CCL21, CCL25, CCL27 and CCL28. Fernando Bazan identified CX3CL1. We were lucky to have the guidance of Tom Schall who had found

Rantes in graduate school at Stanford. Gerard Zurawski found MIP1 β (CCL4). We also found chemokine receptors (CCR10). Several of the guiding principles of immunology were discovered at DNAX, including the Th1/Th2 paradigm (Tim Mosmann and Bob Coffman), the connection of IL4 and IgE (Bob Coffman), and the biology of IL10 (Tim Mosmann and Anne O'Garra). My lab first reported the developmental pathway of early T cell development and where during T cell development the T cell receptor underwent rearrangement (now known as DN1, DN2, DN3 and DN4). Suffice it to say that DNAX provided many of the discoveries that today are featured in immunology textbooks.

I left DNAX in 2000 because one of my colleagues (Rich Murray) had co-founded a company in South San Francisco called Eos Biotechnology and asked me to join them. Eos's goal was to identify targets (cell surface molecules) specifically expressed on cancer cells. We were to construct a database of gene expression using Affymetrix genearrays. My job was to get the samples for this project and interact with a patent attorney to secure intellectual property. We were very successful, and produced a comprehensive gene expression cancer database in record time. By 2003, we had accumulated impressive information and were on our way to file Investigational New Drug Applications INDs. Then the floor fell out of the stock market and we were bought by Protein Design Labs. At the time, I was offered a chance to move to San Diego to a company called Neurocrine Biosciences that was focused on identifying targets for brain GPCRs. Having had the experience of microarray databases at Eos, we then set out to produce a comprehensive gene expression database in the human CNS. We succeeded and created a microarray database that we call the 'Body Index of Gene Expression' (BIGE database) that currently contains more than 115 tissues of the normal human body (4 males/4females) (1). I then went to Senomyx where I created a database of gene expression in taste buds, and identified many genes likely involved in taste perception.

DISCOVERY OF IL-40 *continued*

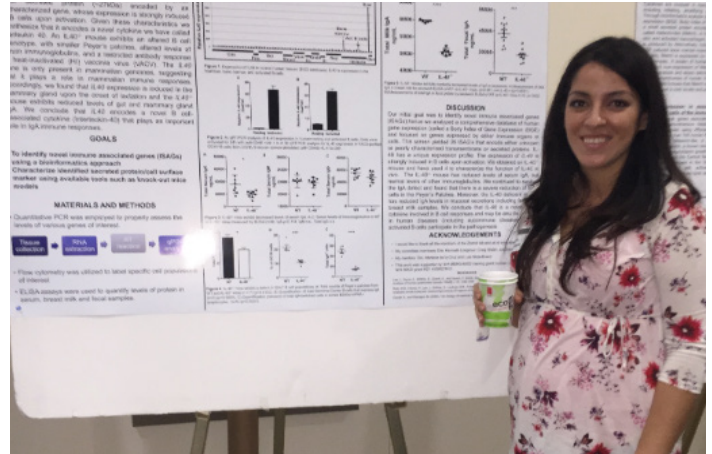


Van P. Luu and Albert Zlotnik 2016

After networking in Southern California I was recruited to the University of California, Irvine (UCI). Becoming an academic was an unusual experience (although DNAX felt very much like an academic environment). At UCI, I was free to ask a question that intrigued me since my DNAX days: Are there any cytokines left to be discovered? After all, in the 2000-2010 other cytokines had been reported, most of them members of the IL-1 family. An exception was IL-34 which was reported by a Five prime therapeutics in an elegant approach looking for novel ligands among the human proteome (2). At Eos Biotechnology, I had been fortunate to meet my friend and colleague Peter Hevezi. We created a ‘partnership’ that would last many years.

Peter was the ‘architect’ of the BIGE database. When we moved to UCI in 2008, we screened the BIGE database for transcripts that encoded either novel transmembrane or secreted proteins, that were expressed by cells or organs of the immune system. Using this approach, we discovered several novel molecules involved in the immune system. We have reported several of these including: Isthmin 1, a ~70kDa secreted protein that exhibits a thrombospondin domain and is expressed by Th17 cells (3); Tetraspanin 33, a novel B cell activation antigen (4); and Meteorin-like, another novel cytokine expressed by barrier tissues and activated macrophages (5). All of these molecules had some literature associated with them but had not been described as associated with the immune system. Our data indicated that their main functions are likely to be in the immune system.

Unfortunately, we have learned that when working with unknown or poorly characterized genes, there are many challenges. First, there usually are no commercially available tools (proteins, antibodies) to work with them. Second, as we found out soon enough, it is extremely difficult to get funding to pursue the characterization of novel/poorly characterized genes because the reviewers are not likely to agree to fund the development of the tools (proteins, antibodies, knockout mice) required to characterize the physiology of these novel molecules. Finally, when trying to publish papers on the early



Monica Vazquez at the 2015 UCI Immunology Fair

characterization of the function of these genes the reviewers and editors usually asked for more data that in turn required more molecular tools. We decided that one way to advance was to produce knockout mice of these genes. While we were pursuing the characterization of many of these early genes, Peter Hevezi came into my office one day and showed me the expression of another uncharacterized gene he had found in the BIGE database that encodes a small secreted protein. The gene in question was C17ORF99, that is, chromosome 17 open-reading-frame 99, a nomenclature reserved for uncharacterized genes given by groups that annotated the human genome. Even today, there are hundreds of uncharacterized genes in the human genome; *C17ORF99* was simply one of them. What had caught Peter’s attention was that the BIGE database showed that it was expressed (at significant levels) in the fetal liver and bone marrow.

Given its expression pattern, we first hypothesized that it was involved in hematopoiesis. In fact, we wrote a grant with this hypothesis and very little preliminary data that was not discussed. At that time, I had a new grad student (Van Phi Luu) who showed interest in this project. Van had, serendipitously, been working on TSPAN33, and had showed that its expression only occurs in B cells upon activation. For this reason, Van had various samples of B cell mRNA, and upon closer examination of the BIGE database data we noticed that *C17ORF99* was also expressed in activated B cells. Van promptly did qPCR of *C17ORF99* in resting or activated B cells and confirmed that it was expressed by B cells upon activation. This was our first breakthrough. At this point, however, Van graduated and Monica Vazquez became the graduate student in charge of the project. One afternoon, Monica was in my office and we were discussing what we knew about *C17ORF99*. I mentioned that we had noticed (in the UCSC genome browser) that *C17ORF99* was only present in mammalian genomes. In other words, *C17ORF99* was not present in birds, reptiles, Xenopus or zebrafish. I predicted, therefore, that it could have a mammalian-specific function. By coincidence, Monica had recently had a baby.

DISCOVERY OF IL-40 *continued*



Jovani Catalan and Gina Heller 2018

Several weeks later, she came into my office and told me she had some very interesting data. She had tested the expression of *C17ORF99* in the mammary gland, and had observed that its expression was induced upon the onset of lactation.

By this time, we had obtained a *C17ORF99*^{-/-} mouse.

Monica went on to show that this mouse exhibits defects in IgA production and lower levels of IgA producing cells. This represented the first breakthrough in our understanding of the biology of IL-40.

Soon thereafter, Monica graduated and a new student (Jovani Catalan) took charge of the project. Jovani has really put the project in a fast track. We finally obtained enough information about several important points. *C17ORF99* is expressed by certain stromal cells in the bone marrow, but these likely represent specialized stromal cells associated with lymphopoiesis. Overall, naïve B cells can express *C17ORF99* upon activation, but they can produce a lot more when they are activated and polarized with certain cytokines. Polarizing B cells with various cytokines (especially IL4 and TGF β) strongly increased the levels of *C17ORF99* expressed.

This is reminiscent of the situation with IL-17A. The *C17ORF99*^{-/-} mouse exhibits various defects in B cell populations in the spleen (reduced numbers). Overall, all the defects we have detected in *C17ORF99*^{-/-} mice are linked

to the immune system and to B cells. These observations validate our conclusion that *C17ORF99* encodes a novel B cell associated cytokine which should be called interleukin 40 (IL-40). Likewise, we are calling the polarized B cells that produce IL-40 “B40” cells, in analogy to the nomenclature of B cells that produce IL-10 (which are called ‘B10’ cells). Importantly, Jovani has recently shown that B40 cells are not the same as B10 cells. The latter have been reported to be immunoregulatory B cells. We are currently investigating the role of B40 cells in immune responses.

So far we have not observed IL-40 production by other cell lineages. The only cells we have observed to produce IL-40 are specialized subsets of bone marrow stromal cells and activated/polarized B cells. We have proved that the original hypothesis suggesting that IL-40 had effects in hematopoiesis was not accurate, as the *IL-40*^{-/-} mouse does not show hematologic abnormalities. We currently believe that the main function of IL40 in the bone marrow IL40 is a role in lymphopoiesis.

I should mention that when we screened the BIGE database for novel genes encoding transmembrane or secreted proteins associated with cells or organs of the immune system we found around 36, but we selected only the most interesting ones, including all the genes encoding secreted proteins (Isthmin-1, Meteorin-like and IL-40). We therefore tentatively conclude that we may be nearing the end of the age of cytokine discovery. Importantly, when we started this project we predicted that if we were to identify new cytokines, these would not belong to any other recognized cytokine family (ie TNF α , IL-1, IL-12, etc). The reason for this is that if such a novel cytokine existed it would likely already had been identified. For example, most recent cytokines are members of the IL-1 family while IL-39 is a new member of the IL-12 cytokine family (6). The fact that IL-40 does not belong to any known cytokine family validated this prediction.

There is a lot of work to do to begin to understand the biology of IL-40. Its role so far appears to be restricted to B cells, but we believe that it is likely to have effects on other cells including macrophages and T cells. B cells have been shown to play a pivotal role in autoimmunity. Approved therapeutics like rituximab (which targets CD20) have been shown to be effective in rheumatoid arthritis. Another recent approved therapeutic is another antibody against CD20 that is effective in multiple sclerosis. This is an area where clinical advances have occurred before basic science has offered explanations for the mechanisms involved. Typically, patients with rheumatoid arthritis or multiple sclerosis improve rapidly upon administration of anti-CD20 antibodies, suggesting that antibodies produced by B cells are not involved in the mechanism (anti-CD20 antibodies do not affect antibody levels, but instead usually eliminate many B cells). Instead, these observations suggest that the mechanism involves something where B cells participate by themselves; this suggests that cytokine production by B cells is a very likely possibility.

DISCOVERY OF IL-40 *continued*

Therefore, we are very keen to explore a role for IL-40 in autoimmunity. Likewise, we have observed that several human B cell lymphoma lines produce IL-40. Taken together, these observations indicate that IL-40 is likely to play a role in the pathogenesis of various human B cell lymphomas. We are currently pursuing these possibilities.

For those readers (especially young ones) that hopefully will find my account of this discovery inspiring, I should warn that our experience during this project was often frustrating due a number of problems inherent to research focused on novel genes. One of them is the total absence of tools to study the proteins encoded by these genes. Second, the initial questions that require attention are often not very exciting to reviewers (for example, which cells make IL-40 and under what circumstance?). Thirdly, an almost total absence of previous information. The latter makes it very difficult to, for example, find a phenotype in a knockout mouse. Fourth, Absence of a bioassay or knowledge of responding cells. And fifth, a perception among the scientific community that all genes have been already characterized.

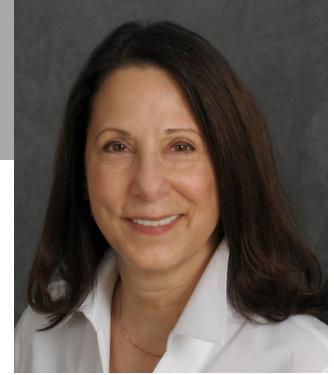
The latter point deserves further comment. On the one hand, as mentioned above, there remain hundreds of uncharacterized genes present in the human genome. By definition, understanding the biology of all of these genes should be very important in order to advance our understanding of human biology. For example, a few years back, we published a paper where we identified the top 100 expressed genes in normal human skin. At the time, almost 1/3 of them were not known to be expressed in human skin, and about 10 did not even have names. Some of these included GPCRs and at least one novel skin-specific cytokine (WFDC5) (7). I cannot imagine that a grant with this premise would ever be competitive, especially if preliminary data or molecular tools were not available. On the other hand, it is precisely projects like these, that venture outside the 'comfort zone' of known biology, that often represent real advances in a given field. It is sobering to think that the current grant situation makes it so difficult to work on these projects that represent, by definition, one of the most innovative aspects of human biology. Understanding many fields without the knowledge of the function of many genes that are expressed there is like trying to put together a jigsaw puzzle while missing many pieces. The challenge is how to try to find all the pieces first. The most frustrating aspect is that technically, we have already identified all the pieces; the problem is that while these are known (for example, the UCSC genome browser lists all the human genes and shows their locations in the chromosomes) many of these remain uncharacterized. This last fact is not common knowledge among the scientific community.

Conversely, some of us regard this situation as an opportunity to be pioneers in anew field of research. I think there is reason to be optimistic. In the meantime, please remember IL-40 and its association with B cell biology. I am confident that it will become a popular new field of research.

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MEMBERS IN THE NEWS

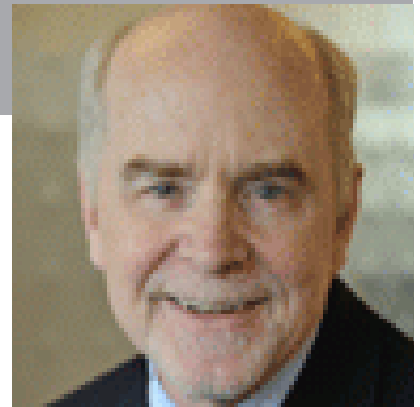


Sarah Gaffen's work makes the cover of Science Immunology

Karen Mossman was recently nominated for a YWCA Woman of Distinction award in the Science, Technology and Trades category. <http://ywcahamilton.org/events>

ICIS President Nancy Reich has been elected Fellow of AAAS. <https://www.aaas.org/news/2017-aaas-fellows-recognized-advancing-science>

CONGRATULATIONS TO ICIS MEMBERS WINNING 2018 AAI CAREER AWARDS



AAI Lifetime Achievement Award

ICIS Honorary Lifetime Member

In recognition of a remarkable career of scientific achievement and contributions to AAI and the field of immunology:

Laurie H. Glimcher, M.D.
Dana-Farber Cancer Institute,
Harvard Medical School

AAI-Thermo Fisher Meritorious Career Award

For exceptional research contributions to the field of immunology:

Akiko Iwasaki, Ph.D.
HHMI, Yale School of Medicine

AAI-Steinman Award for Human Immunology Research

John O'Shea, ICIS Member & 2016 Milstein Award Winner

For significant, sustained achievement in immunology research pertinent to human disease pathogenesis, prevention, or therapy:

John J. O'Shea, M.D.
National Institute of Arthritis and Musculoskeletal and Skin Diseases,
National Institutes of Health



PharmacODB

<https://pharmacodb.pmgenomics.ca/>

High throughput drug screening technologies have enabled the profiling of hundreds of cancer cell lines to a large variety of small molecules to discover novel and repurposed treatments. Several large studies have been publicly released testing candidate molecules, often with corresponding molecular profiles of the cell lines used for drug screening. These studies have become invaluable resources for the research community, allowing researchers to leverage the collected data to support their own research. However, such pharmacogenomic datasets are disparate and lack of standardization for cell line and drug identifiers, and used heterogeneous data format for the drug sensitivity measurements.

To address these issues, we developed PharmacODB, a web-application assembling the largest in vitro drug screens in a single database, and allowing users to easily query the union of studies released to date. PharmacODB allows scientists to search across publicly available datasets to find instances where a drug or cell line of interest has been profiled, and to view and compare the dose-response data for a specific cell line - drug pair from any of the studies included in the database.

International Nucleotide Sequence Database Collaboration

<http://www.insdc.org/>

The International Nucleotide Sequence Database Collaboration (INSDC) is a long-standing foundational initiative that operates between DDBJ, EMBL-EBI and NCBI. INSDC covers the spectrum of data raw reads, though alignments and assemblies to functional annotation, enriched with contextual information relating to samples and experimental configurations.

Consensus coding sequence (CCDS) database: a standardized set of human and mouse protein-coding regions supported by expert curation

<https://www.ncbi.nlm.nih.gov/CCDS/CcdsBrowse.cgi>

The Consensus CDS (CCDS) project is a collaborative effort to identify a core set of human and mouse protein coding regions that are consistently annotated and of high quality. Annotation of genes is provided by multiple public resources, using different methods, and resulting in information that is similar but not always identical. The human and mouse genome sequence is now sufficiently stable to start identifying those gene placements that are identical, and to make those data public and supported as a core set by the three major public genome browsers. The long term goal is to support convergence towards a standard set of gene annotations. Toward this end, the Consensus CDS (CCDS) project was established. The CCDS project is a collaborative effort to identify a core set of protein coding regions that are consistently annotated and of high quality.

Expression Atlas: gene and protein expression across multiple studies and organisms

<http://www.ebi.ac.uk/gxa>

Expression Atlas is an open science resource that gives users a powerful way to find information about gene and protein expression across species and biological conditions such as different tissues, cell types, developmental stages and diseases among others. Expression Atlas aims to help answering questions such as 'where is a certain gene expressed?' or 'how does its expression change in a disease?'

Expression Atlas provides gene expression results on more than 3,000 experiments (microarray and RNA-sequencing) from 40 different organisms, including metazoans and plants. Expression profiles of tissues from Human Protein Atlas, GTEx and FANTOM5, and of cancer cell lines from ENCODE, CCLE and Genentech projects can be explored in Expression Atlas. All data are manually curated, annotated to ontology terms allowing for much richer queries and re-analysed using standardised methods. Expression Atlas visualises gene expression results using heatmaps showing gene expression levels across different biological conditions. Novel analyses and visualisations include: 'enrichment' in each differential comparison of GO terms, Reactome, Plant Reactome pathways and InterPro domains; hierarchical clustering (by baseline expression) of most variable genes and experimental conditions; and, for a given gene-condition, distribution of baseline expression across biological replicates.

Proteomics Database

<https://www.ProteomicsDB.org>

ProteomicsDB is a joint effort of the Technische Universität München (TUM) and SAP SE. It is dedicated to expedite the identification of the human proteome and its use across the scientific community.

Pooled In-vitro CRISPR Knockout Library Essentiality Screens (PICKLES)

<http://pickles.hart-lab.org>

Welcome to PICKLES, the database of Pooled In vitro CRISPR Knockout Library Essentiality Screens, where end users can display and download raw or normalized essentiality profiles for more than 18,000 protein-coding genes across more than 50 cell lines. An additional data set with 15,000 genes targeted by pooled library shRNA in over 100 cell lines is also included. PICKLES allows expert and novice biologists the opportunity to see at a glance the relative fitness defect and tissue specificity of their genes of interest, generate and save figures locally, and download all raw data.

MetaCyc Metabolic Pathway Database

<https://MetaCyc.org>

MetaCyc is a curated database of experimentally elucidated metabolic pathways from all domains of life. MetaCyc contains 2609 pathways from 2914 different organisms.

MetaCyc contains pathways involved in both primary and secondary metabolism, as well as associated metabolites, reactions, enzymes, and genes. The goal of MetaCyc is to catalog the universe of metabolism by storing a representative sample of each experimentally elucidated pathway.

MetaCyc applications include:

Online encyclopedia of metabolism

Predict metabolic pathways in sequenced genomes

Support metabolic engineering via enzyme database

Metabolite database aids metabolomics research



www.rna-society.org/mndr/

Accumulated evidences suggest diverse non-coding RNAs (ncRNAs) involved in a wide variety of diseases progression. Hence, we have updated the MNDR v2.0 database by integrating experimental and prediction diverse ncRNA-disease associations from manual literatures curation and other resources under one common framework. The new developments in MNDR v2.0 include (1) over 220-fold ncRNA-disease associations enhancement than previous version (including lncRNA, miRNA, piRNA, snoRNA and more than 1,400 diseases); (2) integrating experimental and prediction evidence from 14 resources and prediction algorithms for each ncRNA-disease association; (3) mapping disease name to the Disease Ontology and Medical Subject Headings (MeSH); (4) providing a confidence score for each ncRNA-disease association; and (5) an increase of species coverage to 6 mammals.

ARED-Plus: an updated and expanded database of AU-rich element-containing mRNAs and pre-mRNAs

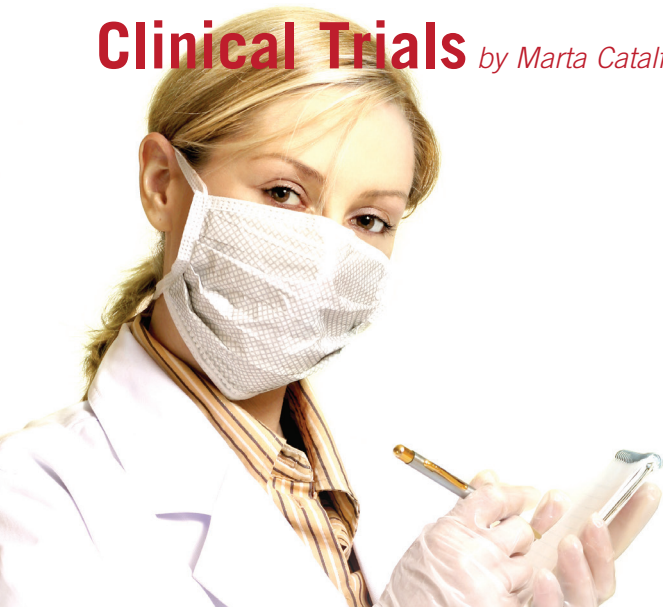
<http://brp.kfshrc.edu.sa/ared>

AREs are conserved sequence elements that were first discovered in the 3'UTR of mammalian transcripts. Over the past years, we compiled a series of ARE databases that revealed the extent and wide distribution of ARE-containing genes. For this update, we adopted an optimized search algorithm with improved specificity and sensitivity in ARE selection. The designation of the different ARE clusters was simplified by directly correlating the number of the ARE cluster to the number of overlapping AUUUA pentamers. Additionally, the new database was expanded to include genes with intronic AREs (pre-mRNAs) and their characteristics since recent observations reported their abundance and biological significance. The new version includes links to AREsite and AREScore, two related ARE assessment algorithms for further evaluation of the ARE characteristics.

MicrobiomeDB

<http://microbiomeDB.org>

High-throughput sequencing has revolutionized microbiology by allowing scientists to complement culture-based approaches with culture-independent profiling of complex microbial communities. Whether studying these communities in soil, on plants, or in animals, the collection of community composition data is often accompanied with rich metadata that describes the source from which the sample was derived, how samples were treated prior to collection, and how they were processed after collection. Increasingly, the goal of microbiome experiments is to understand how these various attributes represented by the metadata, influence the microbial community. MicrobiomeDB was developed as a discovery tool that empowers researchers to fully leverage their experimental metadata to construct queries that interrogate microbiome datasets.



Interferon- α Prevents Leukemia Relapse of AML Patients After Transplantation

Principal Investigators: Xiaojun Huang, MD. Peking University People's Hospital. Beijing, China.

Contact: Xiaosu Zhao, MD. Phone: +86 135 012 22226
ClinicalTrials.gov Identifier: NCT03121079

Combination of Interferon-gamma and Nivolumab for Advanced Solid Tumors

Principal Investigators: Matthew Zibelman, MD. Fox Chase Cancer Center Philadelphia, Pennsylvania, United States.

Contact: Matthew Zibelman, MD. Phone: 215-728-3889
ClinicalTrials.gov Identifier: NCT02614456

Recombinant Interferon Gamma in Treating Patients With Soft Tissue Sarcoma

Principal Investigators: Seth Pollack, MD. Fred Hutch/University of Washington Cancer Consortium. Seattle, Washington, United States

Contact: Seth Pollack, MD, Phone: 206-667-6629
ClinicalTrials.gov Identifier: NCT01957709

Intraperitoneal Infusion of Autologous Monocytes With Sylatron (Peginterferon Alfa-2b) and Actimmune (Interferon Gamma-1b) in Women With Recurrent or Refractory Ovarian Cancer, Fallopian Tube Cancer or Primary Peritoneal Cancer

Principal Investigators: Christina M Annunziata, M.D. National Institutes of Health Clinical Center. Bethesda, Maryland, United States, 20892

Contact: NIH Clinical Center contact National Cancer Institute Referral Office . Phone: 888-624-1937
ClinicalTrials.gov Identifier: NCT02948426

Phase II Pegylated Interferon (Peg Interferon)

Principal Investigators: Dolly Aguilera, MD. Children's Healthcare of Atlanta, Atlanta, Georgia, United States.

Contact: Shanikwha June. Children's Healthcare of Atlanta, Atlanta, Georgia, United States. Phone: 404-785-4746
ClinicalTrials.gov Identifier: NCT02343224

IL29 and IL28B Variants Associated With Periodontal Disease Pathogenesis

Principal Investigators: Thiago Morelli, DDS, MS. University of North Carolina, Chapel Hill, North Carolina, United States.

Contact: Thiago Morelli, DDS, MS. Phone: 919-537-3731
ClinicalTrials.gov Identifier: NCT02710903

Effects of Interleukin-6 Inhibition on Vascular, Endothelial and Left Ventricular Function in Rheumatoid Arthritis

Principal Investigator: Ignatios Ikonomidis, MD National and Kapodistrian University of Athens

Contact: Ignatios Ikonomidis, MD 00302105832187 ignoik@otenet.gr

ClinicalTrials.gov Identifier: NCT03288584

Interleukin-1 Blockade for the Treatment of Heart Failure in Patients With End-stage Renal Disease (E-HART) (E-HART)

Principal Investigators: Benjamin W Van Tassell, PharmD, Virginia Commonwealth University. Richmond, Virginia, United States.

Contact: Benjamin W Van Tassell, PharmD. Phone: 804-828-4583
ClinicalTrials.gov Identifier: NCT03062176

Recombinant Interleukin-15 in Combination With Checkpoint Inhibitors Nivolumab and Ipilimumab in People With Refractory Cancers

Principal Investigators: Alice P Chen, M.D. National Cancer Institute (NCI). National Cancer Institute (NCI). NIH, Bethesda, Maryland, USA.

Contact: Ashley B Bruns. Phone: (301) 594-4949
ClinicalTrials.gov Identifier: NCT03388632

Study to Evaluate the Safety, Tolerability, Immunogenicity, and Pharmacokinetics of MEDI-528 (anti-IL-9) in Healthy Adult Volunteers

Principal Investigators: Ramon Vargas, MD.

Contact: MDS Pharma Services, New Orleans, Louisiana, United States

ClinicalTrials.gov Identifier: NCT00192296

Combination Therapy of F8IL10 and Methotrexate in Rheumatoid Arthritis Patients

Principal Investigators: Mauro Galeazzi, Prof. Siena University Hospital. Italy.

Contact: Serena Bettarini, MD. Phone: 0039 0577 17816
ClinicalTrials.gov Identifier: NCT02076659

Effect of Dupilumab (Anti-IL4R α) on the Host-Microbe Interface in Atopic Dermatitis

Principal Investigator: Lisa A. Beck, MD. University of Rochester Medical Center, Rochester, New York, United States

Contact: Jean Sauvain. Phone: 585-275-0374
ClinicalTrials.gov Identifier: NCT03389893

M7824 (anti-PDL-1-anti-TGFb) in Subjects With HPV Associated Malignancies

Principal Investigators: Julius Y Strauss, M.D. National Institutes of Health Clinical Center.

Bethesda, Maryland, United States.

Contact: Cynthia Boyle, R.N. Phone: (240) 760-6006
ClinicalTrials.gov Identifier: NCT03427411

ACTIMMUNE in Intermediate Osteopetrosis

Principal Investigators: Lynda E Polgreen, MD, MS Los Angeles Biomedical Research Institute at Harbor-UCLA Medical Center. Torrance, California, United States.

Contact: Nathalia Cressey. Phone: 310-781-3682
ClinicalTrials.gov Identifier: NCT02666768

ICIS Member Symposia:



The International Cytokine and Interferon Society (ICIS) Symposium

Cytokine and Interferon Signaling in the Immune Response

Saturday, May 5, 3:45 PM – 5:45 PM

Chairs:

Sarah L. Gaffen, Univ. of Pittsburgh,

Shao-Cong Sun, MD Anderson Cancer Ctr.

Speakers:

Shao-Cong Sun, MD Anderson Cancer Ctr., NF- B in Th17 responses: from host defense to inflammation

Sarah L. Gaffen, Univ. of Pittsburgh, The yin and yang of IL-17 signaling

Michail S. Lionakis, NIH, NIAID, Host defense against Candida: lessons from primary immunodeficiencies

Jenny Ting, Univ. of North Carolina, Chapel Hill, Intracellular innate receptors: molecular biology, diseases, and the microbiome

For more information: www.immunology2018.org



Cytokines and Interferons in Translation Immunology

Wednesday, June 20

8:00 AM - 12:00 PM

Sponsored By:



International Cytokine &
Interferon Society

For more information:

www.eventscribe.com/2018/FOCiS/

Chair:

Ari Molofsky, MD, PhD, UCSF, Dept. of Laboratory Medicine

Speakers:

Ari Molofsky, Welcome and introduction

Sandra Nicholson (Water and Eliza Hall Institute, Australia), OCS protein regulation of NK cell-mediated tumor

Scott K. Durum (NIH NCI), Targeting the IL-7R pathway in leukemia

Nicola Ivan Lorè (Milan, Italy), The relevance of IL-17A/IL-17RA axis in host defense during chronic respiratory infections by *Pseudomonas aeruginosa*

Jens Geginat (Milan, Italy), IL-10 producing CCR6+T-cells are a distinct population of B-helper T-cells that play a pathogenic role in systemic lupus erythematosus

Patricia de Almeida (Genentech, USA), Regulation of effector cytokines by the PVR-nectin family members CD226 and CD96

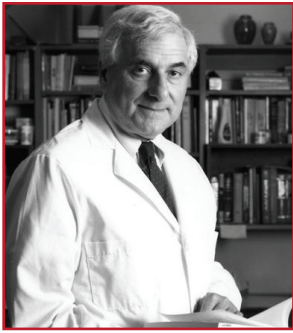
Juan Luis Mendoza (Stanford, USA) Interrogating IFN- signaling through the design of partial agonists

Dennis Metzger (Albany, USA), IFN γ inhibits ILC2 during influenza

Malcolm Starkey (Newcastle, Australia), Interleukin-13 predisposes to more severe influenza infection in chronic lung diseases

Learning Objectives:

1. Up-to-date overview of established and emerging cytokines and their impact on human immunologic disease
2. Regulation of type 2 inflammatory cytokines (IL-33, IL-13), cellular targets, and impact on allergic inflammation, including mouse and human allergic asthma.
3. Novel approaches for the therapeutic targeting of cytokines, including IL-2, IL-7, and IL-10, in the treatment of human cancer and autoimmunity.



THOUGHTS ON THE CONTROVERSIES SURROUNDING JONAS SALK

by Bob Friedman

On July 1, 1959, the day after I had finished my internship, at the request of my draft board (in those days the draft was quite active, especially with respect to physicians), I reported to the Division of Biologic Standards (DBS) at the NIH as an officer in the United States Public Health Service to serve my required two years in a Uniformed Service.

There was hardly any shooting war going on at that time, but I was enlisted in another sort of struggle – the war against polio. Jonas Salk had developed the inactivated virus vaccine against the polioviruses in the 1950s, and it had been approved for human use towards the end of that decade. It's hard to realize now the praise that Salk received at that time. Church bells literally rang nationally when the news of the successful trial of his vaccine was circulated. Salk was acclaimed internationally. The reason for this was the universal fear that epidemics of poliomyelitis aroused in the public until the advent of an effective vaccine against the causative viruses. Every year, around Christmas enormous campaigns to raise money to support research to develop a vaccine to prevent polio virus infections and to treat victims of it took place under the auspices of the National Foundation in movie theaters as The March of Dimes and in the sale of Christmas Seals in schools and other public places. President Franklyn Roosevelt, a victim himself of a poliovirus infection, was an enthusiastic supporter of these campaigns. The public relief following the development of the Salk vaccine was, however, almost abruptly derailed by the revelation that some lots of the vaccine contained only partially inactivated virus, and recipients of those lots of vaccine developed paralytic polio instead of being protected against it.

The war I was drafted to fight in was, therefore, the war against poliomyelitis, a war to eliminate that dread disease from the US. My job was twofold. Both to visit periodically the polio vaccine manufacturers in order to determine whether they were conforming to the established protocols for producing an inactivated virus vaccine for preventing poliovirus infections, and to investigate the safety and effectiveness of the attenuated poliovirus vaccines which were then under development. Any time I had after that could be devoted to my own research projects.

I actually met Jonas Salk twice in the years after his development of the killed virus polio vaccine. The first time was when he came as an honored guest to speak at my medical school, NYU College of Medicine, during my senior year there in 1958. At that time he stressed how much he felt he owed to the school for accepting his application to it, since he was Jewish, and at the time he applied, most medical schools, excluding the NYU College of Medicine, practiced rampant discrimination against Jews. The second meeting was during my time at DBS when we had a problem about the killed virus vaccine. During both meetings, Salk impressed me as a very down to earth person, who gave full credit to the support he received from the Foundation and to his scientific co-workers on the vaccine project. This was at a time when he was praised with almost the status of a savior of humanity. He had been the universal man of the year for a long period.

In his later life, things did not go so well for Salk. Some of his co-workers claimed he had not given them full credit for their contributions to the development of the vaccine, and other virologists publicly belittled his scientific contributions. As a consequence, he was never elected to the National Academy of Sciences. His name gradually faded from public acclaim, and even public notice. Presidents of the US no longer consulted with him to seek his advice about medical issues. The National Foundation, however, still honored him as their poster child, and funded the Salk Institute, a very high-powered research laboratory in La Jolla, California, which attracted a staff of excellent scientists, including a few Nobel Prize winners.

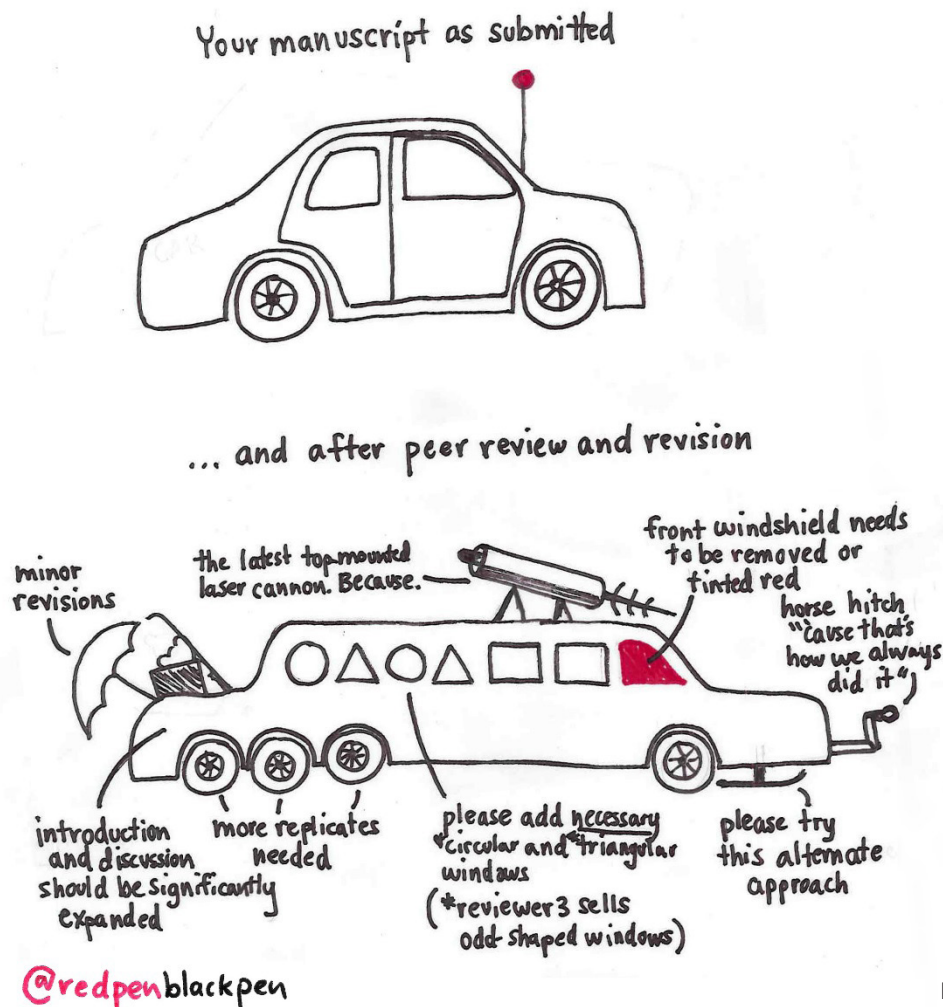
In the last years of his life, Salk received perhaps the worst disparagement he ever suffered to his personal pride. The members of his own foundation reduced his laboratory space and personnel, because they felt he was no longer contributing sufficiently to the scientific output and financial resources of the Institute.

THOUGHTS ON THE CONTROVERSIES SURROUNDING JONAS SALK *CONTINUED*



What might scientists learn from the career of Jonas Salk? The simplest lesson is: Never stop producing excellent work; your status is never assured. To me, the more meaningful lesson is the harmful effects of envy and jealousy, “the green-eyed monster”. Who does not feel some twinge of those when we read about another scientist who has won significant public notice for some research achievement? I believe feelings of that nature were what led to the disappointments Salk felt in the aftermath of the years of acclaim he had received for the development of the polio vaccine, and the eclipse of his reputation was probably responsible for the belated acceptance of one of his significant medical achievements.

When the oral vaccines were developed, Salk warned the attenuated status of the viruses employed in them was not stable, and that their use should be preceded by an inoculation of the Salk type, killed virus vaccine. His warnings were ignored – after all, he was considered a has-been. He was quite correct, however. There were a number of live virus-caused cases of paralytic polio due to the live vaccine virus back mutating to a virulent status, and now the procedure Salk recommended has been adopted in the US, and is being employed, where feasible, worldwide. So, maybe the feelings we all get of envy, when today's heroes are up, and schadenfreude when yesterday's heroes are down, are not the best for us or for science.



Reproduced courtesy of Jason McDermott

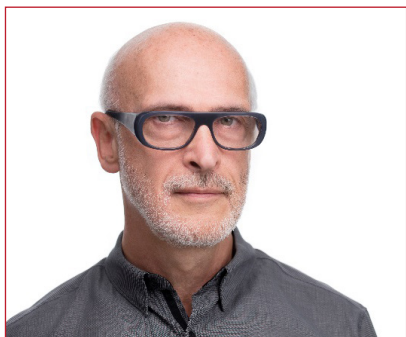
2108 VILCEK AWARDS

The Vilcek Foundation is pleased to announce the winners of the 2018 Vilcek Prizes in Biomedical Science. Awarded annually, the prizes call attention to the breadth of immigrant contributions to science in the United States. In parallel, the Vilcek Foundation also awards prizes for immigrant accomplishments in the arts.

“The collective discoveries of this year’s prizewinners are truly exceptional,” says Jan Vilcek, Chairman and CEO of the Vilcek Foundation. “They have wide-ranging implications in both basic and translational science, and include novel technologies that, until recently, were not even within the realm of imagination. They are proof that immigrants push the boundaries of possibility, in science and in society.”

The Vilcek Foundation was established in 2000 by Jan and Marica Vilcek, immigrants from the former Czechoslovakia.

The mission of the foundation, to honor the contributions of immigrants to the United States and to foster appreciation of the arts and sciences, was inspired by the couple’s respective careers in biomedical science and art history, as well as their personal experiences and appreciation of the opportunities they received as newcomers to this country. The foundation awards annual prizes to prominent immigrant biomedical scientists and artists, and manages the Vilcek Foundation Art Collections. To learn more about the Vilcek Foundation, please visit vilcek.org.



Alexander Rudensky is chair of the immunology program at Sloan Kettering Institute, director of the Ludwig Center at Memorial Sloan Kettering Cancer Center, and Howard Hughes Medical Institute Investigator. Rudensky, known to his friends as Sasha, was born in the former Soviet Union, and came to the U.S. soon after the fall of the Berlin Wall as a postdoctoral fellow. Much of his career has been devoted to understanding regulatory T cells, or Tregs, immune cells that suppress unwanted immune responses and fend off runaway inflammation and autoimmune disorders. He first uncovered its genetic origins in a gene switch called FOXP3; later, Rudensky demonstrated how Tregs control immune responses to stave off spontaneous miscarriage during pregnancy, protecting growing fetuses from reflexive attack by the maternal immune system. He also deciphered the biochemical basis of the communication between Tregs and gut microbes—a process crucial to preventing gut inflammation. More recently, his work has revealed a central role for Tregs in cancer treatment, suggesting that finessing the action of Tregs using molecular approaches could help enhance the efficacy of cancer immunotherapy drugs, which work by unleashing the immune system against tumors. For his important contributions to science, Rudensky has received several honors, including the Howard Hughes Medical Institute investigatorship; the Crafoord Prize of the Royal Swedish Academy of Sciences; and memberships in the American Academy of Arts and Sciences, the National Academy of Sciences, and the National Academy of Medicine.

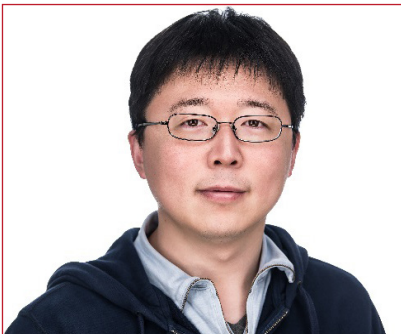


Polina Anikeeva has fashioned ingenious solutions to long-standing challenges in biomedical engineering. Her technical acumen has led to advances in optogenetics, an approach to exploring brain function by using light to control the actions of brain cells in lab animals. Her design of implantable probes from ultrathin, flexible polymers that closely mimic the brain’s material properties has allowed neuroscientists to simultaneously stimulate and record neuronal activity in awake—rather than anesthetized—animals. The ability to examine brain activity in awake lab animals is crucial to establishing links between the brain and behavior. Additionally, her work on wireless deep brain stimulation unveiled a prototype for the noninvasive analysis of brain function, as well as the future design of therapeutic devices for conditions such as Parkinson’s disease and spinal cord injury. Anikeeva, born in the former Soviet Union, is the Class of 1942 Associate Professor in Materials Science and Engineering and associate director of the Research Laboratory of Electronics at Massachusetts Institute of Technology.

2108 VILCEK AWARDS *CONTINUED*



Sergiu P. Pasca uses models of the human brain, created through cellular reprogramming technology, to explore the biological underpinnings of brain disease. Pasca developed some of the early laboratory dish models of brain disease by deriving neurons from skin cells of patients with genetic forms of autism and other neurodevelopmental disorders; these neurons helped uncover the cellular effects of specific mutations and demonstrated the promise of this novel approach. Next, Pasca developed methods to engineer lab-grown self-assembling 3D structures called brain spheroids, or brain region-specific organoids, also from extracted stem cells. These structures mimic specific regions of the nervous system, and they can be assembled to study the cross-talk between cells in the developing human brain and to form functioning brain circuits in lab dishes. Pasca's lifelike models of the brain pave the way toward a better understanding of disorders such as autism and schizophrenia. Pasca, originally from Romania, is an assistant professor of psychiatry and behavioral sciences at Stanford University; investigatorship; the Crafoord Prize of the Royal Swedish Academy of Sciences; and memberships in the American Academy of Arts and Sciences, the National Academy of Sciences, and the National Academy of Medicine.



Feng Zhang developed tools that have advanced both optogenetics, a method of exploring brain function by using light to control the actions of brain cells in lab animals, and gene editing, an approach to altering the genomes of virtually all living organisms. Using a virus-based gene delivery system, Zhang introduced light-sensitive proteins called rhodopsins into the neurons of mice to monitor and control neuronal activity, allowing neuroscientists to map the circuits underlying normal brain function and neuropsychiatric disorders. A few years later, he developed molecular tools for editing genes, launching a technology, known as CRISPR-Cas, to make highly precise changes to genomes in a rapid and efficient manner. Zhang's work in this area of biology has resulted in a growing array of applications, such as uncovering the genetic underpinnings of diseases, ushering in gene therapies to cure heritable diseases, and improving agriculture. Born in China, Zheng is the James and Patricia Poitras Professor in Neuroscience at McGovern Institute for Brain Research at Massachusetts Institute of Technology and a core institute member of the Broad Institute.

“ SCIENCE QUOTES ”

There is no great invention, from fire to flying, which has not been hailed as an insult to some god.

- *J. B. S. Haldane*

It is a good morning exercise for a research scientist to discard a pet hypothesis every day before breakfast. It keeps him/her young.

- *Konrad Lorenz*

Basic research is what I am doing when I don't know what I am doing.

- *Wernher von Braun*

Every revolutionary idea seems to evoke three stages of reaction. They may be summed up by the phrases:

- (1) It's completely impossible.
- (2) It's possible, but it's not worth doing.
- (3) I said it was a good idea all along.

- *Arthur C. Clarke*

Future Annual Meetings



6th Annual Meeting
27 - 30 October, 2018
Westin Boston Waterfront, Boston, USA



7th Annual Meeting
20 – 23 October, 2019
Hofburg Kongresszentrum, Vienna, Austria



8th Annual Meeting
1 - 4 November, 2020
Hyatt Regency Seattle, Seattle, USA