Signals+

THE **INTERNATIONAL CYTOKINE & INTERFERON SOCIETY** NEWSLETTER

APRIL 2019 | VOLUME 7 | NO. 1

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Signals

BMC Part of Springer Nature

Signals

Introducing "Signals" NEW ICIS Online Open Access Journal

Message from the Editors:

Welcome to Signals, a new open-access journal owned by the International Cytokine and Interferon Society. The editorial board and I are excited to get this rolling after years in the planning with the goal of serving the scientific community. We are grateful to so many who contributed to this launch, and to our future authors and readers. Help us send Signals to the forefront of publications!

Signals is a new publication encompassing all aspects of basic, clinical and translational research related to cytokines and will be publishing research articles as well as definitive reviews on cytokines, interleukins, chemokines and growth factors. Committed to advancing the understanding of immunological signals, cytokine biology and its role in health and disease, the journal welcomes manuscripts on all aspects of basic, clinical and translational research related to immunological signals and cytokines. With a rigorous peer review process and a global editorial board, Signals will give your research the high visibility desired within our community.

Signals is now officially open for new submissions on all on all aspects of basic, clinical and translational research related to cytokines.

We are excited about the potential of *Signals* to contribute to research and hope to earn your support of this new endeavor.

Reasons to publish with us:

- Official open access journal owned by the International Cytokine & Interferon Society
- Encompasses all aspects of basic, clinical and translational research related to cytokines
- Publishing definitive reviews on cytokines, interleukins, chemokines and growth factors
- ICIS Member Discounts on article-processing charges (APC)

Submit your research to us at: signals.biomedcentral.com

Scott K. Durum, Ph.D. – *Editor-in-Chief*
Cristina Bergamaschi, Ph.D. – *Senior Editor*

Future Meetings

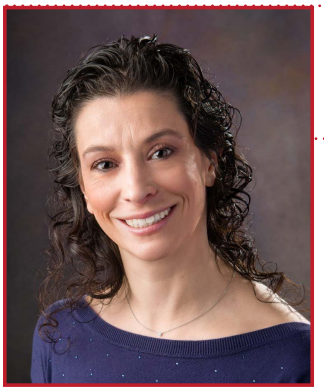
Cytokines 2019
Oct. 20-23, 2019
Vienna, Austria

Cytokines 2020,
November 1 - 4 2020
Hyatt Regency Seattle,
Seattle, USA

ICIS
International Cytokine & Interferon Society

2018 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. This award is provided by a generous gift of the Milstein Family.



CRISTINA BERGAMASCHI, Ph.D.

National Cancer Institute at Frederick, Frederick, USA
Staff Scientist, Human Retrovirus Pathogenesis Section, Vaccine Branch, National Cancer Institute

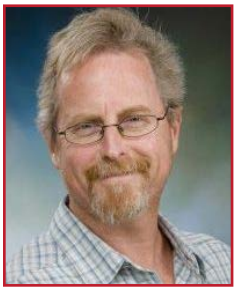
Cristina Bergamaschi, Ph.D. is a molecular immunologist and vaccine biologist who has specialized in the development of immunomodulatory cytokine therapies for cancer treatment and improved vaccination strategies.

Dr. Bergamaschi received her Ph.D. in Molecular Medicine specializing in Immunology from the University of Milan, Italy in 2008. She was awarded an NIH Visiting Fellowship for Cancer Research to conduct postdoctoral research in the Human Retrovirus Section headed by Dr. George N. Pavlakis at National Cancer Institute (NCI) in Frederick, MD, USA. She is currently a Staff Scientist in the Human Retrovirus Pathogenesis Section headed by Dr. Barbara K. Felber in the Vaccine Branch at NCI.

At the NCI, Dr. Bergamaschi investigated the molecular biology and function of interleukin-15 (IL-15), which regulate innate and adaptive leukocyte homeostasis and anti-tumor or anti-viral activities of leukocytes, in a variety of cellular and animal models including genetically modified mice and macaque models. Her research identified that bioactive IL-15 requires a heterodimeric protein composed of the IL-15 cytokine associated with the IL-15 Receptor alpha chain (hetIL-15) for optimal activity. In preclinical experiments, Dr. Bergamaschi showed that hetIL-15 administration may be a general method to induce lymphocyte entry into tumors, converting lymphocyte-poor “cold” tumors into “hot” and increasing the cytotoxicity of lymphocytes. The discovery on hetIL-15 was moved forward to create a novel cytokine therapy that is currently in clinical evaluation for metastatic cancer at the Clinical Center, NCI.

The goal of Dr. Bergamaschi’s research is to tailor immunomodulatory biologicals for improved clinical efficacy in cancer and infectious disease treatment and to translate her discoveries into clinical practices.

2018 THE MILSTEIN YOUNG INVESTIGATOR AWARDEES



RICARDO RAJSBAUM, Ph.D.

Assistant Professor
Department of Microbiology and Immunology
University of Texas Medical Branch

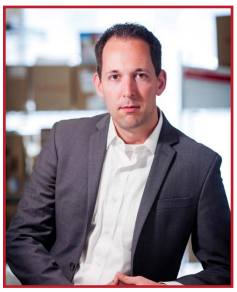
Ricardo Rajsbaum, PhD is an Assistant Professor in the Department of Microbiology and Immunology at the University of Texas Medical Branch, Galveston, Texas. Dr. Rajsbaum performed his PhD in the laboratory of Anne O'Garra at the MRC-NIMR, London, UK, and completed his postdoctoral training at Mount Sinai School of Medicine, New York, with Dr Adolfo Garcia-Sastre. Dr. Rajsbaum's lab at UTMB studies regulation of cytokine expression in immune cells, TLR and RIG-I-like receptor signaling, regulation and function of type-I IFNs, and virus–host interactions, with a specific focus on the role of ubiquitin and TRIM E3-ubiquitin ligases in innate antiviral function. Current research is focused on the role of TRIM6 during infections with highly pathogenic viruses (Ebola and Nipah; Bharaj *et al., PLoS Path,* 2016; Bharaj *et al., J. Virol* 2017), the role of the ubiquitin system in promoting Zika and dengue virus replication, and the role of unanchored polyubiquitin chains in regulation of innate immune signaling.

VIJAY A. K. RATHINAM, DVM, Ph.D.

Assistant Professor, Immunology
UConn Health

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.

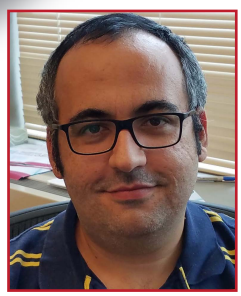
2018 THE MILSTEIN YOUNG INVESTIGATOR AWARDEES



GREG SONNENBERG, Ph.D.

Assistant Professor of Microbiology and Immunology in Medicine, Weil Cornell, New York City, USA

Dr. Sonnenberg completed his doctoral research training at the University of Pennsylvania, Perelman School of Medicine, focusing on mucosal immunology. In 2012, he was a recipient of the NIH Director's Early Independence Award (DP5) that permitted him to develop and lead an independent research laboratory at the University of Pennsylvania, Perelman School of Medicine. In 2014, Dr. Sonnenberg was recruited as an Assistant Professor of Microbiology & Immunology in Medicine at the Weill Cornell Medical College in New York City. He has primary appointments in the Department of Medicine and Gastroenterology Division, the Department of Microbiology & Immunology, and the Jill Robert's Institute for Research in IBD at Cornell University. The Sonnenberg Laboratory research employs innovative murine models and novel patient-based studies to provide new insights into the pathogenesis of IBD, and to direct future treatment strategies relevant to multiple chronic human diseases associated with dysregulated host-microbiota relationships. As part of these studies, the lab has also launched a significant translational research effort and initiated numerous clinical collaborations to examine primary human samples from defined patient populations. Research from the Sonnenberg Laboratory has resulted in the publication of numerous primary articles in top-tier journals including *Nature, Science, Nature Medicine, Nature Immunology* and *Immunity*. Dr. Sonnenberg has published over 42 peer-reviewed primary and review papers and is funded by the NIH and private foundations. He is also been a recipient of the Searle Scholar Award and the Burroughs Wellcome Fund Investigator in the Pathogenesis of Infectious Disease Award, appeared on the Forbes List of rising stars transforming Science and Healthcare, and research from his lab was highlighted as one of the top notable advances in by *Nature Medicine.*



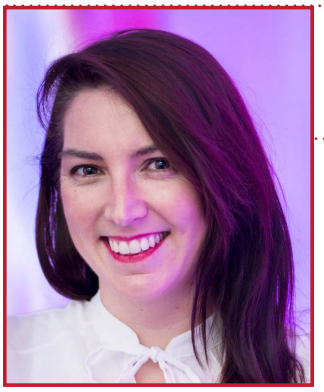
MUNIR AKKAYA, MD, Ph.D.

Postdoctoral Fellow, NIAID, NIH

Dr. Munir Akkaya received his MD degree from Hacettepe University, Turkey in 2007 and D.Phil (PhD) degree from the University of Oxford in 2012. During his undergraduate education, he was awarded with a Scholarship of Honor from Scientific and Technological Research Council of Turkey and a Merit Scholarship from Hacettepe University. His doctorate education was funded by Medical Research Council of the United Kingdom. His D.Phil thesis, which he prepared under supervision of Dr. A. Neil Barclay, focused on the regulation of immune response through interactions of leukocyte surface molecules. He also explored how ligands of inhibitory receptors are acquired by various pathogens and used for immune evasion. Following his D.Phil education, Dr. Akkaya joined the research group of Dr. Susan K Pierce at NIAID, NIH as a post-doctoral researcher and undertook projects related to B cell biology and immunometabolism. His research at NIH characterized novel mechanisms through which TLR signaling can influence B cell survival and differentiation. Besides his work on B cell biology, he is interested in host-pathogen interactions in the context of *Plasmodium* infections. In addition to the Milstein Young Investigator Award, Dr. Akkaya is a recipient of ThermoFisher Trainee Achievement award from American Association of Immunologists and Fellows Award for Research Excellence from NIH. He currently works as a research fellow at NIH.

2018 CHRISTINA FLEISCHMANN AWARD TO YOUNG WOMEN INVESTIGATORS

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.



SOPHIA DAVIDSON, Ph.D.

Postdoctoral Fellow, Walter and Eliza Hall Institute for Medical Research, Parkville, Australia

Dr. Sophia Davidson completed her Bachelor of Biomedical Science with first class Honours at the University of Newcastle (Australia) in 2008.

After wandering around Europe for a while she under took a PhD in the laboratory of Dr. Andreas Wack. In a series of publications Dr Davidson demonstrated the pathogenic potential of type I interferon in Influenza A virus infection and the viability of type III interferon as a biological therapeutic agent for human influenza infection. Enamoured by the pleotropic action of type I interferon, Dr Davidson joined the laboratories of Associate Professor Seth Masters and Professor Benjamin Kile to investigate type I interferon induction and signalling in homeostatic, autoinflammatory and cancer disease settings.

2018 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.

ERIKA ENGELOWSKI, Ph.D. CANDIDATE

Institute of Biochemistry and Molecular Biology II
Medical Faculty
Heinrich-Heine-University, Düsseldorf, Germany

Erika Engelowski completed her master`s degree in Biochemistry at the Heinrich-Heine-University, Germany in 2015.

Afterwards she started her PhD thesis under the mentorship of Prof. Dr. Jürgen Scheller also at the Heinrich-Heine-University. Her current research focuses on background free activation of cytokine receptors using synthetic biology. Furthermore, she explores the role of IL-23 after myocardial infarction.

2018 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.

CHRISTOPH SCHNEIDER, Ph.D.

Postdoctoral Fellow, University of California, San Francisco, United States

Dr. Schneider received his Ph.D. in 2013 from the ETH Zurich, Switzerland, under the supervision of Prof. Manfred Kopf.

As a PhD student, he made key discoveries related to the role of GM-CSF and PPARγ in the development and function of alveolar macrophages, the tissue-resident macrophages in the lung. His work was among the first reports to show a mechanism whereby the tissue niche locally imprints a tissue- specific macrophage identity during development. He demonstrated that alveolar macrophages play a vital role during pulmonary virus infection by maintaining lung function, and pioneered a method for the reconstitution of alveolar macrophages. In 2014, he joined the laboratory of Prof. Richard Locksley at the University of California San Francisco (UCSF) as a postdoctoral fellow, where he has studied the cross talk between tissue resident immune and non-immune cells during development and in response to colonization with eukaryotic pathosymbionts. In his work, published in Cell in 2018, he discovered that the interleukin-25-dependent tuft cell – ILC2 circuit mediates small intestinal adaptive remodeling, and he identified the metabolite succinate as the first luminal ligand triggering tuft cell chemosensation and IL-25. Dr. Schneider is currently transitioning to independence.

2019 ICIS Awards

The Seymour and Vivian Milstein Awards

THE 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 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

BioLegend®
Enabling Legendary Discovery™

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.

2019 ICIS Awards

The Milstein Young Investigator Award

ICIS member who attend Cytokines 2019 in Vienna 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.

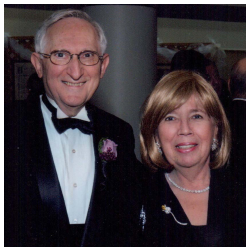
Deadline to submit your 2019 application is **1 June 2019**.

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 2019 application is **1 June 2019**.

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 Fleishmann 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 2019 application is **1 June 2019**.

2019 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 2019 application is **1 June 2019.**

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:

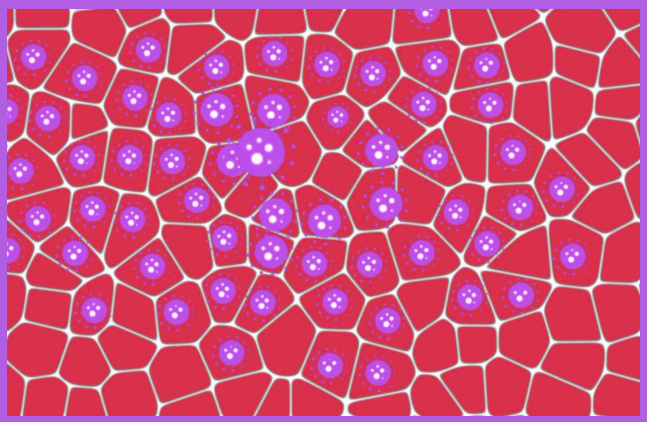
- The Seymour and Vivian Milstein Awards (Deadline is passed, nominations under review by the ICIS Awards Committee)
- Honorary Membership Award (Deadline 25 April, 2019)
- Distinguished Service Award (Deadline 25 April, 2019)
- ICIS-BioLegend William E. Paul Award (Deadline has passed)

Nominations will be accepted until April 25, 2019 for the ICIS Distinguished Services Award and the ICIS Honorary Lifetime Member Award.

*** Nominations for all four awards should be submitted using the Awards Nomination Form on the Society's website, by April 25, 2019. Full details about the awards and nomination submission can be found here http://cytokinesociety.org/icis-prestigious-awards/

Awards will be presented at Cytokines 2019 in Vienna, Austria

INTERFERON FOR THE MASSES



Link to our lay language video on interferons and interferon-stimulated genes.

https://vimeo.com/201189459

Meike Dittmann, PhD
Assistant Professor, Department of Microbiology
New York University Medical School

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.

Osama Al-Saffar
Madenat Al-Elem University College, Iraq

Evangelos Andreakos
Biomedical Research Foundation, Academy of Athens, Greece

Dimiter Avtanski
Friedman Diabetes Institute, United States

Nektarios Barabutis
College of Pharmacy, University of Louisiana Monroe, United States

Michael J Barnes
Celgene Corp, United States

Mark Barrett
Frazier Healthcare Partners, United States

Rami Bechara
University of Pittsburg, United States
Research Advisor:
Sarah Gaffen

Melanie M. Brinkmann
Technische Universität Braunschweig, Germany

Elizabeth Brint
University College Cork, Ireland

Igor E. Brodsky
University of Pennsylvania, United States
Sponsoring Member:
Chris Hunter

Clare Bryant
The University of Cambridge, United Kingdom
Sponsoring Member:
Dusan Bogunovic

Samuel B Burnett
University of South Carolina, United States
Research Advisor:
Rekha Patel
Sponsoring Member:
Evelyn Chukwurah

Thaddeus Carlson
Glaxosmithkline, United States

Rumela Chakrabarti
University of Pennsylvania School of Veterinary Medicine, United States

Adam K Charnley
GlaxoSmithKline, United States

Sijia (Jia) Chen
University of Massachusetts Medical School, United States
Research Advisor &
Sponsoring Member:
Ellen Gravallese

Okki Cho
The Catholic University of Korea, Korea, Republic of
Research Advisor:
Tae-Hwe Heo

Ben A Croker
Boston Children's Hospital, United States
Sponsoring Member:
Paul Hertzog

Mingqi Dong
UMass Medical School, United States
Research Advisor:
Kate Fitzgerald

Jeffrey Mitchell Duggan
Genentech, United States
Research Advisor:
Rajita Pappu

Rebecca A. Erwin-Cohen
National Cancer Institute, United States
Research Advisor &
Sponsoring Member:
Dr. Howard A. Young

Noriyuki Fujikado
Lilly Biotechnology Center / Eli Lilly and Company, United States

Juan Fuxman Bass
Boston University, United States
Sponsoring Member:
Katherine Fitzgerald

Kevin Mingjie Gao
University of Massachusetts medical school, United States
Research Advisor &
Sponsoring Member:
Kate Fitzgerald

Johann E Gudjonsson
University of Michigan, United States

Suzanne Hagan
GCU, United Kingdom

Jonathan Hill
Surface Oncology, Inc., United States

Pamela Holland
Surface Oncology, Inc., United States

Jacob Hopkins
Tufts University, United States
Research Advisor:
Shruti Sharma

Wan-Han Hsu
United States
Research Advisor:
Ann Chen

Xiaoyu Hu
Tsinghua University, China

NEW ICIS MEMBERS

continued

Gene Hung
Frontherapharmaceuticals, United States

Julia A Isakova
Pharmaclon LLC, Russian Federation

Matthias J. John
United States
Sponsoring Members:
Brian Williams and **Howard Young**

Georgios Karagiannis
Einstein College of Medicine, United States
Research Advisor:
Drs John Condeelis and **Maja Oktay**

Daniel L. Kastner
National Human Genome Research Institute, NIH, United States

Eugene Y Kim
Washington State University, United States
Sponsoring Member:
Kamal D. Moudgil

Jung Sik Kim
Korea, Republic of
Research Advisor:
Chung Gyu Park

Kevin R King
University of California San Diego, United States

Toshihiko Kobayashi
National Center for Global Health and Medicine, Japan

Takashi Kobayashi
Oita University, Japan
Sponsoring Member:
Chris Hunter, Hiroki Yoshida and **Akihiko Yoshimura**

Maya Kotas
UCSF, United States
Research Advisor:
Richard Locksley

Jill M Kramer
State University of New York at Buffalo, United States
Sponsoring Member:
Rajendra Prasad Settem

Ashesh Kumar
Paras Biopharmaceuticals Finland Oy, Finland

Evelyn Kurt-Jones
University of Massachusetts Medical School, United States
Sponsoring Member:
Kate Fitzgerald

Lawrence L'Italien
Celsius Therapeutics, United States

Ryan A. Langlois
University of Minnesota, United States

Graham Le Gros
Malaghan Institute of Medical Research, New Zealand

Xuqiu Lei
UMass Medical School, United States
Research Advisor &
Sponsoring Member:
Katherine Fitzgerald

Lih-Ling Lin
Sanofi, United States

Susan MacLauchlan
UMass Medical School, United States
Research Advisor:
Ellen Gravallese

Kate C MacNamara
Albany Medical College, United States
Sponsoring Member:
Howard Young

Sharon McDowell
Regeneron Pharmaceuticals, United States

Brent McKenzie
Genentech, United States

Paul McLean
RPM Solutions Pty Ltd, Australia

Emily Victoria Mesev
Princeton University, United States
Research Advisor:
Alexander Ploss

Bhalchandra Mirlekar
Lineberger Comprehensive Cancer Center, University of North Carolina at Chapel Hill, United States
Research Advisor:
Yuliya Pylayeva-Gupta

Songqing Na
Eli Lilly, United States

Rónán C. O'Hagan
Akrevia Therapeutics Inc., United States

Selinda Orr
Cardiff University, United Kingdom

Eileen Parkes
Queens University Belfast, United Kingdom

G Scott Pesiridis
Glaxosmithkline, United States
Sponsoring Member:
Kate Fitzgerald

Sandra Ivette Ralat
University of Puerto Rico, Puerto Rico

Tiffany Anne Reese
University of Texas Southwestern Medical Center, United States

Maricarmen Rojas-Lopez
MHG/HMS, United States
Research Advisor:
Dr. Marcia B. Goldberg

Carla V Rothlin
Yale University School of Medicine, United States

Clarissa Stephanie Santoso
Boston University, United States
Research Advisor:
Juan Fuxman Bass

Jennifer Schmahl
Regeneron Pharmaceuticals, United States

Markus A Schramm
Harvard Medical School and Brigham and Women's Hospital, United States
Research Advisor:
Vijay K. Kuchroo

Stephanie Rochelle Shames
Kansas State University, United States

Feng Shao
National Institute of Biological Sciences, Beijing, China
Sponsoring Member:
Dusan Bogunovic

Bhesh Raj Sharma
St Jude Children's Research Hospital, United States
Research Advisor:
Dr. Thirumala-Devi Kanneganti

Brad Sherman
The Lone Designer, United States

John Silke
The Walter and Eliza Hall Institute, Australia

Neal Silverman
UMass Medical School, United States
Sponsoring Member:
Kate Fitzgerald

continued

Lucy Sjaastad
University of Minnesota, United States
Research Advisor:
Michael Farrar

Christina Stallings
Washington University School of Medicine, United States
Sponsoring Member:
Dusan Bogunovic

Daniel B Stetson
University of Washington, United States
Sponsoring Member:
Michael Gale, Jr

Ken Takashima
Harvard Medical School, United States
Research Advisor:
Eric Greer

Matthew Anthony Tangeman
United States

Jean-Baptiste Telliez
Pfizer, United States

Esten Vandsemb
United States

Owen Wilson
United States

Megan Kay Wood
United States
Research Advisor:
Daniela Cihakova

Hao Wu
Harvard Medical School and Boston Children's Hospital, United States

Katsuyuki Yui
Nagasaki University, School of Medicine, Japan

Łukasz Zadka
Wroclaw Medical University, Poland
Research Advisor:
Piotr Dzięgiel

Amanda Zajac
Massachusetts General Hospital/ Harvard Medical School, United States
Research Advisor:
Marcia Goldberg

Ivan Zanoni
Harvard Medical School - Boston Children's Hopsital, United States
Sponsoring Member:
Dusan Bogunovic

Jeffrey Zhou
University of Massachusetts Medical School, United States
Research Advisor:
Katherine Fitzgerald

Albert Zlotnik
University of California Irvine, United States

Lorena Zuliani-ALvarez
University College London, United Kingdom
Research Advisor:
Prof Greg Towers

Elina Zuniga
UCSD, United States

Registration and Abstract submission are open now!

https://tnfconference2019.squarespace.com/

The **17th international TNF Superfamily conference** will be held at the beautiful Asilomar Conference Center in Pacific Grove, California, from **June 3rd-7th 2019**. We are preparing an exciting scientific program that will cover diverse aspects of the TNF/TNFR family of cytokines and receptors: from basic biology, biochemistry and signaling to therapeutic targeting and clinical applications.

A significant portion of the talks will be dedicated to selection from the abstracts to ensure that the most topical and interesting subjects are presented and that younger scientists have the opportunity to present their work. **Abstract Submission Deadline was: March 1, 2019.**

New Member MINIBIOs

Prof. Dr. rer. nat. Melanie M. Brinkmann
Technische Universität Braunschweig
Institute of Genetics - Biozentrum
Braunschweig, Germany

Melanie Brinkmann is Professor of Virology at the Technische Universität Braunschweig (TU-BS). She received a PhD in Biology from the Leibniz University Hannover in 2004 and joined the lab of Hidde L. Ploegh at the Whitehead Institute for Biomedical Research in Cambridge, USA, as a postdoctoral fellow from 2006 to 2010. While her PhD and postdoc project at the Institute of Virology at Hannover Medical School focused on the oncogenic herpesvirus Kaposi's sarcoma-associated herpesvirus, she worked on highly specialized sentinels of the innate immune system, so called pattern recognition receptors (PRR), during her postdoctoral phase. These cellular receptors play an essential role for the detection of viral infections. When she started her own group at the Helmholtz Centre for Infection Research in Braunschweig in 2010, she focused her research on herpesviral immune evasion of the PRR-mediated immune response. Since July 2018, she is Professor at the TU-BS. She was honored with the Robert Koch Postdoc Award and the Science Award of the Signal Transduction Society for her contribution to the field of virology and innate immunity.

Rumela Chakrabarti, Ph.D.
Assistant Professor
Department of Biomedical Sciences
School of Veterinary Medicine
University of Pennsylvania
Philadelphia, PA USA

Dr. Chakrabarti is a tenure track Assistant Professor leading the breast cancer research in the Department of Biomedical Sciences at University of Pennsylvania. Her research interest is focused on understanding the mechanisms by which cancer cells recruit and interact with immune cells in the tumor microenvironment of aggressive breast cancers such as triple negative and endocrine resistance breast cancer. These cancer patients currently have very poor clinical outcome due to lack of targeted therapies. Her lab is interested in finding novel molecular targets to aid in development of better therapeutic for these patients in the near future. Dr. Chakrabarti's lab uses cutting edge techniques like lineage tracing in genetically modified mice model, fate mapping, co-culture of cancer cells and immune cells, organoid assays, stem cell transplantation, orthotopic transplantation of tumor cells, flow cytometry, RNA-seq, etc. A recent study in her lab suggests a novel pro-tumorigenic function of Interferon gamma signaling in breast cancer. Interestingly, they also found a paradoxical pro-tumorigenic function of NK cells in triple negative breast cancer. Studies are underway in her laboratory to further investigate the molecular mechanism of these observations. She is a member of the American Association of Cancer Research (AACR).

Johann E. Gudjonsson MD, Ph.D.
Arthur C. Curtis Professor of Skin Molecular Immunology
Dept. of Dermatology, University of Michigan,
Ann Arbor, MI, USA

I am an Associate Professor of Dermatology at University of Michigan dividing my time between a basic science research lab and the clinic where I manage patients with various chronic inflammatory skin conditions. I received my MD and PhD training for University of Iceland and completed a residency training in Dermatology at University of Michigan, Ann Arbor, where I'm currently full-time tenure-track faculty. My research focuses on the pathological mechanisms involved in chronic inflammatory and autoimmune skin diseases such as psoriasis, atopic dermatitis, and lupus. Our work has contributed to our understanding of the mechanisms involved and driving sex-biased immune responses, nature of interferon responses in lupus skin and their relationship with photosensitivity, and role of IL-36 cytokines in driving autoinflammatory responses in psoriasis and pustular psoriasis.

New Member MINIBIOs *Continued*

Suzanne Hagan, Ph.D.
Glasgow Caledonian University,
Glasgow, United Kingdom

Dr. Hagan did her PhD training on matricellular proteins involved in retinal disease (PVR), at the University of Liverpool, UK. Dr Hagan then spent 5 years as a postdoctoral researcher, investigating the role of the metastasis suppressor gene (RKIP) in breast and colon cancer at the Beatson Institute for Cancer Research.

Since 2010, Dr Hagan has been a lecturer in Vision Sciences at Glasgow Caledonian University, with expertise in biomarkers (cytokines) of eye disease, specifically in ocular surface disease. Dr Hagan has published numerous papers on this topic and is a member of various professional organisations (British Society for Cell Biology, Biochemical Society, ICIS and The Association for Research in Vision and Ophthalmology [ARVO]). She is Director of Innovative Technologies at the European Association for Predictive, Preventive and Personalised Medicine (http://www.epmanet.eu/), as well as Associate Editor of the EPMA Biomarkers Section.

Dr. Suzanne Hagan utilises the highly-sensitive Multiplex assay to assess panels of cytokines in tear fluids, and this allows detection in samples of only 1ul. This technique is at the cutting edge of ocular surface disease research and is being investigated with the aim of inventing new diagnostic tests for dry eye disease and other eye conditions (glaucoma, diabetic retinopathy and keratoconus). It is anticipated that tear fluid biomarkers, such as cytokines, could be utilised as both diagnostic tools and as therapeutic targets in the future.

Xiaoyu Hu, PhD
Tsinghua University
Tsinghua University Medical Science Building D311
Beijing, China

Xiaoyu Hu received her Bachelor of Medicine degree from Beijing Medical University and obtained her Ph.D. degree in immunology from Cornell University. After a brief postdoctoral training, she was promoted to Instructor and then Assistant Scientist at the Research Division of the Hospital for Special Surgery located in the New York City. She established her independent research laboratory in 2009 and in the next year joined the faculty of Weill Cornell Medical College as a tenure track Assistant Professor. In 2014, she joined Tsinghua University School of Medicine and led the Laboratory of Macrophage Biology and Inflammation. Currently she is a Principal Investigator at Institute for Immunology, Tsinghua University and Associate Director, Department of Basic Medical Sciences at Tsinghua University School of Medicine.

Dr. Hu's research aims to better understand the signal transduction networks that control macrophage activation and to identify new therapeutic targets that modulate macrophage functions in autoimmune and inflammatory conditions. One focus of Dr. Hu's laboratory is to uncover signaling pathways as well as transcriptional and translational mechanisms that regulate macrophage responses to innate immune stimuli. Dr. Hu's work has been funded by agencies including National Natural Science Foundation of China (NSFC), Minister of Science and Technology of China, U.S. National Institutes of Health (NIH R01), American College of Rheumatology, and Lupus Research Institute and has been reported by news media such as Time Online.

Dr. Hu has published over 40 peer reviewed articles in journals including Nature Immunology and Immunity (H index 27). She is the recipient of multiple awards including Christina Fleischmann Award to Young Women Investigators from International Cytokine & Interferon Society, NSFC Distinguished Young Investigator Award, U.K. Royal Society Newton Advanced Fellowship, and Young Scholar Award from U.S. Arthritis Foundation. Dr. Hu also served as ad hoc reviewer for a number of scientific journals and grant reviewer for major funding agencies including U.S. NIH, U.S. Department of Defense, American College of Rheumatology, NSFC, and Ministry of Education of China.

New Member MINIBIOs *Continued*

Dr. Ashesh Kumar, Ph.D.- Biotech (IIT-R)
CEO & Director - Biologics & Licensing
Paras Biopharmaceuticals Finland Oy
Oulu, Finland

Dr Ashesh Kumar is the CEO, Director of Biologics & Licensing at Paras Biopharmaceuticals Finland Oy. Dr Kumar leads the team and is responsible for the organisation's Biologics development program including the development of Biosimilars (for Osteoporosis, Metabolic and Oncology). Dr Kumar has successfully developed and out-licensed biosimilar technologies for scale-up production of biologics and biosimilars in Europe and Asia.

Prior to working in Paras, Dr. Kumar was Head Director of Medipolis GMP Oy in Finland for six years and was Head of the cGMP Biopharma team in Europe where he guided a team which successfully developed and licensed a key biosimilar technology for scale up production in Europe. Dr Kumar's group was responsible for carrying out more than 8 Process Development and cGMP biopharmaceuticals development projects. Dr. Kumar attended Harvard Business School (USA) and holds a management degree from Jamnalal Bajaj Institute of Management Studies and a MS and a Ph.D. in Biosciences & Biotechnology from the Indian Institute of Technology - Roorkee, India.

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

The Langlois lab is interested in the immune response to virus infections, particularly influenza. The lab genetically engineers novel virus reporters and virus systems to study both innate and adaptive immune responses. We are particularly interested in early virus-host interactions mediated by interferon.

Kate C. MacNamara, Ph.D.
Associate Professor
Department of Immunology and Microbial Diseases
Albany Medical College
Albany, New York, USA

Dr. MacNamara is an Associate Professor at Albany Medical College where she directs a research program investigating the impact of interferons on hematopoiesis, or blood cell production. Using murine models of acute and chronic infection, autoimmune disease, and normal aging, the goal is to define the cell players and signaling pathways that regulate hematopoietic stem cell (HSC) function and dysfunction. Inflammation is appreciated to have profound suppressive effects on erythropoiesis, while enhancing output of myeloid cells. While this adaptation may be required for protection against certain infections, it can also lead to tissue damage and have long-term impacts on the HSC and progenitor cell pool. In models of infection-induced HSC loss and autoimmune-mediated bone marrow failure, studies have defined an important role for the microenvironment, specifically macrophages, in responding to interferon gamma in driving HSC loss. In models of severe, shock-like infection, type I interferons contribute to the loss of HSCs via both intrinsic signaling in progenitor cells and via indirect mechanisms that regulate cell cycle and cell death of HSCs and progenitors. Ultimately, defining fundamental mechanisms balancing blood cell generation in the context of inflammation may reveal therapeutic targets for HSC regeneration. Hematopoiesis is absolutely essential for life, and understanding how inflammation and interferons impact HSC biology is fundamental to treating patients with acute and chronic inflammatory diseases.

New Member MINIBIOs *Continued*

Bhalchandra Mirlekar, Ph.D.
Postdoctoral Research Associate
Lineberger Comprehensive Cancer Center
University of North Carolina at Chapel Hill
Chapel Hill, North Carolina USA

My long-term research interests involve the development of a comprehensive understanding of crucial developmental pathways and how alterations in gene expression in immune cells contribute to human diseases. My research experience and academic training have provided me with an excellent background in several biological disciplines including immunology, molecular biology, microbiology and chromatin biology. As a master student, I was able to conduct research with Dr. Arun Risbud at National AIDS Research Institute (NARI) on biology of CD4+ T cell in HIV and its association with opportunistic infections. This was the turning point of my life, my passion for immunology led me to work on molecular mechanisms of T cell responses. I wanted to continue studies on T cell immunology and I went on to pursue my doctoral training at Biotechnology and Immunology PhD program at National Centre for Cell Science (NCCS) under Dr. Samit Chattopadhyay. During my doctoral training, I have acquired the knowledge, training and experience in the field of immunology to effectively carry out research in basic immunology for better translation of research findings to clinical applications. I worked on molecular mechanism of T cell differentiation associated with auto-inflammatory responses. I showed the role of cytokine signaling and transcription factors that maintains the fine tune balance between Treg and Th17 cells. I developed a novel protocol for the differentiation and tracing the proliferation of T cells in vivo. As a PhD student, I successfully wrote two main projects, which were funded by Department of Biotechnology (DBT). In collaboration with other researchers, and I produced several peer-reviewed publications and majority of them were first author. In addition, I was the member of Graduate Students Meet at Advanced Center for Treatment Research Education in Cancer (ACTREC) and also presented my research work at several national and international meetings. During my masters and graduate careers, I received several academic and teaching awards. I am currently pursuing my postdoctoral research work at Lineberger Comprehensive Cancer Center, University of North Carolina at Chapel Hill, in the laboratory of Dr. Yuliya Pylayeva-Gupta. Dr. Pylayeva-Gupta lab has an extensive interest in the role of immune cells in pancreatic cancer. Given my own interest in the cancer immunology, it was natural for me to use my basic immunology skills to study pancreatic tumorigenesis, where altered immune responses promotes KRas driven pancreatic cancer initiation and progression. In Dr. Pylayeva-Gupta's lab, I have gained the expertise in mouse model of pancreatic cancer, established a novel chimeric mice, adoptive transfer and depletion of T cells models to study the interplay between immune suppressive cells and effector cells in tumorigenesis, and expanded my knowledge of tumor immunology, as well as associated techniques. More importantly, this work will provide me with an opportunity to understand the mechanism of tumor promoting immune suppressive cells and cytokines as well as developing novel immune-based therapeutic targets. I will also gain experience in scientific presentations, as this research will be presented to my peers and the public through manuscript publication and scientific talks. I am a very motivated and a hardworking individual, as is demonstrated by my record of awards, accomplishments, and publications. Taken together, this proposed project combines my previous background, expertise with training in tumor immunology and K99/R00 support will let me develop other necessary skills that will enable me to become an independent scientist.

G. Scott Pesiridis, Ph.D.
Glaxosmithkline
Collegeville, PA United States

Dr. Scott Pesiridis is an Associate GSK Fellow and Scientific Leader of Discovery Biology in the Innate Immunity Research Unit at GlaxoSmithKline. His research focuses on development of medicines targeting pattern recognition receptors across a spectrum of diseases. Scott joined GSK in 2011 as an Investigator in Platform Technology Sciences where he led small molecule drug discovery research and later joined the Immunology and Inflammation therapy area leading development of STING agonists for oncology. He received a PhD in biochemistry from the University of Pennsylvania where he studied the enzymology of protein methyltransferases connected to pediatric neuromuscular disease and completed his postdoctoral research at the Center for Neurodegenerative Research where he studied pathological mechanisms underlying amyotrophic lateral sclerosis.

Recent Publication: https://www.nature.com/articles/s41586-018-0705-y

New Member MINIBIOs *Continued*

Carla V. Rothlin, Ph.D.
Yale University School of Medicine
New Haven, CT United States

Carla V. Rothlin, Ph.D. is an Associate Professor of Immunobiology and Pharmacology at Yale School of Medicine with Tenure and a HHMI Faculty Scholar. Dr. Rothlin studied Biochemistry and Pharmacy at the University of Buenos Aires, where she also performed her graduate studies under the direction of Dr. Ana Belen Elgoyhen on nicotinic receptors expressed in the inner ear. Following her Ph.D., Dr. Rothlin moved to San Diego, California and joined Dr. Greg Lemke's lab at the Salk Institute for Biological Studies. Dr. Rothlin was appointed as an Assistant Professor in Immunobiology at Yale School of Medicine in 2009. Dr. Rothlin's research focuses on mechanisms that underlie the regulation of inflammation and the homeostatic control of immune function. Her laboratory has identified the function of the TAM receptor tyrosine kinases in the negative regulation of the immune response and resolution of inflammation. Dr. Rothlin's contributions have been recognized by numerous foundations, such as the PEW Foundation and Howard Hughes Medical Institute. Dr. Rothlin is also highly committed to Yale's education mission and was appointed Director of Graduate Studies in Immunobiology in 2018.

Christina L. Stallings, Ph.D.
Associate Professor, Department of Molecular Microbiology
Director, Molecular Microbiology and Microbial Pathogenesis Graduate Program
Washington University School of Medicine
St. Louis, MO USA

Christina L. Stallings is an Associate Professor in the Department of Molecular Microbiology at Washington University in St. Louis, School of Medicine. She also serves as the Director for the Molecular Microbiology and Microbial Pathogenesis Graduate Program at Washington University. She received her Ph.D. with distinction from Columbia University College of Physicians and Surgeons where she performed her thesis work on alphaherpesviruses in the laboratory of Dr. Saul Silverstein. She then transitioned to another fascinating and chronic pathogen, Mycobacterium tuberculosis, for her postdoctoral research in Dr. Michael Glickman's Laboratory at the Sloan-Kettering Institute. She started her faculty position at Washington University in St. Louis in 2010 and research in her laboratory seeks to dissect the molecular mechanisms involved in M. tuberculosis pathogenesis, from the perspective of both the host and the pathogen. As part of this work, her lab is dissecting how the regulation of cytokine and interferon production impacts the outcome of tuberculosis disease. She has been recognized for her accomplishments in these areas by being awarded a Burroughs Wellcome Fund Investigator in the Pathogenesis of Infectious Disease award, an Arnold and Mabel Beckman Foundation Young Investigator Award, and an American Lung Association Young Investigator Award, under which she was designated a TB Scholar. She recently served as Chair for the Mycobacteriology Division of the American Society for Microbiology and serves as an Editor for the American Society for Microbiology mBio and mSphere Journals.

http://stallingslab.wustl.edu/

New Member MINIBIOs *Continued*

Daniel B Stetson, Ph.D.
Associate Professor of Immunology
University of Washington
Seattle, United States

Dan Stetson is an Associate Professor of Immunology at the University of Washington in Seattle, a Howard Hughes Medical Institute Faculty Scholar, and a Burroughs Wellcome Investigator in the Pathogenesis of Infectious Disease. He completed his PhD in the lab of Richard Locksley at the University of California San Francisco, and then did his postdoctoral work with Ruslan Medzhitov at Yale University. Research in the Stetson lab focuses on mechanisms by which cells detect and respond to viral infection. All organisms have viral pathogens, and an ancient and fundamental mechanism for detecting viral infection makes use of sensors that recognize viral nucleic acids. We study these sensors, how they are activated, how they are regulated, how they organize protective immunity to virus infection and cancer, how we can trigger them with better vaccines, and how we can treat human autoimmune diseases caused by inappropriate activation of these same pathways.

Łukasz Zadka, MD
Department of Human Morphology and Embryology
Histology and Embryology Division
Wroclaw Medical University
Wroclaw, Poland

Dr Łukasz Zadka graduated from the psychiatric residency training program and is currently a PhD student at the Department of Human Morphology and Embryology of the Wroclaw Medical University, Poland. His scientific interests focus on the regulation of the immune response in various diseases, especially in cancers and psychiatric disorders. Dr Zadka currently works on a research project, aiming to assess the role of extracellular communication phenomenon in the induction of immunosuppression in patients diagnosed with Colorectal Cancer.

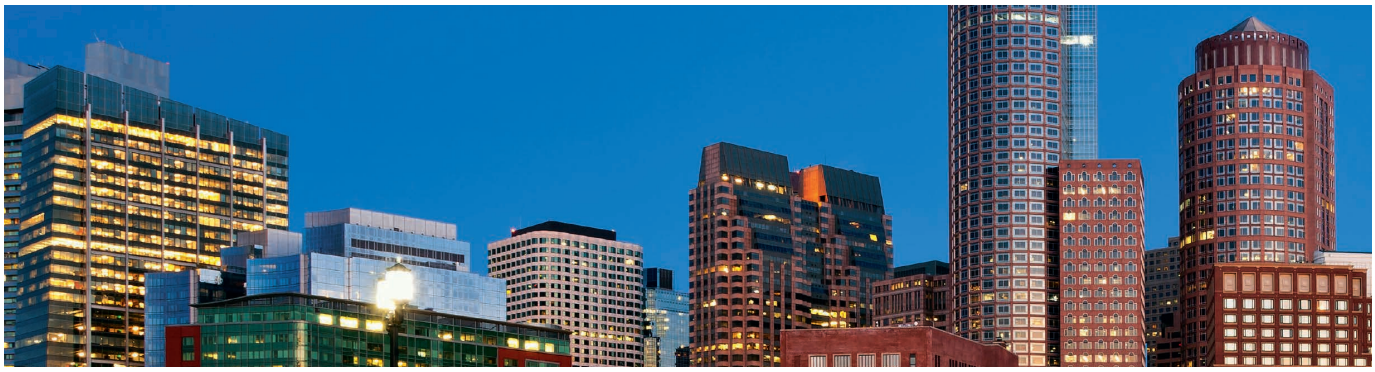
Ivan Zanoni, DVM, Ph.D.
Assistant Professor of Pediatrics
Harvard Medical School
Staff Scientist, Division of Immunology and Division of Gastroenterology
Boston Children's Hospital, Boston, USA

Ivan Zanoni is Assistant Professor at Harvard Medical School, Boston Children's Hospital, USA. He trained with Paola Ricciardi-Castagnoli, receiving his Ph.D. in Immunology from the University of Roma-Tor Vergata (Rome, Italy). He then performed postdoctoral training with Francesca Granucci at the University of Milano-Bicocca (Milan, Italy). The Zanoni lab seeks to understand the events that initiate protective immunity in response to infection and tissue injury, or that drive the development of immune-mediated diseases. Zanoni Lab's current strategy for achieving these goals is to integrate findings derived from a combination of in vitro signaling studies and in vivo murine models, apply this information to refine our hypotheses, and create models that can explain - and possibly predict - the pathophysiology of inflammation in humans.

The lab currently has three major ongoing lines of research: i) Assessing the relevance of NFAT activation in innate immune and non-immune cells during the development of the inflammatory process. ii) Characterizing the diversification of signaling pathways that are triggered by PAMPs and DAMPs, and uncovering the cross-talk between these pathways. iii) Determining the relevance of type III interferon (IFN) signaling for innate immune and non-immune cells during infection and/or during the development of inflammatory disease.

MEETING REVIEW

Cytokines 2018
International Cytokine & Interferon Society ICIS



Organizing Committee Co-Chairs:

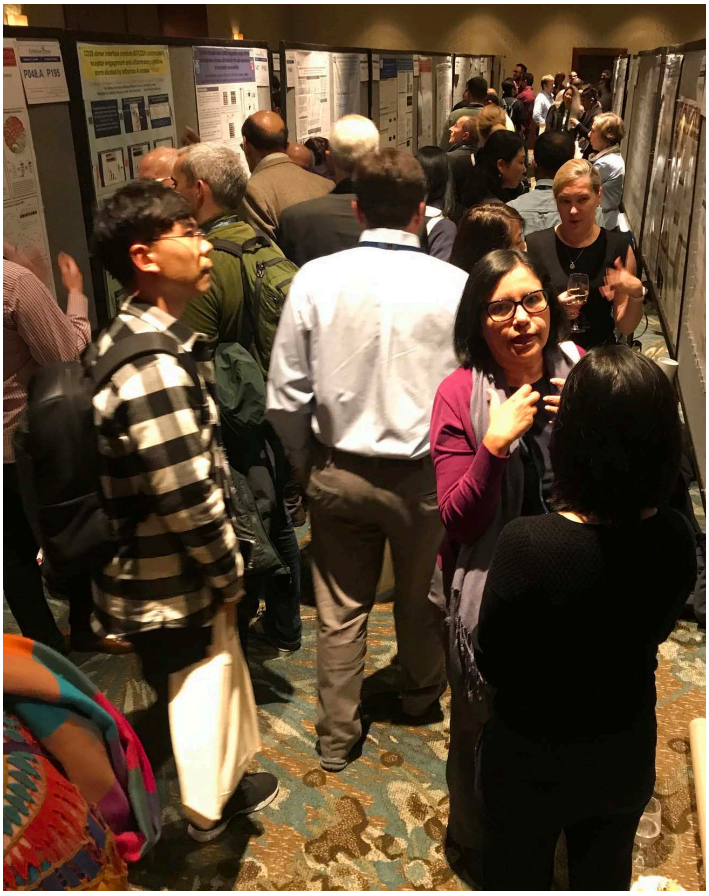
Christopher Hunter, PhD
University of Pennsylvania
School of Veterinary
Medicine, Philadelphia, USA

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

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

This was the first time in the history of the ICIS and its founding two societies before the merger, that the annual meeting had been held in Boston. The ICIS Council is grateful to the Co-Chairs for their extraordinary efforts and execution of a very successful conference.

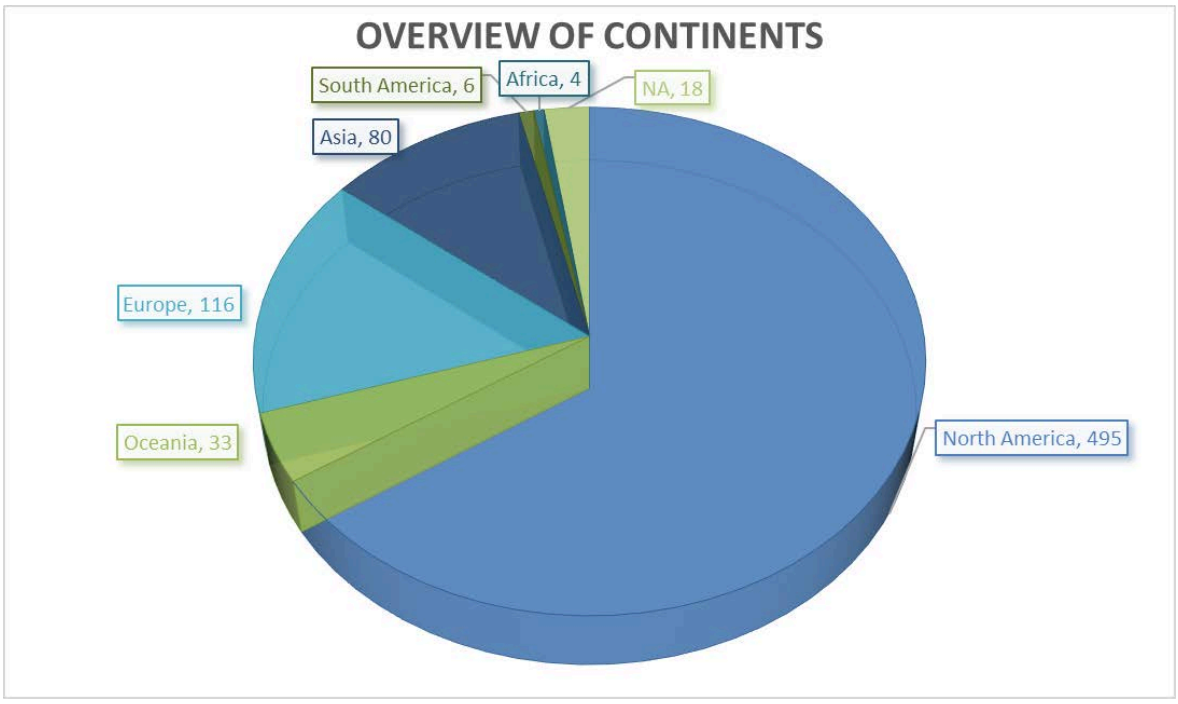
The poster sessions included unpublished data and really excellent science and were well attended. Keeping parallel sessions to a maximum of 2 going on at once is something we hope can be continued. Thanks to the generosity of our sponsors, the meeting included lunch sessions and networking events which we hope to continue in the future. In the words of Co-Chair Christopher Hunter, Cytokines 2018 included "28 Sessions, 127 talks, 3 lunch sessions plus a boat trip and poster sessions to network".



Special thanks go to the Milstein Family for increasing the Milstein Travel Awards to $62,500 in addition to the Milstein Young Investigator Awards (five awards of $1,500 each) and the Milstein Award ($10,000 split between two awardees). A total of eighty-eight (88) Milstein Travel Awards were granted to ICIS member applicants, based on the scientific merit of their abstracts in addition to the prestigious Young Investigator Awards.

Cytokines 2018
International Cytokine & Interferon Society ICIS

Cytokines 2018 Opening Address by Co-Chair Christopher Hunter, thanking the Major Sponsors.



Total attendance was 750 from 34 countries. The meeting always has a majority from the host country. This year, being in Boston, the majority of participants were from North America. In 2017 when the meeting was in Kanazawa, the majority were from Asia. That is why it is important to move the meeting around internationally.

Cytokines 2018
International Cytokine & Interferon Society ICIS

OTHER INTERESTING STATISTICS:

Abstract Submissions by Topic:

Cytokines in skin inflammatory diseases	8
Anti-cytokine therapy	12
Cytokines in allergy and Th2 immunity	12
T cell differentiation and function	19
Autoinflammation and autoimmunity	29
Cytokines in cancer development and antitumor immune therapy	35
Mucosal immunity	37
Cytokine regulation	76
Innate immunity	149
Total	**377**

Abstract Presentation Type:

Poster	320
Oral	50
***Total**	**370**

**7 abstracts were withdrawn upon request of the submitting author*

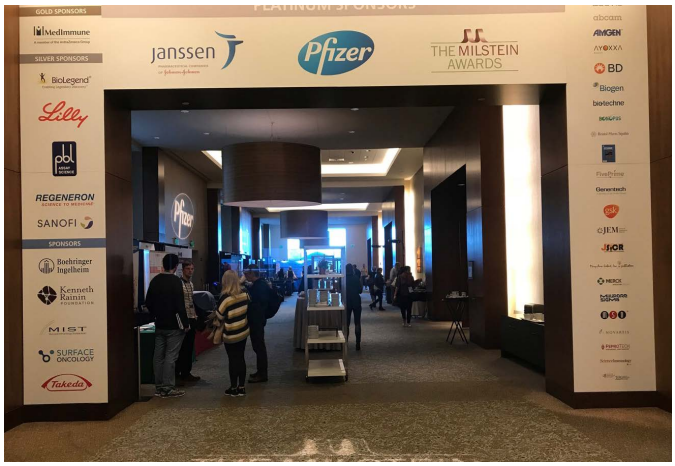
Entertainment aboard the Boston Spirit: The Metabollix led by Luke O'Neill with special Cytokine biologist guests from left, Scott Durum (saxophone), John O'Shea (electric guitar), Andres Sanchez (keyboard), Chris Cole (lead guitar), Luke O'Neill (band leader, rhythm guitar) and not shown, Curt Horvath (guitar), Paul Feery (bass guitar), Adrain Waldeck (drums) and Anna Sheehan (vocals).

Looking down on the crowded dance floor of the Boston Spirit.

Additional photos from the meeting, please visit https://www.flickr.com/photos/cytokinesociety/ to view all photos and videos.

Cytokines 2018
International Cytokine & Interferon Society ICIS

Photos from the Welcome Reception



Look back at the highlights of the 2018 conference

What better way to prepare for this year than by browsing the 2018 pictures?

Take a look back at the highlights of our fantastic congress in Boston by clicking here.

Cytokines 2018
International Cytokine & Interferon Society ICIS

Photos from the Awards Session

Giorgio Trinchieri
2018 ICIS-BioLegend William E. Paul Award

2018 ICIS Distinguished Service Award: Tadamitsu Kishimoto was presented to his two colleagues, Dr. Yohannes Gemechu and Dr. Hozaifa Metwally.

2018 Honorary Lifetime Membership Award, William Robert Fleischmann Jr.

2018 Milstein Awardees, Left, Luke O'Neill and Thirumala-Devi Kanneganti, 3rd from left.

A majority of the 88 Milstein Travel Award Winners

ICIS Member Symposium

The International Cytokine and Interferon Society (ICIS) Symposium: Cytokines in Immune-Stromal Cell Interactions

Sunday, May 12, 2019 3:45 pm – 5:45 pm Room 26AB

Chairs:
Mandy McGeachy, Univ. of Pittsburgh
Meera Nair, Univ. of California at Riverside

Speakers:
Louise M. D'Cruz, Univ. of Pittsburgh, *Regulation of immune cells in adipose tissue*

Meera Nair, Univ. of Pittsburgh, *Novel Immunoregulatory Pathways in Helminth Infection through Resistin-like Molecules and Endocannabinoids*

Nunzio Bottini, Univ. of California, San Diego, *Control of cytokine signaling by PTPN2 in rheumatoid arthritis*

Niki Moutsopoulos, NIDCR, NIH, *Th17 immunity at the oral barrier*

For more information: www.immunology2018.org

Join us at the beautiful Hofburg Conference Centre in the heart of Vienna for the **7th Annual Meeting** of the International Cytokine & Interferon Society. The 2019 conference is set to be the world's most important conference on basic, translational and clinical research related to cytokine biology. Read more about the topics that will be discussed.

Mark Cytokines 2019 in your calendar with a simple click of a button

Outlook or other iCal compatible programmes

Google Calendar

Cytokines 2019

International Cytokine & Interferon Society ICIS

SUBMIT YOUR LATEST RESEARCH AS AN ABSTRACT

We kindly invite delegates, who would like to present their latest research at the annual meeting as a poster or oral presentation, to submit an abstract for consideration by the Scientific Committee.

Please remember to read the instructions here to ensure a smooth and successful abstract submission.

Abstract & Travel Awards Submission Deadline is June 1, 2019

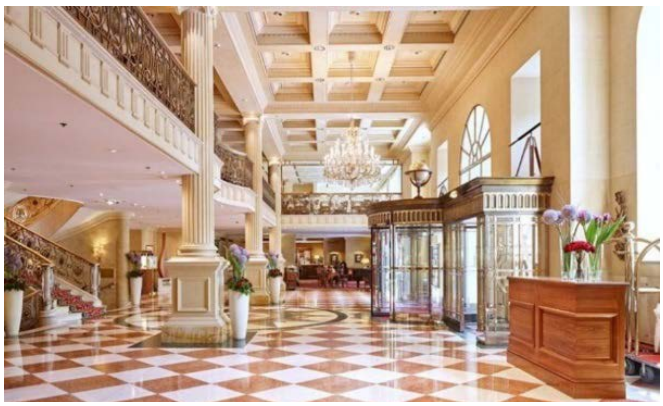
REGISTRATION IS ALSO OPEN ONLINE!

Our online registration platform is already open for all those early birds that want to register early for Cytokines 2019 and save up between ¥50 - ¥250 on their fees.

HOTEL ACCOMMODATION IN VIENNA

MCI is the official housing bureau of Cytokines 2019 and has reserved rooms in hotels conveniently located at preferred rates. Participants will be able to book their accommodation during online registration according to hotels availability.

Click here for further information.



Meeting Chair:

Georg Schett
University of Erlangen-Nuremberg Institute for Clinical Immunology Germany

Meeting Co-Chairs:

Leo Joosten
Radboud Institute for Molecular Life Sciences, Radboud University, Nijmegen, The Netherlands

Mariana J. Kaplan
National Institute of Arthritis and Musculoskeletal Systemic Autoimmunity Branch, USA

Stefan Rose-John
Institute of Biochemistry, Kiel University, Kiel, Germany

Yoshiya Tanaka
University of Occupational and Environmental Health, Kitakyushu, Yahata-nishi, Japan

Cytokines & Interferons: From Biology to Clinics

Cytokine targeting has become one of the greatest revolutions in modern medicine. A large number of severe and sometimes even lethal inflammatory and autoimmune diseases have become manageable due to selective inhibition of cytokines and cytokine signaling. The development of compounds that selectively inhibit cytokines or interferons has permitted a so far unprecedented molecular characterization of human disease. Cytokines also contribute to cancer development and alterations in tissue homeostasis. Cytokines 2019 will address these developments and provide a comprehensive picture of the current knowledge of cytokine pathways in human disease and the strategies to inhibit, modulate or foster cytokine responses.

The 7th Annual Meeting of the International Cytokine & Interferon Society will be held at the Hofburg Conference Centre, an international conference and event centre in the heart of the capital city of Vienna.

CYTOKINES 2019
20-23 October 2019

PRELIMINARY PROGRAM

CYTOKINES 2019
20-23 October 2019
Preliminary Programme AS OF 17 APRIL

Sunday 20 October 2019

17h00-19h30	17:00 - 17:05 Opening ceremony, Welcome, **Georg Schett** 17:05 - 17:35 Award ceremony, Awards Co-chairs, Bryan Williams & Kate Fitzgerald 17:35 - 18:10 **Milstein Awards Lecture TBD** 18:10 - 18:50 Keynote Lecture 1 **Lydia Lynch,** *Associate Professor, TCD and Lecturer, Harvard Medical School* 18:50-19.30 Keynote Lecture 2 **Thomas Decker,** *University of Vienna, Austria*
19:30 – 21:30	Welcome Reception, opening of the exhibits

Monday 21 October 2019

09h00-10h35	**Plenary Session 1** **Mechanisms and treatment of inflammation: The IL-23/IL-17 pathway** **Speakers:** **Diamant Thaci,** *University of Luebeck, Germany* **Sarah Gaffen,** *University of Pittsburgh, USA* ***"IL-17 Signaling - The RNA Where It Happens"*** **Ari Waisman,** *University of Mainz, Germany* Short talk 1 Short talk 2	
10h35-11h05	Coffee break, visit of the exhibition and posters	
11h05-12h40	**Parallel Session 2** **Biology and targeting of type 2-mediated immune responses** **Speakers:** **David Voehringer** *Universitätsklinikum Erlangen, Germany* **"Type 2 immunity controls resolution of helminth-induced lung inflammation"** **Kenji Kabashima,** *Kyoto University Graduate School of Medicine, Japan* **"The role of Th2 cytokines in cutaneous immune responses"** Speaker 3 TBD Short talk 1 Short talk 2	**Parallel Session 3** **Induction of immune tolerance –fact or fiction?** **Sponsored by Nektar Therapeutics** **Speakers:** **John Isaacs** *Newcastle University, United Kingdom* **"Induction of immune tolerance –fact or fiction?"** **Jane Buckner** *Benaroya Research Institute, USA* **Tracy L. McGaha** Princess Margaret Cancer Centre University Health Network, University of Toronto, Canada Short talk 1 Short talk 2

12h40-14h10	Lunch break and Sponsored Lunch Symposium	
14h10-15h40	Poster guided tours with refreshments	
15h40-17h15	**Parallel Session 4** **Regulation of autoimmunity and autoimmune disease by cytokines** **Speakers:** **Gerhard Kroenke** *Universitätsklinikum Erlangen, Germany* **Burkhard Becher** *Institute of Experimental Immunology, Switzerland* **Francesca Barone** *University of Birmingham, United Kingdom* Short talk 1 Short talk 2	**Parallel Session 5** **Control of inflammation by inflammatory cytokines** **Speakers:** **Dirk Elewaut** *Ghent University, Belgium* **Brigitta Stockinger** *Francis Crick Institute, United Kingdom* **"Environmental influences on intestinal stem cell physiology"** **Tom Cupedo** *Erasmus University Medical Center, Netherlands* Short talk 1 Short talk 2

Tuesday 22 October 2019

09h00-10h35	**Plenary Session 6** **Cytokine-related diseases after checkpoint inhibition** ***Sponsored by the Japanese Society of Interferon & Cytokine Research*** **Speakers:** **Lucie Heinzerling,** *Universitätsklinikum Erlangen, Germany* **Taku Okazaki,** *The University of Tokushima, Japan* **Shintaro Iwama,** *Nagoya University, Japan* Short talk 1 Short talk 2	
10h35-11h05	Coffee break, visit of the exhibition and posters	
11h05-12h40	**Parallel Session 7** **Immune metabolism regulating cytokine production and immune cell polarization** **Speakers:** **Atushi Kumanogo,** *Osaka University, Japan* **Cornelia Weyand,** *Stanford University, USA* Speaker 3 TBD Short talk 1 Short talk 2	**Parallel Session 8** **Therapeutic targeting of the cytokine signaling pathways** ***Sponsored by Eli Lilly and Company*** **Speakers:** **Stefan Rose-John,** *University of Kiel, Germany* **Brendan Jenkins,** *Monash University, Australia* **Peter Taylor,** *University of Oxford, UK* Short talk 1 Short talk 2

12h40-14h10	Lunch break – possible sponsored session	
14h10-15h40	Poster guided tours with refreshments	
15h40- 17h15	**Parallel Session 9** **Targeting neutrophils and macrophages in immune-mediated disease** **Speakers:** **Irina Udalova** *University of Oxford, United Kingdom* **Sarah Walmsley** *University of Edinburgh, United Kingdom* **"Fuelling neutrophilic inflammation"** **Romina Goldszmid** *National Cancer Institute, USA* Short talk 1 Short talk 2	**Parallel Session 10** **Orchestration of inflammatory responses by IL-6** **Speakers:** **Thomas Korn,** *TUM School of Medicine, Germany* **"Modes and outcome of IL-6 signaling into T cells"** **Michaela Kress** *Medizinische Universität Innsbruck, Austria* **Simon Jones** *Cardiff University, United Kingdom* Short talk 1 Short talk 2
17h15- 18h00	ICIS Members Meeting and Distribution of Milstein Travel Awards	

Wednesday 23 October 2019

09h00-10h35	**Parallel Session 11** **Type I interferons: biology and their role in disease** ***Sponsored by Bristol-Myers Squibb*** **Speakers:** **Johann Gudjonsson** *University of Michigan, USA* **"A global analysis of cytoplasmic and nuclear interferon signaling"** **Raphaela Goldbach Mansky** *NIH, NIAID/DIR, USA* **Anne O'Garra** *Immunoregulation and Infection Laboratory, Francis Crick Institute, United Kingdom* Short talk 1 Short talk 2	**Parallel Session 12** **Novel aspects of IL-6 inhibition in disease** **Speakers:** **Yuko Kaneko** *Keio University, Japan* **Tsutomu Takeuchi,** *Keio University, Japan* **Cem Gabay** *University of Geneva Switzerland* Short talk 1 Short talk 2
10h35-11h05	Coffee break, visit of the exhibition and posters	

PRELIMINARY PROGRAM *continued*

11h05-12h40	**Parallel Session 13** **Cytokine-mediated resident tissue destruction and fibrotic responses** **Speakers:** **Andreas Ramming** *Universitätsklinikum Erlangen, Germany* **"PU.1 – Core Regulator of Fibroblast Polarization and Tissue Fibrosis"** **Chris Buckley** *Universities of Birmingham and Oxford, United Kingdom* **Erwin Wagner** *Spanish National Cancer Research Centre, Spain* Short talk 1 Short talk 2		**Parallel Session 14** **Local and systemic effects of IL-1 family cytokines in disease** **Speakers:** Speaker 1 TBD **Anna Rubartelli** *IRCSS AOU San Martino – IST, Italy* **Ed Lavelle** *Biochemistry & Immunology, Ireland* **"The role of IL-1 family cytokines in vaccine adjuvanticity"** Short talk 1 Short talk 2
12h40-14h00	Oral Abstract Sessions: **Innate Immunity** Short talks: Up to 8 talks 10 min each talk LUNCH SESSION	Oral Abstract Sessions: **Cytokine Regulation** Short talks: Up to 8 talks 10 min each talk LUNCH SESSION	Oral Abstract Sessions: **Cancer** Short talks: Up to 8 talks 10 min each talk LUNCH SESSION
14h00-15h30	**Plenary Session 15** **Emerging Cytokine Topic TBA** 14h00 – 14h40 – KEYNOTE Speaker TBD 14h40 – 15h05 Speaker 2 TBD 15:05 – 15h30 Speaker 3 TBD		
15h30	Invitation to Cytokines 2020 in Seattle		
15h35	ADJOURN		

Important Dates:

Abstract Submission, Young Investigator Award & Milstein Travel Award Application Deadline:
1 June 2019

Early-Bird Registration Deadline:
1 June 2019

Notification to Abstract Deadline:
July 2019

Regular Registration Deadline:
30 September 2019

INTERFERON LAMBDA EXPERTS MEET AT NIH TO DISCUSS DISEASE IMPACT AND TRANSLATIONAL POTENTIAL

Posted on January 16, 2019

In October 2018, researchers at the National Cancer Institute hosted a meeting entitled, "IFN Lambda: Disease Impact and Translational Potential," on the campus of the National Institutes of Health in Bethesda, Maryland. The event was organized by Thomas O'Brien, M.D., M.P.H., senior investigator in the Infections and Immunoepidemiology Branch, Ludmila Prokunina-Olsson, Ph.D., chief of the Laboratory of Translational Genomics, both in DCEG; Howard Young, of the Cancer and Inflammation Program, Center for Cancer Research at NCI-Frederick; and Raymond Donnelly, from the Center for Drug Evaluation & Research at the U.S. Food and Drug Administration.

Together, they convened an international group of scientists from a wide range of disciplines, including immunology, virology, human genetics, epidemiology, and hepatology to enhance interdisciplinary communication and promote new collaborations in research on IFN Lambda, a rapidly developing field with tremendous translational potential for cancer, infectious diseases and immunology.

The agenda included sessions on IFN Lambda Biology, Therapy and Genetic Variation; IFN Lambda and HCV Infection; IFN Lambda in Other Infections; IFN Lambda, Hepatic Fibrosis and Cancer. In addition, there was a lively poster session and a roundtable discussion regarding potential NIH funding opportunities for research projects.

Participants at the Interferon Lambda Meeting at the NIH

REVIEWS OF INTEREST

by Di Yu and Zhian Chen

Biology and regulation of IL-2: from molecular mechanisms to human therapy.
Spolski R, Li P, Leonard WJ.
Nat Rev Immunol. 2018 Oct;18(10):648-659. doi: 10.1038/s41577-018-0046-y. Review.
PMID:30089912

Prospects for pharmacological targeting of pseudokinases.
Kung JE, Jura N.
Nat Rev Drug Discov. 2019 Mar 8. doi: 10.1038/s41573-019-0018-3. [Epub ahead of print] Review.
PMID:30850748

Recent insights into targeting the IL-6 cytokine family in inflammatory diseases and cancer.
Jones SA, Jenkins BJ.
Nat Rev Immunol. 2018 Dec;18(12):773-789. doi: 10.1038/s41577-018-0066-7. Review.
PMID:30254251

Cytokine-mediated communication: a quantitative appraisal of immune complexity.
Altan-Bonnet G, Mukherjee R.
Nat Rev Immunol. 2019 Feb 15. doi: 10.1038/s41577-019-0131-x. [Epub ahead of print] Review.
PMID:30770905

Interferons α and β in cancer: therapeutic opportunities from new insights.
Borden EC.
Nat Rev Drug Discov. 2019 Mar;18(3):219-234. doi: 10.1038/s41573-018-0011-2. Review.
PMID:30679806

Effects of the IL-23-IL-17 pathway on bone in spondyloarthritis.
Gravallese EM, Schett G.
Nat Rev Rheumatol. 2018 Nov;14(11):631-640. doi: 10.1038/s41584-018-0091-8. Review.
PMID:30266977

Anti-inflammatory and immune-regulatory cytokines in rheumatoid arthritis.
Chen Z, Bozec A, Ramming A, Schett G.
Nat Rev Rheumatol. 2019 Jan;15(1):9-17. doi: 10.1038/s41584-018-0109-2. Review.
PMID:30341437

Preventing psoriatic arthritis: focusing on patients with psoriasis at increased risk of transition.
Scher JU, Ogdie A, Merola JF, Ritchlin C.
Nat Rev Rheumatol. 2019 Mar;15(3):153-166. doi: 10.1038/s41584-019-0175-0. Review.
PMID:30742092

Immunoreceptor Engineering and Synthetic Cytokine Signaling for Therapeutics.
Scheller J, Engelowski E, Moll JM, Floss DM.
Trends Immunol. 2019 Mar;40(3):258-272. doi: 10.1016/j.it.2019.01.001. Epub 2019 Feb 6. Review.
PMID:30738638

JAK/STAT signaling in regulation of innate lymphoid cells: The gods before the guardians.
Stabile H, Scarno G, Fionda C, Gismondi A, Santoni A, Gadina M, Sciumè G.
Immunol Rev. 2018 Nov;286(1):148-159. doi: 10.1111/imr.12705. Review.
PMID:30294965

Antiviral interferon response at single-cell resolution.
Talemi SR, Höfer T.
Immunol Rev. 2018 Sep;285(1):72-80. doi: 10.1111/imr.12699.
PMID:30129203

Interferons and Proinflammatory Cytokines in Pregnancy and Fetal Development.
Yockey LJ, Iwasaki A.
Immunity. 2018 Sep 18;49(3):397-412. doi: 10.1016/j.immuni.2018.07.017. Review.
PMID:30231982

The Interleukin-10 Family of Cytokines and Their Role in the CNS.
Burmeister AR, Marriott I.
Front Cell Neurosci. 2018 Nov 27;12:458. doi: 10.3389/fncel.2018.00458. eCollection 2018. Review.
PMID:30542269

Targeting IL-13 as a Host-Directed Therapy Against Ulcerative Colitis.
Hoving JC.
Front Cell Infect Microbiol. 2018 Nov 6;8:395. doi: 10.3389/fcimb.2018.00395. eCollection 2018. Review.
PMID:30460209

The IL-20 Cytokine Family in Rheumatoid Arthritis and Spondyloarthritis.
Kragstrup TW, Andersen T, Heftdal LD, Hvid M, Gerwien J, Sivakumar P, Taylor PC, Senolt L, Deleuran B.
Front Immunol. 2018 Sep 25;9:2226. doi: 10.3389/fimmu.2018.02226. eCollection 2018. Review.
PMID:30319661

REVIEWS OF INTEREST

by Di Yu and Zhian Chen

Continued

IL-17 in Rheumatoid Arthritis and Precision Medicine: From Synovitis Expression to Circulating Bioactive Levels.
Robert M, Miossec P.
Front Med (Lausanne). 2019 Jan 14;5:364. doi: 10.3389/fmed.2018.00364. eCollection 2018. Review.
PMID:30693283

Regulatory Mechanisms of IL-33-ST2-Mediated Allergic Inflammation.
Takatori H, Makita S, Ito T, Matsuki A, Nakajima H.
Front Immunol. 2018 Sep 4;9:2004. doi: 10.3389/fimmu.2018.02004. eCollection 2018. Review.
PMID:30233590

The Role of IL-10 in Malaria: A Double Edged Sword.
Kumar R, Ng S, Engwerda C.
Front Immunol. 2019 Feb 12;10:229. doi: 10.3389/fimmu.2019.00229. eCollection 2019. Review.
PMID:30809232

Inflammatory Cytokine Networks in Gastrointestinal Tract Graft vs. Host Disease.
Piper C, Drobyski WR.
Front Immunol. 2019 Feb 22;10:163. doi: 10.3389/fimmu.2019.00163. eCollection 2019. Review.
PMID:30853956

Cytokine Targeting by miRNAs in Autoimmune Diseases.
Salvi V, Gianello V, Tiberio L, Sozzani S, Bosisio D.
Front Immunol. 2019 Jan 29;10:15. doi: 10.3389/fimmu.2019.00015. eCollection 2019. Review.
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The influence of interferon on healthy and diseased skin.
Hile GA, Gudjonsson JE, Kahlenberg JM.
Cytokine. 2018 Dec 6. pii: S1043-4666(18)30440-X. doi: 10.1016/j.cyto.2018.11.022. [Epub ahead of print]
PMID:30527631

Emerging IL-12 family cytokines in the fight against fungal infections.
Thompson A, Orr SJ.
Cytokine. 2018 Nov;111:398-407. doi: 10.1016/j.cyto.2018.05.019. Epub 2018 May 21. Review.
PMID:29793796

The role of cytokines in the regulation of NK cells in the tumor environment.
Konjević GM, Vuletić AM, Mirjačić Martinović KM, Larsen AK, Jurišić VB.
Cytokine. 2019 Feb 18;117:30-40. doi: 10.1016/j.cyto.2019.02.001. [Epub ahead of print] Review.
PMID:30784898

Interleukin-17: Friend or foe in organ fibrosis.
Ramani K, Biswas PS.
Cytokine. 2019 Feb 13. pii: S1043-4666(18)30415-0. doi: 10.1016/j.cyto.2018.11.003. [Epub ahead of print] Review.
PMID:30772195

IL-23 in inflammatory bowel diseases and colon cancer.
Neurath MF.
Cytokine Growth Factor Rev. 2019 Feb;45:1-8. doi: 10.1016/j.cytogfr.2018.12.002. Epub 2018 Dec 12. Review.
PMID:30563755

Interleukin-4/interleukin-13 versus interleukin-5: a comparison of molecular targets in biologic therapy for the treatment of severe asthma.
Wu AY, Sur S, Grant JA, Tripple JW.
Curr Opin Allergy Clin Immunol. 2019 Feb;19(1):30-37. doi: 10.1097/ACI.0000000000000490.
PMID:30407206

Professor Luke O'Neill is awarded prestigious EU ERC Award of €2.5m

Professor of Biochemistry, and global pioneer in inflammation research, Luke O'Neill has been awarded an EU European Research Council (ERC) Advanced Grant valued at €2.5 million. These highly prestigious awards allow exceptional researchers to pursue ground-breaking research. Professor O'Neill is one of a select group of senior scientists across Europe who will use these EU funded grants to explore the most daring research ideas.

This is the first time a researcher from Trinity College Dublin has won a second ERC Advanced Grant, the highest accolade among the ERC awards.

NIDDK Director's Group Award Presented to Christine Czarniecki, Ph.D

For exemplary design and conduct of an exceptionally challenging phase 3 trial of transplantation of human islets in type 1 diabetes complicated by severe hypoglycemia.

This medal is based on the scholarly work that the candidate has presented to the public during the period of his or her association with UMMS. The candidate's work must exhibit excellence as evidenced by its import and impact nationally and internationally. The assessment of peers, both internal and external to the campus, will carry particular weight in the medals process, as will extramural grant funding and publications in scholarly journals with high impact. In addition to being an excellent scholar, candidates should have demonstrated an ability to engage others in their work, e.g., graduate students. Recipients of this honor deliver the keynote address at the annual Research Retreat.

NATIONAL INSTITUTE FOR BIOLOGICAL STANDARDS AND CONTROL

A wide range of WHO International Biological Standards and reference materials are available for the calibration of assays of therapeutic substances and immunoassays and bioassays used in basic research. These materials are available from Standards Processing Division, NIBSC, Blanche Lane, South Mimms, Potters Bar, Herts EN6 3QG, UK. NIBSC does not charge for these materials, however there is a handling charge to cover the costs of administration, storage, and dispatch. The handling charge is currently £109 per ampoule.
A comprehensive catalogue of reference materials is available from the above address or from the NIBSC website;
http://www.nibsc.org/products.aspx

HUMAN CYTOKINE STANDARDS AND REFERENCE REAGENTS

Preparation[1]	Product Code	Status[2]
Interleukin 1 alpha	86/632	1st IS
Interleukin 1 beta	86/680	1st IS
Interleukin 2	86/500	2nd IS
Interleukin 3	91/510	1st IS
Interleukin 4	88/656	1st IS
Interleukin 5	90/586	WRR
Interleukin 6	89/548	1st IS
Interleukin 7	90/530	WRR
Interleukin 8	89/520	1st IS
Interleukin 9	91/678	WRR
Interleukin 10	93/722	WRR
Interleukin 11	92/788	WRR
Interleukin 12	95/544	WRR
Interleukin 13	94/622	WRR
Interleukin 15	95/554	WRR
Interleukin 17	01/420	WRR
Interleukin 18	03/200	WRR
M-CSF	89/512	1st IS
G-CSF	09/136	2nd IS
G-CSF(pegylated)	12/188	1st IS
GM-CSF	88/646	1st IS
Leukemia inhibitory factor	93/562	WRR
Oncostatin M	93/564	WRR
Stem cell factor	91/682	WRR
Flt 3 ligand	96/532	WRR
Bone morphogenetic protein-2	93/574	WRR
RANTES	92/520	RR
MCP-1	92/794	RR
GRO-alpha	92/722	RR
IFN alpha leukocyte	94/784	1st IS
IFN alpha 1 (D)	83/514	1st IS
IFN alpha 1/8	95/572	1st IS
IFN alpha 2a	95/650	2nd IS
IFN alpha 2b	95/566	2nd IS
IFN alpha 2c	95/580	1st IS
IFN alpha n1 lymphoblastoid	95/568	2nd IS
IFN alpha n3 leukocyte	95/574	1st IS
IFN alpha consensus	94/786	1st IS
IFN omega	94/754	1st IS
IFN beta	00/572	3rdIS
IFN beta ser17	00/574	RR
IFN beta fibroblast	00/576	RR
IFN gamma	87/586	RR
IFN gamma leukocyte	82/587	BWS
IFN lambda1	10/176	WRR
TGF beta 1	89/514	RR
TGF beta 2	90/696	RR
TGF beta 3	09/234	1st IS
Thrombopoietin	03/124	RR
TNF alpha	12/154	3rd IS
TNF beta	87/640	WRR
TRAIL	04/166	WRR

STANDARDS FOR CYTOKINE ANTAGONISTS

Preparation[1]	Product Code	Status[2]
Etanercept	13/204	1st IS
Infliximab	16/170	1st IS

HUMAN GROWTH FACTOR STANDARDS AND REFERENCE REAGENTS

Preparation[1]	Product Code	Status[2]
Basic Fibroblast Growth Factor	90/712	1st IS
Brain-derived neurotrophic factor	96/534	WRR
Ciliary Neurotrophic Factor	94/684	WRR
Epidermal Growth Factor	91/530	1st IS
Epidermal Growth Factor (1-52)	91/550	WRR
Hepatocyte Growth Factor	96/564	WRR
Hepatocyte Growth Factor precursor	96/556	1st IS
Keratinocyte Growth Factor	03/150	WRR
Keratinocyte Growth Factor (24-163)	03/148	WRR
Leptin	97/594	1st IS
Nerve Growth Factor	93/556	WRR
Neurotrophin-3	98/718	RR
Platelet derived Growth factor BB	94/728	1st IS
Vascular Endothelial Growth Factor 165	02/286	WRR

MURINE CYTOKINE REFERENCE REAGENTS

Preparation[1]	Product Code	Status[2]
GM-CSF	91/658	RR
Interleukin1-α	93/672	RR
Interleukin1-β	93/668	RR
Interleukin 2	93/566	RR
Interleukin 3	91/662	RR
Interleukin 4	91/656	RR
Interleukin 6	93/730	RR
Interleukin 7	93/740	RR
Interleukin 9	93/740	RR
Leptin	997/626	IS
TFN-α	88/532	RR

[1] All preparations listed above are rDNA derived unless specified;

[2] IS - International Standard; WRR - WHO Reference Reagent; RR – NIBSC Reference Reagent; BWS – British Working Standard

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INFERNO

inferring the molecular mechanisms of noncoding genetic variants

http://inferno.lisanwanglab.org/index.php

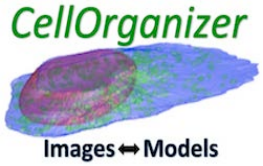
The majority of variants identified by genome-wide association studies (GWAS) reside in the noncoding genome, where they affect regulatory elements including transcriptional enhancers. We propose INFERNO (INFERring the molecular mechanisms of NOncoding genetic variants), a novel method which integrates hundreds of diverse functional genomics data sources with GWAS summary statistics to identify putatively causal noncoding variants underlying association signals. INFERNO comprehensively characterizes the relevant tissue contexts, target genes, and downstream biological processes affected by functional variants.

1. Sets of all putatively causal variants are generated by p-value and LD expansion
2. All variants in expanded sets are overlapped with functional genomics annotations spanning 239 tissues and cell types from FANTOM5 and Roadmap, as well as with transcription factor binding sites identified by HOMER
3. Tissues and cell types from each functional genomics data source are grouped into 32 broad tissue categories for integrative analysis across diverse functional genomics data sources
4. Empirical p-values for the enrichment of functional overlaps in each tissue category are obtained by sampling control variants matched on LD block size, distance to nearest gene, and MAF
5. To improve on direct eQTL overlap, which is biased by LD structure, INFERNO applies the COLOC Bayesian method for co-localization analysis of GWAS and GTEx eQTL signals
6. Co-localization analysis often identifies lncRNA eQTL targets, so GTEx RNA-seq data across 11,439 tissue samples is used to compute lncRNA - mRNA expression correlations and identify targeted mRNAs

THANATOS • THe Autophagy, Necrosis, ApopTosis OrchestratorS Version 1.0

http://thanatos.biocuckoo.org/

Cell death especially Programmed cell-death (or PCD) is critical for development and health of multicellular organisms. Previously, apoptosis is identified to be the primary mechanism while cells are eliminated physiologically in metazoan organisms or plants (Kerr et al., 1972). Recently, in contrast to traditionally consideration as a simple way to die, necrosis has emerged as an alternate form of programmed cell death (Proskuryakov et al., 2003). Furthermore, besides its functions as a survival strategy under stress, autophagy was considered to be another programmed cell death (Tsujimoto and Shimizu et al., 2005). During the last several decades, numerous studies were contributed to characterize these biological processes, especially apoptosis, which was previously considerd to be an anti-cancer mechanism (Hickman et al., 1992). Recent studies suggested that necrosis and autophagy might also be implicated in tumor supression (Proskuryakov et al., 2003; Maycotte and Thorburnet al., 2011), while defect of these cell death processes usually lead to cancer (Hickman et al., 1992; Edinger and Thompsonet al., 2003).
From the literatures in PubMed, we have curated the experimentally identified proteins which regulate apoptosis, necrosis and/or autophagy (THANATOS) from S. cerevisiae, C. elegans, D. melanogaster, M. musculus , R. norvegicus, D. rerio, A. thaliana, and H. sapiens. Furthermore, ortholog searches were performed in 164 eukaryotes. Then the integrated and searchable database THANATOS (THe Autophagy, Necrosis, ApopTosis OrchestratorS) was established. Currently, the THANATOS database contains 191,543 unique protein entries. The database will be updated routinely as new thanatos proteins are reported.

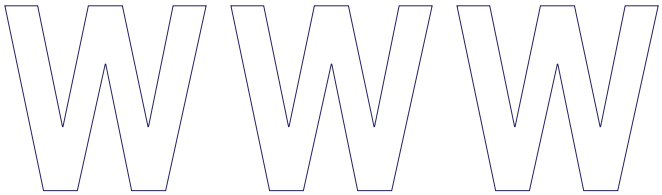


http://www.cellorganizer.org/

The ***CellOrganizer*** project provides tools for

- learning generative models of cell organization directly from images
- storing and retrieving those models
- synthesizing cell images (or other representations) from one or more models

Model learning captures variation among cells in a collection of images. Images used for model learning and instances synthesized from models can be two- or three-dimensional static images or movies.



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CellOrganizer can learn models of

- cell shape
- nuclear shape
- vesicular organelle size, shape and position
- microtubule distribution
- average protein distributions

These models can be conditional upon each other. For example, for a given synthesized cell instance, organelle position is dependent upon the cell and nuclear shape of that instance.

Cell types for which generative models for at least some organelles have been built include human HeLa cells, mouse NIH 3T3 cells, Arabidopsis protoplasts and mouse T lymphocytes.

MiXCR

https://milaboratory.com/software/mixcr/

MiXCR processes big immunome data from raw sequences to quantitated clonotypes. MiXCR is:

- Universal: effectively processes data from most of existing sample preparation protocols
  - o Extracts both T- and B-cell receptor repertoires
  - o Extracts repertoire data even from regular RNA-Seq
  - o Successfully analyses full-length antibody data
- Sensitive: specially optimized alignment algorithms extract maximum from your datasets
- Robust: carefully assembles clonotypes correcting for false diversity, arising from PCR and sequencing errors
- Verbose: provides comprehensive information for assembled clonotypes and alignments
- Simple: requires zero parameters for a typical analysis*
- and yet very flexible
  - o all analysis parameters are well-documented and can be customized
  - o clones can be assembled using custom sequence parts (e.g. allows for full-length antibody clonotype assembly)
  - o lots of intermediate information can be transparently extracted for custom analysis or evaluation of analysis / sample preparation issues

** for analysis of non-human data, species must be specified. Please see documentation for details.*

cisASE

https://omictools.com/cisase-tool

Identifies allele-specific expression (ASE) on single nucleotide variant (SNV), exon and gene levels from sequencing data. cisASE does not require phasing or parental information. It employs matched DNA-seq data to control technical bias and copy number variation (CNV) in putative cis-regulated ASE identification. This tool was able to identify specific ASE characteristics in normal and cancer tissues.

Scotty - Power Analysis for RNA Seq Experiments

http://scotty.genetics.utah.edu/

Scotty is a tool to assist in the designing of RNA Seq experiments that have adequate power to detect differential expression at the level required to achieve experimental aims.

At the start of every experiment, someone must ask the question, "How many reads do we need to sequence?" The answer to this question depends on how many of the truely differentially expressed genes need to be detected. A greater number of genes will be found with an increase in the number of replicates and an increase in how deeply each existing replicate is sequenced. These parameters are limited by the budget for performing the experiment.

The power that is available using a given number of reads will differ between experiments. Ideally, pilot runs of your experiment (small runs of at least two replicates from one of your conditions) should be used to assess the amount of biological variance that is in the system you are studying, and the amount of sequencing depth that is required to adequately measure the genes. Alternatively, Scotty can be run on data from publicly-available datasets that are very close to your expected experiment (species, library preparation protocol, sequencing technology, and read length).

The Matlab code that runs background calculations is available on github. Please contact us if your require assistance.

NONCODE

http://www.noncode.org/

NONCODE (current version v5.0) is an integrated knowledge database dedicated to non-coding RNAs (excluding tRNAs and rRNAs). Now, there are 17 species in NONCODE(human, mouse, cow, rat, chicken, fruitfly, zebrafish, celegans, yeast, Arabidopsis, chimpanzee, gorilla, orangutan, rhesus macaque, opossum platypus and pig). The source of NONCODE includes literature and other public databases. We searched PubMed using key words 'ncrna', 'noncoding', 'non-coding','no code', 'non-code', 'lncrna' or 'lincrna. We retrieved the new identified lncRNAs and their annotation from the Supplementary Material or web site of these articles. Together with the newest data from Ensembl , RefSeq, lncRNAdb and GENCODE were processed through a standard pipeline for each species. The pipeline includes six steps:

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1. Format normalization. All the input data were arranged into bed or gtf format based on one assembly version, for example hg38 for human and mm10 for mouse.
2. Combination. All the normalized data files were combined together using Cuffcompare program in Cufflinks suite. After eliminating redundancy, every new transcript ID and the according resources were extracted.
3. Filtering protein-coding RNA. We filtered out protein-coding RNA through two ways. Firstly, compare with the coding RNA in RefSeq and Ensembl and leave out the "=" and "c" transcripts. Secondly, compute with Coding-Non-Coding Index (CNCI) program and only keep the RNAs considered as non-coding by CNCI.
4. Information retrieve. In this step, we designated each transcript a name according to criterion of NONCODEv4 and prepared their the basic information such as location, exon, length, assembly sequence ,source etc.
5. Advanced annotation. Advanced annotation include expression profiles, predicted function, conservation, disease information etc. Human expression profiles came from 16 tissues of Human BodyMap 2.0 data (ENA archive: ERP000546) and 8 cell lines(GEO accession no. GSE30554), while mouse from six different tissues (ENA archive: ERP000591) . Functions of lncRNA gene were predicted by lnc-GFP, a coding–non-coding co-expression network based global function predictor ncFANs.
6. Web presentation. NONCODE provides a user-friendly interface.

Now, there are 17 species in NONCODE. All in all, NONCODE tries to present the most complete collection and annotation of non-coding RNA.It not only provides the basic information of lncRNA such as location, strand, exon number, length and sequence, but also the advanced information such as the expression profile, exosome expression profile, conservation info, predicted function and disease relation.

Genomics Digital Lab

https://www.spongelab.com/game_pages/gdl.cfm

Genomics Digital Lab (GDL) is an award winning, integrated on-line learning environment where users experience the world of biology through immersive discovery-based learning. Unlike textbooks, GDL takes an integrated, hands-on approach to help learners understand the big picture of cell biology and its importance in our lives.

Fully accessible online, accessible through a web browser, no downloads or installation necessary!

Genomics Digital Lab (GDL):

- Captivates and engages students through high quality interactive simulations
- Promotes critical thinking, creativity and problem solving skills
- Aligns to curriculum by covering an array of biology topics such as plant environments, light reaction, DNA transcription, glycolysis, and photosynthesis
- Provides comprehensive lesson plan creation tools and integrated real-time assessment such as progress tracking and downloadable tests

StarORF

http://star.mit.edu/orf/

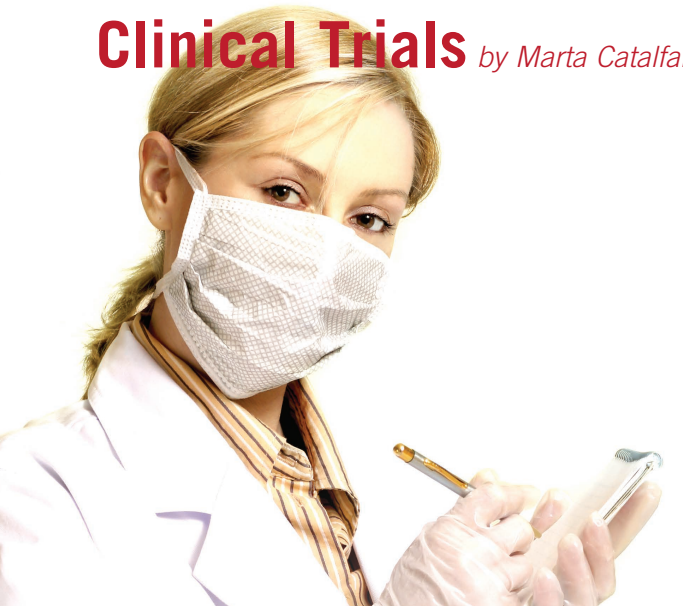
StarORF facilitates the identification of the protein(s) encoded within a DNA sequence. Using StarORF, the DNA sequence is first transcribed into RNA and then translated into all the potential ORFs (Open Reading Frame) encoded within each of the six translation frames (3 in the forward direction and 3 in the reverse direction). This allows students to identify the translation frame that results in the longest protein coding sequence.

Unipept

https://unipept.ugent.be/

Unipept is an open source web application developed at Ghent University that is designed for metaproteomics data analysis with a focus on interactive datavisualizations. Unipept is powered by an index containing all UniProt entries, a tweaked version of the NCBI taxonomy and a custom lowest common ancestor algorithm. This combination enables a blazingly fast biodiversity analysis of large and complex metaproteome samples. This functionality is also available via an API and a set of command line tools. Next to these core functions, Unipept also has a tool for selecting unique peptides for targeted proteomics and for comparing genomes based on peptide similarity.

Clinical Trials *by Marta Catalfamo*



Nilotinib ± Peg-IFN for First Line Chronic Phase CML Patients (PETALs)
Principal Investigators: Franck Nicolini, MD. Hospices Civils de Lyon. France.
Contact: Franck Nicolini, MD. Phone: 4 78 86 22 50 ext 33
ClinicalTrials.gov Identifier: NCT02201459

A Study to Target the Type I IFN Receptor by Administrating Anifrolumab in RA Patients With a High IFN Signature (TarIFNiRA)
Principal Investigators: Josef Smolen, Medizinische Universität Wien, Innere Medizin III, Abteilung für Rheumatologie. Wien, Austria, 109
Contact: Josef Smolen, MD. Phone: +43 1 40400 ext 43050
ClinicalTrials.gov Identifier: NCT03435601

Interleukin-1 Blockade for the Treatment of Heart Failure in Patients With Advanced Chronic Kidney Disease (E-HART)
Principal Investigators: Benjamin W Van Tassell, PharmD. Virginia Commonwealth University. Richmond, Virginia, United States, 23298.
Contact: Benjamin W Van Tassell, PharmD. Phone: 804-828-4583
ClinicalTrials.gov Identifier: NCT03062176

BLOC-ICH: Interleukin-1 Receptor Antagonist in Intracerebral Haemorrhage (BLOC-ICH)
Principal Investigators: Adrian Parry-Jones, PhD, MRCP. Manchester University NHS Foundation Trust. United Kingdom
Contact: Sharon Hulme Hulme, RGN, BSc. Phone: +44 161 206 5755
ClinicalTrials.gov Identifier: NCT03737344

NHS-IL12 for Solid Tumors
Principal Investigators: James L Gulley, M.D. National Institutes of Health Clinical Center, 9000 Rockville Pike. Bethesda, Maryland, United States, 20892.
Contact: James L Gulley, M.D. Phone: + (301) 480-7164
ClinicalTrials.gov Identifier: NCT01417546

High Dose IL-2 in Combination With Anti-PD-1 in Metastatic Melanoma and Renal Cell Carcinoma
Principal Investigators: Mina Nikanjam, MD, PhD. UC San Diego Moores Cancer Center. La Jolla, California, United States, 92093
Contact: Mina Nikanjam, MD PhD. Phone: 858-246-2706
ClinicalTrials.gov Identifier: NCT03889782

Phase II Pegylated Interferon (Peg Interferon)
Principal Investigators: Dolly Aguilera, MD. Children's Healthcare of Atlanta. Atlanta, Georgia, United States, 30322
Contact: Shanikwha June. Phone: 1+ 404-785-4746
ClinicalTrials.gov Identifier: NCT02343224

Combination of Interferon-gamma and Nivolumab for Advanced Solid Tumors
Principal Investigators: Matthew Zibelman, MD. Fox Chase Cancer Center. Philadelphia, Pennsylvania, United States, 19111.
Contact: Matthew Zibelman, MD. Phone: +1 215-728-3889
ClinicalTrials.gov Identifier: NCT02614456

Treatment of Chronic Delta Hepatitis With Lonafarnib, Ritonavir and Lambda Interferon
Principal Investigators: Christopher Koh, M.D. National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). National Institutes of Health Clinical Center. Bethesda, Maryland, United States, 20892
Contact: Amy (Wen-Chun) Huang. Phone: +1 (301) 451-6983
ClinicalTrials.gov Identifier: NCT03600714

Anakinra in Infants and Children With Coronary Artery Abnormalities in Acute Kawasaki Disease
Principal Investigators: Adriana H Tremoulet, MD. Rady Children's Hospital San Diego. San Diego, California, United States, 92191
Contact: Adriana H Tremoulet, MD, MAS. Phone: 1-858-246-0012
ClinicalTrials.gov Identifier: NCT02179853

Treatment of Chronic Urticarial Unresponsive to H1-antihistamines With an Anti-IL5Ralpha Monoclonal Antibody
Principal Investigators: Jonathan Bernstein, MD. Bernstein Clinical Research Center. Cincinnati, Ohio, United States, 45231.
Contact: Karen Murphy, BS, CCRC. Phone: 1- 5133541746
ClinicalTrials.gov Identifier: **NCT03183024**

Human IL-15 (rhIL-15) and Obinutuzumab for Relapsed and Refractory Chronic Lymphocyte Leukemia
Principal Investigators: Milos Miljkovic, M.D. National Cancer Institute (NCI). National Institutes of Health Clinical Center. Bethesda, Maryland, United States, 20892
Contact: P Maureen E Edgerly, R.N. Phone: 1+ (240) 760-6013
ClinicalTrials.gov Identifier: NCT03759184

CHASING THE ANTIBODY

DAVID SECHER AND DEREK BURKE

Immunology has made huge strides over the last fifty years, and one of the most important discoveries was the production and use of monoclonal antibodies by Köhler and Milstein in 1975.

In this technique, antibody-producing cells are fused with myeloma cells (transformed mouse cells) to yield cells producing a series of specific antibodies, which can be grown in vitro.

This is a general technique which can be applied to many systems and for which a Nobel Prize was justly awarded in 1984, and it so happened that it was the subject of one of the weekly seminars held every Friday at the University of Warwick, when David Secher came from the MRC Laboratory of Molecular Biology in Cambridge to speak.

It immediately struck a few of us working on interferon how useful such an antibody to interferon would be, and afterwards we discussed the possibility of a joint project between Cambridge and Warwick to look for an anti-interferon monoclonal antibody. The plan was to inject some partially purified interferon into a mouse, fuse the (antibody-producing) spleen cells with mouse myeloma cells to produce cells that could be grown in cell culture, and then look for cells producing antibody to interferon alpha.

But how would we find such cells producing a specific antibody? One possibility would be to use purified interferon, labelled with a radioactive substance like iodine 131 in a radio-immuno-assay, but that would have needed purified interferon, which was not available. Another possibility was to look for an antibody that neutralized the antiviral activity of interferon. We decided to go that way but we had to be careful how to set the system up. We assumed that the putative antibody might not be very active, having a low binding constant for interferon, so we would need to use small amount of interferon for the neutralization tests since if we used a large amount of interferon any effect would be swamped. So amounts of interferon lying about half way up the dose response curve were called for, not too little, not too much but just right was the answer. This meant that the assay was tricky to control!

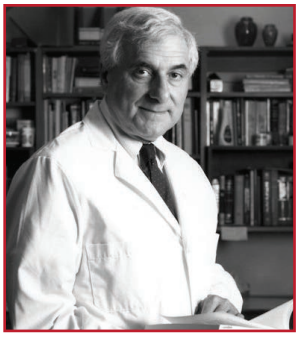
So we tried and the first runs seemed to be going well in that low levels of neutralizing activity were detected in the supernatant of some fused ("hybridoma") cell cultures. But when the cells in the mixture were cloned, activity petered out and so we were left with nothing. After repeating the fusions and assays many times over a period of years, without success, we were discouraged, and some were in favour of abandoning the project.

But we finally decided to try once more because we simply did not understand why the anti-interferon activity we had detected fizzled out on further culture. One of us (DCB) had just been awarded some personal support from the MRC to enable him to set teaching aside and return to the laboratory for a few years, and he volunteered to run all the assays himself.

So we tried again; injecting another mouse in Cambridge with partially purified interferon, followed by fusion with myeloma calls and culture of the fused cells. Then supernatants were harvested, labelled with a code, and posted first class to Warwick. There, they were immediately mixed with a modest dose of interferon, so we were working in the middle of the dose response curve. Again, low levels of neutralizing activity turned up, and the cells were sub cloned, followed by decoding over the phone to see if there was any activity. Again, there was nothing reproducible. But just as I (DCB) was putting the phone down after another failed experiment, I noticed that were there was a mismatch between codes and spotted the solution. I had misread the code and when read correctly, we did indeed have some neutralizing activity. It was a special moment. David Secher quickly used it to develop an immunoassay for interferon alpha and also to develop a one-step purification process for interferon by using the antibody bound to a column. The antibody, which was christened NK2, and patented, brought some income back to the MRC, my university and even a bit for us!

Professor Derek Burke
12, Cringleford Chase
Norwich, Norfolk NR47RS
Tel/Fax 01603 503071
dcb27@cam.ac.uk

Sadly, Dr. Derek Burke passed away after this article was written. An obituary will be published in the Fall newsletter and online.



ALICK ISAACS AND THE LIMITS OF INTUITIVE GENIUS

by Bob Friedman

I found that working in Alick Isaacs' department could in some ways be frustrating. Don't misunderstand that statement. He was very kind to all he was associated with. He had a wonderful sense of humor, and he was almost always available to talk to about science. He was generous in sharing his facilities and his ideas with his co-workers, and he didn't object to independent research by members of his lab. I have never met any scientist more enthusiastic about his work than he was.

All the same, I found myself frustrated very soon after I started working with him at Mill Hill after I arrived there as a post-doc in October, 1963. The reason for this was Isaacs' and his department's attitude towards innovations in scientific techniques. It was not that they didn't read journals or keep up with current scientific developments. Isaacs had at that time a library of every publication on interferon that had appeared and many publications on virology. It was just that his approach to research was the same it had been when he had first described interferon in 1957. Biochemical techniques were considered the province of the Biochemistry Department. Tissue culture and assays for viruses were the province of the Virology Department, and after four years of research on viruses on my part, I was quite familiar with those. By 1963, however, there had been great progress in biochemistry, and molecular biology was starting to pick up speed with exciting developments on a regular basis.

Isaacs was held in high regard. He was constantly asked to speak at prestigious meetings, and to give lectures. He had received a number of honorary degrees, and was considered by many to be a candidate for that most honorary of awards, the Nobel Prize, which he might well have won had it not been for his premature death. His description of interferon in 1957 was the culmination of his research on influenza viruses and on viral interference; that is, the observation that one virus can interfere with the replication of another virus, even if the agents involved were not related in structure or method of replication. Many first-rate investigators were at that time studying viral interference, and had in retrospect performed experiments that demonstrated the virus inhibitory action associated with interferons; however, they had failed to recognize that they were dealing with a cellular product with a wide spectrum of virus inhibitory activity, to say nothing of an extensive repertory of additional biological effects. Isaacs' intuition had told him he was on to something new and unique.

When the first papers on Isaacs' discovery appeared, they were applauded, but soon some labs failed to repeat his findings, and his research was met with skepticism and even scorn. His discovery was given the mocking name of "imaginon", all of which caused Isaacs to become deeply depressed; however, he rallied, and published further papers, and subsequently his observations were repeated by other investigators. In fact, once Isaacs' research had been verified, some of the scientists who had been actively studying viral interference, began to cite their work as a claim to have priority in discovering interferons. In a very short time, however, it was generally conceded that Isaacs had discovered a new antiviral activity. The wide range of effects of interferons on various biological systems was to some extent also hinted at in published speculative discussions from Isaacs' lab, based almost wholly on his intuitive insights.

At the time I arrived at Mill Hill, Isaacs was engaged in a project attempting to determine what it was about virus infections that induced cells to make interferons. He had a notion that it was the viral nucleic acid, and so he had obtained a large number of nucleic acid preparations, and exposed cells to them. He went over the extensive experiments he had already performed attempting to confirm his notion about the basic mechanism of interferon induction. They really didn't prove much. Many of the studies were negative, and where there seemed to be some interferon production, it was in such low titers that I had some doubt about whether they were real. I thought I was expected to participate in these studies, although there seemed to be no direct pressure to do so.

However, I wanted to be part of what I perceived to be the forward movement of current medical research. I was anxious to employ the developing technologies in biochemistry and

ALICK ISAACS AND THE LIMITS OF INTUITIVE GENIUS *CONTINUED*

molecular biology in the bench work I was going to do. As noted, they were not, however, being employed in the lab in which I was supposed to be working. After a few days in Isaacs' lab I became friendly with one of the other young scientists in the Virology Department, Joyce Taylor. Joyce had been well trained in biochemistry, and she was recruited for Virology to bring some of her expertise to the department. Joyce had recently published a fine paper reporting that the antiviral action of interferons could be inhibited by Actinomycin D, and must therefore depend on cellular RNA synthesis for its effect.

When Joyce and I became better acquainted, I expressed my reservations about the methodology being used in the lab to which I was nominally assigned. After all, I had applied for my position at Mill Hill with the expectation that I would learn at least some of the newly developed biochemical techniques then currently in wide use. Joyce was sympathetic to my position, but told me that I would have to look elsewhere than Isaacs' lab, or indeed the Virology Department if I wished to acquire the technological knowhow that I was in search of. As a start, with the help of the other young scientist in the department, Joseph Sonnabend, we started discussing how we could extend Joyce's recent observation to determine whether cell protein synthesis was also necessary for the interferon-induced antiviral effect.

Joyce and Joseph introduced me to the methods they were using, and I quickly came up to speed employing them. We started to make some progress in our research. If I felt any remorse about abandoning Isaacs' project, those feelings were obviated by the disastrous events that occurred on the evening of January 1, 1964, when Isaacs had a serious cerebral vascular hemorrhage. Subsequently, he was unable to carry out any productive research.

Isaacs' intuitive genius, with respect to interferons, has borne extensive fruit to this day, because he was able to employ the methodology existing in 1956 to his research. In 1964, the technology available was not sufficient to solve the problem of the mechanism of interferon induction. Indeed, it was not completely elucidated for almost another fifty years. The lesson I learned from this experience is that no matter how smart you are, you better choose a problem on which methodology exists for finding its solution.

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VILCEK FOUNDATION

2109 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."

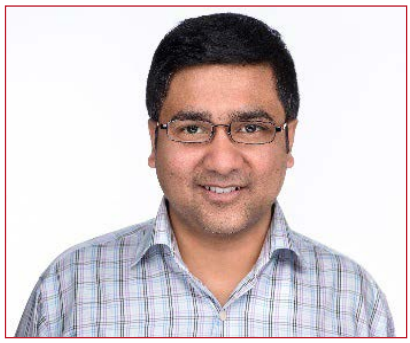
The Vilcek Foundation was established in 2000 by Jan and Marica Vilcek, immigrants from the former Czechoslovakia.

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.

VILCEK PRIZE IN BIOMEDICAL SCIENCE

Angelika Amon has spent a distinguished career in genetics unraveling the molecular mechanisms underlying the partitioning of genetic material during cell division. Using yeast, rodents, and human cells as models, Amon has uncovered signals that control the stepwise progression of the cell cycle—a process central to cell proliferation—and shown how missteps in the process can trigger disease. Her work spotlighted the enzyme Cdc14 as a key player in the cell cycle. She also showed that a spatial signal—the physical position of the dividing nucleus—ensures that cell division results in daughter cells with the correct genetic makeup.

Errors in the cell cycle can beget a condition called aneuploidy, which marks several human diseases, including Down syndrome and cancer. Amon found that aneuploidy subjects cells to an onslaught of stress, and cancer cells have evolved adaptations to counter the stress, divide unimpeded, and fend off chemotherapy. Understanding how this adaptation unfolds can lead to treatments for a range of cancers. For her groundbreaking work on the genetics of cell division, Amon has earned a wealth of honors, including membership in the United States National Academy of Sciences and the European Molecular Biology Organization, as well as a Howard Hughes Medical Institute Investigator award. Amon was born in Vienna, Austria.



VILCEK PRIZE FOR CREATIVE PROMISE IN BIOMEDICAL SCIENCE

Amit Choudhary uncovered a previously uncharacterized physical force similar to the hydrogen bond in its nature, function, and prevalence. Using quantum mechanics, organic chemistry, and biochemistry, Choudhary established the signature and significance of this force in multiple contexts, including protein structure and function, drug delivery, and molecules tied to the origin of life on Earth. Additionally, Choudhary's work has enabled precise control of the genome-editing enzyme CRISPR-Cas9. He has developed activators, inhibitors, and degraders of Cas9 that could minimize the enzyme's unintended off-target effects for an array of clinical applications and lead to molecular approaches to help fight insect vectors that transmit diseases like malaria. On another front, Choudhary's work on binge-eating snakes like Burmese pythons has led to novel insights into the failure of insulin-secreting pancreatic beta cells in human diabetes and suggested potential therapeutic approaches. Choudhary was born in erstwhile Bihar, India.

2108 VILCEK AWARDS *CONTINUED*

VILCEK PRIZE FOR CREATIVE PROMISE IN BIOMEDICAL SCIENCE

Jeanne Paz has used optogenetics, a technique in which light is used to control genetically modified brain cells in living animals, to uncover the basis of epileptic seizures. Her work has revealed the role of brain regions called basal ganglia and thalamus in mediating seizures with a genetic underpinning as well as those that follow stroke-induced brain damage. She has shown how the interplay of two types of thalamic neurons—somatostatin and parvalbumin neurons—results in seizures. From a clinical perspective, her work using rodent models has revealed that modulating the firing states of thalamic neurons using optogenetic tools can arrest seizures before they spread through the brain. Preliminary findings from Paz's group hint at potential biomarkers in electroencephalograms that could someday predict the onset of seizures following stroke and trauma. Paz's work carries implications for treating brain disorders, including epilepsy and dementia. Paz was born in Tbilisi, Georgia.

VILCEK PRIZE FOR CREATIVE PROMISE IN BIOMEDICAL SCIENCE

Mikhail Shapiro has developed imaging tools to visualize biologically important molecules and structures in living organisms at high resolution. Shapiro fashioned sensors responsive to magnetic fields, rather than light, to visualize clinically relevant molecules, like dopamine, which plays a role in Parkinson's disease and other brain disorders. Additionally, he coopted structures known as gas vesicles, which function as flotation devices in some bacteria, to serve as ultrasound sensors, enabling the use of ultrasound for noninvasive, high-resolution imaging in living animals for research efforts with clinical implications, including the visualization of cell-based therapeutic agents. Ultrasound sensors, Shapiro has demonstrated, can also be used to monitor and manipulate genetically engineered microbes used as therapeutic drugs. Shapiro's imaging tools could transform molecular diagnosis of human diseases. Shapiro was born in Kolomna, in the former Soviet Union.

"SCIENCEQUOTES"

"Anyone who stops learning is old, whether at twenty or eighty."
Henry Ford

ICIS COMMITTEE REPORTS

Minutes: ICIS Council Meeting Cytokines 2018, October 27, 2018, Westin Hotel Boston
Prepared by: John Schoggins, ICIS Secretary 2018-2020
Submitted for approval to: Nancy Reich, ICIS President 2018-20120

Present:

Bergamaschi, Cristina
Publications Committee

Bogunovic, Dusan
Membership Committee

Durham, Scott
Publications Committee

Fitzgerald, Kate
Co-organizer (Boston), Awards Committee, Pres-elect

Gabay, Cem
Treasurer

Hunter, Chris
Co-organizer (Boston)

Jenkins, Brendan
Meetings Committee

O'Garra, Anne
Co-organizer (Boston)

Oefner, Joan
Managing Director

Prokunina-Olsson, Mila
Nomenclature Committee

Reich, Nancy
President

Schoggins, John
Secretary

Williams, Bryan
Awards Committee

Yoshida, Hiroki
Council Member

Young, Howard
Council Member

McKay, Fabienne (skype)
Council Member

Meeting called to order 1:10p

- Nancy reviews meeting agenda
- Round Table introductions

Finance Committee (Cem and Joan)

Showed results of 2017 meeting: Income from meeting was ~$44K; Total revenue from was ~$150K; Total expenses was ~$131K

Net operating revenue: ~20K profit

Showed forecast for 2018: forecast profit will be ~$19K

Question: In response to question, Joan explains where the donation money comes from for Awards (Milstein family, Biolegend, R.Fleishman). Expressed concern about high reliance from Milstein family donation.
Cem: 3 types of revenue, membership, meeting, donations. Joan explained sources of certain funds we got from Japan for 2017 meeting including Travel Grants from T. Kishimoto. These funds were quite unique because it was in Japan.

Two issues brought up by Cem:

1. Investment of excess revenue in bank (~$387K)
- Should we put this $ in investment account for accruing interest?
- How much would we put in? What type of investment?

Motion: invest half of the money into greater interest-bearing account.
Discussion about worst case scenarios.
Some discussion about longevity of Milstein Award.
Anne O'Gara suggested reaching out to companies that make profits from things like anti-TNF, anti-IL17 and see if they would contribute $ to an award. They would pay to be "members".

Motion to invest ~$200K approved.
Proposal will be sent to committee for vetting.

2. Professional accounting help for Joan.
- Joan says it might be about $250/month to pay for someone who can help.

Discussion talked about the benefits: audit society money matters, work on the books continuously, and work on tax returns (for extra fee)

Joan will get a few bids for accountant that will be sent to society for vetting.

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Nominations Committee

Proposal regarding ballot elections for Nominating Committee Council vote on new members: Thirumala-Devi Kanneganti and Leonidas Platanias

Nominating committee has not yet met. They will meet Sunday morning at ICIS Boston

Discussion about whether the Nominating Committee should have to be elected, or not. In other societies they are elected.

Motion by Nancy: Members of the Nominating Committee do not need to be elected by full membership. Those members in conjunction with Council have the right to propose people for nominating committee.

Discussion on pros and cons indicated Council preference to maintain membership vote for Nominations Committee.

Nancy rescinded motion. Process for electing Nomination Committee member will stand as it is in the by-laws.

Some discussion about next 2 council members. Howard Young and Fabienne MacKay will end their term as Councilors. Anne O'Garra expressed willingness to put her name in the hat for Council.

There are 12 potential nominees. The Nominating Committee will work on ballot voting with assistance from Joan.

Standards Committee (Howard)

Summary from Howard. 5 people were at the meeting. Will update letter that will be sent out to discuss standards. Discuss differences between standards classifications. The Committee will work with various companies and agencies on issuing standards.

Nomenclature Committee (Mila)

Approached by the International Union of Immunological Society. They wanted to discuss nomenclature. Committee reviewed their cases. Discussed naming of interleukin 40 and 41. Their committee and our committee had difference of opinion about whether re-naming was appropriate. Our committee said no, theirs said yes. Mila suggested proposal go through HUGO. The Union initially wanted to work with our committee, but over time they lost interest in working with us. Our committee will suggest to HUGO that these molecules not be named IL 40 or 41.

Another issue discussed was whether ICIS would be part of their union. We may approach them again to discuss terms of membership in their Union.

Membership & Communications Committee (Dusan and Howard)

Quick update: Membership was at 741 in June. Right now we are about 950 current members. Two years ago, ~500 members. There is a trend towards multi-year memberships.

Discussed that membership society members will read journals and reach out to cytokine researchers and let them know about society.

Discussed whether we should have Industry membership and how to charge for that, and how to have incentives for these members. Proposed $250 for Industry membership.

Question whether there should be Industry members on the Council, or in some administrative capacity. Concerns over whether they would have undue influence. Anne O'Garra used Keystone as an example that there aren't huge concerns in having industry members.

Some companies actually want to be more involved. How do we integrate them according with their interests? Could also help with career opportunities for trainees. We could search for individuals who are interested in a non-voting capacity.

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Motion: make an Industry Member category at fee of $250. Motion passes

Next issue: Social media, Twitter. Want to make bigger strides on Twitter platform. Awards, bios, publications, etc...
Will see about Twitter account being contributed by members: John and Dusan

Discussed idea of having mentors. Will work on that.

Publications Committee (Scott and Cristina)

3 ICIS associated publications:

Cytokine: getting over 800 submission this year and they contribute to the Annual Meeting.

JICR: Mary Ann Liebert, smaller journal, Mike Gale has taken become Editor-in-Chief in May. Will involved young people as editors, etc. The publisher also contributes to the Annual Meeting

Signals: name of the new official ICIS open access journal. Contract was worked out with Nature Springer BMC. Finalized negotiation. Website is open for submission. Topics will encompass immune signaling related to cytokines, but can go beyond that.

Journal is owned by Society. We have 10 year agreement with BMC. Open access. There will be fees, a little over $2000, with 20% discount for ICIS members.

Expect that first few years will be lean. Will focus on reviews early to boost readership.

Open access is really important so that work is accessible to all. Jan Vilcek generously donated $15,000 as start-up funds so the society can pay the publishing costs of invited reviews and other high interest papers.

Jan Vilcek generously donated $15,000 as start-up funds so the Society can pay for the open access publishing costs for invited reviews, invited Young Investigator Award winner papers, member discounts for ICIS members publishing papers and other high interest papers.

[Not on agenda: Mila showed a few slides about the IFNL meeting in NIH last week. Discussed trying to have similar meeting next year just prior to ICIS 2019.]

Awards Committee (Bryan and Kate)

Awards this year was very streamlined with help of MCI. There were 156 Milstein travel awards applications and 87 awarded. Committee also evaluated candidates for Milstein, Biolegend William E. Paul, Christina Fleischmann, Pestka awards, etc. This year Milstein and BioLegend William E. Paul award nominations were a little earlier, which helped with logistics and timing.

Concern is whether next year's organizers will use template from this year to rank abstracts and transfer that info the Awards committee. Evaluating abstracts is where all the work is done.

Bryan also mentioned young investigator awards. They need full CV, abstract, letter from mentor.

Need turnover on Awards committee since Bryan and Kate will be rotating off. Council will come up with names for next year.

Meetings Committee (Brendan)

Discussed current and next meeting.

2019-Vienna
2020-Seattle
2021-Cardiff

Boston should be successful. 718 participants. Hopefully some walk-ins from Boston as well. (An additional 42 walk-ons were actualized). Should cover the $50,000 ICIS overhead expenses required to balance the annual society budget.

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Submitted for approval to: Nancy Reich, ICIS President 2018-20120

Discussions about the Vienna. Meeting. Need transfer of knowledge from success at Boston meeting. We need 680 delegates in Vienna to be successful.They are also optimistic about sponsorship in Europe.

Gale gave some updates for Seattle 2020. Nov 1-4 at new Hyatt in Seattle. Rate is $219 for single or double occupancy not including breakfast or taxes and the hotel is brand new in an exciting neighborhood.

Simon gave update about Cardiff. The dates and venue are to be confirmed. Should be easy to get to.

2022; open for now. Brendan thinks it should be in US mainland. The society and the participants of the 2018 meeting will be surveyed as to their preferences. Hawaii and Athens are strong contenders.

2023. Strong interest from Korea and Athens, if 2022 is not in Athens. Bids will be presented in Vienna for 2022 meeting site/ venue.

Cem and Christine will step down after their term is over. They are looking for other members to fill these slots on the Meetings Committee.

Development Committee

Our bylaws state that we should have this committee. Nancy created the committee. They will meet for first time on Tuesday at ICIS. Nancy will serve as interim Chair until a Chair has been identified.

Problem was that the duties of the committee were extensive. Nancy reviewed them...there were many.

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Nancy would like to remove 3 jobs that affect the annual meeting. These should be responsibilities for the Scientific Organizing Committee of the Cytokines meetings.
Current duties below. Eliminate (a) (f) and (g).

~~a) raising money from Industry and other sources (e.g.government funding) for the Annual Scientific Meeting;~~
(b) developing plans for the Society over the next few years;
(c) coordinating Society activities affecting corporations;
(d) soliciting Sustaining Members;
(e) recommending benefits for Sustaining Members;
~~(f) coordinating the solicitation of sponsors of workshops and symposia at the Annual Scientific Meeting;~~
~~(g) soliciting exhibits for the Annual Scientific Meeting;~~
(h) improving communication between the private sector and the Society.

However, would also like to add to the Development Committee the job of transferring meeting info from one year to next year. This would be a new job of this committee.
(i) coordinate transfer of information regarding administration and solicitation of support from past scientific organizing committee (SOC) to future SOC.

Motion passed and Nancy will work on removing three items and adding one in an amendment to the Bylaws.

Other Business

No new business.

Meeting adjourn 3:10p.

ICIS COMMITTEE REPORTS

Meeting: ICIS Standards Committee
Date and Time: 27 October 2018, 10:30-11:30 am
Location: Boston, USA

Present:	Present: Committee members call-in through Zoom	Members excused:
Howard Young	Amanda Proudfoot (chair)	Joan Durbin
Eleanor Fish	Meenu Wadhwa	Georg Feger
Gareth Jones (scribe)		

Items and challenges discussed:

1. **Overview of developing international standards**
   Through a question and answer session with the newly appointed members on the Standards Committee, Meenu Wadhwa (NIBSC, UK) provided an overview of the process involved in establishing international standards and reference preparations. Key points noted were that:
   - As per WHO prioritization scheme, preference is given to development of standards for therapeutic modalities where more than one version is produced (or for those used as diagnostics). The best example of the therapeutic is several versions of anti-TNF molecule. Molecules which are produced only as one version do not need standardization.
   - WHO international standards and reference formulations are freely available (with the exception of a small handling charge) to the scientific community from NIBSC, UK.
   - While some companies are proactive in supporting development of international standards, drug development companies are not obliged to provide internal reagents for this.
   - Some pharmaceutical companies are often reluctant to provide their products that would aid developing international standards and reference preparations. This was recognized as a challenge that the ICIS Standards Committee could provide support in approaching the relevant companies (see point 3).

2. **Raising awareness of WHO international standards and reference preparations**
   Committee members discussed how the ICIS Standards Committee could raise awareness of the need, availability and use of international cytokine standards and reference preparations, both within the ICIS membership and broader scientific community.
   - The article 'World Health Organization International Cytokine Standards and Reference Preparations' article (Journal of Interferon and Cytokine Research 30(9) Letter to Editor), which includes a table of WHO cytokine standards and reference reagents available for assay calibration was last updated in 2010. An update to this article should be submitted to the Journal of Interferon and Cytokine Research, and also to a broader immunology readership (e.g., Journal of Immunology, European Journal of Immunology).
   - A section on the ICIS website should serve as a repository for international cytokine standards, reference preparations and assays by linking to the above article. Links should be provided to WHO reports for the development of international standards for cytokines and cytokine-targeting biologics. In this regard, Meenu has agreed to provide examples of WHO reports for the development of international standards for Infliximab, and PEGylated G-CSF. These were circulated immediately after the meeting; links are provided below:

     Etanercept:
     https://www.sciencedirect.com/science/article/pii/S0022175916303891?via%3Dihub
     Peg-G-CSF:
     https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4334095/
     WHO link Infliximab:
     http://www.who.int/biologicals/expert_committee/BS2323_Infliximab_ECBS_2017_V.6.1.pdf
     WHO link Peg-G-CSF:
     http://www.who.int/biologicals/expert_committee/BS_2218_1st_Inter_standard_PEGylated_G-CSF.pdf

   The ICIS website should also provide a link to the NIBSC website. Howard Young agreed to liaise with Joan Oefner to update/develop this aspect of the website.

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3. Supporting initiatives

Committee members discussed how the ICIS standard Committee could best support the WHO and the NIBSC in developing international cytokine standards and reference preparations.

- Many commercial sources of cytokines and ELISAs utilize available international standards or reference materials when reporting on the activity or measurement of cytokines. However, given the increasing number of companies now providing commercial cytokine products, the ICIS committee should engage with such companies to encourage adopting international standards and assays when reporting cytokine activities. A letter should be prepared that can be sent to companies to encourage this.
- Similarly, pharmaceutical companies that develop cytokine-targeting drugs and biosimilars should be encouraged to engage with the NIBSC and WHO to support the development of international standards and reference preparations.
- The ICIS membership should be consulted through a survey to determine which cytokines require international standards.
- The ICIS membership should be contacted (through the website, newsletter and e-mail) to request volunteer laboratories to engage with the NIBSC to perform assays to establish international cytokine standards.

Summary of action points:

1. Update of World Health Organization International Cytokine Standards and Reference Preparations' article to reflect international cytokine standards and reference formulations available in 2018, and submit to international cytokine and immunology journals.
2. Updating the ICIS website to act as a central repository linking to WHO reports, the NIBSC website and, when necessary, an advert for volunteer calls to aid assays in establishing WHO international standards.
3. Prepare letter to encourage pharmaceutical companies and commercial sources of cytokine products to engage with the NIBSC in supporting and adopting international standards.
4. ICIS membership should be consulted, through a survey, to determine cytokines requiring development of international standards.

Future Annual Meetings

Cytokines 2019
International Cytokine & Interferon Society ICIS

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

Cytokines 2020
International Cytokine & Interferon Society ICIS

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

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Join the conversation with over 2,700 professionals dedicated to the same cause by using the hashtag **#Cytokines2019**