Signals

THE INTERNATIONAL CYTOKINE & INTERFERON SOCIETY NEWSLETTER

OCTOBER 2017 | VOLUME 5 | NO. 2

IN THIS ISSUE:

It was with great pleasure and humility that I have served as the Society's President for these past 2 years. The ICIS is a wonderful organization, filled with trusted and valued colleagues and collaborators, and leaders in the field of cytokine and interferon research. These past 2 years have gone by quickly, but not without major changes. First and foremost, Joan Oefner was recruited as Managing Director. Joan has taken many initiatives to promote the society, expand its membership, and enhance the value and benefits of Society membership. It is clear that under her directorship we can look forward to a vibrant and valued Society that will promote the best in cytokine and interferon research.

I would also like to acknowledge my appreciation to the Milstein Family for their continued support of the ICIS. The Milstein Award continues to recognize the best in cytokine/interferon research, the Young Investigator Awards highlight the future stars in cytokine and interferon research, and the Travel awards have enabled many society members to attend the annual meeting. Mere words cannot express the gratitude of the entire membership for the continuing support the Milstein Family has provided over these many years.

In 2016, we also initiated a new and prestigious award, the William E. Paul Award for Cytokine Research, through the generous donation of BioLegend. This award is a tribute to the remarkable career of Bill Paul and he will be greatly missed by immunologists worldwide. We are honored and grateful that BioLegend has selected the ICIS for sponsorship of this prestigious award. I also want to thank Robert Fleischmann and the Pestka family for their support of the ICIS Awards. These awards recognize the younger scientists in the field and are a tribute to the wonderful careers of Christina Fleischmann and Sid Pestka.

Being President of the ICIS has not been possible without the help and advice of many people. I want to express my personal gratitude to the ICIS Governing Council as their input has been invaluable and critical to my ability to serve as President. In addition, I would like to express my particular thanks to Nancy Reich and Howard Young. They have been so generous in their time to help my tenure as President in many ways. My thanks also go to two other Executive Committee members, Sarah Gaffen (Secretary) and Karen Mossman (Treasurer).

I am especially excited and pleased to know that the leadership of the ICIS will be in the good hands of Nancy Reich and Kate Fitzgerald over the next 4 years. With this strong leadership, I expect the Society to thrive and continue to be an organization whose membership represents the best in scientific discovery. The role of and effect of cytokines in every aspect of human health will continue to be identified and characterized and the use of cytokines themselves or antibodies to cytokines will become even more important tools in the arsenal of clinicians. Thus, the importance of the ICIS as a focal point for cytokine research will only continue to grow.

The ICIS is also most grateful to those members who have stepped-up and been willing to organize our annual meeting. This is a critical event for bringing together our membership. It is important that we continue to have this as a yearly event. I am most grateful to David Artis and his colleagues for taking the leadership of the very successful San Francisco meeting in 2016 and to Kouji Matsushima, Akihiko Yoshimura and Naofumi Mukaida and their colleagues for their leadership in organizing our upcoming meeting in Kanazawa in 2017.

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Future Meetings

Cytokines 2018
Oct. 27-30, 2018
Boston, USA

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

Newsletter Editors:
Howard Young
Marta Catalfamo
Annette Khalid

Managing Director:
Joan Oefner

ICIS
International Cytokine & Interferon Society

The International Cytokine & Interferon Society Headquarters: joefner@cytokinesociety.org • TEL: 1-800-947-1960 • FAX: 1-201-322-1818 • **www.cytokinesociety.org**

2017 ICIS
THE SEYMOUR AND VIVIAN MILSTEIN AWARD
for Excellence in Interferon and Cytokine Research

THE MILSTEIN AWARDS

RICHARD A. FLAVELL, PH.D., FRS

Sterling Professor of Immunobiology, Investigator, Howard Hughes Medical Institute

Dr. Flavell is founding chair of the Department of Immunobiology at Yale and an Investigator of the Howard Hughes Medical Institute. After obtaining a Ph.D. degree in biochemistry from the University of Hull in 1970, he carried out postdoctoral training at the University of Amsterdam and the University of Zurich. Working with Charles Weissmann in Zurich in 1974, he modified genes in a virus and studied the resulting phenotype - the first example of what scientists now call “reverse genetics.” Subsequently, as a faculty member at the University of Amsterdam, he demonstrated the presence of introns in mammalian genes. In 1982, Dr. Flavell left academics to serve as the chief scientific officer of Biogen, but returned to academia in 1988 to join the faculty at the Yale School of Medicine.

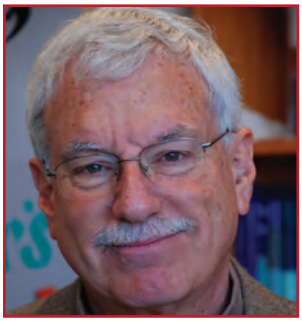
Richard Flavell is co-discoverer of introns in cellular genes: he showed DNA methylation correlates inversely with, and prevents gene expression. He was the first to develop and employ reverse genetics as a postdoc with Weissmann and in his own lab continued in this field throughout his career; he is a pioneer in the use of this approach in vivo to study function. Dr. Flavell’s laboratory studies the molecular and cellular basis of the immune response. He has been instrumental in discovering the molecular basis of T-cell differentiation from precursor cells into differentiated subsets and provided the first example of gene regulation in trans via “kissing chromosomes”. Moreover, his laboratory has elucidated the mechanisms of immunoregulation that prevent autoimmunity and overaggressive responses to pathogens. Dr. Flavell’s laboratory has also discovered the role of several receptor families in the innate immune response, including Toll-like receptors and intracellular Nod-like receptor families (NLRs). This has recently led to the elucidation of function of Nod2 in inflammatory bowel diseases and Nalp proteins in the production of IL-1. Most recently he has established the connection between inflammasomes, microbial homeostasis and chronic diseases. He showed that dysbiosis of the microbiota leads to IBD and Metabolic Syndrome, including Obesity, Fatty Liver disease and Type 2 diabetes. Finally, Dr. Flavell’s laboratory has studied the role of TGF-β in the regulation of immune response. This work is of relevance both to the control of autoimmune disease as well as evasion of immune response by tumors.

Dr. Flavell has received the FEBS Anniversary Prize (1980), Colworth Medal (1980), Darwin Trust Prize (1995), Rabbi Shai Sachnai Memorial Prize in Immunology and Cancer Research (2008), AAI Invitrogen Meritorious Career Award (2008), Andrew Lazarovitz Award (2011), the William B. Coley Award for Distinguished Research in Basic and Tumor Immuology (2012) and most recently, the 2013 Vilcek Award, shared with Dr. Ruslan Medzhitov., JDRF Star of Hope Award (2014) and an Honorary Doctorate from University of Hull. He was elected to the Royal Society in 1984, the National Academy of Sciences in 2002, the National Academy of Medicine in 2006 and the first President of the newly formed International Cytokine and Interferon Society (ICIS) from 2014-15. He is an honorary professor at Wuhan University, ChinaNan Kai University, China Soochow University, China and Adjunct Professor, Scripps Research Institute, Florida

2017 THE ICIS-BIOLEGEND WILLIAM E. PAUL AWARD for Excellence in Cytokine Research

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.



ALAN SHER, PH.D.

Chief, Laboratory of Parasitic Diseases, NIAID

Dr. Sher received his Ph.D. in 1972 from the University of California, San Diego, working with Dr. Melvin Cohn at the Salk Institute for Biological Studies. He performed his postdoctoral training in the Division of Parasitology at the National Institute for Medical Research in Mill Hill, London. In 1980, after several years as a research associate and then assistant professor in the Department of Pathology at Harvard Medical School, Sher joined NIAID as a section head in the Laboratory of Parasitic Diseases and from 2002- 2017 served as Chief of that department.

Although initially trained as a basic immunologist, Dr. Sher has devoted most of his career to the study of immunity and immune regulation in parasitic and mycobacterial infections. His group played a pioneering role in defining the effector functions of Th1 and Th2 subsets in the response to parasites later linking them to innate signals triggered by these pathogens in dendritic cells. At the same time Sher and his colleagues helped define the regulatory pathways which prevent immunopathology in polarized anti-parasitic responses and in particular elucidating the role of Interleukin-10 induction in that process. In more recent work, the Sher lab has focused on cytokine and eicosanoid pathways regulating host resistance to *Mycobacterium tuberculosis* along with other strategies for host directed therapy of this major pathogen and participated in related clinical collaborations in India, Brazil and South Africa.

Dr. Sher is an elected member of the AAAS, the American Academy of Microbiology and the Brazilian Academy of Sciences and is a recipient of the Bonazinga Award (Society for Leukocyte Biology), the Bailey K. Ashford Medal (American Society for Tropical Medicine and Hygiene), the USPHS Superior Service Award and the NIH Director's Mentoring Award. He holds adjunct faculty positions at the Universities of Pennsylvania and Virginia.

2017 ICIS AWARD WINNER

HONORARY LIFETIME MEMBERSHIP

Honorary Lifetime 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 annual meeting registration fees, and are listed in the dedicated Honorary Life Members section of the Society web site.

GANES SEN, PH.D.

The Thomas Lord Endowed Chair in Molecular Biology, Lerner Research Institute

Ganes C. Sen holds the Thomas Lord Chair of Molecular Biology in the Immunology Department of the Lerner Research Institute, Cleveland Clinic; he is also Professor of Molecular Medicine at the Cleveland Clinic Lerner College of Medicine.

Sen was born in India where he received his early education, followed by a Ph.D. in Biochemistry from McMaster University, Canada. With a fellowship from the Canadian Medical Research Council, Sen pursued post-doctoral training with Peter Lengyel at Yale University, where his long journey in interferon (IFN) research began in 1974. It was an exciting and productive time in Lengyel lab; Sen and his colleagues identified two important executers of IFN's antiviral actions, PKR and RNase L, enzymes that were independently discovered by several laboratories around the world. In 1978, Sen joined the Faculty of the Memorial Sloan-Kettering Cancer Center and Cornell University in New York and started his own research program. There he expanded his interest in the IFN system to study not only the mechanism of action of the IFN-stimulated genes (ISG), but also the mechanism of IFN induction by viruses. These interests steered his attention to double stranded (ds) RNA, a potent viral pathogen-associated molecular pattern (PAMP), which induces IFN synthesis and mediates IFN action.

In 1988, Sen moved to the newly formed Molecular Biology department at the Cleveland Clinic, which he later chaired for a decade. At the Cleveland Clinic, Sen helped nucleate the formation of a vibrant and interactive group of cytokine researchers, which included Bryan Williams, Bob Silverman, George Stark, Tom Hamilton, Xiaoxia Li, Richard Ransohoff, Andy Larner and Ernie Borden. Here, he continued his studies on the catalytic, structural and antiviral properties of the dsRNA-activated enzymes, PKR and 2-5(A) synthetases. Sen identified several additional dsRNA-binding

proteins, including PACT, the protein activator of PKR. PACT-/- mice demonstrated a role of PACT, through its interaction with PKR, in anterior pituitary development. Sen's recent work on ISG action is focused on the Ifit family of proteins. By generating a series of Ifit -/- mouse lines, his group demonstrated that Ifit2 protects mice from viral neuropathy. Surprisingly, Ifit2 is antiviral only in neurons, not other cells, thereby demonstrating an unexpected cell type specificity of ISG action.

Sen's early research showed that ISGs could be induced by dsRNA, without an involvement of IFN, through the activation of IRF3 by TLR3 and RIG-I signaling pathways. Recent studies by his group have shown that IRF3 is a dual action protein that mediates its antiviral action by not only inducing IFN and ISGs, but also triggering Bax-mediated apoptosis of virus infected cells. Viral and cellular RNA and DNA are recognized as PAMPs by several intracellular receptors which trigger the synthesis of IFN and other cytokines. Sen is interested in examining the role of protein tyrosine phosphorylation in mediating signaling by these receptors and has identified EGFR as a protein tyrosine kinase that is essential for signaling by the endosomal TLRs. Consequently, EGFR inhibitors prevent pathogenesis in mice caused by hyper-activation of these TLRs.

Sen's another long-term research interest is in defining the physiological functions of angiotensin converting enzyme (ACE). Although well known for its role in blood pressure regulation, ACE is also essential for kidney and sperm functions. By designing various genetic models in mice, Sen demonstrated distinct tissue-specific and isozyme-specific physiological functions of cell-bound and soluble ACE.

Sen received the Milstein Award from the International Society for Interferon and Cytokine Research and the Boltzmann Award from the European Cytokine Society. He is a Fellow of the American Academy of Microbiology and a Fellow of the American Association for Advancement of Science. He has contributed to the scientific peer review system by serving on numerous NIH grant review panels and journal editorial boards. Since 2003, he has been the co-Editor-in-Chief of the Journal of Interferon & Cytokine Research. Sen has trained more than seventy young scientists, many of whom have excelled as independent investigators.

Symposium organized by the ICIS at the 2018 Annual Meeting of the American Association of Immunologists

Cytokine and Interferon Signaling in the Immune Response

Chairs:
Sarah Gaffen (U Pittsburgh), Shao-Cong Sun (MD Anderson Cancer Center)

http://www.immunology2018.org

Speakers:
Shao-Cong Sun, MD Anderson Cancer Center
Sarah Gaffen, University of Pittsburgh
Jenny Ting, University of North Carolina, Chapel Hill
Michael Lionakis, NIH

2017 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.

ELEANOR FISH, PH.D

Canada Research Chair in Women's Health & Immunobiology, Senior Scientist, Division of Advanced Diagnostics, Toronto General Research Institute, University Health Network, Associate Chair, International Collaborations & Initiatives and Professor, Department of Immunology

Dr. Eleanor Fish is the Tier 1 Canada Research Chair in Women's Health & Immunobiology, a McLaughlin Scholar and was elected as a Fellow to the American Academy of Microbiologists. In 2015 Dr. Fish was also elected as a Fellow to the African Academy of Sciences. Dr. Fish is the recipient of the 2015 Canadian Society of Immunology Cinader Award for outstanding research contributions and the depth and breadth of contributions to the community through training, leadership, collaboration and international activities. In 2010 Dr. Fish was awarded the prestigious Vivian & Seymour Milstein Award, recognizing her exceptional contributions to interferon and cytokine research that have led to advancements in human health. This Milstein Award represents the pinnacle of scientific achievement in interferon and cytokine research. In 2012 Dr. Fish received the Canadian Society for Immunology Investigator Award.

Dr. Fish received her undergraduate B.Sc. degree in Biological Chemistry from the University of Manchester, England, and her Master of Philosophy in Virology from King's College, University of London, England. She received her Ph.D. in Cell Biology from the Institute of Medical Science at the University of Toronto, Canada.

Dr. Fish is a member of several societies, including the American Society for Microbiology, the Canadian Society for Immunology, and the International Cytokine and Interferon Society, for which she is Past President (2008-2010). She is on the editorial boards for the *Journal of Interferon and Cytokine Research and Viruses*. Her work has been published in >160 scientific journals, including the *Journal of Immunology, Experimental Hematology, Circulation, Blood, Nature, PNAS, JAMA, Journal of Experimental Medicine, Journal of Virology, Journal of Leukocyte Biology, PLoS One, PLoS NTD and the Journal of Biological Chemistry*. Dr. Fish is internationally recognized for her scholarly research and is invited to lecture around the globe.

Dr. Fish studies the interactions of cytokines, specifically interferons and chemokines, with their receptors in normal and diseased tissues and cells. A focus of Dr. Fish's research is the investigation of host-pathogen interactions at the cellular and molecular level, specifically in the context of viruses and interferons. During the 2003 outbreak of SARS in Toronto, she initiated studies to investigate the therapeutic potential of interferon in SARS patients. Encouraging results have directed her group's efforts toward examining interferon activity against a number of emerging infectious diseases, such as avian H5N1 and pandemic H1N1 influenza viruses. Recently, her studies have focused on investigating the therapeutic effectiveness of interferon treatment for Ebola virus disease, with a clinical trial in Guinea. Dr. Fish was

a member of a WHO Working Group to evaluate the therapeutic effectiveness of different vaccine and antiviral interventions against Ebola virus. With the end of the Ebola outbreak Dr. Fish has committed to continuing to work with La Fondation Santé et Développement Durable (FOSAD) and Le Centre d'Excellence de Formation et Recherche sure les Maladies Prioritaires et les Paludisme en Guinée (CEFORPAG), to build capacity in science and technology in Guinea, with a focus on medical research. She has secured funding and international partners to that end. Another focus of her work relates to understanding the immune mechanisms that drive autoimmunity, related to rheumatoid arthritis and multiple sclerosis. Most recently, Dr. Fish has initiated research studies in breast cancer, within the context of understanding how chemokine-driven alterations to metabolism influence the growth and metastasis of breast tumors.

Another facet related to Dr. Fish's research activities involves global outreach, specifically to resource poor regions. For many years, Dr. Fish, as Visiting Professor, has been involved in curriculum development and mentoring both Faculty and students in the Department of Immunology at Moi University in Kenya. This extends now to the ongoing development of basic science courses with relevance for trainee MDs, nurses and dentists. She has made these courses available to different institutions across Kenya. In addition, she has established an international initiative – Beyond Science Initiative - a consortium connecting scholars from academic institutions around the globe. BSI provides a platform for dialogue, mentorship and outreach to local and global communities, to bridge the gap in access to academic knowledge (www.beyondsciencesinitiative.org). To foster partnerships among the next generation of global scientific leaders who will appreciate cultural sensitivities and global responsibilities. Most recently, in her capacity as a Fellow in the African Academy of Sciences, Dr. Fish is leading an initiative: Pathogen Preparedness Initiative, with the express mandate to build capacity in science and technology across the African continent to enable appropriate responses to emerging pathogen infections. This initiative involves developing the physical infrastructures and human resources to support education and research, focusing on public health and biomedical sciences.

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As for the Kanazawa meeting, we are also very grateful for the partnership of Japanese Society of Interferon & Cytokine Research and Japanese Society for Molecular Cellular Biology of Macrophages, which brought together many scientists from around the world with common interests and research focus. It is my hope that these organizations will continue working with us into the future. The addition of the Kishimoto Travel awards has greatly expanded the support for meeting attendance and this will certainly lead to a very successful meeting. The generous support of Tadamitsu Kishimoto for this is very much appreciated. I am also most grateful to our Meetings Committee Chair, Brendan Jenkins, and those society members who are organizing the annual meetings for 2018 (Boston), 2019 (Vienna), 2020 (Seattle) and 2021 (Cardiff), as without their efforts the society could not remain as an important focus for cytokine and interferon research.

The only sad part of my service has been the passing of a number of the pioneers in cytokine and interferon research: Helmut Ankel, Sam Baron, Bill Paul, Radha Maheshwari, Sid Pestka, Simon Skurkovich and Julius Youngner, among others, were individuals who were at the forefront of cytokine and interferon research. They will be sorely missed and never forgotten.

I leave the Presidency knowing that the future of the Society is bright and the path forward well lit. I look forward to continuing to be an active member and to be able to interact and discuss cytokine and interferon research with all of you for some time forward.

Finally, I thank you all for your active participation to and kind support of ICIS during my Presidency.

With my best regards,
Tada
President; 2016-2017

2017 ICIS YOUNG INVESTIGATOR AWARDS

Milstein Young Investigator Award

Ari B Molofsky
Dept. of Laboratory Medicine, UCSF, San Francisco, United States

Presentation on Wednesday, 1 November, 16:05 – 16:25 in Ishikawa Ongakud Hogaku Hall

Christian Kanstrup Holm
Aarhus University Department of Biomedicine, Aarhus C, Denmark

Presentation on Tuesday, 31 October, 17:07 – 17:24 in ANA Crowne Plaza "Ohtori" Room C

Tatsuma Ban
Yokohama City University Graduate School of Medicine, Yokohama, Japan

Presentation on Tuesday, 31 October, 17:24 – 17:41 in ANA Crowne Plaza "Ohtori" Room C

Kiyoshi Hirahara
Department of Immunology, Graduate School of Medicine, Chiba University, Chiba, Japan

Presentation on Tuesday, 31 October, 17:41 – 17:58 in ANA Crowne Plaza "Ohtori" Room C

The Christina Fleischmann Award to Young Women Investigators

Susan Carpenter
Department of Molecular, Cell and Developmental Biology, University of California Santa Cruz., Santa Cruz, United States

Presentation on Tuesday, 31 October, 18:03 – 18:20 in ANA Crowne Plaza "Ohtori" Room C

The Sidney & Joan Pestka Post-Graduate Award

E. Ashley Moseman
National Institute of Neurological Disorders and Stroke, National Institutes of Health, Bethesda, United States

Presentation on Tuesday, 31 October, 18:26 – 18:43 in ANA Crowne Plaza "Ohtori" Room C

The Sidney & Joan Pestka Graduate Award

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

Presentation on Tuesday, 31 October, 18:43 – 19:00 in ANA Crowne Plaza "Ohtori" Room C

ICIS Election Results

2017 - 2019 President-Elect:
Kate Fitzgerald

2018 - 2020 Treasurer:
Cem Gabay

2018 - 2020 Secretary:
John W. Schoggins

Hiroki Yoshida

2018 - 2020 Council Members:
Hiroki Yoshida and David Artis

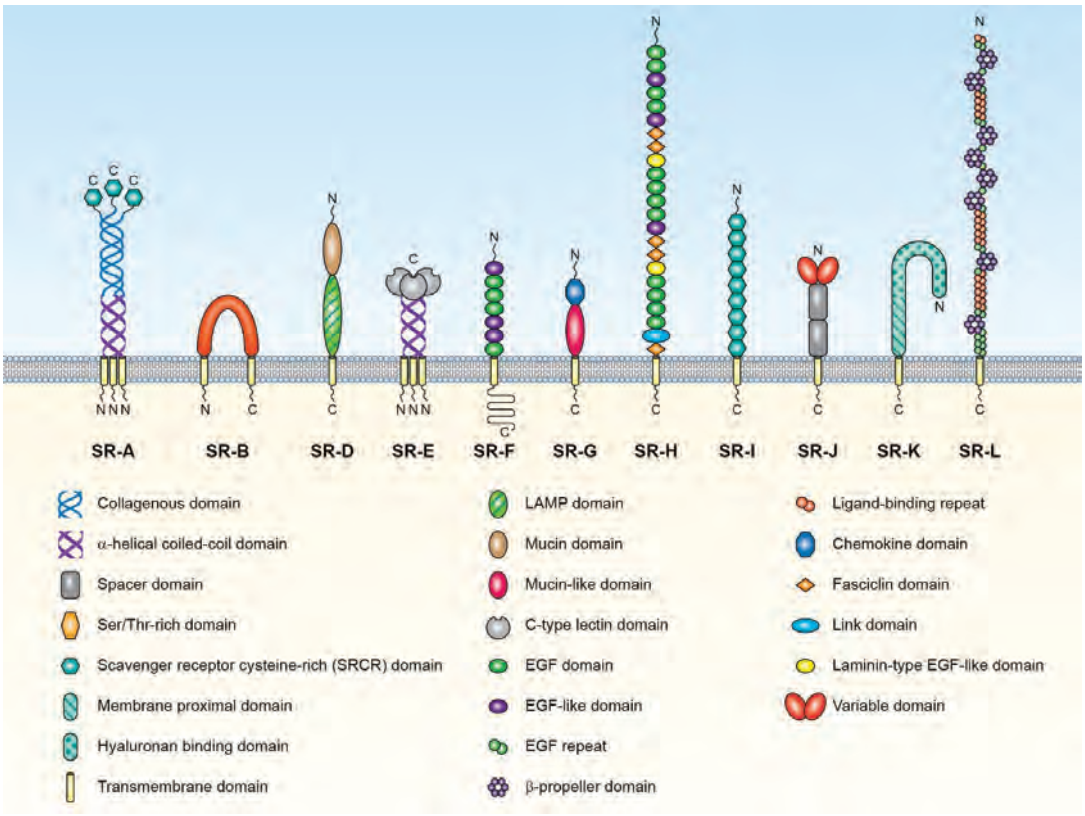
David Artis

Jean-Laurent Casanova

2018 - 2020 Nominating Committee Members:
Jean-Laurent Casanova and Sonja Marie Best

Sonja Marie Best

SCAVENGER RECEPTORS



Graphic courtesy of Ethan Tyler, NIH Medical Arts

CELLULARITY STUDY #3

Acrylic on canvas, Xiaoyin "Sara" Jiang, MD, Durham, NC.

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.

There are rewards for existing members who help recruit new members!!! Our new membership form includes a place to list the name of the member who encouraged them to join. A drawing will be held at Cytokines 2017 in Japan with the names of all members who've successfully encouraged new members to join and the winner will receive a new mini-iPad. Each time your name appears on a new member application, you will earn another chance to win the iPad.

Lauren Aarreberg
University of Washington
United States

Luma S Al-Abdulwahid
University of Plymouth
Great Brittain
Sponsoring Member:
Andrew Foey

Alina Alshevskaya
RIFCI
Russian Federation

Hajera Amatullah
Massachusetts General Hospital, Harvard Medical School
United States

Niroshana Anandasabapathy
Brigham and Women's Hospital / Harvard Medical School
United States
Sponsoring Member:
Howard Young

Maninjay K Atianand
University of Massachusetts Medical School
United States
Sponsoring Member:
Kate Fitzgerald

Tatsuma Ban
Department of Immunology, Graduate School of Medicine, Yokohama City University
Japan

Yasmine Belkaid
NIAID, NIH
United States
Sponsoring Member:
Howard Young

Scott Benjamin Biering
University of Chicago
United States
Sponsoring Member:
Seungmin Hwang

Julie Cagliero
Institut Pasteur de Nouvelle Calédonie
New Caledonia
Sponsoring Member:
Mariko Matsui

Yaping Chen
Monash University
Australia

Wantao Chen
Ninth People's Hospital, Shanghai Jiao Tong University School of Medicine
China

Hao-Sen Chiang
National Taiwan University
Taiwan

Katherine Chiappinelli
The George Washington University, The GW Cancer Center
United States
Sponsoring Member:
Howard Young

Wai Po Chong
Sun Yat-Sen University
China

Joseph Thomas Clark
University of Pennsylvania
United States

Stefan Constantinescu
Ludwig Institute / de Duve Institute Brussels
Belgium

Michel Crameri
Institute of Medical Virology
Switzgerland

Sophia Davidson
Walter and ELiza Hall Institute for Medical Research
Australia
Sponsoring Member:
Paul Baker

Barbara Detrick
Johns Hopkins University, School of Medicine
United States
Sponsoring Member:
Howard Young

Urmi Dhagat
Australia

Russell K. Durbin
Rutgers – New Jersey Medical School
United States
Sponsoring Member:
Joan Durbin

Sarah C Edwards
Ireland

Marlys Fassett
UCSF
United States

Matthias J Feige
Technical University of Munich
Germany

Theresa Frenz
Germany

Silvia Galvan-Pena
Trinity College Dublin
Great Brittain

Dolores Gomez
United States

Donald T Gracias
La Jolla Institute for Allergy & Immunology
United States

Ebrahim Hassan
University Medical Center Freiburg
Germany
Sponsoring Member:
Prof. Peter Staeheli

David Hill
Cardiff University
Great Brittain
Sponsoring Member:
Dr Gareth Jones

Kiyoshi Hirahara
Graduate School of Medicine, Chiba University
Japan

Christian Kanstrup Holm
Aarhus University
Denmark

Seon-Hui Hong
Republic of Korea

Tien-Ying Hsiang
University of Washington
United States
Sponsoring Member:
Michael Gale Jr.

Harry J Hurley
United States
Sponsoring Member: Pratik Deb

Akimichi Inaba
University of Cambridge
Great Brittain

Min Kyung Jung
Republic of Korea

Daisuke Kamimura
Japan
Sponsoring Member:
Joan Oefner

Takeshi Kawabe
NIAID, NIH
United States
Sponsoring Member:
Howard Young

Julia Khantakova
Research Institute of Fundamental and Clinical Immunology
Russian Federation
Sponsoring Member:
Joan Oefner

You-Me Kim
IBB Postech
Republic of Korea

Dong Eon Kim
Republic of Korea

Taehwan Kim
United States

George Kollias
Biomedical Sciences Research Center 'Alexander Fleming'
Greece

Hyun-Cheol Lee
Republic of Korea

Suki Lee
The University of Hong Kong
Hong Kong

Siransy Kouabla Liliane
University of Felix houphouet boigny- Abidjan
Côte d'Ivoire

Chia-Ching Lin
National Taiwan University
Taiwan

Pallvi Manaktala
ISF College of pharmacy
Moga
India

Elizabeth Mann
University of Manchester
Great Brittain

Hong Hua Mu
University of Utah School of Medicine
United States

Allah Nawaz
University of Toyama
Japan

Charlotte Nejad
Hudson Institute of Medical Research
Australia

Shunbin Ning
United States

Daniela Novick
United States

Veronica Obregon-Perko
University of Texas Health Science Center San Antonio
United States

Jeongho Park
University of Pennsylvania
United States

Erika Pearce
Max Planck Institute of Immunobiology and Epigenetics
Germany
Sponsoring Member:
Tada Taniguchi

Amy Pitler
United States

Sheela Ramanathan
Canada

Ellora Sen
National Brain Research Centre
India

Luisa Senra
University of Geneva
Switzerland

Kailash Singh
Uppsala University
Sweden

Nikaïa Smith
Germany

Lomon So
United States
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Ram Savan

Win Mar Soe
National University Hospital
United States

Su Song
Feinstein Institute
United States

Megan Stanifer
Heidelberg University
Germany

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Institute of Medical Virology
Switzgerland

Birgit Strobl
University of Veterinary Medicine
Australia

Ken Takashima
Hokkaido University
Japan

Hock L Tay
The University of Newcastle
Australia

Michele W Teng
QIMR Berghofer Medical Research Institute
Australia

Le Son Tran
Australia
Sponsoring Member:
Nicole de Weerd

Mark Travis
Great Brittain

Theresa Wampler Muskardin
United States
Sponsoring Member:
Timothy B. Niewold

Lea Weston
University of New Mexico
United States
Sponsoring Member: **Kiran Bhaskar**

Kathryn McGuckin Wuertz
United States
Sponsoring Member:
Michael Gale Jr.

Yang Xu
United States

Hideyuki Yanai
Japan

Chao Yang
The University of Melbourne
Australia

Hyun Seong Yoo
Republic of Korea

Akihiko Yoshimura
Keio University School of Medicine
Japan

New Member MINIBIOs

Michele Teng, Ph.D.
Associate Professor
QIMR Berghofer Medical Research Institute
Herston, Queensland, Australia

Dr Michele Teng is head of the Cancer Immunoregulation and Immunotherapy Laboratory at the QIMR Berghofer Medical Research Institute in Brisbane, Australia. She completed her PhD in 2006 at the Peter MacCallum Cancer Centre and University of Melbourne, Australia. Her group is investigating how tumour-induced immune suppression impedes the effective treatment of established cancer. Specifically, she is interested in examining the role of T regulatory cells (Tregs), T-cell anergy/exhaustion, and the IL-23-associated cytokine family in the local tumour microenvironment using experimental and de novo models of cancer. In addition, her group is determining how scheduling of immunotherapies in a neoadjuvant setting can further improve their antitumour efficacy. Her group have also developed a preclinical mouse model to assess how different combination therapies impact on tumour immunity and immune related adverse events.

George Kollias, Ph.D.
Professor, President & Director
Biomedical Sciences Research Center “Alexander Fleming”
Vari, Greece

George Kollias is Member of the Academy of Athens, Professor of Experimental Physiology at the Medical School of the University of Athens, and President and Director at the Biomedical Sciences Research Center “Alexander Fleming” (2002-2010 & 2016-present). He completed his Ph.D. in Molecular Biology at the National and Kapodistrian University of Athens, Greece and his postdoctoral training at the National Institute for Medical Research, Laboratory of Gene Structure and Expression, Mill Hill, London, UK. Prof. Kollias has pioneered genetic approaches to study the function of cytokine signaling in animal models of human diseases, with specific focus on Tumor Necrosis Factor (TNF). His lab is renowned for proof of principle preclinical studies that led to the development of anti-TNF therapies for rheumatoid arthritis and for advancing knowledge on molecular and cellular mechanisms driving chronic inflammation and autoimmunity (e.g. Rheumatoid Arthritis, Inflammatory Bowel Disease and Multiple Sclerosis). Prof. Kollias’ efforts developed almost exclusively in Greece, and his scientific and administrative work has contributed decisively to the support of a new generation of Greek scientists and the development National Infrastructures of scientific and technological excellence. In 2006 he founded the first CRO-biotech spin-off of BSRC Fleming, Biomedcode Hellas SA. In 2014, he was awarded the Carol-Nachman Award for Rheumatology and in 2015 he received the first Galien Scientific Research Award at the Prix Galien Greece. Prof. Kollias is Director of the Graduate Program in “Molecular Biomedicine” at the Medical School of the University of Athens.

Ellora Sen, Ph.D.
Staff Scientist
National Brain Research Centre
Manesar, India

Dr. Ellora Sen did her PhD in Immunology from the Indian Institute of Chemical Biology, where she studied the interface of Leishmania with macrophages. As a post-doctoral fellow at the Department of Microbiology & Immunology, Pennsylvania State University she investigated mechanism affecting transcriptional regulation of viral oncogenes. She then moved on as Research Associate in the Department of Neurology and Neurosciences, Rutgers University. Here, she studied the importance of cytokine signaling in determining specification of glial precursors within the sub-ventricular zone. Since 2006 she has been a staff scientist at the National Brain Research Centre, India. As an independent investigator, she consolidated her training in immunology, gene regulation and neuroscience towards understanding the role of inflammation in brain cancer. The overall focus of her laboratory is to unravel how inflammation regulates transcriptional network and chromatin dynamics to affect genes associated with immune evasive responses and metabolic adaptation in glioblastoma.

Theresa Wampler Muskardin, MD
Assistant Professor of Medicine
NYU Hospital for Joint Diseases
Division of Rheumatology
New York, United States

Dr. Wampler Muskardin is an Assistant Professor of Medicine, physician-scientist in Rheumatology and member of the Colton Center for Autoimmunity at NYU Langone Medical Center, NY, NY, USA. She completed training in both adult and pediatric Rheumatology at the University of Minnesota, where she began research in Type I interferon and TLR pathways. While a junior faculty member at Mayo Clinic, she began training in the laboratory of Timothy Niewold. MD. Dr. Wampler Muskardin and Dr. Niewold recently moved to NYU, where Dr. Niewold is the Judith and Stewart Colton Professor of Medicine and Pathology, Director of the Colton Center for Autoimmunity. Dr. Wampler Muskardin's current research focuses on human studies of type I IFN and TLR pathways in understanding response to treatment in inflammatory arthritis.

Shunbin Ning, Ph.D.
Assistant Professor, Tenure-Track
Department of Medicine
Center for Inflammation, Infectious Diseases, and Immunity
Quillen College of Medicine
East Tennessee State University

Dr. Shunbin Ning is an assistant professor in the Department of Internal Medicine, East Tennessee State University, USA. He is interested in the interaction between tumor viruses and the host innate immune system in the development of AIDS-related malignances. His research focuses on the molecular mechanisms and signaling pathways underlying the crosstalk between innate immune response and viral oncogenesis. The long-term goal of these studies is to identify molecular targets for immunotherapeutic and antiviral therapeutic applications for AIDS-related viral malignancies.

Timothy Niewold, MD
Judith and Stewart Colton Professor of Medicine and Pathology
Director, Colton Center for Autoimmunity
NYU School of Medicine
New York, NY 10016

Dr. Timothy Niewold is the Judith and Stewart Colton Professor of Medicine and Pathology at New York University School of Medicine. He is a physician-scientist, and directs the Colton Center for Autoimmunity, which focuses on the identification of causal factors and new treatment targets in autoimmune disease. Working as a human geneticist and translational researcher, Dr. Niewold bridges the traditional gap between the basic and clinical sciences. Work is his laboratory focuses on identifying and understanding the pathogenic factors in human autoimmune disease, and the ways in which underlying genetic risk factors impact immune responses to result in disease. His laboratory is supported by a number of federal, foundation, and industry grants. Dr. Niewold is recognized for important contributions to our understanding of how genes influence pathogenic cytokine patterns that give rise to human lupus. He has published more than 140 papers in the fields of Immunology, Genetics, and Rheumatology, and is a member of numerous editorial boards and advisory committees, including serving as an Associate Editor for the Cytokine journal. He is the Chair of the Scientific Advisory Council of the American College of Rheumatology Research Foundation, the President-Elect of the Central Society for Clinical and Translational Research, and a standing NIH study section member.

New Member MINIBIOs *Continued*

Katherine Bakshian Chiappinelli, Ph.D.
Assistant Professor
The George Washington University, The GW Cancer Center
800 22nd St NW
Suite 8860
Washington, DC, United States

Dr. Katherine Chiappinelli joined the GW Department of Microbiology, Immunology and Tropical Medicine University in 2017 as an Assistant Professor in January 2017. She graduated with a B.S. in Biology and Music from Haverford College in 2007 and received her Ph.D. in Developmental, Regenerative, and Stem Cell Biology from Washington University in St. Louis under the supervision of Dr. Paul Goodfellow in 2012. Dr. Chiappinelli pursued postdoctoral studies at Johns Hopkins University with Dr. Stephen Baylin investigating the epigenetic control of immune signaling in cancer cells. Her research focuses on how epigenetic therapies can be used against cancers, specifically in the context of arming the host immune system to fight cancer cells. Kate is passionate about undergraduate science education and community science outreach, with extensive experience working with high school students in urban environments.

Niroshana Anandasabapathy, MD, Ph.D.
Brigham and Women's Hospital / Harvard Medical School
Boston, United States

Dr. Niro Anandasabapathy is Assistant Professor of Dermatology at Harvard Medical School and physician-scientist in Dermatology at Brigham and Women's Hospital and Dana-Farber Cancer Institute. Dr. Anandasabapathy performed her undergraduate studies in Biology and Art History at Stanford University. She received her PhD in Cancer Biology and her MD from Stanford. She became a Fellow of the American Academy of Dermatology in 2009 and received a Masters of Science in Clinical and Translational Science from Rockefeller University. Dr. Anandasabapathy started her own lab at BWH in 2013. At the Anandasabapathy Lab, scientists pursue translational research in the areas of cancer immunotherapy, vaccine development, dendritic cell biology, drug development (eg. Flt3L), drug discovery, and immune priming. She and her colleagues also delve into the immune response to diseases such as basal cell carcinoma, melanoma, vaccinia virus, and HIV.

Matthias J. Feige, Ph.D.
Assistant Professor
Department of Chemistry and Institute for Advanced Study
Technical University of Munich
Munich, Germany
East Tennessee State University

Dr. Feige is an Assistant Professor at the Department of Chemistry and Institute for Advanced study at the Technical University of Munich (TUM). He completed his doctoral training in Prof. Johannes Buchner's lab at the TUM where he studied mechanisms of antibody folding and assembly using biophysical approaches. As a postdoctoral fellow in Linda Hendershot's lab at the St. Jude Children's Research Hospital, Matthias applied biochemical and cell biological techniques to study the biogenesis and quality control of T cell receptor assembly as well as principles of chaperone function in the ER. Using an interdisciplinary approach from in vitro protein biochemistry and biophysics to immune cell biology, his lab now investigates how interleukins fold and assemble in the cell. Insights into these processes have immediate implications for the regulation of immune signaling - but also the design of optimized and novel immune modulators.

Tatsuma Ban, Ph.D.
Assistant Professor
Department of Immunology
Yokohama City University Graduate School of Medicine
Yokohama City, Japan

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

Megan Stanifer, Ph.D.
Senior Research Fellow
Heidelberg University
Heidelberg, Germany

Dr. Megan Stanifer is a senior research fellow in the laboratory of Dr. Steeve Boulant at Heidelberg University. She completed her PhD from Brown University in the laboratory of Dr. Walter Atwood where her work focused on understanding the host-pathogen interactions of the human polyomaviruses JC and BK. Her first post-doctoral training was completed at Harvard Medical School in the laboratory of Dr. Sean Whelan. In the Whelan lab, Dr. Stanifer developed advanced microscopy methods to visualize and manipulate the site of fusion of vesicular stomatitis virus (VSV) to understand how impacting virus delivery would affect the cellular immune response. Her second post-doctoral training in the lab of Dr. Boulant has focused on understanding how the polarized cells of the human intestinal tract control their intrinsic innate immune response to enteric pathogens. Dr. Stanifer's work has revealed a key role of the polarized sorting machinery and type III IFNs in the protection of the gut epithelium.

Kouabla Liliane Siransy, MD
Associate Professor of Immunology - Allergology
Department of Immunology
Faculty of Medicine
Felix Houphouet-Boigny University
Abidjan, Cote d'Ivoire

Dr Siransy is Associate Professor in Immunology and Allergology at Felix Houphouet–Boigny University, Faculty of Medicine since 2015, and she is the national Head of Laboratory at National Blood Transfusion Center in Abidjan, Cote d'Ivoire. Recently, she completed her training in Allergology at the University Claude Bernard of Lyon, France. For decades, she has been heavily professionally involved in the field of transfusion in Cote d'Ivoire and in Africa as well. She is trainer of trainers with African Blood Transfusion society. Currently, she is working on her PhD Dissertation on Sickle Cell Disease (SCD). Her work desires to bring a contribution to the clarification of the in vivo biological functions of cytokines as well as to demonstrate how these biomarkers may be helpful for phenotyping SCD patients for both research and therapy.

DISCOVERY OF THE PROTOTYPE CHEMOKINES INTERLEUKIN-8 AND MCAF/MCP-1 AT THE NATIONAL CANCER INSTITUTE IN THE 1980S

by Kouji Matsushima, M.D. Ph.D.

Department of Molecular Preventive Medicine, Graduate School of Medicine, The University of Tokyo

In 1987 and 1989, Teizo Yoshimura and I purified and molecularly cloned the prototype chemokines (chemotactic cytokines) interleukin-8 (IL-8, CXCL8) and MCAF/MCP-1 (CCL2) at the National Cancer Institute in Frederick, MD. Here I would like to tell the story behind the discovery of these chemokines, beginning with my purification of human IL-1β in 1985.

The prelude to the discovery of chemokines: bruising competition for the cloning of IL-1 cDNA and the characterization of active mature IL-1.

As described in detail by Dr. Phil Auron in the April issue of this newsletter[1]), there was fierce competition in cDNA cloning research in the 1980s. I joined the laboratory of Dr. Joost J. Oppenheim (Joe) in October 1982. I immediately began working on the purification of human IL-1 from conditioned media derived from LPS-stimulated human PBMCs. I was the third scientist in our laboratory to work on the same competitive project. I succeeded in purifying human IL-1β from 5 L of conditioned media in a year, but initially the amount of purified material was insufficient to determine the N-terminal amino acid sequence. This work was published in *Cell. Immunol.* without amino acid sequence information[2]). (*J. Biol. Chem.* rejected this purification paper based on the earlier purification of murine IL-1 by Dr. Steve Mizel, but it later turned out that Steve's murine IL-1 was the acidic form of IL-1α[3]).) I could confirm the biological activities ascribed previously to IL-1, such as thymocyte co-mitogenic activity, stimulation of fibroblast proliferation, and acute phase protein-inducing activity[2]). I continued working on the purification of IL-1, and eventually succeeded in obtaining the partial N-terminal amino acid sequence of the material purified from LPS-stimulated human PBMCs. In December 1984, a paper by Phil Auron[4]) describing the cDNA cloning of precursor human IL-1β appeared in *PNAS*, after having been rejected by *Nature* due to the lack of biological activity of the precursor IL-1. Although I had some disappointment at losing the competition to clone IL-1, I was very pleased to know that my purification was correct and to receive confirmation of the full sequence of the mature form of human IL-1β.

We publicly confirmed that the cDNA cloning of human IL-1β by Phil was correct by pointing out the cleavage site for the conversion of precursor IL-1β to active IL-1 at the Miami Winter Symposium in February 1985. At the meeting, Dr. Charles Dinarello (a collaborator of Phil) was eager to write a paper with us on the precursor and mature form of human IL-1, and we published together in *J. Mol. Cell Immunol.* in May 1985[5]). Two months later, Immunex group's paper6) on the cDNA cloning of human IL-1 α and β appeared in *Nature*, also describing the N-terminals of the human IL-1s. Astonishingly, it turned out later that—in an unacceptable act of scientific misconduct—the Immunex group copied the cDNA sequence information from the manuscript submitted to *Nature* by Phil, then used this information to apply for a patent on human IL-1 and to write a *Nature* paper of their own. In addition, a manuscript on the cDNA cloning of human IL-1α by Dr. Masaaki Yamada *et al.* was submitted to *Nature* earlier than the Immunex group manuscript, but for unknown reasons, *Nature* published only the Immunex group paper.

Around the same time, I also purified active/mature human IL-1β with the same amino acid terminus from both cell lysates and the culture supernatant of the THP-1 monocytic leukemia human cell line stimulated with LPS/silica/hydroxyurea[7]) (an inflammasome activation cocktail), which indicated that THP-1 cells express interleukin-1 converting enzyme (ICE; later named Caspase 1). Based on our paper reporting these findings, the Immunex group purified and cloned ICE from THP-1 cells[8]).

Kouji Matsushima, Ed Leonard, Teizo Yoshimura in Kauai Island, Hawaii in Oct. 1987 just after presentation of Purification of monocyte-derived neutrophil chemotactic factor (IL 8) at the Leukocyte Biology Conference.

Kouji Matsushima and Joost J. Oppenheim at a Thanksgiving Day dinner in the mid 1980s

Kouji Matsushima on the beach of Berkley, CA in Jan 1988 just after publicizing the cDNA cloning of IL 8 at a UCLA symposium

Purification and cDNA cloning of human interleukin-8 (CXCL8)

In the 1970's, leukocyte-derived neutrophil chemotactic factor (NCF) and monocyte chemotactic factor (MCF) were described in the literature[9]), but their molecular nature remained unclear. Before our purification and cDNA cloning of IL-8 and MCAF/MCP-1, IL-1 and tumor necrosis factor had been considered responsible for these chemotactic activities, as reported by Joe's [10]) and Dr. Alberto Mantovani's[11]) groups. To my surprise, neither my purified IL-1s nor recombinant TNF alpha displayed these activities. However, neutrophil and monocyte chemotactic activity was detected in the conditioned media that I used for the IL-1 purification. Dr. Edward (Ed) Leonard, our neighbor in NCI, expressed an interest in purifying NCF from the conditioned media that I had collected, but the project did not progress.

A couple of years later in 1986, Dr. Teizo Yoshimura from Kumamoto University (Japan) joined Ed's laboratory as a postdoctoral fellow and was struggling to find a project to pursue. I mentioned to Teizo the mysterious and intriguing phenomenon of neutrophil chemotactic activity in the conditioned media of activated human leukocytes, and we decided to characterize and clone the cDNA in collaboration, albeit without telling either Ed or Joe. We could easily separate neutrophil chemotactic activity from IL-1 activity by HPLC gel filtration[12]), and succeeded in purifying 400 µg of NCF from 4 L of LPS-stimulated human PBMC conditioned medium in a couple months[13]). Dr. Ettore Appella in NCI Bethesda determined the amino acid sequence of the purified material up to 40 amino acids from the N-terminal, which provided enough information to synthesize oligo-nucleotide probes for cDNA cloning. I eagerly decided to clone the cDNA from LPS-stimulated human PBMCs by myself, from the construction of the cDNA library to DNA sequence analysis. Very fortunately, Dr. Kazuhiro Morishita, who had obtained his Ph.D. from cloning expert Dr. Kazushige Nagata, joined Dr. James Ilhe's laboratory at NCI Frederick around that time. I helped Dr. Morishita to set himself up in Frederick, and in return, he provided me with Dr. Nagata's cDNA cloning protocol and taught me all the necessary procedures for cDNA cloning. With beginner's luck, cDNA library construction and library screening using oligo-probes went very well. However, accurate determination of the cDNA sequence by the di-deoxy Sanger method proved difficult. Because I considered the risk of making mistakes in the reading of a coding sequence unacceptable, after I obtained the full cDNA sequence information, I asked my friend Dr. S. Lavu to read the same clone again using the Maxam-Gilbert chemical treatment procedure. Reassuringly, we obtained the same cDNA sequence information coding 99 amino acids for the precursor protein and 72 amino acids for the mature form.

Since the amount of purified NCF was 100-fold higher than that of IL-1, the possibility of contamination by even 1% of a hidden molecule with real biological activity worried me. To confirm that the cloned cDNA really did encode the NCF protein, Dr. Appella synthesized the 72 amino acids deduced from the cDNA sequence and Drs. Yamada and Furutani at Dainippon Pharmaceutical Co. Ltd. expressed the recombinant NCF in *E. coli.* Teizo confirmed that the chemically synthesized as well as recombinant proteins had potent NCF activity. In addition, we made a monoclonal antibody against the recombinant NCF and showed that NCF activity in the conditioned media could be absorbed by the antibody. Based on this evidence, we confidently prepared our paper describing the cDNA cloning of NCF and published in *J. Exp. Med.* In 1988[14]). This story demonstrates the effort required to be the first to say something novel in public!

Purification and cDNA sequencing of MCAF/MCP-1(CCL2)

Due to some disagreements regarding the cloning of IL-8, it became difficult for Teizo to work in my laboratory. I waited while Teizo tried to purify MCF for nearly two years without success, after which he informed me that he could not detect MCF activity in the conditioned media of THP-1 cells. When Dr. Chris Larsen from Denmark joined my laboratory, I asked him to check again the MCF activity in the conditioned media that I used for IL-1 purification.

DISCOVERY OF THE PROTOTYPE CHEMOKINES INTERLEUKIN-8 AND MCAF/MCP-1 AT THE NATIONAL CANCER INSTITUTE IN THE 1980S *Continued*

Chris informed me that there was too much activity in the media, and that it was necessary to make a 1,000 fold dilution in order to detect MCF activity (it was well known that too high a concentration of chemotactic factor inhibits cell migration). Since MCF activity could be adsorbed by a heparin column in the same way as IL-8, it was really easy to purify MCF from THP-1 conditioned media, and we completed the entire purification procedure in a week[15]). However, it took several weeks to obtain partial amino acid sequence information for MCF because of a blockade of the N-terminal by pyroglutamate formation. We asked Dr. Yamada and his colleagues to perform the cDNA cloning of MCF from a PMA-stimulated U937 monocytic cell line cDNA library, which they finished in a week, and on New Year's Day 1989, we filed the patent for the MCF protein and cDNA. We successfully obtained international patent rights. Independently, Teizo purified the same MCF protein from the conditioned media of a human glioblastoma cell line[16]), and our papers describing the first purification of MCF were published in *BBRC* [17])and *FEBS* Lett. [18]) simultaneously, but independently. I named this molecule MCAF based on its chemotactic and activation effects on monocytes, while Teizo named it MCP-1.

Based on the above achievements, in 1989 I was simultaneously offered a tenure position at NCI and a professorship at Kanazawa University, my alma mater in Japan. I was honored and very grateful for both offers, but in the end I decided to return to Japan. When Dr. Dan Longo, Director of the Biological Response Modifiers Program, offered me an unlimited research budget, staff, and equipment to stay at NCI, I refused his offer simply by just saying that I am a Japanese. Thus, in 1990 I returned to Kanazawa and became a professor at the age of 37. In my new position, I began trying to establish the role of chemokines in inflammatory and immune diseases. I continued my research on chemokines after moving to The University of Tokyo in 1996, and subsequently succeeded in the clinical development of an anti-chemokine receptor CCR4 antibody as a therapy for adult T cell leukemia (ATL). Clinical trials of this antibody have also been conducted for other types of CCR4+T cell leukemia and lymphoma, such as Sezary's syndrome and Mycosis fungoides, and it is also being tested in combination with various immune-check point antibodies as a means to deplete regulatory T cells in cancer patients.

This year, it is my great honor and pleasure to host the 5th Annual Meeting of ICIS in my hometown, Kanazawa. I look forward to welcoming you all to Japan!

References

1. Signals: The International Cytokine and Interferon Society Newsletter Apr., 2017 Vol. 1, No.1 The cloning of interleukin 1β P.E. Auron
2. Matsushima, K. et al. Cell. Immunol. 92:290-301, 1985.
3. Lomedico, P.T. et al. Nature 312:458-462, 1984
4. Auron, P.E. et al. Proc. Natl. Acad. Sci., USA 81:7907-7911, 1984
5. Auron, P.E. et al. J. Mol.Cell. Immunol. 2:169-177, 1985
6. March, C.J. et al. Nature 315:641-647, 1985
7. Matsushima, K. et al. Biochemistry. 25:3424-3429, 1986.
8. Cerreti, D. P. et al. Science 256:97-100, 1992.
9. Altman, L.C. Chemotactic Lymphokines: a review In Gallin J.I., Quie G., editors. Leukocyte Chemotaxis. New York: Raven Press 1978, page267-287.
10. Luger, T.A. et al. J. Immunol. 131:816-820, 1983
11. Ming, W.J. et al. J. Immunol. 138: 1469-1474, 1987.
12. Yoshimura, T. et al. J. Immunol. 139:788-793, 1987.
13. Yoshimura, T. et al. Proc. Natl. Acad. Sci., USA. 84:9233-9237, 1987.
14. Matsushima, K. et al. J. Exp. Med. 167:1883-1893, 1988.
15. Matsushima, K. J. Exp. Med. 169:1485-1490, 1989.
16. Yoshimura, T. et al. J. Exp. Med. 169:1449-1459, 1989.
17. Furutani, Y. et al. Biochem. Biophys. Res. Commun. 159:249-255, 1989.
18. Yoshimura, T. et al. FEBS Lett. 244:487-493, 1989

A Tribute to

Julius Youngner

Pitt polio pioneer, dies at 96

by Ben Schmitt

Julius S. Youngner, a key member of the University of Pittsburgh team that developed a polio vaccine with Dr. Jonas E. Salk, has died.

Youngner was a virologist and microbiologist who spent 56 years working at Pitt. He died Thursday night at his Squirrel Hill home surrounded by family.

He was 96. A New York City native, Youngner came to Pittsburgh in 1949 after working on the Manhattan Project, the government's clandestine program to develop an atomic bomb.

The Army assigned him to a top-secret unit in Oak Ridge, Tenn., to examine the toxicity of uranium salts. Younger also worked at the National Institutes of Health, where he first became interested in virus research.

His contributions to Salk's vaccine were critical to its success.

The most prominent was a rapid color test he designed to measure the amount of poliovirus in living tissue culture. He also developed techniques for trypsinization — a method that used the enzyme trypsin to harvest the polio virus in large quantities. This technique enabled vaccine-makers to produce material to make vaccines for everyone.

At Pitt, he served as professor and chair of the department of microbiology from 1966 to 1985, and as professor and chair of the department of microbiology, biochemistry, and molecular biology from 1985 until his retirement in 1989. He maintained a large presence in the department, attending a seminar as recently as last year.

"Juli's infectious curiosity has fueled his own research and influenced all who had the privilege to work with him. As a direct result of his efforts, there are countless numbers of people living longer and healthier lives," said Dr. Arthur S. Levine, Pitt's senior vice chancellor for the health sciences and dean of Pitt's School of Medicine.

"Julius Youngner once told a reporter that he intended to stay at the University of Pittsburgh for only a short time following his work on the Manhattan Project. But he soon fell in love with Pitt and the research opportunities here. I am grateful he stayed and that his work, with Jonas Salk and others, led to the polio vaccine. He was one of the world's preeminent virologists and our University community will miss him immensely," Pitt Chancellor Patrick Gallagher said in a statement.

His work with Salk was not without controversy.

Youngner told the Tribune-Review in 2005 that Salk failed to acknowledge his lab colleagues during a speech at the University of Michigan on April 12, 1955. On that day the world learned the polio vaccine worked. Salk's perceived oversight forever damaged his relationship with Youngner.

"Some of them were crying after we left," Youngner said at the time of his colleagues. "People really held it against him that he had grandstanded like that and really done the most un-collegial thing that you can imagine."

Salk's achievement along with his vaccine team ended years of fear and anxiety surrounding an illness that spread misery and death in the United States from the late 1800s to the mid-20th century.

At its peak, polio crippled an average of 1,000 children every day in more than 125 countries.

After his work on the polio vaccine, Youngner made major advancements in the fields of virology and immunology. Together with Pitt colleagues, he explored the antiviral activities of the immune protein interferon and identified what is now known as interferon gamma. Interferon is now used in many cancer therapies.

He received numerous honors and awards, including the Polio Plus Achievement Award from Rotary International in 2001.

He earned an honorary doctor of public service from Pitt in 2005, the Chancellors Medal in 2014, and the department of microbiology and molecular genetics established an annual lecture series in his honor in 2015.

Youngner is survived by his wife of 54 years, Rina Youngner of Pittsburgh; children Stuart Youngner of Cleveland and Lisa Youngner of Albuquerque, N.M.; grandchildren Jonathan Youngner of Chicago, Ill., Matthew Youngner of San Francisco and Suzanne Youngner of Cleveland; and half-brother Alan Donheiser of Contuit, Mass. He was preceded in death by his first wife, Tula Liakakis Youngner.

Editor Luis Fábregas contributed to this report. Ben Schmitt is a Tribune-Review staff writer.

August 30, 2017

My father, Dr. Simon Skurkovich,

passed away on June 4, 2017 at his home in Rockville, MD. He was 94 years old.

by Dr. Boris Skurkovich Boris_Skurkovich@Brown.edu

He was a true innovator and pioneer in a number of fields. His early work on an immunological approach to the treatment of burns led to the significant increase in the rate of survival of burn victims (1).

He was the first to perform active immunization of children with leukemia with "live" allogeneic leukemic cells (2,3). In a subgroup of these children, 42% survived (vs 0% in the control group) and are considered cured after more than 30 years of observation (4). He developed highly effective hyperimmune preparations for the treatment of infections caused by Staphylococcus aureus, Escherichia coli, and Pseudomonas aeruginosa. His anti-staphylococcal plasma and immune globulin have been used throughout the Soviet Union and Eastern Europe and have saved hundreds of thousands of lives (5).

One of Simon Skurkovich's most important achievements was his creation of a new chapter in immunology and rheumatology – anti-cytokine therapy of autoimmune diseases. He first proposed a hypothesis that dysregulation of interferon (cytokine) synthesis plays a central role in the development of autoimmune diseases and that its removal could be therapeutic (6,7). He was the first to find interferon in the circulation of patients with classic autoimmune diseases and he and his colleagues performed the first-ever clinical trial of antibodies to leukocyte interferon in patients with autoimmune diseases (8). He later performed numerous clinical trials of antibodies to interferon gamma in a number of autoimmune conditions including rheumatoid arthritis, multiple sclerosis, psoriasis, alopecia areata, vitiligo, and others with excellent results (9-11). Therefore, he truly is a founding father of anti-cytokine therapy.

In addition to being a scientist, Simon was also a musician and composer. He was a musical prodigy – he learned to play piano and other musical instruments at a very early age and started composing in his pre-teen years. He told me many times how he went to meet Sergey Prokofiev at his apartment in Moscow to play for him and ask for his advice. Prokofiev told him that he should devote himself to music full time.

For the rest of his life my father had regrets that he did not become a professional composer. However, in 1977, at the height of persecution of Jews desiring to immigrate to Israel from the Soviet Union, he managed to organize a performance of his concerto for piano and orchestra, which incorporated some Jewish melodies, in a concert hall in Moscow. It was an incredible morale booster for many people persecuted by the regime. In December 2016, his symphonic poem Holocaust for voice soloists, chorus, and symphony orchestra was performed twice in Providence, RI.

He was born in Lithuania and moved to Russia with his family when he was very young. He graduated from medical school in Moscow at the age of 22 and went straight to the war front in a tank regiment of the Soviet Army fighting Nazis in the Second World War. He was in Austria when the war ended in 1945. He was highly decorated for bravery during his years of service, was wounded twice, and was once left for dead. While in Austria, his unit took over a liberated concentration camp where he witnessed true horrors of the Holocaust. Terrible pictures of dying emaciated Jewish prisoners haunted him for the rest of his life.

He returned to Moscow and started his scientific career in 1948. He advanced very rapidly and got his Ph.D., a Doctor of Medical Sciences degree, and a Full Professorship in very short order. For many years after that, he was Chief of The Laboratory of Immunology of the Central Institute of Hematology and Blood Transfusion in Moscow. He had 42 people working in his lab. All this was especially remarkable since he was Jewish and not a member of the Communist Party.

Despite all his success, prestige, and high position he decided to leave the Soviet Union. He sacrificed his career and quality of life to give his children a better opportunity in the West. Almost immediately after applying for an emigration

permit he was fired, his lab was disbanded, and his name erased from all official publications. After waiting a year, he finally received a permission to leave the Soviet Union and came to the United States with my mother and I. My older sister came to the US a year earlier.

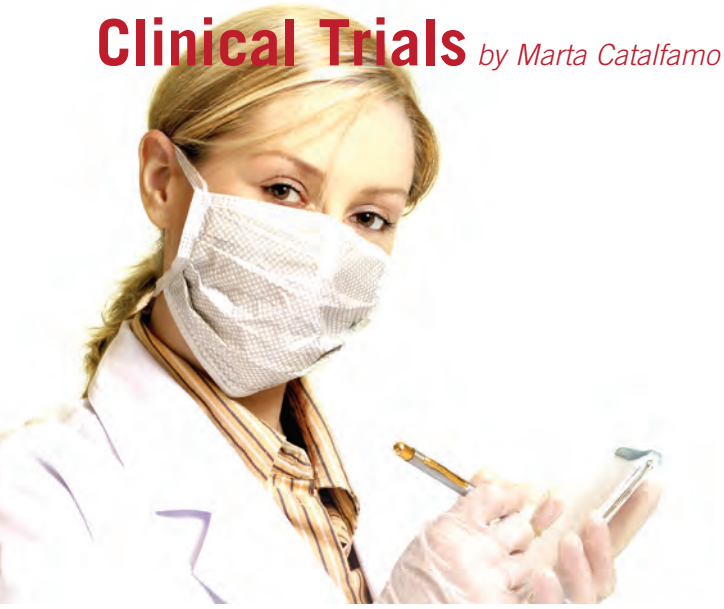
He received a small grant from a private source and was graciously offered space at NIH by Dr. Robert Friedman. This transition was very difficult for my father. He was 57 years old at that time, did not know English (he was fluent in German), and, after having 42 people working for him in his lab in Moscow, he landed in a windowless room without any meaningful technical or other support. It was heart-warming, however, to see a small plaque on the wall a couple of doors down from his room indicating that that was where the future Nobel Prize winner, Dr. Baruch Blumberg, worked when he discovered Australia antigen. After several years at NIH he decided to try to develop his projects privately and, with the help of several people he formed a small company which later became larger and actually went public.

Simon Skurkovich was definitely a scientific genius who was ahead of his time. In my view, one of the reasons why his idea of anti-cytokine therapy was not fully adopted at that time was the fact that early on interferon was considered a wonder drug that would rid the world of cancer and cure viral infections. And here comes Simon Skurkovich who warns researchers of the danger of interferon and insists that it may cause autoimmune diseases. When the field of anti-cytokine therapy exploded 10 to 15 years after he proposed his theory, his earlier works were ignored, partly because, as Dr. Jonas Salk, who my father met shortly after his arrival to the United States, said to him: "American scientists have short memory."

He was multitalented, extremely goal oriented and relentless in pursuit of those goals. He had encyclopedic knowledge of the lives of composers and could name almost any classical composition after listening to it for just a couple of seconds. His overall erudition was truly remarkable as well. Though he was not a religious man, he had a very strong Jewish identity and his support for the State of Israel was unwavering. He was a total workaholic and he could not imagine life without continuing to write articles and patent applications, composing music, and being engaged in multiple activities. He was active and intellectually intact until the very end. He published his last article in 2016 when he was 93 years old. Everyone who knew him remembers him as a very kind person who was always ready to help. He will be greatly missed by his family and friends and by all the people whose lives he touched. The world lost a truly great scientist whose discoveries saved numerous lives and continue to alleviate sufferings of countless human beings.

1. Acta Haematol 1960; 24:163.
2. Nature 1969; 223:509.
3. Annals NY Acad Sci 1976:277:384.
4. J Cancer Res Updates 2013; 2:254.
5. Microbes Infect 2000; 2:1383.
6. Immunology 1973; 25:317.
7. Nature 1974; 247:551.
8. Ann Allergy 1975; 35:356.
9. Scand J Rheumatol 2001; 30:203.
10. Curr Opin Molec Therapeutics 2003; 5:52.
11. Expert Rev Clin Immunol 2005; 1:15.

Clinical Trials *by Marta Catalfamo*



Comparison of High-dose IL-2 and High-dose IL-2 With Radiation Therapy in Patients With Metastatic Melanoma. (SBRT/IL-2)

Principal Investigators: Brendan Curti, M.D, Steven K. Seung, M.D, Marka Crittenden, MD, PhD. Providence Health & Services. Providence Cancer Center. Portland, Oregon, 97213. United States
Contact: Christopher Fountain, R.N. Providence Health & Services. Portland, Oregon, 97213. United States. Phone: 503-215-2691
ClinicalTrials.gov Identifier: NCT01416831

Proof of Principle Study of Pulse Dosing of IL-15 to Deplete the Reservoir in HIV Infected People (ALT-803)

Principal Investigators: Tim Schacker, MD. University of Minnesota - Clinical and Translational Science Institute, Minneapolis, USA.
Contact: Anne Thorkelson, RN. Phone: +1 612 625 7472
ClinicalTrials.gov Identifier: NCT02191098

Subcutaneous Recombinant Human IL-15 (s.c. rhIL-15) and Alemtuzumab for People With Refractory or Relapsed Chronic and Acute Adult T-cell Leukemia (ATL)

Principal Investigators: Thomas A Waldmann, M.D., National Cancer Institute (NCI). NIH, Bethesda, Maryland, USA.
Contact: Maureen E Edgerly, R.N., Phone: (240) 760-6050
ClinicalTrials.gov Identifier: NCT02689453

CD16/IL-15/CD33 Tri-Specific Killer Engagers (TriKes) for CD33+ Hem Malignancies

Principal Investigators: Sarah Cooley, MD, Masonic Cancer Center, University of Minnesota. Minneapolis, USA.
Contact: Timothy Krepski, Phone: +1 612-273-2800
ClinicalTrials.gov Identifier: NCT03214666

Study of PEG-rIL-29 (or PEG-IFN Lambda) in Subjects With Chronic Hepatitis C Virus Infection

Principal Investigators: Diana F Hausman, MD., ZymoGenetics, Seattle, Washington. USA
Contact: Sherri Souza, Clinical Trial Manager, ZymoGenetics, Seattle, Washington. USA
ClinicalTrials.gov Identifier: NCT00565539

hu14.18-Interleukin-2 Fusion Protein in Treating Young Patients With Recurrent or Refractory Neuroblastoma

Principal Investigators: Suzanne Shusterman, MD, Dana-Farber Cancer Institute and Paul M Sondel, MD, PhD, University of Wisconsin, Madison. USA
Contact: Suzanne Shusterman, MD, Dana-Farber Cancer Institute and Paul M Sondel, MD, PhD, University of Wisconsin, Madison.
ClinicalTrials.gov Identifier: NCT00082758

MSB0011359C (M7824) in Metastatic or Locally Advanced Solid Tumors

Principal Investigators: Medical Responsible, EMD Serono Research & Development Institute, Inc, an affiliate of MerckKGaA, Darmstadt, Germany
Contact: US Medical Information. Phone: 888-275-7376
ClinicalTrials.gov Identifier: NCT02517398

T Cells Expressing HER2-specific Chimeric Antigen Receptors(CAR) for Patients With Glioblastoma (iCAR)

Principal Investigators: Nabil M Ahmed, MD, Baylor College of Medicine/ Texas Children's Hospital. Texas, USA
Contact: Nabil M Ahmed, MD. Phone: +1 832 824 4611
ClinicalTrials.gov Identifier: NCT02442297

PD-1 Antibody Expressing CAR-T Cells for EGFR Family Member Positive Advanced Solid Tumor (Lung, Liver and Stomach)

Principal Investigators: Naiyan Han, MD. Shanghai International Medical Center, Shanghai, China
Contact: Naiyan Han, MD., Phone: +86 (0) 182 1766 2469
ClinicalTrials.gov Identifier: NCT02862028

Phase II Study of Pembrolizumab and Ipilimumab Following Initial Anti-PD1/L1 Antibody (Formerly IRB15-1788)

Principal Investigators: Jason Luke, M.D. University of Chicago Chicago, Illinois, USA
Contact: Jackie Peterson, Phone: +1 773 834 1746
ClinicalTrials.gov Identifier: NCT02743819

A Phase 1 Study of TSR-022, an Anti-TIM-3 Monoclonal Antibody, in Patients With Advanced Solid Tumors

Principal Investigators: Dmitri Bobilev, MD, Tesaro, Inc. Waltham, Massachusetts, USA
Contact: Dmitri Bobilev, MD, Tesaro, Inc. Waltham, MA, USA. Phone: +1 844 483 7276
ClinicalTrials.gov Identifier: NCT02817633

Serum Interleukin -21 Level in Patients With Severe Adverse Cutaneous Drug Reaction.

Principal Investigators: MAHanna, Assiut University
Contact: Fathya Ali, MD Phone: 01000197217 Askar21@yahoo.com
Contact: Hanan Ahmed, MD Phone: 01064447881 hanan-morsy2003@yahoo.com
ClinicalTrials.gov Identifier: NCT03166241

DNX-2401 With Interferon Gamma (IFN-γ) for Recurrent Glioblastoma or Gliosarcoma Brain Tumors (TARGET-I)

Sponsors and Collaborators: DNAtrix, Inc.
Principal Investigators: Nam Tran, MD, PhD Moffitt Cancer Center; Karen Fink, MD, PhD Baylor University: Charles A. Sammons Cancer Center;
Vinay Puduvalli, MBBS Ohio State University: James Cancer Center; Frederick Lang, MD
M.D. Anderson Cancer Center
ClinicalTrials.gov Identifier: NCT02197169

REVIEWS OF INTEREST

Cytokines in immunogenic cell death: Applications for cancer immunotherapy.
Showalter A, Limaye A, Oyer JL, Igarashi R, Kittipatarin C, Copik AJ, Khaled AR. *Cytokine.* 2017 Jun 22;97:123-132. doi: 10.1016/j.cyto.2017.05.024. [Epub ahead of print] PMID: 28648866

Interleukin-6 in Allogeneic Stem Cell Transplantation: Its Possible Importance for Immunoregulation and As a Therapeutic Target.
Tvedt THA, Ersvaer E, Tveita AA, Bruserud Ø. *Front Immunol.* 2017 Jun 8;8:667. doi: 10.3389/fimmu.2017.00667. eCollection 2017. PMID: 28642760

The role of interleukin 10 in human papilloma virus infection and progression to cervical carcinoma.
Berti FCB, Pereira APL, Cebinelli GCM, Trugilo KP, Brajão de Oliveira K. *Cytokine Growth Factor Rev.* 2017 Apr;34:1-13. doi: 10.1016/j.cytogfr.2017.03.002. Epub 2017 Mar 23. PMID: 28365229

IL-15 signaling in NK cell cancer immunotherapy.
Rautela J, Huntington ND. *Curr Opin Immunol.* 2017 Feb;44:1-6. doi: 10.1016/j.coi.2016.10.004. Epub 2016 Nov 11. PMID: 27835762

Interluekin-17A (IL17A).
Chen K, Kolls JK. *Gene.* 2017 May 30;614:8-14. doi: 10.1016/j.gene.2017.01.016. Epub 2017 Jan 22. PMID: 28122268

IL-17 and IL-22 in immunity: Driving protection and pathology.
Eyerich K, Dimartino V, Cavani A. *Eur J Immunol.* 2017 Apr;47(4):607-614. doi: 10.1002/eji.201646723. PMID: 28295238

The Role of IL-23 and the IL-23/TH 17 Immune Axis in the Pathogenesis and Treatment of Psoriasis.
Girolomoni G, Strohal R, Puig L, Bachelez H, Barker J, Boehncke WH, Prinz JC. *J Eur Acad Dermatol Venereol.* 2017 Jun 27. doi: 10.1111/jdv.14433. [Epub ahead of print] PMID: 28653490

Emerging role of interleukin-31 and interleukin-31 receptor in pruritus in atopic dermatitis.
Furue M, Yamamura K, Kido-Nakahara M, Nakahara T, Fukui Y. *Allergy.* 2017 Jul 3. doi: 10.1111/all.13239. [Epub ahead of print] PMID: 28670717

IL-33: biological properties, functions, and roles in airway disease.
Drake LY, Kita H. *Immunol Rev.* 2017 Jul;278(1):173-184. doi: 10.1111/imr.12552. PMID: 28658560

RIG-I-Like Receptors and Type I Interferonopathies.
Kato H, Oh SW, Fujita T. *J Interferon Cytokine Res.* 2017 May;37(5):207-213. doi: 10.1089/jir.2016.0095. PMID: 28475461

TGF-β regulation of encephalitogenic and regulatory T cells in multiple sclerosis.
Lee PW, Severin ME, Lovett-Racke AE. *Eur J Immunol.* 2017 Mar;47(3):446-453. doi: 10.1002/eji.201646716. Epub 2017 Feb 10. PMID: 28102541

Efficacy, safety and pharmacokinetics of biosimilars of anti-tumor necrosis factor-α agents in rheumatic diseases; A systematic review and meta-analysis.
Komaki Y, Yamada A, Komaki F, Kudaravalli P, Micic D, Ido A, Sakuraba A. *J Autoimmun.* 2017 May;79:4-16. doi: 10.1016/j.jaut.2017.02.003. Epub 2017 Feb 13. PMID: 28209290

The molecular basis for differential type I interferon signaling.
Schreiber G. *J Biol Chem.* 2017 May 5;292(18):7285-7294. doi: 10.1074/jbc.R116.774562. Epub 2017 Mar 13. PMID: 28289098

The role of JAK-STAT signaling pathway and its regulators in the fate of T helper cells.
Seif F, Khoshmirsafa M, Aazami H, Mohsenzadegan M, Sedighi G, Bahar M. *Cell Commun Signal.* 2017 Jun 21;15(1):23. doi: 10.1186/s12964-017-0177-y. PMID: 28637459

WWW

APRICOT

A tool for sequence-based identification and characterization of protein classes
https://pypi.python.org/pypi/bio-apricot

APRICOT is a computational pipeline for the identification of specific functional classes of interest in large protein sets. The pipeline uses efficient sequence-based algorithms and predictive models like signature motifs of protein families for the characterization of user-provided query proteins with specific functional features. The dynamic framework of APRICOT allows the identification of unexplored functional classes of interest in the large protein sets or the entire proteome.

Biology Dictionary

https://biologydictionary.net/

Biology is the study of living things. It is broken down into many fields, reflecting the complexity of life from the atoms and molecules of biochemistry to the interactions of millions of organisms in ecology. This biology dictionary is here to help you learn about all sorts of biology terms, principles, and life forms. Search by individual topic using the alphabetized menu below, or search by field of study using the menu on the left.

Birch

http://home.cc.umanitoba.ca/~psgendb/

- is a comprehensive desktop bioinformatics system integrating many of the commonly-used bioinformatics programs
- is a framework of tools, files, and documentation for organizing and managing a bioinformatics core facility
- can be customized by seamlessly merging 3rd party applications into BIRCH

CellTracker

http://celltracker.website/index.html

CellTracker is an image processing software to perform automated, semi-automated, and manual cell migration detection.

The main goals of the software are:
- automated image quality enhancement using vignetting and alignment correction;
- detection and tracking of cells;
- editing cell paths and statistical analysis of the cell motion.

The major challenge what we addressed is to perform the above goals on phase-contrast and DIC images. Nevertheless, CellTracker works on fluorescent images as well.

The program is written in MatLab with a graphical user interface, it requires MatLab 2012, Image Processing Toolbox 8.1 and for some optional functions Curve Fitting Toolbox 3.3 or later versions. The output statistics are stored in human readable table file (Excel, .csv). Furthermore, it is possible to create movies and visualize migration over time in 3D graphs (x, y, time).

CRImage - tumour image analysis

http://www.markowetzlab.org/software/CRImage.php

CRImage provides image analysis tools for segmentation, classification, and downstream analysis of tumour section images. In particular, it allows cellularity scoring of tumours which can then be applied to correct molecular assay data for varying cellularity. The package also comes with a novel algorithm for copy-number data correction, given SNP microarray data and cellular content of the tumours estimated by the image analysis.

DRNApred

DNA- and RNA-binding residues predictor
http://biomine.cs.vcu.edu/servers/DRNApred/

DRNApred was designed using a new dataset with both DNA-and RNA-binding proteins, regression that penalizes cross-predictions, and a novel two-layered architecture. DRNApred outperforms state-of-the-art predictors of DNA-or RNAbinding residues on a benchmark test dataset by substantially reducing the cross predictions and predicting arguably higher quality false positives that are located nearby the native binding residues.

ImmuneQuest

http://immunequest.com/

ImmuneQuest is an innovative educational game for college students that brings immunology to life. Designed to augment an educator's existing curriculum, ImmuneQuest allows students to build and control a virtual immune system to defend their human host from increasingly cunning microbes.

ORIO

Online Resource for Integrative Omics
https://orio.niehs.nih.gov/

ORIO (Online Resource for Integrative Omics) is a platform for integration of whole genome data accessible to life scientists with minimal computational expertise. ORIO is implemented in a modern web framework that intuitively organizes data and analysis results. All features are accessible using its web interface; environmental health scientists and other users may upload data, set-up analyses, and view results all through an interactive GUI. ORIO hosts 4,506 human and mouse datasets from the ENCODE research project, providing a point of access for life scientists to contextualize their own data within a rigorously controlled consortial dataset. Statistical tests are also implemented next to dynamic displays of analysis results, allowing transitions from discovery-based to hypothesis-

based inquiries. ORIO was consciously designed to make minimal assumptions about data during analysis, allowing its applications to a variety of experiment types and study designs.

RCAS

RNA Centric Annotation System
http://rcas.mdc-berlin.de/

RCAS is an automated system that provides dynamic genome annotations for custom input files that contain transcriptomic regions. Such transcriptomic regions could be, for instance, peak regions detected by CLIP-Seq analysis that detect protein-RNA interactions, RNA modifications (alias the epitranscriptome), CAGE-tag locations, or any other collection of target regions at the level of the transcriptome. RCAS is designed as a reporting tool for the functional analysis of RNA-binding sites detected by high-throughput experiments. It takes as input a BED format file containing the genomic coordinates of the RNA binding sites and a GTF file that contains the genomic annotation features usually provided by publicly available databases such as Ensembl and UCSC. RCAS performs overlap operations between the genomic coordinates of the RNA binding sites and the genomic annotation features and produces in-depth annotation summaries such as the distribution of binding sites with respect to gene features (exons, introns, 5'/3' UTR regions, exon-intron boundaries, promoter regions, and whole transcripts). Moreover, by detecting the collection of targeted transcripts, RCAS can carry out functional annotation tables for enriched gene sets (annotated by the Molecular Signatures Database) and GO terms. As one of the most important questions that arise during protein-RNA interaction analysis; RCAS has a module for detecting sequence motifs enriched in the targeted regions of the transcriptome. A full interactive report in HTML format can be generated that contains interactive figures and tables that are ready for publication purposes.

ScientiFig

https://grr.gred-clermont.fr/labmirouse/software/index.html

ScientiFig is a free tool to help you create, format or reformat scientific figures. ScientiFig creates and maintains the layout of both simple figures consisting of similarly sized images or graphs and complex figures containing panels with a variety of sizes. ScientiFig automatically takes care of the alignment of the text with respect to the images, and it has tools to make annotating and reformatting bitmap images easy. The software optimally positions scale bars and allows image annotation using regions of interest (ROIs), brackets and floating text. Because figures often contain graphs, we also provide a plug-in called FiguR that can be used with the open-source software R to dynamically generate and import vector-based graphs into figures created by ScientiFig.

UGENE

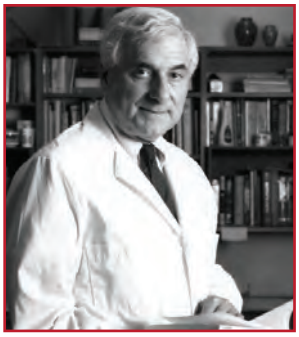
http://ugene.net/

Unipro UGENE is a free cross-platform genome analysis suite. It is distributed under the terms of the GNU General Public License. It works on Windows, Mac OS X or Linux and requires only a few clicks to install.

Creating, editing and annotating nucleic acid and protein sequences
Fast search in a sequence
Multiple sequence alignment: ClustalW, ClustalO, MUSCLE, Kalign, MAFFT, T-Coffee
PCR in silico
Search through online databases: NCBI, PDB, UniProtKB/Swiss-Prot, UniProtKB/TrEMBL, DAS servers
Local and NCBI Genbank BLAST search
Open reading frames finder
Restriction enzyme finder with integrated REBASE restriction enzymes list
Integrated Primer3 package for PCR primer design
Plasmid construction and annotation
Cloning in silico by designing of cloning vectors
Genome mapping short reads with Bowtie, BWA and UGENE Genome Aligner
Raw NGS data processing
Visualization of next generation sequencing data (BAM files) using UGENE Assembly Browser
Variant calling with SAMtools
RNA-seq data analysis with Tuxedo pipeline (TopHat, Cufflinks, etc.)
ChIP-seq data analysis with Cistrome pipeline (MACS, CEAS, etc.)
SPAdes de novo assembler
HMMER2 and HMMER3 packages integration
Chromatogram viewer
Search for transcription factor binding sites (TFBS) with weight matrix and SITECON algorithms
Search for direct, inverted and tandem repeats in DNA sequences
Local sequence alignment with optimized Smith-Waterman algorithm
Building (using integrated PHYLIP Neighbor Joining, MrBayes or PhyML Maximum Likelyhood) and editing phylogenetic trees
Combining various algorithms into custom workflows with UGENE Workflow Designer
Contigs assembly with CAP3
3D Structure viewer for files in PDB and MMDB formats, anaglyph view support
Protein secondary structure prediction with GOR IV and PSIPRED algorithms
Constructing dotplots for nucleic acid sequences
mRNA alignment with Spidey
Creating and using a shared storage (e.g. for a lab)
Search for a pattern of various algorithms' results in a nucleic acid sequence with UGENE Query Designer

VisIt

https://wci.llnl.gov/simulation/computer-codes/visit
VisIt is an Open Source, interactive, scalable, visualization, animation and analysis tool. From Unix, Windows or Mac workstations, users can interactively visualize and analyze data ranging in scale from small (<101 core) desktop-sized projects to large (>105 core) leadership-class computing facility simulation campaigns. Users can quickly generate visualizations, animate them through time, manipulate them with a variety of operators and mathematical expressions, and save the resulting images and animations for presentations. VisIt contains a rich set of visualization features to enable users to view a wide variety of data including scalar and vector fields defined on two- and three-dimensional (2D and 3D) structured, adaptive and unstructured meshes. Owing to its customizable plugin design, VisIt is capable of visualizing data from over 120 different scientific data formats



A YANK AT MILL HILL: A PERSPECTIVE ON THE EARLY DAYS OF INTERFERON RESEARCH

by Bob Friedman

On October 12, 1963, after spending 4 years at NIH, two working as a Research Associate in Sam Baron's lab and two as a pathology resident at the Clinical Center, I arrived at Alick Isaac's Mill Hill lab in London for a one year postdoctoral appointment. This was 5 years after his lab had first reported their discovery of interferon. Alec came down to the parking lot to meet my wife and my then three month old son, Tom. Alec knock on the window of my red VW bug and said to Tom, "Hello young man, I'm an Englishman." This was not quite true since he was obviously originally from Scotland.

I started work at the lab a few days later. I was used to getting to the lab quite early as at the NIH, if you came late, you parked in outer space. When I arrived at Mill Hill at 8:00, there was no one there. The technicians began to appear about 9:00, and proceed to clean and sterilize glassware. There were no plastics then in use in England. After a few days of my early morning arrival routine, the Chief Technician in the Virology Department, Mr. Busby, who looked like a man who had serviced Spitfires during the Battle of Britain, took me aside and asked me to please come in later, say 10 or 10:30 like the rest of the professional staff, since I was getting in the way of the techs regular cleanup activities.

I conformed to his request for the rest of my appointment as a postdoc fellow. Our regular routine was to arrive at ten or so, work in the lab, go to tea at 11, then work until 1, when we went to lunch. After lunch, we retired to the coffee room where we sat around, often in silence, for about half an hour, and then returned to the lab until it was time to go, about 5:30 for most of us. By American standards this sounds like nothing could have gotten done, but the institute was really quite productive of first-class research. If there had been a guest speaker, he or she would have lunch with us, and retire to the coffee room with the staff. At first, the quietness of the coffee room bothered me, as I was used to the loud, often boisterous conversations we had at NIH. I took the silence to mean the staff didn't like me, but I soon understood that was not the case. People only spoke when they had something relevant to say. It was amusing to me to observe the effect the quietness of the coffee room on American guest speakers. They became quite unnerved by the silence or very quiet conversations about their presentation, taking it as a sign that the staff disapproved of their research, when quite the opposite was most often true.

When I had been at Isaacs' lab for a few week, I suggested to Alec an experiment I wanted to try that might show that some instances of what had been termed viral interference were really due to interferon production. He made a few suggestions about how to proceed, and three weeks of experiments confirmed my notion. So, I wrote up a short paper on them with Alec as a coauthor, since that was the custom at NIH. He handed the paper back to me the next day with a few corrections, but with his name crossed out. I felt that this meant he didn't think the work was good enough to be published with his prestigious name on it. When I asked him why he had declined to be a coauthor on the paper, he said he only put his name on papers on which he had actually contributed significantly to the research, but he did think the work was okay.

The next day I submitted the manuscript to Nature which at the time was publishing a fair number of interferon papers. A week later, I received a letter from Nature which I assumed was an acknowledgement of my submission of the manuscript. Actually, it was a proof copy of the manuscript, which appeared in print a few weeks later. In almost 60 years of carrying out laboratory experiments, that was by far to quickest publication of my research I have ever experienced.

On November 22, 1963, Alec took me to meet Sir Ernest Chain, who had won the Nobel Prize with Fleming and Florey for the discovery of penicillin. I had a very interesting afternoon with Isaacs and Chain, and took the underground home. That evening we were invited for dinner by one of the Mill Hill faculty, and returned to our house rather late. On entering our residence, we were met by a hysterical Brazilian baby sitter. When she became coherent, she said that President Kennedy has been assassinated. I thought that because of her poor command of English she had gotten the facts wrong, but on turning on the television set, I became aware of the awful truth of the sitter's report. My wife and I might well have been the last people in the world to find out about the assassination.

We were invited to the Isaacs for their traditional Christmas feast. Alec's wife Sue, a psychiatrist, had prepared a sumptuous late afternoon dinner for the holiday. My wife and I looked forward to spending a real Christmas in the British style. A few minutes after sitting down to the meal, I was overcome with

Photos from the meeting in Bratislava that Jan Vilcek planned. In the photo on the left, from left to right are Bob Friedman, Sam Baron, and Joseph Sonnabend; in the photo on the right, Tom Merigan, Sam, Joseph, and Bob Friedman.

nausea, and developed a high fever. I couldn't manage to stay at the table. We had to leave, and to forego our chance at a British Christmas. I spent the rest of the long holiday in bed recovering from the virus that had struck me. This is one of the perils of taking up residence in a foreign environment. One meets up with unfamiliar infectious agents.

A week later, I planned an experiment for which I would need an ultracentrifuge. The Mill Hill lab was not endowed with very many of these, so I went to sign up to use the one usually used by the virology lab. I found that the Director of the institute, Sir Peter Medawar, had already signed up to use the apparatus all that day. I sought out Sir Peter's tech and asked him whether they actually planned to use the centrifuge. He told me that I'd have to ask Sir Peter what his plans were. I said, "You want me to ask a Nobel Prize winner whether he wants to use the centrifuge today?" he replied that I wouldn't get it any other way, so I meekly knock on the Director's office door and asked him about his plans. Without replying, Sir Peter, smiling, got up from his desk, put his arm around me, and walked me back over to his tech. He said; "Please allow this young American scientist to use the centrifuge today." That settled the issue.

On January 1, 1964, which at that time was not a holiday in England, I attended a British virology meeting with Alec. The delegation from Scotland expressed anger at having to go to a meeting on what was for them usually a holiday celebrated with large volumes of their national drink. Isaacs was in great form at the meeting, passing insightful and witty remarks on many of the papers. He took me to lunch to his favorite pub, The Silver Knight. The next day, when I arrived at the lab, most of the Virology Department was out in the hallway, and a strange silence prevailed. I was told Isaacs had had a serious brain hemorrhage the previous evening, and would not be returning to the institute for the foreseeable future. In fact, he didn't effectively return for the rest of my time there. In addition to greatly saddening me, this presented me with a serious problem. I had worked with Alec for less than three months. What was I going to do the rest of the year I was to spend at Mill Hill?

The problem was solved by the staff of the Virology Department who made many suggestions about how my research might proceed, but especially by the two brilliant postdocs also in the department at that time, Joseph Sonnabend and Joyce Taylor. Joyce had recently discovered that the action of interferon could be blocked by pretreatment of cells with Actinomycin D. This clearly meant that cellular RNA synthesis was necessary for interferon action. So, the three of us together decided to determine whether cellular protein synthesis was also required. Soon after the experiments to test this were planned, romance intruded on our efforts. Joyce went on a vacation, met a handsome Greek army officer, decided to marry him, and moved to Greece, leaving just Joseph and myself to proceed with the research. It was a tricky problem, but we did manage to devise a method to deal with it which was discussed in some detain in a previous issue of this Newsletter https://www.pdffiller.com/en/project/116178320.htm?f_hash=b40caaa&reload=true. I also spent a fair amount of the time remaining for my stay to learn techniques in molecular biology that I was to use in the following years at my lab at NIH.

The year ended with a trip to the very first international meeting on interferon research which had been arranged by Jan Vilcek and held at Smolenice Castle near Bratislava, in then communist Czechoslovakia. I, along with a number of the other attendees, was picked up at the Bratislava train station. My only recollection of the station is that there were numerous clocks on the platform, but the only one with the correct time had the letters IBM on its face. On our trip to Smolenice we passed through a countryside with the features of a flat plain. Suddenly, we saw a single structure in the distance which could only be the site of the meeting. Several of us called out at once "Dracula's castle!", and indeed it looked for all the world like a left over from a 1940s horror film. The meeting was a big success, marred only by the discovery later that all our rooms were bugged, which was obviously why the attendees from the Eastern bloc insisted on speaking to the rest of us only out in the halls or in the gardens. This was the beginning of several lifelong friendships for me with attendees at the meeting. Jan was one of these, and it also included Tom Merigan from Stanford, and the DeMayers, later from Paris.

History of Kanazawa

http://www.kanazawa-tourism.com/eng/info/info2.php

The name Kanazawa, which literally means marsh of gold, is said to be originated from a legend that the peasant Imohori Togoro washed gold dust in a local marsh. It is also said that the name is originated from the fact that the present Kenrokuen Garden area was called Kanazawago and Kanazawanosho in ancient times.

Around the middle of the 16th century, the Buddhist Ikko sect set up a religious government in Kanazawa. In 1583, Maeda Toshiie, the top retainer of Hideyoshi Toyotomi who reigned over the whole country, entered Kanazawa Castle. The Maeda family governed Kaga (presently Ishikawa prefecture) for 300 years over the 14th generation henceforth.

During this period, the Maeda family was treated as the second greatest daimyo (powerful feudal ruler) next to Tokugawa Shogun (the central governor). The family's financial power based on the harvest of rice was invested in the promotion of culture and learning. This led to the development of a number of traditional high cultures and activities including handicrafts (e.g., Kanazawa gold leaf and Kaga Yuzen), subtle and profound activities (e.g., the tea ceremony and Noh theater), and gastronomic cultures (e.g., Kaga cooking and Japanese sweets). These cultures and activities have been handed down to this date.

During the modernization of Japan in the Meiji period (from 1868), Kanazawa was left behind the industrial development of Tokyo, Osaka, and Nagoya. Therefore, Kanazawa changed from a leading big city in Japan to a base city in the Hokuriku district. Kanazawa escaped war devastation in World War II. Therefore, historical streets coexist with a development zone including modernistic buildings in the city area.

City of Crafts and Folk Art

UNESCO appointed Kanazawa to the Creative Cities Network in June 2009. UNESCO launched the Network to promote the international cooperation and exchange of each city in the world that develops creative and cultural industries.

The Network has seven categories, i.e., Cities of Crafts and Folk Art, Design, Film, Gastronomy, Literature, Music, and Media Arts, and Kanazawa was appointed UNESCO City of Crafts and Folk Art.

Craft Tourism

Traditional craft techniques have been handed down since the feudal age, and creative activities are flourishing in Kanazawa. The city's craft tourism includes visits to traditional craft workshops and creating your own craft. We recommend that you try out Kanazawa's traditional arts and crafts during your stay in Kanazawa.

MEMBERS IN THE NEWS

Yasmine Belkaid was elected into the National Academy of Sciences and received the International Mid-career Award - Prix Sanofi - Institut Pasteur 2016 award

Nancy Reich was elected into the American Academy of Microbiology

Richard Locksley Locksley was elected into the National Academy of Sciences and the American Academy of Microbiology

Robert D. Schreiber has been named a co-recipient of the Balzan Prize for his groundbreaking work in immunology and melanoma research. The award is meant to "foster culture, the sciences and the most meritorious initiatives in the cause of humanity, peace and fraternity among peoples throughout the world," according to the International Balzan Prize Foundation.

Michaela Gack, Ph.D. received the **2017 Vilcek Prize for Creative Promise in Biomedical Science** in recognition of immigrant scientists — 38 years of age or younger — who have demonstrated evidence of creative promise with their scientific work in the United States.

Jean-Laurent Casanova receives the AAI-Steinman Award for Human Immunology Research

FESTSCHRIFT FOR PROFESSOR BRYAN WILLIAMS (HON) FRSNZ, FAA

Saturday, November 4th, 2017.

On behalf of the Hudson Institute of Medical Research and Monash University, we have organized a Festschrift (Festschrift is a book honoring a respected person, especially an academic, and presented during their lifetime) to honour the scientific career of Professor Bryan Williams (Hon) FRSNZ, FAA. The objective is to celebrate Bryan's contributions to science, from his student days in New Zealand, through postdoctoral years in the UK to eminent leadership positions in Toronto and Cleveland, and his directorship of the Monash Institute of Medical Research, now the Hudson Institute. As part of this celebration, there will be a one day scientific symposium and associated events.

On behalf of the Institute; Professor Paul Hertzog, Dr Anthony Sadler and Associate Professor Ashley Mansell

Developmental Studies Hybridoma Bank

The DSHB remains alive and healthy, but there is a problem with which you may be able to help. It concerns a particularly large collection of monoclonal antibodies (mAbs) newly developed, that are being neglected by the scientific community. We have now received 1,529 mAbs against 739 targets from the Protein Capture Reagents Program (PCRP), funded by the NIH Common Fund. In the past calendar year, we received 312 new ones. The majority of targets of these new mAbs (75%) are related to the regulation of transcription, but also includes the Mediator complex and cofactors, histone modifiers, DNA methylation, ubiquitination, mitosis, kinases and others. The PCRP hybridomas were generated using full length and/or protein domain recombinant human proteins as immunogens. The expenses the NIH incurred generating these hybridomas and the expenses incurred by the DSHB, which is self-funded (i.e., receives no funds from NIH), for banking and preparing them for distribution, are extensive. Moreover, future usage will encourage more NIH-sponsored initiatives generating mAbs of high quality. The collection can be accessed here.

Sincerely yours,

David R. Soll
Roy J. and Lucille Carver/Emil Witschi Professor of Biology
Director, Developmental Studies Hybridoma Bank, an NIH National Resource
Director, Monoclonal Antibody Research Institute
Director, W.M. Keck Dynamic Image Analysis Facility
University of Iowa
Department of Biology
Iowa City, IA 52242-1324
Phone: 319 335-1117
Fax: 319 335-2772
Email:david-soll@uiowa.edu
http://dshb.biology.uiowa.edu

Attention Student-Postdoc Members (or anyone under the age of 40!!!)

The Society needs your help promoting and better utilizing our Social Media platforms, Twitter, Facebook and LinkedIn. Anyone who contributes at least 10 discussions will receive a complimentary membership. That means, if your postdoc position becomes an assistant professor position, or you secure a position in a company following your postdoc work, you will receive a full membership for one year. Please visit the links on the Society's website, like us, share and if you're interested in becoming an ADMIN on the LinkedIn Group, contact the Society Office. Your activity as an ICIS member is one of the best opportunities you have to develop your professional network and jumpstart your career in science.

The Council and Officers of the ICIS want to confirm that **the Society is open to all scientists,** from any country, whose research and interests involve the field of cytokine research. The ICIS is an **anti-discriminatory, anti-oppressive and equality oriented organization**. We strive to encourage worldwide scientific interactions and collaborations. Scientific research must be open to the world if we are to **better human health and conquer disease**.

ICIS at FOCIS by Curt Horvath

On June 14, 2017, the ICIS sponsored a Member Society Symposium at the annual Federation of Clinical Immunology Society meeting (FOCIS 2017). The symposium was titled "Cytokines and Interferons in Basic and Clinical Immunology: Reports from the International Cytokine & Interferon Society (ICIS)" and showcased the research of several members and their laboratories. This symposium contained a representative group of research presentations from basic research to clinical application. The primary goal was to help our members spread their research findings to the diverse FOCIS conference and generate more exposure for ICIS among its participants. The Symposium was organized and chaired by Curt Horvath, from Northwestern University, in Evanston IL, with administrative support from ICIS Managing Director Joan Oefner. The symposium objectives, to understand the roles of cytokines and interferons in basic and applied research, to create a greater appreciation of the researchers who belong to ICIS, and to illustrate a variety of molecular and immunological approaches to investigate signal transduction and gene expression in innate and adaptive immune responses mediated by cytokines and interferons, were achieved through a terrific group of presentations and lively discussion.

After a brief chair's introduction to the ICIS, Dr. Kouji Matsushima from University of Tokyo started off the opening half on cytokines in clinical application, and presented on clinical development of cancer immuno-therapeutics targeting chemokine receptors and T cells. As the primary organizer of the 2017 ICIS annual meeting, he also gave a description of the Kanazawa meeting and invited participants to join us in Japan. Dr. Misty Good, from Washington University School of Medicine, followed with an update on the challenges to treatment and diagnosis of necrotizing enterocolitis, and her lab's research on the pro-inflammatory cytokine response in experimental NEC models. Dr. Rachel R. Caspi from the NIH next discussed the roles for Th17 cells in inflammation and autoimmunity, demonstrating the importance of diverse cytokine pathways to modulate the Th17 response.

The remaining talks focused on more basic research topics, elucidating distinct roles for interferons in innate and adaptive responses. A Chicago crosstown classic was initiated by Dr. Horvath (north sider) presenting his lab's work on chromatin and histone regulation in type I IFN signaling during innate antiviral responses, while Dr. Anthony T. Reder from University of Chicago (south sider) gave a thoughtful comparison of the distinct roles of IFNs in two human diseases, multiple sclerosis (MS) and systemic lupus erythematosus (SLE). Dr. Mark R. Walter from University of Alabama at Birmingham stayed on the topic of IFN signaling, presenting structural biology perspectives on IFN receptor binding to any of 17 type I IFNs using tetramers to analyze each distinct complex. The session was brought to a close by Dr. Yuxin Wang from the Cleveland Clinic Foundation, who presented his work on negative regulation of type I IFN signaling by a novel phosphorylation event on STAT2 T387, a modification essential for IFN antiviral activity and growth regulation. Overall, the ICIS symposium at FOCIS was a great success.