

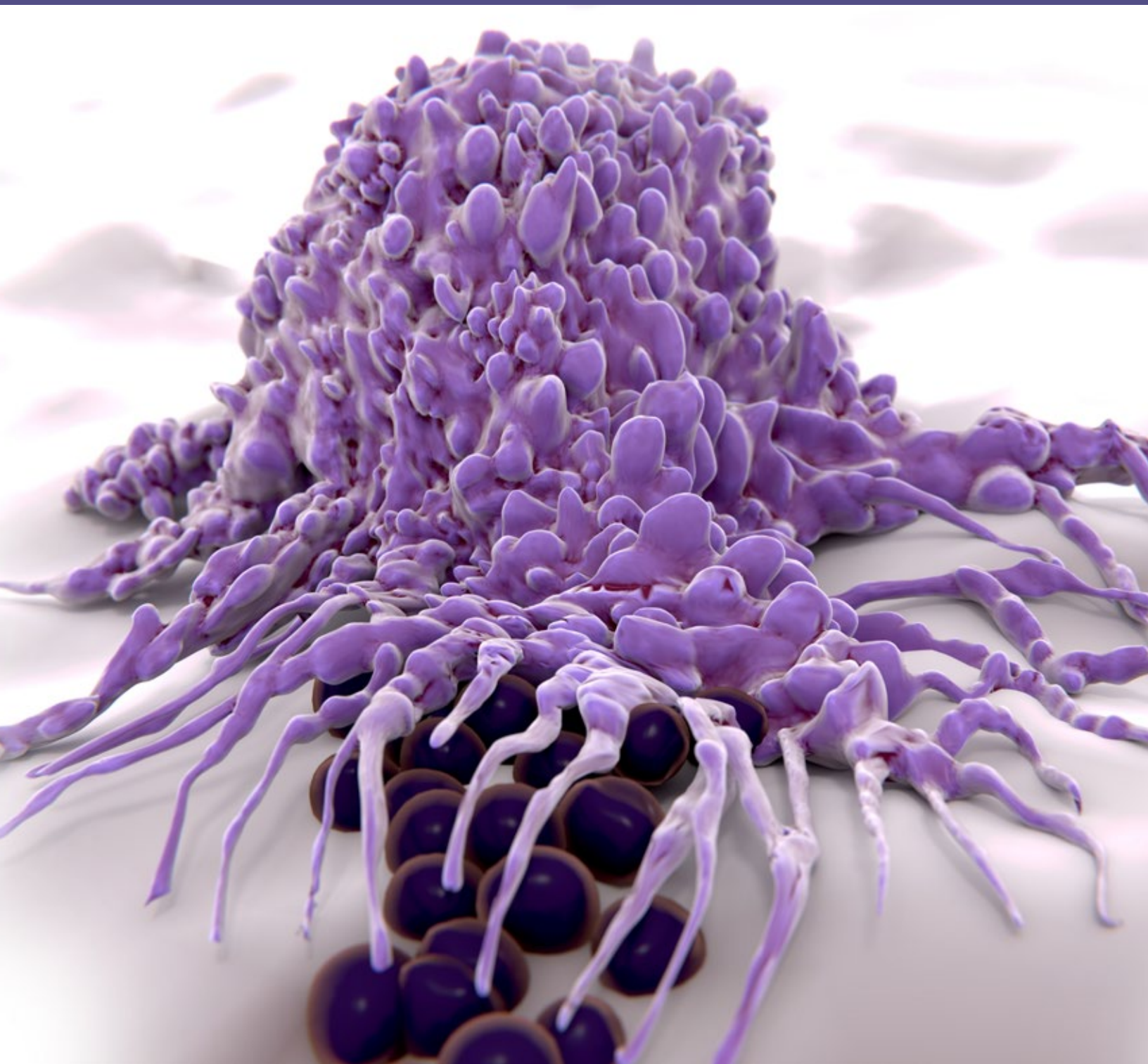
10th Annual

Center for Human Immunology Symposium

October 27, 2016 • Blood Research Institute • Milwaukee, WI

Host Defense


BLOODCENTER
of WISCONSIN™
PART OF VERSITI



BloodCenter and Blood Research Institute: Discovery, Diagnosis, Treatment and Cure

A Brief History

BloodCenter of Wisconsin (BCW) is a private, not-for-profit organization that provides blood, blood products, and specialized transfusion medicine services to hospitals in Wisconsin, Michigan, northern Illinois, and parts of Indiana. A commitment to pursue research and advance the understanding of blood and blood transfusions was written into the articles of incorporation by visionary members of the board of directors when BCW was founded. The current mission statement calls for BCW to “advance patient care by providing life-saving solutions grounded in unparalleled medical and scientific expertise.”

The Junior League of Milwaukee founded the Junior League Blood Center in 1947 as a community blood bank with five paid staff and 70 regular volunteers. In its near 70 years of operation, the organization’s name has changed three times and it now employs over 1,000 people; showcasing the growth of BCW’s services. An active research focus was initiated in the early 1950s, and shortly thereafter the first federal grant was received. With the success of lifesaving discoveries, increased research funding and committed scientific staff, BCW built the Blood Research Institute (BRI) on the grounds of the Milwaukee Regional Medical Center in 1991.

Over the years, the contributions of BCW investigators have made a lasting impact on the fields of Transfusion Medicine, Immunology and Vascular Biology. We are proud of the fact that, despite the national lack of NIH funded physician-researchers, 12 of our 27 investigators are physicians. Research at BCW extends from basic cellular, molecular and genetic studies, to participation in NIH clinical trial networks such as the Recipient Epidemiology and Donor Evaluation Study (REDS) III, the Transfusion Medicine-Hemostasis (TMH) Clinical Trials Network and the Center for Human Immunology. Research activities are also strengthened by physical proximity of the BRI to the immediately adjacent Medical College of Wisconsin (MCW) and Children’s Hospital of Wisconsin (CHW). BRI investigators hold faculty appointments at MCW and participate actively in the teaching, mentoring and research activities.

Center for Human Immunology: Advancing, Accelerating and Promoting

This year, the Center for Human Immunology at the Blood Research Institute (BRI) is celebrating its 10 year anniversary under the leadership of Dr. Jack Gorski, Senior Investigator at BRI. Its mission is to improve human health by advancing the basic understanding of the human immune system by accelerating the transition of discoveries from murine studies to clinical practice, and by promoting interactions between regional immunologists and leading experts.

To promote the interaction between regional immunologists and the leading experts, the Center for Human Immunology has been sponsoring an Annual Symposium on Human Immunology. The topics of the symposia are either directly related to analysis of the human immune system or cover important areas of study with direct ramifications for human health and disease.

This year’s 10th Annual Symposium on Human Immunology is organized with the generous financial support from the BloodCenter Research Foundation and the Joan and Fred Brengel Family Foundation and other sponsors.



Host Defense

Schedule

8:30 - 9:00 AM	Registration	
9:00 - 9:05 AM	Welcome	Jack Gorski, PhD Immunology Symposium Co-Chair
9:05 - 9:10 AM	Opening Remarks	Jackie Fredrick CEO and President, Versiti and BloodCenter of Wisconsin
9:10 - 9:55 AM	Speaker Introduction by Eric Darrah Graduate Student, MCW	Ronald Germain, MD, PhD National Institutes of Health Imaging immunity: creating a spatiotemporal understanding of host defense
9:55 - 10:10 AM	Coffee Break	Visit our sponsors
10:10 - 10:55 AM	Speaker Introduction by Ahmed Al-Muhairi Graduate Student, MCW	Vera Tarakanova, PhD Medical College of Wisconsin Interferon regulatory factor 1: a B cell brake in gammaherpesvirus infection
10:55 - 11:40 AM	Speaker Introduction by Ismael Banla Graduate Student, MCW	Patrick Wilson, PhD The University of Chicago Human immune memory to influenza
11:40 AM - 1:00 PM	Lunch	Visit our sponsors
1:00 - 1:45 PM	Speaker Introduction by Peter Volberding Graduate Student, MCW	David Brooks, PhD University of Toronto Exploiting the underlying mechanisms of immune exhaustion: modulating the environment to fix the parts
1:45 - 2:00 PM	Break	Visit our Sponsors
2:00 - 2:45 PM	Speaker Introduction by Vanessa Yuan Graduate Student, MCW	Jyothi Rengarajan, PhD Emory University Host biomarkers of tuberculosis immunity
2:45 - 3:30 PM	Speaker Introduction by Kate Dixon Graduate Student, MCW	Gabriel Núñez, MD University of Michigan Linking pathogen virulence, host immunity and the microbiota



Featured Speakers 2016



Ronald Germain, MD, PhD

NIH Distinguished Investigator – Chief, Laboratory of Systems Biology and Lymphocyte Biology Section – Acting Chief, Laboratory of Immunology – Associate Director, Trans-NIH Center for Human Immunology – National Institute of Allergy and Infectious Diseases, National Institutes of Health

Ronald N. Germain received his M.D. and Ph.D. from Harvard University in 1976. Since that time he has investigated basic immunobiology, first on the faculty of Harvard Medical School and, since 1982, as the Chief, Lymphocyte Biology Section in the Laboratory of Immunology and now as Chief of the Laboratory of Systems Biology at NIAID, NIH. He and his colleagues have made key contributions to our understanding of MHC class II molecule structure–function relationships, the cell biology of antigen processing, and the molecular basis of T cell recognition. More recently, his laboratory has explored the relationship between immune tissue organization and control of immunity studied using dynamic and static in situ microscopic methods that his laboratory helped pioneer. He has published more than 300 scholarly research papers and reviews. Among numerous honors, he was elected as an Associate (foreign) member of EMBO (2008), elected to the National Academy of Medicine, National Academy of Sciences USA (2013), received the Meritorious Career Award from the American Association of Immunologists (2015), and has been designated an NIH Distinguished Investigator. He serves as an associate or advisory editor for numerous scientific journals including: *J Exp Med*, *eLife*, *Immunity*, and *Nat Sci Rep*. He has trained more than 70 postdoctoral fellows, several of whom hold senior academic and administrative positions at leading universities and medical schools.



Vera Tarakanova, PhD

Associate Professor, Department of Microbiology and Molecular Genetics – Medical College of Wisconsin

Vera Tarakanova is a virologist with a particular interest in cancer-associated viruses. She received her Ph.D. from Saint Louis University with subsequent postdoctoral work at the Washington University in St. Louis. The Tarakanova group focuses on interactions of gammaherpesviruses with host signaling pathways and the potential implications of such virus-host crosstalk on chronic infection and viral lymphomagenesis.

Featured Speakers 2016

Patrick Wilson, PhD

Associate Professor, Department of Medicine, Section of Rheumatology – Knapp Center for Lupus and Immunology Research – University of Chicago

Dr. Patrick Wilson's laboratory studies B cell biology with a particular emphasis on antibody specificity and B cell selection. The two primary interests of his laboratory are: 1) characterizing the human B cell response to infectious diseases such as influenza, and 2) studying the fate, differentiation, and selection of B cells. Dr Wilson began his scientific career under the mentorship of J. Donald Capra and Virginia Pascual at the University of Texas Southwestern Medical Center. As a student, he participated in a key discovery showing that in addition to point mutations, somatic hypermutation can also introduce insertions and deletions into immunoglobulin genes. Dr. Wilson has continued to study B cell differentiation, selection, and the resultant immunoglobulin repertoire for over 20 years. A key tool in his laboratory is the analysis of single B cell specificity by generating recombinant monoclonal antibodies; an approach he developed with two postdoctoral colleagues while working in Dr. Michel Nussenzweig's laboratory at the Rockefeller University. Dr. Wilson's laboratory initially applied these approaches to study B cell tolerance and selection, making discoveries such as identifying an anergic human B cell subset. The Wilson lab refined the use of "expression-cloning" of antigen-specific B cell receptors in humans by targeting activated plasmablasts. This approach allows the rapid generation of vaccine- or infection-induced monoclonal antibodies. It is now being widely used around the world both in academia and in the pharmaceutical industry to study B cell immunity and to develop antibody-based therapeutics. Dr. Wilson's laboratory approaches B cell experiments from the standpoint of "specificity-first." This consists of characterizing B cells by defining what antigens or autoantigens the cells are reactive with. Then various techniques are utilized to understand why a particular vaccine elicits more or less protective antibody responses, or to characterize novel subsets of B cells. The Wilson lab has made important advances in recent years in understanding how a broadly-protective and more durable B cell response can be elicited against influenza. It has also identified novel mechanisms by which the influenza virus or staphylococcus aureus bacteria evade immunity.



David Brooks, PhD

Senior Scientist, Scotiabank Research Chair in Inflammation – Princess Margaret Cancer Center, University Health Network – Associate Professor, Department of Immunology – University of Toronto

Dr. David Brooks is a Senior Scientist and the Scotiabank Research Chair at the Princess Margaret Cancer Center, University Health Network and an Associate Professor in the Department of Immunology, Faculty of Medicine at the University of Toronto. Dr. Brooks received his B.S. from the University of Arizona, PhD with Dr. Jerome Zack at UCLA studying latent HIV infection, and a postdoctoral fellowship at The Scripps Research Institute with Dr. Michael Oldstone studying antiviral immunology. The Brooks laboratory is focused on uncovering and understanding the mechanisms that potentiate dysfunctional immunity during persistent virus infections and cancer; and in particular, the interplay between inflammation and immunosuppression that inhibit control of these diseases. He uses this information to develop therapeutic approaches that restore immune function to fight these diseases.



Featured Speakers 2016



Jyothi Rengarajan, PhD

Assistant Professor, Division of Infectious Diseases and Emory Vaccine Center – Emory University School of Medicine

Jyothi Rengarajan is an Associate Professor in the Department of Medicine, Division of Infectious Diseases at Emory University School of Medicine. Her research program centers on understanding the mechanisms of tuberculosis (TB) pathogenesis and host immunity to infection in animal models and humans. Using a combination of functional genomics, proteomics, microbiologic and immunologic approaches, her group has identified *M. tuberculosis* proteins that dampen innate immune function and impede the development of optimal T cell responses. Ongoing studies including applying insights from these findings towards developing new vaccines and immune-therapeutics for TB. Dr. Rengarajan also conducts translational patient-based research to study human immunity to latent and active TB and to understand how HIV co-infection perturbs latency to drive progression to TB disease. Through U.S.-based and international collaborations, her studies seek to understand protective immunity to TB in humans and to identify biomarkers of latent, active and clinically resolved TB that could improve TB diagnostics and monitoring of anti-TB treatment.



Gabriel Núñez, MD

Paul de Kruijff Endowed Professor, Inflammation and Immunology – Co-Director, Immunology and Host Response Program – Professor, Department of Pathology – University of Michigan School of Medicine

Gabriel Nuñez earned his M.D. degree from the University of Seville, Spain, in 1977. He received postdoctoral training in Immunology at the University of Texas Southwestern Medical Center, Dallas (1979–1984) and residency training in Anatomical Pathology at Washington University in St Louis (1985–1990). In 1987, he joined the laboratory of Stanley Korsmeyer at Washington University, where he studied the function of the anti-apoptotic protein BCL-2. In 1991, he joined the Department of Pathology at the University of Michigan in Ann Arbor as an Assistant Professor and was promoted to full Professor in 2001. He holds the Paul de Kruijff Endowed Professorship in Academic Pathology. He is also the Co-Director of the Immunology and Host Response Program at the University of Michigan Comprehensive Cancer Center. His laboratory identified NOD1 and NOD2, the first members of the Nod-like receptor (NLR) family, a class of pattern-recognition receptors that mediate cytosolic sensing of microbial organisms. Dr. Nuñez and colleagues showed that genetic variation in a NLR family member, NOD2, is strongly associated with susceptibility to Crohn's disease. Currently, the Nuñez laboratory is interested in signaling pathways regulating innate immunity, the pathogenesis of inflammatory disease and the role of the microbiota in host defense and colitis. Dr. Nuñez is the author of more than 375 scientific publications.

Topics and Speakers of our Past Symposia

2007 – Human Immunology

Bill Kwok, PhD, Benaroya Research Institute at Virginia Mason
Martin Hessner, PhD, Medical College of Wisconsin
Karolina Palucka, MD, PhD, Baylor University
Jorg Goronzy, MD, PhD, Emory University School of Medicine
Elena Naumova, PhD, Tufts University School of Medicine
David D. Eckels, PhD, University of Utah School of Medicine

2008 – Integrating Hemostasis and Immunity

Charles Esmon, PhD, University of Oklahoma Health Sciences Center
May Han, MD, Stanford University
Jay L. Degen, PhD, University of Cincinnati College of Medicine
Hartmut Weiler, PhD, BloodCenter of Wisconsin

2009 – Immune Memory

Rafi Ahmed, PhD, Emory University
Ignacio Sanz, MD, University of Rochester
Jack Gorski, PhD, BloodCenter of Wisconsin
Anne West, MD, PhD, Duke University Medical Center

2010 – Systems and Computational Immunology

Tim R. Mosmann, PhD, University of Rochester
Greg E. Lemke, PhD, Salk Institute
Steven H. Kleinstein, PhD, Yale University School of Medicine
Elena Naumova, PhD, Tufts University School of Medicine

2011 – Innate Immunity

David Raulet, PhD, University of California-Berkeley

Alejandro Aballay, PhD, Duke University
Thirumala-Devi Kanneganti, PhD, St. Jude Children's Research Hospital
Subramaniam Malarkannan, PhD, BloodCenter of Wisconsin
Dan Wu, PhD, Yale University, School of Medicine
Wendy Havran, PhD, The Scripps Research Institute

2012 – Interactions Between the Immune and Nervous Systems

Keith Kelley, PhD, University of Illinois
Alan Lomax, PhD, Queen's University
Katherine Held, PhD, Allergan
Bonnie Dittel, PhD, BloodCenter of Wisconsin
Jeannette Marketon, PhD, The Wexner Medical Center
Cecelia Hillard, PhD, Medical College of Wisconsin

2013 – Cellular Immunotherapy & Hematopoietic Stem Cells

Stuart Orkin, PhD, Harvard Medical School
Stanley Riddell, MD, University of Washington School of Medicine
Crystal Mackall, MD, National Cancer Institute
Linheng Li, PhD, University of Kansas School of Medicine
Pramod Srivastava, PhD, University of Connecticut

2014 – Immune Cell: Genome, Transcriptome & Signalsome

Ellen Robey, PhD, University of California – Berkeley
David Rawlings, MD, University of Washington
Harvey Lodish, PhD, Massachusetts Institute of Technology
Anjana Rao, PhD, La Jolla Institute for Allergy and Immunology
Cornelis Murre, PhD, University of California – San Diego

2015 – The Impact of the Microbiome on Immunity

Alexander Chervonsky, MD, PhD, The University of Chicago
Duane Wesemann, MD, PhD, Harvard Medical School
Cathryn Nagler, PhD, The University of Chicago
Veena Taneja, PhD, Mayo Clinic
Christian Jobin, PhD, University of Florida
Nita Salzman, MD, PhD, Medical College of Wisconsin

2016 Organizing Committee

Bonnie Dittel, PhD – Co-Chair, 10th CHIS
Renren Wen, PhD – Co-Chair, 10th CHIS
Jack Gorski, PhD – Co-Chair 10th CHIS
Jenny Wojtysiak – Co-Event Manager
Cate Halvorsen – Co-Event Manager
Sandra Lakric – Co-Event Manager
Kathy Krueger – Graphic Design

Thank you to our sponsors

A special thank you for the generous support from our sponsors who made this educational program possible.

Joan and Fred Brengel Family Foundation
BloodCenter Research Foundation

