

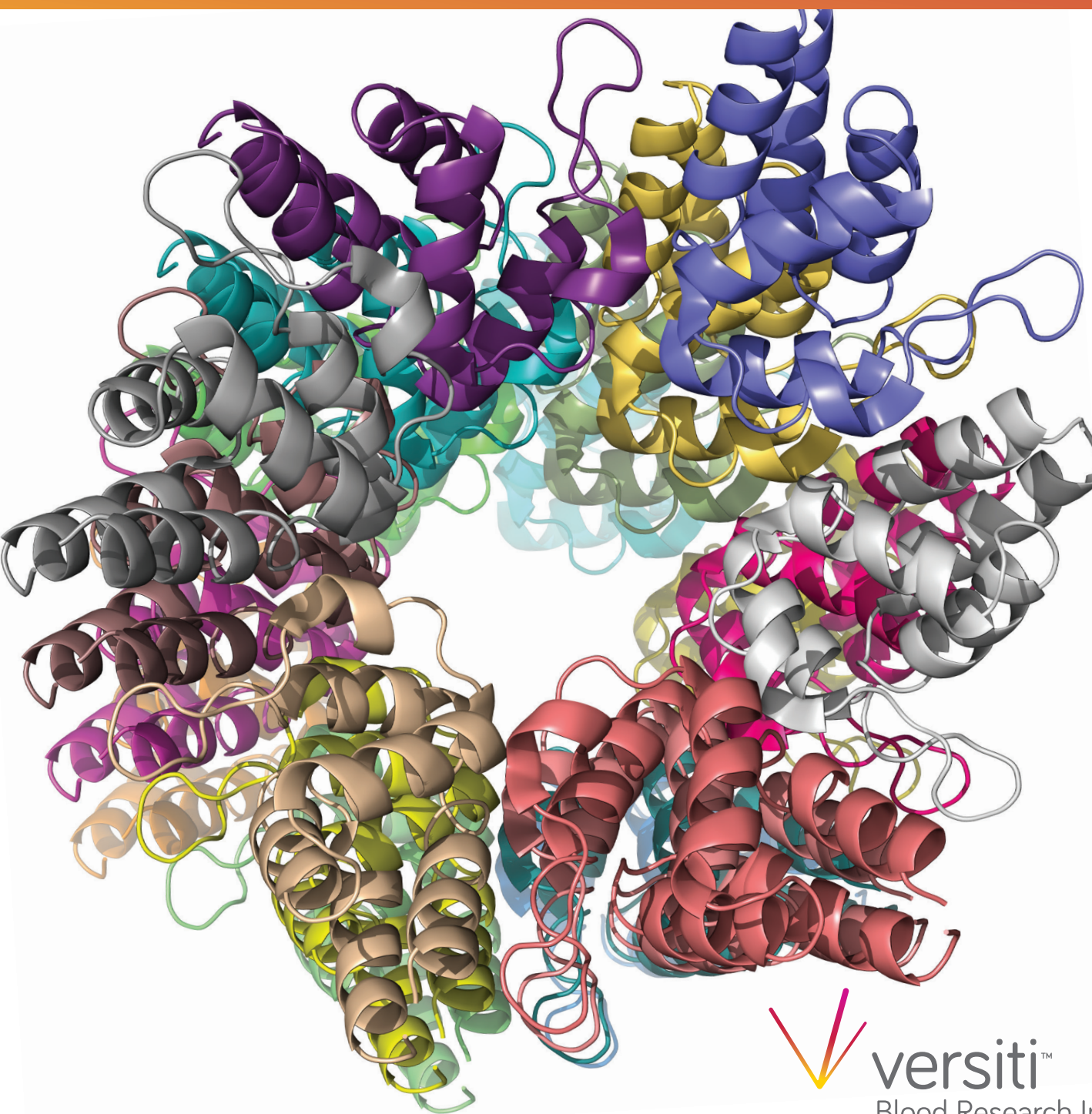
13th Annual

Immunology Symposium

Pathogen Recognition in Innate Immunity

October 30, 2019 • Blood Research Institute, Versiti

8733 W. Watertown Plank Rd., Milwaukee, WI 53226



versiti™

Blood Research Institute

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

Versiti Wisconsin (formerly known as BloodCenter of Wisconsin) is a private, not-for-profit organization that provides blood, blood products, and specialized transfusion medicine services to hospitals throughout the Midwest. 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 it was founded. Research at Versiti is predominantly carried out at The Blood Research Institute (BRI) which is on the grounds of the Milwaukee Regional Medical Center in 1991. Over the years, the contributions of BRI investigators have made a lasting impact on the fields of Transfusion Medicine, Vascular Biology, Stem Cell Biology and Immunology.

Research at the BRI 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 and the Transfusion Medicine-Hemostasis (TMH) Clinical Trials Network. Research activities are also strengthened by physical proximity of the BRI to the Medical College of Wisconsin (MCW), Froedtert Hospital, and Children's Hospital of Wisconsin (CHW). BRI investigators hold faculty appointments at MCW and participate actively in their teaching, mentoring and research activities.

Immunology Then and Now

Immunology in the form of immunohematology was a key component of the activity of the early "Milwaukee Blood Center," which eventually became Versiti. The discovery of the role of human leukocyte antigens (HLA) on platelets in transfusion led to HLA typing to match platelet donors. This led to Versiti Blood Center being selected as the national depository for rare bone marrow donor types, which evolved into the National Marrow Donor program. In 1979, Versiti Blood Center investigators discovered a new HLA histocompatibility system, now known as HLA-DQ. With its expertise in HLA, Versiti Blood Center was able to facilitate the first unrelated bone marrow transplant in 1981. It was an early adopter of T- cell typing and was one of the first institutions in the U.S. to implement molecular genetic-based HLA typing. Today's Versiti continues to provide expanded HLA typing using high-throughput DNA sequencing.

Immunologists at the BRI currently conduct cutting-edge research in cancer, infectious disease and autoimmunity. Investigators are developing new methods for eradicating cancer by using novel immunotherapies. In infectious disease, the work by BRI immunologists studying how the immune system recognizes and responds to viruses is opening new avenues for the treatment and prevention of viral infections. Studies in autoimmunity include how B and T lymphocytes contribute to and regulate autoimmunity.

The immunology community at BRI/MCW is well organized and in addition to the yearly Immunology Symposium, now in its 13th year, offers a variety of training opportunities. These include both pre-doctoral graduate courses and advanced training in clinical immunology. The immunology faculty also facilitate a weekly journal club, a weekly work-in-progress and a yearly internal conference/retreat.

The strength of and leading role of Immunology on the Medical College campus has led to the founding of the Center for Immunology, which is dedicated to helping translate our understanding of basic research to problems faced by Medical College physicians.

Pathogen Recognition in Innate Immunity

8:30 - 9:00 am	Registration	
9:00 - 9:05 am	Welcome	Chris Miskel President and CEO, Versiti
9:05 - 9:10 am	Opening Remarks	Jack Gorski, PhD Senior Investigator, Blood Research Institute, Versiti
9:10 - 9:55 am	Speaker Introduction by Savannah Neu Graduate Student, MCW	Marco Colonna, MD Washington University School of Medicine <i>Innate Lymphoid Cells in Mucosal Immunity</i>
9:55 - 10:20 am	Coffee Break	Visit our sponsors
10:20 - 11:05 am	Speaker Introduction by Paul Sylvester Graduate Student, MCW	Jyotika Sharma, PhD University of North Dakota <i>Neutrophil Extracellular Traps: Formation and Therapeutic Implications</i>
11:05 - 11:50 am	Speaker Introduction by Christine Nguyen Graduate Student, MCW	Egil Lien, PhD University of Massachusetts Medical School <i>Pathogen Manipulation of Innate Immunity – Implications on Signaling and Cell Death</i>
11:50 am - 1:10 pm	Lunch	Vendor Workshops presented by PerkinElmer and 10x Genomics/BioLegend (occur simultaneously)
1:10 - 1:55 pm	Speaker Introduction by Kevin Jennings Graduate Student, MCW	Sun Hur, PhD Harvard Medical School, Boston Children's Hospital <i>RIG-I-like Receptors and Inflammation</i>
1:55 - 2:20 pm	Break	Visit our Sponsors
2:20 - 3:05 pm	Speaker Introduction by Paytsar Topchyan Graduate Student, MCW	Suzanne Cassel, MD Cedars-Sinai Medical Center <i>NLRC4 Regulation of the Anti-Influenza Immune Response</i>
3:05 - 3:50 pm	Speaker Introduction by Mahmoud Abu Eid Graduate Student, MCW	Jenifer Coburn, PhD Medical College of Wisconsin <i>Spirochetes Stealthily Sneak Around Innate Immunity</i>

Featured Speakers 2019



Marco Colonna, MD

Robert Rock Belliveau, MD Professor of Pathology; Professor of Pathology & Immunology, Professor of Medicine, Washington University School of Medicine

Dr. Marco Colonna was born in Parma, Italy. He received his medical degree from the School of Medicine at Parma University in 1983 and completed his specialization in Internal Medicine at Parma University in 1988. Dr. Colonna began his postdoctoral training as a Research Fellow at the Istituto Nazionale per la Ricerca sul Cancro in Genova, Italy, followed by work as a Research Fellow in Pathology at Dana Farber Cancer Institute and Harvard Medical School. He then became a scientific member of the Basel Institute for Immunology in Basel, Switzerland, a leading center for collaborative immunology research that helped to lay the groundwork for our understanding of immunology. Since 2001 he has been a Professor of Pathology & Immunology and Medicine at Washington University School of Medicine in St. Louis, MO.

Dr. Colonna's laboratory is broadly interested in innate immunity. His team has discovered Triggering receptors expressed on myeloid cells (TREM), cell surface receptors encoded on human chromosome 6 that are differentially expressed on granulocytes, dendritic cells, macrophages and osteoclasts and regulate their functions. Human deficiency in TREM2 or the associated signaling adaptor DAP12 causes a progressive, early onset dementia known as Nasu-Hakola disease. Recently, a TREM2 polymorphism was implicated as a genetic risk for Alzheimer's disease (AD). Dr. Colonna's laboratory is currently exploring the capacity of TREM2 to promote microglial cell function and how TREM2 allelic variants result in susceptibility to AD.



Sun Hur, PhD

Associate Professor of Biological Chemistry and Molecular Pharmacology, Associate Professor of Pediatrics, Harvard Medical School; Investigator, Program in Cellular & Molecular Medicine, Boston Children's Hospital

Dr. Hur received her BS in physics from Ewha Women's University in Korea in 2001, PhD in physical chemistry with Dr. Thomas C. Bruice at the University of California, Santa Barbara in 2003, and post-doctoral training in X-ray crystallography with Dr. Robert M. Stroud at the University of California, San Francisco. Dr. Hur joined Harvard Medical School in 2008 as an assistant professor in Department of Biological Chemistry and Molecular Pharmacology. In 2014, she was promoted to an associate professor with a joint appointment at Boston Children's Hospital. Dr. Hur is a recipient of the 2009 Massachusetts Life Sciences Young Investigator Award, the 2010 Pew Scholar Award, the 2015 Vilcek Prize for Creative Promise in Biomedical Science and the 2015 Burroughs Wellcome Infectious Disease Investigator Award. She is currently the Judy Lieberman Chair in Structural Biology, Boston Children's Hospital. Her research focuses on structural and biochemical mechanisms of foreign nucleic acid sensing and transcription factors in the vertebrate immune system. Her approach ranges from biophysical and biochemical characterization of in vitro reconstituted immune molecules, to cellular imaging and bioinformatics analysis of cellular transcriptome.

Featured Speakers 2019

Jyotika Sharma, PhD

Associate Professor of Biomedical Sciences, University of North Dakota School of Medicine & Health Sciences

Dr. Jyotika Sharma is an Associate Professor in the Department of Biomedical Sciences and the Director of the NIH Center of Biomedical Research Excellence (COBRE) in HostPathogen Interaction at the University of North Dakota School of Medicine and Health Sciences. She obtained her PhD in Microbiology from Kanpur University, India and her postdoctoral training at University of Texas. She joined University of North Dakota as tenure track Assistant Professor in 2011 and was promoted to Associate Professor (with tenure) in 2016 based on her outstanding research and scholarly contributions. The current research focus of Sharma laboratory is to elucidate the role of myeloid cells in regulating airway inflammation, with a long-term goal of identifying novel targets for therapeutic interventions of inflammatory immune disorders such as sepsis, pneumonia, Chronic Obstructive Pulmonary Disease (COPD) and Chronic Granulomatous Disease (CGD). Supported by continuous funding from NIH, Sharma laboratory is investigating the mechanisms of neutrophil extracellular trap (NET) formation, and neutrophil turnover by efferocytosis and granulopoiesis in these diseases. In addition to utilizing murine models of pneumonia, sepsis, CGD and cigarette smoke induced COPD for this research, Dr. Sharma collaborates with clinicians at NIH Clinical Center and at Altru Hospital, Grand Forks to translate the findings in a well characterized cohort of CGD patients; term and pre-term neonatal and adult septic patients. With these highly translational studies, Sharma group has made significant contribution toward understanding the role of innate immune receptors called C-type lectin receptors (CLRs), calcium channel proteins; and autophagy pathway in controlling these specific neutrophil functions, that can have implications in a wide array of infectious and sterile inflammatory diseases.



Egil Lien, PhD

Professor of Medicine, Professor of Molecular Genetics and Microbiology, University of Massachusetts Medical School

The laboratory of Egil Lien studies innate immune responses mainly to bacterial pathogens, although there is also an interest in non-infectious inflammation. A key focus is evasion mechanisms bacteria can employ to manipulate innate immune responses, and counter-measures from the host. Central model systems are Yersinia and Salmonella bacteria, and the goal is to better understand how they interact with innate signaling components such as inflammasomes, caspases, gasdermins and TLRs.



Featured Speakers 2019



Suzanne Cassel, MD

Associate Professor and Director, Allergy Medicine, Cedars-Sinai Medical Center

Suzanne Cassel, MD is an Associate Professor and Director of Allergy Medicine at Cedars-Sinai Medical Center in Los Angeles, California. Dr. Cassel earned her bachelor's degree from Reed College and her MD from Temple University. She then completed her Internal Medicine residency and Allergy and Clinical Immunology fellowship training at Yale University. Prior to joining Cedars-Sinai, Dr. Cassel was an Assistant Professor at the University of Iowa. Dr. Cassel's research focuses on innate immunology and in particular the NLR family of pattern recognition receptors. Her primary research questions are to delineate the precise pathways by which NLR family members are activated by both sterile and infectious insults and how that activation results in appropriate and inappropriate innate and adaptive immune responses. In particular, their work has provided insight into the functional role and mechanism of activation of the NLRP3 inflammasome, a multiprotein complex that drives the activation of caspase-1 while more recent studies have focused on inflammasome-independent functions of NLR family members.



Jenifer Coburn, PhD

Professor of Medicine, Division of Infectious Diseases, Center for Infectious Disease Research, Medical College of Wisconsin

Jenifer Coburn earned her BA and MA in biology from Boston University, and her PhD in Molecular Microbiology at Tufts University in Boston, MA. Coburn lab research interests focus on pathogenic spirochetes, a group of bacteria that can cause persistent, disseminated infections in immunocompetent animals, including humans. Dr. Coburn's lab is currently working with *Borrelia burgdorferi*, which is maintained in a tick-animal cycle in nature. The lab also works with another pathogenic spirochete, *Leptospira interrogans*. Leptospire are maintained in infected animals in nature but can also survive in water and mud. The focus of their work with both *Borrelia* and *Leptospira* is to identify and then test the biologic significance of bacterial proteins that help the bacteria bind to mammalian cell surface receptors, to identify the mammalian cell surface receptors recognized by the bacteria, and ultimately the biological and pathologic significance of the bacterial-mammalian receptor interaction. In the course of their work with *Borrelia*, they found that several bacterial proteins are multifunctional, and not only mediate attachment to cell surface receptors, but also contribute to defense against innate immunity. Dr. Coburn's lab is working to better understand the mechanisms and structure-function relationships of these different activities.

Topics and Speakers of our Past Symposia

2007 – Human Immunology

2008 – Integrating Hemostasis and Immunity

2009 – Immune Memory

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 – Host Defense

Ronald Germain, MD, PhD,
National Institutes of Health

Vera Tarakanova, PhD,
Medical College of Wisconsin

Patrick Wilson, PhD,
The University of Chicago

David Brooks, PhD,
University of Toronto

Jyothi Rengarajan, PhD,
Emory University

Gabriel Núñez, MD,
University of Michigan

2017 – Immunology in Precision Medicine

Mark M. Davis, PhD,
Stanford University School of
Medicine

Ming Li, PhD,
Memorial Sloan Kettering Cancer
Center

Edward M. Behrens, MD,
Perelman School of Medicine at
University of Pennsylvania

Yi-Guang Chen, PhD,
Medical College of Wisconsin

Gail Bishop, PhD,
University of Iowa

Arup Chakraborty, PhD,
Massachusetts Institute of
Technology

2018 – B Cells and Broadly Neutralizing Antibodies

Frederick Alt, PhD,
Harvard Medical School

James Crowe, MD,
Vanderbilt University School of
Medicine

Betty Diamond, MD,
Feinstein Institute for Medical
Research

Gary J. Nabel, MD, PhD,
Sanofi

William Schief, PhD,
The Scripps Research Institute

Demin Wang, PhD,
BloodCenter of Wisconsin,
Part of Versiti

2019 Organizing Committee

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Bonnie Dittel, PhD Co-Chair

Jack Gorski, PhD Co-Chair

Jenny Wojtysiak Co-Event Manager

Christina Daniels Co-Event Manager

Sandy Lakric Co-Event Manager

Kathy Krueger Graphic Design

Thank You To Our Sponsors

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Joan and Fred Brengel Family Foundation

