2018 was another strong year for research. Grant revenues for the year were $16.1 M, another record for us and exceeding our 2018 budget by $1 M. New NIH R-type grants or competitive renewals were obtained by Bob Montgomery and by Sandy Haberichter. Peter Newman successfully competed for a $6.9 M 7-year R35 Career award from NHLBI. Karin Hoffmeister received a new $4.8 M K12 award in Glycobiology, one of four in the US together with Johns Hopkins, Harvard, and UCSD. Gil White is the PI on a new $1.5 M OT2 consortium grant from NIH that is part of the NIH Precision Medicine Initiative. A new F-type award went to Puja Agrawal in Sid Rao’s lab. Altogether, there were 11 new NIH grants in 2018 that totaled $17.5 M. Nan Zhu received the second R. Douglas Ziegler Innovation Award for her work related to the pathogenesis of acute myelogenous leukemia. Matt Karafin, Josh Field, Peter Newman, Karin Hoffmeister, and Subra Malarkannan received funding for Versiti Moonshot projects.

John Pulikkan joined the faculty as Associate Investigator in the stem cell group. John came from the University of Massachusetts Medical School from the lab of Lucio Castilla, a former scholar of the Leukemia and Lymphoma Society. His research focuses on chromatin dynamics and understanding the regulatory pathways that are deregulated in hematopoietic stem and progenitor cells in acute myeloid leukemia in order to better understand the development of leukemia. His overall goal is to develop novel therapeutic strategies for the treatment of leukemia. Jieqing Zhu and Yan Qing Ma were promoted to Investigator. Lisa Baumann-Kreuziger, Lynn Malec, and Matt Karafin were promoted to Associate Investigator. Jorge DiPaola of the University of Colorado, David Lillicrap and Paula James from Queens University in Kingston, Canada, James O’Donnell from the Royal College of Surgeons of Ireland, and Amy Shapiro from the Indiana Hemophilia and Thrombosis Center in Indianapolis were appointed as adjunct Senior Investigators at the BRI.

Individual accomplishments during the year were numerous. We celebrated Hardy Weiler’s and Pam Christopherson’s 20th year with the organization. Alan Mast chaired the 2018 Hemostasis Gordon Conference. Irene Hernandez in Hardy Weiler’s lab received Excellence in Action recognition from Versiti. Dick Aster received the BizTimes Media Health Care Heroes Lifetime Achievement Award, recognizing his advancements in transfusion medicine. Karin Hoffmeister chaired the Megakaryocyte and Platelet Scientific Committee and the Committee Program at the annual meeting of the American Society of Hematology (ASH). Hervé Falet also serves on the Megakaryocyte and Platelet Scientific Committee. Peter Newman serves on the Investment and Audit Committee of ASH. Alan Mast, Karin Hoffmeister, Magda Chrzanowska, Debra Newman, Roy Silverstein and Bob Montgomery continue to serve on NIH review panels. Peter Newman continues to serve as Associate Editor of Arteriosclerosis, Thrombosis, and Vascular Biology (ATVB). Hardy
Weiler and Roy Silverstein serve on the ATVB Editorial Board. Alan Mast is a new Associate Editor of the Journal of Thrombosis and Haemostasis. Magda Chrzanowska is on the Editorial Board of Plos One.

Bonnie Dittel is Associate Editor of Autoimmunity and on the Editorial Boards of the Journal of Neuroimmunology and Brain, Behavior, and Immunity. Subra Malarkannan is Associate Editor of Frontiers in Molecular Therapy, Methods and Clinical Development. Peter Newman is Co-Editor of the 3rd Edition of Platelets and Gil White is Co-Editor of the 6th Edition of Thrombosis and Hemostasis. Six students completed their PhD degrees in 2018: Michael Reimer from Sid Rao’s lab, Aye Myat Myat Thinn from Jieqing Zhu’s lab, David Schauder from Weiguo Cui’s lab, Alex Abel from Subra Malarkannan’s lab, Erin Wesley from Matt Riese’s lab, and Moua Yang from Roy Silverstein’s lab.

The 16th Annual Aster Lecture was delivered on August 15th by Dr. Olja Finn, Distinguished Professor of Immunology and Surgery at the University of Pittsburgh. Her talk was titled “Vaccines in the Era of Immunology and Surgery at the University of Pittsburgh.” The 17th Annual Mosesson Lecture was delivered on October 4th by Dr. Bjorn Dahlback, Senior Professor in the Department of Laboratory Medicine at Lund University in Malmo, Sweden. His talk was on “Novel Insights into the Regulation of Blood Coagulation by FV Isoforms, TFPI alpha and Protein S.”

The 1st Annual Great Lakes Translational Glycomics Symposium was held May 31st at the Blood Research Institute (BRI) and was organized by Karin Hoffmeister. Featuring speakers from GlycoMimetics, Inc. Washington University in St. Louis, Virginia Commonwealth University, Roswell Park Cancer Center, Brigham and Women’s Hospital, and Medical College of Wisconsin (MCW), it was attended by more than 60 individuals. The 12th Annual Center for Human Immunology Symposium was held October 25th at the BRI. The symposium, titled “B Cells and Broadly Neutralizing Antibodies,” featured renowned speakers from Harvard University, Scripps Research Institute, Vanderbilt University, the Feinstein Institute for Medical Research, and Sanofi Pharmaceuticals. This year’s meeting was hosted by Demin Wang and Renren Wen.

The Scientific Advisory Board reviewed part of the Vascular Biology program in October. Overall, there was high enthusiasm for this group of investigators. In their summary comments, the Board described the need for continued succession planning, space for continued expansion, attention to retention, and the success of the mentoring program. They also reported some faculty anxiety regarding a perceived emphasis on cell therapies and uncertainty regarding changes in leadership.

At years’ end, there were 38 trainees in the BRI. All of our T32 Training Grant positions were filled in 2018: Tyce Kearl in Subra Malarkannan’s lab, Alyssa Moroi in Peter Newman’s lab followed by Lauren Pommert in Sid Rao’s lab, Nate Schoemer in Subra Malarkannan’s lab followed by Amy Siebert-McKenzie in Alan Mast’s lab, and Jesse Sundlov in Peter Newman’s lab. Yongwei Zheng in Demin Wang’s lab was the 2018 Doolittle Fellow and Saravanan Subramaniam in Hardy Weiler’s lab was the Gallagher Fellow. Waseem Anani in Karin Hoffmeister’s lab was named the first Jaqueline and Arlen Fredrick Scholar. New Directors Fellows were Heather Ashwood in Karin Hoffmeister’s lab and Amy Siebert-McKenzie in Alan Mast’s lab, bringing to 6 the number who have been supported through the contributions of Scott and Genevieve Harkness. Chao Yang in Subra Malarkannan’s lab received the inaugural J. Evan Sadler Graduate Scholar Award, as voted by the BRI graduate students and postdoctoral fellows. Moua Yang in Roy Silverstein’s lab received the Mary Rodes Gibson Memorial Award in Hemostasis and Thrombosis for the highest scoring abstract at the American Society of Hematology meeting. Five new graduate students selected the BRI as their place to train: Paytsar Topchyan and Christine Nguyen in Weiguo Cui’s lab, Yaling Wu in Demin Wang’s lab, Savannah Neu in Bonnie Dittel’s lab, and Yuanhua Cai in Qizhen Shi’s lab.

Sadly, we lost a long-time and beloved colleague when Joan Gill passed away on May 9, 2018. Joan was internationally renowned in the world of bleeding disorders and made a number of lasting contributions through her work with von Willebrand disease and hemophilia. One of the first women in the field, Joan served as an example to countless young women in hematology and was the face of bleeding disorders care in the State of Wisconsin.

Gilbert C. White, II, MD
Chief Scientific Officer
Research By The Numbers – 2018

- 10 New NIH Grants
- $16.1 Million Research Revenues
- $614+ Thousand Average Funding per Investigator
- $122.4 Million New Applications
- 1 Start-Up Company Formed
- 2 Patents Filed
- 5 New Diagnostic Tests Developed
- 33 Investigators
- 13 Core Labs
Transfusion Medicine research has a long history at Versiti, reflecting its basic mission to provide a safe and effective supply of blood products for patients who require transfusion.

Effective transfusion therapy requires knowledge of the biology and physiology of blood, satisfactory methods for collecting and storing blood cells with maximum preservation of function, and an understanding of the many diseases in which transfusion of blood components can be beneficial.

Research conducted by the Transfusion Medicine group addresses each of these areas. Investigators in the Transfusion Medicine Program study basic biology and clinical implications of a range of transfusion-related issues.
Research Interests

Immune destruction of red blood cells, white blood cells, and platelets is a major cause of morbidity and mortality in patients. Dr. Aster’s work is aimed at understanding the causes of blood cell destruction by autoantibodies, drug-induced antibodies, and antibodies triggered by blood transfusion or exposure to fetal blood cells during pregnancy. Recent studies in his laboratory have shown that metabolites generated in the body following exposure to various drugs can induce antibodies that cause platelet destruction and bleeding and provide new insights into the cause of “idiosyncratic” drug-sensitivity reactions. Findings made in these and related studies are defining new methods for antibody detection to improve diagnosis and treatment in patients with antibody-induced blood cell destruction and improved understanding of the molecular basis for these conditions.

Awards, Honors and Service

- Founder: GTI Diagnostics (subsidiary of VBRIF)
- Karl Landsteiner Award, American Association of Blood Banks (AABB)
- Henry Stratton Medal for translational research, American Society of Hematology
- Distinguished Service Award, Medical College of Wisconsin (MCW)
- Grant reviewer (Transfusion Medicine), Center for Scientific Review, National Institutes of Health

Richard H. Aster, MD

CEO Emeritus and Senior Investigator, Blood Research Institute
Professor, Department of Medicine, Medical College of Wisconsin (MCW)
MD, University of Michigan 1957
Hematology, Harvard University 1965
Faculty, Harvard 1964-1970
Started at Versiti: 1971

Funding

RO1-HL-13629-47 National Heart Lung and Blood Institute. Renewed June 1, 2017

Publications


Research Interests

Antibodies specific for antigens carried on blood platelets and white blood cells (neutrophils) cause thrombocytopenia and neutropenia (low neutrophil count) in various immune disorders and can be difficult to identify. Work in Dr. Curtis’ laboratory has led to improved methods for detecting such antibodies and to new understanding of the blood disorders in which they are involved. Dr. Curtis serves as Director of the Platelet and Neutrophil Immunology Reference Laboratory of Versiti and applies his research findings to improve the effectiveness with which this laboratory enhances medical care for patients referred for diagnostic testing. One particular area of expertise for the lab is in diagnosis of Fetal and Neonatal Alloimmune Thrombocytopenia (FNAIT), a disorder in which a pregnant mother can make antibodies that destroy her child’s platelets. Recent work in the Curtis lab has allowed for improved diagnosis of FNAIT.

Awards, Honors and Service

- Member, Editorial Board, Transfusion 2017
- Member, ISBT Granulocyte Antigen Nomenclature Working Party, 1997
- Member, AABB Molecular Testing Standards Committee, 2012
- Member, ISBT International Granulocyte Immunobiology Workshop Steering Committee, 2014
- Co-Chair, ISTH Platelet Immunology SSC, 2015
- Member, AABB Selection of Abstracts Program Unit
- Member, ASH Scientific Committee on Transfusion Medicine, 2016
- Member, Platelet Advisory Board, Ionis Pharmaceuticals, 2016
- Co-chair, ISBT Platelet Immunobiology Working Party, Subcommittee on Quality, 2018

Funding

“Development of a New and Improved Diagnostic Assay for Antibody Detection in Patients with Suspected Heparin-Induced Thrombocytopenia (HIT)”. Strategic Investment Fund, Versiti (Co-PI).

Publications


PMID: 29439950


Dr. Denomme is Senior Director of Versiti’s Immunohematology and Transfusion Service Laboratory, a division of Versiti Clinical Laboratories. He is an immunology and immunohematology-trained scientist with interests in the immune response to red cell antigens, the expression of blood groups, and bench-to-bedside studies in immunohematology. His work integrates immunogenetics with transfusion medicine to explore the genetic basis of blood group expression and the functional polymorphisms underlying the pathology of immune-mediated red cell hemolysis.

Awards, Honors and Service
- Working Party member, Red Blood Cell Immunogenetics and Blood Group Terminology
- International Society for Blood Transfusion
- Editorial Board Member, International Journal of Clinical Transfusion Medicine
- Editorial Board Member, Transfusion

Funding
Designer blood cells: CRISPR/cas9 alteration of red blood cell and platelet antigens. G. Denomme (Principal Investigator) B. Curtis, P. Newman (Senior Investigator). Versiti Strategic Funding 2019.

Publications
Hervé Falet, PhD

Investigator, Blood Research Institute, Versiti
Assistant Professor, Medical College of Wisconsin
PhD, Paris Descartes University, 1997
Postdoctoral fellowship, Brigham and Women’s Hospital and Harvard Medical School, 2001
Started at Versiti: 2016

Research Interests

Dr. Hervé Falet received his master’s and doctoral degree from Paris Descartes University and completed his postdoctoral fellowship at Brigham and Women’s Hospital and Harvard Medical School. He joined the Blood Research Institute faculty in 2016. His primary research interests are associated with blood platelet production (thrombopoiesis) and function.

Platelets circulate in blood at a concentration of 150,000-450,000/µl that is maintained by a fine balance between production and clearance. At sites of vascular injury, platelets respond to external stimuli by rapidly changing shape and recruiting other platelets. Deficient platelet production, due to genetic causes, secondary to cancer therapy, or from unknown etiology, poses significant risks of mortality, mostly due to bleeding.

Blood platelets are produced in the bone marrow by megakaryocytes in a unique process that requires extensive intracellular membrane rearrangements. These include the formation of the demarcation membrane system, the surface-connected membrane extension that invaginates into the cell body and further develops to provide membranes for future platelets.

At the Blood Research Institute, Dr. Falet investigates the roles of novel membrane binding and deforming proteins in the formation and organization of the megakaryocyte demarcation membrane system. He anticipates that his studies will yield basic information related to megakaryocyte and platelet biology, and lead to the development of new approaches to reestablish thrombopoiesis in the setting of thrombocytopenia (low platelet count).

Awards, Honors and Service

- Bridge Grant Award, American Society of Hematology 2015-2016
- Outstanding Graduate School Educator Award, Graduate School of Biomedical Sciences, Medical College of Wisconsin 2018
- Member, Scientific Committee on Megakaryocytes and Platelets, American Society of Hematology 2019-2022

Funding

National Institutes of Health R01 HL126743 “Endocytosis in Platelet and Megakaryocyte Biology”

Publications


“Platelet Fireworks”, showing Dnm2-null platelets on a fibrinogen surface after GPVI activation. Winner, 2019 Platelets cover competition.
Joshua Field, MD, MS

Senior Medical Director, Versiti
Investigator, Blood Research Institute
Professor of Medicine, Medical College of Wisconsin
Medical Director, Adult Sickle Cell Disease Clinic, Froedtert Hospital
MD, Carver College of Medicine, University of Iowa, Iowa City, IA 2001
Started at Versiti: 2010

Awards, Honors and Service

- Member, American Society of Hematology Guidelines on Sickle Cell Disease Committee 2017
- Chair, Acute Pain Taxonomy Project for American Pain Society/American Association for Pain Management 2017
- Thomas A. Smallwood Award, Froedtert Hospital, WI “In recognition of Patient Care Excellence 2017
- American Society of Hematology: Committee on Quality, Washington, DC, 2016-present
- Ad hoc reviewer: K01 Diversity Review, NHLBI, Bethesda, MD, 2018

Funding


“C1701-202 A Randomized, Placebo-controlled, Phase 2 Study to Evaluate the Safety and Pharmacodynamics of Once-daily Oral IW-1701 in Patients with Stable Sickle Cell Disease” Ironwood Pharmaceuticals, Inc. 06/01-2018-present.

Publications


Marqus Valentine

Marqus Valentine has beaten sickle cell disease – and the odds. Many sickle cell disease patients do not live into adulthood. Marqus has made it into his 30s thanks to the generosity of blood donors, who have helped him receive more than 500 life-saving donations during his life. He’s grateful to blood donors and is now giving back to help other sickle cell patients in need.

“SC got scary for me when I was in high school because I could understand that I might not come out of the hospital.”
Research Interests

Dr. Gottschall is a Co-Principal Investigator on the Recipient Epidemiology and Donor Evaluation Study-III (REDS III) sponsored by the National Heart Lung and Blood Institute in which Versiti is one of several participating organizations. REDS III includes studies on blood safety, blood availability, HIV transmission and other transfusion-related studies. REDS III will utilize large donor, component and recipient databases to help answer important transfusion-related questions. Among subjects to be studied are alloimmunization (immunization against transfused blood cells), impact of blood donation on donor iron levels, benefits of red cell transfusion in the elderly, and transfusion of various blood products in distinct clinical settings. Dr. Gottschall also is concerned with the clinical aspects of immune hemolytic anemia and in the status of iron levels in repeat blood donors. In 2015, Dr. Gottschall participated as co-author on two important articles, published in *Lancet Haematology* and *Transfusion*, about the importance of red cell genotyping for transfusion medicine. An avid athlete throughout his entire life, Dr. Gottschall says sports have taught him three critical life skills that he uses in his medical work and throughout his life: discipline; persistence; and setting goals.

Awards, Honors and Service

- Member, College of American Pathologists
- Member, American Association of Blood Banks (AABB)
- Member, American Society of Hematology

Publications


Matthew Karafin, MD

Medical Director, Medical Sciences Institute, Versiti
Associate Investigator, Blood Research Institute, Versiti
Associate Professor of Pathology, Medical College of Wisconsin
MD, Carver College of Medicine, University of Iowa, Iowa City, IA, 2007
Transfusion Medicine Fellowship, Johns Hopkins Hospital, 2011
Anatomical and Clinical Pathology Residency, Johns Hopkins Hospital, 2012
MS, Medical College of Wisconsin, Milwaukee, WI, 2015

Started at Versiti: 2012

Research Interests

Dr. Karafin’s research interests include the use of red cell transfusion for patients with sickle cell disease, etiology and prevention of red cell alloimmunization, benefits and risks of red cell storage for patients with sickle cell disease, benefits and risks of red cell transfusions in the elderly, and the etiology and prevention of transfusion reactions.

Awards, Honors and Service

• Member, College of American Pathologists (CAP)
• Member American Society of Hematology (ASH)
• Member, American Society for Clinical Pathology (ASCP)
• Member, Alpha Omega Alpha (AOA)

Funding

HHSN268201100003I (Mast) 03/15/2011 – 03/14/2020
NIH/NHLBI $511,520 “Recipient Epidemiology and Donor Evaluation Study III (REDS III)” (Co-I)

1K23HL136787-01A1 (Karafin) 12/15/2017 – 12/15/2022
NIH/NHLBI $165,000 “The Effects of Older Red Cell Units in Adults with Sickle Cell Disease” (PI)

Publications


Heparin is widely used to prevent and treat thrombosis, but some patients given this otherwise useful anticoagulant become immunized and produce antibodies that cause thrombocytopenia (heparin-induced thrombocytopenia, HIT). Many affected individuals experience thrombosis, which can be life threatening. Dr. Padmanabhan is engaged in studies to define the properties of heparin-induced antibodies that are most likely to cause thrombosis. Findings made are expected to advance the understanding of HIT and to improve laboratory diagnosis and treatment of this dangerous disorder.

Awards, Honors and Service

- American Society for Apheresis Lecturer Award, 2018
- Editor, Journal of Clinical Apheresis (JCA), 08/2015-present
- Chair, JCA Writing Committee on the Use of Apheresis in Human Disease, (2016-present)
- Member, American Association of Blood Banks (AABB)
- Member, American Society for Apheresis (ASFA)
- Member, American Society of Hematology (ASH)

Publications:


4. Irani M, Siegal E, Jella A, Aster RH and Padmanabhan A. Use of Intravenous Immunoglobulin G to Treat Spontaneous Heparin-induced Thrombocytopenia. Transfusion. Epub ahead of print, Transfusion, Dec 2018

Figure: Model showing how we think HIT antibodies actually cause platelet activation in HIT (from Padmanabhan et al, Blood 2015)
The Glycomics Center, led by faculty member Dr. Karin Hoffmeister, opened its doors in 2016 for the Blood Research Institute. Analogous to Genomics and Proteomics, Glycomics focuses on defining the structures and functions of complex carbohydrates (sugars), as found in glycoproteins, glycolipids, and glycosaminoglycans. Complex carbohydrates are important in many physiological processes and alterations in glycosylation are associated with vast numbers of blood related and unrelated diseases and disorders. The specific focus of the Center is to harness genomic with glycomic approaches with an emphasis on exploring transcriptional and epigenetic regulatory mechanisms of carbohydrate synthesis in health and disease. The data will help to understand and predict molecular mechanisms of carbohydrate expression and recognition by proteins important in human biology and disease. The Center will bring together scientists at BloodCenter of Wisconsin and other institutions to understand the role that sugars play in biology.
Research Interests

Dr. Hoffmeister investigates how glycans regulate hematopoiesis and end-effector blood cells, including platelets. The general theme of Dr. Hoffmeister’s research is to better understand the role of carbohydrates in hematopoietic stem cells, megakaryocytes and platelet function, survival, and interaction with other blood cells. Carbohydrate biosynthesis in nucleated cells is a highly regulated process involving several hundred glycosyltransferases. Correct glycan biosynthesis depends on the correct architecture and topology of the endoplasmic reticulum (ER) and Golgi apparatus. During maturation, differentiation and inflammation programmed remodeling of cell surface glycans takes place by the regulated expression of specific glycosyltransferases to regulate different biological functions. Dr. Hoffmeister’s studies expand toward defining glycosyltransferases cell-specific transcriptional regulatory mechanisms during hematopoiesis to combine phenotypic surface carbohydrate expression with genomic and epigenetic data in hematopoietic cells.

Awards, Honors and Service

• Member, Hemostasis and Thrombosis Study Section
• Member, Transfusion Medicine Study Section, special panel
• Member, American Society of Hematology
• Chair Megakaryocytes and Platelet Scientific Committee

Funding

R01 HL089224-10 “Carbohydrate Mediated Platelet Clearance”
P01 HL 107146-06 “Biosynthesis and Function of Lactosaminyl Glycans in Hematopoiesis”
U54 HL119145-04 “Novel Approaches for Platelet Storage B-Bic Drive”
K12 HL141954-01 “Glycans in Blood Hematopoiesis and Disease”

Publications

The Thrombosis, Hemostasis and Vascular Biology Program is concerned with cellular and molecular mechanisms of normal blood clotting, pathological thrombosis, and events impacting the integrity of the blood vessels that transport blood throughout our body.

Studies conducted in the laboratories of the BRI range from basic scientific investigations of blood coagulation and platelet function, to the pathophysiology, treatment, and diagnosis of bleeding and clotting disorders.
One of Dr. Abshire’s major research interests involves conducting clinical trials in patients with bleeding and thrombotic disorders with the aim of defining disease characteristics and evaluating new approaches to treatment. A recent focus is the evaluation of mild bleeding conditions in both children and adults, particularly those affected by von Willebrand Disease (VWD). With Robert Montgomery, MD, Dr. Abshire and a team of investigators from 12 centers across North America have just finished the fifth year of a study funded by the NIH entitled “Comparative Effectiveness in the Diagnosis of VWD” which is focusing on new diagnoses of VWD and how to better define this bleeding disorder from a clinical, laboratory and molecular basis.

Awards, Honors, and Service
- Member, American Society of Hematology
- Past President, Hemostasis and Thrombosis Research Society (HTRS)
- Best Doctors in America 2009-2018
- CTSI of SE WI Board of Directors

Funding
5R01HL112614-05 Montgomery/Abshire (Multiple PIs) 12/14/2013 – 11/30/2018 NIH/NHLBI “Comparative Effectiveness in the Diagnosis of VWD”

Publications
Lisa Baumann Kreuziger, MD, MS

Associate Medical Director/Associate Investigator, Blood Research Institute, Versiti
Assistant Professor, Dept. of Medicine, Division of Hematology/Oncology, Medical College of Wisconsin
MD, University of Wisconsin School of Medicine and Public Health, 2006
Started at Versiti: 2013

Research Interests
Venous thromboembolism occurs in more than a half million Americans every year. Anticoagulation after venous thrombosis can prevent recurrence but is associated with a risk of bleeding. Dr. Baumann-Kreuziger aims to define the best treatment course for cancer patients with thrombosis associated with catheters and determine if a biomarker can be used to predict recurrence. Identification of a biomarker would allow anticoagulation to be individualized based on each patient’s risk profile. Patients with heart failure who require implanted left ventricular assist devices (LVADs) are another group that is at high risk for bleeding and thrombotic complications. Despite use of anticoagulant and antiplatelet medications, approximately 10% of LVAD patients will develop thrombotic complications including stroke or LVAD failure. Dr. Baumann-Kreuziger was awarded a pilot grant from the Clinical and Translational Sciences Institute to evaluate potential mechanisms of thrombosis in patients with left ventricular assist devices.

Awards, Honors and Service
• Top Patient Experience Recognition, Froedtert Hospital 2018
• Medical Student Teaching Pin, 2018
• American Society of Hematology Thrombophilia Guideline panel 2018

Funding
“Evaluating thrombi composition and persistent coagulation activation in the pathophysiology of left ventricular assist device (LVAD) thrombosis” NIH $80,000 (PI) 7/2015 – 6/2019
“Direct Oral Anticoagulants (DOACs) versus LMWH +/- warfarin for VTE in cancer: A Randomized Effectiveness Trial (CANVAS)” Alliance Foundation (PI) 05/27/2017 – present
“Post-Thrombotic Syndrome and Predictors of Recurrence in Catheter-Related Thrombosis”

Publications
2. Baumann Kreuziger L, Slaughter MS, Sundareswaran K, Mast AE. Clinical Relevance of Histopathologic Analysis of HeartMate II Thrombi. ASAIO J. 2018 Nov/Dec;64(6):754-759. PMID: 29461277
Endothelial cells (EC) cover the inner surface of blood vessels and perform many critical functions, such as preventing leakage of blood cells and plasma from the circulation, preventing inappropriate blood clotting, regulating selective transfer of cells and substances into and out of blood vessels, and maintaining the correct blood pressure. Importantly, EC can adapt their functions to their environment, by sensing blood flow and the presence of inflammatory signals.

Dr. Chrzanowska studies how a protein, designated Rap1, regulates the response of EC to changes in blood flow and inflammation. Her work helps understand the processes causing hypertension and the narrowing and hardening of the blood vessel wall in atherosclerotic disease. In 2016, Dr. Chrzanowska succeeded in obtaining the renewal of grant support from the National Institutes of Health for her work.

The complications of cardiovascular disease remain major killers of the American population. The maintenance of normal cardiovascular function is critically dependent on vascular endothelium – cells that line blood vessels. Dr. Chrzanowska’s research is focused on understanding molecular mechanisms underlying critical endothelial cell functions, such as preventing blood leakage, selective transfer of cells and substances to and from the blood stream, regulation of blood pressure, and restorative and pathogenic new blood vessel growth.

Dr. Chrzanowska’s recent research revealed new mechanisms through which endothelial cells respond to the flow of blood and how defects in these responses contribute to atherosclerosis in an in vivo disease model. These are the first necessary steps in developing new strategies to restore endothelial function to prevent the progression of atherosclerosis. Furthermore, these studies provided novel insights into mechanisms through which endothelial cells maintain barrier under normal conditions. Importantly, Dr. Chrzanowska’s studies identified potential novel therapeutic targets for pathological vascular hyper-permeability associated with early diabetes.

Awards, Honors and Service

- American Heart Association, ATVB Council – 2019 AHA Scientific Sessions Programming Committee 2018
- Affiliate Member, Clinical and Translational Science Institute of SE Wisconsin 2011-present
- Member, Medical College of Wisconsin Cardiovascular Center: Atherosclerosis, Thrombosis and Vascular Biology Signature Program 2011-present
- Member, Medical College of Wisconsin Cancer Center, Cancer Cell Biology Research Program - 2011 - Present
- NIH Vascular Cell and Molecular Biology Study Section – 2015-2019

Funding
NIH/NHLB R01 - HL111582-05 Chrzanowska-Wodnicka, M, (PI) 4/16/12 - 6/30/20 “Rap1 in endothelial homeostasis”

Publications

Magdalena Chrzanowska, PhD, FAHA

Investigator, Blood Research Institute
Associate Professor in Pharmacology and Toxicology, Medical College of Wisconsin
Research Member, Medical College of Wisconsin Cancer Center
Medical College of Wisconsin Cardiovascular Center
PhD, University of North Carolina at Chapel Hill, 1996
MSc, Jagiellonian University, Krakow, Poland, 1991
Started at Versiti: 2005
Veronica H. Flood, MD

Associate Professor of Pediatric Hematology, Medical College of Wisconsin
Associate Investigator, Blood Research Institute, Versiti
MD, Tufts University School of Medicine, 1999
Started at Versiti: 2016

Research Interests
Dr. Flood is a pediatric hematologist and researcher at the Medical College of Wisconsin in Milwaukee. She received her medical degree from Tufts University School of Medicine, and went on to complete a residency in pediatrics at Phoenix Children’s Hospital and a fellowship in pediatric hematology/oncology at Oregon Health and Science University.

She began her research career as an undergraduate studying primate genetics in the Department of Anthropology at Harvard University. Her academic career in hemostasis research includes work on the biology of von Willebrand factor (VWF). Dr. Flood is interested in how VWF interacts with two of its main partners, platelet GP1b and collagen. Since collagen is exposed at sites of blood vessel injury, the VWF-collagen interaction is an important component of hemostasis. She also is interested in the genetics of von Willebrand disease (VWD). Through collaboration with Dr. Robert Montgomery and the Zimmerman Program for the Molecular and Clinical Biology of VWD, Dr. Flood has worked on characterizing genetic changes in VWD, with particular attention to variants that affect platelet and collagen binding. Dr. Flood has been funded by the National Heart Lung and Blood Institute since 2010, initially through a K08 award and subsequently transitioned to independent funding through an R01 grant.

Awards, Honors and Service
- Standing member, NIH Study Section, National Heart, Lung, and Blood Institute, Mentored Patient-Oriented Research review panel
- Vice-Chair, Mentored Research Award Committee, Hemostasis and Thrombosis Research Society
- Co-Chair, Von Willebrand Disease Management Guideline Panel, ASH/ISTH/NHF/WFH
- Outstanding Medical Student Teacher, Medical College of Wisconsin, 2017-2018

Funding
R01 HL126810 “Mechanism of Type 4 Collagen Interactions with Von Willebrand Factor” (PI)
R01 HL112614 “Comparative Effectiveness in the Diagnosis of VWD” (Co-I)

Publications

* First author or a trainee.
Thrombotic microangiopathies are a collection of diseases characterized by formation of platelet/protein aggregates that obstruct the microcirculation, resulting in multi-organ dysfunction. Microthrombi in thrombotic thrombocytopenic purpura are rich in von Willebrand factor as a consequence of deficiency of the von Willebrand factor control enzyme ADAMTS13. Alternatively in atypical hemolytic uremic syndrome, the microthrombi are rich in fibrin as a consequence of disordered complement regulation and endothelial cell injury. The current focus of Dr. Friedman’s research of thrombotic microangiopathies is the evaluation of patient plasma and genetic samples in order to identify patterns of disease, underlying risk factors and prognostic markers. Dr. Friedman’s other area of interest relates to utilization of plasma and genetic markers to better understand the mechanisms underlying the bleeding that occurs in patients with defects of von Willebrand factor.

Awards, Honors and Service
• Co-Director, National Marrow Donor Program – Versiti Branch 2017
• Best Doctors in America 2018
• Medical Director of the Apheresis Center for the NMDP site in Milwaukee 2018
• Ad hoc Reviewer, Journal of Thrombosis and Hemostasis, Blood, and Transfusion and Transplantation 2018

Publications
“We were fortunate blood was available to treat our daughter. Now, we can look forward to her future,” says Adelaide’s mom, Katie.

Thanks to BloodCenter’s innovative research, Adelaide is living a normal, healthy life. Adelaide has von Willebrand disease. At age 5, she had multiple spontaneous bleeds and received blood transfusions that helped save her life.
Hemophilia Foundation Regional Committee to investigate treatment guidelines in hemophilia and other bleeding disorders and was leading several pharmaceutical contract research studies to evaluate replacement therapy products for patients with hemophilia and von Willebrand disease. Her colleagues at the Blood Research Institute, the Medical College of Wisconsin and the Great Lakes Hemophilia Foundation will miss her wise counsel and her unstinting advocacy for patients with bleeding and clotting disorders.

Awards, Honors and Service

• Member, Science Committee, CDC Public Health Surveillance for Bleeding Disorders 2017
• Best Doctors in America 2017
• Medical Expert Panel; Federal Division of Vaccine Compensation 2017

Publications


Research Interests

The Blood Research Institute and Medical College of Wisconsin lost a valued colleague and friend with the passing of Joan Cox Gill in 2018. Dr. Gill devoted her entire career to clinical research concerning the diagnosis and treatment of bleeding and clotting disorders in both adult and pediatric populations. As of 2018, she was co-investigator of a study to evaluate the ability of bleeding questionnaires to predict surgical bleeding in tonsillectomies and molar tooth extractions; co-principal investigator of a study to characterize the pharmacogenetics of the anticoagulant warfarin in pediatric patients with thrombosis; and an investigator and member of the science and advisory committees of the CDC national study of the complications of hemophilia. She was also chair of the Great Lakes
The plasma protein von Willebrand factor (vWF) plays a critical role in enabling blood platelets to interact with damaged blood vessels and stop bleeding. Genetically determined abnormalities of vWF function and synthesis cause von Willebrand Disease (VWD), a source of abnormal bleeding that affects about one percent of the general population. Dr. Haberichter’s work is aimed at characterizing various genetic defects that cause VWD and defining how these defects affect the structure and function of the large, highly complex vWF molecule.

Recent findings have shown that low vWF levels in patients with a sub-type of VWD, designated Type 1C, decrease vWF levels by shortening the survival of vWF in the circulation and have led to a novel laboratory assay to diagnose this condition. Her current work is aimed at defining the molecular basis for accelerated clearance of vWF in patients with this form of VWD. Knowledge gained in these studies is expected to improve laboratory diagnosis and treatment of this common bleeding disorder.

Awards, Honors and Service

- Member, American Society of Hematology 2018
- Chair, ISTH SSC scientific committee on von Willebrand Factor 2018
- Member, International Society on Thrombosis and Haemostasis 2018

Funding

R01 HL136430 "vWF- Mechanisms of Regulation"

Increased VWF clearance is prevalent in moderately severe type 1 VWD.

VWFpp/VWF:Ag < 3 predicts reduced synthesis/secretion phenotype (blue).

VWFpp/VWF:Ag > 3 predicts increased plasma VWF clearance (green).

76% of subjects with VWF:Ag ≤ 10 IU/dL and 38% of subjects with VWF:Ag = 11-20 IU/dL have an increased VWF clearance phenotype (type 1C).
Research Interests

Platelets are required to stop bleeding, but inappropriate platelet adhesion and activation results in thrombosis. Dr. Jobe’s group is working to understand how platelet activation is regulated. They have identified a novel platelet mitochondrial mechanism that transforms the platelet’s function from proaggregatory to procoagulant. Work in Dr. Jobe’s lab currently is focused on understanding how procoagulant platelets might work to prevent bleeding in patients with severe hemophilia.

Awards, Honors and Service

- Standing member American Heart Association Thrombosis/Hemostasis Study Section
- National Hemophilia Foundation Clinical Fellowship Advisory Board
- Member International Society on Thrombosis and Hemostasis

Publications

Yan-Qing Ma, PhD

Investigator, Blood Research Institute, Versiti
PhD, Chinese Academy of Sciences, 2004
Started at Versiti: 2011

Research Interests
Integrins comprise an extensive family of cell membrane proteins that are essential for cell-cell communication and signaling. In blood platelets, the integrin αIIb/β3 undergoes complex intracellular and extracellular structural changes that enable these cells to adhere to damaged blood vessels and to each other to control bleeding. This process must be carefully regulated to enable hemostasis to be achieved without causing a clot to be propagated inappropriately. Dr. Ma’s current work is aimed at understanding intracellular signaling cascades in platelets that control structural changes in integrin αIIb/β3 during platelet activation. A particular goal is to define how kindlin-3, a key integrin activator in platelets, coordinates with upstream binding partners and creates a signaling network that regulates the platelet activation process. An important objective is to identify novel inhibitors of platelet function that can be useful for treatment and prevention of thrombosis.

Awards, Honors and Service
• Member, American Heart association
• Member, American Society of Hematology
• Member, International Society on Thrombosis and Hemostasis

Funding
R01 HL131654 “Kindlin-3 Signaling in Blood Cells”

Kindlin-3 signaling in platelets and neutrophils

Publications
Dr. Lynn Malec developed an interest in hemostasis during her Internal Medicine and Pediatrics residency at the University of Pittsburgh. This interest flourished during her fellowship in Pediatric Hematology/Oncology at Children’s Hospital of Pittsburgh during which time she gained further expertise in the care of, and research involving, patients with congenital bleeding disorders across the age spectrum. During her fellowship, she pursued a Master’s of Science in Clinical Research through the University of Pittsburgh Institute for Clinical Research Education. This rigorous training furthered her interest in clinical research involving patients with bleeding disorders.

Dr. Malec’s current research interests involve the investigation of inhibitor prevention and eradication in patients with hemophilia and the impact of prophylactic use in this patient population. She currently is investigating the role that recombinant factor VIII Fc fusion protein (rFVIIIFc) has in immune tolerance induction and is conducting a multi-site observational study to evaluate the efficacy and safety of rFVIIIFc for ITI. Additionally, Dr. Malec was successful in competing for funding amongst a qualified pool of national junior investigators and received the DREAM Award through Hemostasis and Thrombosis Research Society (HTRS) to explore the impact of extended half-life products in preventing joint bleeds and joint damage in patients with hemophilia. Dr. Malec is engaged in the care of adult and pediatric patients with disorders of hemostasis and thrombosis, as well as other benign hematologic conditions.

Awards, Honors and Service
• Treasurer, Hemostasis and Thrombosis Research Society, 2018-present
• Working Group Member, National Heart, Lung, and Blood Institute (NHLBI) State of the Science Workshop Factor VIII Inhibitors: Generating a National Blueprint for Future Research, 2018
• Learning Action Network Member, Foundation for Women and Girls with Bleeding Disorders 2014-present

Funding
DREAM Award: Mentored Research Award sponsored by Hemostasis and Thrombosis Research Society (HTRS) and the American Thrombosis Hemostasis Network (ATHN) “Is Prophylaxis Putting Hemophilic Joints in the Pink: An ATHN-LINKED Observational Study into the Pink” 2017-2019 (Principal Investigator) $100,000

Children’s Hospital of Wisconsin Hematology/Oncology/Transplant Pilot Project Funding Program “Pilot Study of Whole Genome Sequencing in Brother Cohorts with Severe Hemophilia A to identify Candidate Genes Implicated in Inhibitor Development 2018-2019 (Principal Investigator) $75,000

Bioverativ Investigator Initiated Funding Program “Hemophilia Inhibitor Response to Eloctate” 2016-2020 (Principal Investigator) $74,000

Publications
Alan Mast, MD, PhD

Senior Investigator, Blood Research Institute, Versiti
Medical Director, Medical Services, Versiti
Walter A. Schroeder Endowed Chair for Blood Research
Associate Professor, Department of Pathology, Medical College of Wisconsin
Associate Professor, Department of Cell Biology, Neurobiology and Anatomy, Medical College of Wisconsin
MD, Duke University, 1991
PhD, Duke University, 1991
Started at Versiti: 2003

Research Interests
Blood donation removes a large amount of iron that is contained in red blood cells. Therefore, many regular blood donors become iron deficient. In his clinical research, Dr. Mast studies the effect of blood donations on iron metabolism and iron deficiency in the donor. His clinical research program has found that recovery of iron stores following blood donation takes more than six months, emphasizing the need for blood donors to take iron pills following each donation. A study found that taking 19 mg iron (the amount of iron in a typical multiple vitamin with iron) for 60 days following each donation is a simple and effective means for donors to replace iron lost during blood donation. A study of teenage blood donors found that teenagers are more susceptible to iron deficiency following blood donation than are adults, indicating that younger donors will benefit from additional safety measures to protect them from iron depletion.

In his basic research, Dr. Mast studies a protein designated “tissue factor pathway inhibitor (TFPI).” This protein plays a critical role in preventing blood from clotting inside blood vessels. His basic research program has made several important discoveries about the molecular interactions between TFPI and blood coagulation proteins. These have led to new ideas about how bleeding and clotting disorders occur. TFPI alters bleeding severity in hemophilia. Dr. Mast’s laboratory is working to develop new pharmaceutical agents that block TFPI as a treatment for hemophilia.

Awards, Honors and Service
- Member, NIH Thrombosis and Hemostasis Study Section, 2018
- Member, American Society of Hematology Committee for Scientific Affairs, 2018
- Co-Chair, American Society of Hematology Working Group on Innovations in Clinical Trials, 2018
- Member, American Society of Hematology Media Experts Subcommittee, 2018

Funding
- REDS-III NHLBI
- TFPI R01 NHLBI
- Novo Nordisk Research Grant

Publications
Research Interests

Hemophilia and von Willebrand Disease (VWD) are two major hereditary bleeding disorders that Dr. Montgomery’s laboratory studies. The abnormal protein in hemophilia is Factor VIII (FVIII) and in VWD is von Willebrand factor (VWF). Although these are regulated by different genes, the two proteins bind together and help orchestrate the cessation of bleeding. In hemophilia Dr. Montgomery is exploring a unique form of gene therapy in which FVIII is induced to be synthesized and stored in platelets where it binds to VWF. This is not its normal site to be synthesized, but the platelet targets it to be released at the site where a blood vessel is damaged. This therapy can be effective even if the patient has begun to mount an immune response that normally blocks FVIII (this occurs in 30% of hemophilia patients). Gene therapy using this approach could be used as an alternative to using FVIII by-passing therapeutics that can sometimes run into more than $1M/yr. No one would have predicted that gene therapy could work in these individuals. Two other projects are directed at the molecular (DNA) causes of VWD.

Awards, Honors and Service

- Executive Secretary, Hemophilia (and Thrombosis) Research Society of North America
- Member, Medical and Scientific Advisory Board National Hemophilia Foundation
- Chair, Fellowship Review Program, National Hemophilia Foundation

Funding

RO1 HL139847 “Molecular Interactions of FVIII and VWF”
PO1 HL144457 “Zimmerman Program on the Biology of VWD”
RO1 HL112614 “Comparative Effectiveness in the Diagnosis of VWD”

Publications

A major focus of research in Dr. Newman’s laboratory is Platelet Endothelial Cell Adhesion Molecule-1 (PECAM-1), which inhibits responses of many circulating blood cells, including platelets and T cells. T cells are immune cells that play an important role in clearing infections and eradicating tumors. Dr. Newman has recently discovered that PECAM-1 works with another potent T cell suppressor, Transforming Growth Factor β (TGFβ), to inhibit T cell anti-tumor responses. Her current work is dedicated to developing a better understanding of how PECAM-1 expression is regulated in T cells and of how PECAM-1 and TGFβ work together to inhibit T cell responses. This research will help improve T cell-based therapies for treatment of cancer.

Publications

Awards, Honors and Service
• Member, Program Project Grant Review Parent Committee, National Heart, Lung & Blood Institute, National Institutes of Health 2017 - present
• Ad hoc Manuscript Reviewer: Proceedings of the National Academy of Sciences: USA; Science Reports; Science Translational Medicine; Science Signaling; Journal of Experimental Medicine; Blood; Journal of Cell Biology; Journal of Biological Chemistry; American Journal of Physiology: Heart and Circulatory Physiology; Arteriosclerosis, Thrombosis and Vascular Biology; Circulation Research; Journal of Thrombosis and Hemostasis; Thrombosis and Haemostasis; Thrombosis Research; Journal of Immunology; Journal of Cell Science; Human Immunology; BMC Immunology; Transfusion; The Anatomical Record; Free Radical Biology and Medicine; Molecular Biology of the Cell; Cell Adhesion and Migration; PLoS One

Funding
NIH R35- HL139937 (Co-Investigator)
Peter Newman, PhD

Vice President for Research, Versiti
Associate Director/Senior Investigator, Versiti Blood Research Institute
Professor, Department of Pharmacology, Medical College of Wisconsin
Professor, Department of Cell Biology, Neurobiology and Anatomy, Medical College of Wisconsin
PhD, St. Louis University, 1983
Started at Versiti: 1983

Research Interests
Peter Newman’s laboratory divides its attention between exploring the structure and function of the vascular cell adhesion and signaling receptor, PECAM-1, in platelets and endothelial cells, and the generation of antigenically-distinct megakaryocytes and platelets from induced pluripotent stem cells - both funded by a newly-received, 7-year, $7M Outstanding Investigator Award from the National Heart, Lung, and Blood Institute of the National Institutes of Health. Techniques range from CRISPR-mediated gene editing to protein crystallography to the development of animal models of platelet alloimmunity. Projects range from investigating the molecular basis of PECAM-1-mediated homophilic binding and the role of carbohydrate residues in this process to exploiting recent advances in CRISPR gene editing technology to generate megakaryocyte progenitor cells, megakaryocytes, and platelets from induced pluripotent stem cells to create platelet alloantigen-specific cell lines capable of long-term self-renewal, cryopreservation, and distribution.

Awards, Honors and Service
- R35 Outstanding Investigator Award, NIH National Heart, Lung, and Blood Institute 2018-25
- Distinguished Career Award, International Society of Thrombosis and Haemostasis 2013
- Chair, NIH Special Emphasis Panel, Consortium Linking Oncology with Thrombosis 2018
- Editor, Arteriosclerosis, Thrombosis and Vascular Biology (Journal of the American Heart Association) 2012-present
- Chair, BloodWorks Northwest Scientific Advisory Board 2012-present

Funding
2018-2025 - NIH Grant R35 HL139937 (Outstanding Investigator Award)

Publications
Qizhen Shi, MD, PhD

Investigator, Blood Research Institute, Versiti
Professor of Pediatric Hematology, Medical College of Wisconsin
MD, Fujian Medical University, Fuzhou, China, 1990
PhD, Fujian Medical University, Fuzhou, China, 1998
Molecular Hematology Fellowship, Medical College of Wisconsin 2000 – 2006
Started at Versiti: 2010

Research Interests
Development of inhibitory antibodies (inhibitors) against FVIII is a significant problem in the clinical care of patients with hemophilia A. One primary focus of Dr. Shi’s research is to develop a gene therapy approach for the treatment of hemophilia A, including hemophilia A with inhibitors. Dr. Shi’s studies have shown that engineering blood stem cells to have FVIII made and stored in platelets can solve all the problems for hemophilia A. These studies show platelet-targeted gene therapy can efficiently correct the bleeding phenotype in hemophilia A mice even in the presence of neutralizing antibodies. Furthermore, platelet gene therapy can induce profound antigen-specific immune tolerance through peripheral clonal deletion of antigen-specific CD4 T cells and expansion of antigen-specific regulatory T cells. These studies are aimed at understanding why platelet-derived FVIII can still be effective in hemophilia A even in the presence of inhibitors. In a separate line of research, Dr. Shi’s team found that FVIII’s carrier protein, VWF, can modulate the antigenicity of FVIII, attenuating FVIII memory immune responses in hemophilia A mice. These studies provide important information about the impact of VWF on FVIII immune responses, which will aid the design of more effective protocols to prevent FVIII immune responses and to induce FVIII immune tolerance in patients with hemophilia A.

Awards, Honors and Service
• Reviewer for the Poster Award, The 21st Annual Meeting of American Society of Gene and Cell Therapy (ASGCT), May 2018, Chicago, IL.
• Editorial board member, Molecular Therapy – Methods & Clinical Development 2017-present

Funding
R01 HL102035 “Platelet Derived FVIII Gene Therapy of Hemophilia A”
NHF Bridge Award “Investigation of VWF as an immunomodulator of the immunogenic response towards FVIII”.
Bayer Hemophilia Award “Platelet gene therapy of murine hemophilia B with pre-existing anti-FIX immunity”.
Biotest Research Grant “The impact of VWF on FVIII immune response in hemophilia A with inhibitors”.

Publications
Research Interests

Research by Dr. Silverstein’s group concerns basic mechanisms underlying common vascular diseases, especially thrombosis, atherosclerosis and neoplastic angiogenesis, with particular emphasis on the role of a cellular receptor designated CD36 expressed on platelets, endothelial cells, macrophages and other tissues. Recent work has shown that CD36 acts as a negative regulator of new blood vessel formation (angiogenesis), a process critical to tumor growth. CD36 also enables the recognition by platelets and macrophages of danger signals generated in the body as the result of inflammation, oxidant stress, diabetes and cancer, and may play a role in the pro-thrombotic state associated with these conditions as well as in accumulation of cholesterol in blood vessel walls, leading to atherosclerosis. The remarkable diversity of CD36 functions suggests that further work will have implications for treatment and/or prevention of arterial disease, thrombosis and cancer.

Awards, Honors and Service

- Past-President, Central Society for Clinical and Translational Research 2018
- President-elect, American Society of Hematology 2018
- Chair, AICS study section for NIH 2018
- Editorial Boards: J. Clinical Investigation and J. Experimental Medicine

Funding

R01 HL142152: “ERK5 and CD36 link oxidative stress to platelet dysfunction and ischemic injury”
R01 HL126645: “MRP-14, CD36 and Thrombosis”
Advancing a Healthier Wisconsin Endowment Pre Program Project Pilot Program: Metabolic Control of Inflammation in Atherosclerosis by Macrophage Scavenger Receptors

Publications

Research Interests

Activation of the blood clotting system serves to stop bleeding when a blood vessel is injured, but it also is a natural part of the body’s response to infections, inflammation, and cancer, and plays an important role in embryonic development. In 2018, the National Institutes of Health supported work in Dr. Weiler’s laboratory to develop innovative therapeutic interventions targeting blood coagulation pathways in diseases such as severe sepsis, malaria, and bone marrow failure after exposure to lethal doses of radiation. Dr. Weiler holds the Ziegler Family Chair for Research, and also directs the joint Transgenic Core Facility of the Medical College of Wisconsin (MCW) and the Versiti Blood Research Institute. The facility provides a wide range of genome editing services facilitating the generation of genetically altered rodents serving as models for human disease.

Awards, Honors and Service

- 9th Symposium on Hemostasis, April 12-14, 2018: Chapel Hill NC. Co-Chair/Organizer.
- NIH reviewer Special Emphasis Panel/Scientific Review Group 2018/05 ZRG1 VH-J (08) S. July 20-21, 2018 (SBRI, STTR)

Publications


Funding

- "Protein C pathway function in Hematopoiesis" -- NHLBI -- 1R01HL117132
- "Regulation of Innate Immunity by Coagulation Receptors" -- NHLBI -- 1R01 HL133348
- "Coagulation Factor Signaling in Malaria" -- NIH/NIAID -- R01HL130678
- "Serpin Regulation of Coagulation Proteases" -- NHLBI -- R01HL062565
- "Protein C Pathway Mitigation of Radiation-Induced Vascular Dysfunction" -- NIAID -- U01AI133561

Hartmut Weiler, PhD

Senior Investigator, Blood Research Institute, Versiti
Associate Professor, Department of Physiology, Medical College of Wisconsin
Director, Transgenic Core Facility, Human Molecular Genetics Center, MCW
Dr.rer.nat., Technische Hochschule Darmstadt Germany, 1989
Started at Versiti: 1997
Research Interests

Work by Dr. White’s group is aimed at understanding signaling pathways involved in the hemostatic responses by blood platelets. A longtime focus is the role of an intracellular protein, Rap 1b, which is present in high concentrations in platelets and is critical for platelet aggregation and the activation of integrins that are critical for the platelet-platelet interactions needed to form a hemostatic plug. Rap 1b also appears to be a critical target for cyclic AMP-dependent protein kinase (PKA) and phosphorylation of Rap 1b by PKA is involved in the inhibition of platelets by drugs that target the PKA pathway. Thus, Rap 1b may function as a unique and critical bi-directional modulator of platelet activation.
Jieqing Zhu, PhD

Membrane protein complexes designated “integrins” function as cell surface receptors to regulate cell-cell and cell-matrix interactions critical for organ development, hemostasis, antigen recognition, cellular homing to specific body sites and inflammation. Dr. Zhu is using structural biology, biochemistry and cell biology techniques to investigate how particular structural domains of integrins function in integrin activation. These studies will guide the development of small molecule or antibody inhibitors of integrin function that can be useful in the treatment and prevention of thrombosis and a range of other conditions. Recent studies have revealed the previously unappreciated function of α integrin cytoplasmic domain in integrin activation and signaling, and the structural basis of integrin extension on the cell surface, which provides new information of conformation-dependent integrin activation.

Awards, Honors and Service

• Member, American Society of Hematology (ASH) 2018
• Member, American Society for Biochemistry and Molecular Biology (ASBMB) 2018
• Editorial Boards: Scientific Reports

Funding

R01 HL131836 “Structural Transition of Cellular Integrins and Applications Thereof”
R35 HL139937 (PI: P. Newman) “Basic investigation and translational applications concerning the cell and molecular biology of blood and vascular cells”

Publications

Immunology

Immunobiology has been a cornerstone of research at Versiti since 1947, going back to the early days of immunohematology. Studies by Versiti investigators led to the identification of some of the first antigen systems specific to red blood cells.

Versiti investigators facilitated the first bone marrow transplant from an unrelated donor to successfully treat bone marrow failure (aplastic anemia) and played key roles in creation of the National Marrow Donor Program.
Matthew Anderson, MD, PhD

Research Interests
Dr. Anderson’s research interests include the use of high-throughput sequencing technologies for clinical diagnostics and biomarker discovery, with a focus on transplantation. Human leukocyte antigens (HLA) are key molecular determinants of the adaptive immune response and also control the host immune response to hematopoietic and solid-organ transplants. Clinically, the success of a transplant critically depends on a high degree of similarity between the HLA molecules of the donor and recipient. Dr. Anderson’s group has recently created a novel bioinformatics approach to directly compare HLA gene sequences from hematopoietic transplant donor and recipients, demonstrating that transplant pairs highly matched at a genetic level show improved transplant outcome (in press). In the future, he plans to develop next-generation sequencing assays to analyze other genes important for the immune response to transplants and to monitor patients for rejection.

Awards, Honors and Service
• Member, American Society for Histocompatibility and Immunogenetics (ASHI)
• Member, Association for Molecular Pathology
• Fellow, College of American Pathologists

Publications

Strategies for HLA genotyping
A: Standard methods for HLA genotyping typically sequence only 1-3 exons of the HLA gene (exon 2 in this example).
B: Next-generation sequencing methods utilize overlapping DNA fragments to sequence the entire HLA gene.
Weiguo Cui, MD, PhD

Investigator, Blood Research Institute, Versiti
Assistant Professor, Department of Microbiology and Immunology, Medical College of Wisconsin
MD/PhD, Tianjin Medical University, China, 2004
Dept. of Immunobiology, Yale University School of Medicine, 2012
Started at Versiti: 2012

Awards, Honors and Service
- ACS Research Scholar Grant (RSG)
- Ad hoc review, IHD study section, NIH

Funding
5R01AI125741-0 Cui (PI) 05/16/2016-04/30/2021 NIH/NIAID “The cellular and transcriptional control of CD8 T cell functional adaptation to chronic viruses.”
RSG-17-186-01(PI) 01/01/2018 – 12/31/2021/ACS “Harnessing BATF-Boosted Anti-tumor CD8 T Cells in Cancer Immunotherapy”

Publications

Research Interests
Following infection, induction of a subset of lymphocytes, designated memory T cells, is critical for achieving protection against exposure to bacteria and viruses. Dr. Cui’s studies are aimed at improving the understanding of memory T cell development. His current work is focused on the study of epigenetic changes that take place in lymphocytes during the response to an acute infection. An immediate goal is to identify specific chromosomal structures that influence T cell memory. Findings made will improve basic understanding of the immune response and have implications for the treatment and prevention of infectious diseases.
Research Interests
Autoimmunity occurs when the immune system mounts an inappropriate attack on one’s own body tissues. Dr. Dittel’s laboratory is concerned with immune regulation that occurs during multiple sclerosis (MS), the most prevalent autoimmune disorder affecting the central nervous system (CNS). For this work, she is utilizing a mouse model of MS designated experimental autoimmune encephalomyelitis (EAE). Current studies are aimed at understanding how key cells of the immune system (T and B lymphocytes) interact to influence the autoimmune process that causes damage to CNS tissue. In recent studies we have identified a new subset of B lymphocytes (BDL) that induce the proliferation of a critical subset of T lymphocytes designated T regulatory cells (Treg) via GITRL that are essential for controlling autoimmunity. Dr. Dittel also is investigating how immune cells propagate EAE by studying the mechanisms whereby they open the blood-brain barrier and induce neuronal damage. Findings made are expected to suggest new approaches for treating MS and other immune disorders affecting the nervous system.

Awards, Honors and Service
- Journal of Neuroimmunology, Editorial Board
- Autoimmunity, Associate Editor
- Brain, Behavior, and Immunity, Editorial Board
- NINDS, Clinical Neuroimmunology and Brain Tumors, ad hoc member
- NINDS, ZRG1 BDCN-G 03 M, Member Conflict: Neuroimmunology, Neuroinflammation and Brain Tumors, Chair
- NIAID, Cellular and Molecular Immunology B, ad hoc member

Publications

Funding
- R56AI122655 - 01A1, NIAID, Mechanisms of a novel regulatory B cell subset, Principal Investigator
- R56AI129348-01A1, NIAID, B cell-mediated immune regulation, Principal Investigator
- RG 1501-03034-National Multiple Sclerosis Society, Characterization of a Novel Regulatory B Cell Subset that Attenuates EAE, Principal Investigator

Teva Investigator Sponsored Studies, Teva Pharmaceuticals, Access the ability of Copaxone to enhance the regulatory activity of a novel B cell subset, Principal Investigator
Research Interests

The immune response is a complicated process involving direct and indirect communication between many specialized types of cells. Dr. Gorski studies this process at a molecular level. Recent studies have provided new insights into how the immune system recognizes and generates a response against protein fragments (peptides) from germs or viruses. He is the inventor of innovative methods to characterize genetic differences between individuals that determine which protein fragments can be recognized, and how to measure the range of unique immune cells that recognize these protein fragments. Dr. Gorski currently studies how immune responses are affected by aging, how T cell responses differ between healthy children and children with autoimmune disease, and how the spread of influenza among older persons in the US can be tracked utilizing the tools of molecular biology. Findings made in this work will advance basic understanding of the human response and its relation to autoimmunity, tissue transplantation and infectious disease.

Awards, Honors, and Service

• Director, Center for Human Immunology, Blood Research Institute

Senior Investigator, Blood Research Institute, Versiti
Assistant Professor, Microbiology and Immunology, Medical College of Wisconsin
PhD, University of Cincinnati, 1976
Started at Versiti: 1986
Research Interests

Natural Killer (NK) cells are a type of white blood cell that specializes in killing virus-infected and malignant cells. Due to this specialty, there is a great deal of interest in using NK cells for therapeutic purposes. Dr. Malarkannan’s group studies basic, translational, and clinical aspects of NK cells. Using single-cell sequencing, his group has determined the developmental heterogeneity of human NK cells in healthy individuals and patients with rare inherited diseases. The group’s studies have identified pathways that influence target cell killing and associated inflammatory changes. This work may show how these pathways can be manipulated to maximize the killing effect and minimize the adverse effects of NK cell therapy. This constitutes a new form of transfusion therapy for treatment of malignant conditions.

Awards, Honors and Service

- Ad hoc Reviewer, NIAID, ZRG-1MM-U-81, NIH, 2017-2018
- Chair, NIAID, ZRG1 IMM-F-02 Study Section, NIH, 2018
- External Member, Grant Review Committee, Infections and Immunity Board, UK Medical Research Council (MRC), Extramural Program, UK, 2018

Funding

R01 AI102893, “Molecular Mechanisms of Signaling Co-Ordination in Innate Lymphocytes”
R01 CA179363, Molecular Signature of Inflammation”
R38 HL143561, Stimulating access to Research in Residency (StARR).

Publications


MACC Fund, “Targeting Pediatric Cancer with ‘Next-Gen’ CARs”

Ann’s Hope Foundation, Requirement of metabolic reprogramming in NK cells during the clearance of melanoma.
Research Interests
Immunotherapies for the treatment of malignancy have recently begun to demonstrate impressive success in achieving long-term disease control and eradication; however, the therapies work in a minority of patients. The Riese lab is investigating ways to improve upon existing cancer immunotherapies by targeting “off” switches inside T cells, the cells responsible for killing cancer cells. His studies have incorporated both oncology and chemistry and have allowed him to blend medicine and research throughout his career.

Publications
2. Wesley EM, Xin G, McAllister D, Malarkannan S, Newman DK, Dwinell MB, Cui W, Johnson BD, Riese MJ. Dicacylglycerol kinase ζ (DGKζ) and Casitas b-lineage proto-oncogene b-deficient mice have similar functional outcomes in T cells but DGKζ-deficient mice have increased T cell activation and tumor clearance. Immunohorizons. 2018 Apr 1;2(4):107-118. PMID: 30027154
Dr. Wang is concerned with self-renewal and differentiation of cells (hematopoietic stem cells, HSCs) that give rise to blood cells and to the subset of white blood cells (B lymphocytes) that produce antibodies. His studies are designed to identify and functionally characterize signaling molecules and pathways that are critical to HSC and B cell biology. Recent studies have identified a novel and critical signal transduction pathway that controls the development of normal early B cells and the formation of B-precursor acute lymphoblastic leukemia. These findings further our understanding of B cell development and transformation, and suggest new approaches to prevention and treatment of autoimmunity.

Awards, Honors, and Service

- Editorial Board, Blood, 2017-present
- Member, ZRG1 IMM-S (02), Special Emphasis Panel, NHLBI, NIH, 2018
- Reviewer, American Society of Hematology (ASH), San Diego, CA, 2018
- Committee Chair and Speaker, 12th annual Center for Human Immunology Symposium, Milwaukee, Wisconsin, 2018
- Invited Speaker, International Conference on Blood Research, Shanghai, China, 2018
- Workshop Chair, Lymphocytes, Lymphocyte Activation and Immunodeficiency, including HIV and Other Infections: B Cells and Innate Immune Cells, 58th Annual meeting, American, Society of Hematology (ASH), San Diego, California, 2018

Funding

R01 AI079087 “PLCys in B cell biology and autoimmunity”
R01 HL130724 “B cell responses in heparin-induced thrombocytopenia”
MCW Bridge Award (R01 HL136527) “PLCγ signaling in early B lymphopoiesis”

Publications

Research Interests

T and B lymphocytes are two important cell types in our adaptive immune system. Whereas B cells secrete antibodies that are essential for protection against extracellular pathogens, T cells are critical for the control of infection by intracellular pathogens, and for enabling B lymphocytes to efficiently produce antibodies. However, aberrant signaling in B and T cells can lead to abnormal development and activation of B and T cells, resulting in immune deficiency, autoimmunity, or cancer development.

Dr. Wen’s work is aimed at more fully understanding the molecular events that govern development of T cells to maturity and defining pathways that are critical for T cell functions. More specifically, her work has been focused on studying two signaling molecules: phospholipase gamma, mutations of which have been associated with human autoinflammatory diseases and T cell lymphomas, and Bcl10, mutations of which have been associated with human B cell lymphomas. Her work will potentially lead to better understanding of the molecular pathogenesis of immune deficiency, autoimmunity, and cancer development.

Dr. Wen also works on heparin-induced thrombocytopenia (HIT), a disease that is caused by clinical administration of heparin, which in some patients can result in limb- and life-threatening thrombosis. It is believed that heparin complexed with a self-protein PF4 induces PF4/heparin antibodies, some of which causes HIT. Through cloning human antibodies in HIT patients, Dr. Wen observed the existence of two types of antibodies to PF4/heparin, those that can activate platelets and those that cannot. Her current work is focused on identifying the underlying molecular mechanisms that differentiate the function of these two type of antibodies and the B cell type that generates these antibodies. Her study of HIT at a clonal level would potentially lead to novel and improved diagnosis and HIT treatment. Her study also suggests that the antibodies involved in HIT may play roles in cardiovascular diseases beyond HIT.

Awards, Honors and Service

- Member, American Society of Microbiology
- Member, American Association for the Advancement of Science

Funding

- 5R01 AI079087-08 Wang (PI) 06/15/2008 – 08/31/2019 NIH/NIAID “PLCys in B Cell Biology and Autoimmunity” Role: Co-Investigator
- R01 HL130724 Wang (PI) 12/01/2016-11/30/2020 “B cell responses in heparin-induced thrombocytopenia” Role: Co-Investigator
- R01 AI083636-06 Salomon (PI) 05/08/2017-04/30/2022 “Phosphoproteomic Analysis of Feedback Networks in T Cell Signaling” Role: Co-investigator
Stem Cell Biology and Hematopoiesis is aimed at understanding the many factors that regulate the normal process of how blood cells are formed (hematopoiesis), as well as understanding disease mechanisms that lead to abnormal hematopoiesis, which either could lead to a failure of healthy blood cell production or cause leukemia.

Studies in this area are bringing Versiti into the fields of regenerative medicine, and cancer biology. These studies reflect an ongoing commitment to expanding foundational research into areas that will fundamentally improve the understanding and treatment of currently incurable blood diseases.

Stem Cell Biology investigators are using cutting-edge technology to characterize molecular mechanisms involved in regulation of hematopoietic stem cells and their maturation into mature red cells, white cells and platelets.
Dr. Karen-Sue Carlson is a board certified clinical hematologist. She joined the faculty at the Medical College of Wisconsin as an Assistant Professor of Medicine in 2013, and was appointed Assistant Investigator at the Blood Research Institute in 2016. She maintains an active clinical focus on diseases of disordered hematopoeisis including aplastic anemia, acute and chronic leukemias, and myelodysplastic and myeloproliferative syndromes at the Medical College of Wisconsin. At the Blood Research Institute, her research focuses on extracellular matrix regulation of adult stem cell homeostasis. Using murine models, Dr. Carlson studies how extracellular matrix (ECM), and in particular, the glycoprotein laminin-γ1, regulates neurovascular units in hematopoietic adult stem cell niches. She also is using 3-dimensional image reconstructions to understand how human acute myelogenous leukemia (AML) traffics through the bone marrow vascular niches during remission induction chemotherapy.

Dr. Carlson’s long-term goal is to apply what she learns about the basic biology of the bone marrow extracellular matrix to develop niche-targeted therapies that will help her patients with hematopoietic diseases.

**Awards, Honors and Service**
- Best Doctors designation 2018
- Member, American Society of Matrix Biology 2018
- Member, American Society of Biochemistry and Molecular Biology 2018
- Member, International Society of Experimental Hematology 2018
- Member, American Society of Hematology 2018

**Publications**

**Funding**
- “Bone Marrow Failure in Mice Deficient for the Extracellular Matrix Component, Laminin-gamma1” (1K08HL127187-03) — NHLBI (NIH) PI – April 1, 2015 – March 31, 2020
- “Acute myelogenous leukemia interface with the hematopoietic niche” MCW Cancer Center – PI – December 1, 2017 – November 30, 2018
Research Interests
The past decade of leukemia research has indicated in a comprehensive understanding of the role of genetic and epigenetic changes in leukemogenesis. However, only recently has the three-dimensional genome architecture been implicated in leukemogenesis. While much is known about transcription factor deregulation in AML, our understanding of chromatin structure and how transcription factors regulate higher-order genome architecture is limited. Our lab is interested in understanding the interplay between transcription factors (RUNX1 and C/EBPα) and chromatin dynamics in myeloid differentiation and how this is altered in AML. Our goal is to identify and characterize novel therapeutic targets, and translate them to the clinic with academic and pharmaceutical collaborations.

Awards, Honors and Service
• Young Investigator Grant, Alex’s Lemonade Stand Foundation for Childhood Cancer 2014
• Discovery Grant, Lauri Strauss Leukemia Foundation 2014
• Scholar Award in Basic Research, American Society of Hematology (ASH) 2013
• Member, American Association for Cancer Research (AACR) 2018
• Member, International Society for Stem Cell Research (ISSCR) 2018
• Member, American Society for Hematology 2018

Publications
Research Interests

Acute Myelogenous Leukemia (AML) is a common malignancy, but despite modern chemotherapy, the majority of patients relapse. Dr. Rao’s laboratory focuses on how altered gene expression causes diseases such as cancer. His long-term goal is to understand how gene expression derangements can be targeted to develop less toxic, more effective chemotherapies to treat blood-derived cancer.

Dr. Rao’s laboratory focuses on Acute Myelogenous Leukemia (AML) because it represents a significant clinical challenge, with up to 50% of patients relapsing. Recent data has indicated a large number of genes (>200) can be mutated in AML, making it difficult to understand how specific, targeted therapies can be developed. In Dr. Rao’s lab, they have focused on how mutations in a specific group of genes, termed the cohesin complex, cause AML. Recent work indicates that mutations in the cohesin complex promote bone marrow cells to divide abnormally, and this predisposes them to acquire additional mutations which ultimately cause leukemia. Because the cohesin mutation likely occurs early in the process, targeting these mutations could lead to new therapies. Dr. Rao is currently working on different targeted therapy agents already in clinical trial to determine if they could be used to treat patients with cohesin-mutated AML. He has also expanded his research interest into Ewing’s Sarcoma, in which cohesin mutations have also recently been identified.

Awards, Honors and Service

- Member, American Society of Hematology 2018
- Member, American Society for Blood & Marrow Transplantation (ASBMT) 2018
- Member, International Society for Stem Cell Research (ISSCR) 2018

Funding

National Cancer Institute- R01 “Cohesin Mutations in AML”
Midwest Athletes Against Childhood Cancer (MACC Fund)
Hyundai Hope on Wheels (HHOW) Impact Award

Publications

Research Interests

Research in Dr. Zhu’s laboratory focuses on understanding epigenetic regulation in normal and malignant hematopoiesis with emphasis on the role of such regulation in hematopoietic stem cells (HSC) as well as leukemia stem cells (LSC). Epigenetic regulation refers to changes in gene activities that are independent of the underlying gene sequences. Epigenetic regulators play an important role in normal development and differentiation. More recently, they emerge as important players in the development of cancer as evident by recurrent mutations across a spectrum of cancers. Dr. Zhu’s lab has previously screened and identified several epigenetic regulators as important for the maintenance of acute myeloid leukemia (AML). Currently, Dr. Zhu is working on elucidating their role in normal and malignant stem cell function and understanding the precise underlying molecular mechanism. In 2016, Dr. Zhu’s study on JMJD1C, an epigenetic regulator, demonstrated that it is important for LSC function but dispensable for HSC function, thus a potential therapeutic target. Dr. Zhu’s lab is studying the molecular mechanism of how JMJD1C functions in AML. The ultimate goal of our research is to identify therapeutic targets and developed targeted therapy in AML based on knowledge gained from our research.

Awards, Honors and Service

• American Society of Hematology, Scholar Award

Funding

ASH Scholar “Understanding Molecular Mechanism of JMJD1C Function in AML”
What she thought was a common cold turned out to be life-threatening for Martha Sullivan. A late night trip to the ER led to doctors discovering that she had leukemia. The next day, Martha began chemotherapy. She received multiple blood and platelet transfusions to help prepare her body for a bone marrow transplant. Just four months after her diagnosis, Martha’s match was found and she underwent the transplant that helped save her life.

“Because of blood and bone marrow donors, I am a leukemia survivor,” says Martha. “Every day is a new beginning, so love life!”
Modern biomedical research requires access to a wide range of specialized technologies. The Versiti Blood Research Institute maintains cutting-edge technology platforms that give researchers from the BRI, and its affiliates on the Medical College of Wisconsin (MCW) campus, access to state-of-the-art equipment and expertise. These centralized core laboratories are a shared resource and are staffed by technical specialists that support individual research projects. Currently, the BRI is home to 13 different core laboratories.

The Molecular Cell Biology Core offers DNA sequencing using both capillary-based and next-generation platforms and quantitative assays for DNA and RNA utilizing several different instrument platforms, such as a QuantStudio 6 Flex Real-time PCR system for rapid measurement of gene activity. Both 10X Genomics and Fluidigm systems are available for molecular analysis of single cells.

The Protein Chemistry Core synthesizes peptides using a microwave-enhanced Liberty 1 synthesizer and offers peptide purification and a variety of post synthesis peptide modifications. The Core aids investigators with protein purifications using AKTA and Agilent chromatography systems.

The Hybridoma Core produces murine and rat monoclonal antibodies for research and diagnostic purposes.

The Flow Cytometry Core utilizes two Becton Dickinson LSR II multicolor cytometers, one BD FACS Celesta, one BD Accuri cytometer, a BD FACS Aria high-speed cell sorter, and a BD FACS Melody cell sorter.

The Microscopic Imaging Core includes the confocal/multiphoton laboratory featuring an Olympus FV1000-MP Confocal, multiphoton microscope as well as an inverted Nikon TE2000, a Nikon Eclipse Ti2 inverted fluorescence microscope, a Zeiss Axioskop and a Zeiss Lumar V12 stereo microscope with fluorescence capabilities. A PhD Imaging Specialist manages the Microscopic Imaging Core.

The Biophysics Core is equipped with a BIAcore 3000 Plasmon Resonance Spectrometer and an Octet Red 96 from forte Bio that enables scientists to study protein-protein interactions in real time.

The Viral Vector Core is shared between the BRI and MCW and specializes in vectors based on lentivirus, adenovirus and adeno-associated virus needed for research in the field of gene therapy and other experimental applications.

The Thrombosis Core maintains a spinning disk confocal microscope system for in vivo studies on thrombosis. This core also features an in vitro flow system designed to recapitulate the in vivo conditions of flowing blood in the vasculature (VenaFlux system from Cellix Ltd; Zeiss inverted microscope with phase contrast, fluorescence and incubation capabilities).

The Histology Core specializes in tissue preparation, cutting of fixed and frozen sections and various staining techniques. This core is staffed by a histology technician with 30 years of experience in experimental and clinical histology.

The Gene Editing Core is available as a resource for researchers that want to make targeted mutations in cells using recently developed CRISPR technology.

The Computational Biology Core is led by a PhD scientist who collaborates with BRI investigators to analyze and interpret their next generation sequencing data. The Core provides not only data analysis but also integration and development of new computational methods to analyze and integrate genome wide data sets.

The joint BRI/MCW Transgenic Core aids in the generation of genetically altered animal models for the study of human disease.

The Clinical Trials Research Office (CTRO) supports the work of our Clinical Investigators, interfacing with the other research support services at the BRI. Services provided by the CTRO include but are not limited to clinical trial design and activation, study coordination and management, data collection, adverse event reporting, regulatory support and compliance, budgeting and contract negotiation, and financial management.
In 2018, the Versiti Blood Research Institute Foundation welcomed Kelley McCaskill as Vice President of Philanthropy. Kelley brings more than 20 years’ experience to this role and is excited about the opportunity to engage with researchers and donors who are part of the Blood Research Institute (BRI) community.

Two events that highlighted the important research taking place at the Blood Research Institute included Research and Roses, where we welcomed nearly 100 people to the BRI gardens to learn about T-Cell Therapy from Dr. Matthew Riese, an Associate Investigator with the BRI.

The 2018 Imagine Gala was held at the Intercontinental Hotel and was a great success. Co-chairs Brenda and Tony Garbo and the Stollenwerk Family welcomed 250 guests who bid on silent and live auction items, heard from Tia, a sickle cell and bone marrow patient, and learned about emerging research in the fields of Stem Cell and Cell Therapy Research – areas that have grown quickly at the BRI with support of the community.

As the Foundation works to expand awareness of the Versiti Blood Research Institute in our community and beyond, we appreciate all that you do for us. You are our best advocates – sharing with your networks the important, life-changing work that happens at the BRI.

If you’d like to learn more about how you can help, please contact the Foundation office at 414-937-6799.

Mike and Ginny McBride

The Versiti Blood Research Institute’s research was instrumental in ensuring that Ginny’s kidney transplant was a success.

Ginny has polycystic kidney and liver disease (PKD), an inherited disorder. The day after we celebrated our 50th wedding anniversary, she started on kidney dialysis. After 22 months of dialysis treatments, her nephew Brad called to say he wanted to give her one of his kidneys. While Brad’s kidney wasn’t a perfect match, investigators at the Versiti Blood Research Institute had developed a process that made it possible for Ginny to receive his kidney.

Prior to the transplant, Ginny had to have several plasmapheresis treatments to strengthen her antibodies, ensuring that if there was any sign that her body was rejecting Brad’s kidney, her antibodies would “win the fight.” Ginny’s kidney transplant was performed at Froedtert Hospital in July, 2014.

When we learned about Versiti Blood Research Institute’s Campaign for a Center for Stem Cell and Cellular Therapy Research and building project, there was no question we wanted to be involved. It was their research that had such a huge impact on the success of Ginny’s kidney transplant.

We believe “the best use of one’s life is to invest in something that will outlast life.” Versiti Blood Research Institute’s cutting edge research will continue to impact people’s lives long after our passing.

Mike McBride
Novel Approaches to Help Patients
Basic and applied biomedical research studies are aimed primarily at understanding normal and abnormal biology. This aids disease diagnosis, treatment and prevention. Research findings impact patients and patient care when companies develop products and services from new discoveries. Intellectual property and patents help to differentiate and protect these new markets. Federal guidelines encourage protection of grant-supported discoveries through patents and other mechanisms that have the potential to transform research findings into products and services that benefit the health of the public.

The Technology Transfer Office of Versiti helps to identify, protect, and commercially partner discoveries to serve patient needs. Net revenues generated support further research. In 2018, two new patents were filed, and royalty revenue totaled $457,864. Versiti has more than 50 license agreements with industry partners. The number of new licenses executed in 2018 was twice the national average for institutes with the same sized research budget.

Mission Statement
The Technology Transfer Office supports Versiti’s organizational mission of bringing life-saving solutions to the patient through a departmental focus on placing innovations into the hands of customers and colleagues.

Background
Inventor Tibor Greenwalt and colleagues discovered a white cell filtration method for blood in the 1960s. Patent activity increased in the 1980s with the discovery of the human platelet antigen system. Currently, the Technology Transfer Office provides intellectual property, contract management, and business management administrative services for the organization. A cross functional team called the Technology Transfer Review Group provides executive oversight for this function.
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Publications 2018


82. Wesley EM, Xing G, McAllister D, Malarkannan S, Newman DK, Dwnell MB, Cui W, Johnson BD, Riese M. Diacylglycerol kinase ζ (DGKζ) and Casitas b-lineage proto-oncogene b-deficient mice have similar functional outcomes in T cells but DGKδ-deficient mice have increased T cell activation and tumor clearance. Immunohorizons. Apr 1,2018;12(4):107-118. PMID: 30027154


