2024 Annual Research Report

versiti™
Blood Research Institute

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Blood Research Institute

The Versiti Blood Research Institute (VBRI) is dedicated to hematology in all its facets, spanning basic, translational and clinical research, all with one goal: to make people's lives better.

As a state-of-the-art research facility, the VBRI provides investigators with access to cutting-edge instrumentation, technology and supporting services.

Together with the Medical College of Wisconsin, Froedtert Hospital, and Children's Wisconsin, the VBRI forms the largest biomedical research hub in the Milwaukee Metropolitan area.

Impactful research requires a critical mass of investigators interested in the same topic. To facilitate the next phase of VBRI's development, construction of a new research building is underway that will double research space and closely connect VBRI with the Medical College of Wisconsin, creating a fully integrated research ecosystem.

Contents

Welcome Message

Michael Deininger, MD, PhD. EVP and Chief Scientific Officer, Mike and Cathy White Endowed Chair

A Proud History of Dedication and Accomplishment

When Versiti was created as the Milwaukee Blood Center more than 75 years ago, the prescient founders made a commitment to blood research that formed the foundation of the Versiti Blood Research Institute (VBRI). Today as back then the VBRI's mission is to improve the lives of patients afflicted with blood disorders.

Living up to this calling, VBRI researchers have made seminal scientific contributions that continue to benefit patients around the world. To name a few, VBRI researchers pioneered the identification of rare red blood cells types for transfusion and developed new technologies for platelet collection and storage. They facilitated the first bone marrow transplant from an unrelated donor in a child with aplastic anemia. It was VBRI scientists who recognized the link between blood product transfusions and the transmission of HIV and were instrumental for the development of methods to minimize viral transmission risk for hemophiliacs.

For the research teams at today's VBRI, these achievements are an inspiration to push the limits of science to advance clinical hematology for the benefit of patients.

Living the Changes in the Research Environment

Impactful innovation thrives when scientific rigor and a collaborative environment let the best ideas come to fruition. Gone are the days when a single talented scientist could make major discoveries. Today, the depth and breadth of expertise required to be at the cutting edge of knowledge generation mandate team science, from the conception of ideas to their practical implementation. Responding to this fundamental change, we have established a governance structure that emphasizes collaboration at all levels and yet recognizes the need for specialization. Accomplished scientists are empowered to lead the VBRI's five research programs, using their deep expertise to provide vision and identify opportunities for collaborative science.

2024 VBRI Research

Investigators	37
Fellows	37
Graduate Students	6
Research Trainees	15
Research Scientists	22
Technologists/Technicians	27
Administration	17
Core Labs	14
Institute Staff	213
Publications Total	122
Extramural Funding	$17.5M
Research Space	82,000 ft²

At the VBRI, we are committed to fostering an inclusive culture that encourages participation and ownership. Processes are transparent, and decision-making rights exist at many levels. We established the VBRI Executive Committee (VEC) as our main governance body and conduit between the leadership and the VBRI community. Carefully designed committees advise the VEC to ensure stakeholders are heard when decisions are made for the Institute.

Our dream is a space, physical as much as cultural, where a vibrant community enjoys the fun of doing impactful research with our mission at heart: to improve the lives of patients afflicted with blood disorders. While much work remains to be done, we have picked up momentum, and our future is bright.

Achieving Critical Mass

Innovative ideas spring up and scientific breakthroughs happen when many bright minds work together under the same roof. To achieve this critical mass of scientists, the VBRI must grow.

Over the past two years, six outstanding new PIs have joined our faculty, soundly rejecting the notion that Milwaukee is difficult to recruit to. With our new colleagues come new perspectives, new ideas and new ways of thinking. Within the next 10 years, we plan to expand our team to 45 principal investigators.

As VBRI is nearing capacity, this cannot happen without new research space. Funding was secured for a new research wing that will double our research space. Following groundbreaking in September 2024, the $79M construction of the 79,000-square-foot state-of-the art research facility is well underway, creating more than 100 new jobs, an estimated $19M in additional tax revenue for Wisconsin, and the nation's largest blood research center.

The VBRI is poised to become a world leader in hematology. The sky is our limit.

Versiti Blood Research Institute Leadership

Versiti Executive Council (VEC)

As the VBRI's main decision making body, the VEC meets weekly to discuss urgent and strategic issues. All VBRI programs and major offices are represented to ensure inclusivity and flow of information from the leadership to all VBRI members.

Michael Deininger, MD, PhD
Director and Senior Investigator
EVP and Chief Scientific Officer, Versiti
Michael H. and Cathy White Family Endowed Chair for Research

Karin Hoffmeister, MD
Deputy Director and Senior Investigator
Hauske Family Endowed Chair in Glycobiology

Greg Wendling, MBA, CRA
Director, Office of Sponsored Programs

Peter Newman, PhD
Senior Investigator and Advisor
Jacquelyn Fredrick Endowed Chair for Foundational Research

Ralph Federspiel, CRA
Director, Research Strategy and Initiatives

Sridhar Rao, MD, PhD
Investigator
Program Leader, Stem Cell Biology & Hematopoiesis

Qizhen Shi, MD, PhD
Senior Investigator
Program Co-Leader, Thrombosis & Hemostasis

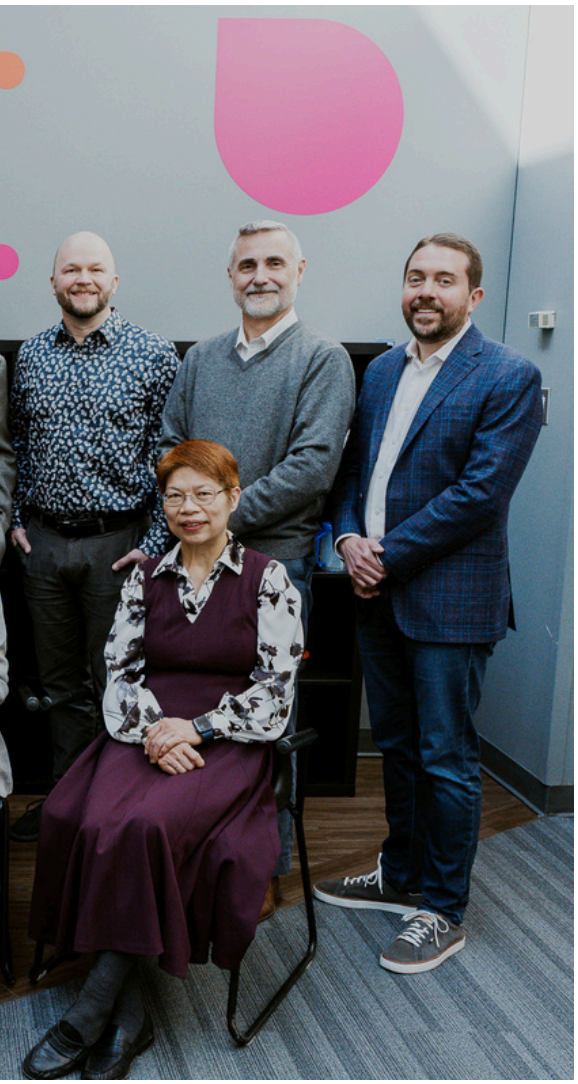
Christian Kastrup, PhD
Senior Investigator
Program Co-Leader, Transfusion Medicine, Vascular Biology & Cellular Therapy
Ziegler Family Endowed Chair for Foundational Research

RenRen Wen, PhD
Senior Investigator
Program Co-Leader, Hematopoiesis and Immunology

Magdalena Chrzanowska, PhD, FAHA
Senior Investigator
Program Co-Leader, Transfusion Medicine, Vascular Biology & Cellular Therapy

Alan E. Mast MD, PhD
Senior Investigator
Program Leader, Thrombosis & Hemostasis
Walter Schroeder Endowed Chair for Blood Research

Lisa Baumann-Kreuziger, MD
Investigator
Program Leader, Translational Hematology



Versiti Executive Council (VEC) Members
Back from left: Renren Wen, Sridhar Rao, Alan Mast, Michael Deininger, Greg Wendling, Ralph Federspiel, Christian Kastrup. Front from left: Karin Hoffmeister, Magdalena Chrzanowska, Qizhen Shi

Scientific Leadership

BRI faculty serve in influential roles in the national and international research community, including editorial boards of leading hematology journals.

Michael Deininger, MD, PhD
Associate Editor, Haematologica

Bonnie Dittel, PhD
Associate Editor, Autoimmunity
Senior Editor, ImmunoHorizons

Hervé Falet, PhD
Chair, ASH Scientific Committee on Megakaryocytes and Platelets

Karin Hoffmeister, MD
Deputy Editor, BloodVTH

Subramaniam Malarkannan, PhD
Associate Editor, Frontiers in Immunology
Chief Editor, *Critical Reviews in Immunology*
Associate Editor, Autoimmunity

Alan Mast, MD, PhD
Associate Editor, Journal of Thrombosis and Hemostasis

Joshua Muia, PhD
Associate Editor, Frontiers in Immunology

Debra Newman, PhD
Member, Frontiers in Immunology Editorial Board

Qizhen Shi, MD, PhD
Associate Editor, Frontiers in Immunology

Roy Silverstein, MD
Board of Directors, ASH Research Collaborative

Prithu Sundd, PhD
Member, ASH Abstract Review Committee on Hemoglobinopathy

Demin Wang, PhD
Associate Editor, Frontiers in Immunology

Ze Zheng, MBBS, PhD
Member, ASH Trainee Council Study Section

Lisa Baumann-Kreuziger, MD, MS
Associate Editor, Thrombosis Research

Brian Branchford, MD
Vice Chair, HTRS Mentored Research Award Leadership

Transfusion Medicine, Vascular Biology & Cellular Therapy

PROGRAM MEMBERS

TRANSFUSION MEDICINE, VASCULAR BIOLOGY, AND CELLULAR THERAPY

Magdalena Chrzanowska, PhD, FAHA
Program Co-Leader, Senior Investigator

Yiliang Chen, PhD
Associate Investigator

Karin Hoffmeister, MD
Hauske Family Endowed Chair in Glycobiology, Deputy Director, Senior Investigator

Tirthadipa Pradhan-Sundd, PhD
Associate Investigator

Mitchell R. Dyer, MD, MSc
Adjunct Associate Investigator

Christian Kastrup, PhD
Ziegler Family Endowed Cahir for Blood Research, Program Co-Leader, Senior Investigator

Brian Curtis, PhD, D(ABMLI), MT(ASCP) SBB
Senior Director, Diagnostic Hematology, Senior Investigator

Peter J. Newman, PhD
Jacquelyn Fredrick Endowed Chair for Foundational Research, Senior Investigator

Roy L. Silverstein, MD
Senior Investigator

Teresa Soles
Program Coordinator

Transfusion Medicine, Vascular Biology & Cellular Therapy

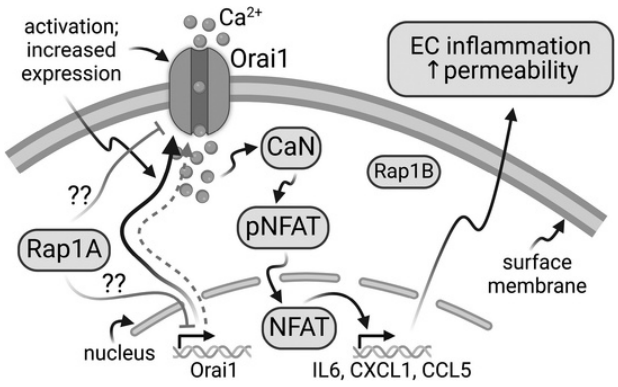
Program Leaders: Magdalena Chrzanowska, PhD, FAHA, and Christian Kastrup, PhD

The Transfusion Medicine, Vascular Biology & Cellular Therapy (TM VB CT - TVC) Program develops advanced blood products, novel cellular therapies, and new treatments for platelet and vascular disorders. Focusing on vascular biology, the Program conducts studies on sickle cell disease, trauma, and cardiovascular conditions, translating discoveries into future therapies.

Transfusion Medicine scientists work to refine blood products for bleeding disorders, cancer, and sepsis, along with the design of new diagnostic tests. In Vascular Biology, researchers study blood vessel integrity and clotting in cardiovascular disease. Cellular Therapy scientists use RNA and stem cell technologies to engineer the blood products of the future.

Magdalena Chrzanowska, PhD, FAHA, Senior Investigator and VBRI Program Co-Leader for Transfusion Medicine, Vascular Biology, and Cellular Therapy

UNCOVERING BIOLOGY OF LUNG ENDOTHELIUM



Schematic of the proposed mechanism by which Rap1A modulates Orai1 functional expression to control store-operated Ca2+ entry, NFAT activation, endothelial inflammation, and permeability.

The laboratory of **Dr. Magda Chrzanowska** reported that the small GTPase Rap1A modulates store-operated calcium entry in lung endothelium, a previously unrecognized mechanism that sheds new light on how lung blood vessels regulate inflammation and fluid balance (Kosuru et al., Arterioscler Thromb Vasc Biol. 2024 ;44(11):2271-2287). This discovery is especially important for conditions like acute lung injury, where leaky blood vessels can cause serious complications. The accompanying editorial, "Rap1 Brings the A Game to Control Lung Endothelium" (ATVB 44: 2288) highlights the study's potential to stimulate the development of new treatments to protect the lung's blood vessels.

Christian Kastrup, PhD, Senior Investigator at VBRI and Ziegler Endowed Chair for Foundational Research (as of March, 2025)

OTHER RESEARCH HIGHLIGHTS

Dr. Peter Newman and other investigators at the VBRI were awarded more than $13M to study how immune reactions, when left unchecked, can lead to destruction and/or activation of circulating platelets. One example of this is a disorder known as Fetal/Neonatal Alloimmune Thrombocytopenia, or FNAIT, in which a mother inadvertently makes antibodies against her fetus's platelets. Such antibodies, made in the mother, cross the placenta into the fetal circulation where they bind to and clear the baby's platelets, leading to fetal or neonatal bleeding sometimes serious enough to cause irreversible brain damage or death. The studies, funded by the National Institutes of Health, aim to improve diagnosis of this disorder early in pregnancy and to develop new treatments to prevent FNAIT from occurring in the first place.

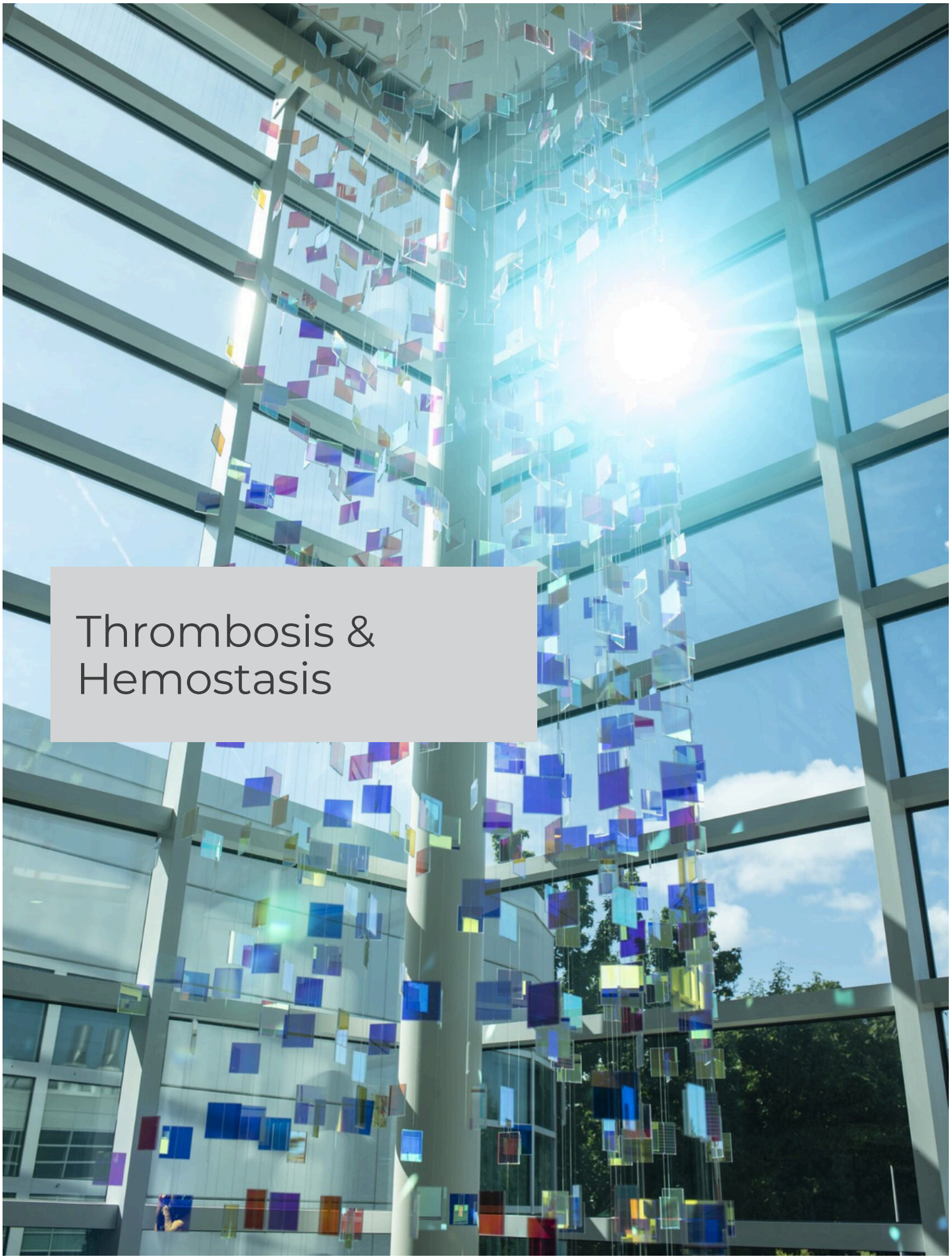
Creating the Blood Products of Tomorrow

GENETICALLY ENGINEERED PLATELETS

A paradigm-shifting breakthrough in blood research is being led by VBRI Senior Investigator **Dr. Christian Kastrup**. His team has pioneered a groundbreaking approach to genetically engineer platelets using enhanced mRNA technology. This technology may transform blood banking and offer new treatment options for patients with cancer, pulmonary embolism, and deep vein thrombosis.

Thanks to Dr. Kastrup's research, it is now possible to genetically modify platelets to function more effectively, with extended shelf life and enhanced capabilities. This innovative approach was recently featured on the cover of Blood, and the publication, "Genetically Enhanced Platelets for Improved Therapies", marks a significant step forward in platelet research. *Read the full study in Blood: Genetically Enhanced Platelets (2024).*

Peter J. Newman, PhD, Senior Investigator and Jacquelyn Fredrick Endowed Chair for Foundational Research,



Thrombosis & Hemostasis

PROGRAM MEMBERS

THROMBOSIS AND HEMOSTASIS

Alan E. Mast, MD, PhD
Walter Schroeder Endowed Chair for Blood Research, Senior Investigator, Program Co-leader

Brian Branchford, MD
Associate Medical Director, Hematology, Associate Investigator

Veronica Flood, MD
Associate Medical Director, Investigator

Yan-Qing Ma, PhD
Senior Investigator

Joshua Muia, PhD
Associate Investigator

Prithu Sundd, PhD
Senior Investigator

Ze Zheng, MBBS, PhD
Associate Investigator

Megan Baker
Program Coordinator

Qizhen Shi, MD, PhD
Senior Investigator, Program Co-leader

Hervé Falet, PhD
Investigator

Sandra L. Haberichter, PhD
Director, Hemostasis, Senior Investigator

Robert Montgomery, MD
Senior Investigator Emeritus

Debra K. Newman, PhD
Senior Investigator

Hartmut Weiler, PhD
Ziegler Family Chair for Foundational Research, Senior Investigator Emeritus

Jieqing Zhu, PhD
Versiti Eminent Chair in Discovery Research, Senior Investigator

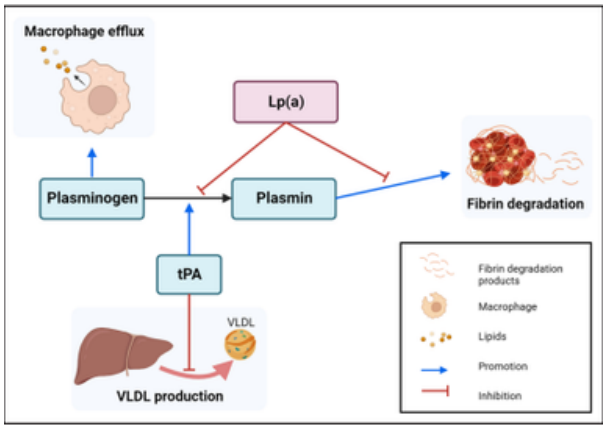
Thrombosis & Hemostasis

Program Leaders: Alan E. Mast, MD, PhD and Qizhen Shi, MD, PhD

Clotting and bleeding disorders, including myocardial infarction, strokes, and venous thrombosis, are leading causes of death in the United States. The Thrombosis & Hemostasis (TH) Program is dedicated to understanding the mechanisms of coagulation. Through close collaboration with the Versiti Medical Sciences Institute and Diagnostic Laboratories, the Program develops innovative therapies and diagnostic tools for both common and rare bleeding and clotting disorders.

TH focus areas include understanding the biochemical mechanisms of clot formation in cardiovascular diseases, venous thrombosis, and pulmonary embolism; optimizing management of clotting risk and complications in cancer patients; and the study of bleeding disorders such as hemophilia, von Willebrand disease, and rare conditions like Factor V East Texas. “We don’t stop at describing phenomena but dig deep into interactions between coagulation factors and platelets to understand how they contribute to clotting and bleeding complications” says Program Co-Leader Dr. Alan Mast.

LIPIDS AND CLOTS: A COMPLEX RELATIONSHIP



Lipoproteins and fibrinolysis interact to balance hemostasis. *Zhang et al. Arterioscler Thromb Vasc Biol. 2024;44(3):533-544.*

Ze Zheng, MBBS, PhD, VBRI Associate Investigator

Dr. Ze Zheng, Associate Investigator, and colleagues, published a widely noted review in Arteriosclerosis, Thrombosis, and Vascular Biology, titled "Clot or Not? Reviewing the Reciprocal Regulation Between Lipids and Blood Clotting." This comprehensive article explores the intricate, bidirectional relationship between lipid metabolism and the hemostatic system.

Lipoproteins, dynamic particles circulating in the blood, carry insoluble lipids and are associated with proteins, many of which are involved in blood clotting. Zheng’s review highlights how lipids and lipoproteins influence the hemostasis, and conversely, how clotting-related proteins affect lipid metabolism. Understanding this reciprocal regulation is crucial for developing targeted therapies for cardiovascular diseases, the leading cause of death and reduced quality of life worldwide.

Prithu Sundd, PhD, Senior Investigator

Emily Boyd, PhD candidate, Falet Lab

Mindy Kim, PhD Candidate, Zheng Lab

CIGARETTE SMOKE EXACERBATES FLU

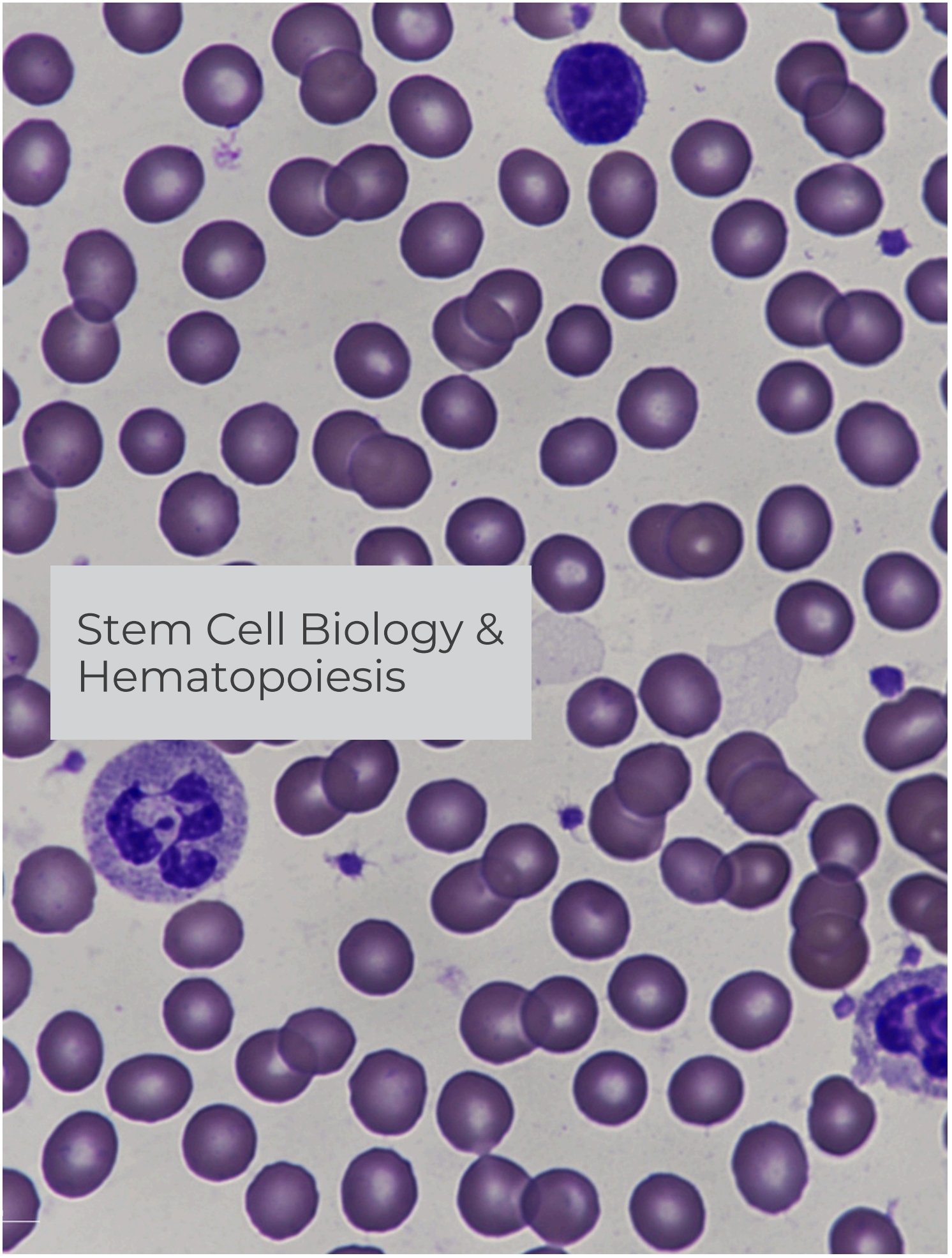
Dr. Prithu Sundd, Senior Investigator, and colleagues published a groundbreaking study titled "Lung Microvascular Occlusion by Platelet-Rich Neutrophil-Platelet Aggregates Promotes Cigarette Smoke–Induced Severe Flu."

Dr. Sundd's work revealed that cigarette smoke exposure leads to the formation of large platelet-rich neutrophil-platelet aggregates, causing lung microvascular occlusion. The result is pulmonary ischemia and vascular leakage, which greatly worsen influenza severity. These findings highlight the complex interplay between platelets, neutrophils, and vascular occlusion and show the way for new strategies to treat respiratory infections. *Kaminski et al. JCI Insight. 2024;9(2):e167299*

SUCCESS IN EDUCATION

Two TH graduate students, **Emily Boyd** and **Mindy Kim**, were awarded prestigious 2024-2025 STEM Chateaubriand Fellowships. This achievement will enable them to conduct part of their doctoral research at highly reputable institutions in France, fostering international collaboration and broadening their scientific perspectives.

Led by Alan Mast and Karin Hoffmeister, VBRI received a T32 grant for "Training in Transfusion Medicine and Classical Hematology" from the National Heart, Lung, and Blood Institute. This grant, a collaborative effort between VBRI and the Medical College of Wisconsin, will educate the next generation of scientists in transfusion medicine, classical hematology, and glycobiology research. Trainees will acquire the necessary skills and knowledge base to pursue successful careers as independent investigators in hematology.



Stem Cell Biology & Hematopoiesis

PROGRAM MEMBERS

STEM CELL BIOLOGY & HEMATOPOIESIS

Sridhar Rao, MD, PhD
Investigator, Program Leader

Michael Deininger, MD, PhD
Mike and Cathy White Endowed Chair, EVP and Chief Scientific Officer
Senior Investigator

John A. Pulikkan, PhD
Associate Medical Director, Hematology,
Associate Investigator

Tongjun Gu, PhD
Associate Investigator

Philip Doerfler, PhD
Associate Investigator

Teresa Soles
Program Coordinator

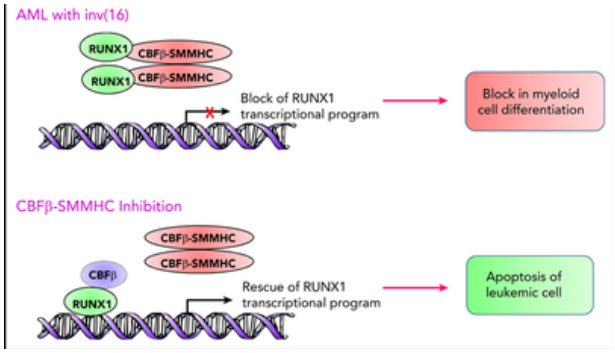
Stem Cell Biology & Hematopoiesis

Program Leader: Sridhar Rao, MD, PhD

The Stem Cell Biology & Hematopoiesis (SCB) Program is dedicated to innovative research in hematologic malignancies, cellular therapies, and regenerative medicine. Using state-of-the-art technology, Program members investigate the molecular mechanisms of normal blood cell development and how the disruption of these intricate processes leads to blood cancers. An emerging focus is to understand the long-term consequences of hematopoietic cell gene editing for non-malignant conditions such as sickle cell disease. At the core of SCB is the integration of basic science and clinical research to develop more effective and less toxic therapies for patients with hematologic malignancies, realizing the promise of precision hematology.

A NEW APPROACH TO TREAT LEUKEMIA

Dr. John Pulikkan, Associate Investigator, and colleagues reported a novel, targeted, approach to treat a specific subtype of acute myeloid leukemia (AML), a particularly aggressive form of blood cancer. The research team's discovery led to a patent, bringing their work one step closer to clinical translation. Testimony to the impact of Dr. Pulikkan's study, he received a Scholar Award from the American Cancer Society and an R01 from National Cancer Institute to continue his work on AML. *Peramangalam et al. Sci Adv. 2024;10(9):eadh8493.*



John A. Pulikkan, Associate Investigator (right), and Eric Michalski, Research Technologist (left), reviewing results in their lab at the VBRI.

MEASURING ONCOGENE ACTIVITY LIVE

Collaborating with investigators from the University of Utah, **Dr. Mike Deininger's** lab engineered a novel assay to measure the activity of SIRT5, a driver of AML growth, in life animals. This assay, the first of its kind, takes advantage of the very bright light generated by a protein found in a tiny deep-sea shrimp, *Oplophorus gracilirostris.* They are now aiming to understand how SIRT5 activity increases during AML progression, and to develop SIRT5 inhibitors to treat AML patients. *van Scoyk et al. Cell Chem Biol. 2024;31(11):2002-2014.*

Philip Doerfler, PhD, Associate Investigator

EXPANSION AND GROWTH

Dr. Philip Doerfler joined VBRI in August 2024. Focused on conditions such as sickle cell disease, the Doerfler lab is dedicated to advancing the treatment of genetic blood disorders, leveraging state-of-the-art genomic editing technology. This work will help to realize the paradigm of precision hematology - getting bespoke therapies to every patient with a blood disorder.

The SCB Program is growing its footprint by strategically recruiting new scientific leaders. **Dr. Tongjun Gu**, a computational biologist with expertise in cancer genomics, is using artificial intelligence to discover new biomarkers for leukemia. Dr. Wade Sugden, specializing in blood vessel and hematopoietic cell development using zebrafish as a model, will join VBRI in spring 2025. To increase critical mass and facilitate collaboration, SCB merged with the Immunology program at the end of 2024. **Renren Wen**, Senior Investigator, has joined Dr. Rao in developing direction and strategy for the combined program.

A NEW BLOOD CANCER MODEL

SCB received a generous, long-term gift from the Midwest Athletes Against Childhood Cancer (MACC Fund), which will support the creation of a patient-derived xenografting core. This will allow researchers to precisely model human blood cancers in animal systems and test novel therapies for early-phase clinical trials.

MENTORSHIP SUCCESS

Nataly Cruz, PhD, from the Deininger laboratory was awarded a prestigious Leukemia and Lymphoma Society Special Fellowship to study the role of SIRT5 in T-cell acute lymphblastic leukemia, a remarkable achievement that underscores the commitment to mentorship in the SCB Program.

Nataly Cruz, PhD, Senior Research Scientist

Immunology

PROGRAM MEMBERS

IMMUNOLOGY

Bonnie N. Dittel, PhD

Senior Investigator, Dr. Gilbert C. White II Endowed Faculty Chair

Subramaniam Malarkannan, PhD

Senior Investigator, Gardetto Chair for Immunology and Immunotherapy

Demin Wang, PhD

Senior Investigator, John B. and Judith A. Gardetto Chair for Cancer Research

Renren Wen, PhD

Senior Investigator

Immunology

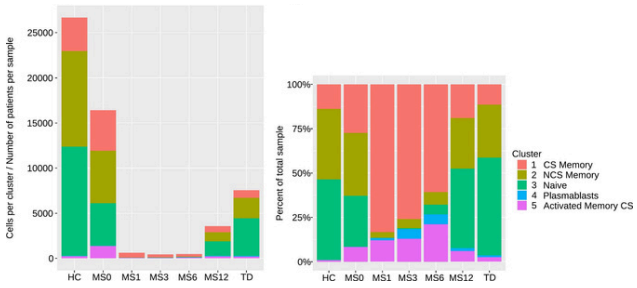
Interim Program Leader: Mike Deininger, MD, PhD

Since Versiti's founding in 1947, immunobiology research at the VBRI has made major scientific contributions that have transformed immunohematology and facilitated practice-changing innovations such as unrelated bone marrow transplants. Today, the research program continues to evolve, focusing on innovative therapies for blood cancers, autoimmune diseases, and immune system disorders.

Employing cutting-edge technologies, Immunology scientists elucidate the molecular mechanisms underlying immune cell development and immune dysregulation in disease, develop novel treatments like CAR-T and CAR-NK-based cellular therapies, and research the interactions between the immune and coagulation systems to improve understanding and treatment of blood cancers and related diseases.

Bonnie Dittel, PhD, Senior Investigator, Bonnie Dittel, Gilbert C. White II Endowed Faculty Chair

UNRAVELING THE IMMUNE MECHANISMS UNDERLYING MULTIPLE SCLEROSIS

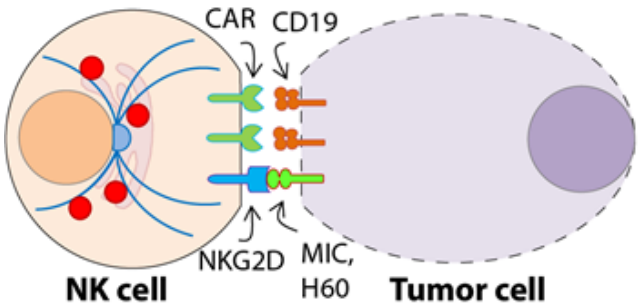


B cell subset clusters represented as cells/cluster/patient number and precent of total sample show that activated CS memory cells are reset to HC levels after a short course of ocrelizumab.

In a recent study published in the Journal of Neuroimmunology, **Dr. Bonnie Dittel** and colleagues examined the effects of the B cell-depleting drug ocrelizumab on activated memory B cells in multiple sclerosis patients. They demonstrated that ocrelizumab reduced the abnormally high numbers of these cells to levels observed in healthy controls. This finding underscores the therapeutic potential of targeting specific B cell subsets in treating MS. *Gurski, et al. J Neuroimmunol. 2025;399:578502*

In separate line of investigation, Dr. Dittel's laboratory identified a novel subset of regulatory B cells (BDL) that induce the proliferation of T regulatory cells (Tregs) through a mechanism that relies on the glucocorticoid-induced TNFR-related ligand (GITRL). This discovery offers new insights into the regulatory roles of B cells in autoimmunity and presents potential avenues for therapeutic intervention in multiple sclerosis.

Subramaniam Malarkannan, Senior Investigator, Gardetto Chair for Immunology and Immunotherapy



NKG2D facilitates CAR NK cell recall towards tumor cells

HARNESSING NK CELLS

Dr. Renren Wen and her laboratory's recent publication, titled "Prothrombotic Antibodies Targeting the Spike Protein's Receptor-Binding Domain in Severe COVID-19", explores a crucial aspect of COVID-19-related complications. They identified prothrombotic antibodies that specifically target the spike protein's receptor-binding domain, a key feature of the SARS-CoV-2 virus. These antibodies contribute to the abnormal blood clotting observed in severe COVID-19 cases, providing fundamental insights into the causes of COVID-19 coagulopathy, a significant contributor to morbidity and mortality.

Zhu et al. Blood. 2025;145(6):635-647.full article: PMID: 39576992

HARNESSING NK CELLS

Dr. Subramaniam Malarkannan's research focuses on the fundamental biology and clinical applications of Natural Killer (NK) cells, which are pivotal in the body's defense against viral infections and cancer. His team employs advanced techniques, including single-cell sequencing, to explore the developmental diversity of human NK cells in both healthy individuals and those with rare inherited diseases. By identifying pathways that influence NK cell activity, Dr. Malarkannan's work aims to enhance NK cell-based cancer immunotherapies.

Dr. Malarkannan's team reported that memory NKG2C+ NK cells expand and exhibit strong effector functions upon re-exposure to the human cytomegaly virus (HCMV) gpUL40. This study, presented at the American Society of Hematology Annual Meeting, determined how memory NK cells respond to re-exposure to HCMV, providing a roadmap to potential clinical applications. *Khalil et al. Blood (2024) 144 (Supplement 1): 2535.*

RenRen Wen, Senior Investigator


Clinical-Translational
Hematology

PROGRAM MEMBERS

TRANSLATIONAL HEMATOLOGY

Lisa Baumann-Kreuziger, MD, MS

Senior Medical Director, Hematology, Investigator

Alan Mast, MD, PhD

Walter Schroeder Endowed Chair for Blood Research, Senior Investigator

Brian Branchford, MD

Associate Medical Director, Hematology, Associate Investigator

Angela Treml, MD

Medical Director, Hematology

Lynn Malec, MD, MSc

Senior Medical Director, Hematology, Associate Investigator

Joshua Field, MD, MS

Senior Investigator (Adjunct)

Rowena Punzalan, MD

Medical Director, Hematology

Clinical-Translational Hematology

Program Leader: Lisa Baumann-Kreuziger, MD, MS

VBRI's Translational Hematology Program (THP) is at the forefront of transforming how we treat blood disease. Supported by the Clinical Trials & Research Office (CTRO), THP researchers drive clinical-translational research to improve the lives of patients with blood disorders, from epidemiological studies to novel therapeutic interventions. Productive collaborations with the VBRI's campus partners, Froedtert Hospital, the Medical College of Wisconsin and Children's Hospital of Wisconsin, are central to THP's research.

THP faculty work tirelessly to deliver safe, cost-effective, and state-of-the-art care to patients with hematologic conditions, pioneering life-changing novel approaches in venous thromboembolism (VTE), hemophilia, and sickle cell disease.

Lisa Baumann-Kreuziger, MD, MS: Senior Medical Director, Hematology, Investigator, VBRI

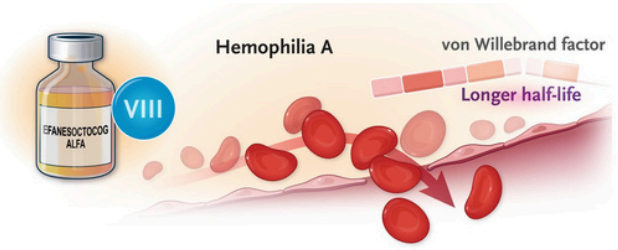
VENOUS THROMBOEMBOLISM NETWORK US (VENUS)

Deep vein thrombosis (DVT) is a major cause of morbidity and mortality. Supported by Versiti, **Dr. Lisa Baumann-Kreuziger** established the Venous thromboEmbolism Network US (VENUS), a first of its kind research network dedicated to advancing the understanding and treatment of VTE. VENUS serves as a coordinating center for multicenter trials that address scientific questions relevant to clinical care. National studies conducted by VENUS demonstrated that administering full doses of anticoagulation to hospitalized COVID-19 patients can prevent thromboembolism and progression of lung failure, establishing a new standard of care.

In 2024, VENUS reported a comparative analysis of perioperative anticoagulation management across multiple institutions that established best practices for anticoagulation therapy during surgical procedures. This work, published in Blood, demonstrates VENUS's role as a leader in practice-relevant research that improves patient safety. *For Guidelines published in blood: Blood (2024) 144 (Supplement 1): 5014.*

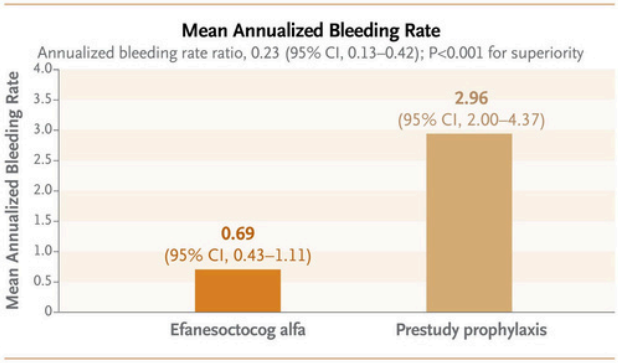
Addressing another long-disputed question, VENUS is conducting a study evaluating the use of blood thinners before and after delivery. This work aims to improve pregnancy outcomes by refining anticoagulation strategies during the peripartum period, when the risk for bleeding and clotting complications is highest.

Lynn Malec, Senior Medical Director, Hematology, Associate Investigator



Bleeding Rates in Group A (N=133)

Estimated mean annualized bleeding rate	Median annualized bleeding rate	Patients with 0 bleeding episodes
0.71	0.00	86
(95% CI, 0.52–0.97)	(IQR, 0.00–1.04)	(65%)



OTHER RESEARCH HIGHLIGHTS

The Versiti Comprehensive Center for Bleeding Disorders (CCBD) is at the forefront of innovative treatments for hemophilia A. Under the leadership of **Dr. Lynn Malec**, CCBD participated in the international XTEND-Kids clinical trial, evaluating efanesoctocog alfa, a novel therapy for children under 12 with severe hemophilia A.

The study demonstrated that once-weekly injections of efanesoctocog alfa effectively prevented bleeding episodes without the development of neutralizing antibodies, offering a promising alternative to traditional factor VIII therapies. This practice-changing study was published in the New England Journal of Medicine. *Malec et al. N Engl J Med 2024;391:235-246*

REDS-IV-P
Optimizing Transfusion Across the Lifespan

BLOOD TRANSFUSION SAFETY AT THE HEART

The Recipient Epidemiology and Donor Evaluation Study-IV-Pediatric (REDS-IV-P) is a pioneering national program funded by the National Heart, Lung, and Blood Institute (NHLBI) that focuses on enhancing the safety and effectiveness of blood transfusions across all age groups.

Since 2004, VBRI researchers have been at the forefront of this initiative, with **Dr. Alan Mast** and **Dr. Lisa Baumann-Kreuziger** currently serving as co-principal investigators for REDS-IV-P. Their collaborative efforts aim to identify key factors in both patients and donors that influence transfusion outcomes, particularly for individuals with sickle cell disease and thalassemia - two challenging inherited red blood cell disorders that require frequent blood transfusions.

Shared Resources

L. William Cashdollar, PhD

The Versiti Blood Research Institute (VBRI) Shared Resources play a critical role in advancing biomedical research by providing access to specialized services, cutting-edge instruments, and expert staff. These core laboratories support research programs at VBRI, its campus affiliates, and collaborators, offering essential resources that would be cost-prohibitive for individual labs to sustain independently. By fostering a culture of collaboration and scientific innovation, VBRI Shared Resources empower researchers with the tools and training needed to drive groundbreaking discoveries.

The VBRI Shared Resources consist of:

- Bioinformatics
- Biorepository
- Flow Cytometry
- Histology
- Hybridoma
- Microscopy
- Molecular and Single Cell Biology
- Protein
- Shared Instrumentation
- Thrombosis and Hemostasis
- Viral Vector

These facilities are essential for maintaining a high-caliber research environment and attracting top-tier faculty. Principal Investigators (PIs) must demonstrate access to such resources in their grant applications, as required by funding agencies like the National Institutes of Health (NIH). Our dedicated staff provides training and technical expertise, accelerating research progress and facilitating high-impact publications.

RESEARCH HIGHLIGHTS

In 2024, VBRI Shared Resources made significant contributions to research advancement by:

- Providing services to 28 Versiti Labs, 46 MCW Labs, 12 Funded Trainees,7 External Labs and over 210 total users.

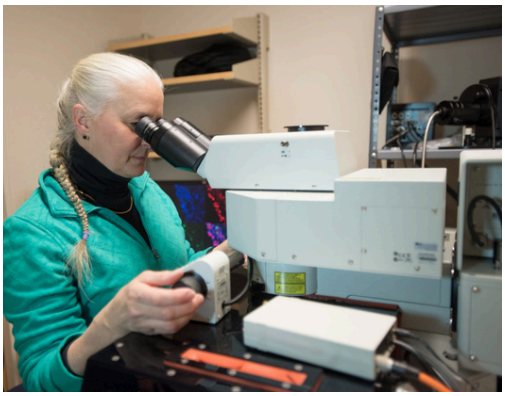
(Left) VBRI Shared Resources team members. (Top Right) Marie Schulte, PhD, analyzing images.

- Supporting 121 publications.
- Supporting 112 peer reviewed grant proposals and 45 sponsored awards valued at over $41 million in extramural funding.
- Facilitating $594K in capital investments for faculty recruitment and equipment upgrades.

NEW INSTRUMENTATION AND EQUIPMENT UPGRADES

Microscopy Core:

Nikon AXR Point Scanning Confocal Microscope: Equipped with eight laser lines and a spectral detector for precise wavelength selection and reduced spectral overlap. Also supports live cell imaging.



121
PUBLICATIONS & GRANT APPLICATIONS

$41M
FEDERAL FUNDING

$594K
CAPITAL INVESTMENT

Molecular Biology and Single Cell Core:
QuantStudio Absolute Q Digital PCR System: Plate-based digital PCR integrates compartmentalization, thermal cycling, and data acquisition on a single platform. 16 individual samples are separated in 20,000 microcompartments on a single-use chip.

Protein Core:
Malvern NanoSight: Enables nanoparticle characterization for studying extracellular vesicles in disease states, including size measurement.

Nicoya Alto: 16-channel digital SPR instrument which integrates digital microfluidics with nanotechnology-based biosensors to measure protein-protein interaction.

FUTURE DIRECTIONS
Looking ahead, VBRI Shared Resources aim to further enhance research support through strategic initiatives, including:

Increased Educational Outreach: We are committed to expanding our consultations and training programs to improve research outcomes and attract more users. By hosting campus workshops, seminars, and presentations, we aim to enhance visibility and engagement, ultimately increasing core facility utilization.

Strengthen Communication : Improve communication efforts to increase awareness of available resources and training opportunities.

Staff Professional Development: Increase staff expertise, knowledge, and networking.

MRMC Hematology Biorepository

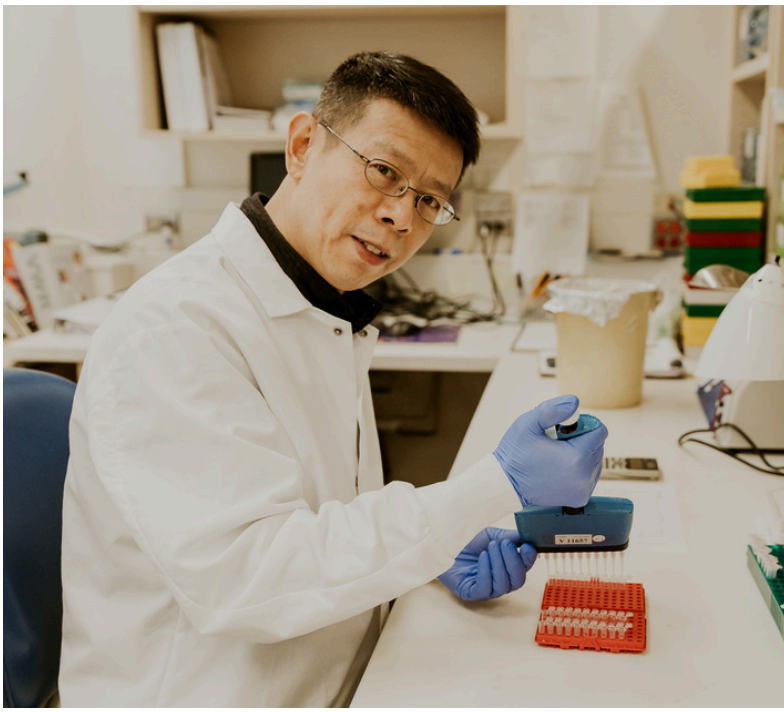
Led by the VBRI, the Hematology Biorepository (HBR) is a key initiative within the Milwaukee Regional Medical Center (MRMC) designed to provide high quality primary patient tissues to support research in hematology. The HBR collects and preserves a wide range of annotated biological samples, with a focus on blood and bone marrow cells and their derivatives. HBR is jointly governed by MCW and VBRI to ensure democratic access to samples for all MRMC researchers. These samples enable diverse patient-centered research, including the development and validation of biomarkers and new diagnostics, and the identification of new therapeutic targets.

KEY OBJECTIVES

A Resource for the Entire MRMC:
HBR broadly supports hematology research, with a natural focus on areas of active MRMC research such as leukemia, hemophilia, and sickle cell disease. Representation from all MRMC institutions in the governance ensure strategic alignment, equal access and transparency.

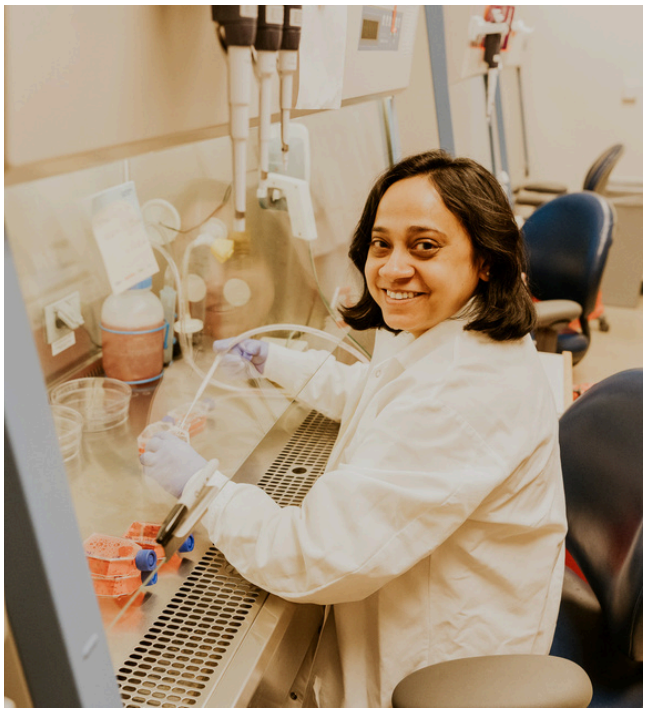
Promoting Hematology Research:
Use of primary patient tissue is critical for validation of data obtained with cell lines or animal models. HBR will serve as a vital resource that enables rigorous and competitive patient-based research in blood-related diseases, enhancing MRMC's standing as a prime research institution in hematology.

Providing High Quality Samples:
HBR will use state-of-the-art technology for sample processing and quality control and seek accreditation by the College of American Pathologists (CAP). Algorithms will be used to optimize retrieval of critical patient tissue, e.g., immunomagnetic selection of leukemia stem and progenitor cells for downstream analysis.



Biomarker and Therapy Target Discovery:
By providing access to ethically sourced, annotated biological samples, HBR will enable researchers to discover and validate biomarkers, supporting the development of more effective diagnostics and monitoring systems for hematological diseases. The curated HBR samples will help identify novel therapeutic targets, driving the development of new treatments and improving the understanding of disease mechanisms.

A Research Ecosystem:
The HBR will be a critical component of a hematology research ecosystem that integrates clinical data (phenotypes), clinical laboratory and imaging data, sample-derived research data, and epidemiologic and outcomes data (e.g., survival) into a minable data repository. MRMC scientists will have access to this powerful tool to generate and test novel hypotheses and develop more effective diagnostics and therapeutics.



SECURITY AND SUSTAINABILITY

HBR is committed to environmental sustainability. The facility will use green technologies and energy-efficient systems to reduce its carbon footprint and optimize resource usage. These sustainable practices will not only enhance efficiency but also help maintain the highest standards for sample preservation, maximizing rigor and reproducibility of research results.

HBR is designed to operate at the highest security standards. To safeguard the integrity and confidentiality of the biological samples and associated data, the facility will incorporate state-of-the-art security technologies, including:

- Facial Recognition and Near Field Communication (NFC) systems to restrict and monitor access to sensitive areas.
- Advanced encryption protocols to protect data, ensuring that all research activities comply with ethical and regulatory standards.

IMPACT AND FUTURE DIRECTIONS

Advancing Precision Hematology:
Validating results in patient tissues is considered the gold standard of pre-clinical research. As healthcare shifts towards personalized treatments, the MRMC HBR will be at the forefront of providing insights into the genetic and molecular basis of hematological diseases based on data derived from patient tissues.

Collaboration and Global Impact
The biorepository will foster collaboration between MRMC researchers, VBRI, the Medical College of Wisconsin (MCW), and international collaborators. This global network will help tackle complex health challenges by sharing data, research findings, and resources, maximizing HBR's impact.

Bioinformatics Core

Tongjun Gu, PhD

Led by **Dr. Tongjun Gu, PhD**, the Bioinformatics Core is a cornerstone of VBRI's research enterprise. By integrating cutting-edge computational tools with deep scientific expertise, the Bioinformatics team transforms vast, multi-dimensional datasets into actionable knowledge that supports clinical research and precision therapies.

The Core's mission is to unravel complex biological questions - ranging from the genetic and epigenetic drivers of thrombosis, cancer, and heart disease to the nuanced mechanisms regulating hemostasis. Leveraging state-of-the-art methodologies, the Bioinformatics team not only supports high-impact publications and competitive grant applications but also guides investigators toward innovative research directions.

As VBRI grows - bolstered by new facilities, expanding faculty, and increasing service requests - robust computational infrastructure, dedicated talent, and strategic planning has never been more critical.

CORE RESEARCH AREAS

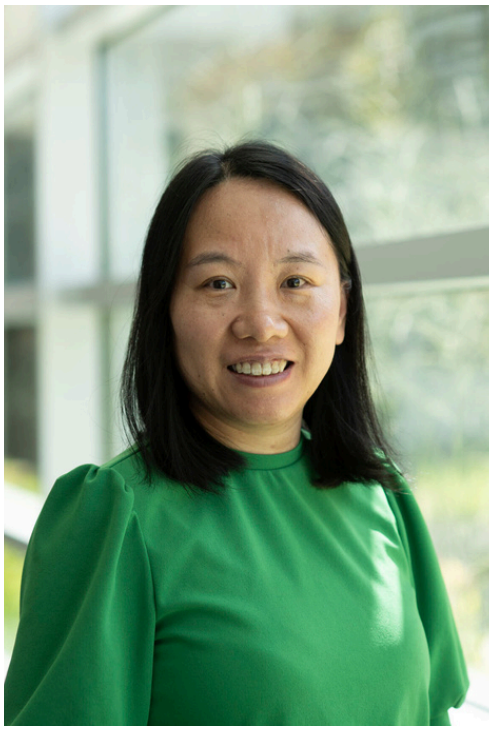
Omics and Multi-Omic Data Analysis:
The Core's team excels at deciphering comprehensive omics datasets, spanning genetics, epigenetics, proteomics, glycomics, and metabolomics, and at performing integrative analyses to uncover both the unique contributions of each molecular profile, and their collective impact on disease mechanisms.

Precision Medicine & Targeted Therapies:
Through advanced machine learning and statistical modeling, the Core supports the identification of novel biomarkers and molecular targets, advancing individualized treatment strategies and precision hematology.

Advanced Statistical Analysis and Data Management:
We provide rigorous statistical analysis and sample size estimation to enhance the credibility and reproducibility of research outcomes. Our team also offers comprehensive support for data curation and ensures compliance with data-sharing standards, improving the accessibility and impact of research data. By streamlining data workflows and facilitating robust analyses, our statistical and data management expertise empowers researchers to maximize the scientific and translational value of their findings.

RECENT ADVANCES & HIGHLIGHTS

Oncogene Regulation in AML:
The Core contributed critical analysis to a recent Science Advances publication, demonstrating the CBFB-MYH11 oncogene modulates gene expression in AML, identifying new therapeutic avenues.



Tongjun Gu, PhD, Associate Investigator and Director of the Bioinformatics Core.

Antiviral Integration Studies: In a longstanding collaboration with Dr. Qinzhen Shi, the Core's comprehensive analysis of multi-generational antiviral integration data has provided critical insights into virus–host dynamics, guiding future clinical and research initiatives.

A New Data Science Core

Over the past year, our dedicated support has contributed to 26 grant and fellowship applications, including a PPG project led by **Dr. Karin Hoffmeister.** Notably, Dr. Gu has played a pivotal role in this application, leading efforts to establish a new Data Science Core. This initiative aims to significantly enhance the existing Bioinformatics Core by expanding its analytical capabilities to incorporate glycomics data analysis, further strengthening our cutting-edge research and innovation.

FUTURE DIRECTIONS

Artificial Intelligence & Predictive Modeling: Recognizing the transformative potential of AI, we are expanding our capabilities to incorporate deep learning techniques. These advances will refine our predictive models and strengthen precision hematology initiatives, enabling more accurate, data-driven clinical decisions.

Infrastructure & Computational Enhancements: To keep pace with the rapid expansion of multi-omic data and large-scale AI models, we are upgrading our computing infrastructure. Planned improvements include enhancing high-performance computing capabilities by increasing cores, memory, and storage, as well as integrating advanced job monitoring systems to optimize efficiency and scalability for large-scale analyses.

Visualizing Cell State Dynamics. *RNA velocity figure illustrating the dynamics and trajectories of cell states. The directions of cell state transitions are represented by streamlines, which project the inferred RNA velocities within the figure.*

Supporting Success

Research Administration

VBRI's Research Administration unites muti-skill teams of experts to support groundbreaking research and empower our investigators. Our multidisciplinary group comprises several crucial functions:

- The **Administrative Support Team**
- The **Finance Team**
- The **Office of Sponsored Programs**
- The **Office of Research Innovation & Technology Transfer**

Each team plays a strategic role, working seamlessly to create a supportive ecosystem that allows VBRI investigators to thrive. Our collaborative approach ensures research is innovative, financially sound, well-managed, and has the potential for real-world impact.

ADMINISTRATIVE SUPPORT (AS) TEAM

From 2022 to 2024, the VBRI's AS Team underwent profound strategic restructuring and transformation to meet the challenges of an increasingly complex research environment and align with the modernization of VBRI governance. Additions were made to support a modern administrative infrastructure, including new functions such as program coordinators. This strategic transformation will allow us to keep pace with VBRI's growth and to thrive in a competitive environment.

ACADEMIC AND INTERNATIONAL AFFAIRS

The Office of Academic and International Affairs, led by the Academic & International Affairs Administrator, supports international employees, facilitates training and educational opportunities for postdoctoral fellows and VBRI employees, and supports the work of the Education Committee.

International Affairs

Versiti sponsors the exchange visitor program, employs F-1 students on Curricular Practical Training (CPT) and Optional Practical Training (OPT), and supports international employees.

International employees are a vital component of our recruitment pipeline. The VBRI's international workforce includes employees from China, Sri Lanka, Canada, Poland, India, Colombia, Iran, France, Nigeria, Mongolia, the Bahamas, and Pakistan. Exchange visitors receive pre-arrival support, immigration orientation, and on-site English practice.

Academic Affairs: The Academic & International Affairs Administrator chairs the Education Committee, creating numerous awards, workshops, and learning opportunities for the VBRI community. The office collaborates with the Office of Postdoctoral Education at MCW and assists in monitoring the development of VBRI postdoctoral fellows.

To enhance the recruitment of postdoctoral fellows to Wisconsin in a competitive labor market, the Academic Affairs Office co-founded the Wisconsin Postdoc Expo, promoting a variety of training opportunities at multiple research institutions throughout the state.

FINANCES

The Finance Team ensures research activities are within budget and compliant, navigating complex regulations for efficient resource allocation. They oversee financial transactions, manage educational programs, and ensure deadlines are met, fostering efficiency and effectiveness. Total direct costs spent annually have grown from less than $11M in 2019 to over $17M in 2023, requiring tremendous coordination, communication, and attention to detail.

THE OFFICE OF RESEARCH INNOVATION & TECHNOLOGY TRANSFER (RITT)

The Office of Research Innovation & Technology Transfer (RITT) at Versiti Blood Research Institute (VBRI) is dedicated to transforming scientific discoveries into real-world solutions. Established in 2022, RITT expanded its scope to include all Versiti entities, including VBRI and the Diagnostic Laboratories.

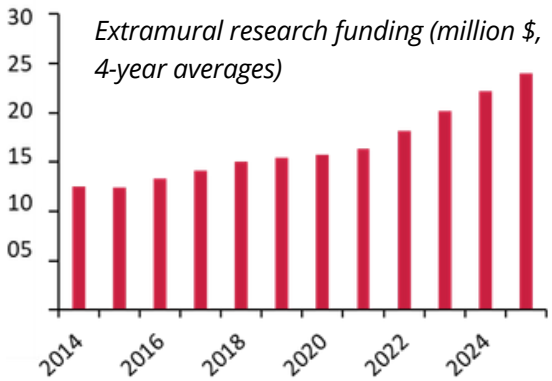
In 2024, RITT achieved significant milestones:

Patents: Secured four patents and filed ten applications globally, strengthening the intellectual property portfolio.

External Funding: Obtained funding to support the commercial development of Versiti's technologies.

Awards & Recognition:

- Dr. Christian Kastrup received the 2024 CSL Research Acceleration Initiative Award, including an option to license the innovation.
- Dr. Ze Zheng was awarded the 2024 Therapeutic Accelerator Program Award, enabling commercialization of her precision therapeutics innovation.
- Dr. Christian Kastrup won the 2024 Bridges to Cures: Healthcare Innovation Pitch Competition, presenting his acute bleeding hemostatic therapeutic innovation to investors.

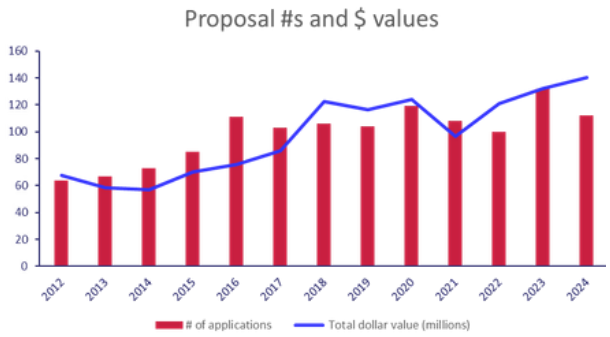


Extramural research funding (million $, 4-year averages)

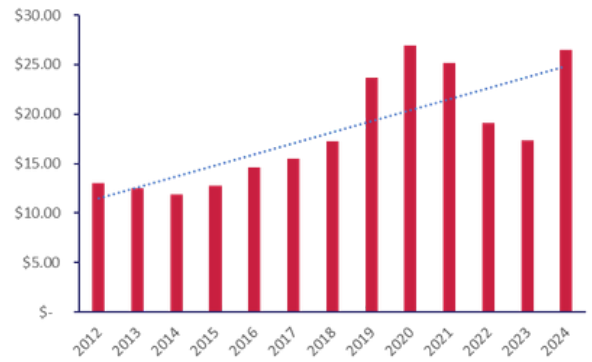
Moving Research Forward

Office of Sponsored Programs

Grant funding is the driving force behind VBRI's cutting-edge research and innovation. As competition for research funding continues to intensify globally, a premier institution depends on robust administrative support to empower investigators to concentrate on their groundbreaking work and crafting compelling grant proposals. The Office of Sponsored Programs at VBRI serves as a vital partner in this journey, offering comprehensive guidance in the proposal phase, management and compliance during the active period, and thoroughness in the closeout phase.



Submissions for sponsored research projects



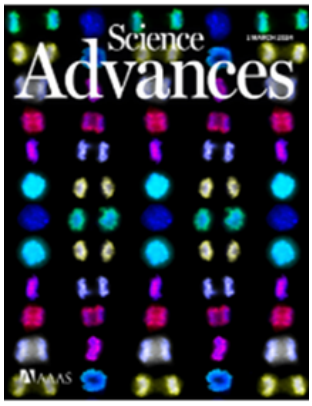
Newly awarded research funding (millions, 3-year averages)

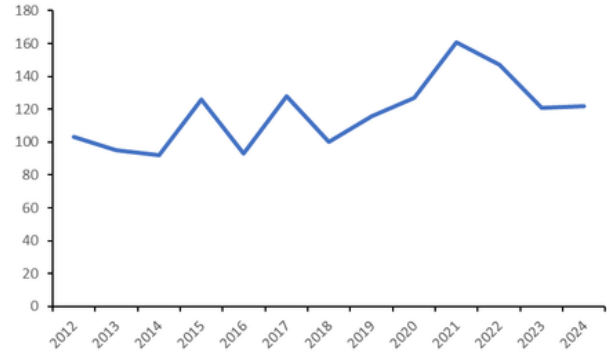
PRE AWARD

In 2024, VBRI investigators submitted 112 individual funding proposals valued at $140.13,
our largest aggregated budget request in history. This sustained growth reflects the VBRI's relentless pursuit of innovation in research, paving the way to enhance outcomes for patients with blood disease.

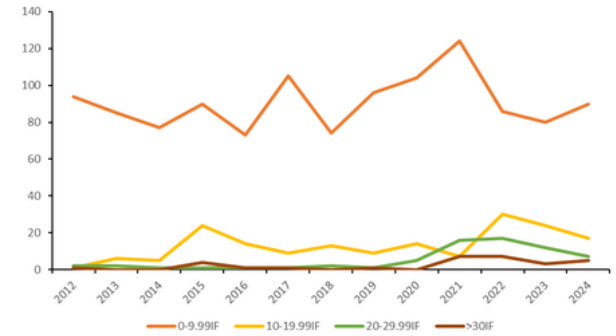
POST AWARD

Following our record number of proposal submissions in 2023, in 2024 OSP's Post-Award team processed a record number of new awards with an estimated value of approximately $41M of new multi-year research grants to fund our research. Since 2001, the steady rise in the value of new awards stands as a testament to our unwavering dedication to securing the resources that drive transformative research, both today and into the future.





Publications in peer-reviewed journals



Publications by impact factor (IF)

Dissemination

In 2024, VBRI researchers published 122 manuscripts, including 45 articles with VBRI faculty as lead and/or senior author. Five papers were published in journals with an impact factor (IF) >30, 7b in journals with IF between 20 and 30, and 17 in journals with IF between 10 and 20.

NOTABLE PUBLICATIONS

The NEW ENGLAND JOURNAL of MEDICINE

Efanesoctocog Alfa Prophylaxis for Children with Severe Hemophilia A

Malec, Lynn, et al. "Efanesoctocog Alfa Prophylaxis for Children with Severe Hemophilia A." The New England Journal of Medicine, vol. 391, no. 3, 17 July 2024, pp. 235–246. https://www.nejm.org/doi/10.1056/NEJMoa2312611.

N-MYC regulates cell survival via eIF4G1 in inv(16) acute myeloid leukemia

Philomina Sona Peramangalam, Sridevi Surapally, Anthony J. Veltri, Shikan Zheng, Robert Burns, Nan Zhu, Sridhar Rao, Carsten Muller-Tidow, John H. Bushweller, and John A. Pulikkan

Lipid nanoparticles and siRNA targeting plasminogen provide lasting inhibition of fibrinolysis in mouse and dog models of hemophilia A

Strilchuk, Amy W., et al. "Lipid Nanoparticles and siRNA Targeting Plasminogen Provide Lasting Inhibition of Fibrinolysis in Mouse and Dog Models of Hemophilia A." Science Translational Medicine, vol. 16, no. 767, 17 July 2024, eaadh0027. https://doi.org/10.1126/scitranslmed.adh0027.

Fostering Collaboration, Driving Innovation, & Advancing Excellence

Committees, advisory boards, and research retreats are critical features of the VBRIs distributive governance model. They advance the Institute's mission by providing guidance, managing essential resources efficiently, and promoting collaboration to ensure a dynamic and vibrant research environment.

VBRI COMMITTEES

Appointments and Promotions Committee: Manages faculty appointments and promotions, ensuring fairness, transparency, and high standards to recognize achievements and support faculty career advancement.

Bridge Funding Committee: Advises VBRI leadership on temporary financial support to researchers facing funding gaps between grants, ensuring uninterrupted research progress during critical periods.

Space Committee: Oversees the allocation and efficient use of physical space within the Institute by assessing and optimizing space utilization.

Communication Committee: Develops effective communication strategies to improve cohesion within the VBRI and promote the VBRI brand.

2024 VBRI Research Retreat

Education Committee: Promotes personal and professional growth within the VBRI community, organizing educational events and awards to promote an educational mindset and ensure achievements are recognized.

Stewardship Committee: Ensures ethical and responsible management of financial and material resources, promoting accountability, sustainability, and transparency.

Social Committee: Organizes events to strengthen the VBRI's social fabric, fostering a sense of community, collaboration, and well-being among its community.

(Upper right) Dr. Deininger managing the grill during the 2024 VBRI annual corn roast (Lower right) VBRI Social Committee's in-house poster session

SCIENTIFIC ADVISORY BOARD

The VBRI External Scientific Advisory Board (SAB) advises the Institute's leadership on scientific direction, research quality, and program effectiveness. The SAB reviews programs and investigators, providing independent feedback to improve research impact, infrastructure, and resource allocation. It also guides the VBRI Foundation Board on research priorities and funding decisions.

The SAB consists of at least 10 accomplished scientists, serving up to two renewable five-year terms. Members are selected based on VBRI faculty recommendations, aiming at comprehensive representation of VBRI research. They visit the institute annually to assess progress and offer strategic recommendations in a written report.

CURRENT MEMBERS

Lawrence (Skip) Brass, MD, PhD - University of Pennsylvania School of Medicine, Chair
John Cleveland, PhD - H. Lee Moffitt Cancer Center & Research Institute
John D. Crispino, PhD, MBA - St. Jude Children's Research Hospital
Olivera Finn, PhD - University of Pittsburgh
Robert Flaumenhaft, MD, PhD - Beth Israel Deaconess Medical Center
Shannon McWeeney, PhD - OHSU Knight Cancer Institute
Markus Müschen, MD, PhD - Yale University
Tannishtha Reya, PhD - Columbia University Herbert Irving Comprehensive Cancer Center
Brad Schwartz, MD - Morgridge Institute for Research
Nancy Speck, PhD - University of Pennsylvania School of Medicine
JoAnn Trejo, PhD, MBA - University of California, San Diego

VBRI RESEARCH RETREAT

The VBRI annual research retreat brings together the entire Institute, including investigators, trainees, and administrative staff, to engage with VBRI's mission and shape the future of the organization. The meeting features a poster session where trainees and staff present their research, with top posters receiving awards. The retreat allow researchers, administration, and leadership to interact in a relaxed environment, providing ample opportunity to establish new collaborations and friendships. The retreat has spawned numerous collaborative projects and has received highly positive feedback.

First VBRI Stewardship Day o June 1, 2024 - VBRI employees volunteered their time to clean and refresh the building.

VBRI Annual Symposia

Hemostasis and Thrombosis Research Society
The inaugural SEARCH Workshop, hosted by VBRI on November 4–5, 2023, brought together 34 students from underrepresented backgrounds for interactive education, with VBRI faculty involved in planning and faculty roles. Feedback was very positive, and many fruitful connections continue to-date.

Immunology Symposium
Now in its 17th year, the Annual Human Immunology Symposium promotes collaboration between regional immunologists and experts. The 2024 symposium focused on innate immune cell development and function, featuring expert speakers:

- Jennifer Bando, PhD, Stanford University
- Teresa Alenghat, PhD, University of Cincinnati
- Marcel Van Den Brink, MD, PhD, City of Hope
- Ellen Tecle, PhD, Medical College of Wisconsin
- Greg Sonnenberg, PhD, Weil Cornell Medicine
- Barbara Kee, PhD, University of Chicago
- Jeffery Miller, MD, University of Minnesota
- Wayne Yokoyama, MD, PhD, Washington University

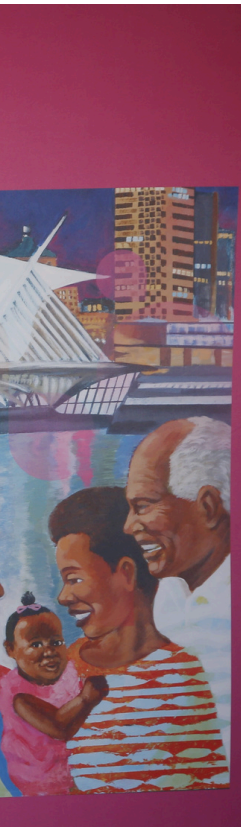
Translational Glycomics Symposium
The Translational Glycomics Symposium, led by VBRI's Translational Glycomics Center, advances the field by bringing together scientists, clinicians, and trainees to discuss glycan research and its medical applications. This event brings together faculty from many different backgrounds, offering trainees an opportunity for feedback from the leaders in the field.

Left to Right: Jan Montgomery, Robert Montgomery

The 2024 symposium featured highly reputable experts:

- Richard R. Drake, PhD, Medical University of South Carolina
- Rebekah Gundry, PhD, FAHA, University of Nebraska Medical Center
- Steven D. Townsend, PhD, Vanderbilt University
- Anabel Gonzalez-Gil Alvarenga, PhD, Johns Hopkins University
- Francesca Boscolo, PhD, University of California San Diego

Montgomery Symposium on Hemostasis (MESH)
This is a one-day symposium that highlights the most recent advances in von Willebrand factor research and von Willebrand disease. In the future, this lecture will celebrate Dr. Montgomery's outstanding accomplishments in medical research, education and patient care.



NAMED LECTURES

Mosesson Lecture on Thrombosis

The annual Mosesson Lecture on Thrombosis, brings an outstanding researcher in thrombosis medicine to the VBRI. Throughout his career, Dr. Mosesson published more than 250 papers in the field of fibrinolysis and for decades was funded by the National Institutes of Health until his retirement in 2006. The 2024 speaker was JoAnn Trejo, PhD, MBA, University of California San Diego.

Aster Lecture in Transfusion Medicine

The annual Aster Lecture in Transfusion Medicine brings a prominent researcher in the field of platelet biology to VBRI. This lecture is presented in honor of Senior Investigator Emeritus Richard H. Aster, MD, who served as president and CEO of Versiti for 26 years and almost two decades more as a senior investigator. The 2024 speakers was Amy Shapiro, MD, Indiana Hemophilia & Thrombosis Center.

Jacquelyn Fredrick Lecture

Established in 2007 as the Trainee Invited Lecture and renamed in 2017 by the VBRI Foundation Board, the Jacquelyn Fredrick Lecture is hosted by VBRI's postdoctoral fellows and graduate students. This lecture was named upon CEO Jacquelyn Fredrick's retirement, when the Versiti Board of Directors donated funds in her name to honor her passion and devotion to education and research. The 2024 speaker was Marvin Nieman, PhD, Case Western Reserve University.

R. Douglas Ziegler Innovative Research Lecture

The R. Douglas Ziegler Innovative Research Lecture was endowed by Peter and Joan Ziegler in honor of Peter's father Doug, a longtime VBRI supporter and Board member. As recognized business leaders, the Zieglers believe that innovation is the key to any successful organization. The yearly Ziegler Innovation Lecture promotes innovative thinking at Versiti by sponsoring speakers who made eminent contributions to research or clinical care. The 2024 speaker was Kenneth Fasman, PhD, Institute for Protein Innovation.

Dr. Janice McFarland Endowed Lectureship

The Dr. Janice McFarland Endowed Lectureship is dedicated to the work of Dr. Janice McFarland on thrombocytopenic disorders. In particular, it emphasizes the importance of platelet transfusions and diagnosis and management of families, fetuses and newborns with alloimmune thrombocytopenia. This lecture is devoted to raising the awareness of these conditions and to highlighting improvements in their diagnosis and treatment. The 2024 speaker was Meghan Delaney, MD, Children's National Hospital.

A THANK YOU TO THOSE WHO KEEP THE VBRI'S WHEELS RUNNING

Success in science rests on many shoulders, including some shoulders that we often don't think about. A complex research institute such as the VBRI depends on the seamless functioning of many processes, each of which is critical to success, and each of which needs dedicated people.

The work of these members of the VBRI's community may look less glamorous than the work of the principal investigators and their staff, and yet without it no research could happen. Whether it's the staff in the loading dock who make sure that reagents are delivered to the labs without delay or the cleaning team that makes sure we have a tidy workplace, or the facilities team that keeps the building in good working order - they are all critical to the success of VBRI science.

Problems with air conditioning, a squeaky door, a light switch that does not work? Facilities takes care of it. An extra email or text message alerting lab staff that critical reagents have arrived? The Loading Dock team has been watching out.

At the VBRI, we are proud of our sense of community. A sense of a shared mission to make patients' lives better. We are committed to excellence at every level, and everyone's contribution counts. Every little thing can make the big difference, enable the breakthrough, or prevent failure. Many in the Institute go the extra mile day after day, and without their commitment, we would not be what we are, who we are, and could not have achieved what we have accomplished. It's important to have stars, but it's the team that wins the game.

Left to Righ: Lakesha Wilson, Fred Grihalva, Kentrell James, Bryan Blanke

Building for the Future of Blood Research

VBRI Expansion

An Investment into Wisconsin

BUILDING THE FUTURE OF HEMATOLOGY RESEARCH

Breakthrough discoveries do not happen in isolation; they emerge from environments that foster collaboration and drive innovation. To stay at the forefront of biomedical research, it is crucial for the VBRI to cultivate a critical mass of creative minds across all its research areas. To meet this need, the VBRI is adding a $79M state-of-the-art research building that will increase its research space from 89,000 to 167,000 square feet. In extensive discussions with architects from the Milwaukee firm Hammel, Green and Abrahamson (HGA), VBRI leadership, investigators, staff, and campus partners, a forward-looking design emerged that realizes high functionality in a beautiful and inviting space. The new building will be flexible to accommodate both current needs and future growth. An environmentally conscious design will improve sustainability, with aspirations to achieve LEED (Leadership in Energy and Environmental Design) certification.

The VBRI expansion project received $10 million in funding from the State of Wisconsin, recognizing the impactful research at VBRI and the positive economic benefits the expansion will bring to the state. The Wauwatosa Design Review Board approved the plans in spring 2024, commending the building's modern and innovative design. An official groundbreaking ceremony occurred on September 10, 2024. Construction is underway with completion expected in late 2026.

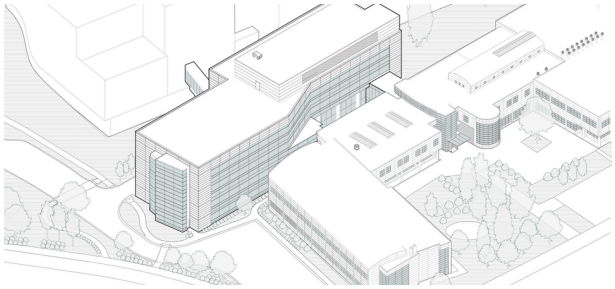
Rendered research lab spaces

Rendered interior workspace and office areas

Rendered view from the intersection of Waterplank Road and 87th Street

A DESIGN THAT PROMOTES COLLABORATION

The new four-story research building will house state-of-the-art research space. The first floor will feature an expanded café, meeting rooms, and an outdoor courtyard, with an open grand stairway connecting all floors. The second floor will house lab space and Shared Resources, connecting to the east and west wings of the existing building and the new MCW Cancer Center research building. The third floor and fourth floors will house labs.



Rendered common area

Once completed, the new space will accommodate up to 20 new labs with more than 100 new research staff, nearly doubling VBRI's research operations. Everything in this building was designed with a view to encouraging collaboration, innovation, and scientific discovery, ensuring the VBRI remains competitive in the rapidly advancing field of biomedical research. Dedicated space will house Shared Resources, including the MRMC Hematology Biorepository, the Flow Cytometry Core and the Imaging Core. The proximity to the new MCW Cancer Center Research building and the direct connection through a sky bridge will create a contiguous research space totaling more than 300,000 sq ft.

This expansion is a pivotal step in transforming VBRI into the world's premier center for hematology research. With the addition of modern infrastructure and the creation of an integrated, highly collaborative environment, VBRI will continue to make practice-changing scientific discoveries.

Versiti Advancement

INVEST IN HOPE CAMPAIGN

Our Vision
Expanding our research facility and investing in our scientists will give us the tools we need to grow with purpose and pursue our bold vision: to innovate blood research, reduce suffering, and improve the lives of patients in Wisconsin, the U.S., and around the world.

The Space
To accommodate our growing team of scientists, VBRI will expand its facilities with a new and larger building. The state-of-the-art space will connect VBRI with other centers across the Milwaukee Regional Medical Center campus to create a cohesive research environment that encourages collaboration. The facility will include open spaces for scientists and students to share ideas and present results, come together and learn from each other. Community members will feel welcomed, heard, and inspired. Creating a first-class research space and investing in cutting-edge instrumentation will attract leading scientists to VBRI, further positioning our state as a beacon of hope for patients from around the world.

The People
Growing our impact is possible only if we grow our team. We plan to expand our current team of 34 principal scientists to upwards of 45 in the next 10 years.

Each scientist brings a team of up to 10 new colleagues, exponentially increasing our research community and enhancing our culture of collaboration. As we envision this new home, we're excited to bring more brilliant minds to Milwaukee and the VBRI to drive innovation and achieve scientific breakthroughs. For VBRI scientists, research is not just about understanding mechanism but about providing new hope and new answers to patients with blood disorders that may save not just one life, but many.

"This campaign is a catalytic moment for Versiti Blood Research Institute. We have world-class research and deep expertise in bleeding and clotting disorders and now we are expanding that expertise into research about blood cancers and diseases of the immune system. With this expansion, we can improve the health and lives of patients and families right here in Milwaukee and around the world."

– Chris Miskel, President, and CEO, Versiti

Our $80 million Invest in Hope Initiative, with $15 million from the community will help us make this vision a reality.

The Invest in Hope Campaign will propel VBRI into the next phase of excellence. We are expanding our facilities to establish an integrated research environment that combines state-of-the-art laboratories, collaborative spaces for students and scientists, and advanced technology. The new VBRI facility will allow us to further collaboration across disciplines, continue to push the boundaries of scientific knowledge and forge practice-changing discoveries for the benefit of our patients.

JOIN US

The Invest in Hope campaign will bring VBRI into the future by expanding our expertise in blood research and deepening our impact on science, medicine, and patient care. We are built on a foundation of collaboration and we know we cannot write this next chapter alone. This vision is built on and will only be made possible through collaboration - from our research and healthcare partners to our donors like you. Please join us to invest in research, invest in growth, invest in innovation, invest in hope.

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versiti™ Blood Research Institute

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