

VARI Leadership



Peter Jones

Peter Jones, Ph.D., D.Sc., is a pioneer in epigenetics, a growing field that explores how genes are regulated and provides new avenues for developing therapies for cancer and other diseases. His

discoveries have helped usher in an entirely new class of drugs that have been approved to treat blood cancer and are being investigated in other tumor types. Dr. Jones is a member of the National Academy of Sciences and the American Academy of Arts & Sciences. He and his colleague Dr. Stephen Baylin co-lead the Van Andel Research Institute–Stand Up To Cancer Epigenetics Dream Team. Dr. Jones is the Institute’s chief scientific officer and director of its Center for Epigenetics.



Patrik Brundin

Patrik Brundin, M.D., Ph.D., investigates molecular mechanisms in Parkinson’s disease with the goal of developing new therapies aimed at slowing or stopping

disease progression or repairing damage. He is one of the top-cited researchers in the field of neurodegenerative disease and leads international efforts to repurpose drugs to treat Parkinson’s. Brundin is director of the Center for Neurodegenerative Science and associate director of research for VARI.



Bart Williams

Bart Williams, Ph.D., studies the building blocks of bone growth on behalf of the millions suffering from diseases such as osteoporosis. He seeks new ways of altering cell signaling pathways

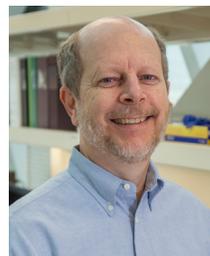
to encourage healthy bone development and deter the spread of cancer to the skeleton. Williams is director of the Center for Cancer and Cell Biology.



Scott Jewell

Scott Jewell, Ph.D., leads Van Andel Research Institute’s Core Technologies and Services, which provides technology and specialized expertise for research investigators. Cores and services

include bioinformatics and biostatistics, cryo- EM, optical imaging, flow cytometry, genomics, pathology and biorepository, small-animal imaging, vivarium management and transgenics. Jewell is a past president of the International Society for Biological and Environmental Repositories (ISBER).



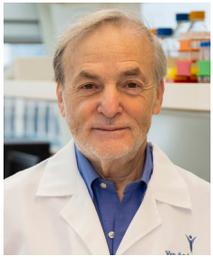
Steven J. Triezenberg

Steven J. Triezenberg, Ph.D., explores the genetic and epigenetic control systems of viruses to understand how infections progress and to reveal new ways to stop them. His discoveries with herpes simplex

viruses have opened up new possibilities for antiviral drug development and have revealed new insights into how human cells control gene expression. In addition to running a lab at VARI, Dr. Triezenberg is the founding dean of Van Andel Institute Graduate School.

Center for Epigenetics

Research areas: Epigenetics, cancer, heart disease, neuroepigenetics, development, blood cancers and structural biology



Stephen Baylin

Stephen Baylin, M.D., studies the body's genetic control systems — called epigenetics — searching for vulnerabilities in cancer. Baylin is a leader in this field, ranking among the first to trace epigenetic causes of cancer.

His studies have led to new therapies for common cancers, like breast, lung, colorectal and many others. He is co-leader of the VARI-SU2C Epigenetics Dream Team with Dr. Peter Jones, co-director of Johns Hopkins' Cancer Biology Division and associate director for research at Sidney Kimmel Comprehensive Cancer Center.



Huilin Li

Huilin Li, Ph.D., uses cryo-electron microscopy (cryo-EM) to reveal the most basic building blocks of DNA replication and other systems vital for life. He has been at the vanguard of cryo-EM for more than

20 years, and his research has implications for some of the world's most critical public health concerns, including tuberculosis, cancer, mental illness and many more. He is a professor in the Center for Epigenetics.



Stefan Jovinge

Stefan Jovinge, M.D., Ph.D., develops ways to help the heart heal itself and has led dozens of clinical trials in regenerative medicine. As a critical care cardiologist and scientist, he uses a bench-to-bedside approach in an effort

to give patients with serious heart conditions longer, healthier lives. The clinical platform for his research is the Cardiothoracic Intensive Care Unit at Spectrum Health's Fred and Lena Meijer Heart Center, and the basic science effort in regenerative medicine is performed at VARI. He serves as director of the DeVos Cardiovascular Research Program.



Gerd Pfeifer

Gerd Pfeifer, Ph.D., studies how the body switches genes on and off, a biological process called methylation that, when faulty, can lead to cancer or other diseases. His studies range from the effects of tobacco smoke on genetic and epigenetic systems

to the discovery of a mechanism that may help protect the brain from neurodegeneration. Pfeifer's studies have implications across a range of diseases, including cancer, Parkinson's, diabetes and many others. Pfeifer is a professor in the Center for Epigenetics.



Peter W. Laird

Peter W. Laird, Ph.D., seeks a detailed understanding of the molecular foundations of cancer with a particular focus on identifying crucial epigenetic alterations that convert otherwise healthy cells into cancer cells. He is

widely regarded as an international leader in this effort and has helped design some of the world's state-of-the-art tools to aid in epigenetics research. Laird is a principal investigator for the National Cancer Institute's Genome Data Analysis Network and played a leadership role in The Cancer Genome Atlas, a multi-institutional effort to molecularly map cancers. He is a professor in the Center for Epigenetics.



Scott Rothbart

Scott Rothbart, Ph.D., studies the ways in which cells pack and unpack DNA. This complex process twists and coils roughly two meters of unwound DNA into a space less than one-tenth the width of a human hair. Although this

process is impressive, it is also subject to errors that can cause cancer and other disorders. Rothbart seeks new targets for drug development in this process. He is an assistant professor in the Center for Epigenetics.



Hui Shen

Hui Shen, Ph.D., develops new approaches to cancer prevention, detection and treatment by studying the interaction between genes and their control systems, called epigenetics. Her research focuses on women’s cancers, particularly ovarian cancer, and has shed new light on the underlying mechanisms of other cancer types, including breast, kidney and prostate cancers. She is an assistant professor in the Center for Epigenetics.



Timothy J. Triche, Jr.

As a statistician and computational biologist with an interest in clonal evolution and cancers of the blood, Tim Triche, Jr.’s, Ph.D., work focuses on wedding data-intensive molecular phenotyping to adaptive clinical trial designs in an effort to accelerate the pace of drug targeting and development in rare or refractory diseases. Triche is an assistant professor in the Center for Epigenetics.

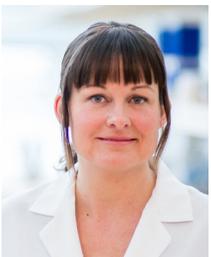


Piroska Szabó

Piroska Szabó, Ph.D., studies the flow of epigenetic information from parents to their offspring, with a focus on how epigenetic markers are remodeled during egg and sperm production and how these markers are rewritten after fertilization. These processes have profound implications for fertility and embryo development. Disturbances in epigenetic remodeling are thought to contribute to disease conditions lasting well into adulthood. Szabó is an associate professor in the Center for Epigenetics.

Center for Neurodegenerative Science

Research areas: Parkinson’s disease, depression/suicide, aging, prion disease, Alzheimer’s disease and neuroepigenetics



Lena Brundin

As a psychiatrist and a scientist, Lena Brundin, M.D., Ph.D., seeks ways to diagnose and treat depression and suicidality by studying inflammation of the nervous system. Her findings may lead to earlier interventions for depressive patients and for the development of a new class of antidepressants that targets the immune system. She also investigates how inflammatory mechanisms can damage nerve cells in Parkinson’s disease. She is an associate professor in the Center for Neurodegenerative Science.



Gerhard Coetzee

Gerhard Coetzee, Ph.D., searches the human genome for minuscule changes that contribute to the onset, progression and drug resistance of many diseases, including cancer, Parkinson’s and rare and heritable disorders. His team deploys genome sequencing technologies and high-powered computational arrays to tease out patterns and interactions of markers and treatment targets from among the human genome’s more than three billion DNA base pairs. Coetzee is a professor in the Center for Neurodegenerative Science.



Jeffrey Kordower

Jeffrey Kordower, Ph.D., is an international authority on the onset of Parkinson's, Alzheimer's and Huntington's diseases, and works to develop new procedures aimed at slowing disease progression or

reversing damage to the brain. He holds a primary appointment at Rush University in Chicago and is a Director's Scholar at VARI, where he focuses on designing preclinical studies and clinical trials to translate these new approaches into meaningful changes for people suffering with movement disorders.



Viviane Labrie

Viviane Labrie, Ph.D., studies the dynamic interplay between the human genome and its control system — the epigenome — to understand how neurodegenerative diseases start and progress in an

effort to develop improved diagnostics and treatments. Labrie's scientific pursuits have deepened the understanding of conditions including Parkinson's, Alzheimer's, schizophrenia and lactose intolerance. She has also developed new methods for epigenome analysis. She is an assistant professor in the Center for Neurodegenerative Science.



Jiyang Ma

Jiyang Ma, Ph.D., studies abnormal proteins that cause neurodegenerative diseases, including Parkinson's disease and prion diseases in humans and animals. His lab has developed new

ways to understand how these proteins spread and cause diseases in humans and animals. The lab is also developing new approaches to diagnose and treat these devastating disorders. Ma is a professor in the Center for Neurodegenerative Science.



Darren Moore

Darren Moore, Ph.D., seeks new diagnostic and treatment approaches for Parkinson's by investigating the inherited form of the disease, which accounts for 5 to 10 percent of cases. He aims to translate the understanding

of these genetic mutations into better treatments and new diagnostic tools for Parkinson's, both inherited and non-inherited. Discoveries in Moore's lab routinely elucidate the faulty molecular interactions that transform healthy, functioning neurons into diseased ones. Moore is a professor in the Center for Neurodegenerative Science.

Center for Cancer and Cell Biology

Research areas: Asthma, diabetes, neurofibromatosis type 1, osteoarthritis, osteoporosis, sarcoma, structural biology, and blood, bone, breast, colorectal, pancreatic and prostate cancers



Juan Du

Juan Du, Ph.D. seeks to understand the brain's intricate communication systems using state-of-the-art structural biology approaches, such as cryo-EM. She is an assistant professor in the Center for Cancer and Cell Biology.



Patrick Grohar

Patrick Grohar, M.D., Ph.D., develops new drugs to treat bone cancer in children, in addition to pursuing a deeper understanding of the mechanisms underlying sarcomas and related conditions. Once proven

safe and effective in the lab, his team translates these potential therapies into clinical trials for children with few other options. He is an associate professor in the Center for Cancer and Cell Biology and a pediatric oncologist at Spectrum Health Helen DeVos Children's Hospital.



Brian Haab

Brian Haab, Ph.D., searches for new ways to diagnose and stratify pancreatic cancers based on the chemical fingerprints tumors leave behind. Part of the problem Haab aims to solve is that cancers

often look and behave normally — until after they've started making people sick. Haab is sleuthing out clues to build a library of diagnostic tools that will help providers diagnose tumors earlier and optimize treatment. He is a professor in the Center for Cancer and Cell Biology.



Karsten Melcher

Karsten Melcher, Ph.D., studies molecular structure and cellular communication, which have implications for finding new treatments for serious health threats, including cancer, diabetes and

obesity. His expertise extends beyond human cells — his research into plant hormones may one day lead to heartier crops that resist drought and help meet the nutritional demands of a growing global population. Dr. Melcher is an associate professor in the Center for Cancer and Cell Biology.



Xiaohong Li

Xiaohong Li, Ph.D., studies how and why various cancers, particularly prostate and breast cancer cells, migrate from their original site and spread to the bone. These cells stay dormant but might wake up years

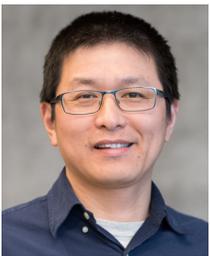
later and grow to become bone metastases, causing debilitating pain and complicating treatment. Li hopes that a better understanding of metastatic cancers will lead to new diagnostic tests and targeted therapies. She is an assistant professor in the Center for Cancer and Cell Biology.



Lorenzo Sempere

Lorenzo Sempere, Ph.D., studies the role of microRNAs in the origin and growth of cancer. These very short strands of genetic material were discovered just over 15 years ago and are now recognized as dynamic

regulatory modules of the larger human genome. Sempere targets microRNAs in an effort to develop new cancer drugs, specifically for pancreatic and breast cancers. He is an assistant professor in the Center for Cancer and Cell and Biology.



Wei Lü

Wei Lü, Ph.D., is working to unravel how brain cells communicate with each other. Using techniques such as cryo-EM, his work has contributed to the field's understanding of molecules that play crucial roles in

the development and function of the nervous system. He is an assistant professor in the Center for Cancer and Cell Biology.



Matt Steensma

Matt Steensma, M.D., studies the genetic and molecular factors that cause benign tumors to become cancers in order to find vulnerabilities that may be targeted for treatment.

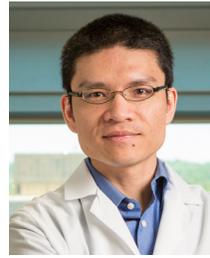
As a scientist at VARI and a practicing surgeon at Spectrum Health Helen DeVos Children's Hospital, he is committed to translating scientific discoveries into treatments that improve patients' lives.



Ning Wu

Ning Wu, Ph.D., investigates the interface between cellular metabolism and cellular signaling, particularly as they relate to cancer. On the most basic level, cancer is a disease of uncontrolled cell

growth, and Wu believes that understanding a tumor’s voracious energy requirements and altered signaling pathways will lead to new treatments that optimize existing combination therapies and identify novel therapeutic targets. She is an assistant professor in the Center for Cancer and Cell Biology.



Tao Yang

Tao Yang, Ph.D., studies the signaling systems that govern skeletal stem cells and the role they play in diseases such as osteoarthritis and osteoporosis. Bones are the largest producer of adult stem cells, which mature into cartilage,

fat or bone tissue — a process that falters with age. Yang seeks a better understanding of these systems in search of new treatments for degenerative bone disorders. He is an assistant professor in the Center for Cancer and Cell Biology.



George Vande Woude

George Vande Woude, Ph.D., is a titan in cancer biology. He is the founding director of Van Andel Research Institute, which he led for a decade. His discovery and description of the MET receptor

tyrosine kinase as an oncogene, together with its activating ligand hepatocyte growth factor, have led to new possibilities for cancer therapies and revolutionized the way scientists view the disease, especially in tumor progression. He is a distinguished scientific fellow, emeritus, in the Center for Cancer and Cell Biology and a member of the National Academy of Sciences.



H. Eric Xu

H. Eric Xu, Ph.D., explores the structure of molecules in the body’s complex hormone signaling system, which plays a vital role in health and disease. He is particularly known for his discoveries in defining the structure of molecules

critical to the development of new drugs for cancer, diabetes and many others. He is a professor in VARI’s Center for Cancer and Cell Biology and serves as director of VARI-SIMM Research Center in Shanghai, China.



Bioinformatics and Biostatistics



Manager: Megan Bowman, Ph.D.

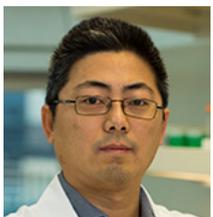
The Bioinformatics and Biostatistics Core provides efficient, high-quality computational and statistical expertise for Van Andel Research Institute laboratories and external organizations in the analysis and interpretation of data. The Core maintains workflows for the processing and analyzing of genomic data sets, supports the design of rigorous and reproducible experiments and proposals, assists in the preparation of manuscripts, and provides education and training in the use of cutting-edge software and analysis methods.

David Van Andel Advanced Cryo-Electron Microscopy Suite

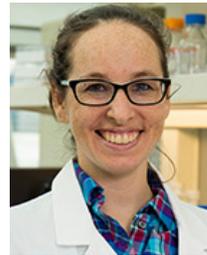


Director: Huilin Li, Ph.D.
Manager: Gongpu Zhao, Ph.D.

The David Van Andel Advanced Cryo-Electron Microscopy Suite harnesses revolutionary technology to visualize some of life's smallest — yet most vital — components. It encompasses a suite of state-of-the-art cryo-electron microscopes (cryo-EM), which are supported by expert staff and a robust high-performance computing cluster with extensive cloud capabilities.



Flow Cytometry



Manager: Rachael Sheridan, Ph.D., CCy

The Flow Cytometry Core provides high-quality, comprehensive cytometry services and expertise to scientists at VARI and external collaborators. Core staff also offer assistance with data analysis, grant preparation and production of high-quality graphics for publication.

Genomics



Manager: Marie Adams, M.S.

The Genomics Core is home to a high-caliber and extensive catalog of genomic and epigenomic sequencing and iScan array options as well as genotyping and cytogenetic services. Core staff collaborate closely with individual investigators on project design and data analysis, ensuring a high level of service from start to finish.

Optical Imaging



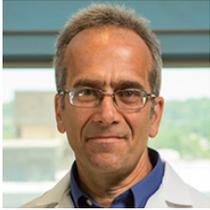
Manager: Corinne Esquibel, Ph.D.

The Optical Imaging Core offers numerous imaging resources to address a broad variety of research questions, from gene expression analysis to cell motility.

Pathology and Biorepository Core



Director: Scott Jewell, Ph.D.
Associate Director:
Galen Hostetter, M.D.



The Pathology and Biorepository Core integrates extensive anatomic pathology expertise with the best practices in biorepository management to ensure high-quality biospecimens and analysis for internal investigators and external collaborations. The Institute's Biorepository is nationally and internationally recognized, and is accredited by the College of American Pathologists (no. 8017856).

Small-Animal Imaging Facility

The Small-Animal Imaging Facility encompasses a broad range of imaging and image analysis tools for use with biologic specimens and rodents, giving scientists crucial, non-invasive tools for observing disease pathology and novel phenotypes in intact systems.

Vivarium and Transgenics



Director: Bryn Eagleson, MLAS
Manager: Audra Guikema, B.S., LVT, RLAT

The Vivarium and Transgenics Core develops and supports high-quality mouse modeling services for VARI investigators, collaborators and the greater research community. The Institute's state-of-the-art Vivarium is accredited by the Association for Assessment and Accreditation