

ISCRM

Institute for Stem Cell and Regenerative Medicine



Dear Friends,

Effective, results-oriented research does not just happen by chance. In order to create, research and achieve results, scientists and scholars need a supportive environment that provides the encouragement and resources they need to succeed. We believe our researchers find that here at Oakland University.

Among our many research centers and institutes at Oakland University is the Oakland University William Beaumont Institute for Stem Cell and Regenerative Medicine (ISCRM). The ISCRM seeks to have a leadership role in basic and translational stem cell research by developing innovative, multidisciplinary collaborative approaches. At ISCRM, we train future leaders for education, research and delivery of new, effective therapies using stem cells. The staff at our institute is made up of clinical scientists — with extensive resumes and distinguished expertise — who are dedicated to advancing the field of stem cell research and regenerative medicine.

At Oakland University, we are committed to this vitally important research and to creating an environment that supports excellent research opportunities along with exemplary academics. Within this booklet you will see why we are incredibly proud of the individuals who make up the ISCRM and are looking forward in great anticipation to their accomplishments.

Sincerely,

Gary D. Russi, president
Oakland University



Dear Colleagues:

Research is part of the fiber of physicians and other caregivers. At Beaumont, we believe that research studies play a key role in helping to improve care quality and safety and the health of our patients. We have long supported advanced research in oncology, cardiology, urology, orthopedics and other medical fields and continue to foster a “culture of research” among our physicians.

Stem cell research has shown much promise for advancing medical treatment of diseases and injuries. That is why Beaumont is proud to support – and to be part of – the Institute for Stem Cell and Regenerative Medicine. By bringing together talented investigators and scientists, the ISCRM can help to “fast track” the results of stem cell and regenerative medicine research into valuable therapies to improve patients’ lives.

The researchers who make up the ISCRM and who are profiled in this booklet make up such a team. Through their collaboration and continuing efforts, we can expect great achievements in this research that can benefit people locally, nationally and around the world.

Sincerely,

Ananias C. Diokno, M.D.
Executive Vice President and Chief Medical Officer
Beaumont Health System

The Institute for Stem Cell and Regenerative Medicine (ISCRM) is a bi-institutional center composed of investigators from Beaumont Health System and Oakland University. Building on more than 10 years of history of stem cell research at OU and William Beaumont, the ISCRM was created in 2010 with a small contribution from both institutions with a mission to utilize human stem cell, tissue engineering and regenerative technologies to treat human injuries, disease and disorders.

The ISCRM promotes and provides a comprehensive and coordinated “bench to bedside” approach to regenerative medicine, including basic biomedical and clinical research, tissue engineering and regenerative approaches, and the development and administration of stem cell-based therapies to patients.

The vision of the ISCRM is to rapidly translate cutting-edge stem cell and tissue engineering research into the clinic and for commercial applications for treating human diseases and disorders.

**G. Rasul Chaudhry, Ph.D.**

Co-director, ISCRM
Professor of Biological Sciences, Oakland University

Research interests: molecular mechanisms of stemness and differentiation of embryonic, cord blood and adult stem cells; tissue bioengineering; regulation of gene expression; stem cell-based therapeutic and biotechnological applications

**George D. Wilson, Ph.D.**

Co-director, ISCRM
Chief, Radiation Biology
Scientific Director, Beaumont BioBank
Director, Erb Family Molecular and Genetics Laboratory
Professor, Oakland University
Clinical Professor, Oakland University/William Beaumont School of Medicine

Research interests: radiation oncology, radiobiology, cancer, cancer treatment, cancer stem cells, molecular imaging and biomarkers

**Jan Akervall, M.D., Ph.D.**

Clinical Director, BioBank
Medical Director Translational Research, Surgical Services
Professor at Oakland University William Beaumont School of Medicine

Research interests: robotic-assisted head and neck cancer surgery, biomarkers for response to radiation therapy in head and neck cancer, and cancer stem cancer biology

**Kyle Anderson, M.D.**

Program Director, Fellowship in Orthopedic Sports Medicine
Chief of Sports Medicine, Department of Orthopedic Surgery, William Beaumont Hospital
Associate Professor of Orthopedic Surgery, Oakland University William Beaumont School of Medicine
Team Physician, NFL Detroit Lions

Research interests: sports medicine

**Kevin C. Baker, Ph.D.**

Director, Orthopaedic Research Laboratories

Research interests: musculoskeletal tissue engineering using stem cells and drug delivery

**Michael B. Chancellor, M.D.**

Director, Neuro-Urology Research, Beaumont Hospital
Clinical Professor, Oakland University William Beaumont School of Medicine

Research interests: stem cell and tissue engineering, drug discovery, and lower urinary tract dysfunction using adult autologous muscle derived stem cells to treat stress urinary incontinence

**Ferman Chavez, Ph.D.**

Associate Professor, Chemistry

Research interests: synthesis of structural and functional models for cupin metalloenzymes, development of MRI contrast agents to detect hypoxia, synthesis and characterization of self-assembling biodegradable hydrogel scaffolds for encapsulation of stem cells

**Shravan K. Chintala, Ph.D.**

Associate Professor, Biomedical Sciences

Research interests: role of proteases in the death of retinal ganglion cells in glaucoma, development of pharmacological agents to prevent retinal ganglion cell loss, effect of high blood pressure on retinal damage and effect of chronic alcohol feeding on retinal ganglion cells

**Michael Chopp, Ph.D.**

Distinguished Professor, Physics.

Research interests: restorative and neuroprotective treatment for stroke, traumatic brain injury, neurodegenerative diseases (including MS and peripheral neuropathy), basic and translational research into neurorestorative neurology

**Sumi Dinda, Ph.D.**

Assistant Professor, Biomedical Diagnostic and Therapeutic Sciences

Research interests: effect of hormonal regulation on stem cell development and differentiation

**Ananias C. Diokno, M.D.**

Executive Vice President and Chief Medical Officer, Beaumont Health System

Research interests: incontinence, interstitial cystitis and neurogenic bladder (urology)

**Jimmy Espinoza Dorado, M.D.**

Obstetrician and Gynecologist

Research interests: detection of congenital heart defects, ultrasonography with spatio-temporal image correlation, and prenatal diagnosis of central nervous system defects; the role of angiogenic imbalances in pregnancy complication as well as novel insights into the pathogenesis of preeclampsia

**Kimberly Drenser, M.D., Ph.D.**

Director of the Pediatric Retinal Disease Molecular Genetics Laboratory

Director of Ophthalmic Research at Beaumont Eye Institute in Royal Oak

Visiting Assistant Professor of Biomedical Sciences

Research interests: development of practical treatments for retinal diseases

**David L. Felten, M.D., Ph.D.**

Vice President for Research and Medical Director, Beaumont Research Institute, Beaumont Hospitals

Research interests: neuroimmunology, cancer, infectious diseases including retroviral infections, autoimmune diseases (such as rheumatoid arthritis), age-related decline in immune responses, and stem cell biology

**Jeffrey S. Fischgrund, M.D.**

Orthopedic Surgeon

Director, Spine Surgery Fellowship, Beaumont Hospitals
Professor, Oakland University William Beaumont School of Medicine

Research interests: spinal surgery, bone morphogenetic proteins and clinical trials for the treatment of low back pain

**Robert Folberg, M.D.**

Dean of the Oakland University William Beaumont School of Medicine

Professor, Biomedical Sciences, Pathology and Ophthalmology

Research interests: biology of uveal melanoma

**Frank Giblin, Ph.D.**

Director, Eye Research Institute

Professor, Biomedical Sciences

Research interests: role of oxidative and free radical processes in the formation of nuclear cataract, and antioxidant mechanisms present in the epithelium of the lens

**Luis Flavio Goncalves, M.D.**

Diagnostic Radiology, Obstetrician and Gynecologist
Professor, Oakland University William Beaumont School of Medicine

Research interests: congenital anomalies, fetal brain development and fetal growth disorders

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**Chhabi Govind, Ph.D.**

Assistant Professor, Biological Sciences

Research interests: mechanisms of histone modifications that regulate chromatin structure Saccharomyces cerevisiae, how mutations in chromatin remodeling complexes lead to human diseases, and if chromatin modifications and remodeling regulate stem cell propagation and differentiation

**Joseph Guettler, M.D.**

Orthopedic Surgeon

Assistant Professor, Oakland University William Beaumont School of Medicine

Research interests: biomechanics, prevention and care of athletic injuries

**Jason M. Hafron, M.D.**

Urological Surgeon
Associate Professor, Oakland University William Beaumont School
of Medicine

Research interests: robotic surgery and urological oncology

**Harry N. Herkowitz, M.D.**

Chairman, Department of Orthopedic Surgery at Beaumont
Health Systems
Professor, Oakland University William Beaumont School
of Medicine

*Research interests: techniques for surgical management of spinal
disorders and degenerative solutions to aging discs and improving
spinal implants*

**Lan Jiang, Ph.D.**

Assistant Professor, Biological Sciences

*Research interests: mechanisms of biological tube formation in
Drosophila tracheal system, including cell migration, cell recogni-
tion, cell adhesion and branch fusion during tube formation*

**Shailesh Lal, Ph.D.**

Associate Professor, Biological Sciences

*Research interests: impact of transposable elements on evolution
and expression of eukaryotic genome complexity*

**David A. Loeffler, DVM, Ph.D.**

Director, Neurology Research Laboratory

*Research interests: inflammatory processes, neuroimmunology/
neuroinflammation, improving the diagnosis and treatment of
Alzheimer's and Parkinson's diseases*

**Gerard Madlambayan, Ph.D.**

Assistant Professor, Biological Sciences

*Research interests: defining the biological mechanisms underlying
the role of BM-derived stem and progenitor cells in solid tumor
growth and defining the role of endothelial cells in the progression
of leukemia*

**Brian Marples, Ph.D.**

Radiobiologist
Professor, Oakland University

*Research interests: radiation oncology, radiobiology, cancer, cancer
treatment, normal tissue radiobiology, hyperbaric oxygen and
cancer stem cell biology*

**Mark A. Micale, Ph.D., FACMG**

Medical Director, Clinical Cytogenomics Laboratory, Beaumont
Health System Beaumont Laboratory Department of Pathology
and Laboratory Medicine, Beaumont Hospital, Royal Oak
Associate Professor of Pathology and Laboratory Medicine,
Oakland University William Beaumont School of Medicine

Research interests: cancer cytogenetics

**Anne Marie Mitchell, Ph.D., CNM, WHNP**

Associate Professor, Nursing, Oakland University

*Research interests: cord blood stem cells and potential
therapeutic applications*

**Kenneth P. Mitton, Ph.D.**

Associate Professor, Biomedical Sciences
Director, Eye Research Institute Molecular and Cell Biology
Support Module
Director, Live Ocular Imaging and ERG Services

*Research interests: control of gene expression in retina
development and diseases, epigenetics in ocular development and
disease, environmental epigenetics in the eye, retinopathy of
prematurity, diabetic retinopathy and related diseases*

**Mick Perez-Cruet, M.D., M.S.**

Neurosurgeon, Michigan Head and Spine Institute
Chief, Minimally Invasive Spine Surgery, Beaumont Hospitals
Professor of Neurosurgery, Oakland University William Beaumont
School of Medicine

Research interests: regenerative spinal stem cell technologies and innovative, minimally invasive spinal techniques

**Kenneth Peters, M.D.**

Chief, Urology and Director, Women's Urology Center,
Beaumont Hospital
Professor, Oakland University William Beaumont School
of Medicine

Research interests: sacral, pudendal and tibial neuromodulation for voiding and bowel dysfunction, adult human stem cells (muscle derived cells) to treat urinary incontinence in men and women, cavernous nerve stimulation to treat erectile dysfunction, and multidisciplinary approach to managing chronic pelvic pain

**Harvey Qu, Ph.D.**

Associate Professor, Department of Mathematics and Statistics

Research interests: design of experiment, computer experiments, industrial statistics, statistical applications in biotechnology and medicine

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**Bradley J. Roth, Ph.D.**

Director, Center for Biomedical Research, Oakland University
Professor of Physics

Research interests: biological physics and computational physics, mathematical modeling and computer simulations to determine the mechanisms by which electrical stimulation of cardiac tissue results in defibrillation of the heart, and how anisotropy of cardiac tissue influences electrical activity

**Charles J. Shanley, M.D.**

Vascular Surgeon
Professor, Oakland University William Beaumont School
of Medicine

Research interests: role of endothelial cells, progenitors and mesenchymal stem cells in vascular injury and repair

**Mohammad-Reza Siadat, Ph.D.**

Assistant Professor, Computer Science and Engineering

Research interests: medical image and signal analysis, computational anatomy and physiology, medical informatics and data mining

**Gopalan Srinivasan, Ph.D.**

Distinguished Professor of Physics

Research interests: thin film magnetism and ferromagnetic resonance

**J. Lynne Williams, Ph.D.**

Program Director, Biomedical Diagnostic and Therapeutic Sciences

Research interests: hematology, hemostasis, cell pathology, hematopoietic stem cells, and megakaryocyte differentiation

**Yang Xia, Ph.D.**

Professor, Physics

Research interests: detection of osteoarthritis at its early stages, biomedical applications of microscopic MRI (μ MRI), polarized light microscopy (PLM), fourier-transform infrared imaging (FTIRI), microscopic computer tomography (μ CT), and mechanical testing

**Xiangqun Zeng, Ph.D.**

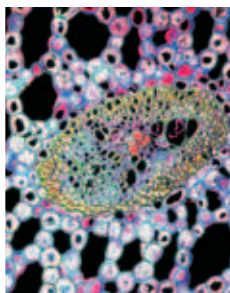
Professor, Chemistry

Research interests: electroanalytical and surface chemistry at solid electrodes, bioanalytical method, development of chemical biosensors for detection of important analytes in complex environmental and clinical samples

**Qian (Beth) Zou, Ph.D.**

Associate Professor, Mechanical Engineering

Research interests: automotive tribology, thermal and tribological performance of nanofluids, lubrication, wear and scuffing - modeling and testing, and contact mechanics analysis



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