Centers of Biomedical Excellence (COBRE)

COBRE Directory of Active Awards by State 2016

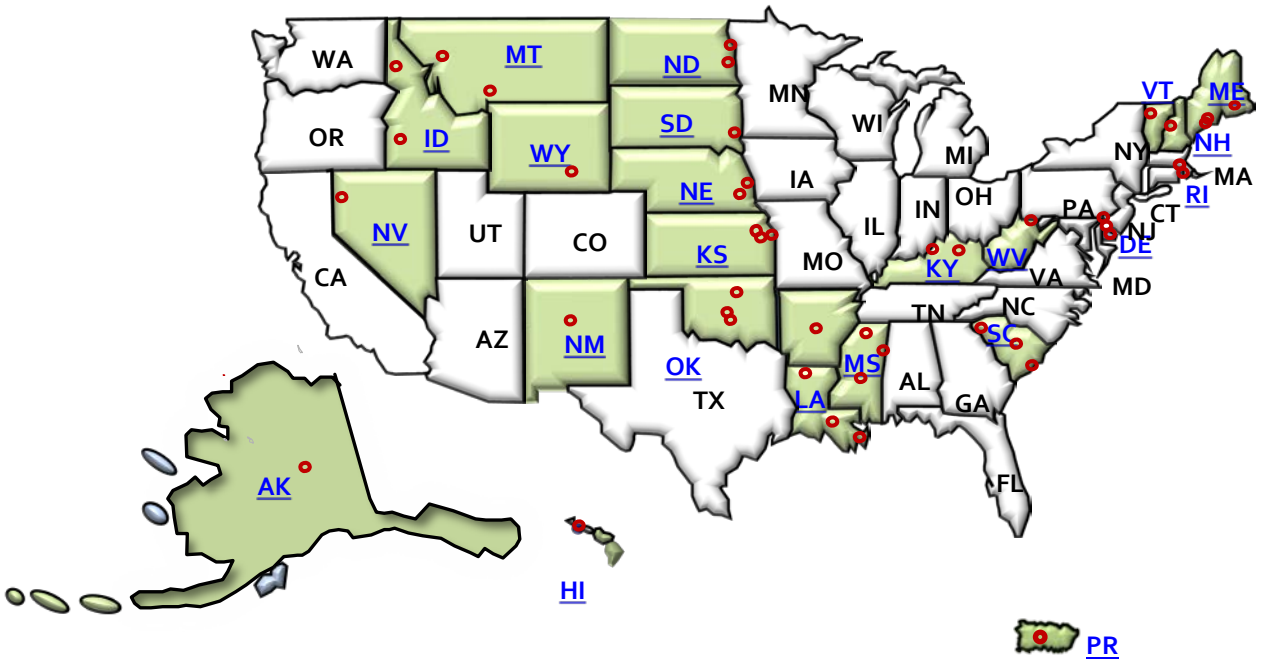
Institutional Development Award (IDeA)

Center for Research Capacity Building
National Institute of General Medical Sciences
National Institutes of Health

Table of Contents

Table of Contents

Location of COBRE Lead Institutions



Press Ctrl + Click on 2-letter state name to follow link to the list of principal investigators.

Centers of Biomedical Research Excellence (COBRE). *The COBRE program strengthens biomedical or behavioral research capacity in institutions from IDeA states. COBRE phase 1 provides support to develop research infrastructure and to foster independence of junior investigators. COBRE phase 2 continues the progress toward building an independent research center that is competitive for receiving research support from NIH or other funding agencies. The COBRE Phase 3 awards (Transitional Centers) are intended to (1) provide support for maintaining COBRE research cores developed during phases I and II that are essential for the continuing conduct of basic, clinical, translational research, and/or community based research at the institution, and (2) sustain a collaborative, multidisciplinary research environment for research pilot projects and mentoring and training components. Red circles (o) are zip locations of COBRE lead institutions.*

Back to top

P30GM103325- Phase 3
Investigating Obesity and Chronic Disease-Related Risk Factors of Alaska Natives
University of Alaska Fairbanks

Principal Investigator
Bert Brandon Boyer, PhD
Institute of Arctic Biology
311 Irving I Building
Fairbanks, AK 99775
Tel: *907-474-7733*
Fax: *907-474-5700*
E-mail: bboyer@alaska.edu
Web: *http://www.uaf.edu/canhr/*

Thematic Scientific Focus
Obesity and chronic disease-related risks, youth suicide and substance abuse of Alaska Natives

Pilot Studies
- Development of a computerized adaptive testing program for Alaska Natives
- Exploring how Alaska Native cultural values are interconnected with cancer
- Attitudes toward alcohol misuse programs among Alaska Native college students
- Cultural adaptation of an intervention to reduce body weight in Yup'ik women
- Disruptive link: obesity and diabetes in Alaska Native Yup'ik people
- Validating carbon isotope ratio of breath CO_2 as biomarker of recent added sugar
- Prenatal preventive health in interior AK: impacts of maternal stress and health

Research Resources
- Experimental design, biostatistics and data services core
- Community engagement and clinical support core
- Nutrition and physical activity core

Index Terms
Alaska Native, obesity, metabolic disease, suicide, substance abuse, community-based participatory research

Back to top

P30 GM110702- Phase 3
Center for Translational Neuroscience
University of Arkansas for Medical Sciences

Principal Investigator
Edgar E. Garcia-Rill, PhD
University of Arkansas for Medical Sciences
Biomedical Research Building II, Room 662-2
4301 W. Markham Street, Slot 847
Little Rock, AR 72205
Tel: *501-686-5167*
Fax: *501-526-7928*
E-mail: GarciaRillEdgar@uams.edu
Web: *http://www.uams.edu/ctn*

Thematic Scientific Focus
Translational neuroscience research

Pilot Studies
- Transcranial magnetic stimulation as treatment for acutely suicidal inpatients
- Leptin signaling pathways regulating translation of neuropeptide receptor mRNAs
- Anti-inflammatory therapeutics for neuropathology in models of FASD
- Small molecule inhibitors of glioblastoma cancer stem cell self-renewal
- Cerebrovascular TRPC3 Channel and Status Epilepticus

Research Resources
- Human Electrophysiology core
- Animal Electrophysiology core
- Image Analysis
- Transcranial Magnetic Stimulation (TMS) core
- Molecular Biology core
- Behavioral core
- Telemedicine core

Index Terms
obesity, neurological disorders, psychiatric disorders, epilepsy, FASD

Back to top

P20GM109005- Phase 1
Center for Studies of Host Response to Cancer Therapy
University of Arkansas for Medical Sciences

Principal Investigator
Martin Hauer-Jensen, MD, PhD
Pharmaceutical Sciences
College of Pharmacy
University of Arkansas for Medical Sciences
4301 West Markham Street, Slot 725
Little Rock, AR 72205
Tel: *501-686-7912*
Fax: *501-421-0022*
E-mail: MHJENSEN@LIFE.UAMS.EDU
Web: *http://cobre.uams.edu/*

Thematic Scientific Focus
Conducting research into the mechanisms of side effects of cancer therapy and developing strategies to prevent them

Research Projects
- The Role of Tetrahydrobiopterin (BH4) in Radiation-Induced Skin Injury
- Molecular Mechanisms of C/ebp delta in Ionizing Radiation Response
- Epigenetic Alterations Caused by Low-Dose Ionizing Radiation
- Development of Novel Tocotrienol-based Radioprotective Agents

Pilot Studies
- Effects of Methotrexate and Cytosine arabinoside on Cognition
- miRNA Biomarkers of Cisplatin Nephrotoxicity in Genetically Sensitive Subjects
- Prevention of Doxorubicin Cardiomyopathy in Cancer Treatment

Research Resources
- Administrative Core
- Cellular and Molecular Analytic Core
- Irradiation and Animal Core

Index Terms
Cancer survivors; uncomplicated cancer cures; cancer therapy toxicity; radiation toxicity; chemotherapy toxicity; radiation protectors

Back to top

P20GM103625- Phase 1
University of Arkansas for Medical Sciences
Center for Microbial Pathogenesis and Host Inflammatory Responses

Principal Investigator
Mark S. Smeltzer, PhD
Department of Microbiology and Immunology
University of Arkansas for Medical Sciences
4301 W. Markham, Mail Slot 511
Little Rock, AR 72205
Tel: *501-686-7958*
Fax: *501-686-5359*
E-mail: smeltzermarks@uams.edu
Web: *http://cmphir.uamsonline.com*

Thematic Scientific Focus
Microbial pathogen-human host interaction and the disease process

Research Projects
- Myxoma virus as oncolytic agents
- Role of CD4 T cells in chlamydial genital infection
- Plasma cells as antigen-presenting cells during malaria
- Mechanisms of reovirus cell killing for enhanced oncolytics

Pilot Studies
- Mechanisms for Rhinovirus induced airway hyper-responsiveness in human lung
- Dysbiosis induced impairment of immune surveillance
- Identifying genes contributing to pathogenesis of Borrelia turicatae
- Microbial induced intestinal epithelial cell pyroptosis and barrier dysfunction

Research Resources
- Administrative and scientific development core
- Research and technical advancement core
    - ❖ DNA sequencing core
    - ❖ Flow cytometry core
    - ❖ Cellular imaging core
    - ❖ Molecular biology core

Index Terms
Infection, pathogenesis, innate immunity, adaptive immunity, bacteria, viruses, parasites, malaria, reovirus, herpesvirus, oncolysis, inflammation, host response

Back to top

P20GM109096- Phase 1
Center for Childhood Obesity Prevention
Arkansas Children's Hospital Research Institute

Principal Investigator
Judith Lynne Weber, PhD
Research Administrator
Arkansas Children's Hospital Research Institute
1 Childrens Way
Slot 512-26
Little Rock, AR 72202
Tel: 501-364-3300
E-mail: weberjudithl@uams.edu

Thematic Scientific Focus
Development of an integrated, interdisciplinary and translational Center for childhood obesity prevention in Arkansas to prevent the rise in childhood obesity rates

Pilot Studies
- Prevention of childhood obesity through improved maternal insulin sensitivity
- Childhood obesity and educational well-being: A population-based investigation of multiple risks and multiple contexts (Junior Investigator
- Teacher influence on obesity in preschool
- Informing policies to address childhood obesity: A systems approach

Research Resources
- Administrative and Scientific Support Core A
- Biostatistics and Informatics Core B
- Metabolism Core C

Index Terms
childhood obesity, prevention, communities, environmental risk factors, metabolism, biometry, risk behaviors, diabetes, asthma, nutrition, physical activity

Back to top

P30GM103333- Phase 3
Osteoarthritis: Prevention and Treatment
Delaware Rehabilitation Institute, University of Delaware

Principal Investigator
Thomas S. Buchanan, PhD
Delaware Rehabilitation Institute
University of Delaware
540 South College Avenue, 201B
Newark, DE 19713
Tel: *302-831-2410*
Fax: *302-831-3619*
E-mail: buchanan@udel.edu
Web: *http://www.udel.edu/dri*

Thematic Scientific Focus
Prevention and treatment of osteoarthritis

Pilot Studies
- Improving rehabilitation after total hip arthroplasty
- Acceleration-based assessment of limb loading asymmetry during daily living

Research Resources
- Patient-specific modeling core
- Cytomechanics core
- Clinical research core
- Clinical Research Core

Index Terms
biomechanics, orthopedics, physical therapy, magnetic resonance imaging, ultrasound, electromyography, elastography, confocal microscopy, tissue engineering, gait analysis

Back to top

P20GM113125– Phase 1
Center of Biomedical Research Excellence in Cardiovascular Health
University of Delaware

Principal Investigator
David G. Edwards, PhD
540 S. College Avenue
201Q Health Sciences Complex
Newark, DE 19713
Tel: *302-831-3363*
Fax: *302-831-3693*
E-mail: dge@udel.edu

Thematic Scientific Focus
To establish a Center of Biomedical Research Excellence in Cardiovascular Health that aims to catalyze cardiovascular health research by fostering the independent research careers of a team of subproject new investigators, leading to sustainable funding

Research Projects
- Bone Marrow Capillary Redistribution with Advanced Age
- Mechanisms contributing to hypertension in postmenopausal women
- Interaction of Dietary Potassium with High Dietary Sodium on the Vasculature of Humans
- Interventions to improve cardiovascular health and fitness and walking function and activity after stroke
- Reduced endothelial function, brain, and cognition

Research Resources
- Delaware Biotechnology Institute Bio-Imaging Core
- University of Delaware Resources

Index Terms
cardiovascular health, coronary diseases, stroke, bioimaging, physiology, cholesterol, diet, death rate, blood pressure, body weight

Back to top

P30GM104316- Phase 1
Discovery of Chemical Probes and Therapeutic Leads
University of Delaware

Principal Investigator
Joseph M. Fox, PhD
University of Delaware
Department of Chemistry and Biochemistry
Newark, DE 19716
Tel: *302-831-0191*
Fax: *302-831-6335*
E-mail: jmfox@udel.edu
Website: *http://sites.udel.edu/cobre/*

Thematic Scientific Focus: This COBRE will create new libraries for high-throughput screening, provide new perspectives on innate immune response and neurodegenerative disease, enable new screening technology, and advance the state of the art in virtual screening.

Research Projects:
- Development of an immunostimulatory small molecule library
- *In vitro* neural disease models for high throughput drug screening
- New synthetic methods for diverse small molecule library preparation
- Electrochemical Chemiluminescent Arrays and Emitters for Rapid Chemical Probe Identification
- Realizing the Predictive Promise of High Throughput Virtual Screening
- Synthesis of anticancer natural products

Pilot Studies
- Ultrafast Spectroscopy of Photosensitizers for Photodynamic Therapy
- Development of a nanoparticle-based theranostic agent to treat IBC metastasis

Research Resources
- High throughput synthesis
- Rapid purification of molecular libraries.
- Chip-based printing and assaying of molecular libraries
- High throughput assessment of cellular response to small molecules
- Computational core for high-throughput virtual screening and molecular structure optimization.

Index Terms
chemical probe, drug discovery, virtual screening, molecular discovery

Back to top

P20GM103653- Phase 1
COBRE: The Delaware Center for Neuroscience Research
Delaware State University

Principal Investigator
Melissa A. Harrington, PhD
Department of Biology
Delaware State University
1200 N. DuPont Highway
Dover, DE 19901
Tel: *302-857-7117*
Fax: *302-857-6512*
E-mail: mharrington@desu.edu
Web: *http://www.delawareneuroscience.org*

Thematic Scientific Focus
Lifetime brain development and neuronal plasticity

Research Projects
- Co-transmission of glutamate and dopamine in *C. elegans* habituation
- Fetal Alcohol Syndrome model: structure and function of prefrontal cortex
- Lasting epigenetic influence of early-life adversity on the BDNF gene
- Changes in cholinergic signaling and aging investigated in *Drosophila*
- Effects of *in utero* alcohol exposure on the immune cells of the developing brain

Pilot Studies
- The role of glia in the development of synchronized bursting behavior in neuronal networks in culture.
- The roles of glucocorticoid receptors and phosphoinositol-3 kinase signaling in mediating extinction memory deficits in the SPS model
- Assessing mechanisms of Lithium as a potential therapeutic compound in Parkinson's disease
- Regulatory role of microRNA-124 in neurogenesis and pattern formation in sea urchin development

Research Resources
- Rodent housing facility
- Imaging core

Index Terms
neuroscience, developmental biology, epigenetics, molecular neuroscience, fetal alcohol spectrum disorder, invertebrate models of learning, models of aging

Back to top

P30GM110758 – Phase 3
Molecular Design of Advanced Biomaterials
University of Delaware

Principal Investigator
Tatyana Polenova, PhD
Department of Chemistry and Biochemistry
University of Delaware
Newark, DE 19716
Tel: *302-831-1968*
Fax: *302-831-6335*
E-mail: tpolenov@udel.edu
Web: *http://sites.udel.edu/cobre-biomaterials/*

Thematic Scientific Focus
Molecular design of advanced biomaterials

Pilot Studies
- Perfusion driven angiogenesis in a microfluidic biomaterial
- Computational Design of Polymer-Polypeptide Based Biomaterials for Delivery
- TeNA-aptamer hydrogels for bio-responsive drug delivery
- Pathogen-derived biosensors for detection of phosphoinositides in mammalian cells

Research Resources
- Mass Spectrometry and Surface Characterization (MSSC) Core
- Nuclear Magnetic Resonance (NMR) Core
- Microscopy and Mechanical Testing (MMT) Core
- Computational Modeling Core

Index Terms
biomaterial, biopolymer, biomimetic, hydrogel, protein, DNA, PNA, surface, surface analysis, molecular design, materials science, engineering, chemistry, biochemistry, chemical engineering, nanomaterials, organic chemistry, protein patterning, surface patterning, synthetic chemistry, photochemistry, NMR, XPS, TOF-SIMS, AFM, PCR, molecular modeling, drug delivery, drug payload

Back to top

P30GM114736-Phase 3
Center for Pediatric Research (CPR)
Alfred I. duPont Hospital for Children

Principal Investigator
Thomas H. Shaffer, III, MS.E., PhD
Alfred I. duPont Hospital for Children of the Nemours Foundation
Department of Biomedical Research
1600 Rockland Road
Wilmington, DE 19803
Tel: *302- 651-6837*
Fax: *302- 651-6888*
E-mail: tshaffer@nemours.org
Web: *http://centerforpediatricresearch.org/*

Thematic Scientific Focus
Pediatric disorders, therapies, neurological disorders

Pilot Studies
- Evaluation of mechanical ventilation strategies on neonatal tracheal mechanics
- Trajectories of change in BMI status in early childhood
- Using dynamic elbow ultrasound to identify the effect of pitching on the structural and functional anatomy of the ulnar collateral ligament in youth baseball players
- Multi-component beta-hairpin hydrogels for stem cell therapy of spinal cord injury
- IGF-1R inhibition indices EGFR expression in osteosarcoma and Ewing sarcoma through a noncanonical EGFR/MAPK signaling pathway-mediated by an Sp1-based transcriptional mechanism

Research Resources
- Clinical research services
- Cell science core
- Biomolecular core
- Bioinformatics core
- High-Throughput Screening and Drug Discovery Laboratory

Index Terms
pediatric diseases, neuroscience, therapy, prevention

Back to top

P20GM109021- Phase 1
The Delaware Comprehensive Sickle Cell Research Center
Alfred I. Du Pont Hospital for Children

Principal Investigator
Marie J. Stuart, MD
A.I. duPont Hospital for Children of the Nemours Foundation
Nemours Center for Cancer and Blood Disorders
1600 Rockland Road
Wilmington, DE 19803-3607
Tel: *302-651-5500*
Fax: *302-298-7289*
E-mail: marie.j.stuart@nemours.org

Thematic Scientific Focus
The research focus of this Center of Biomedical Research Excellence spans basic and translational science and addresses some of the major clinical aspects of sickle cell disease

Research Projects
- Gene editing of the beta globin gene using TAL effector nucleases and single stranded oligonucleotides.
- Phase 1/2 clinical trial of the n-3 omega fatty acids in pediatric sickle cell disease related pain and inflammation
- Screening for psychosocial risk in pediatric sickle cell disease using the Psychosocial Assessment Tool (PAT)

Pilot projects
- Genetic risk and markers of early kidney disease in children with sickle cell disease
- *In vitro* growth of Stem cells on nanofiber scaffolds
- Re-expression of fetal hemoglobin by gene editing as a therapy for sickle cell disease

Research Resources
- Clinical and Data Management Core
- Clinical Research Services
- Access to the Gene Editing Core
- Center for Translational Cancer Research, the Helen F Graham Cancer Center, Christiana Care Health System, DE
- Access to Bioinformatics and Cell Science Cores of companion COBRE at Alfred I duPont Hospital for Children

Back to top

Index Terms
sickle cell disease, hemolytic anemia, hemoglobinopathy, pain crisis, vasocclusive crisis, pediatric disease, complications of Sickle cell disease, gene editing, omega3 Fatty Acids, psychosocial assessment tool, renal disease chronic, stem cell growth *in vitro*, sickle cell clinical trials in sickle cell disease.

Back to top

P30GM10334- Phase 3
COBRE III: Center for Cardiovascular Research
University of Hawaii at Manoa

Principal Investigator
Ralph V. Shohet, MD
University of Hawaii at Manoa John A. Burns School of Medicine
Bioscience Research Building – 311H
651 Ilalo St.
Honolulu, HI 96813
Tel: *808-692-1469*
Fax: *808-692-1973*
E-mail: shohet@hawaii.edu
Web: *http://www.hawaii.edu/shohet*

Thematic Scientific Focus
Molecular and cellular mechanisms underlying human cardiovascular diseases

Pilot Studies
- The Role of MicroRNA 302a in HDL metabolism and atherosclerosis
- ABCC6 transporter deficiency causes vascular calcification and atherosclerosis
- Characterization of biomarkers associated with coronary artery dilation and doxycycline treatment in Kawasaki disease

Research Resources
- Genomics Core (now coordinated and coalescing with the Cancer Center Genomics Core)
- Histology and Microscopy Core (now co-sponsored by our RCMI program)
- Mouse Phenotyping Core

Index Terms
cardiovascular disease, receptor-mediated signaling, fibroblast, atherosclerosis, hypoxia-inducible factor-1, gene expression, microbubble

Back to top

P20GM103457- Phase 2
Institute for Biogenesis Research: COBRE
University of Hawaii at Manoa, John A. Burns School of Medicine

Principal Investigator
William Steven Ward, PhD
Institute for Biogenesis Research
University of Hawaii at Manoa
1960 East-West Road
Honolulu, HI 96822
Tel: *808-956-5189*
Fax: *808-956-7316*
E-mail: wward@hawaii.edu
Web: *http://www.ibr.hawaii.edu*

Thematic Scientific Focus
Fertilization and early development

Research Projects
- Regulation of polarized exocytosis during epithelial differentiation
- The impact of assisted reproductive technologies on the long-term epigenetic regulation of neurodevelopmental genes associated with autism
- Linking maternal obesity and offspring cancer risks through integration of cord blood stem cell methylome and transcriptome
- The placenta-specific glucose transporter modulation: obesity, metabolic effects and fetal well-being

Research Resources
- Transgenic Mouse
- ICSI
- IVF Core

Index Terms
fertilization, embryo, early development, gametes, sperm, egg, stem cells, obesity, cancer

Back to top

P30GM1114737- Phase 3
Pacific Center for Emerging Infectious Diseases Research
University of Hawaii at Manoa

Principal Investigator
Richard Yanagihara, MD, MPH
University of Hawaii at Manoa
John A. Burns School of Medicine
Department of Pediatrics
651 Ilalo Street, BSB320L
Honolulu, HI 96813
Tel: *808-692-1610*
Fax: *808-692-1976*
E-mail: ryanagih@hawaii.edu
Web: *http://www.hawaii.edu/pceidr*

Thematic Scientific Focus
Emerging infectious diseases in the Asia-Pacific region

Pilot Studies
- Notch Signaling during Human B-cell development and activation
- Potential triggers of severe dengue disease progression
- Characterization of SLFN4-dependent neuroimmune response associated with WNVE
- Pathogenesis of Irukandji syndrome

Research Resources
- ABSL-3/BSL-3 Biocontainment Core
- Bioinformatics Core
- Molecular and Cellular Immunology Core

Index Terms
emerging infectious diseases, tropical medicine, health disparities, pathogenesis, dengue virus, West Nile virus, *Zika* virus, *Chikungunya* virus, *Ebola* virus, hantavirus, *Plasmodium falciparum*, *Burkholderia pseudomallei*

Back to top

P30GM103324- Phase 3
Transitional Center for Research on Processes in Evolution
University of Idaho

Principal Investigator
Larry J. Forney, PhD
University of Idaho
Department of Biological Sciences
Moscow, ID 83844-3020
Tel: *208-885-6011*
Fax: *208-885-5003*
E-mail: lforney@uidaho.edu
Web: *http://www.ibest.uidaho.edu*

Thematic Scientific Focus
Research on the evolution of pathogens and parasites that affect human health through the development and spread of drug resistance, vaccine failures, pathogen host switching, and the emergence of new diseases.

Pilot Studies
- Directed evolution of the molecular chaperone Hsp90 and its clients
- A novel system for the genetics of inflammation and cancer

Research Resources
- Computational Resources Core
- Genomics Resources Core
- Optical Imaging Core

Index Terms
evolutionary biology, molecular biology, structural biology, microbial ecology, computational biology, statistics, genomics, proteomics

Back to top

P20GM109095- Phase 1
Center of Biomedical Research Excellence in Matrix Biology
Boise State University

Principal Investigator
Julia T. Oxford, PhD
Boise State University
1910 University Drive MS-1511
Boise, ID 83725
Tel: *208- 426-2395*
Fax: *208-426-2237*
E-mail: joxford@boisestate.edu
Web: *http://brc.boisestate.edu/cobre/*

Thematic Scientific Focus
Extracellular matrix in development and disease

Research Projects
- Potential MGP negative feedback loop mediated by BMP, Notch, and Runx2
- Computational and experimental study of wound repair in ligament
- AhR signaling during myofibroblast differentiation and fibrosis
- OSM promotes breast tumor cell-ECM disruption resulting in invasion and metastasis

Pilot Studies
- *Staphylococcus aureus* surface adhesins as key vaccine candidates to prevent interaction with the host extracellular matrix
- 2D crystals as extracellular matrix for cell growth and differentiation

Research Resources
- Biomolecular Research Core
- Biomedical Research Vivarium
- Imaging
- Mass Spectrometry
- Idaho Microfabrication Lab

Index Terms
extracellular matrix, collagen, liver fibrosis, cancer metastasis, ligament repair, cardiovascular disease, biomaterials, regenerative medicine, tissue engineering

Back to top

P20GM109007- Phase 1
Idaho Biomedical Research Collaborative in Emerging/Reemerging Infectious Disease
Idaho Veterans Research and Education Foundation

Principal Investigator
Dennis Stevens, MD, PhD
Chief, Infectious Diseases
Idaho Veterans Research and Education Foundation
500 West Fort Street
Boise, ID 83702-0000
Tel: *208-422-1599*
E-mail: dlsteven@mindspring.com
Web: *http://ivref.org/index.php?option=com_content&view=article&id=62&Itemid=143*

Thematic Scientific Focus
Discovery, development and advancement of novel approaches to prevention, diagnosis and treatment of severe life-threatening infections

Research Projects
- Interplay of Exotoxins Driving and Augmenting *C. difficile* and *C. sordellii* Leukemoid Reactions
- Impact of Antibiotics on Growth Cycle and Toxin Production in *S. aureus*
- Innate Immune Responses to Group A *Streptococcus* in the Post-Partum Setting
- Role of Antecedent Influenza Infection in Severity and Outcome of Hemorrhagic MRSA Pneumonia

Research Resources
- Administrative Core
- Histology/Pathology/Imaging Core (HPIC) Facility
- Scientific Core
- Boise VA Medical Center Infectious Diseases Laboratory, Bldg 117
- Boise VA Medical Center: Vivarium and *In Vivo* Animal Imaging Core, Bldg 109

Index Terms
infectious diseases, communicable diseases, pathogenesis, diagnosis, histology, novel strategies, bacteria, antibiotics, cellular immunology, bioinformatics, influenza, microbiology

Back to top

P20GM104420- Phase 1
Center for Modeling Complex Interactions
University of Idaho Moscow

Principal Investigator
Holly A. Wichman, PhD
PO 443051
University of Idaho
Moscow, ID 838443051
Tel: *208-885-7805 / 208-301-0170 cell*
Fax: *208-885-6904*
E-mail: hwichman@uidaho.edu
Web: *www.cmciuidaho.org*

Thematic Scientific Focus
The Center for Modeling Complex Interactions focuses on biomedical problems that are complex and require too diverse a skill set to be tackled by lone specialists. It brings together empirical scientists and modelers to address problems across all levels of biological organization, from biophysical to ecological. The initial focus of the Center will be on viral co-infection.

Research Projects
- Disease severity during viral co-infection
- Multi-level dynamics of viral co-infection
- Agent-based modeling of viral co-infection

Pilot Studies
- Modeling variability in persistence induced from within by a toxic metabolite
- Multi-scale model of interaction between lung and pulmonary ventilation

Research Resources
- Mathematical Modeling Core Facility

Index Terms
mathematical modeling, viral co-infection, agent based modeling, respiratory virus, *Drosophila* virus

Back to top

P20GM104936 – Phase 2
Molecular Regulation of Cell Development and Differentiation
University of Kansas Medical Center, Kansas City

Principal Investigator
Dale R. Abrahamson, PhD
University of Kansas Medical Center
Department of Anatomy and Cell Biology
3901 Rainbow Blvd., MS 3038
Kansas City, KS 66160
Tel: *913-588-0702*
Fax: *913-588-2710*
E-mail: dabrahamson@kumc.edu
Web: *http://www.kumc.edu/school-of-medicine/anatomy-and-cell-biology/nih-center-of-biomedical-research-excellence-(cobre).html*

Thematic Scientific Focus
Mechanisms of cell and tissue development

Research Projects
- Cell biology of ERK-cilium crosstalk
- Intra-oocyte protein synthesis and reproductive aging
- Oxygen sensing and endothelial metabolism in ischemic kidney injury
- The role of NKG2D in autoimmune diabetes

Pilot Studies
- Molecular regulation and differentiation of iPSCs into cardiomyocytes
- Protective role of tight junctions in glomerular podocytes

Research Resources
- Transgenic, Gene Targeting, and Genotyping Core
- Molecular Profiling Core
- High Resolution Imaging Core

Index Terms
aging, ciliopathy, claudins, development, diabetes, differentiation, hypoxia inducible factor (HIF), intraflagellar transport (IFT), oogenesis, organogenesis

Back to top

P30GM110761- Phase 3
Protein Structure and Function
The University of Kansas Lawrence

Principal Investigator
Robert P. Hanzlik, PhD
The University of Kansas
Department of Medicinal Chemistry
1251 Wescoe Hall Drive 4070 Malott
Lawrence, KS 66045
Tel: *785-864-3750*
Fax: *785-864-5326*
E-mail: rhanzlik@ku.edu
Web: *http://psf.cobre.ku.edu*

Thematic Scientific Focus
Health-related basic research in protein structure and function

Pilot Studies
- Atomic structure of a multi-domain redox enzyme Ncb5or implicated in diseases
- Effect of methionine substitution and oxidation on the structure-function of COMT
- Engineering human NRMT1 for its substrate profiling
- Defining the hydrophobic and electrostatic interactions between CYP3A and CYPb5
- Role of BCL9 in STAT3 signaling and DCIS invasive progression

Research Resources
- Protein Production Core Laboratory
- Protein Structure Core Laboratory
- Biomolecular NMR Core Laboratory

Index Terms
protein purification and production, protein structure, protein-protein interactions, protein X-ray crystallography, bio-molecular NMR spectroscopy, fragment-based drug design, antimicrobials based on protein targets, vaccines through protein stabilization

Back to top

P30GM18247- Phase 3
Mechanisms of Liver Injury and Diseases
University of Kansas Medical Center

Principal Investigator
Hartmut Jaeschke, PhD
KU Medical Center
Mail Stop 1018
3901 Rainbow Blvd.
Kansas City, KS 66160
Tel: *913-588-7969*
Fax: *913-588-7501*
E-mail: hjaeschke@kumc.edu
Web: *http://www.kumc.edu/school-of-medicine/pharmacology-toxicology-and-therapeutics/cobre.html*

Thematic Scientific Focus
Nuclear receptors and their role in liver health and disease

Pilot Studies
- Heat shock proteins and mitochondrial function in the prevention of NAFLD
- Novel strategies to suppress inflammation and tumor progression in liver
- The role of PRMT1 in the susceptibility of bacterial infection in cirrhosis
- Development of a liver-on-chip technology for study of liver disease

Research Resources
- Cell Isolation Core
- Analytical Core
- Histopathology Core

Index Terms
bile acids, nuclear receptors, biomedical research, liver, liver dysfunction, liver function, liver repair, fatty acid glycerol esters, glucose, lipids, OCT1, ligand binding, metabolic syndrome, Type 2 diabetes, sortilin 1, diabetic dyslipidemia, alcohol, hepatic fibrosis

Back to top

P20GM103638- Phase 1
Molecular Analysis of Disease Pathways
University of Kansas Lawrence

Principal Investigator
Susan Lunte, PhD
Ralph N. Adams Institute for Bioanalytical Chemistry
2030 Becker Drive Room 220F
Lawrence, KS 66047
Tel: *785-864-3811*
Fax: *785-864-1916*
E-mail: slunte@ku.edu
Web: *http://cmadp.cobre.ku.edu*

Thematic Scientific Focus
Genetic, biochemical and physical analysis of disease

Research Projects
- A non-canonical quorum sensing regulator of virulence in *Burkholderia pseudomallei*
- Alternative functions for γδ T cells in the immune response to *Mycobacterium*
- Understanding the mechanobiology of stem cells in a microengineered 3D cardiac tissue environment with cardiomyopathy
- Microfluidic single-cell analysis of cancer exosomes

Research Resources
- Microfabrication and Microfluidics Core
- Molecular Probes Core
- Genome Sequencing Core

Index Terms
imaging, genomics, sequencing, zebrafish, *C. elegans*, model organisms, microfluidics, molecular probes, microfabrication, microfluidics, sensors, cancer, pulmonary disease, neurological disorders, genetic diseases, molecular biology, bioengineering, bioanalytical chemistry, neuroscience

Back to top

P30GM103326- Phase 3
Novel Approaches for Control of Microbial Pathogens
University of Kansas Medical Center

Principal Investigator
Joseph F. Lutkenhaus, PhD
University of Kansas Medical Center
Department of Microbiology, Molecular Genetics and Immunology
MS 3029, 3901 Rainbow Blvd.
Kansas City, KS 66160
Tel: *913-588-7054*
Fax: *913-588-7095*
E-mail: jlutkenh@kumc.edu
Web: *http://www.kumc.edu/microbiology/cobre.html*

Thematic Scientific Focus
Novel molecular mechanisms for controlling infectious agents and host antigens

Pilot Studies
- Viral and host factors regulate HSV-1 infection
- Alternate mechanisms behind AtlA-dependent biofilm formation in *S. aureus*
- The role of NKG2D in immunosurveillance of spontaneous lymphoma
- Airway Epithelium Response to *Parvovirus* Infection

Research Resources
- X-Ray Crystallography Core
- Fermentation and Screening Core
- Flow Cytometry Core
- Luminex Core
- Signal Transduction Core
- Writing Core

Index Terms
pathogens, microbial infection, molecular structure, protein X-ray crystallography, mechanism-based enzyme inhibitors, drug development, cell mediated immune responses, development of the immune system

Back to top

P20GM113117- Phase 1
Chemical Biology of Infectious Disease
University of Kansas Lawrence

Principal Investigator
Thomas Edward Prisinzano, PhD
Dept. of Medicinal Chemistry
University of Kansas
1251 Wescoe Hall Drive
4070 Malott Hall
Lawrence, KS 66045
Tel: *785-864-3267*
E-mail: prisinza@ku.du

Thematic Scientific Focus
Novel molecular mechanisms for controlling infectious agents and host antigens

Research Projects
- Resistance modifying agents for aminoglycoside antibiotics
- BtaR4, a quorum sensing regulator of virulence
- Genomic and chemical approaches for discovering novel anti-poxvirus strategies

Research Resources
- Core A: Administrative Core
- Core B: Infectious Disease Assay Development
- Core X: Computational Chemical Biology
- Core D: Medicinal Chemistry

Index Terms
communicable diseases, pharmaceutical chemistry, infectious disease treatment, novel, multidisciplinary, pathway interactions, infectious agents, effective therapy, intervention, pathogenesis

Back to top

P20GM103492- Phase 2
Center for Excellence in Diabetes and Obesity Research
University of Louisville

Principal Investigator
Aruni Bhatnagar, PhD
University of Louisville Diabetes and Obesity Center
580 S. Preston, Baxter II 421
Louisville, KY 40202
Tel: *502-852-5966*
Fax: *502-852-3663*
E-mail: Aruni@louisville.edu
Web: *http://louisville.edu/doc*

Thematic Scientific Focus:
Molecular, cellular, experimental, epidemiological, and clinical investigations into the cardiovascular causes and consequences of diabetes and obesity.

Research Projects
- Local regulation of calcium influx in the vasculature during hyperglycemia
- Effects of particulate matter on insulin resistance and endothelial progenitor cells
- Innate immunity in the diabetic heart
- Metabolomic analysis of atherothrombosis

Research Resources
- Flow Cytometry Core
- Pathology and Bioanalytical Core
- Imaging and Physiology Core
- Animal Models and Phenotyping Core

Index Terms
diabetes, obesity, cardiovascular, carnosine, heart, immunity, lipid metabolism, oxidative stress, particulate matter, nitric oxide, endothelial progenitor cells, atherothrombosis, atherosclerosis

Back to top

P20GM103527- Phase 2
Center of Research in Obesity and Cardiovascular Disease
University of Kentucky

Principal Investigator
Lisa A Cassis, PhD
521B Wethington Building
900 S. Limestone
Lexington, KY 40536-0200
Tel: *859-218-1400*
Fax: *859-257-3646*
E-mail: lcassis@uky.edu
Web: *http://www.mc.uky.edu/cocvd*

Thematic Scientific Focus
Mechanisms linking obesity to cardiovascular diseases

Research Projects
- Role of adipocyte prorenin receptor in obesity and hypertension
- Molecular imaging of early heart failure
- Skeletal muscle in rheumatoid arthritis
- Role of bioactive lipids in the protective pathways of obesity in ischemic cardiomyopathy
- Obesity and abdominal aortic aneurysms

Pilot Studies
- Unique functions of angiotensinogen on obesity and diabetic complications.
- Linking obesity-related microvascular dysfunction with hypercholesterolemic dysregulation of neutrophil adhesivity by fluid shear stress
- Role of Adipocyte SR-BI in obesity and metabolic disease

Research Resources
- Administrative Core
- Analytical Core
- Physiologic Core
- Pathology Core

Index Terms
obesity, diabetes, inflammation, hypertension, coronary artery disease, thrombosis, myocardial infarction, atherosclerosis.

Back to top

P30GM110788- Phase 3
Center for the Biologic Basis of Oral/Systemic Diseases
University of Kentucky, College of Dentistry

Principal Investigator:
Jeffrey L. Ebersole, PhD
University of Kentucky
College of Dentistry
414 Health Sciences Research Building
1095 V.A. Drive; Room 422
Lexington, KY 40536-0305
Tel: *859-323-5357*
Fax: *859- 257-6566*
E-mail: jeffrey.ebersole@uky.edu
Web: *http://www.mc.uky.edu/COHR/*

Thematic Scientific Focus
Biology of oral-systemic disease relationships

Research Resources
- Clinical Research Core
- Translational Diagnostics Laboratory Core:
- Pilot Project Core

Index Terms
oral infections, inflammation, translational research, atherosclerosis, gestational diabetes, pregnancy, chronic pain, innate immunity, inflammatory bowel disease, genetics, periodontal disease

Back to top

P30GM110787– Phase3
COBRE for the Center for Molecular Medicine
University of Kentucky

Principal Investigator
Louis B. Hersh, PhD
University of Kentucky College of Medicine
Department of Molecular and Cellular Biochemistry
B283 Biomedical Biological Sciences Research Building
741 South Limestone Street
Lexington, KY 40536-0509
Tel: *859-323-5540*
Fax: *859-323-1727*
E-mail: lhersh@uky.edu
Web: *http://www.uky.edu/cobre*

Thematic Scientific Focus
Altered gene and protein expression in human disease

Pilot Projects
- Molecular mechanisms of cardiac dysfunction
- MiR-29/Hsp47 axis regulates ECM transcription network in breast cancer
- Determining the molecular interactions within CFTR that result in Cystic Fibrosis
- Carbohydrate Metabolism as a drug target against *Toxoplasma gondii* cysts
- PERK inhibition for traumatic brain injury therapeutics

Research Resources
- Protein Analytical Core
- Organic Synthesis Core
- Genetic Technologies Core

Index Terms
protein production, protein x-ray crystallography, viral production, molecular cloning and engineering, small molecule synthesis, protein analysis and characterization, recombineering

Back to top

P20GM113226- Phase 1
Hepatobiology and Toxicology COBRE
University of Louisville Research Foundation

Principal Investigator
Craig J. McClain, MD
Gastroenterology, Hepatology and Nutrition
University of Louisville School of Medicine
505 South Hancock Street
CTR Building, Room 503
Louisville, KY 40202
Tel: *502-852-8927*
Fax: *502-852-6189*
E-mail: CRAIG.MCCLAIN@LOUISVILLE.EDU
Web: *http://louisville.edu/medicine/departments/medicine/divisions/gimedicine/faculty/craig-mcclain*

Thematic Scientific Focus
Mechanisms and therapy for liver injury, nutrition and gut, liver interactions, liver: environment/toxicant/drug interactions

Pilot Projects
- Role of oxidized linoleic acid metabolites in the pathogenesis of alcoholic liver disease
- Pathogenic role of PDE4 in hepatic stellate cell activation and TGF signaling
- High fat diet induced hepatocyte exosomes-promoted hepatic inflammation and tumorigenesis
- Mechanisms of Probiotics in Alcoholic Liver Disease
- Effects of Dietary Fat on the Hepatotoxicity of Environmental Arsenic

Research Resources
- Administrative Core
- OMICS Core
- Analytical Core
- Animal Model and Biorepository Core

Index Terms
liver diseases, liver injury, metabolism, obesity, alcoholic liver disease, drug interactions, hepatitis, molecular target, carcinoma, toxicant exposure, diabetes

Back to top

P30GM106396- Phase 3
Molecular Targets Phase III COBRE
University of Louisville

Principal Investigator
Donald M. Miller, MD, PhD
University of Louisville
James Graham Brown Cancer Center
529 S. Jackson Street
Louisville, KY 40202
Tel: *502-562-4790*
Fax: *502-562-4368*
E-mail: donaldmi@ulh.org
Web: *http://www.browncancercenter.org/research/center-of-biomedical-research-excellence*

Thematic Scientific Focus
Novel molecular targets for cancer therapy

Research Resources
- Microsequence Array Facility
- Molecular Modeling Facility
- Computational Resources
- NMR /Metabolomics Facility
- Comprehensive Protein Expression and Purification Laboratory
- Biophysics Facility

Index Terms
neoplastic transformation, cancer, molecular targets, drug development, cytokines, growth factors, kinases

Back to top

P30GM103507- Phase 3
Mechanisms of Plasticity and Repair After SCI
University of Louisville

Principal Investigator
Scott R. Whittemore, PhD
University of Louisville
Department of Neurological Surgery
Kentucky Spinal Cord Injury Research Center
511 S. Floyd Street, MDR 616
Louisville, KY 40292
Tel: *502-852-0711*
Fax: *502-852-5148*
E-mail: srwhit02@louisville.edu
Web: *http://www.kscirc.org*

Thematic Scientific Focus
Central nervous system injury, repair and therapeutic rehabilitation

Pilot Studies
- Development and feasibility assessment of an underwater treadmill system that provides locomotion movement assistance
- Direct mechanical stimulation for bone preservation after SCI
- Effects of LT on trunk motor control and pulmonary function in children with SCI
- A mouse model of mild TBI, role of hyperfibrinogenemia
- The role of PAF signaling in functional recovery after the SCI
- The potential therapeutic effects of cannabidiol on spinal cord injury
- Targeting ribosome biogenesis as a new strategy for improving recovery after spinal cord injury
- Intestinal dysbiosis and neurogenic bowel in disordered glucose metabolism in SCI
- Effect of stromal vascular fractions on cerebrovascular permeability after TBI
- Endothelial dysfunction in chronic spinal cord injury

Research Resources
- Cell Culture and Molecular Biology Core
- Animal Surgery Core
- Animal Behavior and Electrophysiology Core
- Microscopy Core
- Human Locomotor Core

Index Terms
neurobiology, cell culture, molecular biology, surgery, behavior, electrophysiology, microscopy, apoptosis, immunology, signaling, central nervous system, spinal cord injury, stroke, Parkinson's disease, Alzheimer's disease, locomotor, traumatic brain injury, stem cells, human, rodent, kinematic, gait analysis

Back to top

P30GM103340- Phase 3
Mentoring Neuroscience in Louisiana: A Biomedical Program to Enhance Neuroscience
Louisiana State University Health Sciences Center, New Orleans

Principal Investigator
Nicolas G. Bazan, MD, PhD
Neuroscience Center of Excellence
School of Medicine
Louisiana State University Health New Orleans
2020 Gravier Street, Suite D
New Orleans, LA 70112-2234
Tel: *504-599-0831*
Fax: *504-568-5801*
E-mail: nbazan@lsuhsc.edu
Web: *http://www.medschool.lsuhsc.edu/neuroscience*

Thematic Scientific Focus
Cellular and molecular approaches to brain and retina function, including synaptic physiology, metabolomics, synaptic transmission, neuroinflammatory signaling, mediator lipidomics, omega 3 fatty acids and docosanoids, and genetic studies. Focus on epileptogenesis, experimental stroke, traumatic brain injury, Alzheimer's, age-related macular degeneration, Parkinson's disease and other neurodegenerative diseases as well.

Research Resources
- Mediator-Lipidomics Core
- Multiphoton Microscopy Core
- Imaging Core
- Computational Neuroscience Core

Index Terms
mediator lipidomics, omega-3 fatty acids, epileptogenesis, traumatic brain injury, experimental ischemic stroke, retinal degenerations, synaptic plasticity, neurodegenerative diseases, Parkinson's disease, Alzheimer's disease, Usher's syndrome

Back to top

P30GM110760- Phase 3
Center for Experimental Infectious Disease Research
Louisiana State University A&M College, Baton Rouge

Principal Investigator
Rhonda D. Cardin, PhD
Department of Pathobiological Sciences
LSU School of Veterinary Medicine
Baton Rouge, LA 70803
Tel: *225-578-9907*
Fax: *504-568-5801*
E-mail: rcardin@lsu.edu
Web: *http://www.cobre.ceidr.lsu.edu/*

Thematic Scientific Focus
Infectious diseases, molecular biology and pathogenesis of vector borne pathogens

Pilot Research Projects
- Mucosal response in human metapneumovirus Infection
- Sca1+ lung mesenchymal stem cell based intervention in bacterial pneumonia
- Novel models of axonal degeneration in lyme neuroborreliosis
- Modulation of anti-M. tuberculosis adaptive immune response – role of IDO
- High-throughput screening of CRISPR-Cas9 sgRNA library for host factors essential for HSV-1 replication

Research Resources
- Molecular Immunopathology Core (MIP)
- Protein Core Laboratory (PCL)
- GeneLab Core Facility

Index Terms
infectious diseases, microscopy, microbial, immunopathology

Back to top

P20GM103528- Phase 2
Mentoring Obesity and Diabetes Research in Louisiana
LSU Pennington Biomedical Research Center

Principal Investigator:
Thomas W. Gettys, PhD
Pennington Biomedical Research Center
Experimental Obesity Division
6400 Perkins Road
Baton Rouge, LA 70808
Telephone: *225-763-3165*
Fax: *225-763-0274*
Email: gettystw@pbrc.edu
Web: *http://cobre.pbrc.edu*

Thematic Scientific Focus
Metabolic Disease, Obesity, and Diabetes

Research Projects
- Gene-environment interactions and high–density lipoproteins: an integrated genomic, biological and behavioral approach
- The effects of oncostatin M on the adipose tissue extracellular matrix
- Thermoregulatory circuit mapping of preoptic leptin receptor neurons
- Dynamic regulation of β-cell function and mass by SGK1
- Role of FGF-21 in mediating the metabolic effects of dietary methionine restriction

Pilot Studies
- P&F Program will begin in August 2016 with initiation of Phase 3 COBRE

Research Resources
- Cell Biology and Bioimaging Core
- Genomics Core
- Transgenics Core

Index Terms
insulin resistance, diabetes, obesity, metabolic syndrome, adipose tissue, adipogenesis

Back to top

P20GM109036- Phase 1
Tulane COBRE for Clinical and Translational Research in Cardiometabolic Diseases
Tulane University of Louisiana

Principal Investigator:
Jiang He, MD, DSC, PhD
Joseph S. Copes Chair and Professor
Department of Epidemiology
Tulane University School of Public Health and Tropical Medicine
1440 Canal Street, Suite 2000
New Orleans, LA 70112
Telephone: *504-988-5164*
Fax: *504-988-8835*
Email: jhe@tulane.edu
Web: *http://www2.tulane.edu/publichealth/epi/faculty_he.cfm*

Thematic Scientific Focus
Cardiovascular and genetic epidemiology, etiology, prevention and treatment, clinical trials, translational research, global health

Research Projects
- Identification of novel genes and functional genetic variants associated with BP
- Investigation of salsalate treatment on glycemic control and CVD risk factors in patients with diabetes receiving insulin therapy
- Metabolic profiling of the risk prediction for major adverse cardiovascular events (MACE) among patients with acute coronary syndrome (ACS)
- Effects of dietary sodium reduction on albuminuria in patients with CKD
- Longitudinal relationship of weight change in childhood and CVD risk in adulthood

Research Resources
- Clinical Research Core
- Methodology/Statistics Unit

Index Terms
cardiovascular, cardiometabolic diseases, glycemic control, diabetes, metabolomics, public health, risk factors, disorder prevention, multidisciplinary, evidence based intervention, inflammatory, community based participatory research

Back to top

P20GM103629- Phase 1
Mentoring Research Excellence in Aging and Regenerative Medicine
Tulane University of Louisiana

Principal Investigator
S. Michal Jazwinski, PhD
Tulane Center for Aging and Department of Medicine
Tulane University Health Sciences Center
1430 Tulane Avenue, SL-12
New Orleans, LA 70112
Tel: *504-988-8261*
Fax: *504-988-8835*
E-mail: sjazwins@tulane.edu
Web: *http://tulane.edu/som/aging*

Thematic Scientific Focus
Aging and regenerative medicine

Research Projects
- Effect of donor age on mesenchymal stem cell-dependent angiogenesis
- Spatial attention networks and cognitive aging
- Genetics and epigenetics of healthy aging in twins
- The role of Sirtuin 1 and 3 in the prevention and pathogenesis of pulmonary fibrosis
- The effect of age-related microvascular patterning alterations on network resistance in spontaneously hypertensive rats

Pilot Studies
- Age-related differential modulatory effects of acetylcholine on cortical synaptic connectivity
- Inflammatory mechanisms in age-related cardiac dysfunction
- Role of human cytomegalovirus in adipose metabolism and age-related pathologies

Research Resources
- Genomics and Biostatistics Core
- Bioinformatics Core at Tulane Cancer Center

Index Terms
genetics, molecular and cell biology, signaling, immunology, stem cells, cardiovascular biology, cognitive aging, biology of aging, fibrosis, twins, inflammation, metabolism, synaptic connectivity

Back to top

P30GM106392- Phase 3
Mentoring in Cardiovascular Biology
Louisiana State University Health Sciences Center-New Orleans

Principal Investigator
Daniel R. Kapusta, PhD
Louisiana State University Health Sciences Center
School of Medicine
Department of Pharmacology
1901 Perdido Street
New Orleans, LA 70112
Tel: *504-568-3940*
Fax: *504- 568-2361*
E-mail: dkapus@lsuhsc.edu
Web: *http://www.medschool.lsuhsc.edu/cardio_center/cobre*

Thematic Scientific Focus
Cardiovascular biology and cellular and molecular mechanisms involved in cardiovascular disease states

Pilot Projects
- Metabolic modulation as a therapeutic for vascularization-associated diseases
- Serotonin 5-Ht2A receptor activation as a novel therapeutic target for atherosclerosis
- Susceptibility to obesity: inflammation and vascular function
- Endothelial microparticles: pulmonary hypertension biomarker in scleroderma
- Nitrite therapy protects cardiac function through inhibiting NF-kappa B signaling

Core Research Resources
- Cell and Molecular Analysis Core
- Imaging and Histology Core
- Cardiac and Vascular Function Core

Index Terms
cardiovascular disease, atherosclerosis, hypertension, heart failure, ischemic heart damage, oxidative stress, inflammation, cell signaling and trafficking, G protein-coupled receptors, acute/chronic renal failure, central nervous system, obesity, pulmonary function

Back to top

P30GM103337- Phase 3
Translational Research in Hypertension and Renal Biology
Tulane University School of Medicine

Principal Investigator
Luis Gabriel Navar, PhD
Tulane Health Science Center, School of Medicine
Department of Physiology, SL39
1430 Tulane Avenue New Orleans, LA 70112
Tel: *504-988-2594*
Fax: *504-988-2675*
E-mail: navar@tulane.edu
Web: *http://www.som.tulane.edu/centprog/htn*

Thematic Scientific Focus
Factors contributing to development of hypertension and subsequent consequences on renal and cardiovascular function

Research Resources
- Molecular, imaging and analytical core
- Transgenic and gene-targeted animal core
- Mouse phenotyping core
- Clinical and translational core

Index Terms
hypertension, blood pressure, renal, angiotensin, cardiovascular disease, kidney disease, nephropathy, kidney development, renal injury, TNF-α receptors, microvascular

Back to top

P30GM110703- Phase 3
COBRE Center for Molecular and Tumor Virology
Louisiana State University Health Sciences Center

Principal Investigator
Dennis J O'Callaghan, PhD
Louisiana State University Health Sciences Center
School of Medicine, Department of Microbiology and Immunology
1501 Kings Highway
Shreveport, LA 71330-3932
Tel: *318-675-5750; 5754*
Fax: *318-675-5764*
E-mail: docall@lsuhsc.edu
Web: *https://www.medschool.lsuhsc.edu/cardio_center/cobre/*
http://www.lsuhsc.microbiology.com/cmtv-overview.htm

Thematic Scientific Focus
Molecular and tumor virology

Pilot Projects
- Regulation of TGF-beta by HPV16 E7 and its role in tumor-stromal interactions
- Potential of mycobacterium phage as candidates for phage therapy
- Roles of the UL148 glycoprotein in human cytomegalovirus cell tropism
- Role of Th17/Treg immunoregulatory axis in a viral model for multiple sclerosis

Research Resources
- Administrative Core
- Molecular Analysis Core
- Bioinformatics Core
- Genomic/DNA Array Core

Index Terms
virology, infectious agents,molecular pathogenesis,viral oncology

Back to top

P30GM114732- Phase 3
Mentoring Translational Researchers in Louisiana
Louisiana State University Health Sciences Center

Principal Investigator
Augusto C Ochoa, MD
Louisiana State University Health Sciences Center
School of Medicine
Professor, Department of Pediatrics
Director, Stanley S Scott Cancer Center
1700 Tulane Avenue, Suite 919
New Orleans, LA 70112
Tel: *504-210-2973 or 504-568-2727*
Fax: *504-210-2975 or 504-568-6888*
E-mail: Aochoa@lsuhsc.edu
Web: *http://www.medschool.lsuhsc.edu/cancer_center/cobreaspx*

Thematic Scientific Focus
Immunobiology of disease with emphasis on chronic inflammation and tissue damage

Pilot Studies
- Myeloid-derived suppressor cells in patients with HIV/AIDS
- Polycyclic aromatic hydrocarbons and malignant transformation of neural progenitors

Research Resources
- Cellular Immunology and Immune Metabolism Core
- Translational Genomics Core
- Molecular Histopathology and Analytical Microscopy
- Grants and Development Core

Index Terms
inflammation, host defense, immune response, T cells, chronic disease, cancer

Back to top

P30GM103392-Phase 3
Phase III COBRE in Vascular Biology
Maine Medical Center Research Institute

Principal Investigator
Robert E Friesel, PhD
Center for Molecular Medicine
Maine Medical Center Research Institute
81 Research Drive
Scarborough, ME 04074
Tel: *207-396-8147*
Fax: *207-396-8179*
Email: friesr@mmc.org
Web:
http://www.mmcri.org/home/webSubContent.php?list=webcontentlive&id=246&catID=3&subCatID=9

Thematic Scientific Focus:
Vascular biology, remodeling, angiogenesis, and disease mechanisms

Pilot Projects:
- Role of Wnt-10b in the activation of cardiac endothelial cells by myeloid cells
- Role of alpha10beta1 integrin in angiogenesis

Research Resources:
- Structural Biology Core (Proteomics, DNA Sequencing, Confocal Microscopy)
- Transgenic Mouse and Small Animal Imaging Core
- Viral Vector Core

Index Terms:
structural biology, molecular biology, molecular genetics, angiogenesis, cell signaling, vascular biology, cancer, inflammation, endothelial cell, vascular smooth muscle cell, atherosclerosis, restenosis, FGF, Notch, TGF-beta, IGF, IGFBPs, integrins, cryptic epitopes

Back to top

P20GM103643- Phase 1
Interdisciplinary Center of Excellence for the Study of Pain and Sensory Function
University of New England

Principal Investigator
Ian Meng, PhD
University of New England
11 Hills Beach Road
Biddeford ME 04005
Tel: *207-692-2195*
Fax: *207-602-5931*
E-mail: imeng@une.edu
Web: *http://www.une.edu/research/cobre/*

Thematic Scientific Focus
The neurobiology of chronic pain and sensory function

Research Projects
- Interaction between calcitonin-gene-related-peptide and CD40 on CNS glial cells in neuropathic pain
- Genes involved in antinociception in *Drosophila melanogaster*
- Function of the transcription factor Sox11 in regulating the plasticity of nociceptive neurons after nerve injury
- Peripheral mechanisms of cancer-induced ongoing and breakthrough pain

Pilot Studies
- Resident DRG macrophages: Impact on nociceptor response
- Primary cilia in nociceptive DRG neurons: Potential links to acute and chronic pain
- Effects of early life pain on subsequent fear conditioning and sensory function
- Chronic pain, motor output and motor learning in knee osteoarthritis
- Mechanisms of infection-mediated pain

Research Resources
- Histology and Imaging Core
- Behavioral Core

Index Terms
pain, nociception, neurobiology, sensory, behavior, neuropathology

Back to top

P20GM104318- Phase 1
Comparative Biology of Tissue Repair, Regeneration and Aging
Mount Desert Island Biological Laboratory

Principal Investigator
Kevin Strange, PhD
Mount Desert Island Biological Laboratory
PO box 35 Old Bar Harbor Road
Salisbury Cove, ME 04672
Tel: *207-288-9880, ext 136*
Fax: *207-288-2130*
E-mail: kstrange@mdibl.org
Web: *http://cobre.maineidea.net/*

Thematic Scientific Focus:
Mechanisms underlying natural tissue repair, regeneration and aging

Research Projects
- Genetic analysis of natural reprogramming during regeneration
- Regeneration of cutaneous axon regeneration by wound derived H_2O_2
- The role of germ granules in maintaining self-renewal and totipotency
- Stress, genomic instability, and loss of regenerative capacity with age

Research Resources
- Comparative Functional Genomics Core
- Animal Core

Index Terms
Regeneration, aging, development, tissue repair, stem cells, totipotency, pluripotency, bioinformatics, microRNA, comparative biology, health span, cellular plasticity, gene expression, stress biology

Back to top

P30 GM106391- Phase 3
Phase III COBRE in Stem & Progenitor Cell Biology and Regenerative Medicine
Maine Medical Center

Principal Investigator
Don M Wojchowski, PhD
Maine Medical Center
Center for Molecular Medicine
81 Research Drive
Scarborough, MA 04074
Tel: *207-396-8258*
Fax: *207- 396-8179*
E-mail: wojchd@mmc.org
Web: *http://mmcriorg/ns/?page_id=10071*

Thematic Scientific Focus
Stem and progenitor cell biology and damaged tissue repair

Research Resources
- Progenitor Cell Analysis Core
- Molecular Phenotyping Core
- Histopathology Core
- Physiology Core

Index Terms
stem and progenitor cell biology, cytokine signal transduction, skeletal development, leukemogenesis, bone remodeling, nephrogenesis, adipogenesis, hematopoiesis, and erythropoiesis

Back to top

P20GM104357-Phase 1
Cardiorenal and Metabolic Diseases Research Center
University of Mississippi Medical Center

Principal Investigator
John E Hall, PhD
University of Mississippi Medical Center
Department of Physiology & Biophysics
2500 N State Street
Jackson, MS 39216-4505
Tel: *601-984-1801*
Fax: *601-984-1817*
E-mail: jehall@umc.edu
Web:
http://wwwumcedu/Education/Schools/Medicine/Basic_Science/Physiology_and_Biophysics/COBRE/COBRE_Homeaspx

Thematic Scientific Focus:
Prevention, treatment and mechanisms of obesity, cardiorenal and metabolic diseases

Research Projects
- Differential control of metabolic and cardiovascular functions by leptin
- The role of matrix metalloproteinases in the progression of diabetes-induced renal injury

Pilot Projects
- Elucidating mechanisms responsible for the pathogenesis of preeclampsia using the Dahl salt sensitive rat as a novel model of preeclampsia
- Renal sinus fat, hypertension and altered renal hemodynamics
- A novel proangiogenic therapy for preeclampsia
- Reduced uterine perfusion in the mouse: developmental programming of cardiovascular and metabolic disease
- Placental dysfunction and vertical sleeve gastrectomy induced intrauterine growth restriction
- Degenerins and pregnancy mediated cerebrovascular abnormalities

Research Resources
- Administrative, Mentoring and Education Core
- Bioanalytical, Mass Spectroscopy, Imaging and Histology Core
- Molecular/Genomics and Genetically Engineered Animal Models Core

Index Terms
cardiovascular, kidney, hypertension, obesity, metabolic syndrome, diabetes, genetics, central nervous system

Back to top

P20GM104932- Phase 2
Center of Research Excellence in Natural Products Neuroscience (CORE-NPN)
University of Mississippi

Principal Investigator
Christopher R McCurdy, PhD
419 Faser Hall
School of Pharmacy
University, MS 38677
Tel: *662-915-5882*
E-mail: cmccurdy@olemiss.edu
Web: *http://pharmacy.olemiss.edu/cobre/*

Thematic Scientific Focus
Natural products to manage central nervous system disorders.

Research Projects
- Sigma Receptors and the Endocannabinoid System
- Delta-8-Tetrahydrocannabinol in the
- Management of Glaucoma
- Fluorinated Derivatives of Anthocyanin Natural Products for Brain Neurodegeneration
- Delivery of Ziconotide using Muco-similar Vehicles

Pilot Studies
- Fluorinated Derivatives of Anthocyanin Natural Products for Brain Neurodegeneration
- Intranasal Delivery of Ziconotide using Muco-similar Vehicles
- *In Vitro* Screening by Small Molecule Hydroxyl Radical Footprinting
- Identifying Novel Cannabinoid Analogues for the Treatment of Dravet Syndrome

Research Resources
- Core A: Sourcing, Acquisition and Isolation Core
- Core B: Chemistry and DMPK Core
- Core C: *In Vitro* Pharmacology Core
- Core D: *In Vivo* Pharmacology Core
- Core E: Biopharmaceutics- Clinical and Translational Core

Index Terms
natural products, central nervous system, cannabinoids, pathophysiology, pharmacology, neurodegeneration, glaucoma, anthocyanins

Back to top

P20GM103646- Phase 1
Center for Biomedical Research Excellence in Pathogen-Host Interactions
Mississippi State University

Principal Investigator
Stephen B Pruett, PhD
Department of Basic Sciences
College of Veterinary Medicine
Mississippi State University
PO Box 6100, 240 Wise Center Drive
Mississippi State, MS 3976
Tel: *662-325-1130*
Fax: *662-325-8884*
E-mail: Pruett@cvm.msstate.edu
Web: *http://www.cvm.msstate.edu/academics/departments-centers/center-of-biomedical-research-excellence*

Thematic Scientific Focus
Pathogen-host interactions, systems biology

Research Projects
- Role of stress response in bile resistance of *Listeria monocytogenes*
- Functional analysis of deubiquitinating enzymes in enteric infections
- Identifying polyamine dependent mechanisms in pneumococcal pneumonia
- Molecular mechanisms of immunosuppression induced by superantigens
- Receptors determining influenza host and tissue tropisms using systems biology approaches

Pilot Studies
- Role of the PUMA gene product in pathogenicity of *Streptococcus pneumonia*
- Regulation of experimental autoimmune encephalitis by T cells induced by low doses of Staphylococcal toxins

Research Resources
- Omic Core Facility (Core B)
- Cellular Purification and Analysis Core (Core C)

Index Terms
pathogen, host, proteomics, *Listeria monocytogenes*, *Yersinia enterocolitica, Shigella flexneri, Influenza virus, Staphylococcus aureus,* polyamines, superantigen, deubuiqitinase, bile

Back to top

P30GM103328- Phase 3
Center for Psychiatric Neuroscience
University of Mississippi Medical Center

Principal Investigator
Craig A Stockmeier, PhD
University of Mississippi Medical Center
Division of Neurobiology and Behavior Research
Department of Psychiatry and Human Behavior
2500 North State Street, Box 127
Jackson, MS 39216-4505
Tel: *601-815-5392*
Fax: *601-984-5899*
E-mail: cstockmeier@umc.edu
Web: *https://www.umc.edu/cpn/*

Thematic Scientific Focus
Pathology of psychiatric, neuropsychiatric and degenerative neurological disorders including disorders of mood, alcohol and substance dependence

Pilot Projects
- Circadian regulation of drug reward: Diurnal rhythms in mesolimbic neural firing and drug-seeking
- HELLP Syndrome
- ShRNA-mediated suppression of gap junction protein Connexin 43
- Long-term consequences of in utero methamphetamine exposure
- The moderating role of genetics in the relation between PTSD and trauma cue-evoked cocaine attentional bias among cocaine dependent patients

Research Resources
- Postmortem Brain Collection Core
- Animal Behavior Core
- Imaging Core
- Molecular and Genomics Core

Index Terms
psychiatric neuroscience, depression, alcohol, psychoactive substance use disorders, schizophrenia, bipolar disorder, postmortem brain tissue, imaging, confocal microscopy, laser capture microdissection, deep sequencing, genomics, behavior, antidepressant medications, chronic stress, neurotrophic factors, angiogenic factors, serotonin, glutamate, transcription factors

Back to top

P20GM104417- Phase 1
Center for Health Equity in Rural Montana
Montana State University - Bozeman

Principal Investigator
Alexandra K Adams, MD, PhD
Montana State University Office of Sponsored Programs
309 Montana Hall
PO Box 172470
Bozeman, MT 59717
Tel: *406-994-7626*
Fax: *406-994-4303*
E-mail: alexandra.adams2@montana.edu
Web: *http://www.montana.edu/cairhe/*

Thematic Scientific Focus
Rural and native health equity

Research Projects
- Increasing access to oral health care: Evaluating the outcomes of a community health worker program
- Sexual health project on a Montana reservation
- Increasing environmental health literacy in a Native American community

Faculty Startup Projects
- The Fort Peck substance abuse and resilience project
- Rural Montana victim needs assessment
- Intensive measurement of alcohol use and alcohol-related problems among rural Montanans
- Maternal mental health, child temperament, and biological markers of anxiety risk as interactive predictors of anxiety risk in young children
- Prisoner reentry and recidivism in Montana

Research Resources
- Community Engagement Core

Index Terms:
native health, rural health, health disparities, health equity, oral health, reproductive health, health literacy

Back to top

P30GM103338- Phase 3
Center for Environmental Health Sciences
University of Montana, Missoula

Principal Investigator
Andrij Holian, PhD
University of Montana
Department of Biomedical and Pharmaceutical Sciences
Center for Environmental Health Sciences
280 Skaggs Building, 32 Campus Drive
Missoula, MT 59812
Tel: *406-243-4018*
Fax: *406-243-2807*
E-mail: andrij.holian@umontana.edu
Web: *http://www.umt.edu/cehs*

Thematic Scientific Focus
Environmental agents on immune and neurological outcomes in human health and disease

Research Resources
- Inhalation and Pulmonary Physiology Core
- Molecular Histology and Fluorescent Imaging Core
- Fluorescent Cytometry Core

Index Terms
environmental health, toxicology, immunology, development, nanomaterials, asbestos, wood smoke, oxidative stress, carcinogenesis, receptor signaling, innate and adaptive immunity

Back to top

P30GM110732- Phase 3
Center for Zoonotic and Emerging Infectious Diseases
Montana State University-Bozeman

Principal Investigator
Mark T Quinn, PhD
Montana State University
Microbiology and Immunology
Molecular Bioscience Bldg
Bozeman, MT 59717
Tel: *406-994-4707*
Fax: *406-994-4303*
E-mail: mquinn@montana.edu
Web: *http://www.montana.edu/cobre*

Thematic Scientific Focus
Infectious disease pathogenesis and development of novel therapeutic treatments

Research Resources
- Cellular Analysis Core
- Animal Models Core

Index Terms
zoonotic diseases, infectious agents, bacterial pathogenesis, innate immunity, adaptive immunity, bone marrow failure, viral spreading, CRISPR

Back to top

P20GM103546- Phase 2
Biomolecular Structure and Dynamics
The University of Montana

Principal Investigator
Stephen R Sprang, PhD
Biomolecular Structure & Dynamics Chemistry 217
Missoula, MT 59812
Tel: *406-243-6028/406-243-6003*
Fax: *406-243-6024*
E-mail: stephen.sprang@umontana.edu
Web: *http://hs.umt.edu/cbsd/default.php*

Thematic Scientific Focus
Biophysical, structural and mathematical approaches in understanding health and disease

Research Projects
- Catalysis with non-covalent interactions
- Ligand-specific dynamics and biased agonism in PPAR signaling
- Biomimetic transition-metal catalysts for selective aliphatic hydrocarbon functionalization
- Functional and pharmacological properties of GluN3A—containing NMDA receptors
- Synthesis of potent inhibitors of molecular pathways associated with the mesenchymal epithelial transition
- Defining how AhR ligands alter the phenotype and function of innate lymphoid cells

Research Resources
- Macromolecular X-Ray Diffraction and Protein Expression Core
- Macromolecular NMR Spectroscopy Core
- Molecular Computation Core
- Biospectroscopy Core

Index Terms
biophysics, structural biology, structural studies, pathogens, mammals, fractionation, functional analysis, genetic polymorphisms, P-glycoprotein, drug transporter, catalysis, non-covalent interactions, organometallic chemistry, germ granules, mRNA, silencing, stem cells, cancer, diffraction, disease, isotopes, oxygen, glycoprotein, biological processes, crystallization, spectroscopy, biospectroscopy, spectrometry, cellular biology, pharmacology, neurobiology, biochemistry, synthetic chemistry, macromolecular X-ray crystallography, nuclear magnetic resonance spectroscopy, NMR, mass spectrometry, molecular computation

Back to top

P30GM103335- Phase 3
Redox Biology Center
University of Nebraska-Lincoln

Principal Investigator
Donald Becker, PhD
Department of Biochemistry
N258 Beadle Center 19th and Vine Street
Lincoln, NE 68588-0664
Tel: 402-472-9652
Fax: 402-472-7842
E-mail: dbecker3@unl.edu
Web: *http://redoxbiologycenter.unl.edu*

Thematic Scientific Focus
Reduction-oxidation biology in growth, development and health

Research Projects
- Emerging regulatory paradigms in glutathione metabolism during cancer
- Therapeutic control of redox-related cellular process
- Thiol metabolism in prokaryotes
-
- New anti-superbug strategy-using small molecule signaling factors to increase the susceptibility of bacteria to existing antibiotics
- Peroxidase-mediate nitration of the *Pseudomonas aeruginosa* quinolone signal compound

Research Resources
- Metabolomics and Proteomics
- Spectroscopy and Biophysics
- NMR Metabolomics
- Electron Paramagnetic Resonance Spectroscopy
- Macromolecular Crystallography
- Bio-Imaging

Index Terms
redox biology, oxidative stress, redox signaling, reduction-oxidation, metabolism, redox regulation, mitochondria, reactive oxygen species, metal ion homeostasis, cancer, Parkinson's disease, aging, cataracts, cardiovascular disease, neurodegeneration

Back to top

P20GM103480 – Phase 2
Nebraska Center for Nanomedicine
University of Nebraska Medical Center

Principal Investigator
Tatiana Bronich, PhD
University of Nebraska Medical Center
Department of Pharmaceutical Sciences
985830 Nebraska Medical Center
Omaha NE 68198-5830
Tel: *402-559-9351*
Fax: *402-559- 9365*
E-mail: tbronich@unmc.edu
Web: *http://cddn.unmc.edu*

Thematic Scientific Focus:
Nanotechnology in the development of diagnostic and therapeutic agents for human disease

Research Projects
- Development of metabolically-active linkers (MALS) to improve diagnostic and radiotherapeutic HPMA copolymers
- MUC4 based vaccine for pancreatic cancer
- Renal drug targeting for the treatment of lupus nephritis
- Role of nanoformulated redox enzymes in reducing systemic hypertension in obesity
- Multifunctional nanofiber skin graft for extensive skin replacement therapy

Pilot Studies
- Local sustained co-delivery of 25-hydroxyvitamin D_3 and parathyroid hormone-related peptide for prevention of surgical site infection
- Stable SERS-based multiplex nanosensors for early detection of cancer biomarkers
- Combination nanomedicines based on CXCR4 and microRNA inhibition to treat cholangiocarcinoma
- Synthesis of novel self-assembling biomaterials with antibacterial properties

Research Resources
- Nanomaterials Core Facility
- Bioimaging Core Facility

Index Terms
nanotechnology and engineering, biomaterials, polymer therapeutics, macromolecular prodrugs, radiopharmaceutics, drug delivery, vaccines, neuroscience, oxidative stress, cancer, lupus, obesity

Back to top

P20GM109023- Phase 1
Center for Perception and Communication in Children
Father Flanagan's Boys' Home

Principal Investigator
Walt Jesteadt, PhD
Boys Town National Research Hospital
555 North 30th Street
Omaha, NE 68131
Tel: *402-498-6704*
Fax: *402-498-6351*
E-mail: walt.jesteadt@boystown.org
Web: *https://www.boystownhospital.org/research/COBRE/Pages/default.aspx*

Thematic Scientific Focus:
Speech, language, and vestibular issues that are related to hearing loss in children

Research Projects
- The impact of mild hearing loss on auditory perception in complex environments
- The impact of hearing loss on speech communication by Spanish-English bilinguals
- Perception and production of audiovisual speech in children with hearing loss
- Temporal resolution in children with hearing loss
- Gaze stability in children with hearing and vestibular loss

Pilot Studies
- Cortical auditory event-related potentials in patients with auditory brainstem implants

Research Resources
- Administrative Core
- Technical Core
- Clinical Measurement Core

Index Terms
acoustics; auditory system; centers of research excellence; child; childhood; clinical; clinical data; cognitive function; communication; computerized data processing; development; evoked potentials; hearing; hearing aids; hearing impairment; language; language development; language perception; learning; measurement; perception; performance; peripheral; relating to nervous system; sound; speech; speech perception; translational research; visual; visual process; visual processing

Back to top

P30 GM106397 - Phase 3
Nebraska Center for Cellular Signaling
University of Nebraska Medical Center

Principal Investigator
Keith R Johnson, PhD
University of Nebraska Medical Center
Department of Oral Biology and
Eppley Institute for Research in Cancer and Allied Diseases
987696 Nebraska Medical Center
Omaha, NE 68198-7696
Tel: *402-559-3890*
Fax: *402-559-3888*
E-mail: kjohnsonr@unmc.edu
Web: *http://www.unmc.edu/dentistry/research/nccs/index.html*

Thematic Scientific Focus
Signal transduction in cell biology and cancer biology

Pilot Grants
- Biochemical investigation of oxidative DNA damage response
- Interferon Response Factor-3 and the immune response to melanoma
- Prostaglandin E desensitization via phosphodiesterase-4 up-regulation in chronic obstructive pulmonary disease
- CD59 down-regulation as a strategy for cancer treatment
- Androgen Receptor promotes TRAIL resistance in breast cancer
- Targeting Rac1 for sensitization of breast cancer to radiation therapy
- Free fatty acids promote inflammation and dynamic regulation of lipid droplets
- Role of Ment in lymphomagenesis
- YAP as a novel regulator in pancreatic cancer metastasis
- Modeling the role of the Hippo/YAP pathway in ovarian high grade serous carcinoma
- Role of endocytic regulatory proteins in mitochondrial fission and Parkinson's disease
- Targeting proteostasis for cancer treatment
- Dissecting the roles of EHD1 and EHD4 in the renal tubular epithelium

Research Resources
- Advanced Microscopy Core
- Tissue Sciences Core
- High Throughput Screening Facility
- Flow Cytometry Core
- Biostatistics Core
- Human Tissue Bank
- Protein Structure Core Facilities
- Translational Mouse Model Core
- Transgenic Mouse Facility
- Rapid Autopsy Program for Pancreatic Cancer

Back to top

- Small Animal Imaging
- Epigenomics and DNA Methylation Analysis
- Mass Spectrometry and Proteomics

Index Terms
signal transduction, DNA methylation, DNA damage, endocytosis, cell adhesion, prostate cancer, oral cancer

Back to top

P30GM110768- Phase 3
The Molecular Biology of Neurosensory Systems
University of Nebraska Medical Center

Principal Investigator
Shelley D Smith, PhD
University of Nebraska Medical Center
985960 Nebraska Medical Center
Munroe-Meyer Institute
Omaha, NE 68198-5456
Tel: *402-559-5314*
Fax: *402-559-2256*
E-mail: shelley.smith@unmc.edu
Web: *http://www.unmc.edu/mmi/research/cobre/index.html*

Thematic Scientific Focus
Neurosensory and neurodevelopmental disorders and interventions

Research Projects
- Role of miR-1290 in neurodevelopment
- Regulation of hippocampal synapses by glutamate delta-1 receptor
- Analysis of the capacity of redox metabolism, via C terminal binding protein, to regulate cell fate in regenerative and nonregenerative sensory epithelia

Research Resources
- Mouse Genome Engineering Core
- Histology and Imaging Core
- DNA Microarray and Sequencing Core
- Auditory Physiology Core

Index Terms
neurosensory disorders, central nervous system, inner ear development, developmental neuroscience, neurodevelopmental disorders, inflammation, hearing loss, vision loss, Usher syndrome, ototoxicity, autism

Back to top

P20GM109090- Phase 1
Harnessing Movement Variability to Treat and Prevent Motor Related Disorder
University of Nebraska Omaha

Principal Investigator
Nick Stergiou, PhD
University of Nebraska Omaha
Department of Biomechanics
Biomechanics Research Building 214
6160 University Drive
Omaha, NE 68182-0860
Tel: *402-350-6809*
Fax: *402-554-3693*
E-mail: nstergiou@unomaha.edu
Web: *http://www.unomaha.edu/college-of-education/cobre/index.php*

Thematic Scientific Focus
Center for Research in Human Movement Variability

Research Projects
- Gait variability in peripheral arterial disease
- The effects of virtual reality on gait variability after stroke
- Breathing and walking coupling variability in chronic obstructive pulmonary disease
- Development of postural control variability in autism

Faculty Recruits' Research
- Temporal variability of daily ambulatory activity as a non-invasive biomarker for Parkinson's disease
- Push-off mechanics and gait variability in persons with a lower limb amputation

Pilot Project Mechanism Research
- Novel use of environmental temperature to treat and prevent motor related disorder
- Understanding movement variability among patients on ART for HIV
- Infant physical activity and postural control variability in relation to obesity
- Nonlinear analysis and pattern recognition of variability in physical activity after stroke
- Movement variability, cortical activation and cognitive load in ankle instability
- Older adults' gait control: impact of cognition and context while dual-tasking

Research Resources
- Motion analysis laboratory
- Virtual reality laboratory
- Motor development laboratory
- Machine Shop
- Acoustics laboratory
- Balance and strength laboratory

Back to top

- Robotics laboratory
- Digital motion capture systems
- Split-belt treadmills
- Gait-o-Gram
- Body weight support systems
- Audiometer
- Speech analysis system
- Data analysis software
- Force platforms
- Isokinetic Dynamometer
- Respirometer
- Biostatistical support
- Eye-tracking
- Oxymeter
- Inmotion upper extremity robot
- Neurocomm Balance Master
- Staircase instrumented with force platforms
- fNIRS system
- Pressure mats
- Pressure insoles
- Ultrasound system

Index Terms
Peripheral Arterial Disease, visual perception, gait variability, locomotor adaptation, kinematics, muscle activation, kinetics, Chronic Obstructive Pulmonary Disease, breathing, typically developing infants, Autism Spectrum Disorder, postural sway, Stroke, biomechanics, coupling biorhythms, posture, human movement, complexity, nonlinear dynamics, fractals, mathematical chaos, motor control, motor learning, motor disorders, movement dysfunction

Back to top

P20GM113126- Phase 1
Nebraska Center for Integrated Biomolecular Communication (CIBC)
University of Nebraska - Lincoln

Principal Investigator
James M Takacs, PhD
University of Nebraska- Lincoln
Department of Chemistry
807B Hamilton Hall
Lincoln, NE 68588-0304
Tel: *402-472-6232*
Fax: *402-472-9402*
E-mail: JTAKACS1@UNL.EDU
Web: *http://unlcms.unl.edu/cas/chemistry/integrative-biomolecular-communication/about-cibc*

Thematic Scientific Focus
Development of collaborative research teams with broad disciplinary representation to interrogate complex disease pathways, especially by connecting researchers who are developing new molecular probes and analytical techniques with those unravelling molecular mechanisms of complex diseases

Research Projects
- Matabolic syntrophy between human gut bacteria and archaea
- Analytical and informatic approach to determine disease-related glycoforms of proteins
- Hepatic stabilin-2 mechanisms of clearance
- Quantifying biochemical communication in hepatocellular carcinoma
- *In Vitro* liver models to investigate the progressiojn of liver fibrosis

Research Resources
- Administrative Core
- Systems Biology Core
- Data Management and Analysis Core

Index Terms
systems biology, pathway interactions, development, disease, interdisciplinary, disease progression, metabolic, regulatory pathway, signal transduction, proteomics

Back to top

P30GM103509- Phase 3
Nebraska Center for Virology
University of Nebraska - Lincoln

Principal Investigator
Charles Wood, PhD
University of Nebraska - Lincoln
School of Biological Sciences
102C Morrison, 4240 Fair Street
Lincoln, NE 68583-0900
Tel: *402-472-4550*
Fax: *402-472-3323*
E-mail: cwood1@unl.edu
Web: *http://www.unl.edu/virologycenter*

Thematic Scientific Focus
Mechanisms and regulation of the replicative cycle of viruses and host responses in disease pathogenesis

Research Resources
- Microscopy Core
- Flow Cytometry Core
- Bioinformatics Core

Pilot Project
- Evaluation of algal viruses in mammals and the association with serious psychiatric

Index Terms
virus, pathogens, bioinformatics, microscopy, structural biology, HIV, neurodegenerative diseases, apoptosis, herpes, inflammatory disease, signaling, immunology, humanized mouse model, neuropharmacology, electrophysiology, stress, trauma, antiviral, prion diseases

Back to top

P20GM104320- Phase 1
Nebraska Center for the Prevention of Obesity Diseases through Dietary Molecules
University of Nebraska Lincoln

Principal Investigator
Janos Zempleni, PhD
University of Nebraska
Lincoln Department of Nutrition & Health Sciences
316 Ruth Leverton Hall
Lincoln, NE 685830806
Tel: *402-472-3270*
Fax: *402-472-1587*
E-mail: jzempleni2@unl.edu
Web: *http://cehs.unl.edu/npod*

Thematic Scientific Focus
Nutrient signaling in the prevention of obesity and obesity-related diseases

Research Projects
- Palmitoleate signaling, miRNAs, and lipoapoptosis
- Redox signaling, endoplasmic reticulum stress, high-fat diet, and metabolic syndrome
- Bioinformatics-guided discovery of dietary microRNA signals in obesity
- Gut microbe signaling, epigenetics, and inflammatory processes
- Regulation of white adipocyte browning by dietary fatty acids

Pilot Studies
- A novel cecum cannulated human gut microbiota associated pig gastrointestinal model to study signals produced by the gut microbiome that interact with host gene expression leading to a lean or obese phenotype
- Identification of surface proteins that mediate the uptake of milk exosomes
- Matrix based liver models to study obesity-related liver disease
- The role of chronic inflammation in fetal origins of obesity and metabolic dysfunction

Seed Grants
- Molecular characterization of human miRISC complexes following treatment with cow milk exosome miRNAs
- Biomarkers of progressive fatty liver
- Mechanism of 3-hydroxy fatty acid-induced placental trophoblast and hepatocyte lipoapoptosis

Research Resources
- Bioinformatics
- Biostatistics
- Computer Center
- Body Composition Analysis in Humans and Small Animals
- Live Animal Imaging
- Mouse Phenotyping

Back to top

- Molecular Biology
- Gene Expression Analysis
- Metabolomics and Proteomics
- Gnotobiotic Mouse Facility

Index Terms
obesity; nutrient signaling; diabetes; heart disease; microbiome; non-alcoholic fatty liver disease; microRNA; cholangioapoptosis; brown adipose tissue; apoptosis; fatty acids; diet; nutrition; tissue engineering; RNA biology

Back to top

P20GM109025- Phase 1
COBRE Grant
Cleveland Clinic Foundation

Principal Investigator
Jeffrey L Cummings, MD, ScD
Cleveland Clinic Foundation
Cleveland Clinic Lou Ruvo Center for Brain Health
888 W. Bonneville Avenue
Las Vegas, NV 89106-0100
Tel: *702-483-6029*
Fax: *702-722-6584*
E-mail: cumminj@ccf.org

Thematic Scientific Focus
Neurodegeneration and Translational Neuroscience; neuroimaging, immune biomarkers of neurodegenerative disease

Research Projects
- The relationship between neuropsychological testing and MRI, PET, and blood biomarkers in Alzheimer's and Parkinson's disease(PD)
- Cross-sectional and longitudinal MRI analysis of the functional and structural brain networks underlying mild cognitive impairment in PD
- Immune markers linking pathogenesis in animal models and human neurodegenerative disease

Research Resources
- CNTN Administrative Core
- Clinical and Translational Research Core
- Data Management and Statistics Core
- Magnetic Resonance Imaging and PET/CT Imaging
- Behavioral Neuroscience Laboratory, Animal Facility, Genomics Core, and Confocal and Biological Imaging Core at the University of Nevada Las Vegas

Index Terms
neurodegenerative, human subjects, animal models, vertebrate animals, Alzheimer's Disease, Parkinson's Disease

Back to top

P30GM110767- Phase 3
COBRE: Smooth Muscle Plasticity
University of Nevada, Reno

Principal Investigator
Kenton M. Sanders, PhD
University of Nevada School of Medicine
Department of Physiology and Cell Biology
Anderson Building/352
Reno, NV 89557-0271
Tel: *775-784-6908*
Fax: *775-784-6903*
E-mail: ksanders@medicine.nevada.edu
Web: *http://www.physio.unr.edu/index.asp*

Thematic Scientific Focus
Smooth muscle plasticity in response to changing stimuli or microenvironments

Research Resources
- Molecular Expression and Transgenic Core
- Protein Expression and Analysis Core
- Dynamic Imaging Facility

Index Terms
smooth muscle biology, smooth muscle plasticity, integrins, calmodulin, smooth muscle proteomics, stretch-activated potassium channels, bowel obstructions

Back to top

P20GM103554- Phase 1
Cell Biology of Signaling Across Membranes
University of Nevada, Reno

Principal Investigator
Christopher S von Bartheld, MD
Department of Physiology and Cell Biology, MS-352
University of Nevada School of Medicine
Reno, NV 89557
Tel: *775-784-6022*
Fax: *775-784-6903*
E-mail: cvonbartheld@med.unr.edu
Web: *http://www.medicine.nevada.edu/cobre*

Thematic Scientific Focus
Neuroscience, cell biology of signaling across membranes, neuron-glia interactions

Research Projects
- Neurotrophic signaling in *Drosophila*
- Secretion of signaling molecules
- The roles of glia and neural activity in the development of neuromuscular synapses
- Modulation of mitochondrial quality control and function by serine/threonine kinases and phosphatases in neurons
- Mitochondrial dynamics and synaptic vesicle recycling

Research Resources
- Imaging Core
- Tissue Culture Core
- Electron Microscopy Core
- Seahorse XF analyzer for measurement of oxygen consumption
- Super-Resolution Microscopy Core
- COBRE program evaluation/ assessment of faculty development

Index Terms
cell biology, molecular biology, neuroscience, signaling, glycobiology, neurodegeneration, mitochondrial biology

Back to top

P20GM103650- Phase 1
Center for Integrative Neuroscience
University of Nevada, Reno

Principal Investigator
Michael A Webster, PhD
University of Nevada Reno
Department of Psychology / 296
438 Mack Social Sciences
RENO, NV 89557-0035
Tel: *775-682-8691*
Fax: *775-784-1126*
E-mail: mwebster@unr.edu
Web: *http://www.unr.edu/neuroscience*

Thematic Scientific Focus:
Integrative neuroscience; mechanisms of normal brain function and neural deficits

Research Projects
- Understanding the neural basis of working memory to improve WM function
- Behavioral and neural investigations of spatiotemporal form integration in healthy and brain-injured persons
- Temperature control of the *C. elegans* circadian clock
- Engineering magnetofluorescent nanoparticles for neurological disease diagnosis
- The role of DOMINO in regulation of circadian rhythms in Drosophila
- Mechanisms of 3'UTR lengthening and its function in axon guidance

Pilot Studies
- Comparing cognition, behavior, and neural responses to real objects versus images
- A novel biotinylation approach for RNA binding protein studies
- Circular RNA: mechanism and function in the aging brain

Research Resources
- Magnetic Resonanace Imaging Core
- Brain-Lesioned Patient Database Core

Index Terms
cognitive neuroscience, cellular neuroscience, genetics, neuroimaging, traumatic brain injury, neural disorders

Back to top

P20GM103534- Phase 1
Quantitative Biology Research Institute
Dartmouth College

Principal Investigator
Christopher I Amos, PhD
Dartmouth College
Office of Sponsored Projects
11 Rope Ferry Road, #6210
Hanover, NH 037551404
Tel: *603-653-1972*
Fax: *6036536642*
E-mail: christopher.i.amos@dartmouth.edu

Thematic Scientific Focus
Bioinformatics

Research Projects
- Immunogenomic analysis of gene-environment interaction in zebrafish
- Computational identification of disease-associated regulatory programs
- Computational prediction of regulatory motifs in environmental response genes
- Bayesian network analysis of gene-environment interaction in human populations

Pilot Studies
- Tissue specific gene set testing
- Joint modeling for improving lung cancer screening on early diagnosis and prevention

Research Resources
- Integrative Biomedical Sciences Core
- Zebrafish and Model Organisms Core (Developing)

Index Terms
bioinformatics, biostatistics, genomics, genetics

Back to top

P30GM103415- Phase 3
Center for Molecular, Cellular and Translational Immunology
Dartmouth College

Principal Investigator
William R Green, PhD
Dartmouth Medical School
Departmentt of Microbiology & Immunology
1Medical Center Drive, HB 7556
Lebanon, NH 03756
Tel: *603-650-4919*
Fax: *603-650-6223*
E-mail: William.R.Green@dartmouth.edu
Web: *http://www.dartmouth.edu/~immuno-cobre/*

Thematic Scientific Focus:
Immunology in the prevention, diagnosis and treatment of human diseases

Research Resources
- Educational, Mentoring and Administrative (EMAd) Core
- Immune Monitoring and Flow Cytometry Shared Resource
- The Transgenic and Humanized Immune System Mouse Facility
- DartMouse™, The Mouse Speed Congenic Core Facility at Dartmouth

Index Terms
immunology, speed congenics, transgenics, humanized mice, autoimmune disease, immune monitoring, immunoassays, genetic construct

Back to top

P20GM104416 – Phase 1
Center for Molecular Epidemiology
Geisel School of Medicine at Dartmouth

Principal Investigator
Margaret R Karagas, PhD
Dartmouth Medical School Department of Community/Family Medicine
7927 Rubin Building
One Medical Center Drive
Rubin 7927
Lebanon, NH 03756
Tel: *603-653-9010*
Fax: *603-653-9093*
E-mail: margaret.r.karagas@dartmouth.edu
Website: *http://sites.dartmouth.edu/molecepi/*

Thematic Scientific Focus:
Molecular Epidemiology

Research Projects
- Early risk factor related epigenetic alterations in breast cancer pathogenesis
- Neonatal microbiome, exposures and infection
- Relation between *in–utero* vitamin d and immune function in early childhood
- Assessing maternal-fetal exposure pathways using bio-imaging
- Functional studies of the developing infant gut microbiota using metabolomics

Research Resources
- Biorepository Core

Index Terms
molecular epidemiology, biomarkers of exposure, disease susceptibility and pathogenesis

Back to top

P20GM113132-Phase 1
iTarget: Institute for Biomolecular Targeting
Dartmouth College

Principal Investigator
Dean R Madden., PhD
Geisel School of Medicine
Department of Biochemistry and Cell Biology
7200 Vail Building
Hanover, NH 03755-3844
Tel: *603-650-1164*
Fax: *603-650-1128*
E-mail: DEAN.MADDEN@DARTMOUTH.EDU
Web: *http://biomt.dartmouth.edu/*

Thematic Scientific Focus
Multidisciplinary research in biomolecular targeting with applications in signaling, inflammation, protein interactions and diseases such as cancer, emphysema, pneumonia, and other diseases

Research Projects
- Proteomic approaches to target the PP6-mTORC2 pathway in glioblastoma
- Mechanisms of increased lung disease secondary to polymorphism in the ACE gene
- Protein design for selective interference with LPA signaling in colon cancer
- Molecular mechanisms of RSV F activation and inhibition

Research Resources
- Molecular Tools Core
- Visualizing Molecular Interactions Core

Index Terms
translational research, molecular target, chronic disease, chronic obstructive airway disease

Back to top

P30GM106394- Phase 3
Dartmouth Lung Biology Center for Molecular, Cellular and Translational Research
Geisel School of Medicine at Dartmouth

Principal Investigator
Bruce A Stanton, PhD
Geisel School of Medicine at Dartmouth
Professor of Microbiology and Immunology and of Physiology
Hanover, NH 03755
Tel: *603-650-1775*
Fax: *603-650-1130*
E-mail: Bruce.A.Stanton@dartmouth.edu
Web: *http://wwwdartmouthedu/~lbcobre/?*

Thematic Scientific Focus
Molecular and cellular mechanisms in pathology and treatment of lung disease

Pilot Projects
- Development of cFLIP-calmodulin interaction inhibitors for lung cancer therapy
- Linking pulmonary acidosis to inflammation
- Autoimmunity and lung function in cystic fibrosis
- Mechanisms of regional heterogeneity of lung macrophage inflammation
- Microbial activity as a determinant of health status in cystic fibrosis

Research Resources
- Host Pathogen Interaction Core
- Live Cell Imaging Core
- Translational Research Core

Index Terms
Cystic fibrosis, *Pseudomonas*, *Staphylococcus*, *Streptococcus, Aspergillus, Candida*, cystic fibrosis transmembrane conductance regulator, CFTR, biofilms, microbiome, phagocytosis, cytokines, inflammation, protein engineering, drug discovery

Back to top

P20GM103472- Phase 2
Multimodal Imaging of Neuropsychiatric Disorders (MIND): Mechanisms & Biomarkers
The Mind Research Network

Principal Investigator
Vince Calhoun, PhD
The Mind Research Network
1101 Yale Blvd, NE
Albuquerque, NM 87106
Tel: *505-272-1817*
Fax: *505-272 8002*
E-mail: vcalhoun@unm.edu
Web: *http://cobre.mrn.org*
http://www.mrn.org

Thematic Scientific Focus
Neuroimaging in schizophrenia, neural mechanisms of psychosis and mood disorders

Research Projects
- Discriminating schizophrenia from bipolar disorder by N-way multimodal fusion of brain imaging data
- Combined effects of SNPs and CNVs on brain structure in patients with schizophrenia and bipolar disorder
- Socio-emotional dysfunction in schizophrenia and bipolar disorders: Facial, vocal
- Transcranial direct current stimulation for treatment of auditory verbal hallucinations
- Multi-modal imaging investigation of electroconvulsive therapy response in late-life depressive episodes

Pilot Studies
- Meg investigations of auditory orienting: moderating effects of schizophrenia and nicotine dependence
- Multimodal neuroimaging of corollary discharge in psychosis: MEG and fMRI
- Capturing information flow and joint sufficiency in a meta-modal framework
- Multisensory tasks to investigate mechanisms of improved cognition in schizophrenia

Research Resources
- 3 Tesla Siemens TIM Trio whole body scanner equipped with Sonata gradient subsystem (40 mT/m amplitude, 200 μs rise time, 100% duty cycle)
- Elekta Neuromag MEG System
- High Density Electroencephalography (EEG) Lab
- An enterprise level data center with neuroinformatics tools and automated analysis capabilities

Back to top

- Biostatistics and Neuroinformatics Core
- Administrative, Clinical Assessment, And Mentoring (ACAM) Core
- Multimodal Data Acquisition (MDA) Core
- Algorithm and Data Analysis (ADA) Core
- Biostatistics and Neuro-Informatics (BNI) Core

Index Terms
schizophrenia, bipolar disorder, depression, neuroinformatics, multimodal imaging, resting fMRI, MEG, EEG, DTI, cognition, gating, biostatistics

Back to top

P30GM103400- Phase 3
Integrative Program in CNS Pathophysiology Research
University of New Mexico

Principal Investigator
Ke Jian Liu, PhD
University of New Mexico
MSC09 5360
2703 Frontier, Suite 220
Albuquerque, NM 87131
Tel: *505-272-9546*
Fax: *505-272-0704*
E-mail: kliu@salud.unm.edu
Web: *https://stc.unm.edu/ke-jian-jim-liu-ph-d/*

Thematic Scientific Focus
Central nervous system pathophysiology

Pilot Projects
- Neurorepair following traumatic brain injury in infants: erythropoietin to reverse
- Microstructural and diffusion magnetic resonance imaging abnormalities
- Neural basis of spatial disorientation in Alzheimer's disease
- Enhancement of cerebral perfusion for the treatment of Alzheimer's disease
- MRI-based structural study to validate VLP vaccines against AD

Research Resources
- Magnetic resonance imaging
- Electron paramagnetic resonance spectroscopy and imaging
- Confocal laser scanning microscopy
- Animal surgery models
- Animal behavior tests

Index Terms
central nervous system, pathophysiology, stroke, brain injury, neuroimaging, neurological disorders

Back to top

P30 GM110907- Phase 3
COBRE Center for Evolutionary and Theoretical Immunology
University of New Mexico

Principal Investigator
Eric S Loker, PhD
University of New Mexico
Department of Biology
230 Castetter Hall- Redondo Dr
MSC03-2020
University of New Mexico
Albuquerque, NM 87131-1091
Tel: *505-277-5508*
Fax: *505-277-7234*
E-mail: esloker@unm.edu
Web: *http://ceti.unm.edu*

Thematic Scientific Focus
Evolutionary and theoretical immunology, host-pathogen interaction

Pilot Studies
- Host transcriptomic response to acute respiratory viral infection
- How does climate change alter the activities of pathogens and symbionts to affect host health?
- The immune system of a parasite and its contribution to the defense of the host-parasite unit

Research Resources
- Molecular Biology Core
- Cell Biology Core
- Controlled Environments Core

Index Terms
evolutionary immunobiology, theoretical immunology, innate immunity, immunology, RNAi, comparative immunology, evolution, host-pathogen interaction, hepatitis C, T cell, NextGen Sequencing, Bioinformatics

Back to top

P20GM109089- Phase 1
University of New Mexico (UNM) Center for Brain Recovery and Repair
University of New Mexico Health Sciences Center

Principal Investigator
Claude W Shuttleworth, PhD
University of New Mexico Health Sciences Center
MSC08 4740
1 University of New Mexico
Albuquerque, NM 871310001
Tel: *505-272-4290*
Fax: *505-272-8082*
E-mail: bshuttleworth@salud.unm.edu
Web: *https://vivo.health.unm.edu/display/n7653*

Thematic Scientific Focus
Development and testing of interventions for survivors of acquired brain injuries

Research Projects
- Functional recovery from acute brain injury via human neural stem cell transplantation
- Brain stimulation in animal models of recovery from acute brain injury
- Predicting recovery of cognitive control deficits in traumatic brain injury
- Transcranial direct current stimulation for treatment of deficits after traumatic brain injury

Research Resources
- Pre-Clinical Recovery and Repair Core (PRRC), including anatomic & behavioral testing, *in vivo* electrophysiology & optogenetics
- Clinical Recovery and Repair Core (CRRC), including study coordination, neurocognitive testing, EEG, tDCS

Index Terms
Neurological disorders, traumatic brain injury, stroke, aphasia, cognitive function, mood, transcranial direct current stimulation, stem cells, EEG, neuroimaging

Back to top

P30GM103329- Phase 3
COBRE in Pathophysiological Signaling in Neurodegenerative Disorders
University of North Dakota School of Medicine & Health Sciences

Principal Investigator
Jonathan D Geiger, PhD
Department of Pharmacology, Physiology and Therapeutics
University of North Dakota School of Medicine and Health Sciences
Neuroscience Building Room 110
501 North Columbia Road
PO Box 9037
Grand Forks, ND 58203
Tel: *701-777-2183*
Fax: *701-777-4490*
E-mail: jonathan.geiger@med.und.edu
Web: *http://www.med.und.edu/cobre/*

Thematic Scientific Focus
Neurological disorders, traumatic brain injury and epilepsy, causes and treatments, systems biology

Pilot Projects
- Developing a motor symptom quantitative measurement prototype for patients
- Dopamine transporter antibody development and commercialization
- Epigenomic profiling of brain cancer cells using small noncoding RNAs

Research Resources
- Mass Spectrometry Core
- Imaging Core
- Edward C Carlson and Image Analysis Core Facility

Index Terms
neurodegeneration, Alzheimer's disease, Parkinson's disease, traumatic brain injury, epilepsy, necrosis, apoptosis, axonal degeneration and regeneration, growth factors, phospholipid metabolism

Back to top

P20GM109024- Phase 1
Center for Diagnostic and Therapeutic Strategies in Pancreatic Cancer
North Dakota State University

Principal Investigator
Mallik Sanku, PhD
PO Box 6050
Dept. 2665 Pharmaceutical Sciences
Fargo, ND 58108
Tel: *701-231-7888*
Fax: *701-231-8333*
E-mail: sanku.mallik@ndsu.edu
Web: *https://www.ndsu.edu/centers/pancreaticcancer/*

Thematic Scientific Focus
Development of diagnostic and therapeutic tools for the early detection and treatment of pancreatic cancer

Research Projects
- Nanoparticle-powered chemiluminescent lateral flow biosensor array for early diagnosis of pancreatic cancer
- Effects of salinomycin and binding target proteins in pancreatic cancer
- Combination Therapy: Targeting pancreatic cancer with a ROS inducer and gemcitabine
- Development of monoclonal antibodies to inhibit RAGE activation in pancreatic cancer tumors

Research Resources
- Animal Core Facility

Index Terms
diagnostic, malignant neoplasm of pancreas, therapeutic, cancer etiology, cell model, early treatment, combination therapy, monoclonal antibodies

Back to top

P30GM114748- Phase 3
Center for Visual and Cognitive Neuroscience
North Dakota State University

Principal Investigator
Mark E McCourt, PhD
North Dakota State University
Department of Psychology
Fargo, ND 58102
Tel: *701-231-8625*
Fax: *701-231-8426*
E-mail: mark.mccourt@ndsu.edu
Web: *http://www.cvcn.psych.ndsu.nodak.edu*

Thematic Scientific Focus
Empirical and theoretical analysis of human visual and cognitive performance in normal and dysfunctional states

Pilot Studies
- Visual synchrony and the analysis of visual scene dynamics
- Selective attention to multimodal stimuli
- Natural image variance and contrast origin ambiguity
- Infant's use of visual information in object individuation
- Mechanistic studies on novel anti-PDGFR compound SJ001 targeting proliferative vitreoretinopathy
- Perceptual and neural sensitivity to grammatically relevant acoustic information
- Attentional and physiological correlates of interpersonal stress and mental health in childhood and early adolescence
- Embodied vision: action influences on visual processing near the hands
- Resting and task-related cortical connectivity in Schizophrenia and health

Research Resources
- High-Density EEG/Neurostimulation Core Facility
- Driving Simulator Core Facility
- High Dynamic Range Imaging Core Facility
- Immersive Virtual Reality Core Facility
- Electro-optical Instrumentation Core Facility
- Eyetracking Core Facility
- Technical Services Core Facility

Index Terms
visual processing, working memory, vision, cognition, eye movements, neural activity, EEG/ERP, attention, RT

Back to top

P30GM103332- Phase 3
Center for Protease Research
North Dakota State University

Principal Investigator
Mukund P Sibi, PhD
North Dakota State University
Department of Chemistry and Biochemistry
Fargo, ND 58108-6050
Tel: *701-231-8251*
Fax: *701-231-1057*
E-mail: mukund.sibi@ndsu.edu
Web: *http://www.centerforproteaseresearch.org*

Thematic Scientific Focus
Proteases and disease, structural biology driven drug discovery

Research Projects
- Combo Therapy: targeting Kras mutant pancreatic cancer with ROS inducer & gemcitabine
- Tools for torque teno virus research
- Novel therapeutic strategy in pancreatic cancer
- Peptidomimetic RAGE inhibitors for atherosclerosis
- Epigenetic mechanisms of apoptosis silencing in prostate cancer

Research Resources
- Molecular Biology Facility
- Bioassay Facility
- Cell and Tissue Culture Facility
- Core Synthesis Facility and Analytical Services
- Mass Spectrometry Facility
- Microscopy Facility
- Nuclear Magnetic Resonance Facility
- X-Ray Crystallography Facility

Index Terms
cancer, asthma, arthritis, obesity, structural biology, reactive oxygen species, histone deacetylase, epigenetics, autophagy, synthesis of inhibitors

Back to top

P20GM113123- Phase 1
Center for Excellence In-Host Pathogen Interactions
University of North Dakota

Principal Investigator
Brij B Singh, PhD
University of North Dakota
Department of Biomedical Sciences
School of Medicine
501 North Columbia Road
School of Medicine-health Sciences
Grand Forks, ND 58203-9037
Tel: *701-777-0834*
Fax: *701-777-2382*
E-mail: brij.singh@med.und.edu
Web: *http://www.med.und.edu/orgs/host-pathogen-interactions/about.cfm*

Thematic Scientific Focus
Pathogens and various model systems to study events that underlie host response upon pathogen invasion; study of host response to infectious diseases and elucidate how modulation of host responses determine disease outcomes

Research Projects
- Innate response and sepsis
- Autophagy and lung infection
- Host response and Neuroborreliosis
- Viral proteins and neuroinflammation
- Helminth and neuroinflammation

- **Research Resources**
- Flow Cytometry Core
- Histology Core

Index Terms
pathogen, communicable diseases, infections, immune responses, epigenetic process, sepsis, neuroinflammation, disease outcome, vector-transmitted infectious disease, bacterial infection, model system

Back to top

P20GM104360- Phase 1
Center for Biomedical Research Excellence, Epigenomics of Development and Disease
University of North Dakota

Principal Investigator
Roxanne A. Vaughan, PhD
501 N. Columbia Road
Grand Forks, ND 58203
Tel: *701-777-3419*
Fax: *701-777-3937*
E-mail: roxanne.vaughan@med.und.edu

Thematic Scientific Focus
Epigenomics of development and disease

Research Projects
- The roles of RNAII pausing as a dynamic epigenetic mark during neural stem cell differentiation
- Molecular mechanisms of chromatin remodeling associated with trans- differentiation: epithelial to mesenchymal transition
- Epigenomics patterning during distinct development stages associated with transgenerational inheritance patterns of addiction
- Long-lasting effects of juvenile antidepressant use on behavior and epigenetic regulation of gene expression

Research Resources
- Bioinformatics Core
- Next-generation sequencing

Index Terms
epigenetics, epigenomics, stem cells, development, cancer, neurodegeneration, environmental exposures, epithelial to mesenchymal transition, addiction

Back to top

P20GM103639- Phase 1
Mentoring Translational Cancer Research in Oklahoma
University of Oklahoma Health Sciences Center

Principal Investigator
Danny N Dhanasekaran, PhD
Peggy and Charles Stephenson Cancer Center
University of Oklahoma Health Sciences Center
975 NE 10th Street, 1417 BRC West
Oklahoma City, OK 73104
Tel: *405-271-6850*
Fax: *405-271-2507*
E-mail: danny-dhanasekaran@ouhsc.edu
Web:
http://stephensoncancercenter.org/Research/ResearchCenters/CenterforBiomedicalResearchExcellence(COBRE).aspx

Thematic Scientific Focus
Tumor biology: resistance to cancer therapy and mitigating strategies

Research Projects
- HuR: role in mediating resistance to radiation
- Molecular determinants of gemcitabine transport in pancreatic cancer therapy
- Tumor resistance mechanisms to anti-VEGF therapy in ovarian cancer
- Targeted therapy against neuroblastoma

Pilot Studies
- Novel strategies for targeting cancer stem-like cells expressing hepatitis C virus
- Targeting LPA-signaling for developing ovarian cancer therapeutics

Research Resources
- Histology and Immunohistochemistry Core
- Small Animal Imaging Core
- Biospecimen Pathology Core

Index Terms
cancer, metastasis, chemotherapy, radiation-therapy, resistance, tumor cell biology

Back to top

P30GM110766- Phase 3
Molecular Mechanisms and Genetics of Autoimmunity
Oklahoma Medical Research Foundation

Principal Investigator
Patrick M Gaffney, MD
Arthritis and Clinical Immunology Research Program
Oklahoma Medical Research Foundation
825 NE 13th St, MS 57
Oklahoma City, OK 73104-5005
Tel: *405-271-2572*
Fax: *405-271-2536*
E-mail: gaffneyp@omrf.org
Web: *https://autoimmunity-cobre.omrf.org/*

Thematic Scientific Focus:
Molecular and genetic basis of autoimmune diseases

Research Resources
- Genomics Core
- Quantitative Analysis Core

Index Terms
autoimmune disease, inflammatory rheumatic diseases, systemic lupus erythematosus, Sjögren's syndrome, sarcoidosis, autoantibody, autoantigen

Back to top

P20GM109097- Phase 1
Children's Health Equity Solutions Center (CHESC)
OSU Center of Health Sciences

Principal Investigator
Jennifer Hays-Grudo, PhD
233 Human Sciences
Tel: *405-744-5057*
E-mail: jennifer.hays.grudo@okstate.edu

Thematic Scientific Focus
Adolescent health behavior and health promotion, adolescent risk taking behavior; health disparity, translational science

Research projects
- Pathways to teen rapid repeat pregnancy and adverse outcomes
- Examining epidemiology of folate status attributable to adolescent alcohol use
- Juntos against alcohol tobacco and drug use intervention trial

Research Resources
- Methods Core

Index Terms
child health care, health equity, translational research, mortality, biological markers, infant mortality,

Back to top

P30 GM103510-05 – Phase 3
Science in a Culture of Mentoring
Oklahoma Medical Research Foundation

Principal Investigator
Judith James, MD, PhD
825 Northeast 13th Street
Oklahoma City, OK 73104
Tel: *405-271-4987*
Fax: *405-271-7063*
E-mail: jamesj@omrf.org
Web: *https://cobre.omrf.org/*

Thematic Scientific Focus
Molecular and cellular immunology in the context of human health and disease

Research Resources
- Clinical, Phenotyping and Biorepository Core
- Human Immunophenotpying and Immune Function Core
- Human Monoclonal Antibody Core
- Serum Analyte and Biomarker Core

Index Terms
immunology, vaccine, signaling, inflammation, inflammatory disease, DNA microarray, imaging, proteomics, immunodeficiency, autoimmune disease, SLE, arthritis, genomics

Back to top

P20GM103648– Phase 1
Oklahoma Center for Respiratory and Infectious Diseases
Oklahoma State University-Stillwater

Principal Investigator
Lin Liu, PhD
264 McElroy Hall
Department of Physiological Sciences
Oklahoma State University
Stillwater, OK 74078
Tel: *405-744-4526*
Fax: *405-744-8263*
E-mail: linliu@okstate.edu
Web: *http://ocrid.okstate.edu*

Thematic Scientific Focus:
Infectious diseases of the respiratory system

Research Projects
- Development of an RSV vaccine by molecular manipulation of the viral matrix protein
- A novel tissue-equivalent respiratory model to study airway reactivity to infectious agents
- Control of lung inflammation by a TLR4-interacting SPA-derived peptide
- Neutrophil-medicated acute lung injury in influenza virus pneumonia

Pilot Studies
- exploration of clpp activation to treat respiratory infections in cystic fibrosis
- β,β-carotene 9',10'-oxygenase 2 (BCO2) in influenza virus pneumonia
- Does PA0327 bind calcium and regulate *Pseudomonas aeruginosa* virulence?
- The role of angiogenic factors in the development of atherosclerosis during *Chlamydia pneumoniae* infection
- Influenza-Host protein interactions control viral infection and pathogenesis
- Develop single domain antibodies for blocking interleukin 17 receptor signaling
- Pseudomonas aeruginosa intra-species interactions
- Nanotherapeutic modulation of autophagy for treatment of lung pathogens
- The effect of "avirulent" rickettsial infections on Rocky Mountain spotted fever pathogenesis: aerosol and needle inoculation
- Azoreductase characterization of *Pseudomonas aeruginosa* strain FRD1, a cystic fibrosis isolate
- Photoreceptors as a novel class of virulence factors in opportunistic pathogens
- The role of glutamate in the initiation and maintenance of pleurisy
- Validation of bacterial condensins as drug targets

Back to top

Research Resources

- Animal Model Core
- Immunopathology Core
- Molecular Biology Core

Index Terms

respiratory pathogens, influenza, respiratory syncytial virus, pulmonary infections, pathogenesis, tissue engineering, vaccine, lung inflammation, pneumonia

Back to top

P20GM104934- Phase 2
Mentoring Diabetes Research in Oklahoma
University of Oklahoma Health Sciences Center

Principal Investigator
Jian-Xing Ma, MD, PhD
University of Oklahoma Health Sciences Center
Department of Physiology
941 Stanton L Young Blvd, BSEB 328B
Oklahoma City, OK 73104
Tel: *405-271-4372*
Fax: *405-271-3973*
E-mail: jian-xing-ma@ouhsc.edu
Web: *http://www.ouhsc.edu/Endocrinology/CoBRE/index.asp*

Thematic Scientific Focus
Mentoring junior investigators in research of diabetes and diabetic complications

Research Projects
- Mechanisms of mitochondrial dysfunction in diabetic cardiomyopathy
- Mechanisms of impaired angiogenesis in diabetes mellitus
- Effects of rbp4 elevation on endothelium and retina
- Molecular determinants of SHCA gene function in diabetes
- Neural function and protection in diabetic retina

Research Resources
- Administrative/Mentoring Core
- Diabetes Animal Core
- Histology and Imaging Core
- Biostatistics Core

Index Terms
diabetes mellitus, diabetic mouse, biological assay, urine, creatinine, knockout mice, retina, renal, heart

Back to top

P30GM114731- Phase 3
Interdisciplinary Research in Vascular Biology
Oklahoma Medical Research Foundation

Principal Investigator
Rodger P. McEver, MD
Oklahoma Medical Research Foundation
Cardiovascular Biology Research Program
825 NE 13th Street
Oklahoma City, OK 73104
Tel: *405-271-6480*
Fax: *405-271-3137*
E-mail: rodger-mcever@omrf.org
Web: *https://vascularbiology-cobre.omrf.org/*

Thematic Scientific Focus
Vascular biology

Research Resources
- Microscopy core
- Phenotyping core
- Flow cytometry and cell sorting core
- Cardiovascular pathophysiology core

Index Terms
host defense, inflammation, antibody, autoimmune disease, glycosylation, atherogenesis, angiogenesis, and lymphangiogenesis

Back to top

P20GM103636-Phase 1
Expanding Excellence in Developmental Biology in Oklahoma
Oklahoma Medical Research Foundation,

Principal Investigator
Linda F Thompson, PhD
Oklahoma Medical Research Foundation,
825 NE 13th Street,
Oklahoma City, OK 73104
Tel: *405-271-7235*
Fax: *405-271-7128*
E-mail: Linda-Thompson@omrf.org
Web: *https://devbiology-cobre.omrf.org/*

Thematic Scientific Focus
Developmental Biology

Research Projects
- Reactive oxygen species in the epi/pericardium regulate *Drosophila* heart physiology
- Understanding connective tissue development and disease with platelet-derived growth factor receptor (PDGFR)-driven models of fibrosis
- The roles of Hop2 and Mnd1 in mouse meiotic homologous recombination
- TopBP1 and TICCR in the chemotherapy response and embryonic development
- Derivation of pancreatic beta cells from human induced pluripotent stem cells

Pilot Studies
- Identification of an Anti-Apoptotic Mutation Causing Cancer Predisposition
- Role of c-Myb in CD4 lineage commitment and iNKT cell development
- Role of the mitochondrial matrix protease ClpP in mitochondrial protein homeostasis
- Exploring the potential that the thymus is an alternative site for ILC2 cell development

Research Resources
- Flow Cytometry Core
- Imaging Core
- Bioinformatics and Pathways Core

Index Terms
reactive oxygen species, Drosophila cardiac function**,** platelet-derived growth factor receptors, fibrosis**,** adipogenesis**,** lineage tracing**,** homologous recombination**,** meiosis**,** DNA replication, replication timing, zebra fish, Type 1 diabetes, human induced pluripotent stem cells, chromatin remodeling, lineage commitment, iNKT cells, mitochondrial homeostasis, mitochondrial matrix protease ClpP, high throughput screening, pancreatic β-cell survival, ILC 2 cells

Back to top

P20GM103640- Phase 1
Oklahoma Center of Biomedical Research Excellence (COBRE) in Structural Biology
University of Oklahoma-Norman

Principal Investigator
Ann West, PhD
University of Oklahoma
Department of Chemistry and Biochemistry
Stephenson Life Sciences Research Center
101 Stephenson Parkway
Norman, OK 73019
Tel: *405-325-1529*
Fax: *405-325-6111*
E-mail: awest@ou.edu
Web: *http://structuralbiology.ou.edu*

Thematic Scientific Focus
Macromolecular targets for rational drug design

Research Projects
- Structure-function studies of MsvR, a methanogen-specific transcriptional regulator
- Probing the potential of the gyrase inhibitor ParE for antibacterial applications
- Structural characterization of gamma-glutamyl transferase enzymes
- Mechanistic studies of CRISPR-mediated bacterial immunity

Research Resources
- Macromolecular Crystallography Laboratory (MCL) Core
- Protein Production Core (PPC)
- Laboratory of Biomolecular Structure and Function (LBSF) Core

Index Terms
X-ray crystallography; structure/function studies; structural biology; transcription; protein-nucleic acid interactions; cancer; antimicrobial drug targets; oxidative stress; bacterial immunity

Back to top

P20GM103642- Phase 1
Center for Neuroplasticity at the University of Puerto Rico
University of Puerto Rico Medical Sciences Campus

Principal Investigator
Mark W Miller
University of Puerto Rico
Department of Anatomy/Institute of Neurobiology
201 Blvd Del Valle
San Juan, PR 00901
Tel: *787-721-1237*
Fax: *787-725-3804*
E-mail: mark.miller@upr.edu
Web: *http://neuro.upr.edu/?q=neuroplasticity*

Thematic Scientific Focus
Neuroplasticity in response to spinal cord injury, alcohol exposure, and the genetic basis of plasticity at the synapse

Research Projects
- Estradiol and Tamoxifen as neuroprotective/neurodegenerative agents after spinal cord injury
- The role of sensory input to mammalian locomotion after the loss of supraspinal inputs
- Prefrontal glutamate plasticity in adolescent alcohol drinking
- The potassium channel Slowpoke and the molecular mechanisms of neuronal homeostasis

Research Resources
- Neuroimaging Core
- Electrophysiology Core

Index Terms
alcoholism, spinal cord injury, dopamine, synaptic homeostasis, synaptic release, pattern generators

Back to top

P30GM103410- Phase 3
Center for Cancer Signaling Networks
Brown University

Principal Investigator
Walter J Atwood, PhD
Department of Molecular Biology, Cell Biology and Biochemistry
Brown University
70 Ship Street
Box G-E434
Providence, RI 02903
Tel: *401-863-3116*
Fax: *401-863-9653*
E-mail: walter_atwood@brown.edu
Web: *http://coresri.org/*

Thematic Scientific Focus:
Cancer signaling networks, molecular genetics research

Research Resources
- Next-Generation Sequencing Core
- Genomics Core
- Mouse Transgenics and Gene Targeting Core

Index Terms
next-generation sequencing, genomics, genetics, gene targeting, transgenic animals, knockout mouse, flow cytometry, imaging, genetics, genomics, immunology, infection, molecular biology, virus, hepatitis, neuropathology, Alzheimer's disease, autism, aging, microvascular disease, addiction, epilepsy, stroke, signaling, liver disease

Back to top

P20GM104937- Phase 2
COBRE for Skeletal Health and Repair
Rhode Island Hospital

Principal Investigator
Qian Chen, PhD
Department of Orthopedics
Brown Medical School
Rhode Island Hospital
1Hoppin Street, Suite 402
Providence, RI 02903
Tel: *401-444-5676*
Fax: *401-444-5872*
E-mail: qian_chen@brown.edu
Web: *https://www.lifespan.org/centers-services/center-biomedical-research-excellence-cobre-skeletal-health-and-repair*

Thematic Scientific Focus
Health and disease mechanisms and repair strategy in cartilage and bone

Research Projects
- Biomechanical regulation of chondrocyte differentiation
- Articular cartilage calcification in osteoarthritis
- Seeds of protein aggregation in inclusion body myositis
- Delivery of microRNA 365 for growth plate cartilage repair

Research Resources
- Bioengineering Core
- Molecular Biology and Imaging Core

Index Terms
cartilage, bone, growth plate, skeletal dysplasia, joint degeneration, osteoarthritis, chondrosarcoma, angiogenesis, tissue engineering, stem cells, bioengineering

Back to top

P20GM103468- Phase 1
Stem Cell Biology: New Directions in Clinical and Basic Research
Rhode Island Hospital

Principal Investigator
Peter J Quesenberry, MD
593 Eddy Street George 3, Room 302
Providence, RI 02903
Tel: *401-444-4830*
Fax: *401-444-4184*
E-mail: pquesenberry@lifespan.org
Web:
https://www.lifespan.org/uploadedFiles/CANCER/Content/Cancer_Research/Quesenberry-Biosketch.pdf

Thematic Scientific Focus
Stem cell biology and tissue restoration in injury models. Also the biology of extracellular vesicles

Research Projects
- The role of microvesicles in pulmonary hypertension
- Determining the transcriptional regulation and cell signaling events that shape the molecular identity of dopamine neuron progenitors and specify subtypes of midbrain dopamine neurons
- Tyrosine phosphatase Shp2 in hematopoietic stem cell property maintenance
- The study of cycling hematopoietic stem cells and circadian rhythms

Pilot Studies
- The study of haploidentical and mismatched stem cell transplant in refractory leukemia/lymphoma

Research Resources
- Administrative Core
- Flow Core
- Molecular Core

Index Terms
stem cells, tissue, injury, pulmonary hypertension, signaling, dopamine, hematopoietic cells, leukemia, extracellular vesicles

Back to top

P30GM110759- Phase 3
COBRE Center for Cancer Research Development
Rhode Island Hospital

Principal Investigator
Bharat Ramratnam, MD
Laboratory of Retrovirology
Department of Medicine
55 Claverick Street, 4th Floor
Rm 414
Providence, RI 02903
Tel: *401-444-5219*
Fax: *401-444-2939*
E-mail: bramratnam@lifespan.org
Web: *https://www.lifespan.org/centers-services/cobre-ccrd/about-cobre-ccrd*

Thematic Scientific Focus
Cellular and molecular pathways leading to cancer

Pilot Studies
- The mevalonate pathway regulates drug resistance in colorectal cancer
- Interrogating the druggable targets in the Ableson Interacore 1
- The role aspartate beta hydroxylase in cholangiocarcinoma progression
- Profiling heterogeneous invasion and resistance using 3D tumor organoids

Research Resources
- Proteomics Core
- Molecular Pathology Core
- Pilot Project Core

Index Terms
cell biology, molecular biology, proteomics, cancer, signaling, and angiogenesis

Back to top

P20 GM109035- Phase 1
COBRE: Center for Computational Biology of Human Disease
Brown University

Principal Investigator
David M Rand, PhD
Brown University
Dept of Ecology & Evolutionary Biology
Box G-W, 80 Waterman St
Providence, RI 02912
Tel: *401-863-2890*
Fax: *401-863-2166*
E-mail: DAVID_RAND@BROWN.EDU
Web: *https://www.brown.edu/research/projects/computational-biology-of-human-disease/cobre-center-computational-biology-human-disease*

Thematic Scientific Focus
Genomic screening approaches with direct relevance to human diseases; genomics medicine

Research Projects
- Incorporating ethnic and gender disparities in genomic studies of disease
- Integrative genomics of cancer survival
- Tolerance of viral/bacterial co-infections
- A drug repositioning strategy for healthspan extension
- Computational genomics of preeclampsia

Research Resources
- Biomedical Big Data Core

Index Terms
computational biology, human diseases, genomics, bioinformatics, co-infection, viral, pre-eclampsia, cancer survival, infection, ethnic disparity, gender disparity, epigenetics

Back to top

P20GM104317- Phase 1
Immune-Based Interventions Against Infectious Diseases
University of Rhode Island

Principal Investigator
Alan L Rothman, MD
Institute for Immunology and Informatics
Rm 302F
80 Washington St
Providence, RI 02903
Tel: *401-277-5419*
Fax: *401-277-5244*
E-mail: alan_rothman@uri.edu
Web: *http://i-cubed.org/cobre/*

Thematic Scientific Focus:
Immunology of infectious diseases, pathogen-host interactions, vaccines and immunotherapeutics

Research Projects
- Autophagy regulation of innate and adaptive immunity in dengue
- HIV exposed-uninfected infant immunity
- Novel vaccine candidate for pediatric *Falciparum malaria*
- Cellular effector mechanisms elicited by novel malaria vaccine candidate PfSEA-1

Pilot Studies
- Inhibition of *T brucei* PLK as a novel strategy for treating trypanosomiasis
- Overcoming HIV-1 latency by regulating stem-loop binding protein
- Evaluation of the IL1β and TNFα inhibitor auranofin against staphylococcus
- Galectin-3 in neonatal host defense against disseminated candidiasis
- Do human-like T cell epitopes contained in Env protein help HIV achieve immune camouflage?
- Immunoregulatory effects of *H pylori*'s cytotoxin-associated protein A
- Characterization of a novel malaria vaccine antigen PfCDPK5

Research Resources
- Statistics and Data Management Core
- Cell Analysis and Sorting Core
- Luminex High-Throughput Analysis Core

Index Terms
infectious diseases, immunology, global health, dengue, HIV, malaria, host-pathogen interaction, innate immunity, adaptive immunity, vaccine

Back to top

P20GM103652- Phase 1
Endothelial Injury and Repair: Cardiopulmonary Vascular Biology COBRE
Ocean State Research Institute

Principal Investigator
Sharon Rounds, MD
Providence VA Medical Center
830 Chalkstone Ave
Providence, RI 02908
Tel: *401-273-3020*
Fax: *401-457-3436*
E-mail: Sharon_Rounds@brown.edu
Web: *http://cpvb.org/*

Thematic Scientific Focus:
Heart and lung disease pathogenesis and therapies

Research Projects
- Adenosine and lung endothelial injury
- Effects of angiopoeitins on shock-induced acute lung injury
- Improvement of coronary vascular functions by endothelium-targeted increase in reactive oxygen species *in vivo*
- Regulation of cardiac fibroblast function by microRNAs
- Sex hormones and pulmonary vascular and right ventricular dysfunction

Pilot Studies
- Integrin Activation Regulates Neutrophil Trafficking During Respiratory Infection
- SK/IK Channel Dysregulation and Endothelial Dysfunction in Diabetic Patients

Research Resources
- The Administrative Core
- The Cell Isolation/Organ Function Core
- Cell Isolation/Organ Function Core, The Vascular Research Laboratory, Providence VA Medical Center
- Animal Physiology Studies
- Tissue Culture Equipment
- Microscopes
- Image Analysis
- Molecular Biology Equipment

Index Terms:
endothelium, cardiomyocyte, cardiac fibroblast, inflammation, pulmonary, coronary, acute respiratory distress syndrome, pulmonary hypertension, cigarette smoke, sepsis

Back to top

P20GM103645 - Phase 1
COBRE Center for Central Nervous System Function
Brown University

Principal Investigator
Jerome N Sanes, PhD
Brown University
Department of Neuroscience
Box1953
Providence, RI 02912
Tel: *401-863-2523*
Fax: *401-863-1074*
E-mail: jerome_sanes@brown.edu
Web: *http://www.brown.edu/cobre-cnsf*

Thematic Scientific Focus:
Behavioral, genetic, and neural mechanisms in central nervous system functions

Research Projects
- Genetic-imaging study of obsessive compulsive behavior in autism
- Development of vision and attention in typical and ASD individuals
- Conflict adaptation and selective attention
- Cortical-subcortical interactions in attention and learning
- Target selection for visually guided actions

Research Resources
- Design and Analysis Core
- Administrative Core
- MRI physics support
- MRI Research Facility
- Non-invasive brain stimulation facility
- Near-infrared spectroscopy
- Genomics Facility
- Proteomics Facility

Index Terms
neuroscience, attention, decision making, autism, imaging, neocortex, basal ganglia, action, genetics, neurophysiology, development, reward spatial-temporal processes

Back to top

P30GM114750 - Phase 3
COBRE for Perinatal Biology
Women and Infants Hospital-Rhode Island

Principal Investigator
Surendra Sharma, MD, PhD
Roger Williams Hospital Department of Pathology
825 Chalkstone Ave.
Providence, RI 02908
Tel: *401-456-6565*
Fax: *401-456-6569*
E-mail: ssharma@wihri.org
Web: *http://med.brown.edu/COBRE/*

Thematic Scientific Focus:
Reproductive biology and cardiopulmonary development; perinatal diseases such as preeclampsia and preterm birth; novel therapeutic strategies

Research Resources
- Research Core

Index Terms
biotechnology, clinical research, immune system, infectious diseases, perinatal, development, preeclampsia, embryonic development, antibodies, cardiac, cardiopulmonary, disease, therapy

Back to top

P30GM103336- Phase 3
Center for Colon Cancer Research
University of South Carolina

Principal Investigator
Franklin G Berger, PhD
Center for Colon Cancer Research
Jones Physical Sciences Building
Room 614
University of South Carolina
Columbia, SC 29208
Tel: *803-777-1231*
Fax: *803-777-1173*
E-mail: fgberger@mailbox.sc.edu
Web: *http://www.cccr.sc.edu*

Thematic Scientific Focus
Colorectal cancer biology, diagnosis, prevention, and treatment

Pilot Projects
- TP53-synthetic lethal therapeutic targets for colon cancer
- Non-alcoholic fatty liver disease and potentiation of colonic neoplasia
- Synthetic lectin sensor arrays for diagnosis of colorectal cancer
- Role of HPV in rectal cancer
- Linking macrophages to gut microbiota in obesity-enhanced colon cancer
- Targeting colon cancer using miRNAs

Research Resources
- Biotechnology Core
- Mouse Experimentation Core
- Tissue Biorepository
- Biometry Core

Index Terms
colorectal cancer, diagnosis, prevention, treatment, cancer biology

Back to top

P20GM109040- Phase 1
South Carolina Research Center for Recovery from Stroke
Medical University of South Carolina

Principal Investigator
Steven A Kautz, PhD
Department of Health Sciences and Research
College of Health Professions
77 President St MSC 700
Charleston, SC 29425-8080
Tel: *843-792-3867*
Fax: *843-792-1358*
E-mail: kautz@musc.edu
Web: *http://academicdepartments.musc.edu/srrc/*

Thematic Scientific Focus
Stroke recovery research

Research Projects
- Investigating the neurobiologic basis for loss of cortical laterality in chronic lesioned vs. non-lesioned hemisphere rTMS in stroke motor recovery
- Optimizing transcranial direct current stimulation current and electrode montage
- Treating depression and enhancing locomotor recovery post-stroke treating depression and enhancing locomotor recovery post-stroke
- Microvascular function and neuroplasticity after stroke

Pilot Studies
- Exploring potential roles of Hox genes in stroke recovery
- Application of ultrasound technology to enhance the quantitative measurement of post-stroke behavior and function
- Paired associative stimulation modulates motor excitability and plasticity in chronic stroke patients
- fMRI BOLD signal as a biomarker for optimal dosing of rTMS of rehabilitation in chronic stroke patients
- Sensory stimulation to enhance hand function post stroke
- Complement-dependent inflammation and experience-dependent neural plasticity after stroke
- Operant down-conditioning of the soleus H-Reflex Hemiparesis after stroke

Research Resources
- Administrative Core
- Brain Stimulation Core
- Clinical and Translational Tools and Resources Core
- Neuroimaging Core
- Quantitative Behavioral Assessment and Rehabilitation Core

Back to top

Index Terms
stroke, stroke recovery, rehabilitation, multidisciplinary research, neurological disease, neurological impairment, neuroscience, occupational therapy, physical therapy, psychiatry, radiology, translational research

Back to top

P30GM103331- Phase 3
MUSC Center for Oral Health Research (COHR)
Medical University of South Carolina

Principal Investigator
Keith L Kirkwood, DDS, PhD
Department of Oral Health Sciences
Medical University of South Carolina
254A BSB
173 Ashley Avenue
Charleston, SC 29425
Tel: *843-792-0969*
Fax: *843-792-5312*
E-mail: klkirk@musc.edu
Web: *http://academicdepartments.musc.edu/cohr*

Thematic Scientific Focus
Oral and craniofacial health and disease

Research Resources
- Clinical COHR (C-COHR)
- Laboratory COHR (L-COHR)
- Gnotobiotic COHR (G-COHR)
- Training in Craniofacial and Oral Health Research (T-COHR)
- Pilot and Feasibility Program

Pilot Projects
- Mitoferrin 2 protein as a diagnostic marker to predict the efficacy of oxidative damage-based treatment in head and neck cancers
- In vitro characterization of hematopoietic stem cell derived odontoblasts and cell in the periodontal ligament
- Fibulin-1 regulation of EGFR-mediated osteogenesis and osteoclastogenesis
- Development of drug resistance mutations in *Candida albicans*
- Modifying radiation therapy response to head and neck cancer
- RNA biomarkers in the progression of premalignancy to oral and oropharyngeal squamous cell carcinoma
- The E3-ubiquitin ligase EDD enhances cisplatin resistance in squamous cell carcinoma of the tongue
- Dual peptide-mediated targeted-delivery of siRNAs into oral cancer cells
- Defining the contribution of glycation associated AGE metabolites to periodontal disease in Gullah African Americans
- High risk p53 mutations in head and neck cancer obtain their oncogenic phenotype through modulation of the TGF-beta pathway

Back to top

- Biodegradable X-ray contrast polymeric nanoparticle for deep tissue imaging of oral cancer tumors

Index Terms
oral health, periodontal disease, cytokines, diabetes, oral cancer, genetic polymorphisms, health disparities, health education intervention

Back to top

P30GM103342- Phase 3
South Carolina COBRE for Developmentally Based Cardiovascular Diseases
Medical University of South Carolina

Principal Investigator
Roger R Markwald, PhD
Medical University of South Carolina
Department of Regenerative Medicine and Cell Biology
Cardiovascular Developmental Biology Center
Basic Science Building, Suite 601
173 Ashley Avenue
Charleston, SC 29425
Tel: *843-792-5891*
Fax: *843-792-7816*
E-mail: markwald@musc.edu
Web: *http://regmed.musc.edu/P30/*

Thematic Scientific Focus
Etiology of congenital heart disease and adult cardiovascular diseases

Research Resources
- Morphology, Imaging, and Instrumentation
- Histology/Imaging and Flow Cytometry
- Genomics and Bioinformatics Core
- Gene Function Core

Index Terms
cardiovascular disease, congenital heart malformations, acquired heart disease, proteomics, genomics, apoptosis, cell biology, DNA microarray, histology, morphology, 3D-reconstruction, confocal microscopy, fluorescence microscopy, high content screening microscopy, transgenic mice, gene targeting, next generation sequencing, RNA-seq, small RNA profiling, biostatistics, FACS cell sorting, multi-parameter cell analysis, rare event cell sorting

Back to top

P20GM103641- Phase 1
COBRE Center for Dietary Supplements and Inflammation
University of South Carolina at Columbia

Principal Investigator
Prakash S Nagarkatti, PhD
University of South Carolina
Osborne Administration Building
Room 202
Columbia, SC 29208
Tel: *803-777-5458*
Fax: *803-777-5457*
E-mail: PRAKASH@mailbox.sc.edu
Web: *http://cobre.med.sc.edu/index.asp*

Thematic Scientific Focus
Mechanisms through which dietary supplements regulate inflammation-associated diseases

Research Projects
- A new Chinese herb-derived selective Toll-like receptor antagonist
- Insights into anti-inflammatory capabilities of plant polyphenols
- American ginseng-mediated autophagy and suppression of inflammation
- Macrophage-induced inflammation in high fat diet enhanced breast cancer

Pilot Studies
- Prevention/treatment of *H pylori*-mediated gastritis/cancer by indole-3-carbinol
- Materials for engineering thermogenic adipose tissue
- Impacts of Δ9-tetrahydrocannabinol on gut microbiota and its metabolite profiles
- Garlic to reduce inflammation and oxidative stress during dengue infection

Research Resources
- Flow Cytometry and Cell Sorting Core
- Immune Monitoring Core
- Microscopy and Imaging Core

Index Terms
dietary supplements, inflammation, ginseng, plant polyphenols, catechins, flavones, theaflavins, anthocyanidins, resveratrol-derivatives, withaferin-a, panaxynol, atherosclerosis, Alzheimer's disease, cardiac remodeling, cardiac dysfunction, depression, prostate cancer, cardiovascular disease, social stress, amyloid-β protein, autophagy, NF-kB, SIRT1, Nrf2, macrophage inhibitory, cytokine-1, NOD-like receptor (NLRP3), inflammasomes, blood pressure, heart rate variability, prevention, suppression, anti-inflammatory, antioxidant, COBRE

Back to top

P30GM103339- Phase 3
COBRE in Lipidomics and Pathobiology
Medical University of South Carolina

Principal Investigator
Besim Ogretmen, PhD
86 Jonathan Lucas Street
Hollings Cancer Center, Room 512A
Medical University of South Carolina
Charleston, SC 29425
Tel: *843-792-0940*
Fax No: *843-792-8568*
E-mail: ogretmen@musc.edu
Web: *https://lipidomics.musc.edu*

Thematic Scientific Focus
Pathobiology of bioactive lipids in signaling and metabolic networks regulating diseases

Pilot Projects (2015-2016)
- Sphingolipidomic approach to define cytokine-mediated oligodendrocyte cell death signaling
- Mechanisms of SK1/S1P signaling in regulating T cell immunotherapy
- Mapping the functional interplay between PERK and sphingolipids

Research Resources
- Lipidomics Core
- Protein Science Translational Core
- Animal Pathobiology Core

Index Terms
sphingolipids, lipidomics, sphingolipid metabolism and signaling, ceramide, sphingosine 1-phosphate

Back to top

P20 GM109091- Phase 1
Center for Targeted Therapeutics
University of South Carolina

Principal Investigator
Igor B Roninson, PhD
College of Pharmacy
University of South Carolina
715 Sumter Street
Coker Life Science Building Room 713D
Columbia, SC 29208
Tel: *803-777-2623*
E-mail: roninsoni@sccp.sc.edu
Web: *https://www.sccp.sc.edu/CTT*

Thematic Scientific Focus
Discovery of drugs aimed at molecular and cellular targets that play key roles in human diseases

Research Projects
- Targeting COPZ1 in miR-152 deficient tumor cells
- Targeting inhibin in cancers lacking the type III TGF-beta receptor
- Selective Targeting of Phosphodiesterase 11A Transcription and Catalytic Activity
- Dual responsive nanoparticle for brain targeted drug delivery

Pilot Studies
- Evaluation of the *Peromyscus leucopus* panel for pharmacogenomics studies
- Designing inducible CRISPR-CAS vector system for validation of COPZ1 gene as a novel target for anticancer intervention
- Mg2+-insensitive N-methyl-D-aspartate receptors as target in cocaine dependence

Research Resources
- Functional Genomics
- Synthetic Chemistry and Drug Discovery
- Microscopy and Flow Cytometry

Index Terms
Target identification, targeted drugs, drug discovery, functional genomics

Back to top

P20GM109094- Phase 1
COBRE: Eukaryotic Pathogens Innovation Center (EPIC)
Clemson University

Principal Investigator
Lesly A Temesvari, PhD
132 Long Hall
Clemson University
Clemson, SC 29634
Tel: *864-656-6387*
Fax: *864-656-0435*
E-mail: LTEMESV@CLEMSON.EDU
Web: *http://www.clemson.edu/centers-institutes/epic/index.html*

Thematic Scientific Focus
Interdisciplinary study of parasitic diseases, eukaryotic pathogens and transmission, host defense, and pathogen biology

Research Projects
- The role of acetate fermentation in *Entamoeba histolytica* growth and infection
- Glycosome biogenesis in African trypanosomes
- Glucose sensing and hexokinases in the African trypanosome
- Fatty acid synthesis, surface molecules, and immune evasion
- Exploring the mechanisms of fluconazole-induces aneuploidy

Research Resources
- Administrative Core
- Clemson University Genomics Institute (CUGI)
- Clemson Light Imaging Facility (CLIF)

Index Terms
innovation, pathogen, African Trypanosomiasis, malaria, meningitis, Amebic colitis, interdisciplinary, human disease, virulence, transmission process, aneuploidy

Back to top

P20GM103542- Phase 2
South Carolina COBRE in Oxidants, Redox Balance and Stress Signaling
Medical University of South Carolina

Principal Investigator
Kenneth D Tew, PhD, DSc
Dept Cell & Molecular Pharmacology
173 Ashley Avenue
Charleston, SC 29425
Tel: *843-792-2514*
Fax: *843-792-0481*
E-mail: tewk@musc.edu
Web: *http://academicdepartments.musc.edu/pharmacology/COBRE*

Thematic Scientific Focus
Oxidative stress biology and therapeutics in acute and chronic diseases and aging

Research Projects
- Systems-based analysis of redox activity in aortic valve stenosis
- A novel therapeutic strategy for Parkinsons disease
- VDAC opening small molecules to revert Warburg metabolism and induce oxidative stress
- The response of cancer stem cells to oxidative stress
- Targeting redox regulation to overcome proteasome inhibitor resistant multiple myeloma

Research Resources
- Cell and Molecular Imaging Core
- Proteomics Core
- Bioenergetics Core
- Analytic Core

Index Terms
glutathione, oxidants, redox balance, stress signaling

Back to top

P20GM103444- Phase 2
Bioengineering Center of Regeneration and Formation of Tissues (SC BioCRAFT)
Clemson University

Principal Investigator
Naren R Vyavahare, PhD
501 Rhodes Engineering Research Center
Department of Bioengineering
Clemson University
Clemson, SC 29634-0905
Tel: *864-656-5558*
Fax: *864-656-4466*
E-mail: narenv@clemson.edu
Web: *http://www.clemson.edu/scbiocraft*

Thematic Scientific Focus
Tissue regeneration through cell-biomaterials interactions using bioengineering approaches

Research Projects
- Developing luminescent strain sensors to evaluate and monitor osteoinductive therapy
- Targeted nano-therapeutics for neural regeneration
- Polymer microarrays for stem cell cardiac differentiation
- Developmental and biomechanical mechanisms of valve tissue formation
- Diabetes resistant vascular graft remodeling

Pilot Projects
- Point of regenerative medicine: rotator cuff engineering in the operating room
- Rational Approach to small molecule-based tissue engineering
- Hematopoietic-derived cell-endocardium crosstalk in mitral valve homeostasis

Research Resources
- Bioengineering and Bioimaging Core
- Cell, Tissue, and Molecular Analyses Core

Index Terms
biomaterials, tissue engineering, organ replacements, tissue regeneration, cardiac tissue engineering, neural tissue engineering, drug delivery

Back to top

P20GM103548- Phase 2
Center for Cancer Biology
Sanford Research

Principal Investigator
W Keith Miskimins, PhD
Cancer Biology Research Center
Sanford Research
2301 East 60th Street North
Sioux Falls, SD 57104-0569
Tel: *605-312-6104*
Fax: *605-312-6071*
E-mail: Keith.Miskimins@sanfordhealth.org
Web:
http://www.sanfordresearch.org/researchcenters/cancerbiology/cobregrantcancerbiology/

Thematic Scientific Focus
Cancer cell biology, tumor specific target markers and antigens

Research Projects
- Immune mediated mechanisms of metastasis
- Modifying mTOR signaling to enhance immune mediated clearance of HPV+ HNSCC
- Cisplatin mediated immune modulation of HPV positive head and neck cancer
- The impact of PD-1 inhibition on immune-response to chemoradiotherapy
- Exploring the origins of childhood leukemia: investigating transcriptional networks in hematopoiesis and acute leukemia

Pilot Projects
- Using BioID to reveal the NF1 interactome
- Inhibition of Mortalin-2 by Veratridine: A potential complementary strategy for colon cancer therapy
- Mechanisms of low carbohydrate diets in inhibiting cell proliferation *in vitro* and tumor growth *in vivo* during chemoradiation treatment in head and neck cancer

Research Resources
- Molecular Pathology Core
- Imaging Core
- Tumor Biology Core
- Flow Cytometry

Index Terms
cancer biology, tumor markers, tumor specific antigens, cancer signaling pathways, cancer immunology, mouse models of cancer, breast cancer, head and neck cancer, medulloblastoma, lymphoma, cancer signaling pathways

Back to top

P20GM103620- Phase 1
Center for Pediatric Research
Sanford Research

Principal Investigator
David A Pearce, PhD
Sanford Center
2301 East 60th Street North
Sioux Falls, SD 57104-0569
Tel: *605-312-6004*
Fax: *605-312-6071*
E-mail: David.Pearce@sanfordhealth.org
Web:
http://www.sanfordresearch.org/researchcenters/childrenshealth/centerforpediatricresearchnihcobre/

Thematic Scientific Focus:
Developmental processes and pediatric diseases

Research Projects:
- Identifying factors that maintain pancreatic beta-cell mass
- The cellular and molecular mechanisms regulating renal proximal tubule morphogenesis
- Rho GTPase signaling in the developing cerebral cortex
- Ciliary central pair proteins in primary ciliary dyskinesia
- Thioredoxin signaling and pulmonary development during perinatal oxidative injury

Research Resources:
- Protein Biochemistry Core
- Yeast 2 hybrid Core
- Imaging Core
- Molecular Genetics Core
- Molecular Pathology Core

Index Terms:
developmental biology, pediatrics, childhood disease, proliferation, morphogenesis, migration, differentiation, and programmed cell death

Back to top

P30GM118228- Phase 3
Vermont Immunobiology / Infectious Diseases Center
University of Vermont

Principal Investigator
Ralph C Budd, MD
University of Vermont College of Medicine
Department of Medicine (Immunobiology)
Given Medical Building, D-305
89 Beaumont Avenue
Burlington, Vermont 05405-0068
Telephone: *802-656-2286*
Fax: *802-656-3854*
Email: ralph.budd@med.uvm.edu
Web: *http://www.uvm.edu/medicine/vciid/*

Thematic Scientific Focus
The immune response to infectious agents and their mechanism of pathogenicity

Pilot Studies
- IL-6 regulation of IL-21 in CD4 and CD8 T cells
- A Relevant Environmental Allergen Exposure Model for the Sensitization to House Dust Mite and Exacerbation of Allergic Asthma

Research Resources
- Genome Technologies and Bioinformatics Core
- Proteomics and mass spectrometry Core
- BSL3 Core

Index Terms
innate adaptive immunity, NKT and gamma/delta T cells, dendritic cells, bacterial pathogenesis, *Pseudomonas aeruginosa, Clostridium difficile, Borrelia burgdorferi,* viral pathogenesis, influenza virus, dengue virus, arenaviruses, hantavirus, coxsackievirus, parasite pathogenesis, *Cryptosporidium parvum, Entamoeba histolytica, Toxoplasma gondii,* vaccine trials, autoimmunity multiple sclerosis, rheumatoid arthritis, Lyme arthritis, genetic susceptibility, maternal/fetal immunology, metabolic regulation, immune system, bacteria

Back to top

P20GM103644- Phase 1
Vermont Center on Behavior and Health
University of Vermont

Principal Investigator
Stephen T Higgins, PhD
University of Vermont, UHC Campus
Dept of Psychiatry
UHC OH3 MS 482 Room 3100B
1 S Prospect St
Burlington, VT 05401
Tel: *802-656-9615*
Fax: *802-656-9628*
E-mail: stephen.higgins@uvm.edu
Web: *http://www.uvm.edu/medicine/behaviorandhealth/*

Thematic Scientific Focus
Investigating relationships between behavior (i.e. lifestyle) and risk for chronic disease and premature death

Research Projects
- Shared mechanisms in child dysregulation, adult psychopathology, and metabolic disorders
- Incentives to improve cardiac rehabilitation participation in low-income patients
- Incentives targeting gestational weight gain in overweight/obese low-income women
- Predictors of weight loss success in overweight breast cancer survivors
- Behaviors, chronic disease, and quality of life after ductal carcinoma in situ

Pilot Studies
- Smoking cessation among limb salvage patients with peripheral arterial disease
- Using financial incentives to increase STI/HIV testing among young Latinos
- Contingency management for smoking cessation among African American women

Research Resources
- Administrative Core
- Behavioral Economics and Intervention Sciences Core
- Collaboration and Dissemination Core

Index Terms
behavioral economics, risk behaviors, substance abuse, obesity, chronic disease, vulnerable populations, health disparities

Back to top

P30GM103532- Phase3
Translational Research in Lung Biology and Disease
University of Vermont & State Agricultural College

Principal Investigator
Charles G Irvin, PhD
University of Vermont and State Agricultural College
Vermont Lung Center
Room 226
149 Beaumont Avenue
Burlington, VT 05405-0075
Tel: *802-656-8928*
Fax: *802-656-8926*
E-mail: Charles.Irvin@uvm.edu
Web: *http://www.uvm.edu/medicine/vermontlung*

Thematic Scientific Focus
Translational research in the diagnosis and treatment of lung disease

Research Resources
- Transgenic Animal Core
- Pathophysiological Phenotyping Core
- Clinical Support Core

Index Terms
physiology, lungs, asthma, biomedical engineering, transgenic animals, signaling, inflammation, chronic obstructive pulmonary disease

Back to top

P30GM103498- Phase 3
Center for Neuroscience Excellence
University of Vermont

Principal Investigator
Rodney L Parsons, PhD
Neurological Sciences Department
C427 Given Building
89 Beaumont Avenue
Burlington, VT 05405-0068
Tel: *802 656-2148*
E-mail: Rodney.Parsons@uvm.edu
Web: *http://www.uvm.edu/medicine/neurocobre/*

Thematic Scientific Focus
Stroke and neurovascular interactions, neural regulation of autonomic nervous system development, function and disorders

Research Resources
- Imaging/Physiology Core
- Cellular/Molecular Biology Core

Index Terms
autonomic neurobiology, stroke, neurodegeneration, neurodevelopment

Back to top

P30GM103488- Phase 3
COBRE for Signal Transduction and Cancer Phase 3
West Virginia University Cancer Institute

Principal Investigator
Laura F Gibson, PhD
West Virginia University
Mary Babb Randolph Cancer Ct
Robert C. Byrd Health Sciences Center
PO Box 9300, Rm 2284
Morgantown, WV 26506-9300
Tel: *304-293-1547*
Fax: *304-293-4667*
E-mail: lgibson@hsc.wvu.edu
Web: *http://wvucancer.org/research/collaborative-initiatives/cobre*

Thematic Scientific Focus
Cancer cell signal transduction and biology

Research Resources
- West Virginia Flow Cytometry Core Facility
- Microscope Imaging Facility
- Animal Models and Imaging
- Bioinformatics and Biostatistics Core
- Biospecimen Processing Core

Index Terms
flow cytometry, imaging, biospecimens, EMT, invasion, stem cells

Back to top

P20GM109098- Phase 1
West Virginia Stroke COBRE
West Virginia University

Principal Investigator
James W Simpkins, PhD
The Highland Chair of Stroke/Neurology
1 Medical Center Drive
Health Sciences North
PO Box 9229
Morgantown, WV 26506-9229
Tel: *304-293-7430*
Fax: *304-293-7430*
E-mail: jwsimpkins@hsc.wvu.edu

Thematic Scientific Focus
Biomarkers, Acute Treatment, and Rehabilitation for Stroke

Research Projects
- The Impact of cardiovascular function on stroke outcome
- A genomic bio-signature of post-stroke immune dysfunction
- Corticospinal control of sensorimotor synergies in health and disease
- Corticospinal control of limb dynamics in health and after stroke
- Effects of perfluoroalkyl chemicals on stroke incidence and mortality

Research Resources
- Administration Core
- Experimental Stroke Core
- Biostatistics Core
- Mitochondrial Functional Assessment Core
- Rodent Behavior Core

Index Terms
stroke, biomarkers of stroke, neuronal injury, autonomic nervous system and stroke, treatment of stroke, rehabilitation from stroke, environmental chemicals and stroke

Back to top

P30GM103398- Phase 3
Neuroscience Core Center
University of Wyoming

Principal Investigator
Francis W Flynn, PhD
University of Wyoming
Department of Zoology & Physiology, and Neuroscience Program
1000 E University Avenue
Dept 3166
Laramie, WY 82071
Tel: *307-766-6446*
Fax: *307-766-5625*
E-mail: flynn@uwyo.edu
Web: *http://www.uwyo.edu/neurocenter*

Thematic Scientific Focus
Normal brain development, sensory neuroscience, synaptic plasticity, and neuropathological processes

Research Resources
- Microscopy Imaging Core (confocal and electron microscopes, Calcium imaging)
- Molecular Analysis Core
- Antibody Production

Index Terms
neuroscience, neuroplasticity, nociception, somatosensory, neuroendocrine, confocal microscopy, ultrastructure, receptor signaling, development, olfaction

Back to top