

**Institutional Development Award (IDeA) Program**  
**IDeA NETWORKS OF BIOMEDICAL RESEARCH EXCELLENCE (INBRE)**  
**Directory of Active Awards by State**  
July, 2009

<a href="#"><u>Alaska</u></a>	<a href="#"><u>Idaho</u></a>	<a href="#"><u>Maine</u></a>	<a href="#"><u>Nevada</u></a>	<a href="#"><u>Puerto Rico</u></a>	<a href="#"><u>Vermont</u></a>
<a href="#"><u>Arkansas</u></a>	<a href="#"><u>Kansas</u></a>	<a href="#"><u>Mississippi</u></a>	<a href="#"><u>New Mexico</u></a>	<a href="#"><u>Rhode Island</u></a>	<a href="#"><u>West Virginia</u></a>
<a href="#"><u>Delaware</u></a>	<a href="#"><u>Kentucky</u></a>	<a href="#"><u>Montana</u></a>	<a href="#"><u>North Dakota</u></a>	<a href="#"><u>South Carolina</u></a>	<a href="#"><u>Wyoming</u></a>
<a href="#"><u>Hawaii</u></a>	<a href="#"><u>Louisiana</u></a>	<a href="#"><u>Nebraska</u></a>	<a href="#"><u>Oklahoma</u></a>	<a href="#"><u>South Dakota</u></a>	

## Alaska

### **Contaminants and Infectious Agents: Molecular Approaches** **University of Alaska, Fairbanks - P20 RR016466**

#### Principal Investigator

George M. Happ, Ph.D.  
Research Professor  
University of Alaska, Fairbanks  
202 West Ridge Research Building  
P.O. Box 757040  
Fairbanks, Alaska 99775-7040  
Telephone: 907-474-5492  
Fax: 907-474-6745  
E-mail: [george.happ@alaska.edu](mailto:george.happ@alaska.edu)

#### Program Coordinator, Anchorage Campus

Jocelyn Krebs, Ph.D.  
Associate Professor of Biology  
University of Alaska, Anchorage  
3211 Providence Drive, EBL 125  
Anchorage, Alaska 99508  
Telephone: 907-786-1556  
Fax: 907-786-1314  
E-mail: [afjek@uaa.alaska.edu](mailto:afjek@uaa.alaska.edu)

<http://www.alaska.edu/inbre>

#### Partner Institution

University of Alaska, Anchorage

#### Outreach Institutions

College of Rural Alaska, Fairbanks  
University of Alaska Southeast, Juneau

#### Program Goals

- Enlarge and sustain an inter-campus network for environmental health research
- Focus on molecular toxicology of subsistence species, infectious agents, and zoonotic diseases
- Support research projects of junior faculty, postdoctoral research associates, and graduate students
- Provide research opportunities for undergraduate students throughout Alaska
- Provide outreach activities to students and teachers in high schools, at smaller colleges in Alaska, health corporations, hospitals, and other organizations at rural sites
- Enhance science knowledge of the Alaskan workforce and expand the undergraduate student pipeline into health careers, with particular attention to Alaska Native students
- Form a core research team consisting of ten recently recruited faculty members
- Feature bioinformatics as an integral part of the program

#### Research Projects

- Contaminants – molecular approaches
  - Essential and non-essential elements bioavailability from subsistence foods in arctic fox model
  - Development of a fish model for molecular toxicology research
  - Heavy metal and organic pollutants in high latitude environments
- Basic biology underlying mechanisms of disease
  - Theoretical and experimental population genetics of mating systems
  - Chromatin remodeling by acetylation and phosphorylation
  - DNA repair, genome stability, and ubiquitin
  - A portable and extensible system for genome data management and analysis

- Infectious Agents – Molecular Approaches
  - Bacterial replication within cells of vectors
  - Biology, ecology, and genetics of avian influenza in wild birds
  - Surveillance and prevalence of infectious agents in marine mammals

#### Resources

- DNA core laboratory
- Flow cytometer
- Biomedical computer science facility
- Central animal facility
- Scanning and transmission electron microscope facility
- Public health laboratory
- Applied science and engineering technology laboratory
- Ecosystem and biomedical health facility

#### Index Terms

molecular toxicology, infectious agents, zoonotic diseases, minority outreach, public health, influenza, tularemia, *Francisella*, rural health care, environmental biology, bioinformatics, dioxin, hepatitis B, cancer, liver disease, epidemiology, minority education

[return to top](#)

## Arkansas

### Partnerships for Biomedical Research in Arkansas

University of Arkansas for Medical Sciences - P20 RR016460

#### Principal Investigator

Lawrence E. Cornett Ph.D.  
Professor  
Department of Physiology & Biophysics  
University of Arkansas for Medical Sciences  
4301 W. Markham Street, # 818  
Little Rock, Arkansas 72205-7101  
Telephone: 501-686-5441  
Fax: 501-526-6873  
E-mail: [cornettlawrence@uams.edu](mailto:cornettlawrence@uams.edu)

#### Program Coordinator

Helen Beneš, Ph.D.  
Research Professor  
Departments of Neurobiology &  
Developmental Sciences and  
Biochemistry & Molecular Biology  
University of Arkansas for Medical Sciences  
4301 W. Markham Street, # 510  
Little Rock, Arkansas 72205-7101  
Telephone: 501-686-5782  
Fax: 501-686-6382  
E-mail: [beneshelen@uams.edu](mailto:beneshelen@uams.edu)

<http://brin.uams.edu>

#### Lead Institutions

University of Arkansas  
University of Arkansas at Little Rock  
University of Arkansas for Medical Sciences

#### Partner Institutions

Arkansas State University  
Hendrix College  
John Brown University  
Lyon College  
Ouachita Baptist University  
University of Arkansas at Pine Bluff  
University of Central Arkansas

#### Outreach Institutions

Arkansas Tech University  
Central Baptist College  
Harding University  
Henderson State University  
Philander Smith College  
University of Arkansas at Monticello

#### Program Goals

- Expand and strengthen the biomedical research infrastructure of the lead and partner institutions by developing a multidisciplinary research network united by the scientific theme of *Cellular Signaling, Growth, and Differentiation*
- Increase the biomedical research base in Arkansas by providing research support to select faculty at the Arkansas INBRE partner undergraduate institutions (UGIs) so they can obtain independent extramural funding for their biomedical research projects
- Provide research opportunities for undergraduate students from the seven partner UGIs, thereby serving as a “pipeline” for students to choose health research careers

- Sponsor specialized outreach activities for faculty and students from UGIs other than the seven partner UGIs, thereby preparing other investigators for future INBRE support
- Enhance the science and technology base of Arkansas' future workforce by developing a cadre of trained scientists – especially those with expertise in biomedical research and bioinformatics – and provide resources to stimulate growth of biotechnology industries in Arkansas

### Research Projects

- Neuroscience
  - Effects of nicotine on processes mediated by the reticular activating system
  - Effects of adverse perinatal experiences on cortical organization
  - Cholinergic mechanisms in neuronal regeneration
- Cancer and signaling mechanisms
  - Signaling by non-classical ligands of estrogen receptor: novel approaches to detection and mechanism
  - p107 function in 3T3-L1 differentiation
  - Effects of prenatal steroid treatment on guinea pig ventilatory muscles
  - Role of ascorbate in coordinating growth and senescence in *Arabidopsis thaliana*
  - Anticancer thiosemicarbazone complexes of ruthenium and copper - synthesis, biochemistry, and cellular mechanisms targeting nucleic acids
  - Interaction of aging and estradiol metabolites on coronary arterial function
  - Metal chelates in prevention of cisplatin-induced kidney cell death
- Overlap
  - Transcriptional regulation of the myelin proteolipid protein gene: Effect of intron 1-binding factors on chromatin remodeling during oligodendrocyte differentiation
  - Molecular mechanisms contributing to gender disparity in multiple sclerosis
  - The role of bone morphogenetic proteins in nociceptive neuron development
  - Assessment of drug uptake and permeability properties of novel anticancer agents in the brain

### Resources

- Genomics facility
- UAMS proteomics facility
- UAF proteomics facility
- Microscopy facility
- UAMS bioinformatics center
- UALR Bioinformatics center

### Index Terms

cancer, cell signaling, cell biology, genomics, microarray, proteomics, microscopy, bioinformatics, neurobiology, developmental biology

[return to top](#)

## Delaware

### IDEA Network for Biomedical Research Excellence

Delaware Biotechnology Institute, University of Delaware, Newark - P20 RR016472

#### Principal Investigator

David S. Weir, Ph.D.  
Director  
Office of Economic Innovation and  
Partnership  
University of Delaware  
112 Hulliher Hall  
Newark, Delaware 19716  
Telephone: 302-831-7140  
Fax: 302-831-7240  
E-mail: [dsweir@udel.edu](mailto:dsweir@udel.edu)

#### Program Coordinator

Karl V. Steiner, Dr.-Ing.  
Associate Provost for Interdisciplinary  
Research Initiatives  
University of Delaware  
206 Hulliher Hall  
Newark, Delaware 19716  
Telephone: 302-831-6703  
Fax: 302-831-2828  
E-mail: [ksteiner@udel.edu](mailto:ksteiner@udel.edu)

<http://www.dbi.udel.edu/inbre.html>

#### Partner Institutions

Christiana Care Health System, Newark  
Delaware State University, Dover  
Nemours / A.I. duPont Hospital for Children, Wilmington  
University of Delaware, Newark  
Wesley College, Dover

#### Program Goals

- Develop biomedical research capability in Delaware
- Strengthen the existing biomedical research infrastructure
- Develop junior and early-career faculty in Delaware through mentored biomedical research
- Enlarge the pool of individuals and teams of researchers who can compete successfully for NIH grants
- Strengthen the existing biomedical research infrastructure
- Engage all levels of research potential, including undergraduate students, graduate students, post-doctoral associates, faculty, nurses, medical interns, and medical research personnel through improved biomedical workforce development
- Strengthen the network of academic and medical institutions of higher learning across the state and foster an emerging medical research initiative in the Delaware health care system
- Develop research themes in cancer, biomedical imaging, animal modeling, infectious diseases and biochemistry
- Establish an outreach program with internships, personnel exchanges, education and training programs, seminars, and other activities at outreach partner institutions

#### Research Projects

- Cancer
  - Autocrine stimulation of primary and metastatic brain cancer cells
  - Interactive computer-generated diagnosis tools for ground-glass opacity lung tumors
  - Volumetric breast density estimation using breast surface reconstructed from optical digitizer images
  - Direct interaction of eristostatin with human melanoma cells
  - Calcium and integrin-binding protein 1 (CIB1) in Cancer cell invasion

- CXCR4 and P-glycoprotein in neuroblastoma metastasis
- DNA damage repair/tolerance and human cancer
- Cardiovascular health
  - Biomaterials for cardiac tissue engineering
  - Endothelial progenitor cell function in chronic kidney disease
  - Physiological effects of dietary sodium in “salt resistant” humans
  - Clinical outcomes center effect of kidney function on the association between obesity and cardiovascular events
  - Effect of renin inhibition on cardiovascular autonomic nerve function in diabetes
- Neurosciences
  - Molecular mechanisms of learning and memory: investigating the role of DEL-4
  - Systematic analyses of SMN complexes in motor neurons
  - Neuro-cognitive self regulation mechanisms and their relation to childhood and adult obesity

### Resources

- Bioimaging core
- Bioinformatics core
- Biomolecular core lab (Nemours)
- Center for Translational Cancer Research core facility
- DNA sequencing & genotyping core facility
- Growth chambers
- Mass spectroscopy facility
- NMR core facility
- Protein production core facility

### Index Terms

biomedical translation, bioinformatics, biotechnology, computational biology, cancer, breast cancer, diabetes, imaging, minority education, prostate cancer, bone cancer, bioengineering, biosensors, neuromuscular disease, lung cancer, drug delivery system, drug synthesis, vaccine synthesis, cell signaling, retrovirus, immune response, bioconversion, infectious diseases, women's health, anti-neoplastic agents, glioblastoma, neuroblastoma, prostate tumors, mammography, cardiovascular disease, biomedical imaging, biochemistry, obesity, kidney, motor neurons, lung tumor, tissue engineering, metastasis, memory

[return to top](#)

## Hawaii

### Statewide Research & Education Partnership in Hawaii

John A. Burns School of Medicine, University of Hawaii, Manoa - P20 RR016467

#### Principal Investigator

Eric H. Holmes, Ph.D.  
Adjunct Professor  
Department of Cell & Molecular Biology  
John A. Burns School of Medicine  
University of Hawaii at Manoa  
2500 Campus Road, Hawaii Hall 124  
Honolulu, Hawaii 96822  
Telephone: 808-956-0339  
Fax: 808-956-3690  
E-mail: [eholmes3@hawaii.edu](mailto:eholmes3@hawaii.edu)

#### Program Coordinator

David Haymer, Ph.D.  
Professor  
Department of Cell and Molecular Biology  
John A. Burns School of Medicine  
University of Hawaii at Manoa  
1960 East-West Road, Biomed T511  
Honolulu, Hawaii 96822  
Telephone: 808-956-5517  
Fax: 808-956-9099  
E-mail: [dhaymer@hawaii.edu](mailto:dhaymer@hawaii.edu)

<http://www.inbre.hawaii.edu>

#### Partner Institutions

Chaminade University, Honolulu  
Hawaii Pacific University, Kaneohe  
Brigham Young University-Hawaii, Laie  
University of Hawaii, Hilo

#### Outreach Institutions

Kapiolani Community College, Honolulu  
Leeward Community College, Pearl City  
Maui Community College, Kahului  
Windward Community College, Kaneohe

#### Program Goals

- Expand and develop competitive research capacity in Hawaii by building on the institutional network foundation begun under BRIN
- Develop multi-disciplinary research projects that explore the cellular basis of immunological and neurological diseases
- Develop core competencies in immunology, cell biology, and developmental biology
- Establish teams consisting of a senior mentor investigator, junior investigators at the lead and affiliated institutions, and graduate and undergraduate students
- Provide outreach activities to undergraduate institutions and community colleges
- Foster the development of individual careers and of institutional research capacity
- Sponsor training and mentoring workshops and seminars
- Provide academic work force development through bioinformatics core training activities
- Enhance the science and technology knowledge of Hawaii's workforce

#### Research Projects

- Development of anti-infective agents – isolation and screening of microbial libraries
- Selenoproteins and synaptic changes in Alzheimer's disease
- Structure activity relationships of TRPM7 ion channel inhibitors from semi-synthetic and synthetic analogs of waixenicin A

- Advanced characterization of pharmaceutically relevant natural products with hyperspectral imaging and chemometrics
- Evaluation of natural products as inhibitors of Raf targeting oncogenic kinases
- Mechanism of action of antillatoxin on recombinant NMDA receptors
- Ozone as a trigger of the epithelial-to-mesenchyme transition in lung cells
- Development of CNS therapeutics derived from natural products: smoking cessation drugs and therapeutics for the treatment of depression
- A general approach for the characterization and stabilization of narrow therapeutic index drugs
- Diacylglycerol kinase iota links heat shock gene expression to the suppression of autophagy
- Defining mechanisms of malaria resistance in a geographically-isolated natural disease system
- Drug discovery of PKB inhibitors as anti-tumor agents
- Angiogenic action of natural products
- Protective roles of selenium in HIV Infection and methamphetamine-induced damage in the central nervous system
- The characterization of TPCN channel family
- Development of anti-infective agents – natural product core based library approach

#### Resources

- Bioinformatics core facility
- Biological electron microscopy facility
- Molecular biology core facility
- Vivarium
- Tissue culture facilities
- Laboratory of molecular medicine and infectious diseases
- Retrovirology research laboratory
- Genomic research core facility

#### Index Terms

immunology, cell biology, developmental biology, neurobiology, cell signaling, imaging, molecular biology, genomics, proteomics, natural products, cancer, aging, infertility, neuropathy, dementia, forensics, toxicology, physical anthropology, addiction, nicotine, inflammatory diseases, asthma, arthritis, air pollutants, ozone

[return to top](#)

## Idaho

### Idaho INBRE Program

University of Idaho, Moscow - P20 RR16454

#### Principal Investigator

Carolyn Hovde Bohach, Ph.D.  
Professor  
Department of Microbiology, Molecular  
Biology and Biochemistry  
University of Idaho  
P.O. Box 443052  
Moscow, Idaho 83844-3052  
Telephone: 208-885-5906  
Fax: 208-885-6518  
E-mail: [cbohach@uidaho.edu](mailto:cbohach@uidaho.edu)

#### Program Coordinator

Michael Laskowski, Ph.D.  
Professor  
Department of Biological Sciences  
University of Idaho  
P.O. Box 444207  
Moscow, Idaho 83844-4207  
Telephone: 208-885-6696  
Fax: 208-885-7910  
E-mail: [mlaskow@uidaho.edu](mailto:mlaskow@uidaho.edu)

<http://www.sci.uidaho.edu/inbre/>

#### Partner Institutions

Boise State University, Boise  
Boise Veterans Administration Medical Center, Boise  
The College of Idaho, Caldwell  
Idaho State University, Pocatello  
Mountain States Tumor and Medical Research Institute, Boise  
Northwest Nazarene University, Nampa

#### Outreach Institutions

Brigham Young University - Idaho, Rexberg  
College of Southern Idaho, Twin Falls  
Lewis-Clark State College, Lewiston  
North Idaho College, Coeur d'Alene

#### Program Goals

- Strengthen Idaho's biomedical research infrastructure and expertise by building on the established INBRE network with the scientific theme of "Cell Signaling"
- Provide support to Idaho faculty, post-doctoral fellows, and graduate students to increase the research base and capacity
- Provide research opportunities to Idaho undergraduate students and serve as a pipeline for these students to continue in health research careers
- Enhance the science and technology knowledge of Idaho's workforce
- Develop bioinformatics resources as research and teaching tools
- Expand Idaho research opportunities across the Western IDeA Region

#### Research Projects

- Collagen function during development
- Impact of antibiotics on bacterial exotoxins
- Bacterial quorum sensing and virulence
- Antioxidant properties of sagebrush flavonoids
- Immunoregulation of liver regeneration
- Catecholestrogens and prolactin regulation of uterine glycogen metabolism

- Impact of LEED building on human health and behavior
- Involvement of transcription factors in inflammation in Alzheimer's disease
- Antioxidant therapy: development of new agents to prevent/treat heavy metal osteotoxicity
- Distribution of flux control between ADH and ALDH in liver ethanol metabolism

#### Resources

- Molecular biology core facility
- Proteomics core laboratory
- DNA sequencing laboratory
- Bioinformatics facility
- Molecular genomics core laboratory
- Imaging center (microscopy, cell separation, and IVIS)
- Cell culture and processing laboratory

#### Index Terms

cell signaling, bioinformatics, extracellular matrix, collagen, bone, cartilage, infectious disease, antibiotics, exotoxin, Staphylococcus, Group A Streptococcus, Clostridium, E. coli, Klebsiella, quorum sensing, sagebrush flavonoids, aryl hydrocarbon receptor, liver regeneration, uterine glycogen metabolism, Alzheimer's disease, heavy metal poisoning, alcohol metabolism, alcoholism, neurodegeneration, inflammation, LEED

[return to top](#)

## Kansas

### **Kansas IDeA Network of Biomedical Research Excellence University of Kansas Medical Center, Kansas City - P20 RR016475**

#### Principal Investigator

Joan S. Hunt, Ph.D., D.Sc.  
University Distinguished Professor  
Department of Anatomy and Cell Biology  
University of Kansas Medical Center  
Mailstop 3050  
3901 Rainbow Boulevard  
Kansas City, Kansas 66160  
Telephone: 913-588-7270  
Fax: 913-588-7180  
E-mail: [jhunt@kumc.edu](mailto:jhunt@kumc.edu)

#### Program Coordinator

Peter G. Smith, Ph.D.  
Professor  
Molecular and Integrative Physiology  
University of Kansas Medical Center  
Mail Stop 3051  
3901 Rainbow Boulevard  
Kansas City, Kansas 66160  
Telephone: 913-588-7409  
Fax: 913-588-5677  
E-mail: [psmith@kumc.edu](mailto:psmith@kumc.edu)

<http://www.kumc.edu/kinbre/>

#### Partner Institutions

Kansas State University, Manhattan  
University of Kansas, Lawrence  
Wichita State University, Wichita

#### Outreach Institutions

Emporia State University, Emporia  
Fort Hays State University, Hays  
Haskell Indian Nations University, Lawrence  
Langston University, Langston, Oklahoma  
Pittsburg State University, Pittsburg  
Washburn University, Topeka

#### Program Goals

- Build, strengthen, and integrate biomedical research in Kansas
- Establish a multidisciplinary research network with a thematic research focus in cell and developmental biology
- Provide support to junior faculty at the participating institutions; highlight two to four investigators each year for career guidance and research support
- Increase the workforce of biomedical researchers in Kansas by delivering special services tailored to the needs of the outreach institutions
- Enhance science and technology knowledge of the Kansas workforce
- Provide analytic and interpretive programs and services in bioinformatics
- Develop new strategies for improving human health
- Facilitate translational research via bidirectional exchange of basic and clinical scientist training opportunities

#### Research Projects

- Protective role of heat shock proteins in insulin resistance
- An analysis of the role of the *C. elegans* secretome on neural development by RNAi
- Analysis of N-cadherin signaling in neurons
- Maternal tolerance to fetal alloantigens

- Musashi: A novel Wnt target controlled by tumor suppressor APC
- Identification of the defensin receptor that regulates IL-1beta release
- Targeted gene therapy with AT2 receptor nanoparticles for lung adenocarcinoma
- MicroRNA Regulation of Ovarian Function

#### Resources

- Bioinformatics satellite core - University of Kansas Medical Center  
<http://www2.kumc.edu/siddrc/bioinformatics/>
- Bioinformatics satellite core - Kansas State University  
<http://bioinformatics.ksu.edu/web/index.shtml>
- Bioinformatics core - University of Kansas - Lawrence  
<http://www.bcf.ku.edu/index.htm>

#### Index Terms

cell biology, developmental biology, bioinformatics, genomics, proteomics, lipidomics, cancer, minority education, reproductive biology

[return to top](#)

## Kentucky

### KY-IDeA Networks of Biomedical Research Excellence University of Louisville, Louisville - P20 RR016481

#### Principal Investigator

Nigel G. F. Cooper, Ph.D.  
Professor  
Department of Anatomical Sciences and  
Neurobiology  
University of Louisville  
Health Sciences Center, Room 807A  
Louisville, Kentucky 40292  
Telephone: 502-852-1474  
Fax: 502-852-1475  
E-mail: [nigelcooper@louisville.edu](mailto:nigelcooper@louisville.edu)

#### Program Coordinator

Bruce Mattingly, Ph.D.  
Associate Provost for Research and  
Sponsored Programs  
Morehead State University  
901 Ginger Hall  
Morehead, Kentucky 40351  
Telephone: 606-783-2544  
Fax: 606-783-2130  
E-mail: [b.mattin@moreheadstate.edu](mailto:b.mattin@moreheadstate.edu)

<http://www.kbrin.louisville.edu>

#### Partner Institutions

Eastern Kentucky University, Richmond  
Morehead State University, Morehead  
Northern Kentucky University, Highland Heights  
University of Kentucky, Lexington  
Western Kentucky University, Bowling Green

#### Outreach Institutions

Bellarmino University, Louisville  
Berea College, Berea  
Kentucky State University, Frankfort  
Kentucky Wesleyan College, Owensboro  
Murray State University, Murray  
Pikeville College, Pikeville  
Transylvania University, Lexington

#### Program Goals

- Sustain and grow our research base and formalize our mentoring activities.
  - support existing base of successful biomedical investigators with teaching-postdoctoral fellows
  - provide incentives for prospective new investigators as well as developmental pilot projects to grow this research base
  - formalize our mentoring activities through development of a mentoring team
- Enhance the pipeline for undergraduate students to access careers in biomedical and health-related professions
- Sustain and support the growth and development of bioinformatics initiatives
- Provide partial support for our centralized microarray facility
- Create and develop an office of community-based participatory research

#### Research Projects

- Dissecting functional domains of an unusual umuD allele with novel regulatory function in *Acinetobacter*

- Immunomodulation by Influenza A and respiratory syncytial virus virions
- Cell surface ion exchangers: expedient molecular targets for a new brain cancer therapy
- Serca inhibition by hydroquinone derivatives
- Zebrafish: a model of auditory hair cell death and regeneration
- Sex dependent regulation of miRNA in cardiac remodeling

#### Resources

- Bioinformatics core
- Genomics/Microarray core
- Community-based participatory research core
- Light microscope facility

#### Index Terms

neuroscience, genomics, molecular biology, bioinformatics, genetics, bacteria, *Salmonella*, antipsychotic drugs, brain damage, Alzheimer's disease, schizophrenia, memory loss, cardiovascular disease, diabetes, asthma, evolution, vision, eyes, retina, metabolic regulation, cancer, anti-cancer drugs, drug addiction, estrogens, osteoporosis, aging, taste, neurological development, women's health

[return to top](#)

## Louisiana

### Louisiana Biomedical Research Network

Louisiana State University, Baton Rouge - P20 RR016456

#### Principal Investigator

Thomas R. Klei, Ph.D.  
Professor, and Associate Dean for Research  
and Academic Affairs  
Department of Pathobiological Sciences  
LSU School of Veterinary Medicine  
Skip Bertman Drive  
Baton Rouge, Louisiana 70803  
Telephone: 225-578-9727  
Fax: 225-578-9916  
E-mail: [klei@vetmed.lsu.edu](mailto:klei@vetmed.lsu.edu)

#### Program Coordinator

E. William Wischusen, Ph.D.  
Associate Professor  
Department of Biological Sciences  
Louisiana State University  
104 Life Sciences Building  
Baton Rouge, Louisiana 70803-1715  
Telephone: 225-578-8239  
Fax: 225-578-8266  
E-mail: [ewischu@lsu.edu](mailto:ewischu@lsu.edu)

<http://lbrn.lsu.edu>

#### Partner Institutions

Louisiana State University Health Sciences Center, New Orleans  
Louisiana State University, Shreveport  
Louisiana Tech University  
Southern University and A&M College  
Tulane University  
The University of Louisiana at Monroe

#### Outreach Institutions

Centenary College of Louisiana  
Grambling State University  
Louisiana College  
Nicholls State University  
Northwestern State University  
Southeastern Louisiana University  
Southern University at New Orleans  
University of New Orleans  
Xavier University of New Orleans

#### Program Goals

- Establish a research network supporting interdisciplinary biomedical research
- Support specific research projects led by investigators from participating institutions and mentored by experienced biomedical scientists
- Generate a critical mass of biomedical investigators at each participating PUI campus through support of mentored research projects, and enhanced communication and collaboration with established research laboratories and facilities
- Support biomedical research and education throughout Louisiana by providing outreach opportunities for students and faculty from all colleges and universities within the state that are not INBRE partner institutions

### Research Projects

- Molecular and cell biology
  - Role of gM in KSHV entry, egress and virus-induced cell fusion
  - Regulation of prostate gene expression by 1,3 butadiene
  - The role of chromatin in HSV-1 gene regulation
  - NR4A regulation of organogenesis
  - Glucosylceramide synthase in a novel target for cancer treatment
- Bioinformatics and biocomputing
  - Visual and analytical tools for cluster analysis
  - Gene expression data mining for physiological discovery
  - Lacrimal gland bioinformatics: a neural connection of dry eye and aging
  - Neural network-enhanced stereoscopic visualization for interactive analysis of multidimensional biomedical and other data sets

### Pilot Projects

- Targeting HER-2 protein for breast cancer using computational approach
- The study of apoptosis using a new discrete computational method
- Prediction of conserved and divergent secondary structure features of herpes simplex virus Type-1 (HSV-1) UL20p and gK proteins using combination of multiple computational methods
- The study of neuronal synchrony using coupled oscillator model for brain function restoration
- The study of protein damage in aging and age-related diseases in brain using BioMEMS and bioinformatics tools
- Microarray gene expression biclustering using associative pattern mining
- Development of novel anti-cancer agents
- Assessment of the molecular target of fusarochromanone and its analogues
- Regulation of mouse ES cell differentiation into neurons by Hoxa1
- Novel bovine coronavirus-based therapeutics for human colorectal cancer

### Resources

- Imaging facility
- Genomics facility
- Proteomics facility
- Bioinformatics core facility
- Molecular biology core facility
- Access grid facilities
- Computational facilities

### Index Terms

cancer, infectious diseases, bacteria, genomics, proteomics, cell biology, molecular biology, imaging, lung cancer, virus, minority education, bioinformatics, breast cancer, computational, microarray

[return to top](#)

## Maine

### Comparative Functional Genomics INBRE in Maine

Mount Desert Island Biological Laboratory, Salisbury Cove - P20 RR016463

#### Principal Investigator

Patricia H. Hand, Ph.D.  
Administrative Director  
Mount Desert Island Biological Laboratory  
P.O. Box 35  
Old Bar Harbor Road  
Salisbury Cove, Maine 04672  
Telephone: 207-288-3605, Ext. 103  
Fax: 207-288-2130  
E-mail: [phand@mdibl.org](mailto:phand@mdibl.org)

#### Program Coordinator

David W. Barnes, Ph.D.  
Senior Investigator  
Mount Desert Island Biological Laboratory  
P.O. Box 35  
Old Bar Harbor Road  
Salisbury Cove, Maine 04672  
Telephone: 207-288-9880, ext 472  
Fax: 207-288-2130  
E-mail: [dbarnes@mdibl.org](mailto:dbarnes@mdibl.org)

<http://www.maineidea.net>

#### Partner Institutions

Bates College, Lewiston  
Bowdoin College, Brunswick  
Colby College, Waterville  
College of the Atlantic, Bar Harbor  
The Jackson Laboratory, Bar Harbor  
University of Maine, Orono  
University of Maine, Honors College  
University of Maine, Farmington  
University of Maine, Machias  
Southern Maine Community College

#### Outreach Institutions

##### Primary Outreach Institutions

University of Maine, Fort Kent  
University of Maine, Presque Isle  
Maine High Schools

##### Secondary Outreach Institutions

Maine Maritime Academy, Castine  
University of New England, Biddeford  
University of Southern Maine, Portland  
University of New England

#### Program Goals

The ME-INBRE will address the state's continued need to further enhance biomedical research capacity and competitiveness of our faculty and students by:

- Strengthening the lead and partner institutions' biomedical research infrastructure through a multi-disciplinary research network with a thematic scientific focus in comparative functional genomics
- Providing research support to investigators, postdoctoral fellows and graduate students
- Creating year-round research opportunities for undergraduate and community college students at network institutions
- Providing outreach activities to high school and undergraduate students









- Expand research opportunities for students and enhance biomedical curricula from K-12 through graduate education to strengthen the pipeline to careers in health research and increase the scientific and technological knowledge of the state's workforce

### Research Projects

#### • Infectious Diseases

- Spatial epidemiology of West Nile virus infection risk across Montana
- Role of sulfur metabolism in *Pseudomonas aeruginosa* iron uptake and virulence
- Role of BH31 in inhibiting fungal morphogenesis
- Interactions of climate change, infectious diseases, and reservoir ecology
- The phage pipeline: from dirt to genomics, middle school through graduate school
- *Borrelia burgdorferi*: inducible gene expression in an experimental enzootic cycle
- Investigation of the early secretory pathway in *Candida albicans*
- MRSA on the Apsaalooke reservation

#### • Environmental Health

- Biological source tracking fecal contamination in Flathead Lake and beaches
- CBPR assessment of contaminants in domestic and cultural water sources
- Prevalence of antibiotic resistance factors in bacteria found in municipal wastewater, livestock intensive area run-off, and the
- Methylmercury risk and awareness in American Indian women
- Novel antifungal agents from acid mine waste microbes

#### • CBPR and Health Disparities

- Traditional foods and nutritional principles
- Improving Stone Child College's health enhancement program
- Blackfeet fitness and health: a community-based program starting with BCC
- Health and education impacts on stress reduction and health improvement among the Fort Peck Indian Community
- Ethno-etiologicals of health and illness among Marshall Islanders
- Hospitals as health care delivery systems and health disparities
- Latino migrants incorporating in a non-traditional settlement area of the Mountain West: health disparities and challenges to well-being
- Education and health disparities among American Indians
- Meta-cognitive influences on placebo effect
- Promoting socially responsible biomedical research
- Ship of death: Yellow Fever
- Barriers to breast feeding

### Resources

- Proteomics and biological mass spectrometer facility
- Laser capture microdissection and functional genomics facility
- Environmental chemistry laboratory
- Bioinformatics teaching and research facility
- Electron microscopy facility
- Advanced confocal imaging facility
- Center for Computational Biology data analysis facility
- High performance computing
- Molecular computational core facility (UM-Missoula)
- NMR facility
- Macromolecular crystallography facility
- Veterinary molecular biology bioinformatics facility
- Veterinary molecular biology DNA sequencing facility

- Veterinary molecular biology flow cytometry facility
- Veterinary molecular biology histopathology laboratory

#### Index Terms

epidemiology, pathogenesis, infectious diseases, environmental health, *Candida*, hantavirus, biodefense, antibiotics, prion diseases, neuroscience, biofilms, minority education, water quality, mycology, bioinformatics, health disparities, CBPR, West Nile virus, MRSA, methylmercury contamination

[return to top](#)

## Nebraska

### Nebraska Research Network in Functional Genomics University of Nebraska Medical Center - P20 RR016469

#### Principal Investigator

James B. Turpen, Ph.D.  
Professor  
Department of Genetics, Cell Biology,  
and Anatomy  
College of Medicine  
University of Nebraska Medical Center  
986395 Nebraska Medical Center  
Omaha, Nebraska 68198-6395  
Telephone: 402-559-4388  
Fax: 402-559-3144  
E-mail: [jturpen@unmc.edu](mailto:jturpen@unmc.edu)

#### Program Coordinator

William G. Chaney, Ph.D.  
Professor  
Department of Biochemistry and  
Molecular Biology  
College of Medicine  
University of Nebraska Medical Center  
985870 Nebraska Medical Center  
Omaha, Nebraska 68198-5870  
Telephone: 402-559-6657  
Fax: 402-559-6650  
E-mail: [wchaney@unmc.edu](mailto:wchaney@unmc.edu)

[www.unmc.edu/inbre](http://www.unmc.edu/inbre)

#### Partner Institutions

Creighton University College of Arts and Sciences  
Creighton University Medical Center, Omaha  
Doane College, Crete  
Nebraska Wesleyan University, Lincoln  
University of Nebraska, Kearney  
University of Nebraska, Lincoln  
University of Nebraska, Omaha

#### Outreach Institutions

Chadron State College, Chadron  
Little Priest Community College, Winnebago  
Wayne State College, Wayne  
Western Nebraska Community College, Scottsbluff

#### Program Goals

- Establish a multidisciplinary research network with scientific themes of cell signaling, infectious disease, and structural biology and biophysics
- Build and increase Nebraska's research base and capacity
- Provide research opportunities for undergraduate students and serve as a pipeline for students to enter health research careers
- Promote research collaborations
- Provide outreach to underrepresented minority students to bring them into the research enterprise and support disease-specific initiatives
- Enhance the science and technology knowledge of Nebraska's workforce
- Support an emerging biotechnology industry in Nebraska

#### Research Projects

- Cell signaling
  - The role of TIMP-2 in neural crest pathfinding

- Intracellular and epigenetic mechanisms underlying neurotrophic properties of activated microglia
- Zinc finger-inspired fluorescent chemosensors operating via conformational restriction
- Transcriptional and epigenetic regulation of human N-caderin gene expression
- TLR3 signaling in pulmonary mucosal epithelial cells
- Utilization of *Streptomyces* to study quorum sensing in *Mycobacterium smegmatic*
- Candidate aging gene analyses of large *Drosophila melanogaster* populations
- Isolation and characterization of extremozymes from alkaline lakes in Nebraska
- CCR4-NOT co-activator's post-transcription functions
- Infectious diseases
  - Roles of Type III chaperones in the Type III protein secretion system of *Pseudomonas syringae*
  - Novel gene discovery from Nucleocytoplasmic Large DNA Viruses (NCLDV)
  - Modulation of bovine leukemia virus replication by antiviral drugs and other compounds
  - Bioprospecting for medicinally important compounds using endophytic organisms
  - Virulence determinants in the Coxsackievirus B3 genome
  - Investigation of two virulence mechanisms of *Pseudomonas aeruginosa*
- Structural Biology
  - Understanding genetic regulation through structural studies of Riboswitch-metabolite complexes
  - Assessment of cellular energetic by NADH FLIM
  - Optically enhanced oligonucleotides to screen for metabolic diseases
  - Roles and mechanisms of non-collagenous proteins in biomineralization
  - An innovative technique for classification of fungal sequences using restriction enzyme cut order
  - Alignment-free approach in genomic sequence comparison
  - Ontology development and database annotation for influenza informatics
  - Temporal and spatial mining on heterogenous data

### Resources

- Bioinformatics core research facilities
- Mass spectrometry proteomics core facility
- Genetic sequence analysis facility
- Peptide chemistry core facility
- cDNA microarray core facility
- Mammalian cell culture facility
- Histology facility
- Mouse genome engineering core laboratory
- Molecular biology core facilities
- Laser-scanning microscope imaging facility
- Flow cytometry core facility

### Index Terms

cell signaling, infectious diseases, structural biology and biophysics, genomics, proteomics, cancer, bone, bacteria, ecosystems, heart disease, exercise training, myocardial infarction, virus, HIV, immune response, respiratory infections, antibiotics, drug discovery, diabetes, minority education, neural crest, zinc finger proteins, toll like receptor signaling, large DNA viruses, riboswitches, biomineralization, sequence analysis

[return to top](#)

## Nevada

### IDEA Network of Biomedical Research Excellence

University of Nevada School of Medicine - P20 RR016464

#### Principal Investigator

James Kenyon, Ph.D.  
Professor  
Department of Physiology and Cell Biology  
School of Medicine  
University of Nevada, Reno  
Mail Stop 352  
Reno, Nevada 89557  
Telephone: 775-784-1649  
Fax: 775-784-1312  
E-mail: [jkenyon@medicine.nevada.edu](mailto:jkenyon@medicine.nevada.edu)

#### Program Coordinator

Carl Reiber, Ph.D.  
Associate Dean for Academic Affairs  
College of Science  
University of Nevada, Las Vegas  
Mail Stop 4004  
Las Vegas, Nevada 89154-4004  
Telephone: 702-895-5551  
Fax: 702-895-3956  
E-mail: [carl.reiber@unlv.edu](mailto:carl.reiber@unlv.edu)

<http://www.unr.edu/inbre>

#### Partner Institutions

Nevada Cancer Institute  
University of Nevada, Las Vegas  
University of Nevada, Reno

#### Outreach Institutions

College of Southern Nevada  
Great Basin College  
Truckee Meadows Community College  
Western Nevada Community College

#### Program Goals

- Increase the success of Nevada researchers in competing for biomedical grant awards and expand total extramural funding in the state
- Increase the number of multi-investigator, interdisciplinary, and inter-institutional grant awards in Nevada
- Promote the careers of selected target faculty working at the partner institutions through the funding of two- to three-year seed projects, which will allow them to establish their research programs and collect data for subsequent submission of grant proposals
- Promote the development of the Nevada Cancer Institute by establishing programmatic, training, and shared instrumentation facility linkages with UNSOM, UNR, and UNLV through the INBRE
- Promote bioinformatics research and training at all three research institutions in the network through the further development of the Nevada Bioinformatics Center
- Maintain and enhance technology core facilities in proteomics, cytometry, confocal imaging, and live animal imaging and histology that support researchers throughout the state
- Position the Nevada bioinformatics and proteomics cores as regional resources for the western IDeA states
- Increase the number of Nevada undergraduates involved in biomedical research and increase the number and quality of Nevada undergraduates entering graduate school and professional schools in health science related fields

- Increase the number of Nevada undergraduates interested in biomedical research careers by improving the effectiveness of our community colleges as feeder institutions for biomedical-related academic majors programs at the universities

#### Research Projects

- The role of arginine methylation in modulating biomolecular interactions
- Function of CP190 in chromatin insulators
- Transcription associated mutagenesis in cells under conditions of arrested growth
- Roles and regulation of a *Shigella* protease, lcsP
- Fetal to adult B-cell developmental switch and a new method for B-CLL diagnosis
- Roles of p24 proteins in glycosylation and extracellular signaling pathways
- Role of mitochondrial carrier homologues (MtCH) in apoptosis regulation and carcinogenesis
- The role of Notch In adult neuroplasticity
- Senescence signaling through p53
- Novel extracellular proteins in axon guidance
- Functional analysis of SALL4 in hematopoietic differentiation and leukemogenesis
- ischemia in hibernators
- Graft versus host disease and anti-tumor activity

#### Resources

- Bioinformatics core
- Proteomics core
- Flow cytometry core
- Imaging core
- Histology core
- Central services core

#### Index Terms

cell growth and differentiation, cancer, immunology, developmental biology, neurodevelopment, cell signaling, genomics, proteomics, bioinformatics, economically disadvantaged, minority education

[return to top](#)

## New Mexico

### New Mexico IDeA Networks of Biomedical Research Excellence New Mexico State University, Las Cruces - P20 RR016480

#### Principal Investigator

Jeffrey B. Arterburn, Ph.D.  
Professor  
Department of Chemistry and Biochemistry  
New Mexico State University  
MSC 3C, P.O. Box 30001  
Las Cruces, New Mexico 88003-8001  
Telephone: 575-646-2738  
Fax: 575-646-2649  
E-mail: [jarterbu@nmsu.edu](mailto:jarterbu@nmsu.edu)

#### Science Director

Jeffrey Griffith, Ph.D.  
Executive Vice Dean, School of Medicine  
New Mexico State University  
MSC08 4720  
1 University of New Mexico  
Albuquerque, New Mexico 87131-0001  
Telephone: 505-272-2321  
Fax: 505-272-6581  
Email: [griffith@unm.edu](mailto:griffith@unm.edu)

<http://www.nminbre.org/>

#### Partner Institutions

University of New Mexico, Albuquerque  
Eastern New Mexico University, Portales  
New Mexico Highlands University, Las Vegas  
New Mexico Institute of Mining & Technology, Socorro  
National Center for Genome Resources, Santa Fe  
San Juan College, Farmington  
Dialysis Clinic Inc. (DCI), Albuquerque

#### Program Goals

- Strengthen biomedical research in New Mexico's institutions of higher education and to prepare faculty and students for participation in the research programs of the National Institutes of Health
- Create strong, supportive research environments for faculty and students and facilitating communication and collaborations among the State's participating institutions
- Build and enhance the biomedical research base through faculty development and a strong portfolio of scientific research projects in thematic focus areas, and aligned with Signature Programs, Educational and Community focus objectives of the UNM Health Science Center, Clinical and Translational Science Center (CTSC)
- Build and enhance the biomedical research base through student education, development and participation in the individual research projects; to engage our diverse student population into a cohesive network of undergraduate and graduate training programs that provides a pipeline of trainees for the State's basic, translational and clinical research career opportunities
- Focus activities of the multi-disciplinary NM-INBRE research network through collaborative bioinformatics and research cores, and synergistic cooperation with NCRR IDeA and other biomedical and health related programs at the state, regional and national level
- Continuously build upon the scientific achievements, increased interactions between investigators, institutional cooperation, faculty and student developmental activities, as well as major strides in bioinformatics analysis and genome sequencing capacity that are being established

## Research Projects

- Structure and function of biomolecules
  - Spectroscopic studies of nitric oxide synthase
  - A combined structural bioinformatics and functional approach to the characterization of the nonsynonymous SNPs of apolipoprotein Ls
  - V-ATPase pumps in prostate cancer: regulatory and functional studies
  - Photon upconverting nanoparticles as photosensitizing agents for breast cancer
- Cell and organism
  - Biomarker and target discovery in human prostatic tissues – an integrated approach
  - Gene networks in *Drosophila melanogaster* eye development
  - Analysis of WNT signaling in granulosa cell gene expression
  - AGOLGA3, a protein essential for spermatogenesis
  - Novel radiolabeled peptides for non-invasive breast cancer imaging
  - Silicon microsphere terminated conducting polymers for neural interfaces
  - Endothelial dysfunction and the metabolic syndrome
  - Zuni health initiative-pilot study
  - Development of novel small molecule inhibitors of aurora B kinase signaling
- Pathogens
  - Impact of RNA Interference on quasispecies evolution in vector-borne flaviviruses
  - Inhibition of antibiotic-induced mutation in bacteria
  - Multi-drug resistance in *Staphylococcus aureus* clinical isolates

## Resources

- UNM Cancer Research and Treatment Center (CRTC) research programs
- UNM animal resources facility
- UNM DNA research services
- UNM flow cytometry resource
- UNM human tissue repository
- Keck-UNM genomics resource
- UNM microscopy facility
- UNM proteomics and mass spectrometry facility
- Keck-UNM Small Animal Models and Imaging Resource (KUSAIR)
- Chemical Biology and Screening Core (CBSC)
- New Mexico Genome Sequencing Center (NMGSC)
- National Center for Genome Resources (NCGR)

## Index Terms

antibiotics, Aurora B kinase, bacteria, biodefense, biomarkers, breast cancer, cardiovascular disease, cell biology, cell division, dengue fever, diabetes, drug resistance, endothelial dysfunction, flavivirus, gene expression, genome sequencing, hypertension, imaging, immunology, infectious disease, inflammation, memory, neural interfaces, neuron cell motility, nitric oxide synthase, pathogens, photosensitizing agents, prostate cancer, RNA interference, signaling pathways, SNPs, spermatogenesis, *Staphylococcus aureus*, V-ATPase pumps, WNT signaling

[return to top](#)

## North Dakota

**North Dakota INBRE: Health and the Environment**  
**University of North Dakota School of Medicine and Health Sciences,**  
**Grand Forks - P20 RR016471**

### Principal Investigator

Donald A. Sens, Ph.D.  
Professor  
Department of Pathology  
University of North Dakota School of Medicine  
501 Columbia Road North  
Grand Forks, North Dakota 58202-9037  
Telephone: 701-777-6258  
Fax: 701-777-3108  
E-mail: [dsens@medicine.nodak.edu](mailto:dsens@medicine.nodak.edu)

### Program Coordinator

Donald P. Schwert, Ph.D.  
Professor of Geology  
Director, Center for Science &  
Mathematics Education  
North Dakota State University  
314E Family Life Center  
Fargo, North Dakota 58105-5517  
Telephone: 701-231-7496  
Fax: 701-231-5924  
E-mail: [donald.schwert@ndsu.edu](mailto:donald.schwert@ndsu.edu)

<http://ndinbre.org/>

### Partner Institutions

Dickinson State University, Dickinson  
Mayville State University, Mayville  
Minot State University, Minot  
North Dakota State University, Fargo  
Valley City State University, Valley City

### Outreach Institutions

Cankdeska Cikana Community College, Fort Totten  
Turtle Mountain Community College, Belcourt

### Program Goals

- Build biomedical research capacity in North Dakota by serving research universities, baccalaureate institutions, and Tribal colleges in the state
- Initiate competitive, sustainable research programs at six predominantly undergraduate institutions (PUIs)
- Increase the number of students from PUIs who choose to pursue advanced training in the biomedical sciences
- Empower Tribal Colleges and Communities to participate fully in the Nation's research and training portfolio
- Enhance bioinformatics core facilities to provide computational resources and increase state-wide access to electronic resources for biomedical research
- Enhance existing proteomics and ionomics core facilities at the research universities to make them sustainable and effective training and service centers for the scientific network
- Develop research programs at the PUIs with a thematic focus on the role of metals in the environment and their influences on the health and economic well-being of the citizens of North Dakota
- Develop community participatory research initiatives that improve the rural populations understanding of the role of the NIH in promoting human health and well-being

### Research Projects

- Functional genomics of populations: relating gene expression to cadmium risk
- Genetic polymorphisms and preeclampsia
- Heavy-metal complexes of novel formamide ligands
- Cadmium, connexins and the human renal proximal tubule
- Environmental toxicants and NAD(P)H homeostasis
- Development of common bean cultivars enhanced with micronutrients
- Environmental health aspects of coal fly ash utilization for plant media
- Membrane transport of Cd<sup>++</sup> and Zn<sup>++</sup> in roots of two species of *Arabidopsis*
- Community Research Education and Tribal Empowerment (CREATE): a program to develop tribal research capacity
- Accumulation of cadmium in nectar and pollen of *Brassica napus*

### Resources

- Bioinformatics core facilities
- Proteomics core facility
- Metal analysis core
- Minot molecular biology core

### Index Terms

heavy metals, environment, biomarkers, cadmium, arsenic, zinc, remediation, eclampsia, kidney, proximal tubule, plants, salamanders, fly ash, honey, pollen, nectar, bees, enzymes, beans, nutrition, tribal college empowerment, community based participatory research, cancer, renal disease, undergraduate research, K-12 research education

[return to top](#)

## Oklahoma

### Oklahoma IDeA Network of Biomedical Research Excellence

University of Oklahoma Health Sciences Center, Oklahoma City - P20 RR016478

#### Principal Investigator

Frank J. Waxman, Ph.D.  
Professor  
Department of Microbiology and Immunology  
University of Oklahoma Health Sciences Ctr  
655 Research Parkway, Suite 200  
Oklahoma City, Oklahoma 73104  
Telephone: 405-225-9459  
Fax: 405-225-9230  
E-mail: [fwaxman@osrhe.edu](mailto:fwaxman@osrhe.edu)

#### Program Coordinator

John de Banzie, Ph.D.  
Professor  
Department of Natural Sciences  
Northeastern State University  
611 North Grand Avenue  
Tahlequah, Oklahoma 74464  
Telephone: 918-456-5511, ext. 3828  
Fax: 918-458-2325  
E-mail: [debanzie@nsuok.edu](mailto:debanzie@nsuok.edu)

<http://okinbre.org/>

#### Partner Institutions

Cameron University, Lawton  
Langston University, Langston  
Northeastern State University, Tahlequah and Broken Arrow Campuses  
Oklahoma Medical Research Foundation, Oklahoma City  
Oklahoma State University, Stillwater  
Southeastern Oklahoma State University, Durant  
Southwestern Oklahoma State University, Weatherford  
University of Central Oklahoma, Edmond  
University of Oklahoma - Norman

#### Outreach Institutions

Comanche Nation College, Lawton  
Oklahoma City Community College, Oklahoma City  
Redlands Community College, El Reno  
University of Tulsa, Tulsa

#### Program Goals

- Build capacity for biomedical research in Oklahoma by supporting promising new faculty, recruiting students into biomedical research careers, and sustaining vital core facilities
- Create a network of institutions that perform biomedical research, teach, and provide patient care; this network includes a historically Black college, a Tribal college, and several other institutions with large enrollments of students from underrepresented minority groups
- Develop research strengths in the thematic areas of microbiology and immunology, cancer, and neuroscience
- Enhance opportunities for investigators at the lead institutions and partner undergraduate institutions to develop independent research programs
- Encourage and mentor participating investigators to develop new NIH grant applications within eighteen months
- Provide summer internships for students to participate in faculty research projects and enroll in new educational programs in bioinformatics and genomics
- Support core facilities in functional genomics and bioinformatics

- Develop a new core facility for functional magnetic resonance imaging in animal research to support statewide research initiatives in cancer and neuroscience

#### Research Projects

- Regulation of chimeric function in *caenorhabditis elegans*
- Characterization of NAG expression and functions
- Novel siderophores produced by marine bacteria and fungi
- Development and screening of transition metal complexes as CXCR4 antagonists
- Mechanisms of synchronization: vestigial paths to urea cycle deficiencies
- MRI-guided photoimmunotherapy
- Diplochromosomes: origins and segregation behavior
- *In vivo* localization of anthrax toxins by magnetic resonance imaging
- Regulation of mismatch repair in *Streptococcus pyogenes*
- The role of MMS19 in DNA repair and transcription

#### Resources

- Molecular biology resource center
- Flow and image cytometry laboratories
- Genomics support core facility
- Medical glycobiology center
- Laboratory for macromolecular crystallography
- Laser mass spectroscopy facility
- Animal care facilities
- Imaging facility
- BIACORE core facility
- DNA sequencing facility
- Microinjection core facility
- Protein expression core facility
- Microarray core facility

#### Index Terms

microbiology, immunology, cancer, neuroscience, genomics, bacteria, nutrition, *Streptococcus*, brain, minority education

[return to top](#)

## Puerto Rico

### Advancing Competitive Biomedical Research in Puerto Rico University of Puerto Rico, San Juan - P20 RR016470

#### Principal Investigator

Fernando A. Gonzalez, Ph.D.  
Professor of Biochemistry  
Departments of Chemistry & Biochemistry  
University of Puerto Rico  
P.O. Box 23346  
San Juan, Puerto Rico 00931-3346  
Telephone: 787-764-0000, Ext. 2437  
Fax: 787-758-5612  
E-mail: [fgonzal@hpcf.upr.edu](mailto:fgonzal@hpcf.upr.edu)

#### Program Coordinator

Ida Mejias, Ph.D.  
Associate Professor and Director  
Program in Medical Technology  
Inter American University of Puerto Rico,  
Metropolitan Campus  
P.O. Box 191293  
San Juan, Puerto Rico 00919-1293  
Telephone: 787-250-1912, Ext. 2406  
E-mail: [iamejias@metro.inter.edu](mailto:iamejias@metro.inter.edu)

<http://aabre.hpcf.upr.edu/>

#### Partner Institutions

Inter American University of Puerto Rico - Bayamon  
Ponce School of Medicine  
Universidad Central del Caribe, Bayamon  
Universidad Metropolitana, San Juan  
University of Puerto Rico - Humacao Campus  
University of Puerto Rico - Mayaguez Campus  
University of Puerto Rico - Rio Piedras Campus  
University of Puerto Rico School of Medicine, San Juan  
University of Turabo, Gurabo

#### Outreach Institutions

Carlos Albizu University, San Juan  
Inter American University of Puerto Rico - Metropolitan Campus, Rio Piedras  
Pontifical Catholic University of Puerto Rico, Ponce  
Universidad del Este, Carolina  
University of Puerto Rico - Bayamon  
University of Puerto Rico - Cayey Campus

#### Program Goals

- Strengthen the scientific infrastructure and research competitiveness of Puerto Rico by creating the Alliance for the Advancement of Biomedical Research Excellence
- Develop research strengths in the areas of neuroscience, drug design and delivery, and molecular medicine
- Elevate the productivity, competitiveness, and number of human resources needed to attract established investigators in these key research areas
- Promote the development of research skills of talented junior investigators and gifted students
- Establish an administrative core, bioinformatics core, research core, and outreach core to promote the activities in the research areas
- Provide access to technical expertise and data analysis tools for researchers through their high performance computing facility
- Support key resources through a DNA sequencing and multilocus genotyping facility, a proteomics facility, and an access to biomedical electronic scientific informatics project

- Create programs for junior researchers, graduate and undergraduate students to support research and professional development

### Research Projects

- Neuroscience
  - Localization of substance P and acetylcholine in the pathway mediating mucociliary activity
  - New methodologies for the synthesis of amino derivatives as nicotinic receptor agonists (also within drug design and delivery research theme)
- Drug design and delivery
  - DNA interaction and mutational activity of novel benzazolo[3,2-a] quinolinium salts anticancer drugs
  - Potentially bioactive metabolites from tropical fungi
  - Synthesis, characterization, anticancer activity and reactivity toward biological targets of new platinum (II) complexes
  - Photosensitized reduction and DNA alkylation of alkylating quinones and nitroarenes
  - Study of the underlying factors that shape enzyme properties in organic solvents
  - Molecular studies of proteins encapsulated in soft materials
- Molecular medicine
  - Identification and expression analysis of ABC genes in *Plasmodium yoelii*
  - Cell cycle changes in the galactosemic lens
  - Photochemistry and bioactivity of polycyclic aromatic hydrocarbons adsorbed on model surfaces

### Resources

- High performance computing facility
- DNA sequencing and multilocus genotyping facility
- Proteomics facility
- Zoological museum
- Herbarium and greenhouse
- Animal care facility
- Microarray facility
- Molecular biology and gene characterization facilities
- Tissue and cell culture facilities
- NMR facility
- Biotesting facility
- Laser and spectroscopy facility
- X-ray crystallography facility
- Mass spectrometry facility
- Surface microscopy and spectroscopy facility
- Time resolved-resonance raman spectroscopy facility
- Automated synthesis and sequencing facility
- Molecular neurobiology laboratory
- Caribbean Primate Research Center
- Visualization laboratory
- Flow cytometry facility

### Index Terms

neuroscience, drug design, drug delivery, molecular medicine, genomics, proteomics, eyes, cancer, anticancer drugs, biotechnology, malaria, drug resistance, cataract, hyperglycemia, tuberculosis, carcinogens, pollutants, asthma, sinusitis, cystic fibrosis, bronchitis, artificial blood, minority education, environmental health

## Rhode Island

### Rhode Island Network for Molecular Toxicology University of Rhode Island, Kingston - P20 RR016457

#### Principal Investigator

Zahir A. Shaikh, Ph.D.  
Professor  
Department of Biomedical and  
Pharmaceutical Sciences  
Director, Center for Molecular Toxicology  
College of Pharmacy  
University of Rhode Island  
304 Fogarty Hall  
41 Lower College Road  
Kingston, Rhode Island 02881  
Telephone: 401-874-5036  
Fax: 401-874-2646  
E-mail: [zshaikh@uri.edu](mailto:zshaikh@uri.edu)

#### Program Coordinator

Bongsup Cho, Ph.D.  
Professor  
Department of Biomedical and  
Pharmaceutical Sciences  
College of Pharmacy  
University of Rhode Island  
345 Fogarty Hall  
41 Lower College Road  
Kingston, Rhode Island 02881  
Telephone: 401-874-5024  
Fax: 401-874-2646  
E-mail: [bcho@uri.edu](mailto:bcho@uri.edu)

<http://www.uri.edu/inbre/>

#### Partner Institutions

Brown University, Providence  
Providence College, Providence  
Rhode Island College, Providence  
Roger Williams University, Bristol  
Salve Regina University, Newport

#### Outreach Institutions

City Campus, Providence  
Community College of Rhode Island, Warwick

#### Program Goals

- Develop research capacity at the doctoral degree granting and baccalaureate institutions in Rhode Island
- Enhance the capacity of junior investigators to compete for extramural research funds for individual or collaborative projects
- Build a productive, collaborative research program in molecular toxicology, cell biology, and environmental health
- Train a cadre of undergraduate and graduate students in research instrumentation and methodology for careers in the biomedical sciences
- Maintain and provide inclusive access to state-of-the-art analytical instrumentation through a centralized research facility core
- Establish an effective outreach program for recruiting, training, and mentoring underrepresented scientists and students
- Assist investigators with data mining, data processing, and molecular modeling needs through development of bioinformatics core resources
- Organize seminars and workshops on topics of mutual interest to Network participants

## Research Projects

- Molecular toxicology
  - Implications of DNA replication fork proteins for cancer
  - Fate of mercury contaminants in Narragansett Bay, Rhode Island
  - Mechanisms of CpG-ODN's protection against UV-induced cell death
  - Defining a role for Bcp1 in the DNA damage response of *Saccharomyces cerevisiae*
  - Maintaining DNA replication fork stability: role of the fanconi anemia pathway
  - Role of the striatal-specific RGS protein, RGS9 2, in cellular signaling pathways
  - Constitutive androstane receptor (CAR) activation and intracellular transport
  - Identification of new drugs against amebiasis by targeting protozoan anaerobic metabolism
  - Gene divergence of aryl hydrocarbon receptors (AHR) in early vertebrates
  - Biomarker arrays for tobacco-related cancer diagnostics
  - Characterization of pyrethroids on human voltage-sensitive calcium channels
- Cell biology
  - Characterization of kinesin-3 and kinesin-3 cargo in transit within the axon
  - Genetic characterization of UTH1 and BX11, two genes involved in yeast programmed cell death
  - Population genetics and genome evolution of viruses in an aquatic environment
  - Molecular and biochemical characterization of lipases secreted by *leishmania*
  - investigating the significance of novel forms of Ufd2a to muscle differentiation
- Behavioral science
  - An experimental test of the intergroup relations model: understanding the origins of intergroup conflict
  - Internet-based addiction counselor education study
  - The comparison of three behavioral therapy approaches for children with autism in terms of the acquisition

## Resources

- Centralized research facility core – proteomics; genomics; cell biology; histology & imaging; spectrometry; radioactivity detection; elemental analysis
- DNA sequencing facility
- Animal care facility
- NMR facility
- Electron microscopy facilities
- Bioinformatic core facility

## Index Terms

toxicology, cell biology, behavioral science, proteomics, genomics, cancer, mutagenesis, amoebiosis, leishmaniosis, heavy metals, pesticides, Ah receptor, cell signaling, skin cancer, ultraviolet radiation, nanotechnology, biomarkers, minority education, undergraduate research

[return to top](#)

## South Carolina

### South Carolina IDeA Networks of Biomedical Research Excellence University of South Carolina - P20 RR16461

#### Principal Investigator

Lucia A. Pirisi-Creek, M.D.  
South Carolina Cancer Center Research  
Laboratories  
14 Medical Park, Suite 500  
Columbia, South Carolina 29203-6877  
Telephone: 803-434-4278  
Fax: 803-434-3795  
E-mail: [lucia.pirisi-creek@uscmcd.sc.edu](mailto:lucia.pirisi-creek@uscmcd.sc.edu)

#### Program Coordinator

T. Scott Little, Ph.D.  
State Manager  
South Carolina EPSCoR/IDeA Program  
P.O. Box 11526  
Columbia, South Carolina 29211-1526  
Telephone: 803-733-9060  
Fax: 803-376-1721  
E-mail: [little@scra.org](mailto:little@scra.org)

[www.scepscoridea.org](http://www.scepscoridea.org)

#### Partner Institutions

Comprehensive Research Universities  
Clemson University  
Medical University of South Carolina  
University of South Carolina

#### Primarily Undergraduate Institutions

Claflin University  
College of Charleston  
Furman University  
Winthrop University

#### Outreach Institutions

Allen University  
Anderson University  
Benedict College  
Bob Jones University  
Charleston Southern University  
The Citadel  
Coastal Carolina University  
Coker College  
Columbia College  
Converse College  
Erskine College  
Francis Marion University

Lander University  
Limestone College  
Morris College  
Newberry College  
Presbyterian College  
South Carolina State University  
Southern Wesleyan University  
University of South Carolina - Aiken  
University of South Carolina - Beaufort  
University of South Carolina - Upstate  
Voorhees College  
Wofford College

#### Program Goals

- Develop South Carolina's biomedical research capacity through support of multi-disciplinary, multi-institutional and complementary research programs in the thematic areas of Regenerative Medicine, including biomaterials, tissue engineering, and stem cell technology
- Develop research and educational programs for undergraduate students in the related disciplines of biochemistry, bioengineering, biotechnology, and cell, molecular, and developmental biology
- Strengthen the network of inter-institutional research collaborations established under the BRIN Program
- Recruit faculty, postdoctoral fellows, and technical personnel to build capacity and strengthen infrastructure for biomedical research
- Acquire state-of-the-art instrumentation and develop core facilities for support of biomedical research

- Provide effective mentoring for target faculty to promote their success in biomedical research
- Engage undergraduate students in research throughout their academic careers as a mechanism to enhance their interest and competence in biomedical research
- Reach out to minority faculty and students at academic institutions throughout the state in order to expand participation in biomedical research experiences
- Develop statewide bioinformatics capacity, with emphasis on training programs and access to hardware

#### Research Projects

- Role of zinc in pathogenesis of prostate cancer
- Development of SNP human identification technology
- Cloning and expression of Flap endonuclease from hyperthermophilic *Archaeoglobus fulgidus*
- Production of edible vaccines using transgenic plant technology
- Role of Mir-1 in control of mouse embryonic stem cell differentiation into vascular smooth muscle cells
- PLGEOF nanoparticles conjugated with  $\alpha\beta_3$  integrin-binding ligand for targeted tumor delivery
- Detection of active forms of the amyloid- $\beta$  protein for early diagnosis of Alzheimer's disease
- 3-dimensional model for *in vitro* cartilage development
- Measurement of platelet response to adsorbed fibrinogen and albumin
- Fragment size-specific effects of HA on endothelial cell (EC) phenotype and responses
- Preparation of vascular grafts from purified aortic elastin
- Periostin regulation of proliferation, migration and apoptosis of post-EMT cushion cells
- Effect of adsorption on protein secondary structure using circular dichroism (CD)
- Epithelial-dependent antibody interactions at the intestinal surface
- Bone marrow derived progenitor cell recruitment to the large intestine
- Distribution of phospholipase C $\beta_4$  in the circadian clock of the mouse brain
- Study of myocyte- and stem cell-augmented repair mechanisms *in vitro*
- Periostin as a signaling protein that promotes fibrogenesis in the adult and neonatal mouse heart
- Structural studies of recombinant human adiponectin membrane receptor 1 and 2
- Pharmacologic properties of aryl hydrocarbon receptor (AHR) ligands in murine and human cell models
- Impact of adult attachment style on cardiovascular and HPA axis reactivity to stress

#### Resources

Plant biotechnology lab and South Carolina Center for Biotechnology (DNA sequencing) - USC  
 Cell culture facilities - Clemson  
 Histotechnology facilities - Clemson  
 Surface analysis facilities - Clemson  
 Mechanical testing facility - Clemson  
 Waters LC-ESI-MS with fluorescence and UV-Vis detection - Furman  
 BD Biosciences FacSORT flow cytometer - Furman  
 USC School of Medicine Instrumentation Resource Facility (IRF) - USC  
 Life Science Biology and Biomedical Research Center - Winthrop  
 Sims Chemistry and Biochemistry Research Center - Winthrop  
 Stem cell core laboratories - MUSC

### Index Terms

regenerative medicine, bioengineering, biomaterials, cardiovascular disease, tissue engineering, stem cell biology, angiogenesis, extracellular matrix, metalloproteins, neuroscience, cancer therapy, virus-host interactions, proteomics and genomics, bioinformatics

[return to top](#)

## South Dakota

### South Dakota Biomedical Research Infrastructure Network University of South Dakota, Vermilion - P20 RR016479

#### Principal Investigator

Barbara E. Goodman, Ph.D.  
Professor of Physiology  
Director of Special Programs and  
Science Education  
Division of Basic Biomedical Sciences  
Sanford School of Medicine  
University of South Dakota  
Lee Medicine, Room 224  
414 East Clark Street  
Vermillion, South Dakota 57069  
Telephone: 605-677-5158  
Fax: 605-677-6381  
E-mail: [barb.goodman@usd.edu](mailto:barb.goodman@usd.edu)

#### Program Coordinator

Cynthia M. Anderson, Ph.D.  
Department of Biology  
Black Hills State University  
1200 University Street, Unit 9067  
Spearfish, South Dakota 577799  
Telephone: 605-642-6854  
Fax: 605-642-6762  
E-mail: [cynthiaanderson@bhsu.edu](mailto:cynthiaanderson@bhsu.edu)

<http://orgs.usd.edu/brin/index.html>

#### Partner Institutions

Augustana College, Sioux Falls  
Black Hills State University, Spearfish  
Dakota Wesleyan University, Mitchell  
Mount Marty College, Yankton  
University of Sioux Falls, Sioux Falls  
University of South Dakota School of Medicine, Vermillion

#### Outreach Institutions

Sinte Gleske University, Mission  
Sisseton-Wahpeton College, Agency Village  
Oglala Lakota College, Kyle

#### Program Goals

- Continue to develop a strong collaborative network within South Dakota to enhance basic biomedical research capabilities
- Foster interdisciplinary research in the control of cell growth, with special emphasis on proteomics and genomics
- Enhance research capacity and critical mass of investigators through mentorship of junior investigators at the lead institution
- Maintain professionally staffed core facilities in proteomics and genomics for use by investigators throughout the state
- Provide increased opportunities for graduate training in the core disciplines
- Provide research support and mentoring for junior investigators and faculty from partner institutions
- Provide training and research opportunities for students at predominantly undergraduate institutions
- Introduce undergraduate students to graduate programs and career opportunities in biomedical sciences and bioinformatics

- Foster interest in further education and careers in science and research for students at Tribal colleges through enhancement of their science education programs and provision of research opportunities

#### Research Projects

- Bacterial enzymes which oxidize hydroxylamine
- Software incorporating mathematical models in science
- Identification and characterization of virus-induced cell death genes in two Australian *Nicotiana* species
- Investigations of 8-aminoquinolones and protoporphyrin IX inhibitors to treat malaria
- Exploring Native American medicinal plants for treatments of human health
- Pursuit of novel ionophoric macromolecules and potential fungicides based upon the intramolecular silyl nitronate cycloaddition (ISNC)
- Characterization of the bacteria present in the dental plaque of American Indian children
- Nanostructured oxides for electrochromatography and electrocatalysis
- Establishing a role for polyunsaturated omega-3 fatty acid-mediated inhibition of platelets
- Chemical sensor based on dopamine molecular imprinted polymers
- Ecological genomics: fine scale niche characterization of *Boechera stricta*, a close wild relative of *Arabidopsis thaliana*
- Comparative phylogeography of the North American biota
- Theory of the nerve pulse transfer based on the solution of the nonlinear diffusion process of ions K<sup>+</sup> in the blood plasma
- Identification of the regulatory elements controlling expression of the starch biosynthetic pathway genes and their interactions in polyploidy bread wheat
- Potential drug targets for methicillin-resistant *Staphylococcus aureus* infections
- Developing a non-radioactive thiaminase assay

#### Resources

- Proteomics core facility
- Genomics core facility
- DNA sequencing and genotyping core facility

#### Index Terms

cell growth, proteomics, genomics, cell signaling, bacteria, environmental biology, obesity, prion diseases, *Staphylococcus*, antibiotic resistance, infectious diseases, nutrition, oncology, cancer, gynecology, *Streptococcus*, toxic shock syndrome, rheumatic heart disease, autoimmune disorders, blood pressure regulation, pregnancy, women's health, reproductive hormones, minority education, cardiovascular disease, biofilms, omega-3 fatty acids, leptin resistance, diabetes mellitus, dental plaque

[return to top](#)

## Vermont

### Vermont Genetics Network

University of Vermont, Burlington - P20 RR016462

#### Principal Investigator

Judith Van Houten, Ph.D.  
George H. Perkins Professor  
University of Vermont  
120A Marsh Life Science Building  
Burlington, Vermont 05405-0086  
Telephone: 802-656-0452  
Fax: 802-656-0242  
E-mail: [Judith.Vanhouten@uvm.edu](mailto:Judith.Vanhouten@uvm.edu)

#### Program Coordinator

Christopher Allen, Ph.D.  
Professor Emeritus  
University of Vermont  
131A Cook Building  
Burlington, Vermont 05405-0086  
Telephone: 802-656-0193  
Fax: 802-656-2950  
E-Mail: [Christopher.Allen@uvm.edu](mailto:Christopher.Allen@uvm.edu)

[www.uvm.edu/~vgn](http://www.uvm.edu/~vgn)

#### Partner Institutions

Castleton State College, Castleton  
Johnson State College, Johnson  
Middlebury College, Middlebury  
Norwich University, Northfield  
Saint Michael's College, Colchester

#### Outreach Institutions

Bennington College, Bennington  
Burlington College, Burlington  
Castleton State College, Castleton  
Champlain College, Burlington  
Community College of Vermont, Statewide  
Green Mountain College, Poultney  
Johnson State College, Johnson  
Landmark College, Putney  
Lyndon State College, Lyndonville  
Marlboro College, Marlboro  
Middlebury College, Middlebury  
Norwich University, Northfield  
Saint Michael's College, Colchester  
Southern Vermont College, Bennington  
Sterling College, Craftsbury Common  
University of Vermont, Burlington  
Vermont Technical College, Randolph Center

#### Program Goals

- Build a culture of research at the baccalaureate partner institutions that will be sustained
- Establish an outreach core
- Strengthen the research capacity and critical mass of genetics biomedical researchers at the lead institution, the University of Vermont, as a resource for the entire state
- Assess the progress of the VGN through longitudinal studies

## Research Projects

- Chemistry
  - Synthesis of chiral 1,2-diamines via asymmetric addition of RLi to 1,2-dicarbonyls
  - The mechanism of ethylene regulation of photoperiodic flowering in plants
  - The glycation of heme proteins by ribose 5-phosphate
  - New chemical tools for the quantitative assessment of biological metabolomes
- Human physiology
  - Exercise intensity effects on appetite in middle-aged women
  - Baseline airway mechanical function and airway function during exercise in asthma
  - Psychomotor stimulant induced sensitization of impulsive behavior
- Molecular biology
  - Hormonal and leukocyte responses after different resistance exercise protocols
  - effects of testosterone on adult neurogenesis in the dentate gyrus
- Psychology
  - Perception of threat in military veterans, cadets, and civilians

## Resources

- Microarray facility
- Proteomics facility
- Bioinformatics core
- Imaging facility (COBRE)
- molecular biology facility (COBRE)
- Vermont Cancer Center
- Structural biology - x-ray crystallography
- Life science computing center
- Clinical research facility
- Animal facility, College of Medicine, UVM
- Mass spectroscopy facility
- UVM Internet2

## Index Terms

genetics, microarray, proteomics, outreach, diversity, cancer, biological sequence analysis, middleware, groupware

[return to top](#)

## West Virginia

### West Virginia IDeA Networks of Biomedical Research Excellence Marshall University School of Medicine, Huntington - P20 RR016477

#### Principal Investigator

Gary O. Rankin, Ph.D.  
Professor and Chair  
Department of Pharmacology, Physiology  
and Toxicology  
Joan C. Edwards School of Medicine  
One John Marshall Drive  
Huntington, West Virginia 25755  
Telephone: 304-696-7319  
Fax: 304-696-7391  
E-mail: [rankin@marshall.edu](mailto:rankin@marshall.edu)

#### Program Coordinator

James M. Sheil, Ph.D.  
Associate Professor and Vice Chairman  
Department of Microbiology, Immunology,  
and Cell Biology  
West Virginia University School of Medicine  
West Virginia University Health Sciences  
Center  
P.O. Box 9177; Health Sciences North  
Morgantown, West Virginia 26506-9177  
Telephone: 304-293-7416  
Fax: 304-293-7823  
E-mail: [jsheil@hsc.wvu.edu](mailto:jsheil@hsc.wvu.edu)

<http://www.wv-inbre.net/>

#### Partner Institutions

Alderson-Broaddus College, Philippi  
Charleston Area Medical Center, Charleston  
Fairmont State University, Fairmont  
Valley Health Systems (ACoRN)  
West Liberty State College, West Liberty  
West Virginia State University, Institute  
West Virginia University, Morgantown  
Wheeling Jesuit University, Wheeling  
Bethany College, Bethany  
Bluefield State College, Bluefield  
Concord University, Athens  
Davis and Elkins College, Elkins  
Glennville State College, Glennville  
Mountain State University, Beckley  
Salem International University, Salem  
Shepherd College, Shepherdstown  
University of Charleston, Charleston  
West Virginia Wesleyan College, Buckhannon  
University of Kentucky, Lexington (ACoRN)

#### Program Goals

- Develop and enhance the multi-disciplinary statewide research network biomedical research base and capacity that was created during Phase I of the WV-INBRE program by providing research support to faculty, postdoctoral fellows and graduate students at the participating institutions
- Provide research opportunities for undergraduate students and serve as a pipeline for undergraduate students into health research careers
- Work with partner institutions to enhance research activities for undergraduate students
- Enhance science and technology knowledge of the state's workforce

- Strengthen and develop stronger relationships between WV-INBRE and other NCRR biomedical research programs (e.g. COBRE and HSTA) to enhance biomedical research opportunities for West Virginia's students and participating undergraduate faculty

#### Research Projects

- Kinetic and molecular dynamics correlations in cytochrome P450 2C9 mutants
- PI3K, Akt and ERR-alpha pathways in flavonoid-inhibiting tumorigenesis
- Mechanotransduction, intracellular signaling and vascular biology
- The molecular actions of atorvastatin on progression of the atheromatous plaques
- A Mechanism for c-Src activation in ovarian cancer
- Effect of stress on ascending chlamydia genital infection in a mouse model
- Role of USF1 in the regulation of cholesterol and triglyceride synthesis

#### Resources

- Genomics core facility with microarray capabilities
- Imaging core facility
- Computational chemistry and modeling laboratory
- Proteomics core facility
- Flow cytometry core facility
- Recombinant DNA core facility
- Image analysis facility
- Animal care facility

#### Index Terms

cell biology, molecular biology, cardiovascular disease, cancer, proteomics, genomics, imaging, computational chemistry, fat metabolism, genetics, infectious disease, cell signaling

[return to top](#)

## Wyoming

### **UW Northern Rockies Regional INBRE University of Wyoming, Laramie - P20 RR016474**

#### Principal Investigator

Dr. Jun Ren, M.D., Ph.D.  
Professor and Director, Ctr for Cardiovascular  
Research and Alternative Medicine  
University of Wyoming College of Health  
Sciences  
1000 East University Avenue  
Department 3375  
Laramie, Wyoming 82071  
Telephone: 307-766-6131  
Fax: 307-766-2953  
E-mail: [jren@uwyo.edu](mailto:jren@uwyo.edu)

#### Program Coordinator

Robert "Scott" Seville, Ph.D.  
Assoc Dean of the Outreach School and  
Assoc Professor of Zoology and Physiology  
University of Wyoming/Casper  
125 College Drive  
Casper, Wyoming 82601  
Telephone: 307-268-2543  
Fax: 307-268-2416  
E-mail: [sseville@uwyo.edu](mailto:sseville@uwyo.edu)

<http://www.uwyo.edu/inbre/>

#### Partner Institutions

Casper College, Casper  
Central Wyoming College, Riverton  
Laramie County Community College, Cheyenne  
Northwest Community College, Powell  
Sheridan College, Sheridan  
Western Wyoming Community College, Rock Springs

#### Outreach Institutions

Eastern Wyoming College, Torrington

#### Program Goals

- Establish a statewide network for biomedical research excellence
- Provide opportunities for undergraduates at the University of Wyoming, and at six of the state's seven community colleges, to participate in hands-on biomedical research
- Enhance the Wyoming INBRE Network by forming partnerships between faculty at UW and community colleges
- Build on existing research strengths in two thematic areas: Cardiovascular Disease, and Obesity and Diabetes
- Expand the Wyoming research network across the western IDeA region
- Provide research support to faculty, postdoctoral fellows and graduate students
- Provide research and learning opportunities for undergraduates at the University of Wyoming and the network community colleges to create a pipeline for students to continue in health research careers
- Enhance science and technology knowledge of the state's workforce

## Research Projects

- Cardiovascular Disease
  - Regulation of cardiac MIF-AMPK signaling cascades during ischemia/reperfusion in aging
  - Fossil fuel particulate matter on cardiac function
  - Internet-delivered obesity and cardiometabolic disease prevention: clinical discovery
  - Targeting endoplasmic reticulum (ER) stress to alleviate insulin resistance
- Obesity and Diabetes
  - Obesity, AMP-activated protein kinase and mesenchymal stem cell differentiation in fetal and neonatal skeletal muscle
  - Impact of maternal obesity and dietary excess on fetal adiposity and offspring health
  - Diabetes awareness and rehabilitation training (DART) for adults with serious mental illness
  - Role of Ghrelin and PYY in postpartum body weight regulation and presence in human milk

## Resources

- Bioinformatics core facility
- Imaging/ microscopy core facility
- Center for Rural Health Research and Education (CRHRE)

## Index Terms

cardiovascular disease, obesity, diabetes, public health, nutrition, genomics, cell signaling, rural health

[return to top](#)