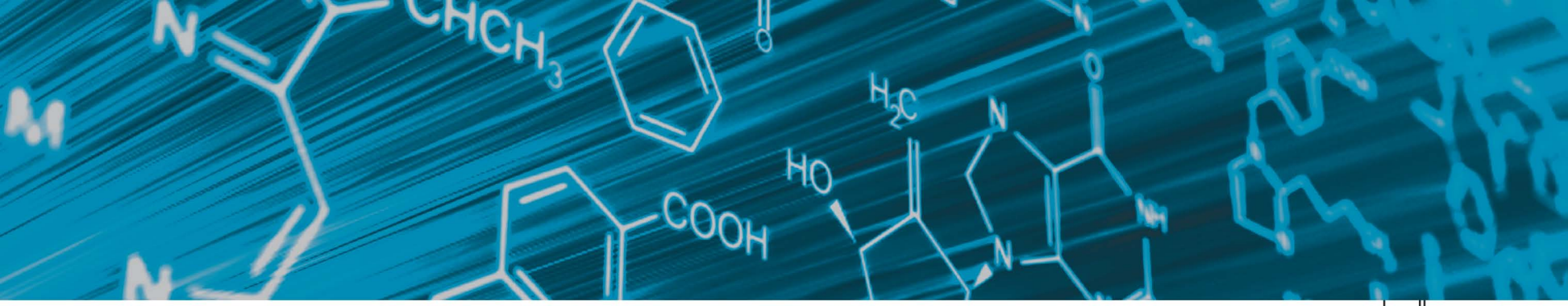
Discovery Beyond Borders

TEXAS TECH UNIVERSITY
HEALTH SCIENCES CENTER™
Paul L. Foster School of Medicine

2010 Research Report



2010 Research Report

Discovery Beyond Borders

TEXAS TECH UNIVERSITY
HEALTH SCIENCES CENTER™
Paul L. Foster School *of* Medicine

Leadership

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1. ***Jose Manuel de la Rosa, M.D.***
Paul L. Foster School of Medicine Founding Dean

2. ***Tedd L. Mitchell, M.D.***
Texas Tech University Health Sciences Center President

3. ***Kent R. Hance***
Texas Tech University System Chancellor

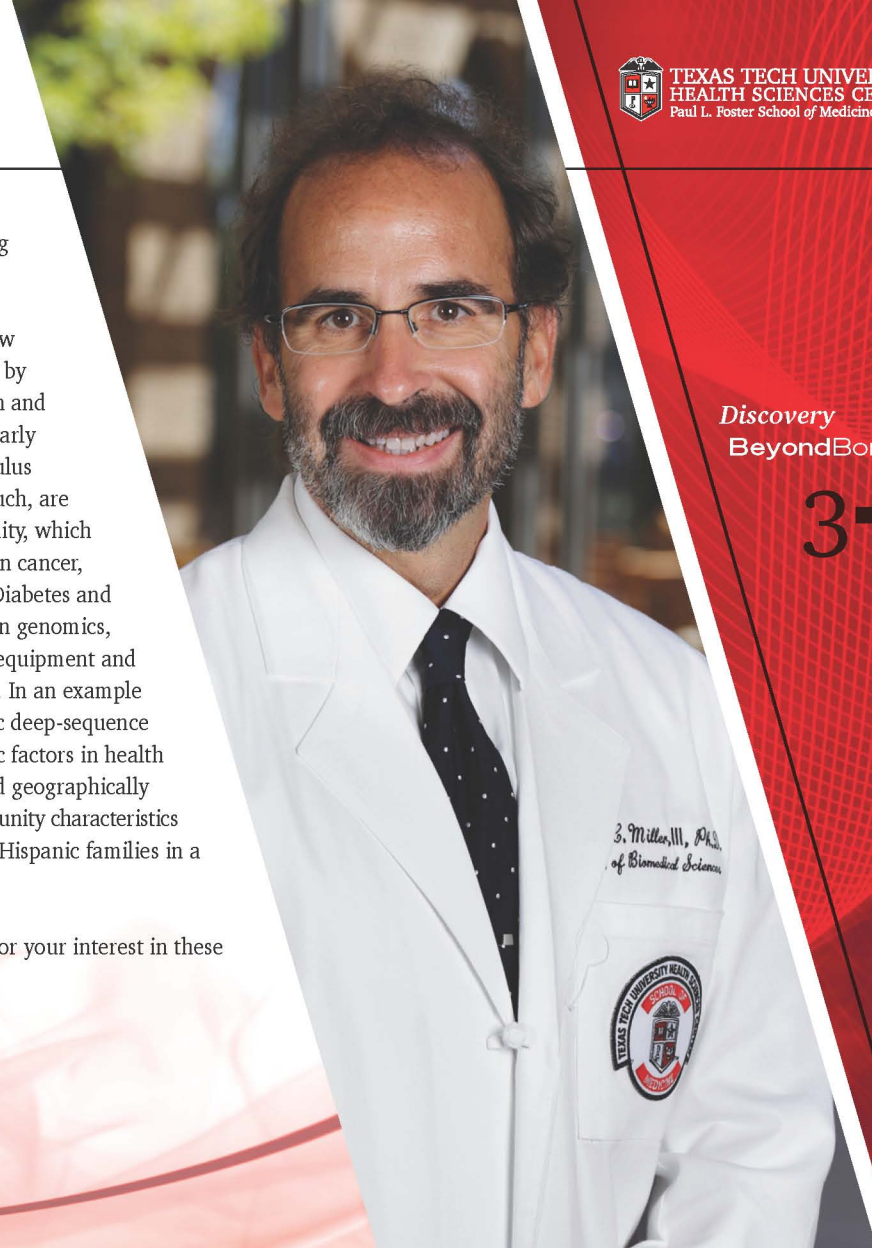
Welcome

Our first research report, **Discovery Beyond Borders**, is a reflection of our vision of moving beyond traditional limitations of research. Here at the Texas Tech University Health Sciences Center Paul L. Foster School of Medicine in El Paso, Texas, our programs are dedicated to improving health through the discovery of basic mechanisms of disease, development of new treatments, and translation of research findings to innovative medical practice. We do this by pushing the boundaries of what is expected and making the discoveries that make us men and women of science. This active, no-holds-barred research environment provides the scholarly milieu that is essential to create high quality medical education and the economic stimulus that can affect an entire region… and a nation. We are a growing institution, and as such, are developing focused programs that emphasize areas of particular need in our community, which is more than 80% Hispanic. Programmatic, trans-disciplinary Centers of Excellence in cancer, infectious diseases, and neurosciences are now thriving. A Center of Excellence in Diabetes and Obesity is in development. We have made major investments in core laboratories in genomics, proteomics, histology and cytometry, including the acquisition of state-of-the-art equipment and facilities along with the recruitment of experienced team members to staff them. In an example of research focus, we have made particularly significant investments in genomic deep-sequence research capacity. El Paso is an exceptional location to study the role of genetic factors in health and disease due to the population being relatively geographically isolated and geographically stable. Local families tend to be large and span many generations. These community characteristics create an opportunity for our scientists to understand diseases that burden Hispanic families in a way that few places are able to provide.

On behalf of our entire research community, I would like to thank you for your interest in these exciting programs that only our border region can offer.

Sincerely,

Charles C. Miller, III, Ph.D.
Professor and Chair, Department of Biomedical Sciences
Associate Dean for Research
Associate Dean for the Graduate School of Biomedical Sciences



Discovery Beyond Borders

Border health research programs are a critical part of the mission of the Paul L. Foster School of Medicine. Border health research conducted locally by scientists who live and work in the community is necessary for the development of new treatments and the overall health of people living in this unique region and around the country. The El Paso/ Juarez metroplex, with more than 2 million people,represents the world's largest population concentration along an international border.

Located along the U.S./Mexico border and home to Fort Bliss, one of the country's major military installations, the Paso del Norte region with its major Hispanic population serves as a unique laboratory for research that no other institution can offer. While El Paso provides the comforts of a large, progressive urban city, it is juxtaposed against a developing country struggling to improve severely poverty-stricken areas. The ease of migration from the U.S./Mexico border to the interior of the United States has created "colonias" – communities lacking adequate water and sewage systems – along both sides of the border. The unsanitary living conditions promote the spread of disease, could potentially lead to the spread of infectious disease of epidemic proportions. The 2009 epidemic of the H1N1 influenza virus is just one example.

Fort Bliss, a U.S. Army Training and Doctrine Command installation and the home of seven Forces Command war-fighting units, also provides post-traumatic stress and traumatic brain injury research opportunities in neurosciences.

Our community is one that if studied closely could affect nations. The emergence of Hispanic populations throughout the United States creates unique urgencies for investigation of diseases that are prevalent in Hispanic communities, such as diabetes and obesity. El Pasoans, in particular, come from families that are often large, stable, multigenerational, and geographically isolated, providing researchers the perfect environment to conduct research that will affect Latinos worldwide. The Paul L. Foster School of Medicine has established focused biomedical research programs in four areas of significant need along the U.S./Mexico Border. They are Centers of Excellence in Infectious Diseases, Diabetes and Obesity, Cancer, and Neurosciences. TT

Border Health Research:
is research conducted along the U.S./Mexico border that contributes to the development of new discoveries and new treatments in medicine.

{View of the Bridge of the Americas from the Chamizal National Memorial.}

Center of Excellence in Infectious Diseases

Infectious Disease Research

Beyond Borders

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The focus of the **Center of Excellence in Infectious Diseases** is to expand the capacity of infectious disease research in key areas of border-population health, particularly research in influenza, vector-borne viral illnesses (i.e. West Nile Virus) and HIV. Cross-border infectious disease transmission is a significant public health and border security concern because residents of the Paso del Norte Region are medically underserved, economically disadvantaged and geographically isolated. Infectious diseases can be particularly difficult to deal with in areas where low health literacy and crowding may compound the spread of disease. HIV, Dengue Fever and West Nile virus are some examples of diseases prevalent in the region.

Premlata Shankar, M.D.
Co-Director of the Center of Excellence in Infectious Diseases
Professor in the Department of Biomedical Sciences

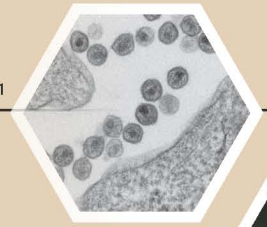
Manjunath Swamy, M.D.
Co-Director of the Center of Excellence in Infectious Diseases
Professor in the Department of Biomedical Sciences

The center – composed of 33 faculty members, researchers and staff – has a vaccine development program that is attempting to generate mucosal vaccines not only against ordinary seasonal infections, but also against infectious agents that might be used as biological weapons. For instance, a current research interest is in developing influenza vaccines that do not require embryonated chick eggs for production and contain conserved B- and T-cell epitopes that can remember proteins (antigens) from many different kinds of viruses to generate a broader, longer-lasting immunity to influenza.

Viruses such as West Nile and St. Louis Encephalitis can cause devastating brain infections in humans but there are no treatments or vaccines for these infections. The center has identified several ***siRNAs*** (small interfering Ribonucleic Acids)that can act as broad-spectrum anti-viral agents. The Center's research shows that such a treatment can provide near complete protection against a fatal West Nile disease in animal models.

Today, the center has developed NIH-funded programs to study West Nile Virus, influenza, HIV and St. Louis Encephalitis. TT

siRNAs ***(small interfering Ribonucleic Acids)***:
A class of double-stranded RNA molecules that play a variety of roles in biology.



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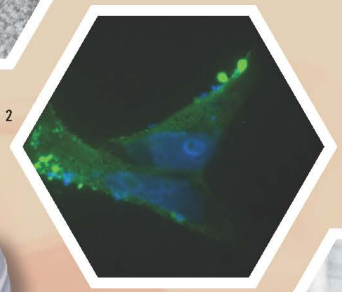

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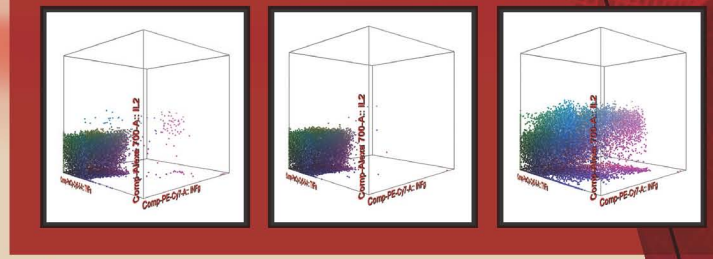
1] Electron microscopy analysis of HIV budding by Transmission Electron Microscopy.

2] Immunofluorescence analysis of HIV in transfected HeLa cells after staining with HIV anti-p17 antibody, viewed with a Nikon fluorescence microscope.

3] Biochemical analysis of HIV by radiolabeling and immunoprecipitation using HIV immunoglobulin.

4] Flow cytometry analysis of multifunctional T-cells in human volunteers vaccinated with influenza vaccine.



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Discovery
BeyondBorders

Center of Excellence in Neurosciences

Neuroscience Research

Beyond Borders

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The **Center of Excellence in Neurosciences** consists of a group of scientists and faculty specializing in genetics in the ***etiology*** of psychiatric disorders, genetics of eye diseases, optic trauma and genetic development of the nervous system. To this end, research staff is further developing a population cohort bio-bank that will allow for the generation of population-based samples for research that is unique in the nation. This information can be used to inform studies in neurologic and psychiatric illnesses, cancer, diabetes and other illnesses. NIH-funded data-sharing agreements also permit use of this data to increase the statistical power for minority populations in genome-wide association studies, which are currently unable to address many questions in medically underserved Hispanic minority patients. Complementing these activities is the development of a special senses program in genetic diseases of the eye and in optic nerve trauma.

Michael Escamilla, M.D.
Director of the Center of Excellence in Neurosciences
Professor in the Department of Biomedical Sciences
Chair and Professor in the Department of Psychiatry

Etiology:
The cause of diseases and disorders as a subject of investigation.

The Center is also committed to addressing community and national needs. Currently, the research staff is developing post-traumatic stress disorder and traumatic brain injury programs in connection with Fort Bliss. A program that works with medical students and future mental-health providers to supply medical and research training opportunities, including research studies on the causes of depression in medical providers, is also underway.

These programs – run by a team of 26 medical doctors, faculty, researchers and staff – are supported by a number of agencies such as the NIH, the National Alliance for Research on Schizophrenia and Depression, and the Fogarty International Center. Other interests include a commitment to training the next generation of medical researchers with an emphasis in neuropsychiatry and neurosciences. Faculty provides mentorship and training to students at the high school, college, pre-doctoral and post-doctoral levels. The goal is to address the chronic shortage of qualified researchers, especially Latinos, and increase researchers' understanding of cultural issues affecting the U.S./Mexico border, the Paso del Norte region and Latinos. TT

{View along the U.S. Mexico Border.}

Center of Excellence in Cancer

Cancer Research

Beyond Borders

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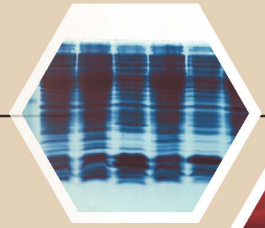
The **Center of Excellence in Cancer** aims to apply novel concepts, methodologies and technologies to cancer research, prevention and intervention. The Center's focus is: to perform basic clinical and translational research; to study endocrine-related cancers and cancers prevalent in the local population; and to identify molecular mechanisms using cutting-edge technologies. Current research underway addresses the role of various genes in breast cancer development, hormone replacement therapy in post-menopausal women and the associated risk of breast cancer, and the role of progesterone in the promotion of breast cancer. Complementing these are studies that are being conducted to investigate the impact of plant products in breast cancer prevention and treatment. Cancer prevention and control is also a major focus of the center with a population-based program in colon cancer screening funded by NIH. The Center of Excellence in Cancer expects to develop a significant research effort in this area over the coming year.

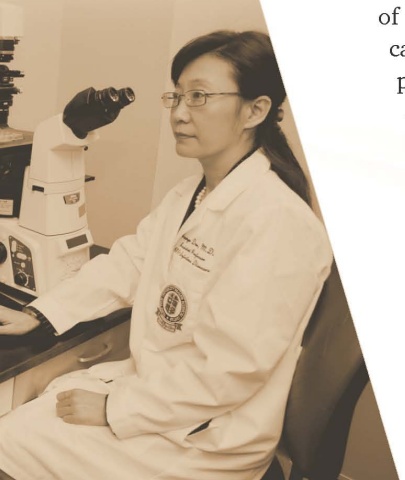
Rajkumar Lakshmanaswamy, Ph.D.
Basic Science Research Director of the Center of Excellence in Cancer Research
Associate Professor in the Biomedical Sciences

Navkiran Shokar, M.D.
Associate Director for Cancer Prevention and Control
Associate Professor in the Department of Family Medicine



Protein gel

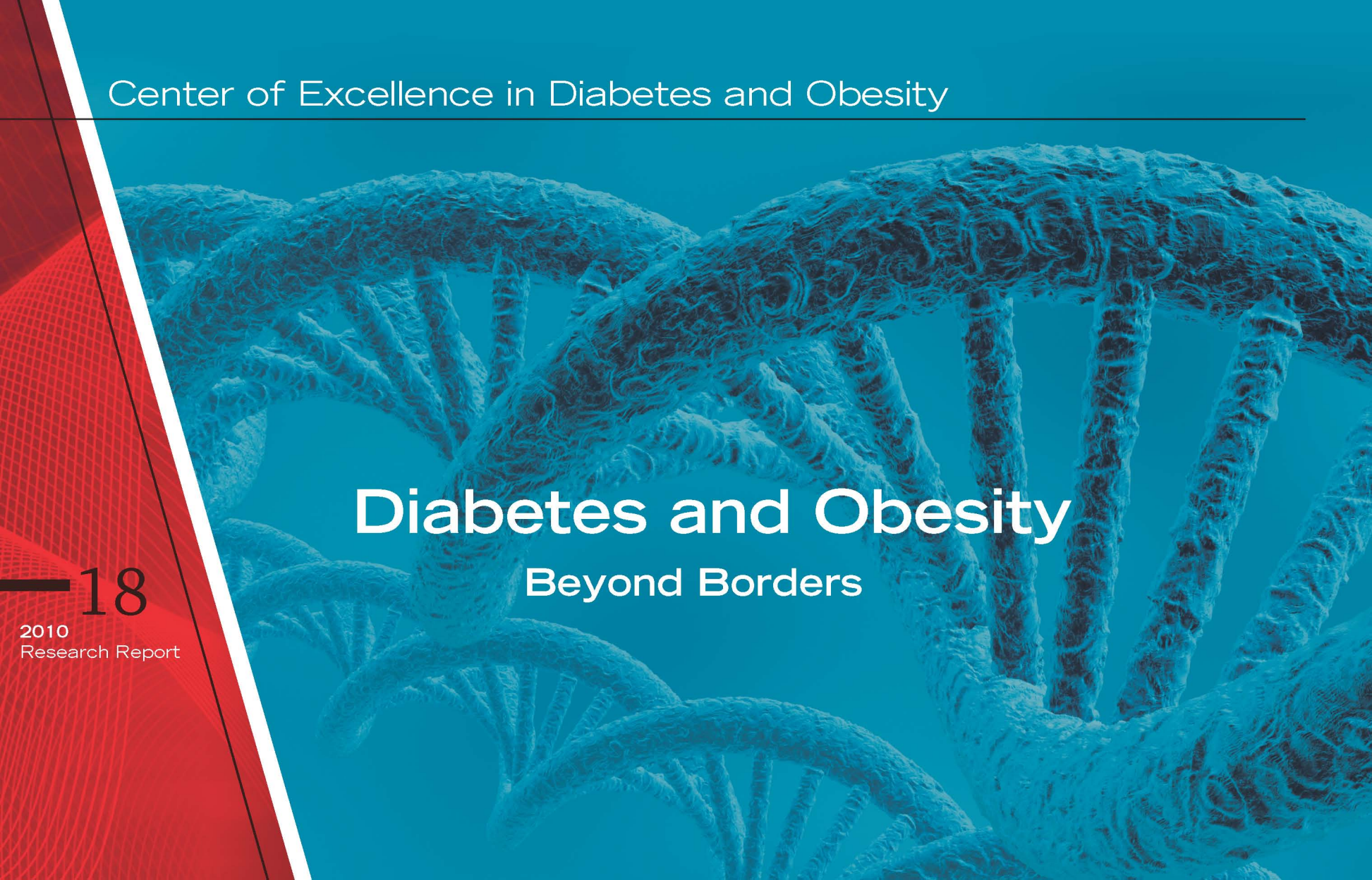
Cancer cell



The state-of-the-art facilities and the location of the Paul L. Foster School of Medicine allow for the study of genes and proteins critical to examining those cancers with a disproportionate impact on Hispanic populations. For example, breast cancer represents a higher proportion of all cancer mortalities among Hispanic women than among women of other ethnicities, so a significant basic science effort in Hispanic breast cancer is underway. Similarly, colorectal screening rates are low in Hispanics, therefore researchers are developing screening research programs that target barriers to screening in this population. The Center currently has an NIH-funded program in colon cancer screening research.

Community outreach through symposiums and lectures provide opportunities to increase cancer awareness, prevention and treatment. As the Center grows, collaborations between researchers, physicians and epidemiologists will increase and help to build a strong, nationally and internationally acclaimed cancer research program that will lead to the development of novel prevention and therapeutic strategies against malignant cancers. TT

Center of Excellence in Diabetes and Obesity



Diabetes and Obesity

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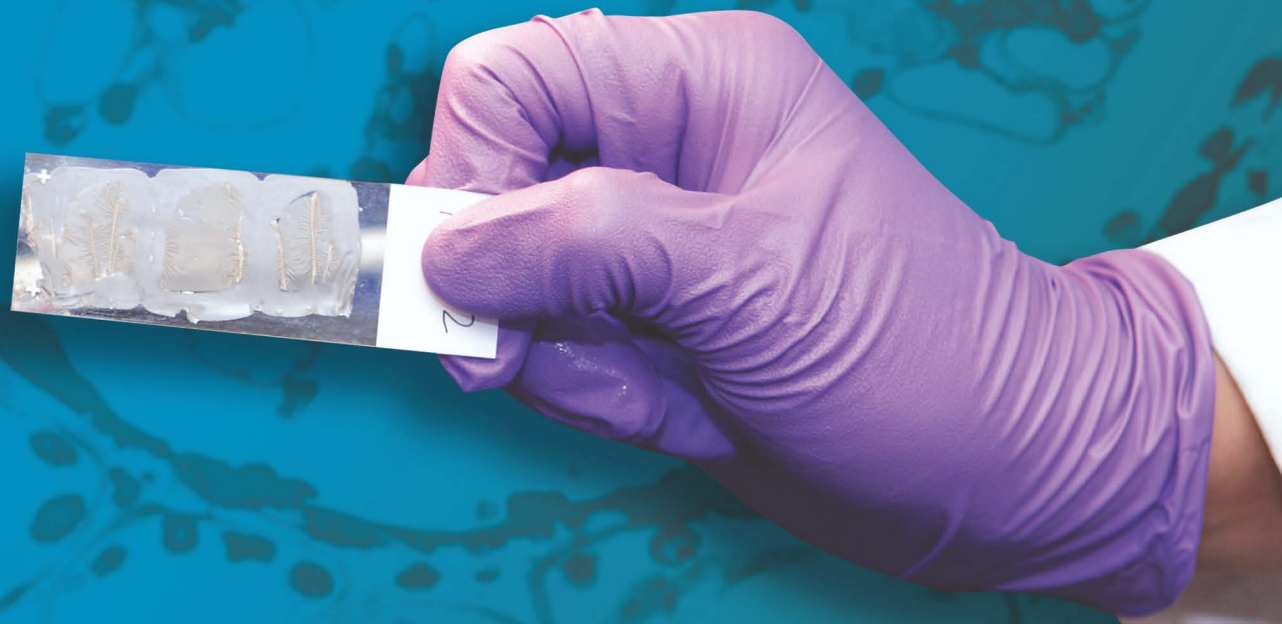
Diabetes and obesity are significant public health issues in Hispanic populations such as those located in the El Paso region. The Department of Biomedical Sciences is conducting a national search for a director for this Center of Excellence at the present time (3/22/11). ππ

Core Laboratories

Cytometry · Histopathology Proteomics · Genomics

Beyond Borders



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Cytometry

The Flow ***Cytometry*** Core Laboratory provides instrumentation, technical and professional assistance for performing laser-based flow cytometric analysis and sorting. This laboratory gives Paul L. Foster School of Medicine investigators and those from other metropolitan area research universities and institutions access to high quality, cost-effective flow cytometry services. Flow cytometry is a quantitative analytical method that can measure physical and chemical properties of cells and particles. A flow cytometer is comprised of electrical, digital, and optical components. As cells in suspension travel through a core stream, a series of scattered and emitted light is collected and specific bands of fluorescence can be measured. Flow cytometry capabilities include, but are not limited, to DNA analysis, phenotypic analysis, apoptotic studies, cell cycle and functional studies.

Cell sorting allows for the separation of a complex mixture of cells into a defined single cell fraction that can then be analyzed. Optics, lasers and electronic processors automate the task of identifying and quantitatively analyzing individual cells. By measuring the physical and chemical properties of cells, such as fluorescence, then by physically separating cells while still alive, the cell sorter has become an important tool for biomedical research and clinical medicine. TT

Cytometry:
A group of biometric measures that allow for rapid determination of cell properties, such as size, type, stage of cell division, etc.

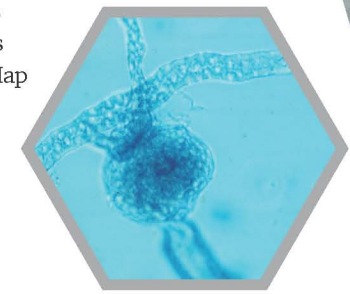
Histopathology

Histology:
The study of the microscopic anatomy of cells and tissues of plants and animals.

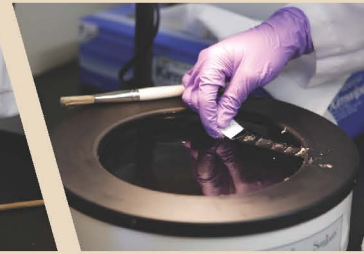
The Histopathology Core Laboratory provides pathophysiology histological, pathological, imaging and immunohistochemical research services to Paul L. Foster School of Medicine Centers of Excellence and to the research efforts of the school's clinical departments. The laboratory also provides contract services to the University of Texas at El Paso and other institutions in the region.

The services provided include cytological procedures, paraffin and plastic embedding of tissues, microtomy, ultrathin-sectioning, preparation of stained and unstained tissue sections, routine ***histology***, histo-chemistry, immuno-histochemistry, immuno-fluorescence, image reconstruction analysis including Neurolucida™ reconstructions, confocal microscopy, digital imaging with image telemedicine server, cryotomy including laser capture microscopy procedures, and isolation of nucleic acids from paraffin-embedded tissues *in situ* hybridization and tissue arrays. In the future, this core will be part of the Paul L. Foster School of Medicine Human Tissues Resource Initiative. In addition, the Histopathology Core Laboratory offers veterinary laboratory services that include plasma measurements of pH, glucose, BUN, creatinine, BUN/creatinine ratio, uric acid, cholesterol, triglyceride, GOT, total bilirubin, alkaline phosphatase, GPT, GGT, calcium, total protein, amylase, and plasma osmolality. This laboratory also offers determinations of hormones and cytokines using Luminex assays based on xMap Technology®. Urinalysis services are available using urinalysis chemstrips, microscopy, osmolality using vapor osmometry, microelectrode-based pH and ionogram (Na, K, Cl) measurements. These techniques are used to understand the normal function of organs (physiology) and pathological processes (pathology) as well. TT

Renal tissue section and light microscopy view of its internal structure



Microdisected renal glomerulus blood

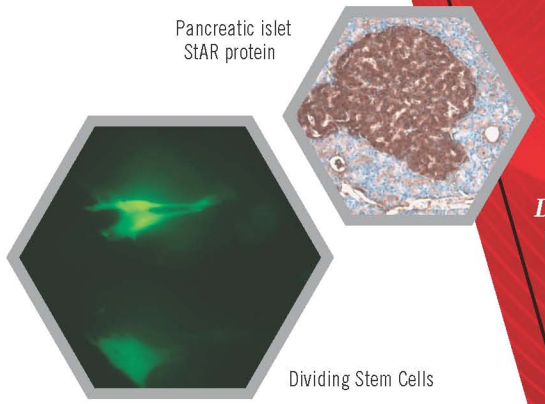


Proteomics

Complementing the study of biological systems in the Genomic Core Laboratory, the ***Proteomics*** Core Laboratory has state-of-the-art equipment to perform cutting-edge proteomic analyses. Proteomics is the systematic, large-scale analysis of protein expression of normal and abnormal states. It generally involves the separation, identification and characterization of all the proteins in a cell, tissue or serum sample. Several different techniques are used to study proteomics. Some techniques provide data that can be interpreted directly but usually require a combination of different techniques. 2D-gel electrophoresis followed by mass spectrometry is commonly used. Other, techniques incorporate liquid chromatography with mass spectrometry. Quantitative proteomic analyses are vital to understanding how proteins function in cells and tissues.

The Proteomics Core Laboratory has: a 2D-gel electrophoresis system with robotic spot picker; the LC-MALDI (liquid chromatography-matrix-assisted laser desorption/ionization) spotting system for contact-free electrostatic deposition of samples; and a MALDI TOF/TOF (time of flight) mass spectrometer for the analysis of the proteome and for protein biomarker identification analysis. In addition, the facility has a QTRAP mass spectrometer for quantitative analysis of proteins and their post-translational modifications. TT

Proteins are purified using liquid chromatography prior to mass spectral analysis.



Pancreatic islet StAR protein

Dividing Stem Cells

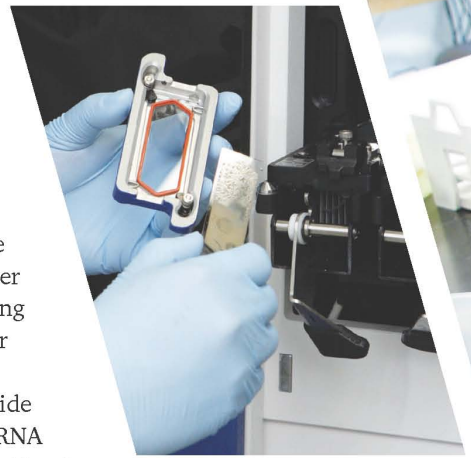
Proteomics:
The branch of molecular biology concerned with the entire complement of proteins that is or can be expressed by a cell, tissue or organism.

Genomics

The Genomics Core Laboratory carries out various types of analyses of RNA and DNA samples. These range from abundance measurements of mRNA species and basic capillary DNA sequencing to next-generation whole transcriptome and whole genome sequencing.

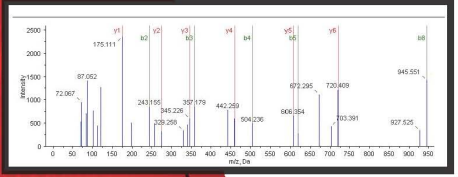
The Genomics Core Laboratory is the technological base for current and future approaches to the genetic basis of human disease and also provides a platform for approaching the complex cellular mechanisms underlying cancer and infectious disease. A central approach is the use of massive SNP analysis to provide a genome-wide fingerprint of natural variation in the genomes of individuals. Such genome fingerprints are currently used for genome-wide association (GWAS) analysis, which is a powerful approach for identifying loci and genes that contribute causative risk factors for a disease. This has been especially productive in the study of diabetes, atherosclerosis and age-related macular degeneration of the eye.

Whole genome sequencing is currently being pursued by selectively sequencing roughly 2 percent of the genome, which contains nearly all messenger RNA (mRNA) and protein-coding regions of the genome. Such sequencing typically identifies many gene mutations, and the challenge is to integrate this information in order to select those genes that cause the disease in question. We will soon have the capacity to sequence the entire genome without such pre-selection, which will further broaden the potential for discovery of disease-causing mutations and gene variants. The SOLiD sequencer is currently the most accurate, and well suited to the identification of mutations caused by nucleotide substitutions. Whenever it is possible to isolate RNA from the tissue of interest in a disease – such as blood lymphocytes, a liver biopsy or a tumor – the whole genome sequencing approach can be applied to ask whether the expression levels, mRNA processing and protein translation are abnormal for a given gene. Looking forward, the laboratory will provide cutting-edge genomic approaches to diabetes, infectious diseases, cancer, neuropsychiatric, neurological and visual disorders. TT

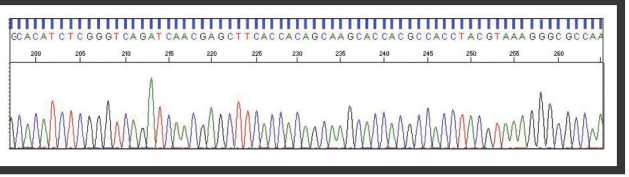


A slide is prepared for sequencing by oligonucleotide ligation detection (SOLiD).

Mass Spectra



DNA Sequence Electropherogram



Genomics:
The branch of molecular biology concerned with the structure, function, evolution and mapping of a complete set of genes present in an organism.

Patrick Tarwater, Ph.D.
Professor and Chief, Biostatistics and Epidemiology

Biostatistics and Epidemiology Beyond Borders

The Division of Biostatistics and ***Epidemiology*** maintains a focus on the development of analytic methods for the design, conduct and analysis of research studies in the basic, educational and clinical sciences. The novel application of statistical methods to data collected by investigators within the Paul L. Foster School of Medicine is implemented for the best translation of findings to knowledge in the care of patients, the enhancement of education and the advancement of science. The researchers in the division have extensive experience in health sciences research with specific expertise in the design of experiments, the conduct and analysis of longitudinal and cohort studies, and the interface of epidemiology, biostatistics and information science. The division developed and manages the Biostatistics and Epidemiology Consulting Lab for collaboration with all faculty members at the school.

Division members also teach school curriculum and offer many short courses and workshops for other universities across the country, as well as at the Infectious Disease Institute in Uganda. Current and ongoing research includes collaborations with scientists within the Texas Tech University Health Sciences Center and other institutions through NIH-funded research projects studying problems such as vaginal microbicide development, neurologic and cardiologic degeneration due to retroviruses and their treatment, and barriers in cervical cancer screening in Hispanic populations. TT

Epidemiology:
The study of diseases in populations of humans or other animals, specifically how, when and where they occur.

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Research Partnerships

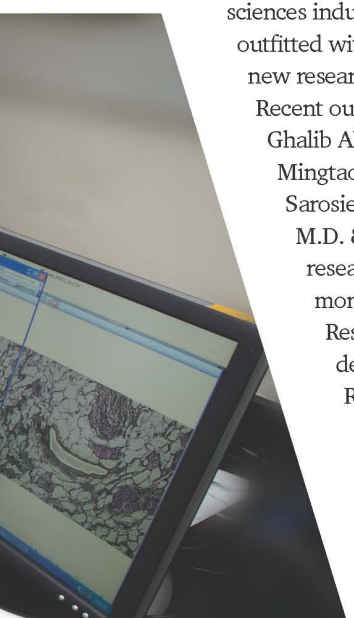
The Paul L. Foster School of Medicine has worked closely with partners from the University of Texas at El Paso, the University of Texas at Houston School of Public Health, and the Medical Center of the Americas Foundation. A common goal of these multi-institution partnerships is to raise the level of research activity and the quality of science being developed in the region. The Office of the Associate Dean for Research is establishing relationships with the Center for Clinical and Translational Sciences at UT-Houston and has developed a medical student summer research program with ties to the Methodist Hospital Research Foundation in Houston. TT

Research Growth

As our research portfolio has grown, so has our Office of Research. It now includes director-level personnel in pre-award, institutional review board and research finance areas to assist in proposal development, submission and reporting.

Border biomedical research programs are a critical part of the mission of the Paul L. Foster School of Medicine. To that end we are making major investments to support the development of a world-class research program through increased competitiveness of existing programs and recruitment of new investigators.

Internationally recognized scientists now call El Paso home thanks to the unique research opportunities along the border and its thriving health sciences industry. The laboratories at the Paul L. Foster School of Medicine are outfitted with the latest technology. These have allowed us to attract seven new researchers with large grant portfolios in the most recent academic year. Recent out-of-state recruitments of basic science and clinical researchers are: Ghalib Alkhatib, Ph.D. (Indiana University); Bert Johansson, M.D. (Mt. Sinai); Mingtao Zeng, Ph.D. (Rochester); Huanyu Dou, M.D. (Nebraska); Jerzy Sarosiek, M.D., Ph.D. & Irene Sarosiek, M.D., Ph.D. (Kansas); Mark Francis, M.D. & Maureen Francis, M.D. (Illinois). During academic year 2009-2010, research expenditures sponsored by the National Institutes of Health increased more than six-fold from roughly $2 million to $12 million. In addition, the Research Office holds an annual seed grant competition that supports the development of small projects that are likely to lead to sustained funding. Roughly one in eight of these “seedlings” has led to a funded NIH grant.



Building a strong organization at all levels will provide the greatest likelihood of success for biomedical research programs. These strong programs will in turn support the Paul L. Foster School of Medicine in reaching world-class status. **TT**

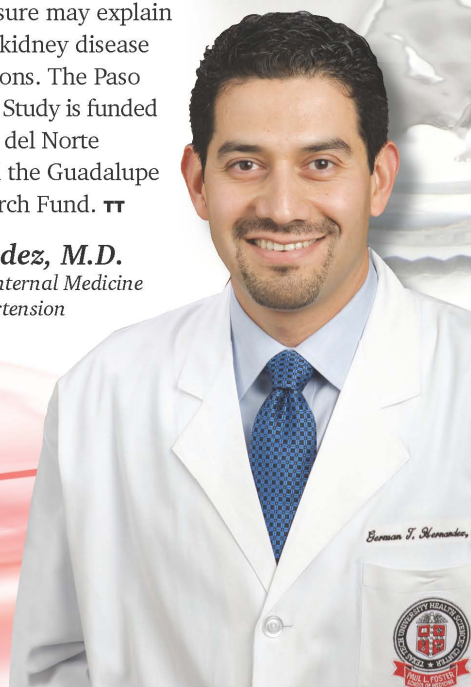
NIH Study on Alcohol Interventions in the Department of Emergency Medicine

Robert Woolard, M.D., in collaboration with the Public Health Institute (PHI), has received the largest clinical NIH award ever made to TTUHSC: $1.4 million. The three-year project is co-directed by Dr. Cheryl Cherpitel of PHI and Dr. Woolard. They will conduct a study of the preventive effects of a brief counseling intervention on young-adult emergency room patients who are at risk for alcohol abuse. The study is funded through the National Institute on Alcohol Abuse and Alcoholism (NIAAA) and will be conducted at University Medical Center (UMC) of El Paso. Dr. Woolard said almost half of the injuries seen in young, primarily Mexican-American patients in the UMC ER are due to hazardous drinking. Dr. Woolard is collaborating with Rebecca Ramos, director of the Alliance of Border Collaboratives, who will supervise *promotores de salud* (health-promotion advocates). These "promotores" will screen and counsel patients in the UMC ER. Over the course of 18 months, 900 ER patients, who screen positive for at-risk drinking and subsequently volunteer, will participate in this randomized trial of brief intervention and be assessed for reductions in drinking and consequences such as driving under the influence and injury at one year. TT

Robert Woolard, M.D.
Professor of Emergency Medicine
Department of Emergency Medicine

Paso del Norte Kidney Disease Study

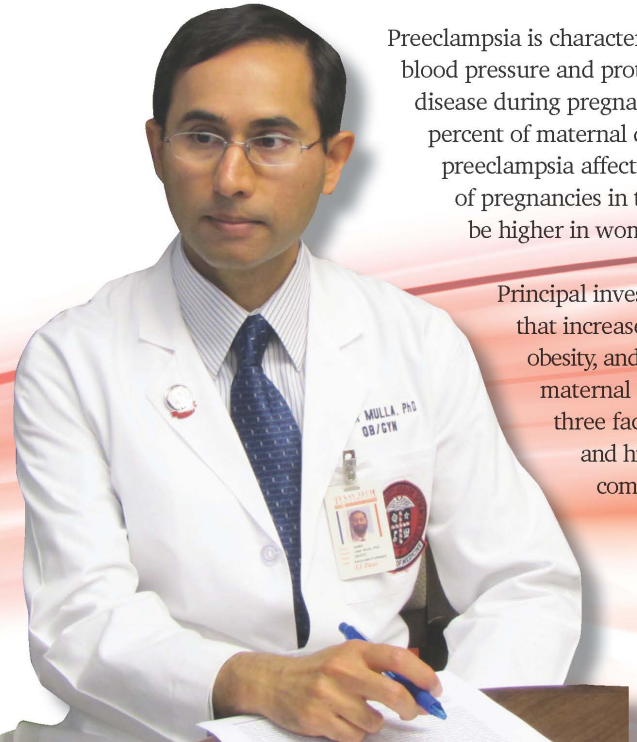
German Hernandez, M.D. and ***Patrick Tarwater, Ph.D.*** (see photo on page 26), have recently finished recruitment of patients into the Paso del Norte Kidney Disease Study. The research study examines whether exposure to heavy metals such as lead, cadmium and mercury hastens chronic kidney disease. Hispanics and other minority groups in the United States are at a higher risk of exposure to toxic metals and carry a higher burden of kidney disease. Heavy metal exposure may explain some of the disparities in kidney disease among minority populations. The Paso del Norte Kidney Disease Study is funded by grants from the Paso del Norte Health Foundation and the Guadalupe Soto Memorial Research Fund. TT



German Hernandez, M.D.
Assistant Professor of Internal Medicine
Nephrology and Hypertension
Department of Internal Medicine

Grant Funds Study of Maternal Health on the Border

Faculty in the Department of OB/GYN recently earned a Paul L. Foster School of Medicine seed grant to study risk factors for preeclampsia, a serious condition that can occur in a woman during the second half of her pregnancy or shortly after she delivers. The study is entitled, "Germs, Sperm, and Chocolate: Novel Risk Factors for Preeclampsia?"



Preeclampsia is characterized by the onset of high blood pressure and protein in the urine. Hypertensive disease during pregnancy is responsible for over 17 percent of maternal deaths in the United States. While preeclampsia affects approximately 5 to 7 percent of pregnancies in the United States, evidence suggests that the prevalence may be higher in women who deliver at the University Medical Center of El Paso.

Principal investigator, ***Zuber D. Mulla, Ph.D.***, comments that, "Traditional factors that increase a woman's risk of developing preeclampsia include young maternal age, obesity, and being in the first pregnancy. Emerging risk factors for preeclampsia include maternal infections, switching partners, and chocolate consumption, and these are three factors that we are investigating in our ongoing epidemiologic study." Mulla and his colleagues hope to recruit approximately 170 women with preeclampsia and compare them to a similar number of women who did not develop preeclampsia. TT

Zuber D. Mulla, Ph.D., CPH, FAAAAI
Associate Professor and Director of Epidemiologic Research
Department of Obstetrics and Gynecology

Grant Support

ASSOCIATE DEAN FOR RESEARCH

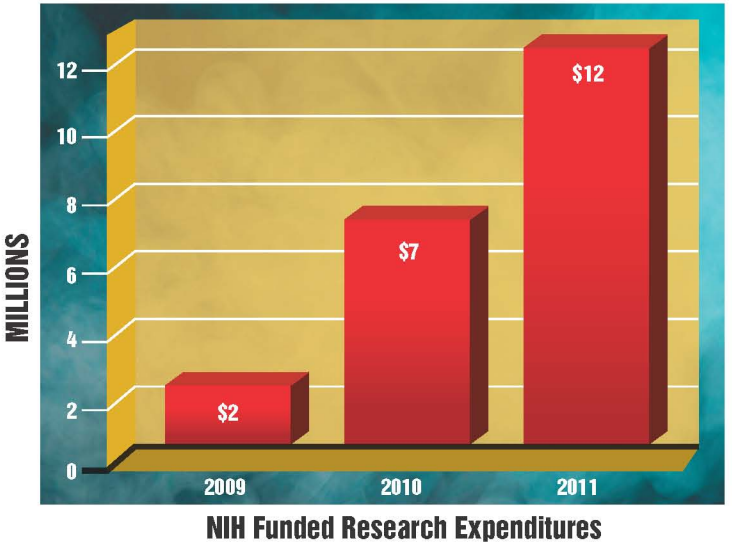
Charles C. Miller, III, Ph.D.

■ CURRENT GRANT SUPPORT:

Title: Genomics Core Infrastructure
Sponsor: Health Resources and Services Administration (HRSA)

Title: Specialized Center for Clinically Oriented Research in Vascular Disease: Thoracic Aortic Dissection
Sponsor: National Institutes of Health (NIH)

Title: Genomics Core Infrastructure II
Sponsor: HRSA



NIH Funded Research Expenditures

BIOSTATISTICS AND EPIDEMIOLOGY CONSULTING LAB

Patrick Tarwater, Ph.D.

■ CURRENT GRANT SUPPORT:

Title: Data Center for CV-N Secreting Lactobacilli and Retrocyclin Microbicides
Sponsor: NIH

Title: Data Center for Mechanisms of HIV-Induced PNS Disease: The SIV Macaque Mode
Sponsor: NIH

Title: Development of an SPF Macaca Nemestrina Breeding Colony
Sponsor: NIH

Title: CNS & Peripheral Viral Reservoirs in a SIV model of HIV HAART
Sponsor: NIH

Title: Minocycline Inhibits Immune Reactivation of CNS SIV
Sponsor: NIH

Title: RT Inhibitor CSIC and Entry Inhibitor Retrocyclin as Combination Microbicides
Sponsor: NIH

Title: IDO Regulation in the SIV Model of HIV CNS Disease
Sponsor: NIH

CENTER OF EXCELLENCE IN CANCER

Rajkumar Lakshmanaswamy, Ph.D.

■ CURRENT GRANT SUPPORT:

Title: Adrenal Steroids and Breast Cancer
Sponsor: Hollis-Eden Foundation

Title: Parity and Breast Cancer
Sponsor: Avon Foundation

Title: Intra Tumoral Aromatase Model
Sponsor: Parsemus Foundation

Title: Understanding the Mechanism of Prevention Her2 positive breast cancer
Sponsor: Texas Tech University School of Medicine Seed Grant Program

CENTER OF EXCELLENCE IN INFECTIOUS DISEASES

Premlata Shankar, M.D.

CURRENT GRANT SUPPORT:

Title: Targeted Delivery of Anti-HIV sRNAs/ shRNAs to T cells
Sponsor: NIH/ National Institute of Allergy and Infectious Diseases (NIAID)

Title: Targeted siRNA Delivery to Aberrantly Activated Leukocytes for Treating Colitis
Sponsor: NIH/NIAID

Title: RNAi Manipulations of DC to Enhance HIV Immunogenicity
Sponsor: NIH/NIAID

Title: Use of CD7-specific scFv Conjugated to 9dR for Targeted Delivery of siRNA to Human T cells
Sponsor: Benaroya Research Institute, University of Colorado Denver Health Sciences Center

Title: Targeted RNAi Manipulations to induceTolerogenic DC
Sponsor: Benaroya Research Institute, University of Colorado Denver Health Sciences Center

Manjunath Swamy, M.D.

CURRENT GRANT SUPPORT:

Title: Broad-spectrum RNAi Therapeutics for Flaviviral Encephalitis
Sponsor: NIH/NIAID

Haoquan Wu, Ph.D.

CURRENT GRANT SUPPORT:

Title: Alternative Drosha Processing of Primary MicroRNA in T Cells
Sponsor: Texas Tech University School of Medicine Seed Grant Program

Himanshu Garg, Ph.D.

CURRENT GRANT SUPPORT:

Title: Role of HIV-1 Env in CD4 T Cell Loss in CD34+ Cell Transplanted HU-HSC Mice
Sponsor: Texas Tech University School of Medicine Seed Grant Program

CENTER OF EXCELLENCE IN NEUROSCIENCES

Michael Escamilla, M.D.

CURRENT GRANT SUPPORT:

Title: Genetics of Bipolar Disorder in Latino Populations
Sponsor: NIMH

Title: Population Based Mapping of Schizophrenia Genes
Sponsor: NIMH

Title: U.S./Costa Rica Neuropsychiatric Genetics Research Training Grant
Sponsor: NIH-Fogarty

Title: Identification of Genes Moderating Effective Mood Dimension in Schizophrenia and Schizoaffective Disorder
Sponsor: National Alliance for Research on Schizophrenia and Depression

Olof H. Sundin, Ph.D.

CURRENT GRANT SUPPORT:

Title: Genetics of Fuchs Dystrophy
Sponsor: NIH

DEPARTMENT OF BIOMEDICAL SCIENCES

Daniel Terreros, M.D., Ph.D.

CURRENT GRANT SUPPORT:

Title: Development of a Biomedical Engineering Program for Low Resources Settings
Sponsor: DoE (Department of Energy)

Title: Clinical Trial "A Multicenter, Prospective, Randomized, Comparative Study of Hollow Nerve Conduit and AVANCE Nerve Graft Evaluating Recovery Outcomes of Nerve Repair in the Hand. (CHANGE)"
Sponsor: Axogen Inc.

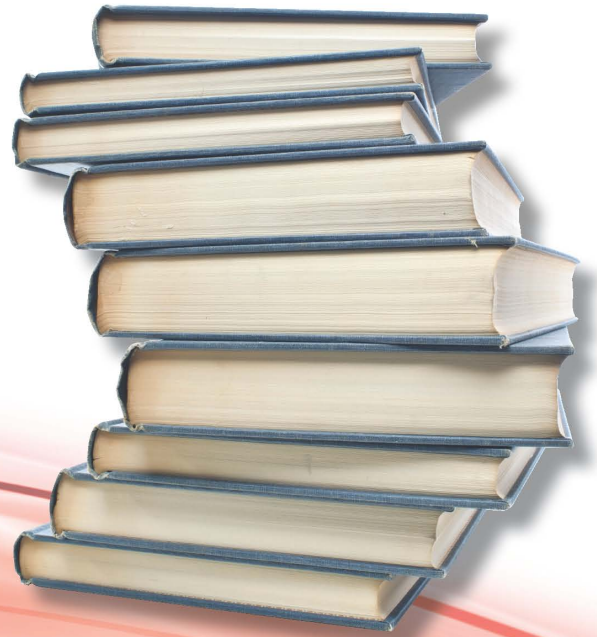
Title: Image Reconstruction Problems in Tomosynthesis
Agency: Texas Higher Education Coordinating Board - National Hispanic Recognition Program (THECB-NHRP)

Sample Publications

(Total of 91 Articles Published for 2009/2010)

The following shows a representative sample of the 91 peer-reviewed publications reported by the National Library of Medicine in which the corresponding author designated a primary affiliation with Texas Tech University Health Sciences Center Paul L. Foster School of Medicine.

*El Paso Peer-Reviewed Publications**



ASSOCIATE DEAN FOR RESEARCH

Charles C. Miller, III, Ph.D.

1. **Neuromonitor-guided repair of thoracoabdominal aortic aneurysms.**
<http://www.ncbi.nlm.nih.gov/pubmed/21092779>
Estrera AL, Sheinbaum R, Miller CC 3rd, Harrison R, Safi HJ. J Thorac Cardiovasc Surg. 2010 Dec;140(6 Suppl):S131-5; discussion S142-S146.
PMID: *21092779 [PubMed - indexed for MEDLINE]*
Related citations *<http://www.ncbi.nlm.nih.gov/sites/entrez?db=pubmed&cmd=link&linkname=pubmed_pubmed&uid=21092779>*

2. **Swimming-induced pulmonary edema in triathletes.**
<http://www.ncbi.nlm.nih.gov/pubmed/20887912>
Miller CC 3rd, Calder-Becker K, Modave F. Am J Emerg Med. 2010 Oct;28(8):941-6. Epub 2010 Mar 25.
PMID: *20887912 [PubMed - indexed for MEDLINE]*
Related citations *<http://www.ncbi.nlm.nih.gov/sites/entrez?db=pubmed&cmd=link&linkname=pubmed_pubmed&uid=20887912>*

3. **Progress in the treatment of blunt thoracic aortic injury: 12-year single-institution experience.**
<http://www.ncbi.nlm.nih.gov/pubmed/20609750>
Estrera AL, Gochnour DC, Azizzadeh A, Miller CC 3rd, Coogan S, Charlton-Ouw K, Holcomb JB, Safi HJ. Ann Thorac Surg. 2010 Jul;90(1):64-71.
PMID: *20609750 [PubMed - indexed for MEDLINE]*
Related citations *<http://www.ncbi.nlm.nih.gov/sites/entrez?db=pubmed&cmd=link&linkname=pubmed_pubmed&uid=20609750>*

4. **Progressive regression of left ventricular hypertrophy two years after bariatric surgery.**
<http://www.ncbi.nlm.nih.gov/pubmed/20569762>
Algahim MF, Lux TR, Leichman JG, Boyer AF, Miller CC 3rd, Laing ST, Wilson EB, Scarborough T, Yu S, Snyder B, Wolin-Riklin C, Kyle UG, Taegtmeyer H. Am J Med. 2010 Jun;123(6):549-55. Erratum in: Am J Med. 2010 Oct;123(10):e13.
PMID: *20569762 [PubMed - indexed for MEDLINE]*
Related citations *<http://www.ncbi.nlm.nih.gov/sites/entrez?db=pubmed&cmd=link&linkname=pubmed_pubmed&uid=20569762>*

5. **Outcomes of acute type a aortic dissection after previous cardiac surgery.**
<http://www.ncbi.nlm.nih.gov/pubmed/20417762>
Estrera AL, Miller CC, Kaneko T, Lee TY, Walkes JC, Kaiser LR, Safi HJ.
Ann Thorac Surg. 2010 May;89(5):1467-74.
PMID: *20417762 [PubMed - indexed for MEDLINE]*
Related citations *<http://www.ncbi.nlm.nih.gov/sites/entrez?db=pubmed&cmd=link&linkname=pubmed_pubmed&uid=20417762>*

6. **Integrated cerebral perfusion for hypothermic circulatory arrest during transverse aortic arch repairs.**
<http://www.ncbi.nlm.nih.gov/pubmed/20304662>
Estrera AL, Miller CC, Lee TY, Shah P, Irani AD, Ganim N, Abdullah S, Safi HJ.
Eur J Cardiothorac Surg. 2010 Sep;38(3):293-8. *Epub 2010 Mar 20.*
PMID: *20304662 [PubMed - in process]*
Related citations *<http://www.ncbi.nlm.nih.gov/sites/entrez?db=pubmed&cmd=link&linkname=pubmed_pubmed&uid=20304662>*

7. **Metabolic adaptation follows contractile dysfunction in the heart of obese zucker rats fed a high-fat "Western" diet.**
<http://www.ncbi.nlm.nih.gov/pubmed/20111021>
Burgmaier M, Sen S, Philip F, Wilson CR, Miller CC 3rd, Young ME, Taegtmeyer H. Obesity (Silver Spring). 2010 Oct;18(10):1895-901. Epub 2010 Jan 28.
PMID: *20111021 [PubMed - in process]*
Related citations *<http://www.ncbi.nlm.nih.gov/sites/entrez?db=pubmed&cmd=link&linkname=pubmed_pubmed&uid=20111021>*

8. **Cardiorespiratory fitness, adiposity, and incident asthma in adults.**
<http://www.ncbi.nlm.nih.gov/pubmed/20109755>
Ortega FB, Lee DC, Sui X, Ruiz JR, Cheng YJ, Church TJ, Miller CC, Blair SN.
J Allergy Clin Immunol. 2010 Jan;125(1):271-3.e1-5. No abstract available.
PMID: *20109755 [PubMed - indexed for MEDLINE] Free PMC Article Free fulltext<http://www.ncbi.nlm.nih.gov/pmc/articles PMC2836774/?tool=pubmed>*
Related citations *<http://www.ncbi.nlm.nih.gov/sites/entrez?db=pubmed&cmd=link&linkname=pubmed_pubmed&uid=20109755>*

9. **Heparin-platelet factor 4 antibodies in intensive care patients: an observational seroprevalence study.**
<http://www.ncbi.nlm.nih.gov/pubmed/19911252>
Levine RL, Hergenroeder GW, Francis JL, Miller CC, Hursting MJ. J Thromb Thrombolysis. 2010 Aug;30(2):142-8.
PMID: *19911252 [PubMed - indexed for MEDLINE]*
Related citations *<http://www.ncbi.nlm.nih.gov/sites/entrez?db=pubmed&cmd=link&linkname=pubmed_pubmed&uid=19911252>*

ASSOCIATE DEAN FOR RESEARCH (CONTINUED)

10. **Postoperative renal function preservation with nonischemic femoral arterial cannulation for thoracoabdominal aortic repair.**
<http://www.ncbi.nlm.nih.gov/pubmed/19853401>
Miller CC 3rd, Grimm JC, Estrera AL, Azizzadeh A, Coogan SM, Walkes JC, Safi HJ. J Vasc Surg. 2010 Jan;51(1):38-42. Epub 2009 Oct 22.
PMID: *19853401 [PubMed - indexed for MEDLINE] Free PMC Article Free full text <http://www.ncbi.nlm.nih.gov/pmc/articlesPMC2815229/?tool=pubmed>*
Related citations *<http://www.ncbi.nlm.nih.gov/sites/entrez?db=pubmed&cmd=link&linkname=pubmed_pubmed&uid=19853401>*

11. **Invited commentary.**
<http://www.ncbi.nlm.nih.gov/pubmed/19766815>
Miller CC 3rd, Estrera AL, Safi HJ. Ann Thorac Surg. 2009 Oct;88(4):1250. Review. No abstract available.
PMID: *19766815 [PubMed - indexed for MEDLINE]*
Related citations *<http://www.ncbi.nlm.nih.gov/sites/entrez?db=pubmed&cmd=link&linkname=pubmed_pubmed&uid=19766815>*

12. **Cerebrospinal fluid drainage during thoracic aortic repair: safety and current management.**
<http://www.ncbi.nlm.nih.gov/pubmed/19559180>
Estrera AL, Sheinbaum R, Miller CC, Azizzadeh A, Walkes JC, Lee TY, Kaiser L, Safi HJ. Ann Thorac Surg. 2009 Jul;88(1):9-15; discussion 15.
PMID: *19559180 [PubMed - indexed for MEDLINE]*
Related citations *<http://www.ncbi.nlm.nih.gov/sites/entrez?db=pubmed&cmd=link&linkname=pubmed_pubmed&uid=19559180>*

13. **Blunt traumatic aortic injury: initial experience with endovascular repair.**
<http://www.ncbi.nlm.nih.gov/pubmed/19497498>
Azizzadeh A, Keyhani K, Miller CC 3rd, Coogan SM, Safi HJ, Estrera AL. J Vasc Surg. 2009 Jun;49(6):1403-8.
PMID: *19497498 [PubMed - in process]*
Related citations *<http://www.ncbi.nlm.nih.gov/sites/entrez?db=pubmed&cmd=link&linkname=pubmed_pubmed&uid=19497498>*

14. **Body weight, insulin resistance, and serum adipokine levels 2 years after 2 types of bariatric surgery.**
<http://www.ncbi.nlm.nih.gov/pubmed/19375553>
Trakhtenbroit MA, Leichman JG, Algahim MF, Miller CC 3rd, Moody FG, Lux TR, Taegtmeyer H. Am J Med. 2009 May;122(5):435-42.
PMID: *19375553 [PubMed - indexed for MEDLINE] Free PMC Article Free full text <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2757753/?tool=pubmed>*
Related citations *<http://www.ncbi.nlm.nih.gov/sites/entrez?db=pubmed&cmd=link&linkname=pubmed_pubmed&uid=19375553>*

15. **Serum myoglobin and renal morbidity and mortality following thoracic and thoraco-abdominal aortic repair: does rhabdomyolysis play a role?**
<http://www.ncbi.nlm.nih.gov/pubmed/19232502>
Miller CC 3rd, Villa MA, Sutton J, Lau D, Keyhani K, Estrera AL, Azizzadeh A, Coogan SM, Safi HJ. Eur J Vasc Endovasc Surg. 2009 Apr;37(4):388-94. Epub 2009 Feb 15.
PMID: *19232502 [PubMed - indexed for MEDLINE]*
Related citations *<http://www.ncbi.nlm.nih.gov/sites/entrez?db=pubmed&cmd=link&linkname=pubmed_pubmed&uid=19232502>*

BIOSTATISTICS AND EPIDEMIOLOGY CONSULTING LAB

Patrick Tarwater, Ph.D.

1. **High Replication fitness and transmission efficiency of HIV-1 subtype C from India: Implications for subtype C predominance.**
Rodriguez MA, Ding M, Ratner D, Chen Y, Tripathy SP, Kulkarni SS, Chatterjee R, Tarwater PM, Gupta P. Virology 2009; 385(2): 416-24.

2. **Coordinated Regulation of SIV Replication and Immune Responses in the CNS.**
Witwer KW, Gama L, Li M, Bartizal CM, Queen SE, Varrone JJ, Brice AK, Graham DR, Tarwater PM, Mankowski JL, Zink MC, Clements JE. PLOS ONE 2009; 4(12):e8129.

CENTER OF EXCELLENCE IN CANCER

Rajkumar Lakshmanaswamy, Ph.D.

1. **Decreasing hormonal promotion is key to breast cancer prevention.**
Rajkumar L, Canada A, Esparza D, Collins K, Moreno E, Duong H. Endocrine. 2009 Apr;35(2):220-6. Epub 2009 Feb 12. PMID: 19214806 [PubMed - indexed for MEDLINE]

2. **3-D and Power Doppler ultrasound in translational research.**
Rajkumar, L., Kupesic, S.P. DS Journal of Ultrasound in Obstetrics and Gynecology 3(4): 85-88 (2009).

CENTER OF EXCELLENCE IN INFECTIOUS DISEASES

Manjunath Swamy, M.D.

1. **Targeted delivery of siRNA to human dendritic cells to suppress Dengue viral infection and the associated proinflammatory cytokine production.**
Subramanya S., Kim S., Yao J., Kumar M., Kumar P., Haridas V., Lee SK., Manjunath N. and Shankar P. J Virol. 84: 2490-501, 2010.

2. **RNAi-mediated CCR5 Silencing by LFA-1-targeted Nanoparticles Prevents HIV Infection in BLT Mice.**
Kim SS, Peer D, Kumar P, Subramanya S, Wu H, Asthana D, Habiro K, Yang YG, Manjunath N, Shimaoka M and Shankar P; Mol. Ther., 18: 370-6, 2010.

3. **Skin inflammation arising from cutaneous regulatory T cell deficiency leads to impaired viral immune responses.**
Freyschmidt EJ, Mathias CB, Diaz N, MacArthur DH, Laouar A, Manjunath N, Hofer MD, Wurbel MA, Campbell JJ, Chatila TA, Oettgen HC. J Immunol. 2010 Jul 15;185(2):1295-302. Epub 2010 Jun 14. PMID: 20548030 [PubMed - indexed for MEDLINE]

4. **Enhanced induction of HIV-specific cytotoxic T lymphocytes by dendritic cell-targeted delivery of SOCS-1 siRNA.**
Subramanya S, Armant M, Salkowitz JR, Nyakeriga AM, Haridas V, Hasan M, Bansal A, Goepfert PA, Wynn KK, Ladell K, Price DA, N M, Kan-Mitchell J, Shankar P. Mol Ther. 2010 Nov;18(11):2028-37. Epub 2010 Jul 20. PMID: 20648001 [PubMed - in process]

5. **Advances in synthetic siRNA delivery.**
Manjunath N, Dykxhoorn DM. Discov Med. 2010 May;9(48):418-30. Review. PMID: 20515610 [PubMed - indexed for MEDLINE] Free Article

6. **Targeted delivery of siRNA to macrophages for anti-inflammatory treatment.**
Kim SS, Ye C, Kumar P, Chiu I, Subramanya S, Wu H, Shankar P, Manjunath N. Mol Ther. 2010 May;18(5):993-1001. Epub 2010 Mar 9. PMID: 20216529 [PubMed - indexed for MEDLINE]

7. **RNA interference-based therapeutics for human immunodeficiency virus HIV-1 treatment: synthetic siRNA or vector-based shRNA?**
Subramanya S, Kim SS, Manjunath N, Shankar P. Expert Opin Biol Ther. 2010 Feb;10(2):201-13. Review. PMID: 20088715 [PubMed - indexed for MEDLINE]

8. **Targeted delivery of small interfering RNA to human dendritic cells to suppress dengue virus infection and associated proinflammatory cytokine production.**
Subramanya S, Kim SS, Abraham S, Yao J, Kumar M, Kumar P, Haridas V, Lee SK, Shultz LD, Greiner D, N M, Shankar P. J Virol. 2010 Mar;84(5):2490-501. Epub 2009 Dec 16. PMID: 20015996 [PubMed - indexed for MEDLINE] Free PMC Article Free text

9. **RNAi-mediated CCR5 silencing by LFA-1-targeted nanoparticles prevents HIV infection in BLT mice.**
Kim SS, Peer D, Kumar P, Subramanya S, Wu H, Asthana D, Habiro K, Yang YG, Manjunath N, Shimaoka M, Shankar P. Mol Ther. 2010 Feb;18(2):370-6. Epub 2009 Dec 8. PMID: 19997090 [PubMed - indexed for MEDLINE]

10. **Alternative processing of primary microRNA transcripts by Drosha generates 5' end variation of mature microRNA.**
Wu H, Ye C, Ramirez D, Manjunath N. PLoS One. 2009 Oct 27;4(10):e7566. PMID: 19859542 [PubMed - indexed for MEDLINE] Free PMC Article Free text

CENTER OF EXCELLENCE IN INFECTIOUS DISEASES (CONTINUED)

11. **Strategies for targeted nonviral delivery of siRNAs in vivo.**
Kim SS, Garg H, Joshi A, Manjunath N. Trends Mol Med. 2009 Nov;15(11):491-500. Epub 2009 Oct 19. Review. PMID: 19846342 [PubMed - indexed for MEDLINE]

12. **Lentiviral delivery of short hairpin RNAs.**
Manjunath N, Wu H, Subramanya S, Shankar P. Adv Drug Deliv Rev. 2009 Jul 25;61(9):732-45. Epub 2009 Mar 31. Review. PMID: 19341774 [PubMed - indexed for MEDLINE] Free PMC Article Free text

Premlata Shankar, M.D.

1. **Enhanced induction of HIV-specific cytotoxic T lymphocytes by dendritic cell-targeted delivery of SOCS-1 siRNA.**
Subramanya S, Armant M, Salkowitz JR, Nyakeriga AM, Haridas V, Hasan M, Bansal A, Goepfert PA, Wynn KK, Ladell K, Price DA, N M, Kan-Mitchell J, Shankar P. Mol Ther. 2010 Nov;18(11):2028-37. Epub 2010 Jul 20. PMID: 20648001 [PubMed - in process]

2. **Targeted delivery of siRNA to macrophages for anti-inflammatory treatment.**
Kim SS, Ye C, Kumar P, Chiu I, Subramanya S, Wu H, Shankar P, Manjunath N. Mol Ther. 2010 May;18(5):993-1001. Epub 2010 Mar 9. PMID: 20216529 [PubMed - indexed for MEDLINE]

3. **RNA interference-based therapeutics for human immunodeficiency virus HIV-1 treatment: synthetic siRNA or vector-based shRNA?**
Subramanya S, Kim SS, Manjunath N, Shankar P. Expert Opin Biol Ther. 2010 Feb;10(2):201-13. Review. PMID: 20088715 [PubMed - indexed for MEDLINE]

4. **Targeted delivery of small interfering RNA to human dendritic cells to suppress dengue virus infection and associated proinflammatory cytokine production.**
Subramanya S, Kim SS, Abraham S, Yao J, Kumar M, Kumar P, Haridas V, Lee SK, Shultz LD, Greiner D, N M, Shankar P. J Virol. 2010 Mar;84(5):2490-501. Epub 2009 Dec 16. PMID: 20015996 [PubMed - indexed for MEDLINE] Free PMC Article Free text

5. **RNAi-mediated CCR5 silencing by LFA-1-targeted nanoparticles prevents HIV infection in BLT mice.**
Kim SS, Peer D, Kumar P, Subramanya S, Wu H, Asthana D, Habiro K, Yang YG, Manjunath N, Shimaoka M, Shankar P. Mol Ther. 2010 Feb;18(2):370-6. Epub 2009 Dec 8. PMID: 19997090 [PubMed - indexed for MEDLINE]

6. **Lentiviral delivery of short hairpin RNAs.**
Manjunath N, Wu H, Subramanya S, Shankar P. Adv Drug Deliv Rev. 2009 Jul 25;61(9):732-45. Epub 2009 Mar 31. Review. PMID: 19341774 [PubMed - indexed for MEDLINE] Free PMC Article Free text

Ghalib Alkhatib, Ph.D.

1. **The potent anti-HIV activity of CXCL12gamma correlates with efficient CXCR4 binding and internalization.**
Altenburg JD, Jin Q, Alkhatib B, Alkhatib G. J Virol. 2010 Mar;84(5):2563-72. Epub 2009 Dec 16. PMID: 20015992 [PubMed - indexed for MEDLINE] Free PMC Article Free text

2. **Alternate receptor usage of neuropilin-1 and glucose transporter protein 1 by the human T cell leukemia virus type 1.**
Jin Q, Alkhatib B, Cornetta K, Alkhatib G. Virology. 2010 Jan 20;396(2):203-12. Epub 2009 Nov 13. PMID: 19913864 [PubMed - indexed for MEDLINE] Free PMC Article Free text

3. **The biology of CCR5 and CXCR4.**
Alkhatib G. Curr Opin HIV AIDS. 2009 Mar;4(2):96-103. Review. PMID: 19339947 [PubMed - indexed for MEDLINE] Free PMC Article Free text

CENTER OF EXCELLENCE IN NEUROSCIENCES

Michael Escamilla, M.D.

1. **Linkage disequilibrium mapping of the chromosome 6q21-22.31 bipolar I disorder susceptibility locus.**
Fan J, Ionita-Laza I, McQueen MB, Devlin B, Purcell S, Faraone SV, Allen MH, Bowden CL,

CENTER OF EXCELLENCE IN NEUROSCIENCE (CONTINUED)

Calabrese JR, Fossey MD, Friedman ES, Gyulai L, Hauser P, Ketter TB, Marangell LB, Miklowitz DJ, Nierenberg AA, Patel JK, Sachs GS, Thase ME, Molay FB, Escamilla MA, Nimgaonkar VL, Sklar P, Laird NM, Smoller JW. Am J Med Genet B Neuropsychiatry Genet. 2010 Jan 5;153B(1):29-37. PMID: 19308960 [PubMed - in process].

2. **A schizophrenia gene locus on chromosome 17 q21 in a new set of families of Mexican and Central American ancestry: evidence from the NIMH Genetics of schizophrenia in Latino populations study.**
Escamilla M, Hare E, Dassori AM, Peralta JM, Ontiveros A, Nicolini H, Raventos H, Medina R, Mendoza R, Jerez A, Munoz R, Almasy L. Am J Psychiatry. 2009 Apr; 166 (4):442-9.

3. **Assessment of genetic ancestry and analysis of individuals with a familial history of mental disorder.**
Segura-Wang M, Raventós H, Escamilla M, Barrantes R. Ann Hum Genet. 2010 Nov;74(6):516-24. doi: 10.1111/j.1469-1809.2010.00612.x. Epub 2010 Oct 6. PMID: 20946256 [PubMed - indexed for MEDLINE]

4. **Clozapine treatment causes oxidation of proteins involved in energy metabolism in lymphoblastoid cells: a possible mechanism for antipsychotic- induced metabolic alterations.**
Baig MR, Navaira E, Escamilla MA, Raventos H, Walss-Bass C. J Psychiatr Pract. 2010 Sep;16(5):325-33. PMID: 20859109 [PubMed - in process]

5. **The role of complex emotions in inconsistent diagnoses of schizophrenia.**
Gara MA, Vega WA, Lesser I, Escamilla M, Lawson WB, Wilson DR, Fleck DE, Strakowski SM. J Nerv Ment Dis. 2010 Sep;198(9):609-13. PMID: 20823720 [PubMed - indexed for MEDLINE]

6. **In vivo and in vitro genetic evidence of involvement of neuregulin 1 in immune system dysregulation.**
Marballi K, Quinones MP, Jimenez F, Escamilla MA, Raventós H, Soto-Bernardini MC, Ahuja SS, Walss-Bass C. J Mol Med. 2010 Nov;88(11):1133-41. Epub 2010 Jul 13. PMID: 20625696 [PubMed - in process]

7. **Association of serotonin transporter promoter gene polymorphism (5-HTTLPR) with depression in Costa Rican schizophrenic patients.**
Contreras J, Hernández S, Quezada P, Dassori A, Walss-Bass C, Escamilla M, Raventos H. J Neurogenet. 2010 Jul;24(2):83-9. PMID: 20397838 [PubMed - indexed for MEDLINE]

8. **Substance use disorder comorbidity with schizophrenia in families of Mexican and Central American ancestry.**
Jiménez-Castro L, Hare E, Medina R, Raventos H, Nicolini H, Mendoza R, Ontiveros A, Jerez A, Muñoz R, Dassori A, Escamilla M. Schizophr Res. 2010 Jul;120(1-3):87-94. Epub 2010 Mar 19. PMID: 20303714 [PubMed - indexed for MEDLINE]

9. **Neurocognitive endophenotypes for bipolar disorder identified in multiplex multigenerational families.**
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