Boilerplate Text for Proposals

UF Office of Research

Division of Research Program Development

Contents

Advanced Magnetic Resonance Imaging and Spectroscopy (AMRIS)

A state-of-the-art nuclear magnetic resonance facility in the McKnight Brain Institute at UF. AMRIS was developed in part through a grant from the Department of Defense. The National High Magnetic Field Laboratory supports an External Users Program in AMRIS through funds from the National Science Foundation. All AMRIS systems are available to UF researchers and external academic and industrial scientists. AMRIS offers users nine nuclear magnetic resonance spectrometer systems with different magnetic fields and configurations for a full spectrum of magnetic resonance experiments including high-resolution solution nuclear magnetic resonance, solid-state nuclear magnetic resonance, microimaging of biomolecular systems and tissues, animal imaging, and human imaging. AMRIS has nine professional staff members to assist users, maintain instrumentation, build new coils and probes, and help with administration. Several of the AMRIS instruments offer users unique capabilities: the 750 MHz wide-bore provides outstanding high-field microimaging for excised tissues and small animals; the 11.1 T horizontal MRI is the largest field strength magnet in the world with a 400 mm bore; the 600 MHz 1.0 and1.5 mm HTS cryoprobes are the most mass-sensitive nuclear magnetic resonance probes in the world for 1H and 13C detection, respectively, and are ideal for natural products research; and the 3T human whole body has 32 channels for rapid parallel imaging and is the only whole body instrument in the state of Florida dedicated to research. Most recently (2013) AMRIS added a 5T Dynamic Nuclear Polarization DNP polarizer with helium cryostat. These systems support a broad range of users with tasks from natural product identification to solid-state membrane protein structure determination to cardiac studies in animals and humans to tracking stem cells and gene therapy in vivo to functional MRI in humans.

Animal Care Services (ACS)

It is the mission of Animal Care Services to provide a humane and high quality animal care and use program to facilitate research and teaching at the University of Florida.

Proper care and use, with emphasis on the avoidance or minimization of discomfort, distress and pain, are essentials in our mission. Our goal is to offer high quality service, expertise and guidance in all matters related to the care and use of animals.

myACS provides Animal Care Services with an enterprise management system to manage facility operations. Laboratory staff can utilize features that include:

- Real-Time census is available online
- Full cage card histories available
- Detailed invoicing displaying cage detail.
- Online Animal Ordering
- Protocol Animal Number Tracking
- Breeding Colony Data
- Detailed fee schedule

Aquatic Pathobiology Laboratory

The Aquatic Pathobiology Laboratory is a unique, state of the art research and teaching facility at the University of Florida supported by the Emerging Pathogens Institute, the College of Public Health and Health Professions, the College of Veterinary Medicine, and IFAS, the Institute for Food and Agricultural Sciences. Under the direction Dr. Andrew Kane, the laboratory serves as a shared resource for faculty and students with focus in the areas of aquatic toxicology, aquatic pathology, and ecological studies that examine the relationships between aquatic animal health, human health, and environmental stress. Areas for collaborative research include cell injury, carcinogenesis, endocrine disruption, environmental and comparative pathology, molecular biology, immunology, behavioral toxicology, and fisheries and aquaculture sciences. The laboratory programatically partners with the Center for Environmental and Human Toxicology and the University-wide Aquatic Animal Health Program to support multidisciplinary collaborations throughout the UF community.

Aquatic Toxicology Facility (ATF)

The aquatic toxicology facility (ATF) is a 1,700sq-foot multi-purpose laboratory designed to hold and maintain aquatic organisms for biological studies. Located within the Center for Environmental and Human Toxicology compound, under the direction of Dr. David Barber, the facility is primarily setup to perform toxicological studies using fish as animal models, it is also capable of housing a wide range of aquatic species for a variety of purposes. Together the facility contains approximately 40 tanks consisting of more than 4,400 gallons of fresh water and thus comprises the largest such facility on the University of Florida's main campus.

The facility is designed for flexibility allowing a wide range of experiments to be performed simultaneously. Presently, 500 square feet has been allocated for short term holding of animals. This area is isolated from the rest of the facility in order to minimize possible contamination. The dosing areas contain our research tanks and are organized into systems or groups of tanks for recirculation or flow-through operation. Multiple or individual tanks may be run through effluent filters to remove toxicants or chemicals used during experiments. Alternative space is also available to setup any additional facilities or special environmental controls to fit investigator's needs.

In addition, the ATF provides services to aid investigators and help ensure successful experiments. These include water quality testing kit, access to compound and dissecting microscope, conventional refrigerator and freezer space for food and specimen storage along with basic tools and a shop area for fabrication. ATF staff is also available to lend assistance with culture procedures, disease diagnosis and treatments, fish location, transport and handling, and routine aspects of experiments such as feeding.

A user application form is required along with a short review process for new experiments to be performed within the ATF. This enables the ATF to determine if the proposed experiment(s) are within the scope and capabilities of the facility.

Brooks Rehabilitation Clinical Research Center

The Brooks Center will endeavor to create recommendations about "best practices" in this ever-changing and highly individual discipline of medicine. The hope is to advance the science and improve patient outcomes while reducing the costs of treatment. The Brooks Center will also utilize its research and studies to influence changes in public policy regarding medical rehabilitation and the treatment of disabling injuries and illness. Above all, the Center aims to foster a strong relationship between scientific medical research and the application of rehabilitation in order to restore hope and improve the quality of life for people with disabling injuries or illnesses.

The Brooks Rehabilitation Clinical Research Center was created in 1999 as a result of a collaboration between the College of Health Professions at the University of Florida and Brooks Rehabilitation. A donation of $2.5 million by Brooks was matched by the State of Florida funds for a total of $5 million to establish this clinical research enterprise with the mission of furthering knowledge in rehabilitation science, technology, clinical practice and health policy through excellence in research and training.

The Brooks Rehabilitation Clinical Research Center is committed to enhancing recovery and quality of life through research. We offer a platform of research that focuses on the investigation and development of:

- Accurate and informative rehabilitation assessment tools
- Innovative treatment protocols that utilize new technologies and evidence based practices
- Outcome measures that enable us to assess and track the recovery process while in rehabilitation programs and after discharge

Our research addresses the rehabilitation and human performance needs of individuals with disabling conditions resulting from birth, injury, or disease. These include individuals with many types of conditions such as: stroke, brain and spinal cord injuries, chronic pain, arthritis and various musculoskeletal conditions.

Cardiovascular Cell Therapy Research Network (CCTRN)

Our mission is to advance stem cell research to enhance the efficacy and safety of clinical therapy in patients with cardiovascular disease. Our primary goal is to help patients through the advancement of clinical stem cell research. Our investigators are highly trained nurses, cardiologists, surgeons, and scientists coming together to identify and refine cell therapies to treat heart and vascular disease. These cell therapies have the potential to improve the structure and function of the heart and circulatory system after acute injury (heart attack) or repeated injuries (heart failure) or ischemia (angina or limb claudication).

Center for Entrepreneurship and Innovation (CEI)

The Center for Entrepreneurship and Innovation (CEI) was created to teach, coach and inspire students to be entrepreneurial in their lives. The Center provides students the tools and experiences necessary to creatively pursue new opportunities and innovations in the start-up, social, and corporate venture arenas.

Through courses, degree programs and complementary activities such as speakers and workshops, CEI currently serves more than 2,000 students per year. Partnering with other colleges at the University, CEI delivers introductory and specialized courses at both the graduate and undergraduate level, provides practical learning opportunities through GatorNest—an experiential learning laboratory, and offers every graduate student at the University of Florida the option to earn a certificate in new venture creation.

In addition, CEI offers the nation's most comprehensive specialized degree program focused on entrepreneurship, the Thomas S. Johnson Program.

Center for Environmental and Human Toxicology

The Center for Environmental and Human Toxicology serves as the focal point at the University of Florida for activities concerning the effects of chemicals on the environment, human and animal health.

The Center serves as an interface between basic research and its application for evaluation of human health and environmental risks. This interface includes an educational component to transfer this knowledge to producers, consumers, and regulators. The research and teaching activities of the Center provide a resource for the State of Florida to identify and reduce risks associated with environmental pollution, food contamination, and workplace hazards.

Development and improvement of risk assessment methods as well as toxicity testing and elucidation of mechanisms of action of chemical-induced adverse health effects are all activities of the Center that serve as resources for the State of Florida and the nation. The Center provides a forum for the discussion of specific and general problems concerning the potential adverse human health effects associated with chemical exposure. Using the interpretive skills of scientists and clinicians from various health disciplines, better decisions can be made for the protection of public health.

Emerging Substances

Our goal is to provide environmental health professionals with information regarding current research in the field, conferences dates and information, contact information to other professionals, and the tools to access information on specific substances of concern.

Nanotoxicology

Research on the toxicity of nanomaterials at the University of Florida is an interdisciplinary effort, involving scientists with biological, chemical, and engineering backgrounds.

Center for Exercise Science

The Center for Exercise Science researchers are engaged in studies designed to improve our understanding of the basic mechanisms that underlie exercise-induced changes in the body at the organ, tissue, cellular and molecular level. Further, CES scientists are investigating applied topics such as the development of rehabilitation techniques for regaining motor control after stoke, maintaining optimal health and delaying age-related declines in physiological function.

The primary goal of scientists in CES is to improve human health by advancing knowledge through research. Moreover, CES provides an outstanding laboratory environment to educate University of Florida students and post-doctoral fellows who will become the next generation of health-related exercise scientists and clinicians.

To achieve its mission, scientists associated with the CES are pursuing a research agenda organized around four primary themes:

- Physiological, biochemical, and molecular studies related to aging, cardiovascular health and muscular skeletal health
- Biomechanics and motor control investigations aimed at optimizing rehabilitation from neuromuscular disorders and maintaining bone and joint health
- Psychological studies that focus on exercise adherence, eating disorders and the role of physical activity in the promotion of self-esteem and prevention/treatment of affected disorders.
- Athletic training/sports medicine studies involving both basic science and clinical issues related to injury prevention and care for the physically active.

Center for Health Equity and Quality Research

An important research resource for UF Community Based Participatory Research at the Jacksonville campus, the core faculty include researchers with a background in public health, and health services research, as well as training in health education and evaluation research, health services and outcomes research, and mental health services Research. The Center for Health Equity and Quality Research also includes a PhD-level biostatistician and two master's level biostatisticians, and research coordinators. Faculty and staff are expert in the use of a wide range of research methods including community evaluation research, community-based participatory research, quality of care and outcomes research, clinical trials, and translational research.

The Center for Health Equity and Quality Research provides the research infrastructure for UF Health Jacksonville by providing research design and analysis consultation services to faculty, residents and fellows, including help with IRB preparation and submission, development of protocols, grant development, data collection, data analysis, and report generation; assisting UF faculty in the development of research teams through collaborations with investigators from UF Gainesville and other institutions; providing data management and analytic support to quality management initiatives for the enterprise; providing education to faculty, residents, and fellows on biostatistics, research design, and epidemiology through annual lecture series and online courses; and providing mentoring on research and project management support for fellows to help develop the next generation of faculty at UF Health.

Center for Movement Disorders & Neurorestoration

The UF Center for Movement Disorders & Neurorestoration investigates treatments for and causes of Parkinson's Disease, PSP/atypical parkinsonism, tics, tremor, dystonia, Huntington's Disease and other disorders. The interdisciplinary disciplinary approach at the UF Center for Movement Disorders & Neurorestoration brings together top researchers from multiple fields.

Deep Brain Stimulation Research

Drs. Foote and Okun together with a large interdisciplinary team- implant Deep Brain Stimulators that can change the rates and patterns of activity in one or more of many targets including the thalamus, subthalamic nucleus, globus pallidus, internal capsule, nucleus accumbens, and other brain regions. The UF Center for Movement Disorders & Neurorestoration is exploring the cognitive, behavioral, and mood effects of brain stimulation and researching the use of Deep Brain Stimulation to treat patients with Obsessive Compulsive Disorder and Tourette syndrome. The center is world renown for its cutting edge and pioneering research and technologies. Over the last 10 years the UF Center for Movement Disorders is in the top 5 in the world in production of research on DBS and electrical therapies and has been involved in all major DBS brain targets and disorders (e.g. PD, tremor, OCD, dystonia, Tourette, others). Dr.

Okun's laboratory has recently turned its attention to Tourette syndrome and unlocking human tic physiology, and Dr. Foote has taken on MS tremor.

Clinical Trials

Clinical trials look into the safety and efficacy of a drug in improving symptoms or slowing/stopping/reversing the progression of a disease. Most drugs tested in clinical trials are not yet available in drug stores while some studies involve medications that are already available. Neuroprotective drugs may provide great benefit to those with Parkinson's and other movement disorders. UF under the leadership of Ramon Rodriguez has one of the largest fully integrated clinical trials programs in the country. The staff and facility are on site and have dedicated exam room space so that patients can be seen on the same day as for clinical care in any one of 10 specialities. Additionally the clinical trials center performs behavioral research (e.g. exercise, swallowing) and surgical research (e.g. DBS). Many important trials have been performed in this

center including NIH COMPARE DBS, treatment of the masked face, expiratory muscle strength training, exercise of PD, as well as the NIH neuroprotective trials (NET-PD).

Clinical research database

With permission from patients, the UF Center for Movement Disorders & Neurorestoration tracks the progress of each patient's treatment as measured with several scales covering motor and non-motor areas. That information is entered into a central database that is used to find patterns in the data and to find patients that meet certain criteria for studies. 99% of all patients in the center to date have consented to be part of this massive database and discovery project. The National Parkinson Foundation has modeled their massive quality improvement initiative after the UF INFORM effort.

Behavior and Emotion

The Bowers Laboratory is an interdisciplinary cognitive neuroscience research laboratory involved in the study of cognitive and affective behaviors in humans and the neural systems that underlie them. Participants include patients with Parkinson's disease, parkinsonism, dystonia and other movement disorders. This laboratory is world renowned for its efforts to better characterize the psychophysiology associated with disease (smiles, facial expression, sweating, autonomic features, etc.). Several major revelations for the field have emerged from their work including the first descriptions of stimulation induced smiles, and the first recognition of apathy as important in Parkinson's disease.

Gene Transfer, Stem Cells, and the Role of Proteins in Neurodegeneration

The UF Center for Movement Disorders & Neurorestoration is investigating two different strategies to alleviate behavioral deficits in rat and monkey models of Parkinson's disease. Dr. Mandel and his lab are pursuing both direct intrastriatal transmitter replacement (L-dopa delivery) and neurotrophic support strategies (GDNF delivery) in the unilateral 6-OHDA lesion model of PD using recombinant adeno-associated viral vectors (rAAV). This group has pioneered these approaches and are currently working on therapeutic strategies. Additionally Dr.'s Steinder and Reynolds are world-class stem cell researchers working in Parkinson's disease and DBS, and Dr. Nick McFarland has been working on protein processing.

Center for Neurogenetics

The Center for NeuroGenetics (CNG) will integrate molecular, genetic and clinical approaches to define the causes of neurodegenerative disease and develop effective treatment strategies. Our goal is to advance our understanding of the causes of neurogenetic disease and develop opportunities for therapeutic intervention. To accomplish this we are using an integrated approach to understand the molecular mechanisms and common cellular pathways of neurological and neuromuscular disease. The Center combines valuable clinical and patient support with newly available tools for gene discovery with laboratory models that allow us to study of the effects of these mutations on the basic biology and function of neurons in the brain. Areas of research focus include:

- Clinical Research
- Human Gene Discovery
- Mouse Behavior and Genetics
- Neuronal Function
- Neuroimaging

Center for Perinatal Outcomes Research

The center focuses to foster collaborative, multidisciplinary, and integrative approaches to basic and translational research that improves the health of pregnant women and their babies, enhances the reproductive success of agriculturally important animals and wildlife, and prepares the next generation of scientists in these research disciplines. Along with basic, translational and clinical research aimed at understanding the biology of reproduction in humans and animals from fertilization to delivery and early postnatal development, and genetic, epigenetic or environmental influences that cause abnormal pregnancy outcomes, including those influences that predispose the mother and offspring to adult diseases.

Center for Pharmacogenomics (UFCPGx)

The UF Center for Pharmacogenomics is a 1,843 square foot renovated laboratory space (four laboratories) in the UF Health Science Center. The laboratories are divided based on workflow and for reasons of quality control. The Pre-PCR laboratory contains three Laminar flow hoods, a refrigerator, a -207C freezer and a computer. The PCR laboratory contains one Labconco Purifier Filtered PCR Enclosure, four Applied Biosystems (ABI) Verti fast Thermal Cyclers and one ABI GeneAmp 9700 PCR System Thermal Cycler, which can accept single tubes, 96-well plates or 384-well plates. It also contains QIAGEN QIAcube Automated RNA, DNA and Protein isolation instrument, a 96 and 384-well plate centrifuge, and two Eppendorf liquid handling/sample processing robots (Eppendorf epMotion 5070, and Eppendorf epMotion 5070 PC 96 qPCR system large robot). The clinical sample processing and DNA isolation laboratory has a 96 and 384-well plate reader (Bio-TEK Synergy HT), Li-COR ODYSSEY CLx Infrared Imaging System, NanoDrop (ND-1000) Spectrophotometer, NanoDrop (ND-2000) Spectrophotometer BioRad Criterion™ Protein Gel System and Blotter, BioRad large Protein Gel System, BioRad Gel Documentation System (Bio-Rad Gel Doc XR System PC), digital camera, Micro hybridization oven, UV lightbox, and Gel dryer. Another laboratory is an analytical laboratory which contains extensive analytical equipment including 2 Transilluminators, 3 Vertical Gel Electrophoresis Systems, 10 Horizontal Electrophoresis Systems, 2 autosamplers, 6 Multichannel Pipetters, and a pH Meter. General equipment shared between the labs includes a variable speed refrigerated centrifuge, variable and fixed speed Microcentrifuges, 2 variable speed non-refrigerated centrifuges, one 96 and 384-well plate centrifuge, a liquid nitrogen system, a controlled water bath, microwave oven, and three computers. The analytical and genotyping laboratory is the largest laboratory and contains the major genotyping systems, including 2 LifeTechnologies QuantStudio TaqMan-Based OpenArray Multiplex Genotyping Systems and Pyrosequencing high-throughput genotyping system (PSQ HS 96). Another lab provides work space with three computers and an office for the laboratory manager. Labs are equipped with refrigerators, centrifuges (Eppendorf Microcentrifuge 5418 R, 5415 R, and Eppendorf Benchtop 5810 R centrifuge, and DAMON-IEC CRU-500 centrifuge), and standard lab equipment such as pipettors, glassware, etc.

Departmental shared space includes a freezer room, which contains additional freezers including five –807C freezer and five –207C freezers. The labs have 15 personal computers and four printers. The lab system is comprised of Enterprise class Linux RHEL 6.5 and Microsoft Window server

2008. User level files are stored on two Dell R710 servers running Windows Server 2008 R2 Enterprise utilizing Distributed File System for redundancy. The labs' web- based Information services are running on Linux based Apache 2.4 servers running in a VMWare ESXi cluster utilizing six Dell R710s. The backend database is running on a Dell R620 using a Linux based MySQL. All differential backups are performed to disk storage nightly Monday through Thursday with a full backup running on Friday. Differentials and full backups are kept on disk storage for 90 days with a copy of the latest full backup put on tape monthly and moved to offsite storage.

Center for Precollegiate Education and Training

Since 1995, the center has involved hundreds of faculty in offering content-rich, laboratory- based, professional development programs for secondary school teachers coupled with school- year follow up. The Center for Precollegiate Education and Training collaborates annually with more than 300 faculty volunteers and hundreds of educators from around the state of Florida.

The center assists more than 30 researchers with the design and implementation of specific activities to broaden the impacts of their individual grants or pending proposals. Programs incorporate bridging activities that include teachers, researchers, and industry professionals in preparing and delivering effectual science education and career investigation from middle school through graduate school. Its instruction incorporates multiple research-based and novel teaching/learning strategies and is aligned with national and state education standards. The Center for Precollegiate Education and Training extensively interacts with graduate students across campus and actively solicits, coordinates, and oversees their voluntary or for-credit participation in precollege programs.

Center for Precollegiate Education and Training programs are designed to expand the content knowledge, skills, resources, networking, and enthusiasm of teachers and to reengage them with the university community. Newly generated and published curricular materials, methods and modules, and increased involvement of teachers and their students in school-site, inter-school, and university campus research and career-related activities are used to measure success.

Outcomes include rich curricula related to research and aligned with education standards that will be shared face-to-face and online as well as successful dissemination of UF research and recruitment of new “gators” and future STEM and health professionals. Outcomes also include increased funding and sustainability through leveraging for precollege education; broader impacts for research; exposure to STEM academic, health, and industrial careers (pipelines); and a growing culture of interest and experience in research teaching, outreach, and associated professional development in mentoring and science communication for graduate students and their research mentors.

Center for Spirituality and Health

The Center for Spirituality and Health is to pursue research and provide curriculum at the interface of spirituality and the health sciences. It is designed to promote within UF the rigorous, interdisciplinary study of the human experience of faith, belief and spiritual knowledge in relation to health at the individual, community and global levels. The Center will foster free and creative communication about these issues. We are also committed to the academic exploration of the wider contexts of spirituality, religion and sciences as a whole, using the interface of spirituality and health sciences to bring Humanities, Natural and Social Sciences into relationship.

Research and Wisdom

Research in the area of meditation is normally interdisciplinary in nature. Meditation research encompasses many fields of research from religious studies to psychology to neuroscience. The following study was an interdisciplinary venture that brought together researchers from the fields of religious studies, psychology, sociology, and neuroscience.

Arts in Medicine

The goal of the proposed quantitative/qualitative study is to test (a) if creative arts/guided imagery interventions for patients with advanced cancer and their primary informal caregivers will promote spiritual transformation and psychosocial growth in both patients and caregivers;

(b) if a high intensity intervention is more effective than a low intensity intervention; and (c) if spiritual transformation and psychosocial growth will lead to better social relationships, enhanced subjective well-being, more accepting attitudes toward death and, ultimately, a better dying experience of the cancer patients.

Center for the Study of Lithiasis and Pathological Calcification

The Center for the Study of Lithiasis and Pathological Calcification is under experimental pathology. This is the study of disease processes via the examination of cells, tissues or organs or bodily fluids from diseased organisms. The Department's Experimental Pathology Division is composed of a diverse group of investigators who research the disease mechanisms. Their research covers five overlapping areas, including:

- Cancer Research
- Emerging Pathogens
- Immunology/Autoimmunity
- Nephrolithiasis
- Stem Cell Research

Center for Undergraduate Research

The University of Florida has a long tradition of discovery through the deep and broad research enterprise housed in all of its varied Colleges and Institutes. This research rich environment offers undergraduates extensive opportunities to become engaged in their fields in ways that go beyond traditional classroom settings. Scholarly work mentored by research faculty is a form of active learning that fosters critical and independent thinking, creativity, and understanding of the research process, and it hones analysis, problem-solving, and communication skills. It also helps prepare students to continue their education beyond the undergraduate level and to more effectively contribute to the workforce. Undergraduate research is also an effective way to integrate the new knowledge developed by the research faculty into the undergraduate curriculum.

The Center for Undergraduate Research is committed to fostering a culture of research that encourages *all* students to include a research component as a critical part of their undergraduate experience. CUR provides guidance to students and faculty interested in pursuing research opportunities and the coordination of campus research activities. CUR also works to expand research opportunities across campus.

Center for Vision Research

Vision research at the University of Florida crosses the boundaries of nine departments in the College of Medicine and six colleges at the University of Florida. Because of this diversity, the Center for Vision Research was established in 1996 to help build a cohesive core of vision researchers. Specifically, the Mission of the Center for Vision Research is to:

- Integrate a campus-wide, multi-college group of faculty interested in different aspects of vision research.
- Promote communication, academic courses and other educational activity that will enhance vision-oriented research at the University of Florida.
- Develop and coordinate multidisciplinary collaborative approaches to solve vision-related research problems.
- Provide a focused unit to enhance collaborative research with external research labs, industry and other centers.

Center of Excellence for Regenerative Health Biotechnology (CERHB)

The Center of Excellence for Regenerative Health Biotechnology (CERHB) was established in 2003. Our mission is to stimulate promising research and facilitate commercialization of technologies that will provide treatments and cures for human diseases, as well as create new companies and high wage jobs for Florida. Our activities encompass education, translational research, and biopharmaceutical manufacturing. Located in Alachua's Progress Corporate Park, our Research and Education Center promotes and conducts training programs and fosters regenerative health research. Our state-of-the-art biopharmaceutical manufacturing and testing services facility, Florida Biologix®, provides a broad range of drug development services.

The University of Florida is a premier research institution, attracting $494M in research funding for the 2004-05 fiscal year, with the Health Science Center receiving $257M of this funding to support research in the medical and life sciences. Technology transfer income at UF hit an all- time high at $40.3 million. Discoveries in the basic health sciences have the potential to translate into new medical treatments. Currently, it costs nearly one billion dollars to turn a research discovery into a commercial medicine, due in large part to the expense of clinical trials, and drug manufacturing and testing that satisfy federal regulations. Of the products tested in Phase I human clinical trials, 45% graduate to Phase II, 10% move to Phase III, and only 5% are commercialized. Translational research is focused on transitioning the innovations discovered in the laboratory into the clinic, where safety and efficacy can be evaluated. The CERHB facilitates translational research by providing expertise and infrastructure to investigators at the University of Florida, local start-up companies, and other universities, research institutions, and companies in the Southeast. The CERHB is playing an integral role in developing the biotechnology cluster in Florida by fostering new company formation, existing company expansion, and attracting outside companies to the region.

Clinical Research Center

Occupies 14K square feet on the first floor of the Clinical and Translational Research Building (CTRB). The dedicated research space includes 14 exam rooms, a large infusion suite, two procedure rooms, and a large exercise physiology room. The unit also includes administrative offices and is equipped for complex exams such as bronchoscopy, liver biopsies, and gene therapy. Other available equipment includes pulmonary function equipment, dental chair, Bod Pod, Body Box, Basal Metabolic cart, Ultrasound machine, EKG machine, and blood pressure monitors. Located within the CRC are an investigational pharmacy, a conference room, work areas for nursing and study staff, and a sample processing lab which houses refrigerators, centrifuges and -80° freezers. The CRC provides a highly trained research staff including registered nurses, a medical technologist, a research dietitian, and administrative staff. All staff have human-subject protection and Good Clinical Practices training and participate in ongoing education. Services include administration of investigational medications, specimen collection including pharmacokinetic sampling, monitoring of vital signs, administration of glucose tolerance tests, euglycemic clamp procedures, diet recalls, specimen processing, and exercise testing. CRC also provides study coordinator and internal study monitoring services.

College of Medicine Education Center

The College of Medicine Education Center serves several functions in the College of Medicine:

- Coordination of all teaching activities through the four years of medical school. The schedules for all four years of medical school are set through this office, including the selection and scheduling of the senior elective courses and clerkships.

- Preparation of course syllabi, handouts, and examinations. Information provided by course directors may be distributed during classes or through this office. Students may come to this office any time they have questions on any course materials.

- Evaluation of courses, faculty, and teaching programs within the College of Medicine. Office personnel compile and summarize data on the teaching programs including course and faculty evaluations. Course debriefings are also scheduled and conducted through this office. The debriefings are meetings held at the end of courses in which student representatives meet with course faculty and representatives of the College of Medicine Curriculum Committee and Dean's Office. The sessions provide an opportunity for students to provide feedback and influence the future planning of the course as the strengths and weaknesses of each course are discussed.

- Coordination of the advisor program. Advisors are assigned through the office. They are then informed of students' progress in academic course work. If students have any problems associated with the advisor program, they should report them to this office.

Craniofacial Center

The University of Florida Craniofacial Center provides a broad spectrum of interdisciplinary services to patients and families pertaining to cleft lip and palate, facial disfigurement and other malformations of the head. These disorders may be due to birth defects, developmental or acquired through disease or accident. Services available from the Center include corrective surgery, pediatric medical care, pediatric dentistry, orthodontics, prosthodontics, otology and audiology, speech-language pathology, psychology, and patient/parent education. There are three major components of the UF Craniofacial Center's mission:

- To serve patients with craniofacial malformations, and their families
- To conduct research intended to improve diagnosis and treatment for persons who have cleft lip/palate and other craniofacial malformations, worldwide, a goal which can be addressed in a university such as the University of Florida with a research-oriented teaching hospital
- To educate students and professionals in the disciplines of craniofacial science and related health care

CTSI Biorepository

One of only five CTSI-affiliated biorepositories accredited by the College of American Pathologists. The services provided by the CTSI Biorepository include retrospective and prospective procurement of high quality biospecimens for research (fresh, fresh-frozen, formalin-fixed, paraffin-embedded tissue, DNA, RNA, plasma, serum, buffy coat, etc.); a centralized, secure, and monitored biospecimen storage facility; biospecimen processing services; nucleic acid extraction and quality assessment services; comprehensive clinical trial specimen management services including kit creation, sample receipt/ reconciliation, storage and distribution; regulatory assistance, including Institutional Review Board documentation when applying for Biorepository services; and comprehensive pathology services, including diagnosis confirmation by board certified pathologists. The total sample storage capacity is approximately 500K samples stored in nine -80°C freezers and one liquid nitrogen freezer. The current storage inventory exceeds 230K samples including approximately 31K biorepository “library” specimens which are available to researchers and nearly 198K samples collected by investigator- directed research projects including multi-center clinical trials. Examples of large scale clinical trials utilizing CTSI Biorepository services include the "Lifestyle Interventions and Independence for Elders Study” (The LIFE Study), the “Hepatitis C Therapeutic Registry and Research Network” Study (HCV-TARGET), the UF’s “Sepsis and Critical Illness Research Center” (P50 grant, departments of Surgery, Anesthesiology, Medicine, Physical Therapy, Aging and Geriatric Research), and the UF Health/Orlando Health Joint Oncology Program. The CTSI Biorepository also serves as the official UF Health Cancer Center’s biospecimen procurement and storage facility for Cancer Center Members.

Dental Clinical Research Unit

The facilities enable performance of state-of-the-art clinical research in the field of oral and craniofacial clinical and translational research, and foster collaborative research with areas of biomedical research. Examples of investigational research include fundamental clinical studies funded by the NIH exploring the etiology and pathologies of oral infectious diseases and translational research that evaluates the efficacy of anti-inflammatory products, growth factors in periodontal regeneration, systemic and locally delivered antibiotics, other antimicrobials and antiseptic agents, and newly developed health care products or devices. The Dental Clinical Research Unit also assists with in vitro studies of antimicrobial compounds and susceptibility studies and evaluate diagnostic methods and procedures.

The Dental Clinical Research Unit has the capability to direct phase I, II, and III trials complete with microbiological analysis. Investigators affiliated with the unit may perform clinical trials within the facility located at the UF College of Dentistry and/or within other facilities associated with the Dental Clinical Research Unit or the CTSI. Clinical and laboratory staff are knowledgeable and experienced in clinical trials involving pharmacology, immunology, microbiology, periodontology, and hypersensitivity and are willing to explore new areas of collaborative research. Facilities and resources within the Dental Clinical Research Unit include six enclosed private dental operatories, office space, dental laboratory, wet lab space for processing of samples, first aid emergency kits, radiography, and secure individual storage space.

The Dental Clinical Research Unit provides advice, assistance, design, and/or direction to short- and long-term clinical/translational research projects. Services offered include protocol reviews, assistance with budgets, calibration of equipment, subject recruitment, staffing, scheduling assistance, assistance with regulatory issues, diagnostic methodology project closures, safety and efficacy testing, claim support, and pharmacokinetic testing. Assistance with data collection, management and analysis is also available. Data systems are subject to continuous quality control. Standard and electronic chairside data entry is available as well as clinical and microbial integration.

Assistance is available for specialized reports such as the final report for corporate sponsors, ADA or FDA submissions, or preparation of scientific abstracts.

Available equipment includes six Adec dental chairs utilizing Optima MX2 high speed/low speed handpiece adapters and high/low volume evacuators and air/water syringes; two Isolite Illuminated Dental Isolation systems; four Dentsply Cavitron Plus units; Gendex Expert x-ray machine; Air Technologies Scan X Digital Imaging System; Scotsman Touch Free ice machine; -80° Thermo Scientific freezer; M11 Ultraclave; the Print Smart Xerox WorkCentre 3655 Copier, Fax, Scanner and Printer and a Xerox Colorqube 8880 Printer; dental instruments (restorative kits, prophy kits, surgical kits); and clinical supplies (cover gowns, gloves, mask, safety goggles, dental unit barrier covers).

Diabetes Institute

Includes more than 100 investigators from multiple College of Medicine departments as well as investigators from the UF colleges of Engineering, Pharmacy, and Nursing, IFAS, the Institute on Aging, and the Genetics Institute. All are active collaborators and contribute to an atmosphere conducive to and supportive of comprehensive diabetes research. UF has led multiple studies on the pathogenesis and natural history of Type 1 diabetes, which involved the analysis of tens of thousands of individuals. UF has stored serum, plasma, and/or DNA samples (as well as associated clinical laboratory data) from more than 75K individuals (i.e., Type 1 diabetes patients, their relatives, persons with other autoimmune disorders, healthy controls) throughout the US as well as developed relationships with lay organizations (i.e., ADA, JDRF, Children with Diabetes) in order to aid investigators in terms of subject recruitment. UF serves as both the lead Administrative Unit and the Organ Procurement and Processing Core for the JDRF-funded Network for Pancreatic Organ donors with Diabetes (nPOD) program. It is the world's largest repository of whole pancreatic and lymphoid tissues from subjects with Type 1 diabetes, persons at increased risk for the disease, control subjects across a variety of ages, and those with other pancreatic disorders relevant to address questions about Type 1 diabetes.

The core research facilities for Type 1 and Type 2 diabetes measure in excess of 50K square feet, including modern laboratories. More than 20K square feet of laboratory space within the Biomedical Sciences Building is dedicated to molecular biology, immunology, and pathology core facilities. Equipment operated and owned by the Diabetes Institute include thermocycler, flow cytometers, scintillation and chemiluminescence counter gamma counter, ELISA readers, cell sorter, Coulter counter, photomicroscope, biosafety cabinets, incubators, centrifuges, automated cell harvester, DNA, RNA and protein purification system, and a qPCR system. In addition, the Diabetes Institute has access to two different confocal microscopes as well as a laser capture microscopy unit.

Division of Sponsored Programs (DSP)

DSP facilitates institutional approval for all extramural proposal submissions, accepts and administers grant awards, and negotiates contracts and other research-related agreements on behalf of the University of Florida. DSP's main office is located in Grinter Hall. In addition to our Main Office, DSP has three other locations offering specific services to HSC-GNV, HSC- JAX, and the College of Engineering. DSP provides the following services to the University of Florida's faculty and staff:

- Proposal Development & Submission
- Award Management
- Training
- Forms & Templates

Electron Microscopy Core

Occupies approximately 1,800 square feet in the basement of the UF Academic Research Building. The facility is part of the Department of Medicine, but it also provides access, assistance, and services to researchers in other UF colleges as well as researchers outside of UF. The mission of the core is fourfold: to provide investigators with access to instruments necessary for ultrastructural research; to teach faculty, staff, and students methods in ultrastructural research; to provide technical services; and to consult with faculty, staff, and students on projects and advise them regarding possible approaches to their research questions involving ultrastructural research.

The core houses a transmission electron microscope and support equipment for light and electron microscopy sample preparation and image processing, plastic polymerization, cold processing, and vibratome sectioning, light microscopy sample processing, sample storage, and digital light microscopy. It also houses all necessary support equipment and technical expertise for ultrastructural morphologic, morphometric, and immunolocalization research. In addition to standard laboratory equipment and computers, the support equipment includes a Leica DM2000 microscope, a Nikon LaboPhot-2 microscope, four ultramicrotomes, a EM TP automatic tissue processor, fume hood for TEM tissue processing, microtome for sectioning polyester wax and paraffin embedded samples, two Lancer Vibratome sectioning systems for preembedding immunolocalization studies, a Pelco BiowavePro laboratory grade microwave with temperature regulated by a Pelco SteadyTempPro for microwave-assisted immunohistochemistry, antigen retrieval, and tissue processing; a cold room, and a Leica AFS automated freeze substitution unit for EM tissue processing at cold temperatures.

Emerging Pathogens Institute

Created in 2006, the institute provides a research environment to facilitate interdisciplinary studies of emergence and control of human, animal and plant pathogens. Major areas of research include vector-borne diseases, influenza, tuberculosis, enteric and foodborne illnesses, and antibiotic resistance. The Emerging Pathogens Institute is housed in an 88K square foot research building dedicated for institute use. The building includes 16 BSL3 laboratory modules as well as extensive BSL2 space and space for biomathematics; it has 50 faculty offices, 150 spaces for graduate students and post-doctoral fellows, and multiple conference rooms (including a 70-seat seminar room). The institute has over 200 affiliated faculty, from 11 different UF Colleges, with collaborations in over 34 countries.

Florida Climate Institute (FCI)

The Florida Climate Institute (FCI) is a multi-disciplinary network of national and international research and public organizations, scientists, and individuals concerned with achieving a better understanding of climate variability and change.

The FCI has seven member universities – Florida Atlantic University (FAU); Florida International University (FIU); Florida State University (FSU); the University of Central Florida (UCF); the University of Florida (UF); the University of Miami (UM); and the University of South Florida (USF) – and is supported by relevant colleges, centers, and programs at these universities. UF and FSU initiated the FCI in 2010; FAU, UCF, UM, and USF formally joined in 2012; and FIU formally joined in 2013.

The FCI is led by an executive board consisting of two faculty from each member university. The two faculty at each university include a university FCI branch director and an additional person selected by the university. Leadership of the executive board consists of a chair and an associate chair. UF currently serves as the FCI host institution and, as such, coordinates the central operational duties. As branch director of the host institution, Dr. James W. Jones currently serves as the FCI chair. The host institution rotates among member universities and is reconsidered every three years. Each member university also has support staff to assist the executive board in developing, executing, and evaluating FCI programs and activities.

Over 200 individual affiliates, including university researchers and representatives from government and industry, have joined the FCI. Anyone with a strong interest in climate research, teaching, and/or outreach is welcome to become an affiliate.

Florida Institute for Sustainable Energy (FISE)

The Need- Our quality of life, standard of living and national security depend on energy. A strong, balanced energy research program, based on the most efficient use of our natural resources while minimizing our dependence on imported energy, is critical to Florida and the U.S.

Addressing the Need- The Florida Institute for Sustainable Energy brings together research capabilities necessary to create a sustainable energy future. FISE encompasses more than 150 faculty members and 22 energy research centers at the University of Florida. In the last few years alone, UF's Federal and State funded energy research exceeded $70 million.

Florida Neonatal Neurologic Network

The Florida Neonatal Neurologic Network's (FN3) mission is to provide state-of-the-art care for newborn babies with brain injuries and to collect research and develop future therapies to improve long-term outcomes. FN3 aims to create innovative new therapies for babies with brain injuries. FN3's values include:

- Provide state-of-the-art clinical care across the state of Florida;
- Provide educational resources to parents;
- Develop future treatments to improve the outcome of babies with brain injuries.

This will be accomplished by combining the excellence found in the top hospitals and research institutes in the state of Florida. FN3 shall further:

- Observe ethical and professional standards;
- Maintain communication and positive relationships between hospitals and the general public;
- Strengthen research databases by maintaining an updated registry

Global Pathogens Laboratory (GPL)

The laboratory focuses upon research and training regarding emerging infectious diseases, particularly those which are zoonotic. The laboratory has a national reputation for excellence in respiratory virus work. It is well-suited to support complex epidemiological studies of emerging pathogens including large cohort studies, evaluation of diagnostic tests, and clinical trials. It's Emerging Pathogens Laboratory is a modern 3000 sq-ft collection of BSL2 and BSL3 laboratory spaces and offices. This includes 1300+ sq-ft of BSL2 laboratory space for work with human pathogens, 1200+ sq-ft of BSL2 (USDA Ag-enhanced) laboratory space with HEPA-filtered exhaust for work with USDA BSL2 pathogens, two procedure rooms (~200 sq-ft each) in a BSL3+ suite, 330 sq-ft for 3 offices, and desk space for 11 students in a area adjacent to the laboratory, in addition to 1885 sq-ft of shared spaces and storage.

Laboratory personnel are adept in viral and bacterial culture, molecular identification, serotyping, genotyping, and serological studies. The GPL is divided into three sections: virology, serology, and molecular studies. Laboratory staff use 5 desk top computers and 3 printers, with access to a shared network printer/scanner/fax. The BSL2 laboratory space is equipped with two certified class II biological safety cabinets with vacuum. The laboratories also have multiple large -80°C upright freezers, laboratory refrigerators, CO2 water-jacketed incubators, a rocking egg incubator, microcentrifuges, a tabletop refrigerated centrifuge, a Metler analytical balance, an Acculab digital balance, 3 inverted microscopes (one with digital camera display, two BioRad sub-cell GT agarose gel electrophoresis platforms, a BioRad Protean II SDS-PAGE and western blot platform, a NanoDrop spectrophotometer, a microarray scanner, BioRad iCycler with iQ5 real-time PCR platform and Thermo KingFisher nucleic acid purification instrument. Adjacent shared equipment include a fluorescence capable microtiter plate reader, a BioRad Chemi-Doc digital gel-documentation system, an ultracentrifuge, a lab-dishwasher, two autoclaves, a Millipore water purification system, an ice machine, a U/V fluorescent microscope, shaking incubators, a walk-in refrigerator and an AKTA-FPLC. BSL2 USDA-enhanced space consists of three procedure rooms each equipped with fully exhausting biological safety cabinets and humidified CO2 incubators with a benchtop refrigerated centrifuge located in the common corridor and a -80 freezer. The BSL3+ features procedure rooms equipped with fully exhausting biological safety cabinets and humidified CO2 incubators a secure -80 freezer, a refrigerated bench-top centrifuge, refrigerated micro-centrifuges and shower out capabilities. Both the BSL2 USDA enhanced and BSL3+ also feature

pass-through autoclaved and decontamination chambers to facilitate the removal of large equipment from the laboratories.

The laboratory's focus areas include adenovirus, influenza, human metapneumovirus, avian pneumovirus, and Brucella canis, The laboratory holds permits (USDA/APHIS and CDC) to work with animal adenovirus, avian pneumovirus type C, Porcine Reproductive & Respiratory Syndrome Virus (PRRSV), Porcine Circovirus type 2 (PCV2), Streptococcus suis, Streptococcus agalactiae, Streptococcus pyogenes, and all influenza viruses, including highly pathogenic avian influenza viruses. Unique laboratory capabilities include: adenovirus culture, identification, serotyping, and genotyping; human metapneumovirus culture, identification, and genotyping; zoonotic influenza culture (embronated eggs or MDCK tissue culture), identification, serotyping, and genotyping.

Harrell Medical Education Building

The George T. Harrell, M.D., Medical Education Building opened in Fall 2015 and serves as a home for medical education at UF, accommodating advanced simulation training and meeting the educational needs of the next generation of UF physicians and physician assistants. The Harrell Medical Education Building is a 95K-square-foot, four-story facility that is located in close proximity to UF Health Shands Hospital. Its design facilitates the collaborative education of health sciences students at the UF College of Medicine. It features a state-of-the-art experiential learning center to teach complicated, high-risk skills, including an experiential learning theater with retractable walls and concealed grid to accommodate dozens of configurations and hundreds of health care scenarios, as well as one UF Health Shands Hospital mock operating room. It offers an expanded clinical skills learning and assessment center, with 18 standardized patient examination rooms equipped with video cameras and microphones; a control room with display screens to record student-patient encounters; spaces for review and evaluation of students' skills; and two hospital rooms modeled after UF Health Shands Hospital patient rooms. It also has two circular learning studios – each of which can accommodate up to 160 students – with six oversized video screens, ceiling-mounted projectors and sound-absorbing acoustical wood paneling.

Health Science Center

The HSC is the country's only academic health center with six health-related colleges located on a single, contiguous campus. Our colleges, major research centers and institutes and clinical enterprise focus on building collaborative specialized clinical services centered on quality and innovation.

Our vision as a preeminent academic health center is to optimize our collective expertise to improve patient care, education, discovery and the health of the community. Our success is predicated on research-based, multidisciplinary, cross-college programs. The colleges teach the full continuum of higher education from undergraduates to professional students to advanced post-doctoral students.

The HSC is also a world leader in interdisciplinary research, generating 52 percent of UF's total research awards. Five major health-related research centers and institutes are designed to create synergies and collaborative research opportunities. Research activities at the HSC reflect a depth of purpose by focusing on the translational nature of biomedical research, following the continuum from fundamental research to clinical research to patient care.

The Office of the Senior Vice President for Health Affairs includes several administrative units that provide leadership and support to all HSC colleges, centers and institutes. Among these are Academic and Administrative Affairs, Finance and Planning, HSC Libraries, Information Services & Technology and the Student Health Care Center. The HSC includes two primary campuses in Gainesville and Jacksonville as well as numerous educational, clinical and research affiliates across the state.

The Health Science Center also includes six major research institutes focused on health issues of importance to Floridians, more than 100 specialized centers of clinical expertise and a vibrant regional campus in Jacksonville.

From the time of the Health Science Center's founding in 1956, an effort led by our namesake, UF President J. Hillis Miller, we have operated as a single academic enterprise. He and other leaders had the distinct belief they were creating something unique for its time — an integrated campus dedicated to training a variety of professionals side-by-side and to introducing new knowledge that

will safeguard the health of Florida's citizens.

The HSC is a world leader in interdisciplinary research. The Clinical and Translational Science Institute, McKnight Brain Institute, UF Health Cancer Center, UF Genetics Institute, UF Institute on Aging and the UF Emerging Pathogens Institute are designed to create synergies and collaborative research opportunities that focus on the translational nature of biomedical research, following the continuum from fundamental research to clinical research to patient care. In the summer of 2009, UF became the only university in Florida to receive the National Institutes of Health's Clinical and Translational Science Award. This $26 million five-year grant is geared toward accelerating scientific discovery, enhancing medical care, producing highly skilled scientists and physicians and fostering partnerships with industry; it supports multidisciplinary research in a wide range of fields such as biomedical informatics, gene therapy, aging, nanotechnology and infectious diseases

Health Science Center Libraries

Active partners in the education, research, training, and clinical needs of the health science colleges, centers, and institutes, UF and the state, the Health Science Center Libraries include two facilities — the main library on the Gainesville campus and the Borland Health Sciences Library on the Jacksonville campus — and are affiliated with the College of Veterinary Medicine Education Center and UF Health Archives.

The main Health Science Center Library in Gainesville, founded in 1956 along with the College of Medicine, is a 53K-square-foot, technology-enhanced facility whose users may access 162 publicly available computers on all three floors of the library, including 30 big-screen monitors. Free wireless access is available throughout the library, and patrons not affiliated with UF may request temporary access. In addition, seating and study space accommodating up to 870 patrons is available across three floors, including 32 study rooms for individuals and groups. The Health Science Center Library in Gainesville is typically open 95 hours per week and averages approximately 32,000 visitors per month. Additionally, the library's second floor is accessible 24/7 to registered users from the health-science colleges. Reference assistance and search help are provided directly at the Information Desk and through referral to liaison librarians.

Since 1999, the Health Science Center Libraries have operated a liaison librarian program to facilitate partnerships with academic faculty and programs by assigning each Health Science Center college or department a dedicated librarian who works closely with its faculty, staff, and students. Library services include reference assistance, literature searching (including support of systematic reviews), course-integrated instruction and library workshops, circulation, document delivery, interlibrary loan, photocopy services, course reserves, locker check-out, and 3D printing. Access to electronic databases, books, and journals is available onsite and remotely to the UF community.

The Health Science Center Libraries' collection is comprised of electronic and print resources including reference materials, journals, books, and audiovisuals. As of June 30, 2016 the Libraries' collection totaled 143,543 unique monograph titles (books), 14,322 serial titles (journals), and 355 databases. The libraries have 292,041 print volumes with 178,926 available for immediate access, and 113,115 housed in a remote storage facility. HSC Libraries' users also have access to the full resources of the broader George A. Smathers Libraries: over 5,000,000 print volumes, 1,000,000 e-books, 8,100,000 microfilms, 170,500 full-text print and electronic

journals, nearly 1,000 electronic databases, 1,300,000 documents and 1,000,000 maps and images.

HealthStreet

A cornerstone of the community engagement program, HealthStreet has enrolled more than 10,000 members. The HealthStreet team supports community engagement activities across CTSI programs out of a Gainesville facility that provides a one-stop portal of entry for linking and navigating underrepresented populations to social services (food pantry, housing, criminal justice, etc.), medical and psychiatric services (MDs, nurse practitioners, drug treatment, blood pressure, glucose screenings, etc.), and research opportunities. The 10K-square-foot southwest Gainesville location also includes a lobby, a community center, a conference room, multiple meeting spaces, several interview rooms, two kitchen facilities and handicap accessible restrooms and showers. HealthStreet relies on Community Health Workers, who drive three seven-passenger vans drive to outreach locations and to provide transportation to community members for engagement. Community Health Workers operating in 46 of 67 counties in Florida complement the Gainesville outreach efforts. Additionally, HealthStreet leads a national network of 18+ CTSA sites in conducting Our Community, Our Health events. These monthly forums promote bi-directional communication between researchers and the communities they serve, addressing relevant health topics and disseminating research findings. The events are streamed nationwide and are interactive using text messaging and social media.

Human Applications Laboratory Manufacturing Facility

Produces cellular therapy products with recombinant viral vectors—located in the McKnight Brain Institute. The production facility occupies approximately 1,900 square feet and consists of two suites with a total of 14 separate rooms. Each suite is designed to function independently of the other and is comprised of two production rooms (Class 10,000), a staging and storage area (Class 10,000) and entrance and exit vestibules (Class 100,000). Production Suite A is designated for cell processing and cellular therapy production. No viral production occurs in this suite. The suite occupies approximately 700 square feet and has a positive differential pressure relative to the adjacent rooms. Production Suite B is approximately 1,200 square feet and has positive pressure differential relative to adjacent rooms and is used for the purification, filtration and aseptic fill of recombinant viral vectors.

The Quality Control Lab operates according to controlled, issued standard operating procedures including sample submission and tracking procedures, reagent receipt and tracking, and equipment operation, cleaning, calibration, and maintenance. Assays are performed using controlled documents called test records. These records are numbered to ensure appropriate documentation of all assays performed on product and product intermediates. In addition, the Lab is responsible for submitting all samples to contract laboratories for testing and for reviewing and reporting these results. All in-house reagents are prepared and documented using controlled reagent preparation records.

Human Applications Laboratory Quality Management has developed appropriate quality systems to help assure the quality and safety of the clinical materials produced and tested by the Human Applications Laboratory. Additionally, all test results (both in-house and contract laboratory results), equipment records, reagent preparation records are audited by independent Quality Assurance. The Quality Assurance Unit (CTSI-QA) was established at the College of Medicine to support the Powell Gene Therapy Center in June 2001. It was transferred to the UF CTSI in 2010. CTSI-QA reports directly to the Director of CTSI Research Services.

Since commissioning in 2002, Human Applications Laboratory has manufactured GMP clinical trials materials for nine gene therapy-related Investigational New Drug projects and two cellular therapy Investigational New Drug projects. The group specializing in the development of new process and testing, deployment for use in the GMP Manufacturing Facility or QC Laboratory,

execution of GMP manufacturing and testing and ongoing product stability testing.

Human Imaging Core

Provides infrastructure and support to facilitate research and educational activities using Magnetic Resonance Imaging and Spectroscopy (MRI/S) technology, with particular emphasis on translational MRI/S research in humans. Located in the McKnight Brain Institute, the centerpieces of the Core are two research-dedicated 3.0 Tesla whole-body human MRI/S scanners, including a state-of-the-art Siemens Prisma scanner (installed in December 2016), and a Philips Achieva scanner. The Siemens Prisma scanner is equipped with simultaneous multi- slice (SMS) technology for functional MRI (fMRI) and diffusion imaging (dMRI) as outlined in the Human Connectome Project, as well as Magnetic Resonance Elastography (MRE) and other advanced MR technology. Whole-body scanning capabilities enable correlative measurements in obesity, diabetes, osteoarthritis, aging and dystrophy studies. Both scanners are equipped with a series of coils and pulse sequence packages for advanced MR imaging and spectroscopy research of human neuro, body, and musculoskeletal (MSK) system, e.g., a 64-channel head/neck coil on the Siemens scanner, a 32-channel head coil and a 16-channel neuro-vascular coil on the Philips scanner, respectively, for neuroimaging applications, and phased array coils for other organs (e.g., heart, liver, and MSK). Both scanners are equipped with devices for presenting video and audio signals, including functional MRI task paradigms to the subjects during scanning, and for recording the subject's button responses. The Core is a resource, on a fee-for-service basis, open to UF and UF Health researchers, as well as researchers from outside UF through collaborations with UF and UF Health researchers including those in the Core. In conjunction with three higher magnetic field magnets (Agilent 4.7T, Agilent 11.1T, Bruker 17.6T) for imaging animals and/or tissue samples in the Advanced Magnetic Resonance Imaging and Spectroscopy (AMRIS) Facility, which is housed on the same floor in the MBI and is the biological arm of the federally- funded National High Magnetic Field Laboratory, the CTSI Human Imaging Core is a state-of- the-art facility for cutting-edge translational MRI/S research in human health and diseases.

Hypertension Center

This Center is housed within the Department of Physiology and Functional Genomics. In addition to the Director, Dr. Chris Baylis, we have a part time assistant Chelsey Grattan and a full time research technician Bruce Cunningham who runs a rodent telemetry facility located in the ACS facility in the Communicore building which is available to all Hypertension Center members. This has provided a strong focal point for collaborative activities.

The Hypertension Center Seminar series is very successful and is attracting a broad audience from clinical and basic sciences. In addition we have begun videoconferencing the Hypertension Center seminars to the Jacksonville campus. All support for invited speakers is provided by the Hypertension Center.

The Hypertension Center also provides some support for equipment purchases and also facilitates optimal access to specialized pieces of equipment by providing a directory of resources. We are also actively developing a tissue sharing program to reduce the use of animals in experimentation and also to facilitate collaborations throughout the membership.

Investigational Drug Service (IDS) Pharmacy

Provides a full list of services related to investigational drug management. In addition to standard investigational drug management, the IDS Pharmacy provides sterile compounding services (including complex gene therapy preparation) and oral blinded dosage form compounding (over-encapsulation). The IDS Pharmacy offers all levels of investigational product storage (room temperature, refrigeration, freezer, and ultra-low freezer). All storage locations are located in restricted pharmacy areas and under continuous temperature monitoring. The IDS Pharmacy is staffed by four pharmacists (all PharmD with residency and/or management training) and two technicians (registered and certified). The IDS Pharmacy conducts quality and safety reviews at multiple stages. Pharmacists work closely with the research staff to create protocol-specific dispensing systems and a customized protocol-specific template for ordering investigational medication to minimize errors at the point of order entry. All investigational medication orders undergo a dual check process and are filled by a technician and checked by the pharmacist. This includes independent dose calculations and verification of treatment assignment. The pharmacy staff perform a quarterly physical inventory of all investigational medications in stock and receive investigational medication shipments on a daily basis, which are carefully evaluated to ensure accurate contents and that the appropriate temperature was maintained in transit to site.

Per the requirements of the pharmacy's Sterile Compounding Permit, cleaning of the laminar hood and clean room are documented, as well as the clean room temperature and air pressure. Any compounded sterile product held for long-term storage must undergo quality assurance testing (sterility and pyrogenic testing). The Assistant Director of Pharmacy for UF Health serves as the Consultant Pharmacist of Record and performs monthly inspections of the pharmacy. The pharmacists meet with sponsor monitors and auditors per sponsor protocol to review all dispensing activities and to perform complete medication reconciliation throughout the clinical trial. UF IDS Pharmacy recently implemented Vestigo®, a web-based software product adapted at several IDS pharmacies around to country. Vestigo® facilitates protocol and investigational drug management. It has multiple automated safety features that help improve accuracy, efficiency and safety. The implementation of this product is expected to reduce potential transcription errors that can occur with manual processes. Vestigo® is expected to streamline and automate pharmacy protocol management, inventory control, dispensing, billing, drug accountability, competency management, and monitor/auditor access.

Institute for Child Health Policy

Brings together multidisciplinary faculty from UF to conduct innovative and rigorous science to promote the health of children, adolescents, and young adults. The institute, housed within the department of Health Outcomes and Biomedical Informatics in the College of Medicine at UF, has a 25-year history of collaborating with teams of researchers across the UF campus and with scientists nationally. Within UF and nationally, there is an emphasis on early childhood interventions, child health outcomes, and a research infrastructure to support pragmatic clinical trials and implementation science studies in community settings. The Institute for Child Health Policy has had success over the past 15 years of developing innovative methods for using big data in support of examining child health outcomes. In addition, the institute is leading the development of the OneFlorida Child Health Alliance and pediatric components of the OneFlorida Data Trust, which houses linked heath care claims, vital statistics, immunization, electronic health record, environmental, geographic, and parent- and child-reported outcomes data for approximately 4M children in Florida. Having served as infrastructure support in launching the OneFlorida Data Trust, the Institute for Child Health Policy is facilitating child health research that is funded by NIH, AHRQ, and the Patient-Centered Outcomes Research Institute.

Institute of Food and Agricultural Sciences (UF/IFAS)

The University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS) is a federal-state-county partnership dedicated to developing knowledge in agriculture, human and natural resources, and the life sciences, and enhancing and sustaining the quality of human life by making that information accessible. While extending into every community of the state, UF/IFAS has developed an international reputation for its accomplishments in teaching, research and extension. Because of this mission and the diversity of Florida's climate and agricultural commodities, IFAS has facilities located throughout Florida.

IFAS provides research and development for Florida's agricultural, natural resources and related food industries, which in 2010 made value-added contributions of $108.7 billion to the gross domestic product of the state economy.

In addition to extension offices in each of Florida's 67 counties, IFAS has 1,249 buildings, 3,622,462 gross square feet and 27,279 acres throughout the state, including facilities on the University of Florida campus. These facilities are used for teaching, research and demonstration:

- 16 on-campus academic departments and schools
- 12 Research and Education Centers (RECs) located throughout the state
- UF/IFAS Extension offices in all 67 counties (counties operate and maintain)
- 4 Research and Demonstration sites, 1 research forest, and 1 biological field station
- 5 statewide locations with undergraduate degree programs

Institute on Aging

Improves the health, independence, and quality of life of older adults by means of interdisciplinary teams in the areas of research, education, and health care. The overarching goal of the Institute on Aging is to develop interdisciplinary and dynamic research that spans public health, social, health services, behavioral, clinical, and basic sciences. The research focuses on mechanisms, etiology, and prevention of cognitive and physical disability. The Institute on Aging also focuses on maximizing the participation and life potential of older adults with disability and prevention of secondary disabilities.

The Institute on Aging is headquartered in the Clinical and Translational Research Building, a 120K-square-foot research complex. Clinical research facilities include office space, conference rooms, nine patient exam rooms, specimen processing area, a DEXA machine, and a GAITRite walkway.

The research program of the Institute on Aging focuses on the etiology and prevention of cognitive and physical disability. This focus is pursued using an interdisciplinary approach that traverses the entire spectrum of social and biomedical investigation, including molecular biology, in vitro and animal studies, clinical research, behavioral and social sciences, epidemiology, and health services research. The Institute on Aging initiated its major development phase in February 2005 with the creation of the new Department of Aging and Geriatric Research. The department serves as support infrastructure for the Institute on Aging and academic home for faculty members from diverse disciplines who wish to pursue a career primarily focused on research and education on aging.

Interdisciplinary Center for Biotechnology Research (ICBR)

The major biotechnology science and instrumentation service provider at UF. Established in 1987 and leveraging strong state and university support, ICBR maintains a reputation for acquiring, housing, and providing access to state-of-the-art instrumentation and advanced biotechnology services to all researchers at UF.

ICBR is organized into core facilities offering extensive services ranging from visualizing microscopic structures to producing and analyzing small molecules and big data. ICBR also supports the education mission of the university with hands-on workshops, training, and seminars hosted by the core scientists. Most ICBR Core facilities are concentrated in 25k square feet of the Cancer and Genetics Research Complex with auxiliary laboratories in the Microbiology and Cell Science building and the McKnight Brain Institute. While highly centered on its stable of instrumentation technologies, ICBR is devoted to engaged scientific services that are provided by 22 PhD-level scientists and 25 trained staff with more than 500 combined years of experience in molecular and cellular biology science. This provides UF researchers with access to both technical expertise and advanced instrumentation as well as informed interpretation of the resulting data with a concept-to-data workflow that enables scientists to actively propose, develop, and engage in advanced technologies, extending the scope of their individual laboratories ICBR organizational structure includes a center director who receives advice on core operations and direction from UF administration, especially through established faculty advisory groups that meet annually or biennially. ICBR organizational infrastructure provides its facilities with full administrative support for human resources, billing/payables, and compliance with federal cost standards. In addition, ICBR cyber infrastructure supports the scientific cores with computational capabilities for cutting edge analysis, data security, and data delivery to and through the high speed Campus Research Network.

The laboratory infrastructure and established research support programs at ICBR are recognized for providing the theoretical knowledge and practical expertise that make the instruments run at optimal capacity and at the limit of their expected sensitivities. These facilities are universally recognized for providing equal and fair access at low cost as well as for their commitment to excellence. It is the commitment of ICBR to support and maintain current and future instrumentation for its lifetime and to ensure highest performance and availability to all interested

researchers according to a well-developed usage plan while charging fees to cover disposable or consumable reagents or components.

Interdisciplinary Center for Musculoskeletal Training and Research (ICMTR)

The Interdisciplinary Center for Musculoskeletal Training and Research (ICMTR) promotes education and research in the orthopaedic sciences. The goal of the ICMTR is to encourage the interaction of scientists and clinicians regardless of department or college. The ICMTR Core Faculty are involved with education of faculty, residents and fellows of these Departments as well as undergraduate and graduate students in the areas of Rheumatology, Pediatrics, Radiation Therapy, Family Medicine, Physical Therapy, Nursing, Athletic Training, and Physician Assistants. Core Faculty in the Center are actively involved with introducing biomedical engineering students to clinical orthopaedic issues. On the community level the Center has promoted education including:

- Physicians in the field covering local athletic events,
- Faculty involved with the Gainesville Sports Organization Committee
- Talks given to the Alachua Medical Society

Interdisciplinary Program in Biomedical Sciences (IDP)

The mission of the Interdisciplinary Program in Biomedical Sciences is to provide a pre-doctoral educational experience that will train experimentalists and scholars prepared for a wide range of careers in biomedical science. The curriculum is designed to provide maximum flexibility for the training of biomedical research scientists. The educational goals are to promote biological literacy by providing core and advanced curricula covering key chemical, biological and genetic principles using molecular, cellular and physiological approaches, and to promote scholarship in biomedical science through mentored, original research. The faculty members of Interdisciplinary Program in Biomedical Sciences are affiliated with eight basic science departments, either as primary or joint appointees: Anatomy & Cell Biology Biochemistry & Molecular Biology Molecular Genetics & Microbiology Neuroscience Oral Biology (College of Dentistry) Pathology, Immunology & Laboratory Medicine Pharmacology & Therapeutics Physiology & Functional Genomics

IT Training

The UF IT Training Team provides a robust and extensive learning environment for the University of Florida community, enabling them to seize the power of technology and to fully utilize resources to enrich teaching and learning, expand research, and enhance service.

The UF IT Training Team demonstrates the Academic Best Practice for the use of technology in teaching. Our workshops follow a standard structure; utilize learning objectives, gauge participant understanding, assess retention, provide further resources, and evaluate participants' feedback. Learning opportunities address various learning styles and are accessible in multiple formats.

We develop learning opportunities based on the needs of the UF community. Using multiple information streams, we determine the highest priorities of faculty, students and staff to develop learning opportunities to meet those needs. We actively promote and publicize the benefits of participation in learning opportunities to encourage participation throughout the entire UF community.

Junior Honors Medical Program (JHMP)

The Junior Honors Medical Program (JHMP) is a combined (seven year) baccalaureate/M.D. program offered by the University of Florida. Admission is open to all possible candidates who are United States citizens or permanent residents. This program is intended for undergraduate students who have demonstrated superior scholastic ability and personal development during their first two academic years of enrollment at a 4-year accredited science degree granting institution, and who are dedicated to pursuing medicine as a career. When accepted to this program, a student secures a place in medical school at the University of Florida, College of Medicine as long as the JHMP requirements are completed and academic standards are maintained.

MBI Cell & Tissue Analysis Core (CTAC)

The MBI Cell & Tissue Analysis Core (CTAC) has been established to provide a centralized imaging and analysis resource for the UF/MBI research community. The CTAC maintains high-end instrumentation as well as standard microscopy systems for the acquisition and analysis of bright field, ultrasonic, intravital, fluorescent, and bioluminescent data from both in vitro and in vivo experimental models. The Histology Self-Serve Lab houses several Histology instruments for hands-on access, as well as the ability to process and paraffin-infiltrate your "fixed" tissues.

McKnight Brain Institute (MBI)

The McKnight Brain Institute of the University of Florida is one of the nation's most comprehensive and technologically advanced centers devoted to discovering how the normal brain operates, and how we can repair the brain following injury, disease, or aging. The MBI has medical and research imaging suites and facilities with some of the world's most powerful magnetic resonance imaging (MRI) systems housed in "AMRIS" (Advanced Magnetic Resonance Imaging and Spectroscopy Facility), which is a satellite imaging operation with the National High Magnetic Field Magnetic Laboratory in Tallahassee, Florida. The Cell & Tissue Analysis Core (CTAC) and CTAC Histology Resource Center (CTAC HRL) have been established to provide a centralized resource for the UF/MBI research community for in vitro and in vivo imaging, and the histological investigation of research models. The Core maintains high- end instrumentation as well as standard microscopy systems for both in vitro and in vivo analysis, and maintains histological services and instruments for researcher use. CTAC is available to assist investigators throughout the University of Florida campus, as well as off- campus, NIH-funded entities. There are two "clean room" laboratories for experiments in gene and cell replacement therapy. The Radiosurgery/Biology Research Lab that explores powerful new radiosurgery treatments for brain cancer and other neurological diseases. The Movement Disorders Center brings together some of the world's most skilled and dedicated physicians and researchers with expertise in Parkinson's Disease, Dystonia, and other movement disorders. The Regeneration Project, which is an international think-tank founded to create new human therapies based upon our learning from regeneration-friendly organisms to enhance the body's natural regeneration and repair processes.

Age-related Memory Loss (ARML) Program

Within the MBI, several methods are being developed to distinguish biological markers of brain aging, which range from an examination of genes to brain imaging.

Brain & Spinal Cord Injury / Stroke Program

An important component of research at the McKnight Brain Institute is to provide an enhanced understanding of these secondary biochemical events to facilitate development of therapies to treat Traumatic Brain Injuries.

Addiction Program

With the fantastic facilities of the MBI and dedicated working groups studying all facets of brain development, standard brain operation, human behavior, plasticity of the brain following injury and disease, and the ability to screen large numbers of already FDA- approved drugs and compounds that enhance brain function and plasticity using cells and bioassay screens developed in the McKnight Brain Institute, the future of the behavioral sciences look extremely promising with the hope of enhancing outcomes in all of the affective disorders.

Medical Doctor/Doctor of Philosophy (MD/PhD) Program

As a reflection of the organizational principle and paradigm of Clinical Translational Science (CTS), the MD-PhD Program now offers virtually unlimited options for combining an MD curriculum with PhD dissertation work. In addition to traditional disciplines that advance the "bench to bedside" component of the CTS paradigm such as molecular and cell biology, genetics, physiology, pharmacology and neuroscience, applicants with an interest in medical anthropology, sociology of medicine, epidemiology, health and human services, bioethics, and other social, population-based and/or computational sciences are encouraged to pursue their thesis work in these "non-traditional" disciplines that are critical to advancing the "bedside to community" components of the CTS paradigm. Opportunities to do thesis work in other institutions are also possible. In the predominant model, students spend the first two years of medical school taking the basic sciences classes as other medical students. For those trainees whose research areas require significant prior clinical training (e.g. health policy, health economics, epidemiology, etc.), students may complete their third year clinical clerkships before embarking on their PhD thesis work. During this period MD-PhD students identify potential research mentors and select a dissertation project that will commence during the third year (2-3-2 model) or fourth year (3-3-1). After completing their dissertation research, students return to medical school for completion of their clinical training. The MD-PhD program was restructured during the 2008-09 academic year as an integral part of the Clinical and Translational Science Training Program at the University of Florida. Efforts are ongoing to establish a new Clinical Translational Science (CTS) Core Curriculum to be taken in the summer between the first and second year of medical school. Introduction of the basic principles of CTS at this early entry point is intended to provide the foundational knowledge and experience that will allow MD-PhD trainees to make more informed decisions about how to choose the discipline, mentor and laboratory tailored to their backgrounds, interests and sense of "calling" as future clinician- scientists.

Metabolism and Translational Science Core

The Metabolism and Translational Science Core provides the infrastructure, laboratory space, trained personnel, consultative and collaborative scientific expertise and a wide spectrum of established methodologies of biochemistry and molecular biology (Northern, Western blot and Quantitative-PCR, enzyme-linked immunosorbent assays), genome-wide gene expression analysis using a novel microarray technology, analytical chemistry (liquid chromatography-mass spectrometry-mass spectrometry and gas chromatography mass spectrometry using stable isotope dilution techniques) and selected measures of metabolism (i.e., ATP measures and enzymes of metabolism) that will address a set of genetic and biological themes focused on causes for sarcopenia and disability.

The Metabolism and Translational Science Core utilizes this state-of-the-art technology to determine specific mechanisms of sarcopenia and the cause of reduced physical function present in elderly populations. The Core provides support for numerous independently funded studies, development projects, pilot studies and exploratory studies. Analyses of levels of biomarkers or cell signaling molecules will help to identify specific biological pathways of aging implicated in the development of sarcopenia. If the precise mechanisms underlying age-associated cellular deterioration can be identified, it will explain the loss of muscle mass and function with age and provide us with potential targets for intervention. In this context we will also test if specific rehabilitation, physical activity and dietary interventions can attenuate biological pathways leading to sarcopenia and functional impairment.

Molecular Pathology Core

The UF Molecular Pathology Core (MPC) aims to improve human and animal health

by accelerating basic and clinical research based on morphological procedures. MPC provides high quality, reliable, and efficient histology and immunolocalization services, consultations, technical support, training, and maintain self-service equipment for users. The Core is

a comprehensive research facility with advanced services for paraffin and frozen blocks, immunolocalization of proteins and genes, brightfield and fluorescent microscopy, digital slide scanning, image analysis, tissue microarray construction, laser microdissection, and access to board certified veterinary and human pathologists. Preclinical and clinical trials are fully supported using GLP and CLIA compliant standard operating procedures.

Nanoscience Institute for Medical and Engineering Technology (NIMET)

The Nanoscience Institute for Medical and Engineering Technology (NIMET) serves to focus and coordinate research and educational activities at the University of Florida in the fields of nanoscale science and nanotechnology (NS&T). Research in nanoscience and related fields at UF has developed across colleges and now involves the research of over 180 faculty and staff in physics, chemistry, biology, medicine, engineering, materials, food/agriculture, and more. The goals of NIMET are to:

- Consolidate and focus leading edge, multidisciplinary research and education at UF in the areas of nanoscale science and technology (NS&T).
- Provide world-class, centralized facilities, technical support and equipment for NS&T research.
- Train students in the use of NS&T techniques and equipment as part of their education, and to prepare them for future careers in nanotechnology.
- Create an open environment for research with universities, industry and national labs; and pursue major funding opportunities in NS&T.

Network for Pancreatic Organ Donors with Diabetes (NPOD)

The UF Health Diabetes Center of Excellence is fortunate to serve as the primary coordinating agency for a unique research project called nPOD (Network for Pancreatic Organ Donors with Diabetes). Funded by a grant from the Juvenile Diabetes Research Foundation (JDRF), nPOD is an innovative program that provides scientists from around the world with high-resolution tissue samples from organ donors who have consented to advance a cure through the gift of research. Currently, nPOD supports over 30 type 1 diabetes-related scientific studies and over 150 diabetes investigators at institutions around the world.

The goals of the nPOD initiative are to: 1) To maintain a network of procuring and characterizing, in a collaborative manner, pancreata and related tissues (spleen, lymph node, pancreatic lymph node, peripheral blood) from cadaveric organ donors with type 1 diabetes as well as those whom are islet autoantibody positive; and 2) Using these tissues, investigators will address key immunological, histological, viral, and metabolic questions related to how type 1 diabetes develops.

Office of Research

The University of Florida - Office of Research supports UF faculty and staff in their research efforts, providing many services, from identifying grant opportunities to managing proposals and awards and protecting and promoting intellectual property. We also work to strengthen ties among researchers and between our research enterprise and other interested parties, such as potential business and industry partners and funding agencies. From proposal development assistance to technology transfer, our various units and offices assist investigators at every stage of the research process. The Office of the Vice President for Research oversees several centers and institutes with university-wide missions and varying research specialties. Dr. David Norton leads the many efforts of the Office of Research to stimulate and support competitive research at the University of Florida.

The University of Florida strives to be the internationally recognized leader among research universities in creating new knowledge and technologies, performing research with impact, spawning new economic opportunities, and educating the next generation of leaders. We should be an exemplary, model organization in the art and science of discovery and innovation, in the stewardship of resources, in the conduct of research, and in meeting our regulatory obligations. The Office of Research is committed to being a highly valued and effective organization whose leadership and service makes this vision a reality for the University of Florida. The UF Office of Research provides the institutional leadership and infrastructure necessary for the research enterprise to achieve excellence in creating new fundamental knowledge and technological breakthroughs, in translating research to relevance, and in contributing to the educational mission of the institution.

OneFlorida Data Trust

Informatics infrastructure that supports pragmatic trials; comparative effectiveness research, implementation science, and other research in the OneFlorida Clinical Research Consortium. The OneFlorida Data Trust serves as the Data Hub for the South East Enrollment Center, part of the NIH's All of Us Research Program. The OneFlorida Data Trust contains collated health care claims, electronic health record (EHR), and other data on a broad-based population of ~15 million people in Florida. These data exist as one or more limited data sets, as defined by the Health Insurance Portability and Accountability Act (HIPAA) laws and associated regulations.

EHR data are submitted to the Data Trust in two formats: 1) the Patient-Centered Outcomes Research Institute's Common Data Model, and 2) as close to raw files as possible. In both cases, OneFlorida does not request any contact information for patients (i.e., only a limited data set).

The contact information for the patients is held at the local sites of the clinical partners. An honest broker system is used with linking variables so that patients can later be re-identified for studies. Data for the Florida Medicaid and Medicare (dual eligibles only) programs are submitted as enrollment files and claims data with fully identified information.

Pain Research and Intervention Center of Excellence (PRICE)

A multi-college center of excellence, serves as the professional home for UF scientists, clinicians and trainees dedicated to improved understanding and treatment of pain. PRICE is affiliated with and supported by the CTSI and receives strong support from the UF Institute on Aging and the UF Health Cancer Center. PRICE consists of more than 20 extramurally funded investigators pursuing a broad range of studies. PRICE provides member investigators with several resources and services in order to facilitate clinical and translational pain research at UF.

PRICE maintains a registry of more than 1K potential research participants who have expressed interest in research participation and have provided permission for future contact. This registry includes individuals from several different patient populations as well as those who are generally healthy and can serve as control subjects. The registry is comprised of an ethnically diverse group of individuals between 18 and 85 years of age who were recruited via multiple methods, including print, radio and electronic advertisements, clinic-based recruitment, and word of mouth.

PRICE offers facilities and services to assist investigators with collection of pain assessment data in their research protocols via the Pain Clinical Research Unit. The unit's primary facility consists of four examination rooms located in the CTSI Clinical Research Center in the north wing of the CTRB. Satellite locations of the Pain Clinical Research Unit are available on the second floor of the Dental Tower at the UF Health Science Center and in the Institute on Aging Geriatric Clinical Research Facility. Altogether, the Pain Clinical Research Unit comprises nine fully equipped quantitative sensory testing units and several flexible-use examination rooms. The Pain Clinical Research Unit is staffed by well-trained research staff, including an advanced registered nurse practitioner, a phlebotomy-trained research coordinator, a lab manager, multiple research technicians and numerous trainees, including undergraduate, graduate and professional students, post- doctoral fellows and junior faculty members. Investigators can conduct their own studies in the Pain Clinical Research Unit or request that the unit staff collect the data for their protocol. In addition, PRICE coordinates training activities related to pain, including a T32 training grant in translational pain research, as well as journal clubs, seminar series and a monthly Pain Interest Group.

In early 2013, PRICE occupied its physical home in the new CTRB, a state-of-the-art research building that serves as the home for clinical and translational research at the UF. The CTRB

provides offices for the PRICE director and program manager as well as the director of the Pain Clinical Research Unit and several PRICE research staff members.

Pediatrics - Jacksonville

UF Health Pediatrics at Jacksonville is concerned with all children, from newborns to age 18, during active, healthy times and through periods of sickness or injury. Providing routine pediatric medical and specialty care, our highly trained pediatricians and allied health professionals are available at UF Health Jacksonville and in neighborhoods throughout Jacksonville. Starting at birth, the Division of Neonatology is ready with the latest technologies to care for newborns, especially those babies who are born too early or have a medical problem. Before newborns leave the hospital, they are screened for hearing problems and other medical or genetic conditions so that they may receive early care and treatment. For the infant, toddler and school-aged child, the Division of Community and Societal Pediatrics provides well-baby checkups, immunizations, school physical examinations, management and care for allergies, asthma and childhood dermatological or skin conditions, and routine primary care for common childhood ailments, such as colds, flu, earaches, fevers, nutritional issues, bumps and bruises.

The Division of Developmental Pediatrics works with parents and primary care physicians in detecting and treating learning, developmental or behavioral problems. In addition to serving children with autism spectrum disorders, the staff offers specialized assessments and intervention for a variety of developmental concerns. The genetics program provides prenatal consultation to mothers who are at risk for delivering an infant with a genetic disease or whose fetus has been found to have an anatomical abnormality. Meeting the challenges of preteens and teens, the Division of Adolescent Medicine provides educational support along with preventive and acute care during this transitional time. For children with infectious diseases, the Division of Infectious Diseases and Immunology is available to assist primary care physicians with consultation or hospitalization, if needed. The program also offers a highly acclaimed approach to the prevention, detection and treatment of pediatric HIV and AIDS through the UF CARES/Rainbow Center. The Division of Child Protection and Forensic Pediatrics operates a unique telemedicine program to assist local physicians in efforts to detect and treat child abuse and neglect. The Division of Cardiology provides pediatric cardiovascular services from diagnosis to follow-up care for heart murmurs to more complicated heart conditions. For children with acute or chronic kidney disease, referrals for care and treatment are provided by the Division of Nephrology and Rheumatology . The Division of Critical Care Medicine is ready on a moment's notice to provide consultations and support to other physicians in the treatment and prevention of childhood injuries. Other specialized

programs, such as the Pediatric Sickle Cell Program, Jacksonville Health and Transition Services at UF Health Jacksonville, the Florida Diagnostic and Learning Resources System and the Early Steps Program serve children with special healthcare needs. The Cleft Lip and Palate Team provides comprehensive care, surgery, therapy and management of children from birth through adolescence born with cleft lips and/or palates. UF Health Jacksonville's pediatrics inpatient unit makes overnight stays as comfortable as possible for children. We explain all aspects of treatment to families and encourage participation in their children's care. The floor is equipped with a play area, large aquarium, video games and movies to help ease each child's anxiety during their stay.

C. A. Pound Human Identification Laboratory

The primary mission of the C.A. Pound Human Identification Laboratory is to provide forensic anthropology services for medical examiners and coroners. The laboratory also provides anthropological, legal, and technical laboratory-based education and training to graduate students and professionals in the fields of anthropology, medicine, medico legal death investigation, and law enforcement. The laboratory and its faculty and graduate analysts serve as a resource for pathologists, scientists and technical experts practicing in communities and various jurisdictions in the state of Florida.

The C.A. Pound Human Identification Laboratory (or, the CAPHIL) is a forensic anthropology laboratory within the Department of Anthropology at the University of Florida. The laboratory provides consultation services for Medical Examiners, law enforcement agencies, and State Prosecutors, assisting with determination of the identity of the decedent and cause and manner of death.The laboratory is under the direction of Dr. Michael Warren, and is staffed with both Masters- level and doctoral graduate analysts. The faculty and staff conduct casework and research in biological anthropology, forensic identification and skeletal trauma analysis. The CAPHIL is a component of the William R. Maples Center for Forensic Medicine. The laboratory complies with all ISO17025 and Supplemental Standards, as well as the best practice guidelines and minimum standards for the discipline as established by the Scientific Working Group for Forensic Anthropology.

Powell Gene Therapy Center (PGTC)

The Powell Gene Therapy Center (PGTC) at the University of Florida (UF) has been instrumental in the development of newer, safer agents for the delivery of therapeutic genes to patients with genetic diseases, such as cystic fibrosis (CF) and alpha 1-antitrypsin deficiency (AAT-D). New programs will extend the use of the harmless virus, called AAV, that is used as a carrier for therapeutic genes to the study of other genetic disorders such as congenital Leber's amaurosis (CLA), a genetic cause of blindness, and Pompe's disease, a genetic disease characterized by heart failure and muscular dystrophy. It may also be applied to important diseases of the central nervous system, such as Parkinson disease (PD).

Prostate Disease Center

The University of Florida Prostate Disease Center was established to drive change that will significantly impact the lives of those affected by prostate diseases. Success in our campaign will be defined by many ways, but of utmost importance is a reduced mortality rate for those diagnosed with the disease. Progress towards that goal will be firmly linked to cutting-edge research that translates directly to improved prevention, diagnosis and treatments. The portfolio of the University of Florida Prostate Disease Center basic science consists of three interconnected and collaborative research domains, all focused on prostate diseases. These include the a) Identification and characterization of molecular pathways within the tumor microenvironment (Molecular Biology and Cell Signaling), b) Investigation of the immune system in tumor initiation and progression (Tumor Immunology), and c) Development of dendritic cell and mRNA-based vaccines (Immunotherapy). Program members working in each research domain are highly interactive and work in research teams rather than in isolation. This comprehensive research program provides a stimulating intellectual environment conducive to fostering both training and collaborations.

Proton Therapy Institute

Effective proton cancer treatment delivered with all the resources of a non-profit major academic medical center.

When the University of Florida Proton Therapy Institute opened its doors in August 2006, proton therapy was a new cancer treatment to the Southeast United States. With the availability of proton therapy, Florida residents – and cancer patients throughout North America and the world– enjoy access to one of the most advanced non-invasive cancer treatment tools available.

Our aim is to make proton cancer treatment at the University of Florida Proton Therapy Institute a confident choice for those who need it most. This means that we're dedicated to delivering proton cancer treatment in a way that takes the entire patient into account.

The University of Florida Proton Therapy Institute is the first treatment center in the Southeast

U.S. to offer proton therapy. Florida residents, as well as patients from the region, the country and the world, have access to a new cancer treatment option delivered in a supportive, healing environment.

Located in Jacksonville, Florida, the University of Florida Proton Therapy Institute is staffed, situated and structured as a major clinical research facility, and will serve as a center for multidisciplinary research involving all interests that touch cancer and its treatment.

The University of Florida Proton Therapy Institute's interest extends into other clinical and scientific disciplines, including engineering, computer science, medical and legal ethics, social science, health economics, materials science and space technology.

RadioSurgery Biology Stereotactic Lab

The RadioSurgery/Biology (RSB) Lab within the MBI-UF building contains a computer-controlled six Mev linear accelerator for use in cerebrovascular, cancer and fundamental cell and molecular research. To the best of our knowledge, this is still only full-time radiosurgery-biology research laboratory of its kind in the world. The research linear accelerator is capable of providing full dynamic therapy and was donated by Varian Associates, Inc. In addition, the lab is also equipped with high-end work station computers, assorted stereotactic equipment, a three-dimensional ultrasound imaging instrument, and other equipment such that, together with a technical support staff, this facility can support a variety of types of studies including: i) experiments to develop and evaluate techniques and equipment to be used in (CT, MRI and ultrasound) image-guided radiation therapy, intensity-modulated radiation therapy, image-guided radiosurgery, image-guided surgery and stereotactic surgery; ii) experiments to deliver single and multi-fraction radiation schedules to various radiobiological models (both cell and animal), including those designed to investigate the possible concomitant use of gene delivery and radiation therapy; and iii) experiments to validate models used to predict dose distributions and dose models.

In order to perform much of this research, and in order for investigators to plan clinical treatment protocols (to be performed elsewhere), the RSB lab is linked via the MBI-UF's gigabit network to the Shands at UF Hospital computer system wherefrom they can access the Picture Archival and Communications System (PACS) to download the digital image data sets (e.g., MRI and CT images) of prospective patients to the MBI-UF.s web-accessible image server. In addition to fundamental research on and planning treatment paradigms for human clinical cases, the RSB lab and core faculty also participate in veterinary clinical cases with faculty from the College of Veterinary Medicine, and in doing so expedites the translation of discoveries to human patients.

Recently, the lab has received an NIH R01 grant to support research into an entirely new method of stereotactic guidance for surgery. This method involves the use of "rapid prototyping equipment." Preoperative cranial or spinal scans are transferred to the lab's computer systems.

Special software is used to select a surgical pathway for brain or spine operations. The rapid prototyping machine then manufacturers a special guide which, after sterilization, can be used in surgery to precisely identify the correct location of skin, bone, brain, and spine incisions and pathways through such structures during surgery.

Research Computing, High Performance Computing (HPC)

Research Computing is one of seven core units within Information Technology. Its mission is to support research-oriented computing activity as needed by UF faculty and drive the University toward its stated goal of becoming a top-ten public research university.

The High-Performance Computing Center is the group within Research Computing that operates and supports the large-scale computing systems and data storage facilities for the benefit of the UF research community.

Funding comes from multiple sources within the University. The funding model distributes the cost of our facilities among several major stakeholders all of whom benefit from a strong and active large-scale computing center.

To facilitate collaboration, Research Computing maintains and coordinates a number of important partnerships.

Southeast Center for Research to Reduce Disparities in Oral Health (SCRRDOH)

The mission of the Southeast Center for Research to Reduce Disparities in Oral Health (SCRRDOH) is to:

- Promote early detection and prevention of head and neck cancer among low-income rural and minority individuals in Florida
- Provide new resources for conducting targeted community-based interventions by multi-disciplinary teams from five colleges within the University of Florida as well as other highly regarded research universities such as the University of Chicago and the University of North Carolina.
- Strengthen the partnerships among researchers, clinicians, and the community to speed translation of research into practice.

The American Cancer Society estimates that approximately 34,500 new mouth and throat cancer cases will be diagnosed in the next year. In the U.S., there are more than 7,550 deaths per year from head and neck cancer vs. 3,670 for cervical cancer. Survival from head and neck cancer is one of the lowest among all malignancies; it has not improved in recent decades and remains about 58%.

The purpose of the Center's first community-based intervention project is to apply scientific health promotion models to increase the likelihood that African American men obtain oral cancer screenings.

Applications will be sought from new and established scientists for studies addressing health disparities that will lead to community-based interventions. Working with health economists, we anticipate building an evidence base about the cost-effectiveness of new interventions that hold promise for reducing oral health disparities, including cost-effectiveness studies of early versus late stage detection of head and neck cancer.

The research conducted by the Center will affect public policy and result in long-term benefits among our most disadvantaged citizens.

Sleep Research Lab

The main goal of the lab is to explore the relationship of sleep and behavioral health, and to develop new and innovative ideas about how to measure sleep, treat sleep problems, and evaluate the relationship of sleep to other human conditions. The Department of Clinical & Health Psychology is situated in the Health Science Center at Shands Hospital. Hence, the laboratory is located optimally to provide access to diverse clinical populations and is a model of an ideal intra and interdepartmental collaborative environment.

The UF Sleep Research Lab investigates the mechanisms underlying normal and pathological sleep, the link between sleep and cognition, the daily variability inherent in sleep and sleep- related behaviors, and the efficacy and effectiveness of cognitive-behavioral interventions to treat insomnia in diverse populations (e.g. older individuals, dementia caregivers, and medical populations, including pain, cardiac disease, cancer, and end stage renal disease). As a result of these research emphases, we collaborate with a broad range of investigators within clinical psychology that specialize in aging, cognition, cardiac psychology, neuroimaging, pain, and psycho-oncology, as well as colleagues from cardiology, immunology, nursing, rheumatology, and sleep medicine.

Department of Statistics

The Department of Statistics at the University of Florida has as its purpose: (i) to provide excellent education in statistics, (ii) to prepare departmental majors for successful careers in academia, industry and government, (iii) to extend the frontiers of statistics through basic and applied research, (iv) to collaborate with researchers in other disciplines to investigate important scientific issues and (v) to provide leadership within the University and the profession. The Department seeks to be comprehensive, balanced and to conduct itself with openness, enthusiasm, integrity and respect for the diversity of the contributions made by its members.

The Department of Statistics at the University of Florida has one of the largest and most comprehensive statistics faculties within a single department in the U.S. The faculty have a wide variety of teaching and research interests in statistics. When it comes to selecting coursework or a Ph.D. dissertation topic and advisor, students can choose from a wide variety of topics and methodologic interests.

The undergraduate program of the Department of Statistics offers B.S. and B.A. degrees through the College of Liberal Arts and Sciences and a B.S. degree through the College of Agriculture. The graduate program offers M.S., M. Stat. and Ph.D. degrees. There are approximately 50 undergraduate majors and 50 graduate student majors currently enrolled in departmental programs.

The teaching program of the department emanates from the College of Liberal Arts and Sciences through the department's location in Griffin-Floyd Hall. The majority of our faculty have offices in Griffin-Floyd. The Department of Statistics in also a department in the College of Agriculture, part of the Institute of Food and Agricultural Sciences (IFAS), which is responsible for programs pertaining to food, agriculture, natural resources, forestry and veterinary medicine. Our IFAS faculty likewise teach, conduct statistical research and collaborate with IFAS researchers on a wide variety of scientific studies. In addition to teaching assistantships, graduate students can gain valuable experience via research assistantships with our faculty.

Department faculty have a wide variety of research interests, ranging from theoretical to applied topics and over a broad spectrum of methodologic topics. Categorical data analysis, Bayesian theory and methodology, biostatistics, nonparametrics, genetic data analysis and probability theory are some of the areas of interest. Department faculty actively collaborate with scientists in other

disciplines on important research investigations in the College of Medicine and the Genetics Institute.

Center for Structural Biology

The Center for Structural Biology is a University Center in the College of Medicine with a mission to provide a framework for collaborative research among faculty addressing structural studies of significant biological problems and to foster advanced training of students in structural biology. The goal of the Center is to increase understanding of biological function through structural studies of large biological molecules, supra-molecular assemblies, and whole organisms. These studies are accomplished using advanced spectroscopic, diffraction, and imaging techniques (nuclear magnetic resonance, optical microscopy, electron microscopy, and X-ray crystallography). This information is related to cellular structure and function; then to the morphology and physiology of the whole organism.

Structure Based Drug Design Lab

Our goal is to assist medical researchers with novel drug discovery and development. Pursuant to this goal we specialize in three primary tasks: lead discovery, lead optimization, and x-ray crystallography.

Lead optimization is perfomed on compounds that have been discovered through computational and/or assay-based lead discovery. Two primary tools exist for lead optimization: RACHEL and CHARLIE, both SYBYL modules.

ray crystallography primarily consists of three stages: crystallization trials, data collection, and structure determination & refinement. A successful x-ray crystallography run results in three-dimensional coordinates of a novel target protein that can be used for lead discovery and/or

three-dimensional coordinates of lead compounds bound to validated targets to serve as a basis for lead optimization.

Traumatic Brain Injury Lab (TBI Lab)

The Traumatic Brain Injury Lab investigates the interaction between subcortical and white matter regions on memory/cognitive function changes in dementia; investigates the role of subcortical nuclei and white matter integrity on susceptibility to medical interventions (e.g., elective surgery). We publish papers on both aims. We also publish papers associated with structural imaging methodology.

UF Tech Connect

The University of Florida EDA University Center was created as a partnership between the University of Florida and the Economic Development Administration to provide a venue for bringing together the necessary elements to create companies.

Supported by the university's Office of Technology Licensing, this ideal partnership helps Florida universities accomplish one of their key goals: taking research from the benchtop to the marketplace. It also helps EDA accomplish its mission: creating jobs and generating private investment to help the economy.

The University of Florida EDA University Center collaborates with many public and private organizations to foster new business creation. The Center develops new programs, sponsors events, and facilitates mutually beneficial connections.

Housed in and supported by the university's Office of Technology Licensing, the University of Florida EDA University Center is at the pulse-point of the region's high-tech start-up activity. Because of the tremendous volume of research generated at UF and the user-friendly reputation of its Office of Technology Licensing, the University of Florida EDA University Center serves as a magnet for entrepreneurs and investors seeking new opportunities, and a catalyst for new business creation.

- Faculty Inventors- Helping faculty take discoveries from the laboratory to the market to benefit society by connecting them with experienced entrepreneurs who can assist with the complexities of creating a business.
- Entrepreneurs- Helping entrepreneurs identify technologies appropriate for start-up enterprises and introducing them to the technical expertise to support further development of the technology.
- Investors- Helping investors identify start-up firms that are well-positioned to generate a suitable return on their investment, and are in need of funding.
- Facilities and Resources- Helping our start-up companies locate appropriate facilities and resources, including those found at our two local incubators, the Sid Martin Biotechnology Development Incubator (BDI) and the Gainesville Technology Enterprise Center (GTEC).

Southeastern National Tuberculosis Center (SNTC)

Connecting TB healthcare professionals with information, training and expertise. The Southeastern National Tuberculosis Center (SNTC) is one of five Regional Training and Medical Consultation Centers (RTMCC) in the United States. The SNTC supports the education and training missions of TB programs throughout our region and provides a source of expert medical consultation for healthcare providers caring for TB patients. We serve 10 southeastern states, Puerto Rico and the U.S. Virgin Islands. The Florida Department of Health (DOH), in a cooperative agreement with the CDC, has contracted with the University of Florida College of Medicine to provide and coordinate our services at the Gainesville campus, where our central office is located. All efforts of the SNTC are guided by these principles:

- To control and eventually eliminate tuberculosis;
- To include, communicate with and provide accountability to our stakeholders;
- To provide state-of-the-art treatment and training methodologies;
- To appreciate the diversity, history and technical expertise of the TB providers in our region;
- To align with the National Strategic Plan for Tuberculosis Training and Education goals

UF Center for HIV/AIDS Research, Education & Service (UF CARES)

The only comprehensive pediatric and family-focused HIV and AIDS program in Northeast Florida and South Georgia. At UF CARES Rainbow Center (located on the third floor of UF Health Jacksonville's Clinical Center building), clinicians provide primary, secondary, and tertiary care for HIV- exposed and infected individuals and families. In addition to basic medical care, the center provides medical case management, pharmacy services, health education, nutrition, and mental health counseling. UF CARES doctors are trained in general pediatrics and internal medicine with additional specialization in infectious diseases and women's health. UF CARES employs a full time psychologist and part time psychiatrist and gynecologist who provide specialty services. UF CARES also works to provide services through collaborations and partnerships with Children's Medical Services, a state sponsored program to provide health care to low-income children with special needs.

In the last five years, the center has conducted 23 NIH-sponsored clinical trials, 11 pharmaceutical-sponsored studies and several investigator studies, serving more than 900 research subjects. The center actively collaborates with the Department of Obstetrics and Gynecology in Jacksonville and colleges of Medicine, Public Health and Health Professions, Veterinary Medicine, and Emerging Pathogens Institute in Gainesville. UF CARES is part of the AHRQ registered Community Based Research Network and collaborates with investigators in Gainesville and Jacksonville.

UF Center for Smell & Taste (UFCST)

Scientific discovery is being revolutionized by bringing together concepts and technologies from diverse academic disciplines. The University of Florida (UF) with its large, academically diverse faculty, including the health sciences, agriculture, and engineering, all located on a centralized campus, is especially well positioned to ride this wave of progress. The UFCST was established as a University-wide center in order to apply this broad knowledge base to chemical senses research and to create a unique opportunity to advance discovery, application, and education in the chemical senses that can serve the State, the Southeast, and the Nation. We partner in this effort with chemosensory scientists at Florida State University towards the goal of ultimately becoming a State-wide center.

The UFCST closely partners with the McKnight Brain Institute (MBI), which shares the UFCST's University-wide perspective. The MBI is the home of the Center's administrative office. Members of the Center are distributed throughout the University in the academic units where they hold their fiscal appointments. Currently, our membership includes faculty in the Colleges of Engineering, Medicine, Dentistry, Agriculture, and Liberal Arts and Sciences. Our membership includes faculty affiliated with the Institute for Food and Agricultural Sciences, the Genetics Institute, the Brain Institute, the Institute of Aging, the Whitney Laboratory for Marine Bioscience, and the Emerging Pathogens Institute.

The UFCST was established as a University-wide Center at UF on October 1, 1998, by the then State University System Board of Regents to provide a forum to coordinate and promote basic and applied research and education in the chemical senses at UF. The UFCST originally reported to the Office of Academic Affairs (Provost). In May, 2008 the reporting structure was changed to the office of the Vice President for Research. The UFCST has always closely partnered with the McKnight Brain Institute, which shared the UFCST's University-wide perspective and which housed the Center's administrative office. This relationship continues today.

The chemical senses is a recognized field of academic endeavor that inherently encompasses a wide variety of disciplines and transcends traditional academic boundaries, making fostering research and training in the chemical senses an especially appropriate mission for a Center that bridges traditional academic boundaries. The Center presently integrates the activities of over 50 faculty together with their postdoctoral associates and graduate students from over 20 different

departments spanning 6 different Colleges, the Institute for Food and Agricultural Sciences, the Whitney Laboratory for Marine Bioscience, the US Department of Agriculture, and the Veterans Administration. Through integrating the broad expertise at the University of Florida relevant to chemical senses research, the UFCST is positioned to make a unique contribution to the field, the University, Florida's citrus industry (citrus-derived chemicals are a major source of revenue for the flavor and fragrance industry), and the health of Florida's citizens.

UF Health

UF Health serves patients from every county in the state, from throughout the nation and from more than a dozen countries. Our organization exerts a powerful social and economic impact within the state, and we're committed to our role as a responsible corporate citizen.

The six colleges of the University of Florida Health Science Center, the hospitals and programs at Shands, the UF Health Physician outpatient practices throughout our organization and many community volunteer partners collaborate to help us serve as a health care safety-net organization for many of the most vulnerable citizens of north Florida. Making primary care and advanced clinical services accessible to those beyond our doors, including economically disadvantaged residents, is one way we strive to meet our public service mission.

Our commitment as a responsible, accountable steward of our resources is the cornerstone of UF Health's not-for-profit mission. In Fiscal Year 2011, we spent a combined $108.7 million in unreimbursed charity care at cost). We spent $3.5 million for community and regional health services; $2.6 million on donations and in-kind services; $51.5 million on health professional’s education; and $10.6 million on scientific and clinical research.

UF Health—Jacksonville

Our mission at University of Florida College of Medicine–Jacksonville and UF Health Jacksonville is to heal, comfort, educate, and discover. We dedicate our work to improving the lives of those we touch through quality health care, medical education, innovation, and research.

University of Florida Health Jacksonville is a private, not-for-profit hospital affiliated with the University of Florida Health Science Center campuses in Jacksonville and Gainesville.

Combining our strengths with the UF College of Medicine–Jacksonville, we offer residents in Northeast Florida and Southeast Georgia all the benefits of an academic health center. The hospital is made up of more than 3,300 employees, all supporting the hospital's mission to heal, comfort and educate in an environment where exemplary medical care is complemented by outstanding service. Together with our University of Florida colleagues and affiliates, UF Health Jacksonville provides a wide range of health care services across the continuum of care on an inpatient and outpatient basis. Backed by a team of more than 400 faculty physicians, we offer nearly 100 specialty services, including: Cancer services; Cardiovascular services; Neuroscience services; Orthopaedic services; Pediatrics; Poison Center; Trauma and critical care services; Women and families. As an academic health center, we're on the leading edge of the latest treatments and technologies. And our participation in clinical trials brings the latest research advances to the clinical setting, pioneering medical advances today to benefit patients tomorrow. Our knowledge and expertise are unmatched—the UF faculty physicians who practice here teach and train other physicians in the latest medical practices.

UF Health Cancer Center

Activities and programs at the UF Health Cancer Center are acutely focused on the development of early-stage "translational" research aimed at the rapid advancement of scientific discoveries to clinical trials and resulting in improved patient care. Our goal is to generate tomorrow's answers for today's patients.

Our research activity occurs primarily on the University of Florida's Gainesville campus. UF is one of just three institutions in the country that has a one-campus Health Science Center consisting of colleges devoted to medicine, nursing, dentistry, veterinary medicine, pharmacy, and public health and health professions. This unique environment provides an ideal opportunity to bring diverse individuals together to conduct cancer research and develop future treatment and preventive options for cancer patients.

Exciting collaborations with the College of Engineering are enabling scientists to use UF's "supercomputer," nanotechnology, and other technological advancements to develop new therapies and techniques. Additional collaborations occur within dozens of UF multidisciplinary centers and institutes, including the McKnight Brain Institute, Proton Therapy Institute – one of only seven such facilities in the nation – Genetics Institute, Clinical and Translational Science Institute, Institute on Aging, and Emerging Pathogens Institute.

Drug Discovery

The main goal of the Drug Discovery Program is to facilitate the development of novel therapeutic agents to treat and prevent cancer. Program members benefit from services to assist drug discovery and development at UF. For small molecule drug discovery: screening compound libraries for lead identification, lead optimization, protein and small molecule X-ray crystallography. The Drug Discovery Program has members interested in collaborating on new cancer drug projects using peptide and peptide-analog based therapies. The Drug Discovery Program will assist members with experiments requiring peptide synthesis and libraries for screening.

Experimental Therapeutics

The central goal of the Experimental Therapeutics Program is to promote the collaborative scientific interactions between basic scientists and clinicians involved in cancer research. The

program seeks to bring together investigators with appropriate clinical, basic science, or technological expertise for the investigation of novel cellular, molecular, histopathologic and imaging endpoints in order to foster scientific research initiatives at the laboratory/clinic interface. The ultimate aim is to integrate the expertise of the bench researcher with the front-line clinician to foster clinical trial development.

Immunology

The goal of the Immunology Program is to foster interactive research to uncover the complex nature of the host-cancer relationship to establish host immune defense as part of combination cancer treatment. It is essential to have an in-depth understanding of the immune system against cancer cells at the levels of innate and adaptive immunity before immunotherapy becomes routine in clinical care.

Molecular Oncology

The scientific goals in this program are to understand the molecular basis of oncogenesis with the ultimate purpose of developing new and more effective cancer therapies. The program promotes research related to these scientific goals by facilitating interactions among investigators within the program and throughout the Cancer Center.

Population Science

The goal of the Population Science Program is to employ the methods and concepts of multiple disciplines in the basic and applied sciences to lower the psychological, social, physical, and economic burden of cancer at the population level. Towards this goal, we work to: identify

multi-level risk factors for cancer etiology; develop and evaluate strategies for cancer prevention and early detection; and investigate patients' perceptions, decisions, and responses to the treatment process. Special consideration is given to members of vulnerable populations who may have complex combinations of risk factors and unique access to care barriers.

UF Health Communications

A division of 80 communication professionals, UF Health Communications provides integrated communications support to all UF Health executive and administrative divisions, colleges, institutes, physician practices, and hospitals. With staff in Gainesville and Jacksonville, UF Health Communications mobilizes expertise across six specialized teams to meet UF Health's full scope of internal and external communications needs. The Strategic Communications & Public Affairs team, which includes the CTSI strategic communications team, is responsible for strategic communications and public relations planning and execution; internal communications and employee-focused events; corporate communications; public affairs and government relations/advocacy communications; community health outreach and education programming; and issues and crisis management. The Creative Services team provides print layout and graphic design, creative consultation, video and audio production, voiceovers, multimedia design (including 3D animation), digital publishing, and photography. The Marketing team provides strategic marketing services for UF Health's clinical lines and affiliate and joint venture partnerships, including marketing consultation, marketing plan development and implementation, production of advertising campaigns and marketing collateral materials, and website content development. The Advancement and College of Medicine Communications team provides strategic planning and execution for public functions, alumni relations, and fundraising initiatives, as well as strategic communications and public relations planning and execution, and internal communications for the college. The News & Publications team maintains relationships with local, regional, and national news media and provides expertise in publications, editing, science writing, media training, and news dissemination. The Web Services team offers full- service website design and hosting, web application development, website refurbishment, usability testing, search engine optimization, analytics and metrics, social media consultation, and email newsletters. In addition, UF Health Communications has a long-standing collaboration with the UF College of Journalism and Communications to produce Health in a Heartbeat, a national consumer health radio program that airs on public radio affiliates in 18 states and in Washington, D.C. The program features two-minute segments providing the latest news on medical research, patient-care breakthroughs, and health-care trends.

UF Health Integrated Data Repository

Serving as both as the CTSI's research data warehouse as well as the UF Health enterprise data warehouse, the Integrated Data Repository is a collection of disparate data organized in a manner that lends itself to understanding the relationships between data elements to answer questions.

The Integrated Data Repository enables new research discoveries as well as patient care quality and safety improvements through a continuous cycle of information flow between the clinical enterprise and research community. A clinical data warehouse that aggregates data from the various clinical and administrative information systems, including the EpicCare electronic health record, it contains demographics, inpatient and outpatient clinical encounter data, diagnoses, procedures, lab results, medications, select nursing assessments, co-morbidity measures, and select perioperative anesthesia information system data. Staff offer cohort discovery and honest broker services to investigators. The Integrated Data Repository used the open-source RED-I software developed by Clinical and Translational Science Informatics and Technology to automate daily pulls of clinical laboratory data and load them into REDCap.

UF Health Pathology Laboratories Genetic Laboratories, Molecular Pathology

The major goal of the Molecular Pathology Laboratory is to develop and provide exceptional clinical services to patients and physicians. It offers detection of pharmacogenomic variants by quantitative PCR and are currently validating a next-generation sequencing-based approach. In addition to pharmacogenomic testing capabilities, the Molecular Pathology Laboratory is, as a full-scale reference laboratory, also equipped to offer solid tumor screening and diagnosis, as well as testing for lymphoid malignancies and infectious diseases. The laboratory serves hospitals, physicians, public health centers and reference laboratories, as well as supporting clinical trial and other translational projects. The laboratory is committed to contributing to the advancement of the field of molecular pathology and genomic medicine and to the education of tomorrow's pathologists and molecular geneticists. It utilizes a multidisciplinary approach to diagnose genetic diseases in collaboration with anatomical pathologists, hematopathologists, microbiologists and cytogeneticists. The laboratory is taking a major leadership role within the UF Health Personalized Medicine Program through development of genetic test offerings to support this program as well as in a variety of other clinical translational programs at UF.

UF Innovate

Comprises four entities in the university's technology commercialization ecosystem: Tech Licensing, Ventures, and two incubators, The Hub and the Sid Martin Biotechnology Incubator. UF Innovate's quartet forms a comprehensive commercialization system that brings together five critical elements: intellectual property, technology-transfer expertise, facilities, talent and capital management. To inventors, this means UF Innovate cares for their intellectual property by seeking patent or other protection and by marketing it to find the perfect licensee that can further develop or use those inventions. To entrepreneurs and startup companies, UF Innovate provides facilities and programs to help them find or develop the talent and funding they need.

Tech Licensing

Established as the Office of Technology Licensing in 1985 after passage of the Bayh-Dole Act that encouraged universities to commercialize their discoveries. The office has earned a reputation as a leader in commercializing discoveries that cure diseases, create efficiencies, improve quality of life and create jobs. Consistently ranks among the top universities for startup launches and licensing. Since the office opened, it has launched nearly 200 biomedical and technology startups. In fiscal year 2015-16, the office received 311 invention disclosures, signed 122 licenses and options, and launched 17 companies. This is a result of the collaborative working relationship between faculty generating new discoveries and Tech Licensing working to find commercial partners.

Ventures

Seeks to fuel consistent growth in the number and quality of UF technology-based startup companies. Ventures will serve as a liaison between public and private sectors as it implements an investment program intended to support UF startups. The goal is to link new venture investments with companies, work closely with angel groups and other investment funds, and to develop entrepreneurs.

The Hub

Formerly known as the Innovation Hub, located in UF's Innovation Square between campus and downtown Gainesville. It recently opened a second phase that doubles the space available for young technology companies. Both the Hub and Sid Martin Biotech foster an innovation ecosystem

that nurtures startups with the resources and expertise they need to thrive, thereby creating jobs and economic prosperity. Its mission is to provide an innovation ecosystem for connecting all the elements critical to creating and supporting technology-based companies. It is one of the only incubators in the nation to house a leading university technology transfer office, numerous service providers, and other partner organizations that nurture high-tech companies. It opened its doors in October 2011 and has already nurtured the creation of more than 400 jobs.

Sid Martin Biotech

Named the world's top incubator in 2017, incubates biotech startups at its location in Alachua. Expedites research and commercial development of promising biotechnologies in the context of viable, well-managed startup companies. The incubator, a specialized complex, with BSL II labs, offices, vivariums, greenhouses, and shared scientific equipment, is twenty minutes from the UF campus in Progress Park, in the city of Alachua, which is home to many of UF's bioscience startups. Companies in this 204-acre private park may apply for Foreign Trade Zone status. The incubator's relationships, services, and programs include introductions to investors, early recruitment of experienced leadership, networking opportunities, and seminars. By bringing together a critical mass of university and private sector specialists, the program is a magnet for scientific expertise, novel problem solving, and successful commercial ventures. The program is particularly interested in supporting companies, which have established research relationships with the UF, or which have an interest in and potential for initiating such relationships. The Sid Martin Advisory Committee and program management grant companies that successfully apply for admission one-year terms with the chance of renewal subject to successful reviews. In 2009, SMBI developed the Florida BioDatabase, an online searchable database of all Florida bioscience companies, available to the public. The site provides address, website, founding date, a summary of a company's technology, sector, research focus, whether they have products on the market, and publicly disclosed investors. Sid Martin Biotech has served over 70+ companies and 78% of companies are still in business five years post-graduation.

UF Research and Academic Center at Lake Nona

This facility houses multidisciplinary teams of researchers, clinicians, teachers, and students with the goal of providing effective therapies and improving health for patients. Built in 2012, the 100K-square-foot facility has two functions: academic study and research. The facility has several distinct areas. It became the permanent home of the UF College of Pharmacy Orlando Campus, expanding the UF professional PharmD Program from 200 to 280 students over four years. It houses the College of Pharmacy's Center for Pharmacometrics and Systems Pharmacology, which adapts sophisticated mathematical modeling and computer simulations to mimic clinical trials of new drugs. The Center for Pharmacometrics and Systems Pharmacology educates and trains doctoral students and post-doctoral fellows in the discipline of drug development and regulatory science. Also housed in the facility is the College of Pharmacy's Center for Quality Medication Management. This center provides telephone-based communication service through experiential training in comprehensive medication reviews for Medicare patients and their health care providers. The facility houses the Institute for Therapeutic Innovation, which focuses on developing and testing new treatments and cures for a variety of infectious diseases caused by drug-resistant pathogens. Clinical research facilities, including equipped exam rooms, specimen processing area, interview rooms, a conference room and office space for study staff and monitors are available in the Lake Nona facility. The Center's close proximity to research facilities at Sanford Burnham and to other Orlando Healthcare entities fosters collaboration and allows Floridians from the surrounding Orlando area to take part in clinical and translational research studies.

VA Geriatric, Research, Education, Clinical Center (GRECC)

Research at the Gainesville GRECC spans the continuum between preclinical to implementation research in a variety of aging-relevant topics. Funded studies are ongoing in metabolism and hormone regulation; pharmacology; end of life care; improving end of life care; goal oriented treatment after acute hospitalization; patient safety and healthcare quality improvement; educating caregivers; preventing age related physical disabilities; treating and preventing age related cognitive disabilities; and self-management of chronic health care conditions. The GRECC is the primary provider of gerontological education at the host-VA and affiliated university hospital. GRECC programs provide significant educational content to VA and university medical residents and allied health staff to enable them to provide care to elderly veterans. The GRECC provides significant professional training opportunities and hosts a Physician Geriatric Fellowship Program, and health traineeships in psychology, social work, occupational therapy, speech, audiology, nursing, and pharmacy. The GRECC extends its educational outreach via video teleconferencing and on-line programming and hosts local and regional educational programs focused on clinical geriatrics and targeted to the needs of health professionals caring for elderly veterans. Clinical activities of the GRECC are integrated within programs of both the Gainesville and Lake City sites. GRECC clinical activities occur in the following settings: the nursing home care unit, geriatric evaluation and management unit (GEM), home-based primary care, respite care program, geriatric primary care clinic, gait/balance clinic, and community hospice/palliative care unit and a newly developed Acute Care for the Elderly (ACE) consultation unit. Furthermore the Gainesville GRECC supports a number of clinical demonstration projects, including implementing snoezelen carts into institutional care of veterans with cognitive impairment and delirium, and integrating palliative care in intensive care unit settings.

Vector Core Laboratory

The primary role of the Vector Core Laboratory is to provide the service of generating gene therapy vectors. The Vector Core currently services 5 NIH program project grants worth over

$25M and produces over 400 preps per year. In addition, the Vector Core serves a training role for students associated with those programs.

Finally, the Vector Core is responsible for developing new vector technology in collaboration with Center faculty. In this respect it is worth noting that the Vector Core Laboratory developed a modified version of the green fluorescent protein (GFP), for which the University of Florida received a patent. Additionally, the vector core continues to refine AAV purification methodologies and is currently developing scale-up methods for AAV production in bioreactors using a HSV-helper system developed in collaboration with Dr. Barry Byrne. The facility director is Nathalie Clément, Ph.D.

Veteran's Affairs

The VA Clinical Research Unit provides a facility for clinical investigations involving Veterans at the Malcom Randall VAMC. Our goals are to increase research activity by VA investigators and to increase research opportunities for Veterans who receive medical care at this facility.

Research at the VAMC is separated into four main divisions: Biomedical Laboratory, Clinical Science, Health Services, and Rehabilitation.

The Biomedical Laboratory division supports basic science and preclinical research. The Clinical Science division is oriented toward therapeutics and clinical trials for medical conditions relevant to veterans. The Health Services division is dedicated to issues in quality and improvement of health care, again focusing on issues relevant to veterans. The Rehabilitation division is responsible for developing research strategies for coping with serious illness and injury. All research at the VAMC must include participation by a VA-supported investigator.

Water Institute

The UF Water Institute brings together talent from throughout the University to address complex water issues through innovative interdisciplinary research, education, and public outreach programs. Interdisciplinary UF Water Institute Teams, comprised of leading water researchers, educators and students, develop new scientific breakthroughs, creative engineering, policy and legal solutions, and pioneering educational programs that are renowned for addressing state, national, and global water resource problems. The Water Institute works towards these common goals:

Improve basic knowledge of the physical, chemical, and biological processes in aquatic systems (rivers, lakes, oceans, estuaries, wetlands, soil, and ground waters).

Enhance understanding of the interactions and interrelationships between human attitudes and activities, and aquatic systems.

Develop and promote the adoption of improved methodologies for water management and policy (including quantity, quality, and ecosystem services) based on a foundation of science, engineering, management, and law.

Whitney Laboratory for Marine Bioscience

The Whitney Laboratory for Marine Bioscience is a research institute of the University of Florida.

The Lab's mission is to use marine organisms in basic biological research, and to apply, where possible, the novel results of this research to problems of human health, natural resources and the environment; to train future experimental biologists; and to contribute to public education and to the formulations of the policy in basic research and marine science.