**FACILITIES AND OTHER RESOURCES**

**Environmental Contribution to Probability of Proposed Project Success**

**University of Florida**

The University of Florida is the state’s leading university, with an annual economic impact exceeding $8.76 billion, and in 2018 it became the first Florida school to break into the list of top 10 public universities, coming in at No.9, according to the 2018 U.S. News & World Report Best Colleges rankings. UF is also a prestigious research university, receiving more than $837.6 million in research awards in 2017-2018. Because of its achievements in both research and education, Florida’s Governor and the Florida Legislature designated UF as a “preeminent” university in the spring of 2013 – the first time in state history the university has been set apart in this manner.The lawmakers also allocated $15 million annually to UF for five years to support the university in its goal of joining the nation’s top-ten public universities. UF will match these funds dollar-for-dollar through private fundraising, dedicating $30 million annually largely to hiring new faculty. Thus, UF is in a robust growth phase, which will benefit high priority programs, including the proposed project, “……*”.*

The University of Florida Health Science Center (HSC) celebrated its 62th year in 2018. It is one of the country’s few academic health centers with six health-related colleges located on a single, contiguous campus. The colleges, including Colleges of Dentistry, Medicine, Nursing, Pharmacy, Public Health and Health Professions, and Veterinary Medicine, teach the full continuum of higher education from undergraduates to professional students to advanced postdoctoral students, enrolling more than 6,900 students and 1,100 interns and residents each year. The UF HSC is a world leader in interdisciplinary research, generating over 46 percent of UF’s total research awards, nearly $376 million in grants and contracts in fiscal year 2017. In addition to the six colleges, there are six major health-related research centers and institutes (Clinical and Translational Science Institute, Institute on Aging, UF Health Cancer Center, Emerging Pathogens Institute, McKnight Brain Institute, and Genetics Institute) designed to create synergistic 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 University of Florida is a fully accredited member of the Association of American Universities (AAU), comprised of the top 62 public and private institutions in North America. With approximately 50,000 students, UF is Florida’s oldest, largest, and most comprehensive university, ranked 7th largest in the nation. UF offers more degree programs on a single campus than all but two other US institutions, with 21 colleges and schools offering more than 100 majors and 52 undergraduate degree programs, including an institute of agricultural sciences and an academic health science center. It has also been designated by the Florida Board of Regents as one of four institutions in Florida focusing on graduate education and research. One of the nation’s leading research institutions, UF has a long history of established programs in research and service. The graduate school coordinates 123 master and 94 doctoral programs, for a total of 13,000 graduate students. UF ranks 26th among all universities and 13th among public universities in total research expenditures.

**UF Health Sciences Center (HSC)**

The HSC, the most comprehensive academic health center in the southeastern US, is dedicated to rigorous programs of education, research, patient care and public service. The HSC encompasses the colleges of Medicine,Nursing, Dentistry, Public Health and Health Professions, Pharmacy, and Veterinary Medicine. The HSC also encompasses the Clinical and Translational Science Institute (CTSI). In July 2009, UF received a $26 million dollar Clinical and Translational Science Award from National Institutes of Health. One of only two universities in Florida to receive the award, UF’s CTSI is dedicated to improving human health by accelerating the translation of basic research into new clinical treatments as quickly as possible. Specifically, goals are geared toward accelerating scientific discovery, enhancing patient care, producing highly skilled scientists and practitioners, and fostering partnerships with industry. The UF CTSI continues to receive support from three grants awarded on August 15, 2015, through the National Institutes of Health’s Clinical and Translational Science Awards program, which is led by the National Center for Advancing Translational Sciences. The UF CTSI grant year begins April 1, and the UF CTSI’s current grant numbers are UL1TR001427, KL2TR001429 and TL1TR001428. The UL1 award covers operations of the CTSI outside of its KL2 junior faculty and TL1 predoctoral trainee programs. Generous additional support for the UF CTSI comes from the UF Office of Research and the UF College of Medicine. Collectively, these awards allow the UF CTSI to advance its goals, which are to accelerate scientific discovery, enhance patient care, produce highly skilled scientists and practitioners, and foster partnerships with industry.

**UF Health Shands Hospital**

UF Health Shands Hospital, which consistently ranks as one of *U.S. News & World Report’s* Best Hospitals in America, was recognized in seven clinical specialty areas in the 2009 comprehensive report for excellence. The entire UF Health system is comprised of two premier academic medical centers, one Children’s Hospital, four community hospitals, two specialty hospitals, and more than 80 affiliated primary care and medical specialty practices staffed by physicians on the faculty of the UF College of Medicine. UF Health Shands Hospital recently became the 12th hospital in Florida and 88th nationally to achieve Magnet status by the American Nurses Credentialing Center. Sharing in that designation are UF Health Shand’s Children’s Hospital, UF Health Shands Rehab Hospital, and UF Health Shands HomeCare. Magnet designation is held by less than one percent of all acute care hospitals in the country and is the nursing profession’s most prestigious honor. Currently, over 1,300 nurses and staff members are employed at UF Health Shands Hospital.

**UF Health Jacksonville Hospital**

UF Health Jacksonville is the region’s premier academic health center, a leader in the education of health professionals, a hub for clinical research, and a unique provider of high quality patient care. With more than 5,000 faculty and staff, the academic health center in Jacksonville is the largest UF campus outside of Gainesville. At 37 clinical sites throughout northeast Florida, UF physicians tallied more than 600,000 outpatient visits and more than 34,000 inpatient admissions in 2010. UF Health at Jacksonville is comprised of: UF Health Jacksonville, a 695-bed academic health center; UF Health Science Center Jacksonville, which encompasses three UF colleges in Jacksonville: Medicine, Nursing, and Pharmacy; and UF Jacksonville Healthcare, Inc., a network of primary and specialty care centers offering exceptional patient care throughout Northeast Florida and Southeast Georgia. In 2008, UF Health Shands Jacksonville, as part of Shands HealthCare, was a recipient of the Governor’s Sterling Award, the state’s most prestigious award for performance excellence given to organizations and businesses in Florida that are role models for improving the way they do business.

**The North Florida/South Georgia Veterans Affairs (VA) Medical Center** (in Gainesville and Lake City, FL)

The North Florida/South Georgia Veterans Health System is a comprehensive and integrated health care delivery system that provides high quality clinical programs and services to veterans. Primary health care services, as well as highly specialized, technologically advanced clinical care are offered. The System includes two hospitals, three large satellite clinics, and several small community-based outpatient clinics. The System also supports important teaching and progressive research programs through its affiliation with the University of Florida Health Science Center and other colleges and universities.

**University of Florida College of Nursing (CON)**

The College of Nursing is recognized nationally and internationally for innovative education, dynamic programs of research, and creative approaches to practice. As Florida’s flagship nursing school, Dean Anna McDaniel, PhD, RN, FAAN, with three associate deans and one urban campus director (Jacksonville branch), administers the operations of the College. Approximately 70 faculty members, the majority of whom are prepared at the doctoral level, are involved in regional/national research and in practice throughout the state. There are also many expert clinicians holding national certifications. The CON graduates the largest number of baccalaureate-prepared RNs in the state and is consistently ranked in the top ten percent of all baccalaureate and graduate degree-awarding nursing schools in the nation. The CON also provides urban access for graduate students at UF’s Jacksonville campus. Since the establishment of the first Florida graduate program in nursing (1963), the CON has maintained a leadership role in graduate nursing education in the South: it established the first nurse practitioner program in Florida, the first BSN-to-PhD track in Florida, the Clinical Nurse Leader master’s degree track, and the Doctor of Nursing Practice program, including one of the first BSN-to-DNP programs in the state and the country. The CON also offers, in conjunction with the University of Florida Graduate School, a Doctor of Philosophy (PhD) degree, with a major in nursing. CON enrollment currently consists of approximately 317 undergraduate students and graduate students in two departments: Biobehavioral Nursing Science and Family, Community, and Health System Science. All CON programs are State Board approved and/or nationally accredited. Nursing students have an opportunity to learn and work with students from other Health Science Center colleges in collaborative health-care teams. The College maintains and participates in nursing and interdisciplinary clinics for women, children, adults, and elders in a variety of settings, with special emphasis on medically underserved and rural areas. Students have access to a fully integrated system of community hospitals and clinics, statewide home health care, and quaternary care at UF Health Shands Hospital.

*CON Research Space and Equipment.* The CON’s 173,133-square-foot complex provides educational, administrative and research space for the CON, the College of Public Health and Health Professions, and theCollege of Pharmacy.Over 1500 square feet of research space are available in the CON, located in close proximity to the offices of the Associate Dean for Research. A large conference room and space to house ten research assistants complete the area. Additional space in the HSC is available to faculty with funded grants to house their research staffs. For this project, *dedicated space* has been allocated in a research suite in the ground floor of the Dental Science Building, which is in very close proximity to the CON. Each pilot investigator will have a desk, computer, printer and all other necessary IT equipment. In addition, the PI and Co-Is will have desk space in the office suite. There is a large conference room in the suite that will be used for research team meetings.

*CON Office for Research Support.* The Office for Research Support (ORS), which was developed to facilitate faculty and doctoral student research, is led by the Associate Dean for Research, Michael Weaver, PhD, RN, FAAN and includes two grants specialists, and an office manager. The staff provides a range of administrative, and proposal submission assistance, and student research assistants are available to perform a variety of support tasks for investigators and their teams. Editorial support is also available upon request. Bi-annual research retreats; a monthly research colloquium series, an annual Research Day, and formal scientific reviews are offered as part of the ORS’s mission to provide a collaborative and supportive environment for fostering research at the CON.

#### *Technological Access and Support.*  PI computers are connected to networks and have remote access to the server and shared drives. The entire Health Science Center complex has high-speed, wireless internet throughout. Site licenses are available for a full array of software, including SPSS and Microsoft Office. PIs have access to at least 146GB of memory via the network, and system support includes 24-hour access to consulting/technical services through UF’s Information Technology (IT) Center. The IT Center provides services to ensure informed and efficient use of information technology resources. The *Customer Support* team provides a single point of contact for all services, including desktop support. *Information Management* develops and maintains data-rich systems in support of enterprise applications. *Systems Administration* provides central network operating systems support, including email, file sharing, security systems and data backup. Additional services include virus protection, desktop operating system integration, and web and database hosting.

The College of Nursing is co-located with the UF Health Science Center Library (HSCL), comprised of the main library in the Health Science Center, the Veterinary Medicine Reading Room, and the Borland Library in Jacksonville. The HSCL, containing the largest collection of health science reference material in the Southeast (over 3.3 million books and periodicals), ranks among the top 10 of 123 health research libraries nationally. A full range of computer-based bibliographic search services are available, and books and articles may readily be requested from other libraries through the interlibrary loan system. HSCL primary users include the faculty, students and staff of the six colleges (Medicine, Nursing, Dentistry, Public Health and Health Professions, Pharmacy, and Veterinary Medicine) of the Health Science Center.

*Visualization Wall.*A state-of-the-art 10 x 5.7 ft. multiscreen visualization wall, also known as a hyperwall, is conveniently located in a spacious 38-seat conference room on the third floor of the University of Florida College of Nursing. The visualization wall, which will be available to researchers on the proposed project, combines nine 46-inch Planar flat panels with narrow bezels to create a seamless surface of more than 18,662,400 pixels. On this surface, researchers can display high-definition movies (1280x720 and 1920x1080) as well as other images with high resolutions (e.g. 9600x3240) for authentic, sharp images. Because the wall is powered by an Intel Core i7-6700 processor and runs on high speed, gigabit internet, a single visualization can be shown instantly across all 9 screens or up to 9 or more visualizations can be shown at once to compare important objects, data, or ideas. Significantly, the wall serves as a dedicated, collaborative space that researchers can use to display their data, test their models, and draw conclusions with extreme accuracy. It also enables them to:

* Visualize and organize large research data sets
* Grasp subtle relationships among the data
* Explore ideas with highly representative, virtual reality 2D/3D simulation
* Collaborate with a group locally or remotely
* Participate in a videoconference with other collaborators
* Hold a lecture or workshop
* Simulate treatments and visualize predicted outcomes

In sum, the visualization wall enhances comprehension of scientific ideas and complex, experimental data through very lifelike, digital representations. On this project, the visualization wall will be used to ….?

*Biomedical Media Services in the HSCL.* Housed in the HSCL, investigators have full access to services including photography, slide production, video development, graphics, and related production assistance.

**University of Florida Academic Health Center**

*Information Technology Resources.* *Within a short walking distance of the CON’s research offices*, the University of Florida Academic Health Center (UF AHC) is supported by the UF and UF Health Shands Information Technology organization (UF and UF Health Shands IT). Research technology services are carried out primarily by two departments in UF and UF Health Shands IT. The Clinical and Translational Research Informatics Program (CTRIP) is a dedicated core facility providing research support in the areas of project collaboration, data collection, software engineering, database design, and data management. The Technical Services Department (TSD) is a well-established professionally managed comprehensive infrastructure services provider, providing storage, systems administration, networking and data center services in a highly available and secure environment. Both TSD and CTRIP are situated in the UF and UF Health Shands IT organization and work closely to meet research technology needs at the UF AHC.

**Health Science Center Library.** The UF Health Science Center (HSC) Libraries are active partners in the education, research, training, and clinical needs of the HSC colleges, centers, and institutes, UF and the state. The HSC 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 Reading Room and UF Health Archives. The main HSC Library in Gainesville, founded in

1956 along with the College of Medicine, is a 55K square foot, technology-enhanced facility whose users may access 115 publicly available computers on all three floors of the library, including 19 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 720 patrons is available across three floors, including 95 seats in 32 study rooms (18 individual and 14 small group study) and 100 seats in the 24/7 Blue Room Study Area. The Gainesville Library is open an average of 97.5 hours per week and averages 32,168 visitors per month. Reference assistance and search help is provided at the Information Desk.

Library services include reference assistance, course-integrated library instruction, circulation, document delivery, Interlibrary loan, photocopy services, course reserves, lockers, and study rooms. Computer access to electronic databases, journals, and catalogs is available onsite and remotely to authorized users. Since 1999, the HSC Libraries have operated a Liaison Librarian program to facilitate partnerships with academic faculty and programs by assigning each HSC college or department a dedicated librarian who works closely with its faculty, staff, and students.

The HSC Libraries’ collection includes reference materials, journals, books, audiovisuals and electronic resources. As of June 30, 2014 the Libraries’ collection totaled 348,682 volumes with 322,414 available for immediate access, and 26,268 housed in the remote storage facility. Additionally, the libraries have 143,543 unique monograph volumes in all formats and 14,322 serial titles in all formats, and its users have access to

355 databases, 1,151,826 e-books (of which 47,335 are specifically health-related), and 154,946 electronic journals.

**UF Computational Infrastructure.**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, including: the Sunshine State Education & Research Computing Alliance (SSERCA) developing a state-wide computational science infrastructure of advanced scientific computing, communication and education resources by promoting cooperation between Florida’s universities; the Open Scalable File System Consortium (OpenSFS) created to maintain the Lustre parallel file system as an open source project; the Florida Lambda Rail (FLR) providing the high-speed network infrastructure in the State of Florida; Internet2 operating the high-speed backbone between research universities and institutions in North America; the Southern Universities Research Association (SURA) working to foster excellence in scientific research, to strengthen the scientific and technical capabilities of the nation and of the Southeast, and to provide outstanding training opportunities for the next generation of scientists and engineers; Coalition for Academic Scientific Computation (CASC) dedicated to advocating the use of the most advanced computing technology to accelerate scientific discovery for national competitiveness, global security, and economic success; the Extreme Science and Engineering Discovery Environment (XSEDE) as a single virtual system that scientists can use to interactively share computing resources, data, and expertise. XSEDE is the NSF funded follow-on to the TeraGrid.

*High performance computing cluster.* Florida’s largest high performance computing cluster infrastructure is owned and deployed by the University of Florida under the collective name of **HiPerGator.** HiPerGator features 23,000+ Cores, 4+ Petabytes of storage, 200+ Gigabit per second to the campus research network and 100+ Gigabit per second to external partners (such as the Florida Lambda Rail). HiPerGator features several open-source software for high-throughput data statistics and bioinformatics. We have already invested into the HiPerGator, and as investors we have privileged access to this computing resource. The **Research Vault (ResVault)** system offers a user-friendly data storage and data processing capability for research projects that include patient health information (PHI). Significantly, it provides the ability to work on *data within a secure, auditable, efficient, and high-performance environment, which ensures compliance with* federal, state, and university regulations for PHI data.



Figure 1: ResVault

ResVault is feature rich and allows researchers to (a) upload data for storage and easily access it for inspection and processing; (b) keep data secure from unauthorized access and log all authorized access to data and data movement; (c) share data between research projects when appropriate authorizations have been obtained; and (d) quickly process and analyze complex data sets. System administrators can also monitor system security and audit data access, reducing risk related to PHI data. Finally, the institutional review board (IRB) can review, approve, and monitor access to data, including access by collaborators to combined data.

General access to the services offered in the vault is from a client workstation or laptop computer that can be located anywhere on campus or in the world through a network connection and VPN. The display is shown on the client computer using virtual desktop and remote display technologies; no data is stored on the client workstation. High performance computing (HPC) software tools inside the vault allow researchers to perform complex data analytics (e.g. using maps-reduce programs (Hadoop) and machine learning tools (WEKA). Tools to import and export data in bulk are available, with proper authorization, to import large data sets with PHI (e.g. from a patient database like Epic) for HPC data analytics by an authorized project. Bulk export is needed to transfer large data sets (e.g. of de-identified data produced by HPC data analytics) for further processing by remote collaborators.

*Software for big data processing and statistical computing.* Satellite data base management systems and software for and warehousing, responding to the extraction-transformation-load (ETL) needs, as well as bridging the data storage at the physical level and proprietary DBMS (i.e. Oracle), is open-source and include: MySQL, Kettle – Pentaho, Jaspersoft, Talend Open Studio, and MethodBox which offers reliable meta-data handling for the former suites. Regarding large data analytics and statistical inference, as well as for subsequent implementation, we will use R, Weka, and the integrated HPCC systems suite. Java is usually a preferred choice when writing new software because of its portability and the availability of a series of machine learning libraries coupled with big data frameworks like Hadoop. Python and C/C++ will be used if performance is required. Command-line software and libraries developed by us are released under the GNU general public license. All software is to be made available for download in well-known public repositories such as SourceForge.

**Clinical and Translational Science Institute**

The mission of the UF Clinical and Translational Science Institute (CTSI) is to improve human health by accelerating the translation of scientific discoveries into practical applications and practices for the diagnosis, treatment, prevention, and cure of human diseases. The UF CTSI’s NIH award of nearly $26 million has been matched by more than $93 million in institutional commitments. The CTSI offers a wide array of resources for teams interested in clinical and translational research. All 16 colleges at UF participate in the CTSI, and our partners include the UF campuses in Gainesville and Jacksonville, along with the UF Research and Academic Center at Lake Nona. The CTSI is an active member of the consortium of 61 Clinical and Translational Science Award institutions funded by the National Institutes of Health, and also collaborates with numerous groups working throughout the state. The CTSI supports more than 100 faculty and staff; 11 programs; 12 clinical research units; six core labs, including a CAP-certified biorepository and a new human imaging core; and six educational programs, including a Master of Science in Clinical and Translational Science.

*Research Services and Resources.*The CTSI offers more than 40 services to help streamline and accelerate the translational research process. Services address clinical, laboratory, consulting, informatics, recruitment and other needs. In addition, the CTSI offers Research Project Navigators to assist with protocol development and provide regulatory support. Additional services include data analysis and research ethics support. The CTSI also offers pilot project awards to support innovative clinical and translational research.

The REDCap Consortium is comprised of 238 active institutional partners and supports a secure web application which support research data capture. REDCap also allows quick and secure building and management of databases. At the University of Florida, REDCap backs data up to three off-site locations providing significant data protection.

*Clinical Research Units.* The CTSI offers 12 Clinical Research Units, which provide venues and expertise to support patient-oriented research around specific research areas or disease states (e.g. Aging, Pain, Cancer, Cardiovascular Disease, Dental, Sleep Medicine).

*Training and Professional Development.*The CTSI Training and Professional Development Program supports the training and advancement of clinical and basic science investigators. Numerous opportunities are available for faculty, fellows, Ph.D. students, and research personnel. CTSI trainees and scholars represent all six colleges of the UF Health Science Center.

*Community Engagement.*The UF CTSI collaborates with clinical, research and community-based groups throughout the state. The CTSI Community Engagement and Research Program develop relationships with community leaders through its Community Advisory Boards and Community Research Associates, and it facilitates research networks and programs locally, statewide, and nationally.

*Recruitment Center.* The CTSI Recruitment Center was created to optimize recruitment and retention of study participants through consultations and services that help UF research teams address their study recruitment needs. The Recruitment Center supports several resources to help facilitate cohort identification and the recruitment of research participants, including access to electronic health record data for cohort discovery, consent for contact to participate in research and participant-centered engagement methods to reach clinical, community and special populations. The Recruitment Center also facilitates the “UF Studies” Facebook page as a platform to advertise research studies and promote engagement within the community. In collaboration with the four UF Institutional Review Boards (IRBs), UF Health and UF research teams, the CTSI maintains and promotes UF StudyConnect as a central resource for listing UF clinical research studies seeking volunteers. Additional resources within the Recruitment Center include the UF Health Integrated Data Repository, i2b2 cohort discovery tool, Consent2Share, HealthStreet, ResearchMatch, Communication and Dissemination program.

*HealthStreet.* HealthStreet (Dr. Linda Cottler, Director) is a CTSI-affiliated community-based effort designed to reduce disparities in healthcare and research by linking the medically underserved to medical (MDs, nurse practitioners, drug treatment, and basic health screenings) and social services (food pantry, housing, criminal justice) and providing opportunities to participate in research. Community Health Workers (CHWs) meet residents at health fairs, special events, bus stops, parks, laundromats, grocery stores, libraries, and other locations in North Central Florida. Community members can also visit HealthStreet to access free services, including health screenings, use of computers, classes, and more. The aim of the program is to improve relationships between community members, health care providers, community organizations, and researchers in the University of Florida community. Through the efforts of Community Health Workers, HealthStreet directly contacts individuals in the community and links them to ongoing research projects based on their primary health concern, medical history, and eligibility criteria. When HealthStreet staff meet community members who fit the eligibility criteria for a given protocol, they are referred to that protocol for screening. HealthStreet also routinely checks their population database for persons who fit investigators’ study criteria and refer them accordingly. Over a one-year period, HealthStreet interacted with more than 2,000 community members, consenting 94.6% for participation in the HealthStreet health survey. Recruitment through HealthStreet is free, and provides opportunities for University of Florida researchers to learn from and improve the health of diverse and underrepresented populations in North Central Florida.

Healthstreet is located in southwest Gainesville and includes about 10K square feet of space for faculty, staff, students, and volunteers. The HealthStreet suite also includes a lobby, a community center, a conference room, multiple meeting spaces, several interview rooms, two kitchen facilities and handicap accessible restrooms and shower facilities. HealthStreet relies on Community Health Workers (CHWs) for engagement and owns two seven- passenger vans that are used by Community Health Workers to drive to outreach locations and to provide transportation to community members. HealthStreet also collaborates with the Sentinel Network, which will grow from five sites to 18 sites with Our Community Health. HealthStreet has an active Community Advisory Board, which is available to consult with academic researchers.

The Gainesville location is complementary to HealthStreet Jacksonville, which is housed on the campus of Edward Waters College, the first historically black college/university in Florida. HealthStreet is in the new Center for the Prevention of Health Disparities. Located at the center of Jacksonville's urban core, the 2,500 square foot facility provides space for community-engaged programs designed to reduce health disparities, such as HealthStreet Jacksonville and the New Town Success Zone. The new center features a lobby area, designated office space for program administration, a community room equipped with kitchen facilities, and handicap accessible restrooms and entrances. The centrally located Center for the Prevention of Health Disparities offers easy access to the greater Jacksonville area, and HealthStreet Jacksonville is also working in the community through rented vehicles.

*ResearchMatch.* ResearchMatch is a national volunteer research registry that brings together researchers and willing volunteers who want to get involved in research studies. This national registry, developed by institutions affiliated with the Clinical and Translational Science Awards (CTSA) program, provides a secure, web-based approach to address a key barrier to advancing research: finding research participants. The goal of ResearchMatch is to better connect volunteers with potential study opportunities.

*StudyConnect.*  In collaboration with the four UF Institutional Review Boards (IRBs), UF Health and UF research teams, the CTSI maintains and promotes UF StudyConnect as a central resource for listing UF clinical research studies seeking volunteers. In addition to being displayed on UF StudyConnect, the study listings appear on UFHealth.org Research Studies & Clinical Trials. As part of its ongoing Study Registry project, the CTSI has a team of trained individuals collecting data about human research studies approved by the four UF IRBs since 2008. This team identifies studies that may be enrolling participants for inclusion on StudyConnect. In addition, UF research teams can request that listings for IRB-approved studies be added, modified, or removed from the site at any time.

*UF Health Integrated Data Repository.*The UF Health Integrated Data Repository (IDR) was created to serve as a common source of information to be used by clinicians, executives, researchers, and educators. The IDR 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. The IDR is a collection of disparate data organized in a manner that lends itself to understanding the relationships between data elements to answer questions. The UF Health IDR currently consists of a clinical data warehouse that aggregates data from the various clinical and administrative information systems, including the Epic electronic medical record. The clinical data warehouse 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. The IDR’s clinical data warehouse is HIPAA-compliant and can be accessed using i2b2, a web-based query and analysis tool. IDR staff offer cohort discovery and honest broker services to Investigators.

*Communications and Dissemination Program.*The CTSI Communications and Dissemination Program (CDP) facilitates research collaborations among UF’s clinical and translational researchers and health communication researchers in the UF College of Journalism and Communications (CJC) and other UF departments involved in health communication research. The goal of the CDP program is to contribute to translational communication research and practice through theoretically informed and evidence-based health message design, dissemination, and evaluation. Specifically, the CDP supports the formation and development of interdisciplinary teams focused on improving communication with patients, caregivers, and community members.

Established in 2008, the CDP facilitates interdisciplinary, translational communication research by connecting scholars affiliated with the CTSI and CJC with similar interests. Since its inception, the program has grown to not only connect researchers with similar interests, but to also provide funds to support preliminary studies and offer seminars, workshops, and colloquia for faculty and students. Developing this critical infrastructure has resulted in successful collaborations on a range of topics, including cardiovascular disease, eating disorders, genetic testing, hospital falls, infectious diseases, smoking and alcohol use, sexual violence, and sickle cell anemia. Research collaborations among CDP faculty and students have resulted in over 30 peer-reviewed publications and conference presentations as well as several federally funded grants.

The program director, Janice Krieger, PhD, as well as several faculty affiliated with the CDP, have direct expertise in the area of patient participation and retention in clinical research and health inequities. The CDP research program in this area includes research on topics including message framing, physician-patient communication, family-patient communication, and community engagement as related to health inequities regarding research study participation. This background, coupled with extensive experience working in interdisciplinary, federally-funded research teams, will support the development of theoretically informed and evidence-based interventions to promote recruitment and retention of research participation as described in the current proposal.

The CDP has a number of resources in place to support continued success in collaborative efforts. One is significant commitment of effort by the director to actively participate in the proposal. Another is a PhD level research assistant who is available to consult (under the direct supervision of the director) with CTSI researchers about communication issues related to research participant recruitment and retention. Finally, the CDP has access to resources and dedicated space associated with the STEM-H Translational Communication Research program located within the CJC. Resources include half-time administrative personnel, office space, and a meeting room with top of the line technology for conducting interviews and focus groups.

*CTSI Biorepository.* The mission of the CTSI Biorepository at the University of Florida is to provide extensive biobanking infrastructure that supports translational research conducted by investigators at the University of Florida and beyond. The CTSI Biorepository provides a wide variety of services, including both tissue procurement and storage of samples. The goal of the CTSI Biorepository is to ensure the highest quality specimens through adherence to strict operating procedures, redundant and automated storage, and emergency response planning. The CTSI Biorepository is currently Good Laboratory Practice (GLP) compliant and is also undergoing through the CAP accreditation process for Biorepositories. The CTSI Biorepository is one of a limited number of biorepositories across the US that have been invited to participate in the College of American Pathologists Biorepository Accreditation Program. As a limited launch participant, the UF CTSI Biorepository will be involved in impacting the landscape of biospecimen quality and research of the future. The accreditation program is a three-year, peer-inspector based program. During the CAP accreditation process, inspectors will examine the biorepository’s quality control, which consists of its standard operating procedures and record-keeping. The Biorepository currently follows strict Standard Operating Procedures that are based on the current best practice guidelines set forth by the International Society for Biological and Environmental Repositories (ISBER) and the Office of Biorepositories and Biospecimen Research (OBBR). CAP inspectors will also examine laboratory personnel qualifications, laboratory equipment, facilities, safety program and record, as well as the overall management of the laboratory. The inspection program, while prescriptive, is designed to specifically ensure the highest standard of care for all laboratory patients.

Archer Family Health Care. Archer Family Health Care, located in the rural town of Archer, Florida, is the University of Florida College of Nursing’s first nurse-managed health care practice, and it offers adult, pediatric, psychiatric and women’s health care to individuals and families who live in Archer and the surrounding areas. It was established in 2001 in order to develop interprofessional collaborative practice environments that deliver patient and population-centered quality health care to those in living in medically underserved or health professional shortage areas. As a federally-designated rural health clinic, the clinic is managed by the University Of Florida College Of Nursing, and is led by a group of family nurse practitioners who provide care. These nurse practitioners are supported by a full team of health care professionals, including a consulting physician, case manager, community health nurse, psychiatric/mental health nurse practitioner, and practice manager. Health care services include diagnosis and treatment of illnesses and injuries; monitoring of chronic diseases; prescriptions; ordering, performing and interpreting diagnostic studies, such as lab work or x-rays; physical exams; immunizations; medication consultation; health screenings for early detection of chronic diseases, such as high blood pressure, diabetes, asthma and cancer; family planning services; health education and disease prevention information; and connections to other community resources. On this project, the clinic will be used to…?

**Pepper Older American’s Independence Center (OAIC)**

The mission of the OAIC is to assess the risk factors of physical disability in older adults, develop and test effective prevention therapies, and train new investigators in research on aging and disability, while developing their leadership qualities. OAIC’s research theme of “sarcopenia and prevention of disability” is pursued using an interdisciplinary approach that traverses the entire spectrum of biomedical investigation, including molecular biology, animal studies, clinical research, behavioral sciences and epidemiology. This research theme addresses the general goal of the OAIC program, namely to increase scientific knowledge that leads to better ways to maintain or restore independence of older persons. To address OAIC’s overall objectives, the OAIC includes several integrated Cores, which support investigators, Junior Scholars, infrastructure, and services: the Leadership and Administrative Core, the Research Career Development Core, the Pilot/Exploratory Studies Core, the Clinical Research Core, the Metabolism and Translational Science Core, the Biostatistics and Bioinformatics Core, and the Data Science Core.

*Leadership and Administrative Core (LAC).* The Leadership and Administrative Core (LAC) is responsible for strategic planning, organization, administrative operations and evaluation of the Older Americans Independence Center (OAIC) Research and Training program. A special effort is being devoted to ensure the coherence of the Center and maintaining an interdisciplinary focus on the common research theme, which is “sarcopenia and prevention of disability”. The LAC tasks are being achieved by the Core Leader and the Executive Committee, the Independent Review Advisory Panel and the External Advisory Committee.

*Research Career Development Core (RCDC).* The Research Career Development Core (RCDC) promotes the development of independent investigators in interdisciplinary research on aging relevant to the independence of older Americans. This core emphasizes the development of leadership skills for translating basic findings into clinical research and clinical findings into basic research. The RCDC supports the research training of OAIC Junior Scholars. The Junior Scholars span the spectrum from being not yet funded, to having an external career development award or equivalent, to advanced trainees who already obtained grants that provide substantial salary support. Under the direction of the RCDC Core leader, each Junior Scholar has assembled a mentoring committee with one primary mentor and 2-4 secondary mentors. The trainees and mentors meet regularly to discuss and strategically plan the research agenda, training and development activities and trajectory for independent funding. Scholars may expect to have a portion of their salary and research activities sponsored by the Core.

*Pilot/Exploratory Studies Core.* The Pilot/Exploratory Studies Core serves to develop key information needed to select and design future, original and independently funded studies that can advance our insight into sarcopenia, prevention, and rehabilitation of disability in older Americans. Specifically, the core fosters the Pilot and Exploratory studies by ensuring the availability of optimal infrastructure, environment, funding, expertise, and instrumentation. Pilot and Exploratory studies foster Junior Scholars in their efforts to develop research careers in aging by providing opportunities for meaningful participation in well-designed research studies and by collecting the needed preliminary data for independent research applications. Furthermore, these studies will allow investigators already accomplished in aging research to gather data which will extend and broaden their focus of research. Finally, these studies will also be a vehicle to encourage and facilitate experienced investigators traditionally working in other research fields to focus on aging.

*Clinical Research Core*. The Clinical Research Core, led by Steven Anton, Ph.D. and Marco Pahor, M.D., provides the infrastructure and expertise for conducting clinical research across the spectrum of translational investigation. The Clinical Research Core has four primary goals: 1) optimal selection and utilization of measures for clinical trials and observational studies 2) understanding the physiological and biomechanical mechanisms contributing to changes in walking speed, 3) in collaboration with the Biostatistics and Data Management Core, conduct secondary analyses of randomized clinical trials and observational studies to provide preliminary data to support the rationale for future clinical trials, and 4) development of behavioral and pharmacological interventions to improve physical function and quality of life of older adults. The Clinical Research Core offers state-of the art infrastructure and experienced personnel to support the conduction of observational studies, and Phase 2 and 3 randomized controlled trials that involve behavioral and pharmacological interventions. Senior researchers with NIH and VA funding, who also have established track records as mentors for career development, lead each one of these goals. Specifically, the Clinical Research Core conducts clinical research studies to assess, in conjunction with the Genomics and Biomarkers Core, the effects of behavioral interventions (exercise and weight loss) on inflammatory markers, oxidative stress, and apoptosis. Particular attention is being given to selection and standardization of physical function and disability measures. The Clinical Research Core supports the utilization of a uniform battery of measures: physical function, biomechanics, disability, depression, and measures of co-morbidity. State of the art and science facilities and muscle activated dynamic simulations of the gait cycle are available to investigators to understand the biomechanical mechanisms that may explain changes in walking. An experienced team of investigators supports development and standardization of behavioral interventions.

*Metabolism and Translational Science Core*. The Metabolism and Translational Science Core, led by Christiaan Leeuwenburgh, Ph.D., in collaboration with all other Cores, utilizes translational research to determine specific biological mechanisms of functional decline in elderly populations and in pre-clinical animal models of aging. 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 scientists with potential targets for intervention. In this context, specific rehabilitation, physical activity and dietary interventions can also be tested to see if they attenuate the biological pathways leading to sarcopenia and functional impairment.

*Biostatistics and Bioinformatics Core*. The Biostatistics and Bioinformatics Core, led by Samuel Wu, Ph.D., supports study design, sample size calculations, randomization, and state-of-the-art statistical analyses of OIAC supported studies. The core also provides data coordination, including developing data collection forms, designing web based capture systems, and data management managing. Specifically, the Biostatistics and Bioinformatics core also is involved in all phases of these studies including initial study design and sample size calculations pre-proposal, randomization, and state-of-the-art statistical analyses once the data are completed. For study designs and data for which current methodology is lacking, the core has the expertise to develop new state of the art methodology to perform correct and appropriate analyzes of data collected in the Center. The Biostatistics and Bioinformatics Core is also involved in preparation of manuscripts for dissemination within the research community.

*Data Science Core*. The Data Science Core, led by Todd Manini, Ph.D. and Sanjay Ranka, Ph.D., provides infrastructure, trained personnel, consultative and collaborative expertise to analyze data from electronic medical records (EMR) and to extract meaningful information from complex biomechanical and physiological data to meet the goals of the UF OAIC. The core conducts exploratory analyses of existing epidemiological and clinical trial data to support grant development and publications.

**Unique Features of the Environment**

**College of Nursing is Co-located with Diverse Array of Resources**

Unlike most other universities, UF’s health science colleges, medical research facilities, and liberal arts colleges are ***all within a short walking distance of each other.*** The following institutions collaborate closely with the CON:

**UF College of Pharmacy**

The UF College of Pharmacy (UF COP) was established in 1923, and is the oldest college in the [UF Health Science Center](http://forwardtogether.health.ufl.edu/). Today, the college is ranked among the top colleges and schools of pharmacy in the nation. In keeping with the University of Florida mission, the college is dedicated to excellence in pharmacy research, service, and educational programs enhanced through online technologies.

The UF COP prepares students who seek academic training and degrees in professional practice and graduate research areas. The doctor of pharmacy degree is offered to students in four Florida cities, and also to working pharmacists with bachelor’s degrees across the United States. The college has [five academic departments](http://pharmacy.ufl.edu/research/) each with a unique research focus and a highly successful track record of obtaining extramural research support. UF COP [faculty](http://pharmacy.ufl.edu/faculty-staff/faculty-directory/) have appointments in one or more departments, and often teach and conduct collaborative research projects with clinical and other basic scientists within the Health Science Center, UF Health Shands Hospital, or other colleges on campus. Many faculty also serve on editorial boards for scientific journals and maintain collaborative ties with scientists worldwide. The five research departments include the following:

* [**Medicinal Chemistry**](http://pharmacy.ufl.edu/research/medicinal-chemistry/)

The department of Medicinal Chemistry is a unique blend of the physical and biological sciences, and has a broad field of scope that provides students with a rewarding and challenging program of study. Areas of active interest include drug discovery, organic synthesis of medicinal agents, natural products chemistry, prodrugs, topical drug delivery, peptide chemistry, molecular modeling, drug metabolism, and molecular toxicology.

[Center for Natural Products, Drug Discovery and Development](http://pharmacy.ufl.edu/mc/research/research-centers/cnpd3/)

The mission of the University of Florida’s Center for Natural Products, Drug Discovery and Development (CNPD3) is to foster early-stage drug discovery by providing the infrastructure, chemical libraries and expertise to screen for disease-relevant targets and for drug-like, disease-modifying molecules that modulate target activity. The chemical focus of the CNPD3 is on unique natural products, and the goal is to fully exploit the biosynthetic as well as therapeutic potential of untapped biodiversity for drug discovery. Candidate compounds could be developed further through interactive chemistry and pharmacology efforts. The CNPD3 provides the academic home for the identification of drug leads and subsequent development campaigns carried out in concert with other biomedical Centers at UF to drive forward preclinical and clinical drug development.

* [**Pharmaceutical Outcomes and Policy**](http://pop.pharmacy.ufl.edu/)

The department of Pharmaceutical Outcomes and Policy integrates social and administrative pharmacy, health outcomes research, pharmacoeconomics, and pharmacoepidemiology. The department’s focus in research and graduate training is centered on the evaluation of drugs and related medical technology. This focus includes classic pharmacoepidemiologic and pharmacoeconomic work in areas such as drug safety and comparative effectiveness, as well as patient safety and program evaluation as related to medication use. The department has excellent facilities for quantitative research, including a data center with a state-of-the-art 32TB privacy-approved research server and a variety of billing record and clinical research databases.

* [**Pharmaceutics**](http://pharmacy.ufl.edu/research/pharmaceutics/)

The Department of Pharmaceutics is located in the University of Florida, J. Hillis Miller Health Center, a complex that includes the Colleges of Pharmacy, Medicine, Nursing, Health Related Professions, Dentistry, and Veterinary Medicine, Shands Hospital, and the Veterans Administration Medical Center. The variety of disciplines in the health science complex guarantees a stimulating scientific environment for graduate students who wish to pursue careers in research. Research in the Pharmaceutics Department encompasses basic, applied, and clinical investigations in pharmacokinetics/ biopharmaceutics, pharmaceutical analysis, pharmaceutical biotechnology and drug delivery, and herbal medicine. In addition to teaching, all faculty members are involved in collaborative research projects with clinical and other basic scientists within the Health Center or on campus. Many of the department’s faculty maintain collaborative ties with scientists in other universities and the pharmaceutical industry worldwide.

* [**Pharmacodynamics**](http://pharmacy.ufl.edu/research/pharmacodynamics/)

Research in the pharmacodynamics department focuses on the interface of physiology, neuroscience, pharmacology and pathology, and relies on a combination of molecular, biochemical, cellular and behavioral tools. The general goals of our Department’s research are to understand normal physiology, pathophysiology, and drug action. The department also aims to establish productive areas of basic and applied research in the field of how drugs and genetic engineering can be better used to treat disease; to provide didactic training in physiology, pathophysiology and pharmacology for students pursuing the Pharm.D. degree throughout the state of Florida; to provide broad training for graduate students in the physiology, pharmacology, and neuroscience disciplines as well as in depth didactic and research training in specialized areas of Pharmacodynamics; and to provide a research environment which allow undergraduate students and pharmacy students to pursue research interests congruent to those in the department.

* [**Pharmacotherapy and Translational Research**](http://cop-ptr.sites.medinfo.ufl.edu/)

The Department of Pharmacotherapy and Translational Research is a national leader in the areas of pharmacy practice, education and clinical translational research. It aims to provide classroom and clinical instruction for pharmacy students and trains graduate students in clinical translational research. Faculty members in the department have a highly successful track record in obtaining research funding from numerous funding agencies, including the National Institutes of Health. The Department of Pharmacotherapy and Translational Research also offers a variety of excellent clinical residencies and research fellowships as well as a PhD program in Clinical Pharmaceutical Science.

[Center for Pharmacogenomics](http://cop-ptr.sites.medinfo.ufl.edu/research/center-for-pharmacogenomics/)

The mission of the Center for Pharmacogenomics is to improve patient outcomes by maximizing efficacy and minimizing toxicity of drug therapy through research, teaching, and service focused on genetically-guided drug therapy decision-making, drug discovery, and drug development. The research objectives of the center are to enhance the quality of pharmacogenomic research at the University of Florida by bringing together faculty working in this field, and increasing multidisciplinary collaboration in research. Specific areas of pharmacogenomics research conducted by Center faculty include:

* The genetic basis of variability in drug efficacy and toxicity, including study of genetic polymorphisms in drug targets, drug transporters, and drug metabolizing enzymes. These investigations will include study of the genetic influences on drug pharmacokinetics and pharmacodynamics and will range from polymorphism discovery to in vitro or transgenic functional analysis of polymorphisms to small studies in humans of the functional effects of polymorphisms to large pharmacogenomic clinical trials.
* Investigation of disease-gene associations, especially those that may have relevance to pharmacogenomics as well as the use of human genetic information in drug discovery and development.

Finally, the educational objectives of the center are to train clinical and basic scientists in pharmacogenomics; and educate the University of Florida Health Science community on pharmacogenomics, including research findings, potential implications for medicine, and ethical and legal ramifications, through various educational initiatives such as seminar series and symposia.

**College of Medicine**

The College of Medicine was founded in 1956, encompasses 26 clinical and basic science departments staffed by 1,050 faculty on the Gainesville campus and 320 faculty on the UF Health Science Center’s urban campus in Jacksonville. The college attracts nearly $200 million in external grants and contracts for research per year and is the leading educator of outstanding physicians, physician assistants, and biomedical scientists for the state of Florida. Through UF Health and a network of UF clinics, College of Medicine physicians provide cutting-edge care to residents of Florida and to patients around the world who travel to Gainesville and Jacksonville for specialized care. More than 1,500 students, residents and fellows receive education and training at the College of Medicine each year. In addition to the medical degree the college offers a variety of educational opportunities including the Interdisciplinary Program in Biomedical Sciences, which leads to a Ph.D. or an M.S. degree, and joint programs for both M.D. and Ph.D. degrees. Also part of the College of Medicine is the School of Physician Assistant Studies. The college plays an important role in the continuing education of resident physicians and fellows through its collaboration with the UF Faculty Group Practice Clinics and UF Health.

* **Center for Autism and Related Disorders (CARD)**

As part of the College of Medicine (COM), CARD works with families, caregivers, and professionals to optimize the potential of people with autism and related disabilities. There are six non-residential CARD centers across the state, and CARD/UF employs professionals with expertise in psychiatry, psychology, special education, nursing, applied behavior analysis, and speech-language pathology. CARD’s purpose is to serve individuals across the lifespan by helping them become valued members of their communities. To achieve this goal, CARD offers support within the natural contexts of homes, residences, child care programs, schools, and communities at no charge due to funding by the Florida legislature.

* **Department of Psychiatry (DOP)**

The Department of Psychiatry and Addiction Medicine at the University of Florida College of Medicine is well known for ground-breaking research, innovative but evidence-based treatment approaches to complex problems and responses to cutbacks in care through state and national access to programs. Headquartered at the Evelyn F. and William L. McKnight Brain Institute of UF, the Department of Psychiatry has research facilities side-by-side the department of Neurology and Neurosurgery. DOP has the most research faculty working at the highest levels in the areas of smoking, drug misuse, alcohol abuse, addictions, pain, depression, autism and the autism spectrum, eating disorders and obesity. Clinical operations take place at the Malcolm A. Randall Veterans Medical Center, UF Health, UF Health Shands Vista Psychiatric Hospital and the UF Health Florida Recovery Center. Satellite locations are also located in Vero Beach, Tampa, Orlando, and St. Augustine-Jacksonville.

* **McKnight Brain Institute**

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. Today the MBI-UF collaborative spirit is alive and growing and is represented by over 300 faculty from 51 academic departments and ten colleges and entails research and educational programs in nearly all aspects of basic, clinical and translational neuroscience. Additional collaborators around the world expand this into an international effort. The MBI is unique with its breadth and magnitude of multidisciplinary talent focused on understanding and developing new therapies for nervous system afflictions. With a design theme of beyond the-state-of-the-art, the conceptual mission of the extramurally funded, $60 million, 210,000 sq. ft. MBI-UF building was that it serve as a catalyst and focal point for widely diverse, but synergistically interacting multidisciplinary research programs. Thus, in addition to an obvious emphasis on high technology, the strategic design of the MBI-UF includes a strong emphasis on multi-user core facilities within a research and clinical setting that includes highly dedicated and gifted basic science and clinical researchers.

* **Institute on Aging**

The UF Institute on Aging, whose infrastructure and academic environment are provided by the Department of Aging and Geriatric Research, is the home of faculty members from diverse disciplines who wish to pursue a career focused on research and education on aging, and are dedicated to high quality interdisciplinary and translational research and training focused on the health and independence of older adults. The continuing goal is to be at the forefront of research, education and career development in the area of aging, and make significant contributions to the preservation of independence and prevention and rehabilitation of disabilities affecting our senior citizens.

* + **UF Genetics Institute**

The UF Genetics Institute (UFGI) offers a cohesive and unified systems biology program for the entire University of Florida campus, devoted to excellence in teaching and research that will foster inter-disciplinary interactions and collaborations. UFGI is well positioned to play a lead role in the post-gene sequencing through the identification of four key areas in which to build on existing strengths and achieve an even greater degree of national and international recognition.  The strategy is to focus on (1) the generation of primary data in the form of additional DNA sequences in areas of specific relevance to UF and epigenetic data with clinical application, and (2) the development of novel analytical tools applicable across all organisms and genomes. The four research areas are bioinformatics, which is the analysis of sequence/structure/expression data; comparative genomics, which is the comparison of genomes, genes, and gene functions across organisms; population and statistical genetics, which is the use of computational and statistical methods for analyzing and interpreting genetic data; and epigenetics, which is the analysis of mechanisms governing heritable patterns of differential gene expression.

* **UF Health Shands Hospital**

UF Health Shands Hospital, which consistently ranks as one of *U.S. News & World Report’s* Best Hospitals in America, was recognized in seven clinical specialty areas in the 2009 comprehensive report for excellence. The entire UF Health system is comprised of two premier academic medical centers, one Children’s Hospital, four community hospitals, two specialty hospitals, and more than 80 affiliated primary care and medical specialty practices staffed by physicians on the faculty of the UF College of Medicine. UF Health Shands Hospital recently became the 12th hospital in Florida and 88th nationally to achieve Magnet status by the American Nurses Credentialing Center. Sharing in that designation are UF Health Shand’s Children’s Hospital, UF Health Shands Rehab Hospital, and UF Health Shands HomeCare. Magnet designation is held by less than one percent of all acute care hospitals in the country and is the nursing profession’s most prestigious honor. Currently, over 1,300 nurses and staff members are employed at UF Health Shands Hospital.

* **UF Health Shands Children’s Hospital**

UF Health Shands Children’s hospital, located within UF Health Shands, is the only quaternary–care academic pediatric center in North Florida, and is ranked in the top-50 pediatric hospitals in the country in a variety of specialties (US News and World Report, 2016). With 167 beds, including fully-equipped pediatric and neonatal intensive care units, the UF Shands Children’s hospital offers some of the most specialized pediatric programs for the diagnosis and treatment of a wide range of complex conditions. UF Health Shands Children’s Hospital is a member of the Children’s Hospital Association, formerly known as the National Association of Children’s Hospitals and Related Institutions. The Children’s Hospital Association advances child health through innovation in the quality, cost and delivery of care. Representing 223 children’s hospitals, the Association is the voice of children’s hospitals nationally. It champions public policies that enable hospitals to better serve children and is the premier resource for pediatric data and analytics, driving improved clinical and operational performance of member hospitals.

*Labor and Delivery Unit and NICU.*The labor and delivery unit is a tertiary care center with an average of 240 births per month and 120 VLBW births per year. It is immediately adjacent to the Level II and Level III Neonatal Intensive Care Unit. *The NICU at Shands Teaching Hospital is equipped with 22 Level III beds and 30 level II beds and is a premier tertiary care center for infants delivered prematurely.*

* **The North Florida/South Georgia Veterans Health Center** (in Gainesville & Lake City, FL)

The North Florida/South Georgia Veterans Health System is a comprehensive and integrated health care delivery system that provides quality clinical programs and services to veterans. Primary health care services, as well as highly specialized, technologically advanced clinical care are offered. The System includes two hospitals, three large satellite clinics, and several small community-based outpatient clinics. The System also supports important teaching and progressive research programs through its affiliation with the University of Florida Health Science Center and other colleges and universities.

* **UF Health at Shands Cancer Center (UFSCC)**

The UFSCC is part of one of the leading referral centers in the Southeast and is the flagship cancer center for the state of Florida and its residents. The UFSCC is committed to discovering disease mechanisms, developing new and novel therapies while testing them via clinical trials, and delivering state-of-the-art care to patients. Clinical and research activity occurs primarily on University of Florida's two academic campuses located in Gainesville and Jacksonville. In addition, the Center has strong working relationships with many community physicians across the state of Florida and southeast Georgia. Multidisciplinary teams include individuals from many disciplines – surgical oncology, medical oncology, radiation oncology, pathology, diagnostic and interventional radiology, nutrition, and social work – as well as members from specialty medicine and surgical disciplines.

* **College of Public Health and Health Professions**

The College of Public Health and Health Professions at the University of Florida is one of the largest and most diversified health education institutions in the country. Established in 1958 and among the oldest colleges dedicated to educating students of many different health professions, the PHHP has programs in Behavioral Science and Community Health, Clinical and Health Psychology, Communicative Disorders, Health Science, Health Services Administration, Health Services Research, Occupational Therapy, Physical Therapy, Public Health, and Rehabilitation Science. The College, which emphasizes development of intellectual resources and skills, enables graduates to prosper in today’s complex health delivery system, as well as to conduct significant research in areas such as health and behavior, rehabilitation of the nervous system, and health systems functioning.

**Pain Research and Intervention Center of Excellence (PRICE)**

Dr. Fillingim is the Director of the University of Florida’s Pain Research and Intervention Center of Excellence (PRICE), a multi-college Center of Excellence that 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 UF Clinical and Translational Science Institute (CTSI), and receives strong support from the UF Institute on Aging and the UF Health Shands Cancer Center. PRICE consists of more than 20 extramurally-funded investigators pursuing a broad range of studies (see Table 1 for a partial list of PRICE faculty). PRICE provides member investigators with several resources and services in order to facilitate clinical and translational pain research at UF.

Regulatory Support: Through its affiliation with the CTSI, PRICE offers investigators assistance with protocol development, preparation of IRB and other regulatory documents in order to ensure rapid regulatory approval and full compliance with all appropriate standards.

Assistance with Recruitment of Research Participants: PRICE maintains a registry of more than 1,000 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.

Facilities and Resources for Data Collection: PRICE offers facilities and services to assist investigators with collection of pain assessment data in their research protocols, via the Pain Clinical Research Unit (see below). Investigators can conduct their own studies in the PainCRU, or they can request that the PainCRU staff collect the data for their protocol.

In addition, PRICE endeavors to enhance the intellectual and professional work environment for the UF pain research community by and coordinating training activities related to pain, including our T32 training grant in translational pain research, as well as journal cubs, seminar series, and a monthly Pain Interest Group.

In early 2013, PRICE occupied its physical home in the new Clinical and Translational Research Building (CTRB), and state-of-the-art research building that serves as the home for clinical and translational research at the University of Florida. The CTRB provides offices for the PRICE Director and Program Manager as well as the Director of the Pain Clinical Research Unit (see below) and several PRICE research staff members.

Major equipment

The PainCRU is a component of PRICE, which provides a patient-oriented research venue designed to facilitate and foster clinical and translational pain research at UF. The PainCRU currently occupies space on the second floor of the Dental Tower at the University of Florida Health Sciences Center. This space includes ***two fully equipped quantitative sensory testing (QST) units***, each approximately 150 square feet. Recently, the PainCRU was provided two additional QST rooms in the Clinical Research Center in the north wing of the new Clinical Translational Research Building (CTRB). The PainCRU 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.

**OneFlorida Clinical Research Consortium**

The consortium is a statewide partnership among the University of Florida, University of Miami, Florida State University, health care systems, health plans, providers and patients funded by the Patient-Centered Outcomes Research Institute (PCORI) to support patient-centered health care research throughout Florida and the country. It includes 22 hospitals, 914 clinical practices and 4,100 physicians, providing care for close to 40 percent of Floridians. The consortium is one of 13 clinical data research networks nationwide, which are working to accelerate the translation of promising research findings into improved patient care.

**University of Florida Institutional Review Board (IRB)**

The UF Institutional Review Board offers educational seminars and resources for investigators that cover regulatory requirements, research misconduct, conflict of interest, data management, and other pertinent research topics.