

## University of Florida

### Claude D. Pepper Older Americans Independence Center

#### **RC1 - Clinical Research Core**

**Core Leader: Stephen Anton, PhD [santon@ufl.edu](mailto:santon@ufl.edu)**

The Clinical Research Core (RC1) is a key resource for the University of Florida (UF) Older Americans Independence Center (OAIC), providing the resources and expertise for conducting clinical research across the spectrum of investigation of clinical trials, as well as observational studies of risk and outcomes related to mobility and prevention of disability. Its primary goal is to encourage and facilitate clinical translational research focused on mobility and disability prevention.

The RC1 has three Specific Aims:

1. Provide the resources and intellectual environment to facilitate clinical research, team science, and education of OAIC Junior Scholars related to mobility and disability prevention.
2. Promote and facilitate translation of pre-clinical and pilot studies into clinical trials in older persons.
3. Improve our understanding of behavioral, cognitive, and physiological factors that may affect responses to interventions designed to improve mobility and prevention of disability in older adults.

The RC1 provides resources and personnel (including U01 and R01 funded investigators) to support the development and implementation of clinical trials, including pharmacologic, nutritional and behavioral interventions, and observational studies addressing factors contributing to mobility impairment in older adults and implications for functional decline and disability. Building on close collaborations with other OAIC cores, the RC1 will support pilot/exploratory projects, developmental projects, and external projects. The Core will also provide senior level Investigators with established track records as mentors for career development to lead each of these goals, providing expertise and promoting a rich environment for junior faculty research and senior faculty collaboration.

[Link to RC1 Services](#)

#### **RC2 - Metabolism and Translational Science Core**

**Core Leader: Christiaan Leeuwenburgh, PhD [cleeuwen@ufl.edu](mailto:cleeuwen@ufl.edu)**

The Metabolism and Translational Science Core (RC2) supports the overarching hypothesis that knowledge of specific protein, RNA, and DNA biomarkers, as well as measurements of metabolism in isolated mitochondria and white blood cells (WBCs) are critical for understanding the trajectory of healthy aging and the underlying biological causes of loss of mobility. This core's service goals are to: (1) provide specific analyses of protein, RNA, and DNA biomarkers that are related to major biological and

metabolic pathways known to regulate aging, such as (i) Mt function, (ii) inflammation and senescence, (iii) autophagy, (iv) circadian clock biology, and (v) nicotinamide adenine dinucleotide (NAD<sup>+</sup>) homeostasis; and (2) provide consultation for investigators.

We support extraction of proteins, RNA, and DNA; analysis of biomarkers; isolation of cells (WBCs) and organelles (mitochondria); and assessments of Mt function. RC2 will provide investigators across the OAIC Cores and REC Scholars with established methodologies; scientific data; infrastructure; highly qualified personnel; and consultative and collaborative expertise. We have a rich history of completing studies for REC Scholars and senior investigators at UF, as well as scientists around the country.

The 3 major services are:

- 1) To support protein, RNA, and DNA isolation and analysis of specific biomarkers of aging.
- 2) To support analysis of Mt respiration, Mt enzyme activities, and NAD coenzymes.
- 3) To facilitate and provide consultation on analysis platforms and sample storage, and collaborate synergistically with the other OAIC cores.

[Link to RC2 Services](#)

### **RC3 - Biostatistics Core**

**Core Leader: Peihua Qiu, PhD** [pqiu@ufl.edu](mailto:pqiu@ufl.edu)

The UF Older Americans Independence Center's Biostatistics Core is a key cog in the interaction among scientists from many disciplines to accomplish this mission. The core provides data coordination including: developing data collection forms, designing web based capture systems, and managing the data (including quality control) for studies conducted within the Older Americans Independence Center (OAIC).

The 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 Core is also involved in preparation of manuscripts for dissemination within the research community.

[Link to RC3 Services](#)

## **RC4 – Data Science and Applied Technology Core**

**Core Leader:** Todd Manini, PhD [tmanini@ufl.edu](mailto:tmanini@ufl.edu)

**Co-Core Leader:** Sanjay Ranka, PhD [ranka@cise.ufl.edu](mailto:ranka@cise.ufl.edu)

Data Science and Applied Technology (DSAT) Core (RC4) provides many unique attributes, such as: developing software for interactive mobile technology (e.g., wearable sensors that are programmable in real time); validating new sensing technology; warehousing data; repurposing data; and applying machine learning techniques to domain problems. DSAT provides a central hub of expertise in computer science, biomedical engineering, biomedical informatics, data science, applied technology, epidemiology, and content expertise in the assessment of mobility

The core has 800 sqft of dedicated space to conduct research. This space is outfitted with 8 workstations with large monitors (>20 inches). It also has an 8X4 ft conference table that serves as collaboration space. with office is adjacent to the space where clinical assessments are performed. The space is designed for programmers and trainees to download, store and analyze data. The space is situated immediately office/work areas of clinic research staff that include study coordinators, student assistants, and collaborating investigators. The core also has full access to The Department of Computer and Information Sciences and Engineering (CISE) computer cluster space consisting of a head node with dual Opterons, 16GB of memory and 3.5TB of storage with 20 worker nodes with dual Opterons and 32GB of memory running Linux (Ubuntu Server 10.04). These will be used for prototype software development. All graduate students have access to a workstation that can be used to access this cluster. All faculty offices are equipped with a Windows or Linux workstation with standard software installations. Wireless access is available throughout the CSE Building and all of campus.

[Link to RC4 Services](#)

## **RC5 – Systems Physiology and Omics Core**

**Core Leader:** Karyn Esser, PhD [kaesser@ufl.edu](mailto:kaesser@ufl.edu)

The Systems Physiology and Omics Core within the UF OAIC will provide the specialized resources and expertise to support scientists that want to incorporate systemic measures of mouse activity, metabolism and feeding. The systems are also embedded within light regulated environments to capture circadian, time of day, based outcomes. The core will support scientists wanting to perform circadian type analyses with either pre-clinical or clinical time series data. Lastly, the core will support scientists wanting to incorporate -Omics measures into their studies with experience in genomics, proteomics and metabolomics assays/analyses. These services are available to support new investigators, early-stage investigators and current investigators in aging.

[Link to RC5 Services](#)