

**Testimony for
The Senate Special Committee on Aging
South Carolina Field Hearing
Aging in South Carolina:
Biomedical Research in the Palmetto State**

September 2, 2015
Strom Thurmond Institute
Clemson, SC

**By
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Madam Chairman and members of the committee: We welcome you to South Carolina and appreciate the chance to discuss some of the country's most extensive aging research right here in South Carolina. This is taking place through private industry, entrepreneurs, research at our three research universities and collaborating organizations.

We mention only in passing promising research at The University of South Carolina, and the Medical University of South Carolina in Charleston along with other organizations. Martine LaBerge, chair of the Clemson Department of Bioengineering and member of the SCBIO board will certainly cover the Clemson landscape.

Our focus at the South Carolina Biotechnology Industry Organization is private industry. SCBIO represents those entrepreneurs, researchers and executives who are moving therapies to market to relieving suffering and improving lives. Research can be impressive, but it changes nothing until it gets to patients -- and that is the focus of SCBIO. We are a non-profit business association dedicated to growing life science businesses and the full ecosystem for innovation in therapies and cures.

Toward that end, I point to the most important streamlining in more than a decade of the government-regulated process to get therapies to patients. The House-passed 21st Century Cures, or H.R. 6, is a major legislative milestone with its impressive bipartisan margin of 344 to 77.

We know that the Senate HELP Committee -- of which Sen. Scott is a member -- is working on its own legislation but we strongly urge H.R. 6 as a model for how it modernizes clinical trials, brings patients at the center of treatment decisions, improves coordination between regulating agencies and importantly, increases funding to the National Institutes of Health and Food and Drug Administration -- \$1.5 billion a year in baseline funding and an \$8.75 billion innovation fund for NIH, and \$550 million more for the FDA. NIH is the critical launching point for what is becoming an explosion of discovery in biomedical science and digital health. The

FDA for years has seen its mission expand and funding contract but is critical to increasing the safe, but efficient throughput of therapies and cures.

Getting discovery to patients requires a long process and lots of money. SCBIO members are launching new companies, moving therapies to market across the spectrum of age-relevant disease.

They include CreatiVasc, a company recognized by the FDA as one of three in the country with breakthrough technology to create a new arterial port system for kidney dialysis patients.

In diabetes, Perle Bioscience of Charleston, is moving to clinical trial a combination therapy that hopes to eliminate the need for insulin shots in certain patients with Type I diabetes.

And Neuro-Quest, an Israel-based technology with North American headquarters here with a promising, technology for an affordable early diagnostic blood test for Alzheimer's Disease, before symptoms become clinically apparent. As you know, that is the key to developing effective intervention.

In stroke, we have young startup companies looking at neuro-stimulation across the brain to forestall or even reverse some of the devastating impact of stroke effects. And increasingly we are seeing an explosion of Health IT companies developing smart phone apps for compliance monitoring and real time information.

Some of this comes out of MUSC's Dr. Robert Adams, who chairs the SmartState Center of Excellence in Stroke treatment, and recently helped launch the \$5 million Center for Biomedical Research Excellence in Stroke therapies. He is responsible for implemented the REACH MUSC Network, which has provided around-the-clock, Internet-based stroke consultation at over 20 sites. It has doubled the percentage of South Carolinians within a 60-minute drive of a stroke treatment center to 76%. And now they are able to quickly fly certain stroke patients to MUSC to have remove the arterial blockage and stop the stroke. With this is a \$4 million American Heart Association grant targeted to research the disparities in stroke recovery among African Americans.

All you have to do is look at the aging research in South Carolina and know how important NIH funding is and what a significant effort is being made on all facets of aging.

At the University of South Carolina, more than \$35 million from the NIH, CDC and other agencies support more than 11 centers and specific projects on aging.

These specific centers and projects include:

- **The SmarHOME Center of Economic Excellence:** Led by SmartState Endowed Chair, Dr. Sue Levkoff, SmarHOME brings together expertise from many disciplines to innovate solutions to improve the quality of life for older adults and their caregivers and families. SmarHOME leverages advances in health information technology, robotics, and computer science with behavioral health interventions and monitoring systems to enable older adults to stay in their own homes and maintain their independence.
- **The NIH Complementary Alternative Medicine (CAM) Center at the USC School of Medicine:** This research center, headed by Drs. Prakash Nagarkatti and Mitzi Nagarkatti, studies the mechanisms by which various plant-derived products can be used to prevent and treat inflammatory and autoimmune diseases, many of which disproportionately affect aging populations. In one current study, the CAM Center team is investigating the use of resveratrol, an anti-aging compound derived from grape skin, to relieve neuroinflammation, which plays a role in Alzheimer's and other neurodegenerative diseases.
- **The NIH COBRE Center for Dietary Supplements and Inflammation (CDSI):** Co-directed by Drs. Prakash and Mitzi Nagarkatti, this center performs research on dietary supplements to see how they regulate inflammation. This center is currently studying dietary supplement applications for cancer, obesity, hypertension, diabetes, Alzheimer's, atherosclerosis and several other autoimmune diseases that regularly impact older adults.
- **The Assistive Robotics and Technology Lab (ARTLab):** Headed by Dr. Jenay Beer, the ARTLab works to develop and improve assistive technologies, including robotics and smart home devices, to improve the quality of life for older adults and their caregivers. Current projects focus on leveraging smart technologies for retirement community employees, preventing and detecting falls and enhancing telepresence devices and applications to meet the needs of older adults.
- **The NIH Center for Colon Cancer Research (CCCR):** Headed by Dr. Frank Berger, the CCCR engages in cutting-edge research aimed at making the breakthrough discoveries that will lead to improved methods for prevention, diagnosis, and treatment of colorectal cancer, the risk for which increases with age. The CCCR also has a robust outreach program that provides awareness, education and screening programs throughout South Carolina.

- **The Office for the Study on Aging:** Located in the Arnold School of Public Health, this research group educates caregivers of patients with dementia and manages the SC Alzheimer's Disease Registry, which is the largest registry of its kind in the country, making it a very unique research resource for study of the disease.
- **The PREMIERS Stroke Study:** This year, Dr. Souvik Sen, USC School of Medicine Neurology Department Chair and SmartState endowed chair for stroke research, is launching a brand new study on stroke prevention through the treatment of gum disease. Few people realize that gum disease can elevate a person's stroke risk nearly three-fold. This study will leverage telemedicine to reach aging individuals in rural communities with stroke care, a strategy that has been shown to reduce stroke-related death and disability rates, which are high in South Carolina.
- **The Neurology Residency Training Program at the USC School of Medicine:** This newly developed program will train neurologists in South Carolina with a goal of alleviating the anticipated need for more neurologists as the South Carolina population grows older in the coming years.
- **The Center for Effectiveness Research in Orthopaedics:** This center, led by Dr. John Brooks, the SmartState Endowed Chair of Rehabilitation and Reconstruction Sciences, is assessing the relative effectiveness of alternative approaches to treat musculoskeletal problems in the elderly. His team is also studying the benefits and risks of higher rates of intensive drug treatment for complex elderly stroke patients.
- **The Prevention Research Center (PRC):** The PRC was established in 1993 as part of the Prevention Research Centers Program of the Centers for Disease Control and Prevention (CDC). Today, PRC researcher Dr. Daniela Friedman is working to establish the SC Healthy Brain Research Network Collaborating Center to advance research into cognitive health and healthy aging issues around Alzheimer's disease and related dementias. Recently, Dr. Sara Wilcox led the effort to create the Healthy Aging Research Network to better understand the determinants of healthy aging in older adult populations, identify ways to promote healthy aging and to assist in the translation of such research into sustainable community-based programs throughout the nation.
- **The Cancer Prevention and Control Program (CPCP):** Led by Dr. James Hébert, the CPCP was founded in 2003 to investigate and begin to alleviate the stark health disparities present in South Carolina, especially those resulting in higher cancer incidence and mortality rates in the African-American community in our state. Virtually all of the University of South Carolina's epidemiologic cancer research is conducted here at the Cancer Prevention and Control Program, and much of our work focuses on modifiable risk factors, such as diet and exercise.

At the Medical University of South Carolina, The Center on Aging is one of the oldest at the university and has 68 affiliated faculty members from all 6 colleges. Funding for age-related research at MUSC has increased 10-fold in the last 15 years to approximately \$33 million

One thing that does mark aging research in South Carolina is collaboration among our three research universities with the annual Aging Research Day. Members of the South Carolina Aging Research Network (SCARN) support this interdisciplinary research conference. It draws around 150 participants from all disciplines, including engineering, nutrition research, basic science, social work, and clinical research. This year it explored stress and aging and next year it will be sensory systems and aging.

At the University of South Carolina, more than \$35 million from the NIH, CDC and other extramural funding agencies support research into issues around aging through

South Carolina's collaborative prowess is evident in Health Sciences South Carolina, one of the nation's first statewide clinical data warehouse systems with participants that include seven of the state's largest health systems, and the research universities to facilitate health research and create new tools for better health outcomes. HSSC is partnering with North Carolina in a \$15 million study funded by Duke Endowment using data-driven innovations to improve health outcomes in our states' high rates of diabetes, stroke, obesity, heart disease, and health disparities.