BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors in the order listed on Form Page 2.
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME	POSITION TITLE
Leeuwenburgh, Christiaan	Professor
eRA COMMONS USER NAME (credential, e.g., agency login) cleeuwen	

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	MM/YY	FIELD OF STUDY
University of Florida, Gainesville	BS	1986-1988	Applied Physiology
University of Florida, Gainesville	MS	1988-1990	Applied Physiology
University of Illinois, Urbana-Champaign	PhD	1990-1995	Biochemistry and Aging
University of Wisconsin, Madison	Pre-Fellow*	1993-1995	Biochemistry and Aging
Washington Univ. School of Medicine, St Louis	Post-Fellow	1995-1998	Biochemistry and Aging Geriatrics & Gerontology

A. Personal Statement

During the last 6 years, I have served as a leader of the Research Career Development Core (RCDC) of The Claude D. Pepper Older American Independence Center (OAIC) grant (P30 AG028740-01). I have guided UF-OAIC scholars and ensured that they have received necessary scientific training and career development mentoring. I have actively participated in both leading the administrative duties and research mentoring activities. Throughout this time I have actively worked with numerous doctoral, post-doctoral and Junior Faculty scholars on developing their specific aims and research program. All of the current scholars or affiliated scholars have obtained additional independent funding.

For example, Jinze Xu and Priya Dutta both received Fellowship awards from the American Heart Association, AHA 2060112 (Leeuwenburgh Primary Mentor, "*Cardiac mitochondrial iron transporters and the effects on bioenergetics with age*" and 10PRE4310091 (Pre-doctoral Fellowship to Priya Dutta, Leeuwenburgh Primary Mentor, "Mitochondrial Dysfunction and the Role of Autophagy in Cardiomyocytes"). In addition, Steve Anton received a K-Award (1K23AT004251 NIH/NCCAM Anton; Leeuwenburgh Primary mentor) "*Investigations of Botanicals on Food Intake, Satiety, and Weight Loss".* Terri Chmielewski also received a K-Award (1K01HD052713, Chmielewski; Leeuwenburgh Co-Primary Mentor) "*Muscle Weakness and Post-traumatic Knee OA".* This last year Kevin Vincent received a K-Award (NIH NIAMS 1 K23 AR061146-01; Leeuwenburgh primary Mentor) entitled *"Comparative Resistance Exercise Effects on Knee Osteoarthritis Pain, Functional Impairment and Cartilage Turnover".* This year Kimberly Sibelle (College of Dentistry) received a fundable score on her K-Award to study telomere biology, pain and osteoarthritis.

At the University of Illinois I received an American Heart Association, Pre-doctoral Fellowship (1993). In addition, at Washington University School of Medicine, St Louis, I received a National Research Service Award from the National Institute on Aging (NRSA-NIA) (1997).

My mentorship actively integrates with key partners for training of our future researchers: the UF pre-doctoral T-32 in the neurobiology of aging (T32 AG000196-16 P. Scarpace, PI, "*Training in Neurobiology*"), and the T32 HD043730 NIH (Krista Vandenborne, "*Training in Rehabilitation and Neuromuscular Plasticity*"). Finally, the University was recently awarded a UF NIH Clinical and Translational Science Institute (CTSI, PI Nelson, M Limacher, Mentoring and Academic Core Director) in which I am actively participating on the selection committee and mentoring teams. In this program, I am a primary mentor of Baharak Moshiree, MD, Assistant Professor, Department of Medicine and a primary Research Mentor for Thomas Buford, Lecturer, Department of Aging and Geriatric Research, who is also a current OAIC Pepper Scholar and recently Kimberly Sibelle (College of Dentistry).

In summary, as a Translational scientist my work attempts to bridge between basic and clinical sciences with a main focus on biological mechanisms of aging and disease while testing translational interventions. Thus, my research and research career development activities include ongoing partnerships with key mentors and OAIC Core leaders. As a result of these experiences, I am aware of the importance of frequent communication between mentors and mentees and among members of various mentoring groups here at UF. Recently we have started a Roundtable for the OAIC and CTSI scholars to present current topics of interest, to discuss potential obstacles in their training and to foster collaborations among the scholars. Similar aspects will be integrated into the T-32 training grant.

B. Positions and Honors

Positions and Employment

1995–1998 Washington University School of Medicine, St. Louis, Department of Internal Medicine, Divisions of Geriatrics and Gerontology, and Atherosclerosis, Nutrition and Lipid Research Postdoctoral Fellow in Internal Medicine and Geriatrics and Gerontology; Research Associate in Medicine; Adjunct Instructor; Mentors: John O. Holloszy, MD and Jay W. Heinecke, MD
1998– Faculty Associate of the Institute on Aging and Center for Gerontological Studies
1998–2002 Assistant Professor and Director of the Biochemistry of Aging Laboratory, University of Florida
2002–2005 Associate Professor and Director of the Biochemistry of Aging Laboratory, University of Florida
2005–2007 Associate Professor, College of Medicine, Department of Aging and Geriatric Research
2006– Chief, Division of Biology of Aging, Department of Aging and Geriatrics
2005– Director, Genomics and Biomarkers Core of the University of Florida Institute on Aging
2005 Joint and Affiliate Faculty, Departments of Anatomy and Cell Biology, Biochemistry and Molecular Biology
2007– Professor, College of Medicine, Department of Aging and Geriatrics, Division of Biology of Aging

Other Experience and Professional Memberships

2003- Member, American Aging Association
2003- Member, Gerontological Society of America
1997- The American Physiological Society
1995-2008 Society for Free Radical Biology and Medicine
1995-2008 International Society for Free Radical Research
2008- Editor, Experimental Gerontology
2004-2011 NIH Peer Review Committees; Special Emphasis Panels and PO1 reviews.

Honors

2011-2013 University of Florida Research Foundation Professor
2010 Exemplary Teacher Award, College of Medicine
2004 Nathan W. Shock Lecture Award Winner, National Institute on Aging (Nathan W. Shock was a former scientific director of the NIA and an NIH Scientist Emeritus)
2004–2005 University of Florida Research Foundation, Professor Award
2000-2002 American Heart Association, Young Investigator Award, FL
1999–2000 Merck Geriatric Cardiology Research Award, Society of Geriatric Cardiology
1997–1998 National Research Service Award, NRSA-NIH, National Institute of Aging
1996 Young Investigator Award, Oxygen Society, Intern. Soc. Free Rad. Res., Miami, FL
1993–1995 American Heart Association, Pre-doctoral Fellowship, Illinois Affiliate

C. Selected Peer-reviewed Publications (Selected from 155 peer-reviewed publications) **(1-15)**

1. Giovannini, S., Marzetti, E., Borst, S.E., and Leeuwenburgh, C. 2008. Modulation of GH/IGF-1 axis: potential strategies to counteract sarcopenia in older adults. *Mech Ageing Dev* 129:593-601.
2. Hiona, A., Sanz, A., Kujoth, G.C., Pamplona, R., Seo, A.Y., Hofer, T., Someya, S., Miyakawa, T., Nakayama, C., Samhan-Arias, A.K., et al. 2010. Mitochondrial DNA mutations induce mitochondrial dysfunction, apoptosis and sarcopenia in skeletal muscle of mitochondrial DNA mutator mice. *PLoS One* 5:e11468. PMCID: PMC2898813

3. Someya, S., Xu, J., Kondo, K., Ding, D., Salvi, R.J., Yamasoba, T., Rabinovitch, P.S., Weindruch, R., Leeuwenburgh, C., Tanokura, M., et al. 2009. Age-related hearing loss in C57BL/6J mice is mediated by Bak-dependent mitochondrial apoptosis. *Proc Natl Acad Sci U S A* 106:19432-19437. PMCID: PMC2780799
4. Leeuwenburgh, C., Hardy, M.M., Hazen, S.L., Wagner, P., Oh-ishi, S., Steinbrecher, U.P., and Heinecke, J.W. 1997. Reactive nitrogen intermediates promote low density lipoprotein oxidation in human atherosclerotic intima. *J Biol Chem* 272:1433-1436.
5. Leeuwenburgh, C., Rasmussen, J.E., Hsu, F.F., Mueller, D.M., Pennathur, S., and Heinecke, J.W. 1997. Mass spectrometric quantification of markers for protein oxidation by tyrosyl radical, copper, and hydroxyl radical in low density lipoprotein isolated from human atherosclerotic plaques. *J Biol Chem* 272:3520-3526.

Additional publications of importance to the field

6. Giovannini, S., Onder, G., Leeuwenburgh, C., Carter, C., Marzetti, E., Russo, A., Capoluongo, E., Pahor, M., Bernabei, R., and Landi, F. 2010. Myeloperoxidase levels and mortality in frail community-living elderly individuals. *J Gerontol A Biol Sci Med Sci* 65:369-376.
7. Xu, J., Seo, A.Y., Vorobyeva, D.A., Carter, C.S., Anton, S.D., Lezza, A.M., and Leeuwenburgh, C. 2010. Beneficial effects of a Q-ter based nutritional mixture on functional performance, mitochondrial function, and oxidative stress in rats. *PLoS One* 5:e10572. PMCID: PMC2868025
8. Marzetti, E., Carter, C.S., Wohlgemuth, S.E., Lees, H.A., Giovannini, S., Anderson, B., Quinn, L.S., and Leeuwenburgh, C. 2009. Changes in IL-15 expression and death-receptor apoptotic signaling in rat gastrocnemius muscle with aging and life-long calorie restriction. *Mech Ageing Dev* 130:272-280. PMCID: PMC2768529
9. Miller, R.A., Harrison, D.E., Astle, C.M., Floyd, R.A., Flurkey, K., Hensley, K.L., Javors, M.A., Leeuwenburgh, C., Nelson, J.F., Ongini, E., et al. 2007. An Aging Interventions Testing Program: study design and interim report. *Aging Cell* 6:565-575.
10. Seo, A.Y., Xu, J., Servais, S., Hofer, T., Marzetti, E., Wohlgemuth, S.E., Knutson, M.D., Chung, H.Y., and Leeuwenburgh, C. 2008. Mitochondrial iron accumulation with age and functional consequences. *Aging Cell* 7:706-716. PMCID: PMC3849824
11. Dirks, A.J., and Leeuwenburgh, C. 2006. Tumor necrosis factor alpha signaling in skeletal muscle: effects of age and caloric restriction. *J Nutr Biochem* 17:501-508.
12. Kujoth, G.C., Hiona, A., Pugh, T.D., Someya, S., Panzer, K., Wohlgemuth, S.E., Hofer, T., Seo, A.Y., Sullivan, R., Jobling, W.A., et al. 2005. Mitochondrial DNA mutations, oxidative stress, and apoptosis in mammalian aging. *Science* 309:481-484.
13. Dirks, A.J., and Leeuwenburgh, C. 2004. Aging and lifelong calorie restriction result in adaptations of skeletal muscle apoptosis repressor, apoptosis-inducing factor, X-linked inhibitor of apoptosis, caspase-3, and caspase-12. *Free Radic Biol Med* 36:27-39.
14. Knutson, M.D., and Leeuwenburgh, C. 2008. Resveratrol and novel potent activators of SIRT1: effects on aging and age-related diseases. *Nutr Rev* 66:591-596.
15. Marzetti, E., Hwang, J.C., Lees, H.A., Wohlgemuth, S.E., Dupont-Versteegden, E.E., Carter, C.S., Bernabei, R., and Leeuwenburgh, C. 2009. Mitochondrial death effectors: relevance to sarcopenia and disuse muscle atrophy. *Biochim Biophys Acta* 1800:235-244.

D. Research Support

Ongoing Research Support

NIH (Co-PIs; Kim-Leeuwenburgh NIDDK) 6/1/2012-5/31/2017
Mitophagy: A novel target to improve liver function after ischemia/reperfusion injury
The goal is to develop therapeutic strategies to ameliorate the effects of ischemia/reperfusion injury in liver following resection and transplantation surgeries. This will ultimately improve liver function and expedite recovery periods.

U01-AG022376 9/1/2009-11/30/2014 Co-I
NIH/NIA (Pahor)
Physical Exercise to Prevent Disability – LIFE Study
The primary aim is to assess the long-term effects of the proposed interventions on the primary outcome of major mobility disability as operationalized by the inability to walk 400m. Biomarkers and Metabolism Core will support the blood draw and future repository.

1 P30 AG028740-01(Pahor) 4/1/2012-3/31/2017 Co-I
NIH/NIA
Claude D. Pepper Older Americans Independence Center (OAIC)
The major goals of this program are to assess the mechanisms leading to sarcopenia and functional decline, and to develop and test interventions for the treatment and prevention of physical disability in older adults.
Metabolism and Biomarkers Core: PI
Research Career Dev. Core: PI
Research Development Project #1: PI

NIH 1P50 GM000052-01 (Moore) 9/1/2014-5/31/2015
Epidemiology of Chronic Critical Illness in Surgical ICU Patients after Sepsis
This project proposes to investigate and describe the epidemiology of CCI and PICS in sepsis patients, identify early biomarkers that can predict its incidence and outcome, explore mechanisms that drive this process, and examine potential interventions to prevent the development of PICS in septic CCI patients.
Role: PI - Core C – Bioanalytical Core
Co-PI - Project 4 – Diaphragm & Leg Strength Rehab
Co-I – Project 2 – MDSCS Drive the PICS

Past Projects
NIH NIAMS 1 K23 AR061146-01 K Vincent (PI) 7/01/2012-6/30/2015
Comparative Resistance Exercise Effects on Knee Osteoarthritis Pain, Functional Impairment and Cartilage Turnover
This study will examine whether there is differential efficacy of two modes of resistance exercise (eccentrically-focused and concentrically-focused) on pain symptoms, physical function and cartilage turnover in older adults with knee osteoarthritis

2RO1 AG 17994-06 NIH, Leeuwenburgh (PI) 7/01/2006-6/30/2013
National Institute of Health/National Institute of Aging
Project Title: Molecular Mechanisms of Oxidative Stress in Aging Muscle
The major goals for this project are to study mitochondrial function, energy production and oxidative stress with age in cardiac and skeletal muscle.
Role: PI
NIA R01AG14979-10A1 (Foster) 6/6/2007–5/31/2012
Project Title: Mechanism for altered synaptic function during aging
The aim of these studies is to investigate the molecular mechanisms of synaptic function during aging and potential interventions.
Role: Co-Investigator

10PRE4310091 (Leeuwenburgh) 7/01/2010-6/30/2013
AHA Fellowship to Priya Dutta (Primary Mentor Leeuwenburgh) Mitochondrial Dysfunction and the Role of Autophagy in Cardiomyocytes.

1K23AT004251 (Anton)
NIH/NCCAM (Anton; Leeuwenburgh Co-Primary mentor) 12/1/08 – 11/30/13
Investigations of Botanicals on Food Intake, Satiety, and Weight Loss
The proposed line of research will explore the role that botanical compounds have in affecting food intake, gastrointestinal signals, satiety, and weight loss. The central hypothesis is that botanical compounds will reduce food intake in humans by stimulating neuroendocrine pathways related to satiety.