

BIOGRAPHICAL SKETCH

Provide the following information for the 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 Christiaan Leeuwenburgh	POSITION TITLE Associate Professor & Chief College of Medicine		
eRA COMMONS USER NAME CLEEUWEN			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
University of Florida	BS	1986-1988	Applied Physiology
University of Florida	MS	1988-1990	Applied Physiology
University of Illinois	PhD	1990-1995	Biochemistry and Aging
University of Wisconsin	Fellow	1993-1995	Biochemistry and Aging
Washington University School of Medicine	Fellow Instructor	1995-1998	Internal Medicine Geriatrics & Gerontology

A. Positions and Honors:

2005-; Associate Professor, College of Medicine, Department of Aging and Geriatric Research
 2005-; Adjunct Appointment, Department of Anatomy and Cell Biology
 2005-; Chief, Division of Career Development, Mentoring and Education
 2005-; Director, University of Florida Institute on Aging Genomics and Biomarkers Core
 1998-; Director, Biochemistry of Aging Laboratory, Gainesville
 2002-2005; Associate Professor, University of Florida, Gainesville
 1998-2002; Assistant Professor, University of Florida, Gainesville
 1998-2002; Faculty Associate of the Institute on Aging and Center for Gerontological Studies
 1997-1998; Instructor, Washington University School of Medicine, St. Louis
 1995-1998; Research Associate in Medicine, Washington Univ. School of Medicine, St. Louis
 (Mentors; Jay W. Heinecke, MD and John O. Holloszy, MD, Chief Geriatrics and Gerontology)
 1994-1995; Honorary Fellow, University of Wisconsin, Madison (Mentor; Li Li Ji, PhD)
 1990-1995; Graduate Assistant, Pre-Doctoral Fellow AHA, University of Illinois (Mentor; Li Li Ji, PhD)

Study Sections:

2006-; American Heart Association, Peer Review Committee (Florida)
 2000-2003; American Heart Association, Peer Review Committee (Florida)
 2002-2003; Research Committee Society of Geriatric Cardiology
 2003, NIA Program Project Grants, Special Emphasis Panel/Scientific Review Group 2003/05 ZAG1 ZIJ-5
 2004, NIA Special Emphasis Panel/Scientific Review Group
 2005, NIA Program Project Grants, Special Emphasis Panel/Scientific Review Group 2005/05 ZAG1 ZIJ-5
 2005, NIA Special Emphasis Panel/Scientific Review Group 2006/01 ZAG1 ZIJ-2
 2005-NIA Program Project Grants, Special Emphasis Panel/Scientific Review Group 2006/01 ZAG1 ZIJ-2

Memberships:

1997-; The American Physiological Society
 1995-; Society for Free Radical Biology and Medicine
 1995-; International Society for Free Radical Research
 2003-; American Aging Association
 2003-; Gerontological Society of America

Honors and Awards:

2004, Nathan W. Shock Award, National Institute on Aging
 2004, University of Florida Research Foundation Professor Award
 1999; 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, Society for Free Radical Biology and Medicine
1993-1995; American Heart Association Pre-doctoral Fellowship, Illinois Affiliate

Selected publications. ¹⁻²⁰out of 75

1. Kujoth GC, Hiona A, Pugh TD, Someya S, Panzer K, Wohlgemuth SE, Hofer T, Seo AY, Sullivan R, Jobling WA, Morrow JD, Van Remmen H, Sedivy JM, Yamasoba T, Tanokura M, Weindruch R, Leeuwenburgh C, Prolla TA. Mitochondrial DNA mutations, oxidative stress, and apoptosis in mammalian aging. *Science*. 2005;309:481-4.
2. Leeuwenburgh C, Gurley CM, Strotman BA, Dupont-Versteegden EE. Age-related differences in apoptosis with disuse atrophy in soleus muscle. *Am J Physiol Regul Integr Comp Physiol*. 2005;288:R1288-96.
3. Phillips T, Leeuwenburgh C. Muscle fiber specific apoptosis and TNF-alpha signaling in sarcopenia are attenuated by life-long calorie restriction. *Faseb J*. 2005;19:668-70.
4. Judge S, Jang YM, Smith A, Hagen T, Leeuwenburgh C. Age-associated increases in oxidative stress and antioxidant enzyme activities in cardiac interfibrillar mitochondria: implications for the mitochondrial theory of aging. *Faseb J*. 2005;19:419-21.
5. Obisesan TO, Leeuwenburgh C, Phillips T, Ferrell RE, Phares DA, Prior SJ, Hagberg JM. C-reactive protein genotypes affect baseline, but not exercise training-induced changes, in C-reactive protein levels. *Arterioscler Thromb Vasc Biol*. 2004;24:1874-9.
6. Jang YM, Kendaiah S, Drew B, Phillips T, Selman C, Julian D, Leeuwenburgh C. Doxorubicin treatment in vivo activates caspase-12 mediated cardiac apoptosis in both male and female rats. *FEBS Lett*. 2004;577:483-90.
7. Cassano P, Lezza AM, Leeuwenburgh C, Cantatore P, MN GA. Measurement of the 4,834-bp Mitochondrial DNA Deletion Level in Aging Rat Liver and Brain Subjected or Not to Caloric Restriction Diet. *Ann N Y Acad Sci*. 2004;1019:269-73.
8. Drew B, Leeuwenburgh C. Ageing and subcellular distribution of mitochondria: role of mitochondrial DNA deletions and energy production. *Acta Physiol Scand*. 2004;182:333-41.
9. Drew B, Leeuwenburgh C. Method for measuring ATP production in isolated mitochondria: ATP production in brain and liver mitochondria of Fischer-344 rats with age and caloric restriction. *Am J Physiol Regul Integr Comp Physiol*. 2003;285:R1259-67.
10. Shelke RRJ, Leeuwenburgh C. Life-long calorie restriction (CR) increases expression of apoptosis repressor with a caspase recruitment domain (ARC) in the brain. *FASEB J*. 2003;02-0803fje.
11. Payne AM, Dodd SL, Leeuwenburgh C. Life-long calorie restriction in Fischer 344 rats attenuates age-related loss in skeletal muscle-specific force and reduces extracellular space. *J Appl Physiol*. 2003;95:2554-62.
12. Green P, Leeuwenburgh C. Mitochondrial dysfunction is an early indicator of doxorubicin-induced apoptosis. *Biochim Biophys Acta*. 2002;1588:94.
13. Childs AC, Phaneuf SL, Dirks AJ, Phillips T, Leeuwenburgh C. Doxorubicin treatment in vivo causes cytochrome C release and cardiomyocyte apoptosis, as well as increased mitochondrial efficiency, superoxide dismutase activity, and Bcl-2:Bax ratio. *Cancer Res*. 2002;62:4592-8.
14. Dirks A, Leeuwenburgh C. Apoptosis in skeletal muscle with aging. *Am J Physiol Regul Integr Comp Physiol*. 2002;282:R519-27.
15. Phaneuf S, Leeuwenburgh C. Cytochrome c release from mitochondria in the aging heart: a possible mechanism for apoptosis with age. *Am J Physiol Regul Integr Comp Physiol*. 2002;282:R423-30.
16. Leeuwenburgh C, Fiebig R, Chandwaney R, Ji LL. Aging and exercise training in skeletal muscle: responses of glutathione and antioxidant enzyme systems. *Am J Physiol*. 1994;267:R439-45.
17. Leeuwenburgh C, Rasmussen JE, Hsu FF, Mueller DM, Pennathur S, Heinecke JW. 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*. 1997;272:3520-6.
18. Leeuwenburgh C, Hardy MM, Hazen SL, Wagner P, Oh-ishi S, Steinbrecher UP, Heinecke JW. Reactive nitrogen intermediates promote low density lipoprotein oxidation in human atherosclerotic intima. *J Biol Chem*. 1997;272:1433-6.

19. Pollack M, Leeuwenburgh C. Apoptosis and aging: role of the mitochondria. *J Gerontol A Biol Sci Med Sci.* 2001;56:B475-82.
20. Tribble DL, Gong EL, Leeuwenburgh C, Heinecke JW, Carlson EL, Verstuyft JG, Epstein CJ. Fatty streak formation in fat-fed mice expressing human copper-zinc superoxide dismutase. *Arterioscler Thromb Vasc Biol.* 1997;17:1734-40.

B. Research Support**LEEUWENBURGH, CHRISTIAAN****ACTIVE**

RO1 AG-21042-01A1 (Leeuwenburgh)

08/01/03-07/31/08

NIH/NIA

Apoptosis and life-long caloric restriction

To determine the mechanisms of cell signaling, oxidative stress and apoptosis with normal aging and calorie restriction.

Florida Department of Health; Biomedical Research Program (R. Johnson)

James and Esther King Biomedical Research Program

07/01/2005-06/30/2007

Smoking as a novel risk factor for the progression of renal disease

(Leeuwenburgh) PI project # 4

The major goals for this project are to elucidate the mechanisms of renal disease due to smoking

Training Grants

T32 HD043730 (Vandenborne)

07/01/03-06/30/08

NIH

Training in Rehabilitation and Neuromuscular Plasticity

This training program in rehabilitation and neuromuscular plasticity will provide the interdisciplinary environment that is fundamental to the advancement of rehabilitation research and will prepare trainees for translation research in neuromuscular plasticity.

0415166B (Leeuwenburgh)

07/1/04-6/30/06

AHA Fellowship to Asimina Hiona

The use of p66Shc knockout mice to investigate the mechanisms responsible for cardiomyocyte apoptosis with age.

P66Sch is a protein which regulates mitochondrial oxidative stress and it's role in aging is investigated.

AHA: 0525346B (Leeuwenburgh)

07/01/05-6/30/2007

AHA Fellowship to Tim Hofer

Oxidative RNA and DNA damage to heart mitochondrial sub-populations with age and life-long calorie restriction

Determine the role of RNA and DRN damage in heart mitochondrial sub-populations with age.

KO1 AR050146 NIH (Dannecker)

09/1/04 - 8/31/2009

NIAMS

Measures and Mechanisms of Muscle Pain in Humans

The major goals of this MRSDA application are to examine the relationships among (a) muscle pain magnitude, inflammation, central sensitization, and altered temporal summation and (b) muscle pain magnitude and neuromuscular function.

OVERLAP

None

Completed Research Support

2RO1 AG17994-6 NIH (Leeuwenburgh) 08/01/00-7/31/06

NIH/NIA

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.

American Heart Association (Florida) Scientist Development Grant AHA 0030334B (Leeuwenburgh).

06/1/2000-05/31/2003

Doxorubicin-induced oxidative stress and apoptosis in cardiac myocytes: The role of the mitochondria.

Goals: The major goal of this project is to determine by what *in vivo* mechanisms doxorubicin effect myocyte apoptosis.

NIA, AG 10485 (Meyer)

1999-2004

Program Project Grant National Institute of Health

Discovery of novel drugs for Alzheimer's disease.

Co-Investigator Neurochemistry Core (Leeuwenburgh)

Goal: The major goal for this project is to discover novel drugs and drug mechanisms that are of potential efficacy in the treatment of the neurodegeneration associated with Alzheimer's disease.

Galileo-IRB 658-2000 Galileo Laboratories (Leeuwenburgh)

2001-2002;

A Single Center Double Blind Placebo Controlled Study of Nutritional Ingredient Systems in Post-Exercise Muscle Injury to Assess Symptomatic Response and Surrogate Markers of Oxidative Stress and Inflammation

Goals: The major goals for this project are to determine 1) if nutritional supplements attenuate inflammation, cell damage, and oxidative stress in healthy human subjects 2) safety of supplements.

NIH-NIA, 1 P60 AG 1362901 Claude Pepper OAIC (Holloszy)

1995-2000

Pilot Project Principal Investigator (Leeuwenburgh)

0415187B; AHA Reference Number: (Fellowship for Young Mok Jang)

2004-2005

Sarcoplasmic Reticulum Mediated Apoptosis in Cardiotoxicity induced by Doxorubicin in vitro and in vivo

0225194B, American Heart Association (Fellowship for Barry Drew)

Doxorubicin-induced damage to cardiac mitochondrial enzymes

2002-2004

Goal: Attenuating doxorubicin-induced damage to cardiac mitochondrial enzymes.

0215053B, American Heart Association (Fellowship for Sharon Phaneuf)

Lifelong, voluntary exercise as a strategy to prevent mitochondrial-mediated cardiomyocyte apoptosis with age. 2002-2004

Goal: Attenuating apoptosis in the heart with life-long moderate exercise training.

National Institute of Aging; National Research Service Award (Leeuwenburgh)

1997-1998

NIA, NRSA; 1F32AG05780-01, Molecular Mechanism of Oxidative Stress in Aging

Pre-Doctoral Fellowship AHA SS-08, American Heart Association, Illinois Affiliate Myocardial Ischemia-Reperfusion Injury *in vivo* (Leeuwenburgh)

1993-1995