

## 1. Scientific Career

Over the course of my scientific career as a comparative physiologist, I have focused on metabolic and cellular responses to environmental stress and aging in a variety of species, ranging from marine invertebrates and freshwater fishes to rodents, large mammals, and humans. My research expertise spans from whole animal experiments to subcellular organelle isolation and functional assessment to biochemical methodology. My teaching experience includes undergraduate courses in general and developmental biology and graduate courses in muscle physiology, mitochondrial biology, and biology of aging. I have worked in leadership positions in physiology laboratories for 15 years, including as principal investigator. My laboratory and scientific responsibilities have included study and experimental design, method development, training, mentoring, data analysis, manuscript writing, as well as hiring and purchasing decisions. At the laboratory bench, I have supervised, mentored and trained technicians and postdoctoral scientists, and over 36 undergraduate students, 2 graduate students as direct supervisor and committee chair, and 13 graduate students as committee member.

I received my Master of Science and Ph.D. Degrees from the Heinrich-Heine-University Düsseldorf, Germany, where I conducted my graduate research in the Institute of Zoophysiology under the supervision of Prof. Dr. Manfred Grieshaber. My area of research included comparative animal physiology and biochemistry, specifically the biochemical and physiological adaptations of marine invertebrate metabolism to environmental stress. I concluded my time at the Heinrich Heine University in Düsseldorf with postdoctoral research in the Institute of Zoophysiology, performing direct and indirect calorimetry on marine invertebrates exposed to hypoxia and hydrogen sulfide, and in the Institute of Genetics (PI Dr. Kimberley Henkle-Duehrsen), investigating the expression of Glutathione-S-Transferase proteins in *C. elegans* in response to oxidative stress.

Subsequently, I studied at the Romberg Tiburon Center for Environmental Studies, associated with the San Francisco State University, California, where I continued research on cellular responses of marine invertebrates to hydrogen sulfide exposure. Under the mentorship of Dr. Alissa Arp, I conducted electron microscopy studies of the body wall musculature of a marine invertebrate to examine hydrogen sulfide-induced formation of autophagic vacuoles.

Following my postdoctoral training, I joined Dr. Christiaan Leeuwenburgh in the Biology of Aging Laboratory in the Department of Applied Physiology and Kinesiology and later in the Department of Aging and Geriatrics, both at the University of Florida. Here, I expanded my expertise in cellular physiology by studying mitochondrial biology and autophagy in mammalian tissues. I examined the effect of aging on mitochondrial function, cell death and cellular quality control mechanisms, particularly macroautophagy, in rodent heart and skeletal muscle as well as in human skeletal muscle; implementing healthy-aging interventions such as calorie restriction, exercise and nutraceuticals I studied their effect on cellular bioenergetics, homeostasis and cellular quality control.

I expanded my research further and studied the effect of stress, namely aging and environmental heat stress, on cellular physiology of large mammals, such as horse, cattle and sheep. I specifically examined cellular quality control and mitochondrial biology in metabolically active tissues and organs from those large mammals, such as skeletal muscle, diaphragm, heart, liver and mammary gland.

In addition, I have participated as co-investigator in federally funded projects investigating effects of maternal stress on mitochondrial function in the fetal heart and diaphragm using a sheep model (with Dr. Keller-Wood); effect of mitochondrial function on muscle to meat conversion in different cattle breeds (with Dr. Scheffler); effect of Resveratrol administration on leg muscle mitochondrial function in elderly humans (with Dr. Anton); and effect of intermittent hemidiaphragm stimulation during surgery on mitochondrial function in humans. I have furthermore conducted mitochondrial assessments for projects across campus and outside of UF, and have organized and provided workshops on respirometry at UF and at other institutions.

In 2018, I assumed the position of Director of Respirometry Core and Senior Scientist, in the Metabolism and Translational Science Core (MTSC) at the Institute on Aging, and from 2021 as Research Assistant Professor in the Department of Physiology and Aging, both in UF's College of Medicine. I established the Core laboratory with equipment to assess mitochondrial respiration (Oroboros O2k oxygraph and Agilent/Seahorse Flux Analyzer) and enzyme function. In addition, I provide consultation and training on the use of respirometry instruments, experimental design and data collection for scientists across campus and from outside the university, and oversee the MTSC laboratory.

## 2. EDUCATIONAL BACKGROUND

Institution	Field of Study	Degree	Year
University of Düsseldorf*, Germany	Comparative Zoo-physiology	Dr. rer. nat. ( <i>Doctor rerum naturalium</i> ; equivalent to Ph.D.)	1998
University of Düsseldorf, Germany	Biology (major), Biochemistry, Geology (double-minor)	Diplom in Biology (equivalent to B.Sci. followed by M.Sci)	1994
Ferdinand-Sauerbruch Hospital, Wuppertal, Germany	Nursing	Clinical Nurse (equiv. to RN)	1987

\* Heinrich Heine Universität Düsseldorf

## 3. EMPLOYMENT

Institution	Position	Dates
University of Florida (UF), Dept. of Physiology and Aging	Research Assistant Professor	2021-
UF, Dept. of Aging and Geriatric Research	Senior Staff Scientist	2018-2021
UF, Dept. of Animal Sciences	Assistant Professor	2010-2018

UF, Dept. of Aging and Geriatric Research	Lecturer	2005-2010
UF, Dept. of Applied Physiology and Kinesiology	Adjunct Scientist (50% FTE)	2004-2005
San Francisco State University, Romberg Tiburon Center for Environmental Studies	Postdoctoral Scientist	2001-2002
UF, Dept. of Biology	Lecturer	2000
University of Düsseldorf, Germany	Research Scientist	1999
University of Düsseldorf, Germany	Graduate Research and Teaching Assistant	1994-1998
Ferdinand-Sauerbruch Hospital, Wuppertal & St.-Josef Hospital, Haan, Germany	Clinical Nurse	1987-1992

#### 4. HONORS AND AWARDS

Year	Award
2013	Early Career Award, IFAS / University of Florida
2011	NIH/NIA Summer Institute on Aging Research, Queenstown, Maryland (July 2011)
2007-2011	Pepper Scholar, Institute on Aging, Department of Aging and Geriatric Research, College of Medicine, University of Florida, Gainesville
1995-1998	Predocctoral Research Fellow (DAAD - German Academic Exchange Program), Institute of Biomedical and Life Sciences, University of Glasgow, Scotland (advisor: Dr. A. Taylor)

#### 5. PUBLICATIONS

Graduate Student = g; Undergraduate student = u; Post-Doctoral Associate/Fellow = p

##### Peer Reviewed Publications

59. Ferrucci L, Candia J, Ubaida-Mohien C, Lyashkov A, Banskota N, Leeuwenburgh C, **Wohlgemuth S**, Guralnik JM, Kaileh M, Zhang D, Sufit R, De S, Gorospe M, Munk R, Peterson CA, McDermott MM. (2023) Transcriptomic and Proteomic of Gastrocnemius Muscle in Peripheral Artery Disease. *Circ Res* 132(11): 1428-1443. doi: 10.1161/CIRCRESAHA.122.322325.
58. Mankowski RT, **Wohlgemuth SE**, Bresciani G, Martin AD, Arnaoutakis G, Martin T, Jeng E, Ferreira L, Machuca T, Rackauskas M, Smuder AJ, Beaver T, Leeuwenburgh C, Smith BK. (2023) Intraoperative Hemi-Diaphragm Electrical Stimulation Demonstrates Attenuated Mitochondrial Function without

- Change in Oxidative Stress in Cardiothoracic Surgery Patients. *Antioxidants* (Basel) 12(5). doi: 10.3390/antiox12051009.
57. Picca A, **Wohlgemuth SE**, McDermott MM, Saini SK, Dayanidhi S, Zhang D, Xu S, Kosmac K, Tian L, Ferrucci L, Sufit RL, Marzetti E, Leeuwenburgh C. (2023) Mitochondrial Complex Abundance, Mitophagy Proteins, and Physical Performance in People With and Without Peripheral Artery Disease. *J Am Heart Assoc* 12(6): e027088. doi: 10.1161/JAHA.122.027088.
  56. Picca A, Triolo M, **Wohlgemuth SE**, Martenson MS, Mankowski RT, Anton SD, Marzetti E, Leeuwenburgh C, Hood DA. (2023) Relationship between Mitochondrial Quality Control Markers, Lower Extremity Tissue Composition, and Physical Performance in Physically Inactive Older Adults. *Cells* 12(1). doi: 10.3390/cells12010183.
  55. Guo M, McDermott MM, Dayanidhi S, Leeuwenburgh C, **Wohlgemuth S**, Ferrucci L, Peterson CA, Kosmac K, Tian L, Zhao L, Sufit R, Ho K, Criqui M, Xu S, Zhang D, Greenland P. (2022) Cigarette smoking and mitochondrial dysfunction in peripheral artery disease. *Vasc Med* 28(1):28-35. doi: 10.1177/1358863X221143152.
  54. Saini SK, Pérez-Cremades D, Cheng HS, Kosmac K, Peterson CA, Li L, Tian L, Dong G, Wu KK, Bouverat B, **Wohlgemuth SE**, Ryan T, Sufit RL, Ferrucci L, McDermott MM, Leeuwenburgh C, Feinberg MW. Dysregulated Genes, MicroRNAs, Biological Pathways, and Gastrocnemius Muscle Fiber Types Associated With Progression of Peripheral Artery Disease: A Preliminary Analysis. (2022) *J Am Heart Assoc* 11 (21): e023085. doi: 10.1161/JAHA.121.023085.
  53. Khattri RB, Thome T, Fitzgerald LF, **Wohlgemuth SE**, Hepple RT, Ryan TE. (2022) NMR Spectroscopy Identifies Chemicals in Cigarette Smoke Condensate That Impair Skeletal Muscle Mitochondrial Function. *Toxics* 10(3). doi: 10.3390/toxics10030140.
  52. Crislip GR, **Wohlgemuth SE**, Wolff CAP, Gutierrez-Monreal MA, Douglas CM, Ebrahimi E, Cheng K-Y, Masten SH, Barral D, Bryant AJ, Esser KA, and Gumz ML. (2022) Apparent Absence of BMAL1-Dependent Skeletal Muscle–Kidney Cross Talk in Mice. *Biomolecules* 12(2). doi: 10.3390/biom12020261.
  51. Joseph S<sup>§</sup>, Li M<sup>§</sup>, Zhang S, Horne L, Stacpoole PW, **Wohlgemuth SE**, Edison AS, Wood C, Keller-Wood M. (2022) Sodium dichloroacetate stimulates cardiac mitochondrial metabolism and improves cardiac conduction in the ovine fetus during labor. *Am J Physiol Regul Integr Comp Physiol* 322: R83–R98. doi:10.1152/ajpregu.00185.2021
  50. Hyun M, Rathor L<sup>p</sup>, Kim HJ, McElroy T<sup>p</sup>, Hwang KH, **Wohlgemuth S**, Curry S, Xiao R, Leeuwenburgh C, Heo JD, Han SM. (2021) Comparative toxicities of BPA, BPS, BPF, and TMBPF in the nematode *Caenorhabditis elegans* and mammalian fibroblast cells. *Toxicology* 461: 152924. doi:10.1016/j.tox.2021.152924
  49. Ramos PM<sup>p</sup>, Bell LC, **Wohlgemuth SE**, Scheffler TL. (2021) Mitochondria function in oxidative and glycolytic bovine skeletal muscle postmortem. *Meat and Muscle Biology* 5 (1): 11, 1-16. doi:10.22175/mmb.11698
  48. Picca A, Saini SK<sup>p</sup>, Mankowski RT, Kamenov G, Anton SD, Manini TM, Buford TW, **Wohlgemuth SE**, Xiao R, Calvani R, Coelho-Júnior HJ, Landi F, Bernabei R, Hood DA, Marzetti E, Leeuwenburgh C. (2020) Altered Expression of Mitoferrin and Frataxin, Larger Labile Iron Pool and Greater Mitochondrial DNA Damage in the Skeletal Muscle of Older Adults. *Cells* 9(12). doi:10.3390/cells9122579.

47. Anton SD, Cruz-Almeida Y, Singh A, Alpert J, Bensadon B, Cabrera M, Clark DJ, Ebner NC, Esser KA, Fillingim RB, Goicolea SM, Han SM, Kallas H, Johnson A, Leeuwenburgh C, Liu AC, Manini TM, Marsiske M, Moore F, Qiu P, Mankowski RT, Mardini M, McLaren C, Ranka S, Rashidi P, Saini S, Sibille KT, Someya S, **Wohlgemuth S**, Tucker C, Xiao R, Pahor M. (2020) Innovations in Geroscience to enhance mobility in older adults. *Exp Gerontol* 142: 111123. doi:10.1016/j.exger.2020.111123.
46. Saini SK<sup>P</sup>, McDermott MM, Picca A, Li L, **Wohlgemuth SE**, Kosmac K, Peterson CA, Tian L, Ferrucci L, Guralnik JM, Sufit RL, Leeuwenburgh C. (2020) Mitochondrial DNA damage in calf skeletal muscle and walking performance in people with peripheral artery disease. *Free Radic Biol Med* 160: 680-689. doi: 10.1016/j.freeradbiomed.2020.09.004
45. Fabris T<sup>B</sup>, Laporta J, Skibieli A<sup>P</sup>, Dado-Senn B<sup>B</sup>, **Wohlgemuth SE**, Dahl GE. (2020) Effect of heat stress during the early and late dry period on mammary gland development of Holstein dairy cattle. *J Dairy Sci* 103: 8576-8586. doi: 10.3168/jds.2019-17911
44. Gnaiger E, Aasander Frostner E, Abdul Karim N, Abdel-Rahman EA, Abumrad NA, Acuna-Castroviejo D, Adiele RC, **et al** (2019) Mitochondrial respiratory states and rates. MitoFit Preprint Arch doi:10.26124/mitofit:190001.v6. — Published in BEC: 2020-05-20 Mitochondrial physiology. Bioenerg Commun 2020.1. doi:10.26124/bec:2020-0001.v1
43. Ramos PM<sup>P</sup>, Li C<sup>B</sup>, Elzo MA, **Wohlgemuth SE**, Scheffler TL. (2020) Mitochondrial oxygen consumption in early postmortem permeabilized skeletal muscle fibers is influenced by cattle breed. *J Anim Sci* 98 (3): 1-10. doi:10.1093/jas/skaa044
42. Stortz JA, Hollen, MK, Nacionales DC, Horiguchi H, Hawkins RB, Cox MC, Rincon JC, Ungaro R, Dirain ML, Wang Z, Wu Q, Wu KK, Kumar A, Foster TC, Stewart BD, Ross JA, Segal M, Bihorac A, Brakenridge S, Moore FA, **Wohlgemuth SE**, Leeuwenburgh C, Mohr AM, Moldawer LL, Efron PA. (2019) Old mice demonstrate organ dysfunction as well as prolonged inflammation, immunosuppression and weight loss in an improved surgical sepsis model. *Crit Care Med* 47 (11): e919-e929. doi: 10.1097/CCM.0000000000003926
41. Fabris T<sup>B</sup>, Laporta J, Skibieli A<sup>P</sup>, Corra F<sup>B</sup>, Dado-Senn B<sup>B</sup>, **Wohlgemuth SE**, Dahl GE (2019) Effect of heat stress during early, late, and entire dry period on dairy cattle. *J Dairy Sci* 102 (6): 5647-5656. doi: 10.3168/jds.2018-15721
40. Gnaiger E *et al.* (2019) Mitochondrial respiratory states and rates. MitoFit Preprint Arch doi:10.26124/mitofit:190001. (Note: this open access preprint publication is a compendium that resulted from a collaborative effort of 530 co-authors, because of which only the first and lead author is listed)
39. Li C<sup>B</sup>, White SH<sup>B</sup>, Warren LK, **Wohlgemuth SE** (2018) Skeletal muscle from aged American Quarter Horses shows impairments in mitochondrial biogenesis and autophagy. *Exp Gerontol* 102: 19-27. doi.org/10.1016/j.exger.2017.11.022
38. Weng X<sup>B</sup>, Monteiro APA, Guo J, Li C<sup>B</sup>, Bernard JK, Tomlinson DJ, DeFrain JM, **Wohlgemuth SE**, Tao S. (2018) Effects of heat stress and dietary zinc source on mammary epithelial integrity of lactating dairy cows. *J Dairy Sci* 101: 1-14. doi.org/10.3168/jds.2017-13484
37. White SH<sup>B</sup>, Warren LK, Li C<sup>B</sup>, **Wohlgemuth SE** (2017) Submaximal exercise training improves mitochondrial efficiency in the gluteus medius but not in the triceps brachii of young equine athletes. *Scientific Reports* 7 (1): 14389. doi: 10.1038/s41598-017-14691-4

36. White SH<sup>§</sup>, **Wohlgemuth SE**, Li C<sup>§</sup>, Warren LK (2017) Rapid Communication: Dietary selenium improves skeletal muscle mitochondrial biogenesis in young equine athletes. *J Anim Sci* 95 (9): 4078-4084. doi:10.2527/jas2017.1919
35. Ortega MS<sup>§</sup>, **Wohlgemuth S**, Tribulo P<sup>§</sup>, Siqueira LG<sup>§</sup>, Null DJ, Cole JB, Da Silva MV, Hansen PJ. (2017) A single nucleotide polymorphism in COQ9 affects mitochondrial & ovarian function, body weight changes, and fertility in Holstein cows. *Biology of Reproduction* 96 (3): 652-663. doi: 10.1093/biolre/iox004.
34. Cho J, Zhang Y, Park SY, Joseph AM, Han C, Park HJ, Kalavalapalli S, Chun SK, Morgan D, Kim JS, Someya S, Mathews CE, Lee YJ, **Wohlgemuth SE**, Sunny NE, Lee HY, Choi CS, Shiratsuchi T, Oh SP, Terada N. (2017) Mitochondrial ATP transporter depletion protects mice against liver steatosis and insulin resistance. *Nature Communications* Feb 16;8:14477. doi: 10.1038/ncomms14477
33. Li C<sup>§</sup>, White SH<sup>§</sup>, Warren LK, **Wohlgemuth SE**. (2016) Effects of aging on mitochondrial function in skeletal muscle of Quarter Horses. *J Appl Physiol* 121: 299-311.
32. **Wohlgemuth SE**, Ramirez-Lee Y<sup>u</sup>, Tao S, Monteiro APA<sup>§</sup>, Ahmed BM<sup>§</sup>, Dahl GE (2016) Short communication: Effect of heat stress on markers of autophagy in the mammary gland during the dry period. *J Dairy Sci* 99(6): 4875-80.
31. Klionsky DJ *et al.* (2016) Guidelines for the use and interpretation of assays for monitoring autophagy (3rd edition). *Autophagy*. 12(1): 1-222. doi: 0.1080/15548627.2015.1100356. (Note: this publication is a compendium that resulted from a collaborative effort of over 100 co-authors, because of which only the first author and lead author is listed)
30. Anton SD, Woods AJ, Ashizawa T, Barb D, Buford TW, Carter CS, Clark DJ, Cohen RA, Corbett DB, Cruz-Almeida Y, Dotson V, Ebner N, Efron PA, Fillingim RB, Foster TC, Gundermann DM, Joseph AM, Karabetian C, Leeuwenburgh C, Manini TM, Marsiske M, Mankowski RT, Mutchie HL, Perri MG, Ranka S, Rashidi P, Sandesara B, Scarpace PJ, Sibille KT, Solberg LM, Someya S, Uphold C, **Wohlgemuth S**, Wu SS, Pahor M (2015) Successful aging: Advancing the science of physical independence in older adults. *Ageing Res Rev* 24(Pt B): 304-27
29. Gudson AM, Fernandez-Bueno G<sup>§</sup>, **Wohlgemuth SE**, Fernandez J, Chen J, Mathews CE (2015) Respiration and substrate transport rates as well as reactive oxygen species production distinguish mitochondria from brain and liver. *BMC Biochemistry* 16: 22 (17 pages)
28. Gruber H, Wessels W, Boynton P, Xu J, **Wohlgemuth S**, Leeuwenburgh C, Qi W, Austad SN, Schaible R, Philipp EER (2015) Age-related cellular changes in the long-lived bivalve *A. islandica*. *AGE* 37(5): 90 (12 pages)
27. **Wohlgemuth SE**, Calvani R, Marzetti E (2014) The interplay between autophagy and mitochondrial dysfunction in oxidative stress-induced cardiac aging and pathology. *J Mol Cell Cardiol* 71: 62-70.
26. Joseph AM, Adihetty PJ, Wawrzyniak NR, **Wohlgemuth SE**, Picca A, Kujoth GC, Prolla TA, Leeuwenburgh C (2013) Dysregulation of mitochondrial quality control processes contribute to sarcopenia in a mouse model of premature aging. *PLoS One* 8 (7): e69327 (11 pages) doi: 10.1371/journal.pone.0069327
25. Coen P, Jubrias SA, Distefano G, Amati F, Mackey DC, Glynn NW, Manini TM, **Wohlgemuth SE**, Leeuwenburgh C, Cummings SR, Newman AB, Ferrucci L, Toledo FGS, Shankland E, Conley KE, Goodpaster BH (2012) Skeletal muscle mitochondrial energetics are associated with maximal aerobic capacity and walking speed in older adults. *J Gerontol A Biol Sci Med Sci*. 68(4): 447-455



24. Joseph AM, Adhihetty PJ, Buford TW, **Wohlgemuth SE**, Lees HA, Nguyen LMD, Aranda JM, Sandesara BD, Pahor M, Manini TM, Marzetti E, Leeuwenburgh C (2012) The Impact of Aging on Mitochondrial Function and Biogenesis Pathways in Skeletal Muscle of Sedentary High- and LowFunctioning Elderly Individuals. *Aging Cell* 11(5): 801-809.
23. Marzetti E, Lees HA, Manini TM, Buford TW, Aranda JM, Calvani R, Capuani G, Marsiske M, Lott DJ, Vandenborne K, Bernabei R, Pahor M, Leeuwenburgh C, **Wohlgemuth SE** (2012) Skeletal muscle apoptotic signaling predicts thigh muscle volume and gait speed in community-dwelling older persons: an exploratory study. *PLoS ONE* 7(2): e32829 (8 pages)
22. Xu J, Hwang JC<sup>§</sup>, Lees HA, **Wohlgemuth SE**, Knutson MD, Judge AR, Dupont-Versteegden EE, Marzetti E, Leeuwenburgh C (2012) Long-term perturbation of muscle iron homeostasis following hindlimb suspension in old rats is associated with high levels of oxidative stress and impaired recovery from atrophy. *Exp Gerontol* 47(1): 100-108.
21. Buford TW, Lott DJ, Marzetti E, **Wohlgemuth SE**, Vandenborne K, Pahor M, Leeuwenburgh C, Manini TM (2012) Age-related differences in lower extremity tissue compartments and associations with physical function in older adults. *Exp Gerontol* 47(1): 38-44.
20. **Wohlgemuth SE**, Lees HA, Marzetti E, Manini TM, Aranda JM, Daniels MJ, Pahor M, Perri MG, Leeuwenburgh C, Anton SD (2011) An exploratory analysis of the effect of a weight loss plus exercise program on cellular quality control mechanisms in older overweight women. *Rejuvenation Research* 14(3): 315-324.
19. Buford TW, Anton SD, Judge AR, Marzetti E, **Wohlgemuth SE**, Carter CS, Leeuwenburgh C, Pahor M, Manini TM (2010) Models of accelerated sarcopenia: Critical pieces for solving the puzzle of agerelated muscle atrophy. *Ageing Res Rev* 9(4): 369-383.
18. Marzetti E, Privitera G, Simili V, **Wohlgemuth SE**, Aulisa L, Pahor M, Leeuwenburgh C (2010) Multiple pathways to the same end: mechanisms of myonuclear apoptosis in sarcopenia of aging. *The Scientific World Journal Development & Embryology* 10: 340-349.
17. Marzetti E, Hwang JC<sup>§</sup>, Lees HA, **Wohlgemuth SE**, Dupont-Versteegden EE, Carter CC, Bernabei R, Leeuwenburgh C (2010) Mitochondrial death effectors: Relevance to sarcopenia and disuse muscle atrophy. *Biochim Biophys Acta* 1800 (3): 235-244.
16. Marzetti E, **Wohlgemuth SE**, Aulisa AG, Bernabei R, Pahor M, Leeuwenburgh C (2010) Calorie Restriction for Optimal Cardiovascular Aging: The Weight of Evidence. *Curr Cardio Risk Rep* 4: 340346
15. **Wohlgemuth SE**, Seo AY<sup>§</sup>, Marzetti E, Lees HA, Leeuwenburgh C (2010) Skeletal muscle autophagy and apoptosis during aging: effects of calorie restriction and life-long exercise. *Exp Gerontol* 45(2): 138-148.
14. Marzetti E, **Wohlgemuth SE**, Anton SD, Bernabei R, Carter CS, Leeuwenburgh C (2009) Cellular mechanisms of cardioprotection by calorie restriction: state of the science and future perspectives. *Clin Geriatr Med* 25(4): 715-732.
13. Marzetti E, Lees HA, **Wohlgemuth SE**, Leeuwenburgh C (2009) Sarcopenia of aging: underlying cellular mechanisms and protection by calorie restriction. *Biofactors* 35(1): 28-35.
12. Hofer T, Servais S, Seo AY<sup>§</sup>, Marzetti E, Hiona A<sup>§</sup>, Upadhyay SJ\*, **Wohlgemuth SE**, Leeuwenburgh C (2009) Bioenergetics and permeability transition pore opening in heart subsarcolemmal and interfibrillar mitochondria: effects of aging and lifelong calorie restriction. *Mech Ageing Dev* 130(5): 297-307.

11. Marzetti E, Carter C, **Wohlgemuth SE**, Lees HA, Giovannini S, Anderson B, Quinn LS, 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.
10. Seo AY<sup>§</sup>, Xu J, Servais S, Hofer T, Marzetti E, **Wohlgemuth SE**, Knutson MD, Chung HY, Leeuwenburgh C (2008) Mitochondrial iron accumulation with age and functional consequences. *Aging Cell* 7(5): 706-716.
9. Marzetti E, **Wohlgemuth SE** (shared first-authorship), Lees HA, Chung HY, Giovannini S, Leeuwenburgh C (2008) Age-related activation of mitochondrial caspase-independent apoptotic signaling in rat gastrocnemius muscle. *Mech Ageing Dev.* 129(9): 542-549.
8. Marzetti E, Groban L, **Wohlgemuth SE**, Lee H, Lin M, Jobe H, Leeuwenburgh C, Carter CS (2008) Effects of short-term GH supplementation and treadmill exercise training on physical performance skeletal muscle apoptosis in old rats. *Am J Physiol Regulatory Integrative Comp Physiol.* 294(2): R558-R567.
7. **Wohlgemuth SE**, Julian D, Akin DE, Fried J\*, Toscano K\*, Leeuwenburgh C, Dunn Jr.WA (2007) Autophagy in the heart and liver during normal aging and calorie restriction. *Rejuven Res* 10(3): 1-13.
6. **Wohlgemuth SE**, Arp AJ, Bergquist D, Julian D (2007) Rapid induction and disappearance of electron-dense organelles following sulfide exposure in the marine annelid *Branchioasychis americana*. *Invertebrate Biology.* 126(2): 163-172.
5. Kujoth GC, Hiona A<sup>§</sup>, Pugh TD, Someya S, Panzer K, **Wohlgemuth SE**, Hofer T, Seo AY<sup>§</sup>, Sullivan R, Jobling W A, Morrow J D, Van Remmen H, Sedivy J M, Yamasoba T, Tanokura M, Weindruch R, Leeuwenburgh C, Prolla T A (2005) Mitochondrial DNA Mutations, Oxidative Stress, and Apoptosis in Mammalian Aging. *Science* 309: 481-484.
4. Julian D, April KL\*, Patel S\*, Stein JR\*, **Wohlgemuth SE** (2005) Mitochondrial depolarization following hydrogen sulfide exposure in erythrocytes from a sulfide-tolerant marine invertebrate. *J Exp Biol* 208: 4109-4122.
3. Julian D, Crampton WGR, **Wohlgemuth SE**, Albert JS (2003) Oxygen consumption in weakly electric neotropical fishes. *Oecologia.* 137: 502-511.
2. Julian D, Statile JL, **Wohlgemuth SE**, Arp AJ (2002) Enzymatic hydrogen sulfide production in marine invertebrate tissues. *Comp. Biochem. Physiol A.* 13: 105-115.
1. **Wohlgemuth SE**, Taylor AC, Grieshaber MK (2000) Ventilatory and metabolic responses to hypoxia and sulfide in the lugworm *Arenicola marina* (L.). *J Exp Biol.* 203: 3177-3188.

#### Book Chapter

**Wohlgemuth SE** (2013) Aging, nutrition, and lifestyle. In: Autophagy in Health and Disease; Gottlieb R (Ed.), Elsevier/Academic Press. p. 191-217.

#### Refereed Proceedings: (\*\*undergraduate student presenting)

**Wohlgemuth SE** (2010) Calorie restriction and autophagy. *Diabetes, Obesity and Metabolism* 12, SUPPL. 12.2: 27-28.

**Wohlgemuth SE**, Julian D (2003) Mitochondrial sulfide-sensitivity in coelomocytes from the sulfideadapted marine invertebrate *Glycera dibranchiata*. *Bulletin of the Mount Desert Island Marine Biological Laboratory.* 42: 15-16.



- Goodwin CR\*\*, Denzel SA\*, Aman SA\*, **Wohlgemuth SE** and Julian D (2001) Free radical scavengers decrease toxic effects of hydrogen sulfide *in vitro*. *American Zoologist* 41: 1458-1459
- Wohlgemuth SE** Julian, D and Arp AJ (2001) Induction of sulfide-oxidizing bodies in the epidermis of the annelid worm *Branchioasychis americanus* after sulfide exposure. *American Zoologist* 41: 1628-1628
- Wohlgemuth S**, Grieshaber MK (1999) Does sulfide induce metabolic depression in marine invertebrates? *Comp Biochem Physiol* 124A: S30
- Wohlgemuth S**, Grieshaber MK (1996) Ventilatory studies in *Arenicola marina* (L.) exposed to sulfide. In: *Processes and Structures in Marine Methane and Sulfide Biotopes*. Shaker Verlag Aachen. p. 121
- Wohlgemuth S**, Grieshaber MK (1995) Ventilatory responses to sulfide in the lugworm *Arenicola marina*. *Physiol Zool* 68 (4): 132 (C7)
- Abstracts (presentations by undergraduate\*\* and graduate# students)
- Wohlgemuth SE**, Picca A, Marzetti E, Anton SD, Hood DA, Leeuwenburgh C. (2023) Iron deregulation in skeletal muscle and mitochondrial and physical function decline in older adults. Annual Meeting of the German Association for Aging Research (poster presentation, June 2023, Jena, Germany).
- Bolen ML#, **Wohlgemuth S**, Menees KB, Hery G, Tansey MG. (2023) A Gut-First Investigation of Parkinson's Etiopathogenesis: Iron-Driven Mitochondria Dysregulation as a Function of Neuroimmune Cross-Talk and Underlying Inflammation. Gordon Research Conference 2023 (poster presentation)
- Marinho MN#, **Wohlgemuth SE**, Perdomo MC, Santos JEP. (2023) Associations between residual feed intake (RFI) and digestibility or hepatic mitochondrial respiration in Holstein cows. Annual ADSA meeting 2023
- Kalavalapalli S, Barb D, Leiva EG, Lomonaco R, Friedman J, **Wohlgemuth S**, Fanous N, Cowan T, Dillard R, Poulton D, Mansour L, Shrestha S, Bril F, Subbarayan S, Kadiyala S, Cusi K. (2021) Inadequate Hepatic Mitochondrial Adaptation in Patients with NASH is Related to the Severity of Steatohepatitis and Fibrosis Stage. American Diabetes Association 2021
- Ramos P, Bell L, **Wohlgemuth S**, Scheffler T. (2019) Mitochondrial Function in Oxidative and Glycolytic Bovine Skeletal Muscle Postmortem. 2019 Reciprocal Meat Conference – Muscle and Lipid Biology and Biochemistry. Meat and Muscle Biology 3 (2)
- Ramos P, Li C, Elzo M, **Wohlgemuth S**, Scheffler T. (2019) *J Anim Sci* 97, suppl. S3: 334
- Joseph S#, Li M, **Wohlgemuth S**, Keller-Wood M. (2019) Adaptation of Mitochondrial Respiration in Cardiac and Diaphragm Fibers of Newborn Lambs after Maternal Hypercortisolemia. Society for Reproductive Investigation 66<sup>th</sup> Annual Scientific Meeting, Paris, France. (poster presentation)
- Fabris TF#, Laporta J, Skibieli AL, Senn BD, Corra FN, **Wohlgemuth S**, Dahl GE. (2017) Impact of heat stress during the early and late dry period on subsequent performance in dairy cattle. American Dairy Science Association 2017 Annual meeting, Pittsburgh, PA., (poster presentation)
- Liu P#, Lundgren JM, Li C, Wu S, **Wohlgemuth SE**, McCarty DR, and Koch KE. (2017) The mitochondrial respiratory chain is mediated by RUG3 control of splicing in maize. American Society of Plant Biologists 2017 Annual meeting, Honolulu, HI., (poster presentation)

- Li C<sup>#g</sup>, White SH, Warren LK, **Wohlgemuth SE**. (2017) Impaired Autophagosome Formation and Autophagy in Skeletal Muscle of Aged American Quarter Horses. *Experimental Biology 2017 Annual Meeting*, Chicago, IL., (poster presentation)
- Ortega SM<sup>#g</sup>, **Wohlgemuth S**, Null DJ, Cole JB, Hansen PJ (2016) A single nucleotide polymorphism in COQ9 affects mitochondrial function, body weight change after calving, and fertility in Holstein cows. *42nd International Embryo Transfer Society Annual Conference*, Louisville, Kentucky, (oral presentation)
- White SH<sup>#g</sup>, Warren LK, Li C<sup>g</sup>, **Wohlgemuth S** (2015) Mitochondrial adaptations to submaximal exercise training in the gluteus medius and triceps brachii of young equine athletes. *Equine Science Society Meeting* (oral presentation)
- White SH<sup>#g</sup>, Li C<sup>g</sup>, Skurupey LA<sup>g</sup>, **Wohlgemuth S**, Warren LK. (2015) Effects of exercise and selenium on antioxidant status and mitochondrial function in young, pleasure-trained horses. *Equine Science Society Meeting* (oral presentation)
- Ramirez-Lee Y<sup>u</sup>, Ahmed BM<sup>g</sup>, Tao S, Dahl GE, **Wohlgemuth S** (2015) Effect of heat stress on mammary gland autophagy during the dry period. *ADSA-ASAS Joint Annual Meeting*, Orlando, FL., (oral presentation and poster presentation)
- Li C<sup>#g</sup>, White SH, Warren LK, **Wohlgemuth S** (2015) Effects of aging on mitochondrial function in skeletal muscle of Quarter Horses. *ADSA-ASAS Joint Annual Meeting*, Orlando, FL, (oral presentation)
- White SH<sup>#g</sup>, Warren LK, **Wohlgemuth S**. (2014) Effects of Dietary Selenium and Training on Mitochondrial Function in Young Horses. *9th International Conference on Equine Exercise Physiology*, Chester, United Kingdom. (oral presentation)
- White SH<sup>#g</sup>, Skurupey LA<sup>g</sup>, Guzman M<sup>u</sup>, **Wohlgemuth S**, Warren LK (2013) Effect of exercise training on mitochondrial function in equine skeletal muscle. *Equine Science Society Symposium*, New Mexico. (oral presentation)
- Pillard F<sup>p</sup>, Leeuwenburgh C, Riviere D, **Wohlgemuth SE** (2013) Skeletal muscle energy output among older adults could rely on electrons flux through the mitochondrial inner membrane. *French Physiology Society Meeting* (oral presentation)
- Joseph AM, **Wohlgemuth SE**, Picca A, Wawrzyniak N\*, Kujoth GC, Adihetty PJ, Prolla TA, Leeuwenburgh C (2012) Altered levels of mitochondrial morphology proteins in skeletal muscle of mitochondrial DNA mutator mice. *Experimental Biology Annual Meeting*, San Diego, CA. (poster presentation)
- Duarte MJ<sup>u\*\*</sup>, Julian D, Akin D, Dunn WA Jr., **Wohlgemuth SE** (2012) Hydrogen sulfide reduces GFPtagged autophagosomes in vitro. *Experimental Biology Annual Meeting*, San Diego, CA. (poster presentation)
- Marzetti M, **Wohlgemuth SE**, Lees HA, Manini TM, Buford TW, Aranda JM, Calvani R, Capuani G, Marsiske M, Bernabei R, Pahor M, Leeuwenburgh C (2011) Skeletal muscle apoptotic signaling predicts gait speed and muscle quality in community-dwelling older persons: an exploratory study. *International Conference on Sarcopenia Research*, Toulouse, France. (oral presentation)

- Dutta D<sup>#</sup>, Xu J, **Wohlgemuth SE**, Dunn WA, Leeuwenburgh C (2011) Autophagy plays a beneficial role against mitochondrial dysfunction in cardiomyocytes. *Experimental Biology Annual Meeting*, Washington, DC. (poster presentation)
- Joseph AM, **Wohlgemuth SE**, Adihetty PJ, Buford TW, Lees HA, Aranda JM, Sandesara BD, Pahor M, Manini TM, Marzetti E, Leeuwenburgh C (2011) Mitochondrial regulation is altered in skeletal muscle from high and low functioning elderly individuals. *Experimental Biology Annual Meeting*, Washington, DC. (oral presentation)
- Wohlgemuth SE** (2010) Calorie restriction and autophagy. *Diabetes, Obesity and Metabolism* 12, SUPPL. 12.2: 27-28. (oral presentation at the *International Diabetes and Obesity Forum*, Athens, Greece)
- Buford TW, **Wohlgemuth SE**, Joseph AM, Marzetti E, Leeuwenburgh C, Manini TM (2010) Preliminary results from skeletal muscle fiber respiration in HIV1+ older men. 2010 *Clinical and Translational Research and Education Meeting: ACRT/SCTS Joint Annual Meeting*, Washington, D.C. (poster presentation)
- Wohlgemuth SE**, Nguyen A<sup>u</sup>, Lees HA, Marzetti E, Leeuwenburgh C (2009) Autophagy in skeletal muscle: The effects of age and diet. *Experimental Biology Annual Meeting*, New Orleans, LA. (oral presentation)
- Marzetti E, **Wohlgemuth SE**, Lees HA, Chung HY, Giovannini S, Pahor M, Leeuwenburgh C (2008) Agerelated activation of mitochondrial caspase-independent apoptotic signaling in rat gastrocnemius muscle. *OAIC annual meeting*, Rockville, MD. (oral presentation)
- Wohlgemuth SE**, Aiken D, Julian D, Dunn WA, Leeuwenburgh C (2007) Autophagy in rodent cardiomyocytes with aging and the effect of calorie restriction and mitochondrial mutations. *OAIC annual meeting*. (oral presentation)
- Marzetti E, Groban L, **Wohlgemuth SE**, Lees H, Lin M, Jobe H, Giovannini S, Leeuwenburgh C, Carter CS (2007) Effects of short-term GH supplementation and treadmill exercise training on physical performance and skeletal muscle apoptosis in old rats. *Nathan Shock Conference on Aging*, Bandera, TX. (oral presentation)
- Wohlgemuth SE**, Lees H, Marzetti E, Leeuwenburgh C (2007) Autophagy in heart and muscle. *Gerontological Society of America*, Annual meeting, San Francisco, Ca. (oral presentation)
- Wohlgemuth SE**, Aiken D, Toscano K<sup>u</sup>, Amparado JE<sup>u</sup>, Fried J<sup>u</sup>, Julian D, Dunn WA, Leeuwenburgh C (2005) Effect of aging and calorie restriction on autophagy in rat cardiomyocytes. *Gerontological Society of America*, Annual meeting, Orlando, Fl. (oral presentation)
- Hance JM<sup>u\*\*</sup>, **Wohlgemuth SE**, Julian D (2004) Survival of coelomocytes from the intertidal polychaete *Glycera dibranchiata* during exposure to H<sub>2</sub>S and the effects of MPTP inhibitors to reduce cytotoxicity. *Integrative and Comparative Biology* 43(6): 886-886 (poster presentation)
- Patel SB<sup>u\*\*</sup>, **Wohlgemuth SE**, Julian D (2004) Mitochondrial injury induced by sulfide exposure in coelomyocytes from a sulfide-adapted marine invertebrate. *Integrative and Comparative Biology* 43(6): 886-886 (poster presentation)

- Goodwin CR<sup>u</sup>, Denzel SA<sup>u</sup>, Aman SA<sup>u</sup>, **Wohlgemuth SE** and Julian D (2002) Free radical scavengers decrease toxic effects of hydrogen sulfide *in vitro*. *American Zoologist* 41 (6): 1458-1459 (oral presentation)
- Wohlgemuth, SE**, Julian, D and Arp, AJ (2002) Induction of sulfide-oxidizing bodies in the epidermis of the annelid worm *Branchioasychis americanus* after sulfide exposure. *American Zoologist* 41 (6): 1628-1628 (poster presentation)
- Wohlgemuth S**, Grieshaber MK (1999) Does sulfide induce metabolic depression in marine invertebrates? *Comp Biochem Physiol* 124A: S30 (oral presentation)
- Wohlgemuth S**, Grieshaber MK (1997) Ventilatorische und metabolische Anpassungen des Wattwurms *Arenicola marina* an extreme Umweltbedingungen. (Ventilatory and metabolic adaptations in the lugworm, *Arenicola marina* to extreme environmental conditions.) *Verh Deutsch Zool Ges* 90.1: 157 (German Zoological Society) (oral presentation)
- Wohlgemuth S**, Grieshaber MK (1996) Ventilatory studies in *Arenicola marina* (L.) exposed to sulfide. In: *Processes and Structures in Marine Methane and Sulfide Biotopes*. Shaker Verlag Aachen; ISBN: 3826517784, 9783826517785. p. 121 (oral presentation and abstract)
- Wohlgemuth S**, Grieshaber MK (1995) Ventilatory responses to sulfide in the lugworm *Arenicola marina*. *Physiol Zool* 68 (4): 132 (C7) (oral presentation)
- Miscellaneous Abstracts (\*AMCB: Animal Molecular and Cellular Biology graduate program at the University of Florida (UF))
- Li C<sup>#g</sup>, **Wohlgemuth S**. (2016) Age-associated attenuation of autophagy in skeletal muscle of Quarter Horses. *Proceedings 2016 AMCB\* Symposium*, UF
- Li C<sup>#g</sup>, **Wohlgemuth S**. (2015) Effects of aging on mitochondrial function in skeletal muscle of Quarter Horses. *6th Annual Spotlight on Aging Research 2015*, Institute on Aging, UF
- Li C<sup>#g</sup>, White SH<sup>g</sup>, Warren LK, **Wohlgemuth S**. (2015) Effects of aging on mitochondrial function in skeletal muscle of Quarter Horses. *Proceedings 2015 AMCB Symposium*, UF
- Ortega MS<sup>#g</sup>, **Wohlgemuth S**, Hansen PJ. (2015) Effect of a single nucleotide polymorphism in COQ9 on cellular metabolism, fertility and milk production in Holstein cows. *Proceedings 2014 AMCB Symposium*, UF
- Li C<sup>#g</sup>, **Wohlgemuth S**. (2014) Examination of age-related change in mitochondrial function in the horse. *Proceedings 2014 AMCB Symposium*, UF
- Schreffler D<sup>#g</sup> and **Wohlgemuth SE**. Effects of PPAR $\gamma$  agonist rosiglitazone on cardiac tissue and cultured cardiomyocytes. *Proceedings 2013 AMCB Symposium*, UF.

## 6. PRESENTATIONS AND POSTERS

Graduate Student = g; Undergraduate student = u; Post-Doctoral Associate/Fellow = p; # = presenter

### PRESENTATIONS

- Wohlgemuth SE**, Picca A, Marzetti E, Anton SD, Hood DA, Leeuwenburgh C. (2023) Iron deregulation in skeletal muscle and mitochondrial and physical function decline in older adults. Annual Meeting of the German Association for Aging Research (poster presentation, June 2023, Jena, Germany).
- Bolen ML<sup>#</sup>, **Wohlgemuth S**, Menees KB, Hery G, Tansey MG. (2023) A Gut-First Investigation of Parkinson's Etiopathogenesis: Iron-Driven Mitochondria Dysregulation as a Function of Neuroimmune Cross-Talk and Underlying Inflammation. Gordon Research Conference 2023 (poster presentation)
- Marinho MN<sup>#</sup>, **Wohlgemuth SE**, Perdomo MC, Santos JEP. (2023) Associations between residual feed intake (RFI) and digestibility or hepatic mitochondrial respiration in Holstein cows. Annual ADSA meeting 2023
- Kalavalapalli S, Barb D, Leiva EG, Lomonaco R, Friedman J, **Wohlgemuth S**, Fanous N, Cowan T, Dillard R, Poulton D, Mansour L, Shrestha S, Bril F, Subbarayan S, Kadiyala S, Cusi K. (2021) Inadequate Hepatic Mitochondrial Adaptation in Patients with NASH is Related to the Severity of Steatohepatitis and Fibrosis Stage. American Diabetes Association 2021
- Ramos P, Bell L, **Wohlgemuth S**, Scheffler T. (2019) Mitochondrial Function in Oxidative and Glycolytic Bovine Skeletal Muscle Postmortem. 2019 Reciprocal Meat Conference – Muscle and Lipid Biology and Biochemistry. Meat and Muscle Biology 3 (2)
- Ramos P, Li C, Elzo M, Wohlgemuth S, Scheffler T. (2019) J Anim Sci 97, suppl. S3: 334 Joseph S<sup>#</sup>, Li M<sup>#</sup>, **Wohlgemuth S**, Keller-Wood M. (2019) Adaptation of Mitochondrial Respiration in Cardiac and Diaphragm Fibers of Newborn Lambs after Maternal Hypercortisolemia. Society for Reproductive Investigation 66<sup>th</sup> Annual Scientific Meeting, Paris, France. (poster presentation)
- Fabris TF<sup>#</sup>, Laporta J, Skibiell AL, Senn BD<sup>#</sup>, Corra FN, **Wohlgemuth S**, Dahl GE. (2017) Impact of heat stress during the early and late dry period on subsequent performance in dairy cattle. American Dairy Science Association 2017 Annual meeting, Pittsburgh, PA., (poster presentation)
- Liu P<sup>#</sup>, Lundgren JM, Li C<sup>#</sup>, Wu S, **Wohlgemuth SE**, McCarty DR, and Koch KE. (2017) The mitochondrial respiratory chain is mediated by RUG3 control of splicing in maize. American Society of Plant Biologists 2017 Annual meeting, Honolulu, HI., (poster presentation)
- Li C<sup>#</sup>, White SH, Warren LK, **Wohlgemuth SE**. (2017) Impaired Autophagosome Formation and Autophagy in Skeletal Muscle of Aged American Quarter Horses. Experimental Biology 2017 Annual Meeting, Chicago, IL., (poster presentation)
- Ortega SM<sup>#</sup>, **Wohlgemuth S**, Null DJ, Cole JB, Hansen PJ (2016) A single nucleotide polymorphism in COQ9 affects mitochondrial function, body weight change after calving, and fertility in Holstein cows. *42nd International Embryo Transfer Society Annual Conference*, Louisville, Kentucky, (oral presentation)
- Ramirez-Lee Y<sup>u</sup>, Ahmed BM<sup>#</sup>, Tao S, Dahl GE, **Wohlgemuth S**<sup>#</sup> (2015) Effect of heat stress on mammary gland autophagy during the dry period. *ADSA-ASAS Joint Annual Meeting*, Orlando, FL. (selected)
- Wohlgemuth SE**<sup>#</sup>, Nguyen A<sup>u</sup>, Lees HA, Marzetti E, Leeuwenburgh C (2009) Autophagy in skeletal muscle: The effects of age and diet. *Experimental Biology Annual Meeting*, New Orleans, LA. (selected)
- Wohlgemuth SE**<sup>#</sup>, Lees H, Marzetti E, Leeuwenburgh C (2007) Autophagy in heart and muscle.



*Gerontological Society of America, Annual meeting, San Francisco, Ca. (selected)*

**Wohlgemuth SE<sup>#</sup>**, Aiken D, Julian D, Dunn WA, Leeuwenburgh C (2007) Autophagy in rodent cardiomyocytes with aging and the effect of calorie restriction and mitochondrial mutations. *Older American Independence Centers (OAIC) Annual meeting*. (invited)

**Wohlgemuth SE<sup>#</sup>**, Aiken D, Toscano K<sup>u</sup>, Amparado JE<sup>u</sup>, Fried J<sup>u</sup>, Julian D, Dunn WA, Leeuwenburgh C (2005) Effect of aging and calorie restriction on autophagy in rat cardiomyocytes. *Gerontological Society of America, Annual meeting, Orlando, Fl. (selected)*

**Wohlgemuth S<sup>#</sup>**, Grieshaber MK (1997) Ventilatorische und metabolische Anpassungen des Wattwurms *Arenicola marina* an extreme Umweltbedingungen. (Ventilatory and metabolic adaptations in the lugworm, *Arenicola marina* to extreme environmental conditions.) *Deutsche Zoologische Gesellschaft Jahresversammlung (German Zoological Society, Annual meeting)*, Mainz, Germany. (selected)

**Wohlgemuth S<sup>#</sup>**, Grieshaber MK (1996) Ventilatory studies in *Arenicola marina* (L.) exposed to sulfide. *Workshop on Processes and Structures in Marine Methane and Sulfide Biotopes*, Winterscheid, Germany (invited)

**Wohlgemuth S<sup>#</sup>**, Grieshaber MK (1995) Ventilatory responses to sulfide in the lugworm *Arenicola marina*. *4<sup>th</sup> International Congress of Comparative Physiology and Biochemistry*, Birmingham, United Kingdom (selected)

#### Invited Presentations

“Calorie restriction and exercise and the effect on autophagy in skeletal muscle” (2011) *Experimental Biology Annual meeting*, Washington, DC.

“Calorie restriction and autophagy.” (2010) *1<sup>st</sup> International Diabetes and Obesity Forum*, Athens, Greece.

“Autophagy and Exercise in Sarcopenia” (2010) *American College of Sports Medicine, 57th Annual Meeting and World Congress on Exercise is Medicine*, Baltimore, MD.

“Autophagy in aging skeletal muscle.” (2010) *Penn State University, Department of Cellular and Molecular Physiology, College of Medicine*.

“Autophagy and calorie restriction” (2009) *American Diabetes Association Annual Meeting*, New Orleans, LA.

“Autophagy and calorie restriction” (2008) *The Obesity Society Annual Meeting*, Phoenix, AZ.

“Autophagy in health, disease and times of stress.” (2007) *Hawaii Pacific University, HI, College of Natural Sciences*.

“Does sulfide induce metabolic depression in marine invertebrates?” (1999) *5<sup>th</sup> International Congress of Comparative Physiology and Biochemistry*, Calgary, Alberta, Canada.

#### Invited Presentations at UF

“Housekeeping under stress: How physiological stress may impact cellular bioenergetics and autophagy” (Oct 2013) Department of Animal Sciences



“Sarcopenia of Aging – Weight loss and exercise intervention study in older obese women” (March 2010) UF - Institute on Aging – *Spotlight of Aging Symposium*

“Autophagy in aging skeletal muscle.” (Jan 2010) *Department of Animal Sciences*, College of Agriculture and Life Sciences, Institute of Food and Agricultural Sciences (IFAS).

“Autophagy in aging skeletal muscle.” (Nov 2009) *Department of Physiological Sciences*. College of Veterinary Medicine.

“Autophagy in aging skeletal muscle.” (Oct 2009) *Department of Applied Physiology and Kinesiology*. College of Health and Human Performance.

“Autophagy in heart and skeletal muscle” (Sept 2009) UF, *Basic Science Mini-Symposium on Mitochondria*.

“Living Longer by Recycling: The Autophagy Theory of Aging.” (Feb 2008) *Department of Zoology*. College of Liberal Arts and Sciences.

“Autophagy and sarcopenia in a transgenic mouse model.” (Dec 2007) *Interdisciplinary Research Seminar Series* (Institute on Aging; VA Geriatric Research, Education and Clinical Center; Pepper Center). College of Medicine

## 7. RESEARCH SUPPORT

### *Funded research, present and past*

Role	Agency	Grant Title & Dates
<b>current</b>		
Col	AHA/Northwestern University	Calf Muscle Mitochondrial Dysfunction and Impaired Autophagy in Peripheral Artery Disease
Col	NIH	Active roles of glial cells in olfaction and age-related olfactory decline
Col	NIH	Functional Decline in Low Functioning Older Adults; Role of iron dysregulation
<b>past</b>		
Col	USDA/NIFA	Mitochondrial function in postmortem muscle. <b>8/1/2017-7/31/2021</b> ; (Total direct costs over 3 years: \$311,104) ( <i>FTE covered: 10%</i> ) NCE
Col	NIH	Effects of maternal cortisol on perinatal cardiac metabolism and function. <b>12/14/2016-12/13/2021</b> ; (PI: Keller-Wood). (Total direct costs over 5 years: \$2,128,393 (before 20% budget cuts)). ( <i>FTE covered 5%</i> )
Col	NIH	Therapeutic use of dichloroacetate in treatment of perinatal cardiac abnormalities with mitochondrial deficiencies. (PI: Keller-Wood). <b>12/1/2016-11/30/2018</b> ; (Total direct costs over 2 years: \$285,000) ( <i>FTE covered: 5%</i> )
Col	NIH/NCCIH	1 R01 AT007564-01 REVIVE - Resveratrol to Enhance Vitality and Vigor in Elders

		(REVIVE) (PI: Anton). <b>09/01/2013-05/31/2017</b> (\$353,857) ( <i>FTE covered: 2%</i> ) (no cost extension)
PI	SECIM*	Effect of early gestational heat stress on the skeletal muscle metabolome in dairy cows. <b>07/01/2016-07/30/2017</b> (\$5984)
Col	USDA/NIFA	Impact of Heat Stress on Cellular Events in the Mammary Gland during the Dry Period (PI: Dahl). <b>05/2015-04/2018</b> (\$450,000). ( <i>10% effort, no salary support</i> )
PI	UF/IFAS	UF/IFAS Early Career Seed Funding Opportunity Effect of the gasotransmitter hydrogen sulfide on cellular stress responses and its interaction with autophagy. (PI: Wohlgemuth). <b>2013-14</b> (\$54,800)
PI	MDIBL <sup>#</sup>	Visiting Scientist Award - Effect of H <sub>2</sub> S on autophagy (PI: Wohlgemuth). <b>06/2013-07/2013</b> (\$5,400)
Col	UF-CALS	Instructional Improvement Grant (PI: Badinga). <b>Summer 2012</b> (\$3,200)
Col	NIH/NIA	RC2 AG036594 - Study of Energy and Aging (SEA) (PI: Cummings). <b>9/2009-9/2011</b> (\$261,197)
Col	NIH/CTSI	Diaphragm Mitochondrial Dysfunction During Prolonged Mechanical Ventilation. (PIs: Martin/Leeuwenburgh). <b>12/2009-11/2011</b> (\$91,738)
Col	NIH/NIA	1 P30 AG028740-S2 Claude D. Pepper Older Americans Independence Center. Mitochondrial function and fatigue in the elderly. (PI pilot project: Manini). <b>10/2009-9/2011</b> (\$150,000)
Col	NIH/NIA	P30 AG028740-01 Claude D. Pepper Older Americans Independence Center. (PI: Pahor) – PARENT GRANT. <b>6/1/2007 – 3/31/12</b> (\$811,237)
PI	NIH/NIA	<i>Claude D. Pepper - Pilot Study: Autophagy and Sarcopenia in a Transgenic Mouse Model. (PI: Wohlgemuth). <b>04/2007 - 03/2009</b> (\$38,687 from parent grant)</i>
Col	NIH/NIA	<i>Claude D. Pepper – Exploratory Study: Oxidative RNA/DNA Damage and Repair in Aged Human Muscle. (PIs: Marzetti / Wohlgemuth / Manini). <b>04/2007 - 03/2012</b> (\$8,000 from parent grant)</i>
Col	NIH/NIA	<i>Claude D. Pepper – Exploratory Study: Skeletal Muscle Apoptosis and Physical Performance. (PI: Leeuwenburgh). <b>04/2007 - 03/2012</b> (\$245,497 from parent grant)</i>
Col	NIH/NIA	RO1 AG17994-6 Molecular Mechanisms of Oxidative Stress in Aging Muscle. (PI: Leeuwenburgh). <b>07/2006-06/2011</b> (\$1,402,777)

Col NIH/NIA

R01 AG 21042 01A1 Apoptosis and Life-long Caloric Restriction. (PI: Leeuwenburgh). **08/2003-07/2008** (\$1,675,560)

(\*: Southeast Center for Integrated Metabolomics, grant number U24DK097209 from the National Institute of Health's Common Fund metabolomics program; #: Mount Desert Biological Laboratories, Mount Desert Island, Maine)

**Summary:** The focal point of these funded projects has related to cellular and mitochondrial responses to stress, such as environmental heat, sulfide exposure, as well as aging and fetal response to maternal stress. The main emphasis has been on skeletal muscle biology, although some of the projects funded investigated mammary gland and meat biology. The general long-term goal of these projects has been the characterization of cellular stress response mechanisms and bioenergetic responses, their far-reaching impact on organismal development, growth and productivity, functional performance, and identification of potential targets for intervention. My expertise in cellular physiology, particularly cellular quality control mechanism autophagy and mitochondrial biology was essential to secure funding for these projects.

In accordance with my interest in cellular stress responses and mitochondrial energetics, current research projects mainly focus on the overarching theme of aging (as an organismal and cellular stressor), and cellular mechanisms in response to the stressor *aging* that are associated with loss of skeletal muscle mass and function with age (sarcopenia). The long-term goals of these projects are to unravel the underlying mechanisms that accompany skeletal muscle aging to eventually design and to test interventions that attenuate the aging process, particularly the decline in skeletal muscle mass and physical function.

## 8. DIRECTING, TEACHING, ADVISING, AND MENTORING

**Directing and Instruction.** I am currently working in the Metabolism and Translational Science Core (MTSC) of the Institute on Aging, investigating and analyzing aging-related cellular biomarkers and mitochondrial biology by using a variety of platforms (f.ex., Multiplex, Western Blot, qRT-PCR, ELISA, spectrophotometric enzyme activity assays). Recently, I established the Respirometry Core as part of the MTSC, which focusses on high-resolution and high-throughput respirometry. In my role as Director of the Respirometer Core, and co-directing the MTSC, I am training internal and external scientists in respirometry (Oxygraph-O2k and Agilent/Seahorse XFe96 Flux Analyzer) through formal workshops and informal training at the bench; in biochemical techniques such as various sample preparation techniques, protein analyses (immunoblotting, spectrophotometric protein concentration); and in spectrophotometric enzyme activity assessments.

**Teaching.** I have created, revised, and taught undergraduate and graduate level courses at the University of Florida, including a foundational course in processes of organismal growth and development of livestock (ANS 3043 *Growth and Development of Farm Animals*), a graduate course in muscle biology (ANS 6705 *Muscle Physiology*), professional development courses (ANS 6939 *Journal Club Muscle*; ANS 6933 *Graduate Seminar for Non-Thesis MS students*), and previously gave guest lectures in courses focusing on the biology of aging ( *Mitochondrial Biology in Aging and Disease* (GMS 6622), *Topics in Pharmacology / Toxicology – Neurobiology of Aging* (GMS 7593), and *Integrated Aging Physiology* (GMS 6417)). I currently direct the online course GMS 6485, *Population-*

*Based Research on Aging*, as part of the Department of Physiology and Aging online Master's program; and co-direct GMS 6622, *Mitochondrial Biology in Aging and Disease*.

To advance my understanding of teaching and instruction, I have been able to take advantage of a variety of teaching enhancement opportunities at UF, such as workshops, symposia and roundtable discussions. Besides attending the annual CALS Teaching Enhancement Symposia, I was nominated for the CALS Teachers' College. The 10-week workshop conducted by the CALS Teaching Resource Center was comprised of lectures, learning activities, and exchange between the participants about teaching experiences and innovations. It provided insights into a broad spectrum of teaching tools and strategies for the classroom, ranging from active learning strategies, electronic tools, to creation of an authentic teaching philosophy. In 2012, a UF-CALS Instructional Improvement Grant provided support to attend a national teaching conference at the University of Wisconsin-Madison ("Teaching and Learning in the Animal Sciences: A National Conference to Challenge Old Assumptions and Break New Ground for the 21st Century").

#### Teaching philosophy

By the time a student leaves my classroom, I want them to have gained not only an understanding of a particular topic, but to have acquired appreciation for science and a set of skills. I have made it a priority to seek out, implement, and refine methods of teaching and instruction that support the diversity of student learning and understanding. I believe that my enthusiasm for science is an important tool to inspire students to be curious and to express their knowledge in creative ways. I encourage direct associations of the information learned with the students' own lives, and extension of their knowledge beyond the classroom. It is that personal connection and the synthesis of information that deepens the acquired knowledge and fosters appreciation for science and its applications. Teaching the students these skills will enable them to become informed citizens and scientifically literate, and to remain lifelong learners.

#### Educational goals

My personal goal as a teacher in the life sciences is to communicate my enthusiasm for the living world, and the concepts and principles that constitute life, and to instill an appreciation for and curiosity about the underlying mechanisms that make organisms function as a whole. Ideally, the student gets excited about the topic, asks more questions, and expands and applies the learned principles and concepts to more advanced problems in the given field and/or situations and problems of daily life. I want to encourage the students to achieve mastery and competency in the field of biological science, and to become independent scientific thinkers. A foundational understanding of "how things work" together with the ability to critically evaluate facts will help the students to unravel and comprehend more complex processes in animals and humans, such as development, disease, aging, and environmental challenges. This foundation will be of lifelong value. A second personal goal in my role as teacher is to address racial and gender balance in the natural sciences. Having a diverse research group of students stimulates different viewpoints and ways to address problems. In addition, the support of women in science is a special concern of mine. I see it as my responsibility to serve as a role model for female students who aspire to a career in science, and to encourage discussions about career and life planning.

**Mentoring and Advising.** During my time at UF, I have directly mentored and supervised over 36 undergraduate students (including five *CALS Honors* students, two *University Scholars*, one *HHMI-Science for Life scholar*, and one intern student in the *NIH Short-Term Research Training for Minority Students Program*, all of whom presented their work in oral or written form), eight of whom were underrepresented minorities. For a period of five years, I served as a departmental upper division Honors Program coordinator in the College of Agriculture and Life Sciences (CALS), which included advising of undergraduate Honors students in the Animal Sciences, and review of proposals and honors theses. I have chaired the committee of two graduate students, a Master and a PhD student, who both successfully completed their graduate work. The Master student is currently working at a large research facility. The PhD student, Dr. Chengcheng Li, was awarded the Susan Meg Weinstein Animal Sciences Graduate Scholarship and the Outstanding Academic Achievement recognition (2014) for her graduate work, which she presented at international meetings and published in the *Journal of Applied Physiology* and in *Experimental Gerontology*. She continued to work as a postdoctoral fellow first at UF, and subsequently at Washington University School of Medicine in St Louis, Missouri. In addition, I have served on 14 graduate student committees in the Departments of Animal Sciences, Applied Physiology and Kinesiology, and Pathology, Immunology, and Laboratory Medicine. In the Department of Aging and Geriatric Research, I am mentoring graduate students during their lab rotation as well as undergraduate students.

## **9. SERVICE TO THE SCIENTIFIC COMMUNITY**

### **Peer reviewer for scientific journals between 2003 and 2023:**

American Journal of Physiology, Aging Cell, AGE, BioMed Research International, Current Aging Science, Experimental Gerontology, Frontiers in Medicine-Aging Neuroscience, Frontiers in Medicine-Exercise Science, Journal of Aging Research, Journal of Animal Science, Journal of Applied Physiology, Journal of Experimental Biology, Journal of Experimental Marine Biology and Ecology, Journal of Gerontology, Journal of Negative Results, Mechanisms of Ageing & Development, Medicine & Science in Sports & Exercise, Muscle and Nerve, Ophelia, Oxidative Medicine and Cellular Longevity, PLoS ONE,

### **Peer review for funding agencies**

## **10. INTERNATIONAL ACTIVITIES**

2011 - My previous and current laboratories are listed as a reference labs for High Resolution Respirometry and the O2k through Oroboros ([http://wiki.orooboros.at/index.php/O2k-Network\\_Labs\\_USA](http://wiki.orooboros.at/index.php/O2k-Network_Labs_USA)). In that role, I am available for interactions within the *Mitochondria in Physiology Network* (MiPNet) globally to exchange expertise with regard to High Resolution Respirometry and mitochondrial respiratory function.

2009 Local organizer and instructor of the *IOC49 O2k-Course on High-Resolution Respirometry* (~ 15 participants).

## **11. CURRENT PROFESSIONAL MEMBERSHIPS**

2009 - American Physiological Society

## 12. PROFESSIONAL DEVELOPMENT

### Professional Development

- 2019 Visiting guest scientist, NIH-Bethesda campus, McGuire lab (XFe96 training)
- 2018 Cellular Bioenergetics Master Class, Buck Institute for Research on Aging, Novato, CA
- 2017 Special training in assessment of mitochondrial function in the laboratory of Dr. C. Hoppel at Case Western Reserve University School of Medicine, Cleveland, OH
- 2015 SECIM Fall Symposium – Advances in Multi-Omics. UF-CTSI
- 2011 NIH/NIA Summer Institute on Aging Research, Queenstown, Maryland
- 2009 Course on High-Resolution Respirometry (local organizer and trainer)
- 2007 Workshop on quantitative real time PCR at the University of Florida, ICBR
- 2007 Summer School on Mitochondrial Respiratory Physiology, Schröcken, Austria
- 2007 Course on High-Resolution Respirometry, Schröcken, Austria
- 2007 - Clinical and Translational Science Seminar Series - with special focus on aging  
Special training modules at UF: FERPA, HIPAA & Privacy, Blood-Borne-Pathogens and Biomedical Waste, Hazardous Waste Management, Faculty Search Committee, Tutorial, Animal Awareness Seminar, Working with the IACUC, Working with Laboratory Animals (rodents, livestock, equine), Pain Management (IACUC training module)
- 2006-13 UF/IFAS Grant writing Seminars and workshops; NIH/NSF grantsmanship workshops, UF and Older American Independence Center, University of Michigan

### Teaching and Instruction

- 2010-16 Annual Teaching Enhancement Symposium, UF/IFAS
- 2015 “Teaching Workshop: Changing the animal science teaching and learning paradigm. An interactive workshop on how to use case study teaching to foster critical thinking and classroom discussion”, Joint Annual Meeting, ADSA and ASAS 2015, Orlando, FL
- 2015 "Creating Rubrics: Tools to Effectively Assess Learning Outcomes", webinar hosted by Department of Food Science and Human Nutrition, UF
- 2015 CALS Teaching Retreat, UF
- 2014 “CANVAS Bootcamp”, UF
- 2013 “Teaching and Learning in the Animal Sciences: A National Conference to Challenge Old Assumptions and Break New Ground for the 21st Century.” Joint Annual Meeting, ADSA and ASAS 2013, Indianapolis, IN
- 2012 iClicker workshop, UF
- 2012 “Large Lecture Strategies”, roundtable discussion with Dean Balser, UF/IFAS
- 2012 “Teaching and Learning in the Animal Sciences: A National Conference to Challenge Old Assumptions and Break New Ground for the 21st Century.” June 19-22, 2012, University of Wisconsin-Madison (supported by a UF-CALS Instructional Improvement Grant 2012)
- 2011 UF-CALS Teachers College (semester-long weekly workshop, Fall semester 2011)
- 2010 Mentoring Workshop. Women in Science and Engineering (WiSE), UF