

Kenneth S. Campbell, PhD

Date of Birth: 19 September, 1972
Nationality: British
Status: US Permanent Resident

CONTACT DETAILS

| Work Address | Home Address | URLs / E-mail |
|---|---|---|
| Department of Physiology MS-508, Chandler Medical Center Lexington, KY 40536-0298 Tel: (859) 323 8157 Fax: (859) 323 1070 | 2622 Clays Mill Road Lexington, KY 40503 | http://www.mc.uky.edu/physiology http://www.mc.uky.edu/muscle/people/labs/Campbell/ http://www.slcontrol.org http://www.dengine.org http://www.gelbandfitter.org k.s.campbell@uky.edu |

EDUCATION

1990 - 1993 **University of Oxford (University College), Oxford, UK**
B.A. (Hons) Physics, First Class. Advanced options in modern optics and atomic physics.
Special commendation for experimental work.

1993 - 1998 **Applied Physiology Research Group, University of Birmingham, Birmingham, UK**
PhD Thesis: "*The analysis of cross-bridge activity in a stiffening relaxed muscle fibre*"
Supervisor: Martin Lakie, PhD
External Examiner: Sir Andrew F. Huxley OM, FRS (Trinity College, Cambridge, UK)

POSTDOCTORAL TRAINING

1998 – 2003 **Postdoctoral Fellow, Department of Physiology, University of Wisconsin-Madison, Madison, WI, USA**
Mechanical properties of skeletal and cardiac muscles
Mentor: Richard L. Moss, PhD

EMPLOYMENT

2003 – 2004 **Assistant Scientist, Department of Physiology, University of Wisconsin-Madison, Madison, WI, USA**

2004 – 2009 **Assistant Professor (Tenure-track), Department of Physiology, University of Kentucky, Lexington, KY, USA**

2009 - present **Associate Professor (with Tenure), Department of Physiology University of Kentucky, Lexington, KY, USA**

FUNDING

Completed

- 1999 - 2001 AHA 992054Z
American Heart Association Northland Affiliate (Postdoctoral Fellowship)
"Thixotropic mechanical properties of relaxed cardiac muscle affect diastolic function."
Role: Principal Investigator
Total Direct Costs \$60,000
- 2001 - 2002 AHA 1020574Z
American Heart Association Northland Affiliate (Postdoctoral Fellowship)
"Myocardial diastolic compliance under conditions mimicking ischemic heart failure."
Role: Principal Investigator
Total Direct Costs \$37,500
- 2004 - 2008 University of Kentucky Research Challenge Trust Fund
New Faculty Start-up Funds
Role: Principal Investigator
- 2006 - 2009 AHA 0630079N
American Heart Association National Center (Scientist Development Grant)
"Cycling cross-bridges augment passive stiffness components during diastole."
Role: Principal Investigator
Total Direct Costs \$260,000
- 2006 - 2008 NIH 1R03AG028162-01
National Institute on Aging
"Myocardial stiffness in aging associated diastolic heart failure."
Role: Principal Investigator
Total Direct Costs \$100,000
- 2007 - 2010 WKURF 516202-08-02
KY NASA EPSCoR
"Gender differences in response to simulated microgravity with and without countermeasure"
Co-Principal Investigator (with Abhijit Patwardhan, PhD, UK Center for Biomedical Engineering)
Total Direct Costs \$50,000

Current

- 2008 - 2013 NIH 1R01 AR055246-01A1
National Institute for Arthritis and Musculoskeletal and Skin Diseases
"Circadian rhythms in skeletal muscle"
Principal Investigator: Karyn A. Esser
Role: Co-Investigator
Total Direct Costs \$1,250,000 (\$100,000 available to KSC)
- 2008 - 2013 NIH 1R01 HL090749-01A1
National Heart, Lung and Blood Institute
"Myocardial stiffness in diastolic heart failure."
Role: Principal Investigator
Total Direct Costs \$1,125,000

2009 - 2011 AHA 09POST223406
American Heart Association Great Rivers Affiliate
"Sex specific mechanisms leading to elevated myocardial stiffness in type 1 diabetes"
Role: Sponsor
Principal Investigator: Mihail I. Mitov
Total Direct Costs: \$84,000

2009 - 2011 NIH 1RC1 ES01836
National Institute of Environmental Health Sciences
"Clock genes, environmental challenges and cardiopulmonary disease"
Principal Investigators: Karyn A. Esser and Francisco H. Andrade
Role: Co-Investigator
Total Direct Costs: \$1,000,000

2009 - 2011 NIH 1RC2 AG036594
National Institute on Aging
"Study of Energy and Aging "
Principal Investigators: Kevin E. Conley and 7 others.
Role: Co-Investigator
Total Direct Costs: \$1,000,000

2010 - 2011 NIH P20 RR021954
COBRE Award - Center of research in obesity and cardiovascular disease
"Obesity and Heart Failure"
Principal Investigator: Mark R. Bonnell
Role: Co-Investigator
Total Direct Costs: \$50,000

2009 - 2014 NIH R01
National Institute for Arthritis and Musculoskeletal and Skin Diseases
"Growth Hormone in Muscle"
Principle Investigator: Thomas Clemens (Johns Hopkins University)
Role: Co-Investigator (with Karyn Esser)
Direct Costs available to Drs. Campbell and Esser: \$125,000

Pending

2010 - 2015 NIH 1R01 AR060705-01
National Institute for Arthritis and Musculoskeletal and Skin Diseases
"Predictive multiscale modeling of skeletal muscle function "
Role: Principal Investigator, 30% Effort
Total Direct Costs: \$1,250,000

2010 - 2015 NIH PO1 HL095487
National Heart, Lung and Blood Institute
"Cellular and Molecular Mechanisms of Respiratory Muscle Failure "
Role: Co-Investigator Core B: Molecular Genetics, Biological Archives and Data Management
Principal Investigator: Michael B. Reid
Total Direct Costs: \$7,500,000

PUBLICATIONS

Book Chapters

- 1) **CAMPBELL, K.S.** Short-range mechanical properties of striated muscles. "Muscle Biophysics: from molecules to cells", Advances in Experimental Medicine and Biology, Springer. (In Press).

Peer Reviewed Articles

- 1) **CAMPBELL, K.S.** & LAKIE, M. (1998). A cross-bridge mechanism can explain the thixotropic short-range elastic component of relaxed frog skeletal muscle. *Journal of Physiology* **510.3**, 941-962. [PMC2231083](#).
- 2) **CAMPBELL, K.S.** & MOSS, R.L. (2000). A thixotropic effect in contracting rabbit psoas muscle: Prior movement reduces the initial tension response to stretch. *Journal of Physiology* **525.2**, 531-548. [PMC2269955](#).
- 3) FITZSIMONS, D.P., PATEL, J.R., **CAMPBELL, K.S.** & MOSS, R.L. (2001). Cooperative mechanisms in the activation dependence of the rate of force development in rabbit skinned skeletal muscle fibers. *Journal of General Physiology* **117**, 133-148. [PMC2217243](#).
- 4) **CAMPBELL, K.S.** & MOSS, R.L. (2002). History-dependent mechanical properties of permeabilized rat soleus muscle fibers. *Biophysical Journal*. **82.2**, 929-943. [PMC1301901](#).
- 5) **CAMPBELL, K.S.**, PATEL, J.R. & MOSS, R.L. (2003). Cycling cross-bridges increase myocardial stiffness at sub-maximal levels of Ca²⁺ activation. *Biophysical Journal*. **84.6**, 3807-3815. [PMC1302962](#).
- 6) **CAMPBELL, K.S.** & MOSS, R.L. (2003). SLControl: PC-based data acquisition and analysis for muscle mechanics. *American Journal of Physiology: Heart and Circulatory Physiology*. **285**, H2857-H2864. [PMID: 12907419](#) (PMCID not yet assigned).
- 7) WARREN, C.M., KRZESINSKI, P.R., **CAMPBELL, K.S.**, MOSS, R.L. & GREASER, M.L. (2004). Titin isoform changes in rat myocardium during development. *Mechanisms of Development*. **121(11)**, 1301-1312. [PMID: 15454261](#) (PMCID not yet assigned).
- 8) GREASER, M.L., KRZESINSKI, P.R., WARREN, C.M., KIRKPATRICK, B., **CAMPBELL, K.S.** & MOSS, R.L. (2005). Developmental changes in rat cardiac titin/connectin; transitions in normal animals and in mutants with a delayed pattern of isoform transition. *Journal of Muscle Research and Cell Motility*. **26(6-8)**, 325-332. [PMID: 16491431](#) (PMCID not yet assigned).
- 9) **CAMPBELL, K.S.** (2006). Tension recovery in rat soleus fibers following rapid shortening and re-stretch. *Biophysical Journal*. **90.4**, 1288-1294. [PMC1367280](#).
- 10) **CAMPBELL, K.S.** (2006). Filament compliance effects can explain tension overshoots during force development. *Biophysical Journal*. **91.11**, 4102-4109. [PMC1635681](#).
- 11) **CAMPBELL, K.S.** & HOLBROOK, A.M. (2007). The rate of tension recovery in cardiac muscle correlates with the relative residual tension prevailing after re-stretch. *American Journal of Physiology: Heart and Circulatory Physiology*. **292**, H2020-H2022. [PMC2001153](#).
- 12) McCARTHY, J., ANDREWS, J., McDEARMON, E., **CAMPBELL, K.S.**, BARBER, B., MILLER, B., WALKER, J., HOGENESCH, J., TAKAHASHI, J., ESSER, K. (2007) Identification of the circadian transcriptome in adult mouse skeletal muscle. *Physiological Genomics*. **31**, 86-95. [PMID: 17550994](#). (PMCID not yet assigned).

- 13) ROBIA, S.L., **CAMPBELL, K.S.**, KELLY, E. M., HOU, Z, WINTERS, D.L. & THOMAS, D.D. (2007) "Förster Transfer Recovery reveals that phospholamban exchanges slowly from pentamers but rapidly from the SERCA regulatory complex". *Circulation Research*. **101**, 1123-1129. [PMC2590498](#).
- 14) **CAMPBELL, K.S.** & LAKIE, M. (2008) Response to "Interaction forces between F-actin and titin PEVK domain measured with optical tweezers". *Biophysical Journal*. **94**, 327-328. [PMC2134857](#).
- 15) HARDIN, B.J., **CAMPBELL, K.S.**, SMITH, J.D., ARBOGAST, S., SMITH, J., MOYLAN, J.S. & REID, M.B. (2008) TNF- α acts via TNFR1 and Muscle-derived oxidants to depress myofibrillar force in murine skeletal muscle. *Journal of Applied Physiology*. **104(3)**, 694-9. [PMID: 18187611](#). (PMCID not yet assigned).
- 16) MITOV, M.I., HOLBROOK, A.M. & **CAMPBELL, K.S.** (2009) Myocardial short-range force responses increase with age in F344 rats. *Journal of Molecular and Cellular Cardiology*. **46**, 39-46. [PMC2633371](#).
- 17) MITOV, M.I., GREASER, M.L. & **CAMPBELL, K.S.** (2009) GelBandFitter: a computer program for analysis of closely spaced electrophoretic and immunoblotted bands. *Electrophoresis*. **30(5)**, 848-851. [PMC2742644](#).
- 18) **CAMPBELL, K.S.** (2009) Interactions between connected half-sarcomeres produce emergent mechanical behavior in a mathematical model of muscle. *PLoS Computational Biology*. **5(11)**, e1000560. [PMC2770126](#).
- 19) CAMPBELL, S., LIONETTI, F.V., **CAMPBELL, K.S.** & McCULLOCH, A.D. (2010) Evidence that tropomyosin overlap potentiates cross-bridge activation of the cardiac thin filament. *Biophysical Journal*. 98:2254-2264. [PMC2872217](#)
- 20) **CAMPBELL, K.S.** (2010) Distorting the sarcomere. *Journal of General Physiology*. (In press).

Submitted or In Preparation

ANDREWS, J.L., ZHANG, X, McCARTHY, J.J., McDEARMON, E.L., HORNBERGER, T.A., RUSSELL, B., **CAMPBELL, K.S.**, ARBOGAST, S., REID, M.B., WALKER, J.R., HOGENESCH, J.B., TAKAHASHI, J.S. & ESSER, K.A. CLOCK and BMAL1 regulate MyoD for maintenance of skeletal muscle phenotype and function. (Submitted)

Ferreira, L. F., **CAMPBELL, K.S.** & Reid, M.B. Effectiveness of sulfur-containing compounds in delaying fatigue of murine skeletal muscle *in vitro*. (Submitted)

Published Abstracts

- 1) LAKIE, M. & **CAMPBELL, K.S.** (1995). A method of identifying small sudden force increments in a voluntary isometric contraction in man. *Journal of Physiology* **483**, 2P.
- 2) **CAMPBELL, K.S.** & LAKIE, M. (1995). Tension responses to imposed length changes in isolated relaxed muscle fibre bundles from *Rana temporaria*. *Journal of Physiology* **487**, 155-156P.
- 3) **CAMPBELL, K.S.** & LAKIE, M. (1995). Can the short range elastic component and thixotropy both be due to crossbridge activity in relaxed muscle? *Journal of Physiology* **491**, 130-131P.
- 4) **CAMPBELL, K.S.** & LAKIE, M. (1996). Sarcomere length measurement during thixotropic tension responses in relaxed amphibian muscle. *Journal of Physiology* **495**, 162P.
- 5) LAKIE, M., JUPP, N., **CAMPBELL, K.S.** & COMBES, N. (1996). The effect of percutaneous digital nerve stimulation on finger tremor in man. *Journal of Physiology* **495**, 183P.

- 6) LAKIE, M., KELLY, S.M. & **CAMPBELL, K.S.** (1997). A comparison of ankle torques in a fictive standing task in man. *Journal of Physiology* **501**, 42P.
- 7) **CAMPBELL, K.S.** & MOSS, R.L. (1999). Prior movement reduces the initial tension response to stretch in contracting skinned muscle fibers. *Biophysical Journal* **76.1**, 40A.
- 8) **CAMPBELL, K.S.** & MOSS, R.L. (2000). A theoretical model which can explain the thixotropic behaviour of contracting muscle. *Biophysical Journal* **78.1**, 230A.
- 9) FITZSIMONS, D.P., PATEL, J.R. **CAMPBELL, K.S.** & MOSS, R.L. (2000). Cooperative mechanisms in activation of skeletal muscle contraction. *Biophysical Journal* **78.1**, 230A.
- 10) **CAMPBELL, K.S.** & MOSS, R.L. (2001). History dependent stiffness in slow twitch skeletal muscle. *Biophysical Journal* **80.1**, A273.
- 11) **CAMPBELL, K.S.** & MOSS, R.L. (2002). Cycling cross-bridges reduce myocardial compliance at very low levels of Ca^{2+} activation. *Journal of Molecular and Cellular Cardiology* **34(7)** A8.
- 12) **CAMPBELL, K.S.** & MOSS, R.L. (2002). History-dependent muscle stiffness at levels of Ca^{2+} activation that mimic myocardium during early diastole. *Biophysical Journal* **82.1** 1939A.
- 13) **CAMPBELL, K.S.** & MOSS, R.L. (2003). SLControl: PC-based data acquisition and analysis for muscle mechanics. *Biophysical Journal* **84.2** 448A.
- 14) **CAMPBELL, K.S.**, FITZSIMONS, D.P. & MOSS, R.L. (2003). Mechanical properties of slow twitch skeletal muscles during repeated length changes. *Biophysical Journal* **84.2** 449A.
- 15) FITZSIMONS, D.P., **CAMPBELL, K.S.** & MOSS, R.L. (2003). Effect of phosphate on loaded shortening in skeletal muscle fibers. *Biophysical Journal* **84.2** 246A.
- 16) **CAMPBELL, K.S.** & MOSS, R.L. (2004). Tension recovery in skeletal fibers following a rapid shortening-restretch protocol. *Biophysical Journal* **86.1** 215a.
- 17) WARREN, C.M., KRZESINSKI, P.R., **CAMPBELL, K.S.**, MOSS, R.L. & GREASER, M.L. (2004). Titin isoform changes in rat myocardium during development. *Biophysical Journal* **86.1** 210a.
- 18) **CAMPBELL, K.S.** & MOSS, R.L. (2004). Muscle stiffness transiently exceeds its steady-state value following a rapid shortening/re-stretch protocol. *Physiological Society Proceedings - Online*.
- 19) GREASER, M.L., KRZESINSKI, P.R., WARREN, C.M., **CAMPBELL, K.S.** & MOSS, R.L. (2005). A mutation in rats with altered developmental patterns of titin isoform expression. *Biophysical Society - Online*.
- 20) **CAMPBELL, K.S.** (2006). Tension recovery in permeabilized rat soleus fibers following rapid shortening and re-stretch. *Biophysical Society - Online*.
- 21) HOLBROOK, A.M. & **CAMPBELL, K.S.** (2006). Myocardial stiffness in experimental conditions that mimic ischemia. *Biophysical Society - Online*.
- 22) HARDIN, B.J., ARBOGAST, S., **CAMPBELL, K.S.** & REID, M.B. (2006) Antioxidants attenuate TNF-alpha induced contractile dysfunction: alterations in myobrillar function. *FASEB Journal* **20(4)**, A809.
- 23) **CAMPBELL, K.S.** & HOLBROOK, A.M. (2006). The rate of tension recovery in cardiac muscle correlates with the relative residual tension prevailing after re-stretch. *Circulation* **114(18)**, 316.
- 24) **CAMPBELL, K.S.** & HOLBROOK, A.M. (2007). Tension recovery kinetics in contracting myocardial preparations. *Biophysical Journal*. Supplement S. 476A-477A.

- 25) MITOV, M.H., HOLBROOK, A.M. & **CAMPBELL, K.S.** (2008). Short-range forces are increased in a rat model of aging-associated diastolic heart failure. *Biophysical Society - Online*.
- 26) **CAMPBELL, K.S.** & REID, E.M. (2008). Direct measurements of ventricular stiffness in isolated rat hearts at 37°C. *Biophysical Society - Online*.
- 27) **CAMPBELL, K.S.** (2009). Short-range mechanical properties simulated with a mathematical model incorporating multiple half-sarcomeres. *Biophysical Society - Online*.
- 28) HOU, Z., **CAMPBELL, K.S.** & ROBIA, S.L. (2009) Quantification of the exchange of subunits from membrane protein complexes using Förster Transfer Recovery. *Biophysical Society - Online*.
- 29) MITOV, M.I. & **CAMPBELL, K.S.** (2009) Effects of Blebbistatin and BDM (2,3-Butanedione Monoxime) on the short-range mechanical properties of murine diaphragm muscle fibers. *Biophysical Society - Online*.
- 30) MITOV, M.I., CALLAHAN, L.A., & **CAMPBELL, K.S.** (2010) Short-range mechanical properties of myocardium from diabetic rats. *Biophysical Society - Online*.
- 31) **CAMPBELL, K.S.** (2010) Interactions between connected half-sarcomeres produce emergent mechanical behavior in a mathematical model of muscle. *Biophysical Society - Online*.
- 32) HOUTZ, J., HATFIELD, C.P., **CAMPBELL, K.S.** & ESSER, K.A. (2010) Automated image analysis of electron micrographs of structurally compromised striated muscle. *Biophysical Society - Online*.
- 33) HOUTZ, J., HATFIELD, C.P., **CAMPBELL, K.S.** & ESSER, K.A. (2010) Muscle Specific Influences of Bmal1 on myofilament interactions. *Experimental Biology*.

Other Articles

- 1) **CAMPBELL, K.S.** & LAKIE, M. (1997). Aaaaaah - Why stretching feels so nice? *New Scientist* **153**, 2073.

INVENTION DISCLOSURES

- 2002 Invention Disclosure to the Wisconsin Alumni Research Foundation
 "SLControl: a computer system that controls muscle physiology experiments"
- 2008 Invention Disclosure to the University of Kentucky Intellectual Property Committee
 "Quantification of overlapping bands in gel electrophoresis"

COMPUTER SOFTWARE AND ASSOCIATED WEBSITES

<http://www.slcontrol.org>

SLControl is a computer program that helps perform sophisticated single muscle fiber experiments. The website has been visited 150,000 times and the software has been downloaded by users in at least 12 different countries.

<http://www.gelbandfitter.org>

GelBandFitter is a computer program that uses non-linear regression techniques to fit mathematical functions to densitometry profiles of protein gels. This allows for improved quantification of gels with partially overlapping and potentially asymmetric protein bands. The program can also be used to analyze immunoblots with closely-spaced bands.

<http://www.dengine.org>

DEngine (which stands for Distributed computing ENGINE) is a collection of computer programs that allows multiple machines to work together (using 'spare' screen-saver processing power) to solve large-scale mathematical problems. The initial version of the software package was posted on the internet in 2007.

CNF-Counter

CNF-Counter is a computer program that counts centrally-nucleated fibers in images of muscle cross-sections. The proportion of fibers that are centrally-nucleated in a given sample is indicative of the extent of muscle damage. This software is being developed in collaboration with Dr. Kevin J. Sonnemann (University of Minnesota).

EM-Analyzer

EM-Analyzer is a computer program that calculates statistics about the number, arrangement and size of thick and thin filaments by analyzing electron micrographs of muscle cross-sections.

TEACHING

University of Kentucky

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|------|--------|---|--|
| 2005 | Spring | Physiology 604 Physiology 818 | Advanced Cardiovascular Physiology (2 lectures) Electrocardiogram Workshop |
| | Fall | Physiology 502: Physiology 602: | Muscle/Cardiovascular Physiology (9 lectures) Muscle/Cardiovascular Physiology (3 lectures) |
| 2006 | Spring | Physiology 630: | Advanced Skeletal Muscle Physiology (3 lectures) |
| | Fall | Physiology 412G: | Cardiovascular Physiology (8 lectures) |
| 2007 | Spring | Physiology 412G Physiology 604 | Cardiovascular Physiology (8 lectures) Advanced Cardiovascular Physiology (3 lectures) |
| | Fall | Physiology 630 Physiology 412G | Advanced Skeletal Muscle Physiology (3 lectures) Cardiovascular Physiology (8 lectures) |
| 2008 | Spring | Physiology 412G | Cardiovascular Physiology (8 lectures) |
| | Fall | Physiology 412G | Cardiovascular Physiology (9 lectures) |
| 2009 | Spring | Physiology 412G Physiology 604 Physiology 630 | Cardiovascular Physiology (8 lectures) Advanced Cardiovascular Physiology (2 lectures) Advanced Skeletal Muscle Physiology (18 lectures) |
| | Fall | Physiology 412G | Cardiovascular Physiology (8 lectures) |
| 2010 | Spring | Physiology 412G | Cardiovascular Physiology (8 lectures) |

Purdue University

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|------|--------|----------|--|
| 2006 | Spring | ANSC 551 | Skeletal and Cardiac Muscle Mechanics (2 lectures) |
| 2008 | Spring | ANSC 551 | Skeletal and Cardiac Muscle Mechanics (2 lectures) |

Asbury College, Wilmore, Kentucky

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| 2007 | Spring | BIO 352 | Muscle physiology and biological kinetics (1 lecture, 1 demonstration) |
| 2008 | Spring | BIO 352 | Muscle physiology and biological kinetics (1 lecture, 1 demonstration) |
| 2009 | Spring | BIO 352 | Muscle physiology and biological kinetics (1 lecture, 1 demonstration) |
| 2010 | Spring | BIO 352 | Muscle physiology and biological kinetics (1 lecture, 1 demonstration) |

Teaching Awards

- 2006 & 2010 Holsinger Award for Excellence in Teaching (Department of Physiology, University of Kentucky)
- 2007 Abraham Flexner Master Educator Award (Outstanding Teaching Contribution or Mentorship)
College of Medicine, University of Kentucky

TRAINEES

High School Students

2007 - present Rahul Sharma, Paul Dunbar High School, Mathematics and Science Training Center

Undergraduate Students

2006 Andrew Fryman (Bio 395 Research in Biology)
2006 - 2007 Eric M. Reid (UK Bucks for Brains Summer Student and Bio 395 Research in Biology)
2007 - 2008 Philip A. Montague
2008 - 20009 Jennifer Peterson (UK Bucks for Brains Summer Student and Bio 395 Research in Biology)
2010 - present Calen M. Smith (Bio 395 Research in Biology)

Medical Students

2009 Ayodele Osasona (Summer Research Rotation)

Graduate Students

2004 Integrated Biomedical Sciences, Rotating Student: Amy McAnarney
2006 Integrated Biomedical Sciences, Rotating Students: Megan Bardgett
Integrated Biomedical Sciences, Rotating Students: Lorenzo Federico
Integrated Biomedical Sciences, Rotating Students: Joseph Whelan
2007 - present Center for Biomedical Engineering PhD Committee Member: Mark Howarth
2007 Integrated Biomedical Sciences, Rotating Student: Valerie Reeves
2008 Integrated Biomedical Sciences, Rotating Student: Wenjun Zhu, Premi Shekar
2008 - present Integrated Biomedical Sciences, PhD Committee Member: Gretchen Wolff
2008 - present Integrated Biomedical Sciences, PhD Committee Member: Mellani Lefta
2008 Outside Examiner, Final Doctoral Examination of Pharmaceutical Sciences: Leah Allen
2009 - present Primary Advisor for PhD Student, Premi Shekar

Post-doctoral Scholars

2007 - present Mihail I. Mitov PhD, "Passive stiffness components in myocardium"
Funded by AHA Postdoctoral Fellowship to MIM and NIH R01 to KSC.
2010 - present Stuart Campbell, PhD, "Single myocyte mechanics"
Funded by NIH R01 to KSC

GRANT REVIEWING

University of Kentucky

2008 Internal Grant Review for the Vice President of Research

American Heart Association

2007 - 2009 Member of American Heart Association National Consortium Review Committee
Integrative Cardiac Biology and Regulation (~11 grants per meeting, 2 meetings per year)

National Science Foundation

2007 Ad hoc Reviewer for National Science Foundation: MCB-Cellular Systems

Canadian Institutes of Health Research

2008 Review requested for Movement and Exercise Peer Review Committee
(Recused because of a potential conflict of interest)

University of Michigan Geriatrics Center

2010 Ad hoc Reviewer for Pilot Grant Applications

Swiss National Science Foundation

2010 Ad hoc Reviewer for Swiss National Science Foundation: Biology and Medicine

EDITORIAL BOARDS

2010-present Associate Editor, *Frontiers in Cardiac Muscle Physiology*

MANUSCRIPT REVIEWING

As of 2010, approximately 1 article a month for journals including:

Acta Physiologica Scandinavica
Aging Cell
Archives of Biochemistry and Biophysics
American Journal of Physiology: Endocrinology and Metabolism
American Journal of Physiology: Heart and Circulatory Physiology
Biophysical Journal
Circulation Research (Triage and Full Reviews)
European Journal of Applied Physiology
International Journal of Cardiology
Journal of Applied Physiology
Journal of Biomechanics
Journal of Molecular and Cellular Cardiology
Journal of Pharmacology and Experimental Therapeutics
Journal of Physiology
Journal of Theoretical Biology
Mathematical Biosciences
Pflügers Archiv

OTHER SERVICE

University of Kentucky

- 2005 - 2007 Department of Physiology, Faculty Search Committee
- 2005 - present Department of Physiology, Graduate Affairs Committee
- 2006 - present Department of Physiology, IBS Open House, Meeting Coordinator
- 2007, 2011 Department of Physiology, Holsinger Award Committee
- 2007 - present Department of Physiology, Faculty Information Technology Coordinator
- 2008 Center for Muscle Biology, Journal Club Coordinator
- 2008 - present Department of Physiology, Brian J. Hardin Research Award Committee
- 2009 - present Webmaster, Center for Muscle Biology website (<http://www.mc.uky.edu/muscle>)
- 2009 - present Center for Muscle Biology, Executive Committee Member
- 2009 Faculty mentor, Common Reading Experience
- 2010 Department of Physiology, 50th Anniversary Celebration Committee
- 2010 Department of Physiology, Physiology Scholars Committee
- 2010 - present Director, Single Fiber Function Core, Center for Muscle Biology

Regional

- 2005 - present Volunteer, American Heart Association Central Kentucky Heartwalk
- 2006 - present Volunteer, American Heart Association "You are the cure" Advocate
- 2006 Volunteer Judge, Kentucky Science and Engineering Fair, Richmond, KY
- 2008 Volunteer Judge, Fayette County Science and Engineering Fair, Lexington, KY
- 2008 Volunteer Judge, Central Kentucky Science and Engineering Fair, Lexington, KY
- 2009 Volunteer Judge, Fayette County Science and Engineering Fair, Lexington, KY
Obtained and awarded a prize from the American Physiological Society
- 2009 American Heart Association Kentucky Lobby Day: You're the Cure at the Capitol
- 2009 Volunteer Judge, Central Kentucky Science and Engineering Fair, Lexington, KY
- 2010 Volunteer Judge, Fayette County Science and Engineering Fair, Lexington, KY
Obtained and awarded a prize from the American Physiological Society
- 2010 Volunteer Judge, Central Kentucky Science and Engineering Fair, Lexington, KY

National

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| 2006 - 2012 | Biophysical Society Early Careers Committee |
| 2008 | Biophysical Society Annual Meeting Career Workshop Coordinator |
| 2009 | Biophysical Society Annual Meeting Early Careers Evening Coordinator |
| 2010 | Biophysical Society Annual Meeting Career Workshop Coordinator |

PROFESSIONAL MEMBERSHIPS

1993 - 2010 Physiological Society (United Kingdom)
1998 - present Biophysical Society
2001 - present American Heart Association
2004 - present American Physiological Society
2008 - 2010 International Society for Heart Research

HONORS AND OTHER EXPERIENCE

1993 - 1998 Wellcome Trust Prize Studentship
1999 - 2005 Invited Participant, Gordon Research Conference, Contractile Proteins
2000 Award for Best Oral Presentation, Midwest Physiological Society
2006 - 2008 Wethington Research Award (Department of Physiology, University of Kentucky)
2007 Symposium Chair, Experimental Biology, Washington DC
2008 Invited Participant, Gordon Research Conference, Cardiac Regulatory Proteins
2010 Symposium Chair, 6th World Congress on Biomechanics, Singapore

INVITED TALKS

University of Wisconsin-Madison

- 1997 Department of Physiology, University of Wisconsin-Madison
- 2003 Cardiovascular Research Center, University of Wisconsin-Madison

University of Kentucky

- 2003 Department of Physiology
- 2004 Center for Biomedical Engineering
- 2005 Gill Heart Institute
Muscle Club
- 2006 Department of Physiology
Gill Heart Institute
Muscle Club
- 2007 Muscle Club (x2)
Center for Biomedical Engineering
- 2008 Gill Heart Institute, Cardiovascular Seminar Series
Muscle Club (x2)
Clinical and Translational Science Fall Conference (Muscle Biology)
Department of Physiology
- 2009 Muscle Club
- 2010 Research Collaborations between Engineering and Medicine
Muscle Forum
Nutritional Sciences Seminar Series

Other (Before Faculty Appointment)

- 1995 Practical Demonstration, Physiological Society, UK
- 1995 Oral Communication, Physiological Society, UK
- 1996 Oral Communication, Physiological Society, UK
- 1997 NIAMS, National Institutes of Health
- 2000 Department of Biochemistry, Molecular Biology and Biophysics, University of Minnesota
- 2001 Midwest Physiological Society
- 2002 National Institute for Medical Research, London, UK

Other (After Faculty Appointment)

- 2004 "Calcium-dependent myocardial stiffness: Implications for Diastolic function"
Department of Anatomy and Cell Biology, Indiana University Purdue University Indianapolis
11 November, 2004
- 2007 "Acto-myosin kinetics: Tension overshoots and residual forces"
Department of Physiology, Loyola University, Chicago, IL
11 April, 2007
- "Measurements and Models of Acto-Myosin Kinetics"
Experimental Biology, Washington DC
30 April, 2007
- "Myocardial stiffness in Aging-associated Diastolic Heart Failure"
NIH/NIA New Investigator's Workshop, San Antonio, TX
31 May, 2007
- "Myocardial stiffness: effect of simulated microgravity"
Kentucky EPSCoR "Building Team Science" Conference
2 October, 2007
- 2008 "Myocardial mechanics in animal models of aging and obesity-associated
cardiovascular dysfunction"
Department of Biomedical Sciences, Marshall University, Huntington, WV
6 June, 2008
- "Myofilament mechanics in animal models of diastolic dysfunction"
University of Glasgow, Scotland, United Kingdom
22 September, 2008
- "The short-range mechanical properties of myocardium"
University of Birmingham, England, United Kingdom
24 September, 2008
- 2009 "Computational Models of Actin-Myosin Interactions"
Invited Speaker
The 2009 Workshop on Multi-scale Muscle Mechanics
Marine Biological Laboratory, Woods Hole, MA
18-21 September, 2009
- "Emergent mechanical properties of skeletal and cardiac muscles"
Department of Physiology, Loyola University, Chicago, IL.
11 December, 2009
- 2010 Muscle fiber heterogeneity and heart function
Washington State University, Pullman, WA
8 June, 2010

2010

Muscle Mechanics
6th World Congress on Biomechanics, Singapore
1-6 August, 2010

Department of Molecular Physiology and Biophysics
University of Vermont
4 October, 2010