John J. McCarthy, Ph.D.

Contact Information

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Education

Ph.D. Exercise Physiology, University of Oregon, Eugene, 1995
Dissertation: *Phosphorylation kinetics of the sarcoplasmic reticulum Ca^{2+}-ATPase following exercise*

M.S. Physical Education, California State University, Fullerton, 1991
Concentration: Exercise Physiology
Thesis: *Effects of a wrestling periodization strength program on muscular strength, absolute endurance, and relative endurance*

B.S. Biology, University of California, Irvine, 1987

Professional Positions

2015- Associate Professor, Dept of Physiology, University of Kentucky.

2012- Faculty of Graduate School (Associate Member).

2012-15 Research Associate Professor, Dept of Physiology, University of Kentucky.

2008- Member of Center for Muscle Biology, University of Kentucky.

2004-11 Research Assistant Professor, Dept of Physiology, University of Kentucky.

2002-04 Research Specialist I, Stowers Institute for Medical Research, Kansas City.

2000-02 Research Associate, Stowers Institute for Medical Research, Kansas City.

1998-00 Post-doctoral Fellow, Dept of Veterinary Biomedical Sciences, University of Missouri.

1995-98 Post-doctoral Fellow, Dept of Molecular and Integrative Physiology, University of Illinois, Urbana-Champaign.

1992-95 Research Assistant, Dept. Exercise and Movement Sciences, University of Oregon.

Funding

Completed

1996-99 NIH NRSA: *In vivo* regulation of myosin during muscle hypertrophy (5F32AR008412).

2007-10 NIH R03 Circadian regulation of *Myod1* transcription.
Role: Principal Investigator
Total Direct Costs: $150,000

2009-11 NIH R21 Defining the role of satellite cells in muscle maintenance throughout the lifespan.
Role: Co-Investigator (PI: Charlotte Peterson).
Total Direct Costs: $275,000.

2013-14 BIRT for R01: The role of satellite cells in adult skeletal muscle growth and maintenance.
Role: Multi-Principal Investigator (with Charlotte Peterson).
Total Direct Costs: $100,000.

2013-14 Pilot Project: Tracking satellite cell dynamics during skeletal muscle plasticity. Awarded from the National Skeletal Muscle Research Center.
Role: Multi-Principal Investigator (with Charlotte Peterson).
Total Direct Costs: $25,000.

2010-15 NIH R01: The role of satellite cells in adult skeletal muscle growth and maintenance.
Role: Multi-Principal Investigator (with Charlotte Peterson).
Total Direct Costs: $1,250,000

Current

2014-16 NIH R21: Impact of EOM specific myosin loss on extraocular muscle structure and function.
Role: Co-Investigator (PI: Francisco Andrade)
Total Direct Costs: $275,000.

2014-16 NIH R21: Ribosome specialization in adult skeletal muscle.
Role: Primary Investigator
Total Direct Costs: $275,000.

2012-17 NIH R01: β-catenin regulation of skeletal muscle hypertrophy.
Role: Multi-Principal Investigator (with Karyn Esser).
Total Direct Costs: $1,250,000

2015-20 NIH R01: Novel Roles for Satellite Cells in Adult Skeletal Muscle.
Role: Multi-Principal Investigator (with Charlotte Peterson)
Total Direct Costs: $1,250,000.

2015-20 NIH R01: The effects of exercise on satellite cell dynamics during aging.
Role: Multi-Principal Investigator (with Charlotte Peterson)
Total Direct Costs: $1,430,000.
Impact score: 14, 2nd percentile
Expected start date: 11/2015

Publications

1. **McCarthy JJ**, Henry SO, Luckin KA, Cholzwinski ND and Klug GA. (**1994**). An instrument for the measurement of rapid reaction kinetics. *Anal Biochem*, 221, 250-256.

2. Wiedenman JL, Tsika GL, Gao L, **McCarthy JJ**, Rivera-Rivera ID, Vyas D, Sheriff-Carter K and Tsika RW. (**1996**). Muscle- specific and inducible expression of 293-base pair β-myosin heavy chain promoter in transgenic mice. *Am J Physiol*, 271, R688-R695.

3. Tsika GL, Wiedenman JL, Gao L, **McCarthy JJ**, Sheriff-Carter K, Rivera-Rivera I and Tsika RW. (**1996**). Induction of β-MHC transgene in overloaded skeletal muscle is not eliminated by mutation of conserved elements. *Am J Physiol*, 271, C690-C699.

4. **McCarthy JJ**, Fox AM, Tsika GL, Gao L and Tsika RW. (**1997**). β-MHC transgene expression in suspended and mechanically overloaded/suspended soleus muscle of transgenic mice. *Am J Physiol*, 272, R1552-R1561.

5. **McCarthy JJ**, Vyas DR, Tsika GL and Tsika RW. (**1999**). Segregated regulatory elements direct β-myosin heavy chain expression in response to altered muscle activity. *J Biol Chem*, 274,14270-14279.

6. Vyas DR, **McCarthy JJ and** Tsika RW. (**1999**). Nuclear protein binding at the β-myosin heavy chain A/T-rich element is enriched following increased skeletal muscle activity. *J Biol Chem*, 274, 30832-30842.

7. Vyas DR, **McCarthy JJ**, Tsika GL and Tsika RW. (**2000**). Dissimilar nuclear protein binding at human β-myosin heavy chain proximal and distal MCAT elements in response to increased skeletal muscle activity. *Basic Appl Myol*, 10, 5-16.

8. Vyas DR, **McCarthy JJ**, Tsika GL and Tsika RW. (**2001**). Multiprotein complex formation at the β-myosin heavy chain distal muscle CAT element correlates with slow muscle expression but not mechanical overload responsiveness. *J. Biol Chem*, 276, 1173-1184.

9. Tsika RW, **McCarthy J**, Karasseva N, Ou Y and Tsika GL. (**2002**). Divergence in species and regulatory role of β-myosin heavy chain proximal promoter muscle-CAT elements. *Am J Physiol,* 283, C1761-1775.

10. Robertson AJ, Dickey CE, **McCarthy JJ** and Coffman JA. (**2002**). The expression of SpRunt during sea urchin embryogenesis. *Mech Dev*, 117, 327-330.

11. Song X, Wong MD, Kawase E, Xi R, Ding BC, **McCarthy JJ** and Xie T. (**2004**). BMP signals from niche cells directly repress transcription of a differentiation-promoting gene, bag of marbles, in germline stem cells in the Drosophila ovary. *Development*, 131, 1353-1364.

12. Robertson AJ, Howard JT, Dominski Z, Schnackenberg BJ, Sumeral JL, **McCarthy JJ**, Coffman JA and Marzluff WF. (**2004**). The sea urchin stemloop binding protein: a maternally expressed protein that likely functions in expression of multiple classes of histone mRNA. *Nucleic Acids Res*, 32, 811-818.

13. Coffman JA, Dickey-Sims CE, Haug JS, **McCarthy JJ** and Robertson AJ. (**2004**). Evaluation of developmental phenotypes produced by morpholino antisense targeting of a sea urchin Runx gene. *BMC Biology,* 2:6.

14. Coffman JA, **McCarthy JJ**, Dickey-Sims CE and Robertson AJ. (**2004**). Oral-aboral axis specification in the sea urchin embryo: II. Mitochondrial distribution and redox state contribute to establishing polarity in *Strongylocentrotus purpuratus*. *Dev Biol,* 273, 160-171.

15. Dickey-Sims C, Robertson AJ, Rupp DE, **McCarthy JJ** and Coffman JA. (**2005**). Runx-dependent expression of PKC is critical for cell survival in the sea urchin embryo. *BMC Biology*, 3:18.

16. Robertson AJ, Dickey-Sims C, Ransick A, Rupp DE, **McCarthy JJ** and Coffman JA. (**2006**). CBFbeta is a facultative Runx partner in the sea urchin embryo. *BMC Biol. 4:4*

17. Ellies DL, Viviano B, **McCarthy J**, Rey JP, Itasaki N, Saunders S and Krumlauf R. (**2006**). Bone density ligand, Sclerostin, directly interacts with LRP5 but not LRP5(G171V) to modulate Wnt activity. *J Bone Miner Res*, 11, 1738-1749.

18. ***McCarthy JJ** and Esser KA. (**2007**). MicroRNA-1 and microRNA-133a expression are decreased during skeletal muscle hypertrophy. *J Appl Physiol*, 102, 306-313. *corresponding author.

19. Ji J, Tsika GL, Rindt H, Schreiber KL, **McCarthy JJ**, Kelm RJ Jr and Tsika R. (**2007**). Purα and Purβ collaborate with Sp3 to negatively regulate βMyHC gene expression during skeletal muscle inactivity. *Mol Cell Biol*, 27, 1531-1543.

20. **McCarthy JJ** and Esser KA. (**2007**). Counterpoint: Satellite cell addition is not obligatory for skeletal muscle hypertrophy. *J Appl Physiol*, 103, 1100-2.

21. O'Connor RS, Pavlath GK, **McCarthy JJ** and Esser KA. (**2007**). Point: Counterpoint Satellite cell addition is / is not obligatory for skeletal muscle hypertrophy. *J Appl Physiol*, 103,1107

22. ***McCarthy JJ**, Esser KA and Andrade FH. (**2007**). MicroRNA-206 is over-expressed in the diaphragm but not the hindlimb muscle of mdx mouse. *Am J Physiol*, 293, C451-457. *corresponding author.

23. Esser KA, Su W, Matveev S, Wong V, Zeng L, **McCarthy JJ**, Smart EJ, Guo Z and Gong MC. (**2007**). Voluntary wheel running ameliorates vascular smooth muscle hyper-contractility in type 2 diabetic db/db mice. *Appl Physiol Nutr and Metab* 32, 711-720.

24. **McCarthy JJ**, Andrews JL, McDearmon EL, Campbell KS, Barber BK, Miller BH, Walker JR, Hogenesch JB, Takahashi JS and Esser KA. (**2007**). Identification of the circadian transcriptome in adult mouse skeletal muscle. *Physiol Gen*, 31, 86-95.

25. Taylor AC, **McCarthy JJ** and Stocker SD. Mice lacking the transient receptor vanilloid potential 1 channel display normal thirst responses and central Fos activation to hypernatremia. (**2008**). *Am J Physiol,* 94, R1285-1293.

26. Adams JM, **McCarthy JJ** and Stocker SD. (**2008**). Excess dietary salt alters angiotensinergic regulation of neurons in the rostral ventrolateral medulla. *Hypertension*, 52, 932-937.

27. Drummond MJ, **McCarthy JJ**, Fry CS, Esser KA and Rasmussen BB. (**2008**). Aging differentially affects human skeletal muscle microRNA expression at rest and following resistance exercise and essential amino acid ingestion. *Am J Physiol,* 295, E1333-1340.

28. ***McCarthy JJ**, Esser KA, Peterson CA and Dupont-Versteegden EE. (**2009**). Evidence of myomiR network regulation of β-myosin heavy chain gene expression during skeletal muscle atrophy. *Physiol Gen,* 39, 219-226, 2009. ***Editor's choice.*** *corresponding author.

29. Bardgett ME, **McCarthy JJ** and Stocker SD. (**2009**). Glutamatergic receptor activation in the rostral ventrolateral medulla mediates the sympathoexcitatory response to hyperinsulinemia. *Hypertension*, 55, 284-290.

30. Esser KA, **McCarthy JJ** and Miyazaki M. (**2010**). Comments on Point:Counterpoint: IGF is/is not the major physiological regulator of muscle mass. IGF-1 is not key for adult skeletal muscle hypertrophy. *J Appl Physiol* 108, 1830.

31. Panguluri SK, Bhatnagar S, Kumar A, **McCarthy JJ**, Srivastava AK, Cooper NG, Lundy RF and Kumar A. (**2010**). Genomic profiling of messenger RNAs and microRNAs reveals potential mechanisms of TWEAK-induced skeletal muscle wasting in mice. *PLoS One*, 5, e8760.

32. Miyazaki M, **McCarthy JJ** and Esser KA. (**2010**). Insulin like growth factor-1-induced phosphorylation and altered distribution of tuberous sclerosis complex (TSC)1/TSC2 in C2C12 myotubes. *FEBS J*, 277, 2180-2191.

33. *Andrews JL, *Zhang X, ***McCarthy JJ**, McDearmon EL, Hornberger TA, Russell B, Campbell KS, Arbogast S, Reid MB, Walker JR, Hogenesch JB, Takahashi JS and Esser KA. (**2010**). CLOCK and BMAL1 regulate MyoD and are necessary for maintenance of skeletal muscle phenotype and function. (**2010**). *PNAS,* 107, 19090-19095 (*contributed equally to this work).

34. Drummond MJ, **McCarthy JJ**, Sinha M, Spratt H, Volpi E, Esser KA, and Rasmussen BB. (**2010**). Aging and microRNA expression in human skeletal muscle: a microarray and bioinformatics analysis. *Physiol Gen,* 43(10):595-603.

35. Miyazaki M, **McCarthy JJ**, Fedele MJ and Esser KA. (**2011**). Early activation of mTORC1signalling in response to mechanical overload is independent of phosphoinositide 3-kinase/Akt signalling. *J Physiol*, 589:1831-1846.

36. **McCarthy JJ**, Mula J, Miyazaki M, Erfani R, Garrison C, Farooqui AB, Srikuea R, Lawson BA, Grimes B, Keller C, Van Zant G, Campbell KS, Esser KA, Dupont-Versteegden EE and Peterson CA. (**2011**). Effective fiber hypertrophy in satellite cell-depleted skeletal muscle. *Development*, 138, 3657-3666.

37. Zhang X, Patel SP, **McCarthy JJ**, Rabchevsky AG, Goldhamer DJ and Esser KA. (**2012**) A non-canonical E-box within the MyoD core enhancer is necessary for circadian expression in skeletal muscle. *Nucleic Acids Res,* 40, 3419-3430.

38. **McCarthy JJ**, Srikuea R, Kirby TJ, Peterson CA and Esser KA. (**2012**). Inducible Cre transgenic mouse strain for skeletal muscle-specific gene targeting. *Skeletal Muscle*, 2:8.

39. Jackson JR, Mula J, Kirby TJ, Fry CS, Lee JD, Ubele MF, Campbell KS, **McCarthy JJ**, Peterson CA and Dupont-Versteegden EE (**2012**). Satellite cell

depletion does not Inhibit adult skeletal muscle re-growth following unloading-induced atrophy. *Am J Physiol,* 303:C854-861.

40. Chaillou T, Koulmann N, Meunier A, Pugnière P, **McCarthy JJ**, Beaudry M and Bigard X. (**2013**). Ambient hypoxia enhances the loss of muscle mass after extensive injury. *Pflugers Arch,* 466, 587-598.

41. Chaillou T, Lee JD, England JH, Esser KA and **McCarthy JJ**. Time course of gene expression during mouse skeletal muscle hypertrophy. (**2013**). *J Appl Physiol,* 115:1065-1074.

43. Fry CS, Lee JD, Jackson JR, Kirby TJ, Stasko SA, Liu H, Dupont-Versteegden EE, **McCarthy JJ** and Peterson CA. (**2013**). Regulation of the muscle fiber microenvironment by activated satellite cells during hypertrophy. *FASEB J*, 28:1654-65.

44. **McCarthy JJ.** (**2014**). Out Fox0'd by microRNA: Focus on "miR-182 attenuates atrophy-related gene expression by targeting FoxO3 in skeletal muscle". *Am J Physiol,* 307:C311-3.

45. **McCarthy, J.J.** (**2014**). Opinion Article: microRNA and skeletal muscle function: novel potential roles in exercise, disease and aging. Frontiers in Physiology (Striated Muscle Physiology), 5:290.

46. Fry CS, Lee JD, Mula J, Kirby TJ, Jackson JR, Liu F, Yang L, Mendias CL, Dupont-Versteegden EE, **McCarthy JJ*** and Peterson CA*. (**2015**). Inducible depletion of satellite cells in adult, sedentary mice impairs muscle regenerative capacity without affecting sarcopenia. *Nat Med* 21:76-80. * co-senior authors.

47. Chaillou T, Jackson JR, England JH, Richards-White J, Esser KA, Dupont-Versteegden EE and **McCarthy JJ***. (**2015**). Identification of a conserved set of up-regulated genes in mouse skeletal muscle hypertrophy and regrowth. *J Appl Physiol* 118:86-97 *corresponding author.

48. Lee JD, Fry CS, Mula J, Kirby TJ, Jackson JR, Liu F, Yang L, Dupont-Versteegden EE, **McCarthy JJ**, Peterson CA. (**2015**). Aged muscle demonstrates fiber-type adaptations in response to mechanical overload, in the absence of myofiber hypertrophy, independent of satellite cell abundance. *J Gerontol A Biol Sci Med Sci.* 2015 Apr 15.

49. Kirby TJ, Lee JD, England JH, Chaillou T, Esser KA, **McCarthy JJ**. (**2015**) Blunted hypertrophic response in aged skeletal muscle is associated with decreased ribosome biogenesis. *J Appl Physiol* 119:321-7.

Invited Reviews

1. **McCarthy JJ**. MicroRNA-206: The skeletal muscle-specific myomiR. (**2008**). *Biochim Biophys Acta*, 1779, 682-691.

2. **McCarthy JJ** and Esser KA. (**2010**). Anabolic and catabolic pathways regulating skeletal muscle mass. *Curr Opin Clin Nutr Metab Care,* 13, 230-235.

3. **McCarthy JJ**. (**2011**). The MyomiR Network in Skeletal Muscle Plasticity. *Exerc Sport Sci Rev,* 39, 150-154.

4. Kirby TJ and **McCarthy JJ**. (**2013**). MicroRNAs in skeletal muscle biology and exercise
adaptation. *Free Radic Biol Med*, 64, 95-105.

5. Chaillou T, Kirby TJ and **McCarthy JJ**. (**2014**). Ribosome Biogenesis: Emerging Evidence for a Central Role in the Regulation of Skeletal Muscle Mass. *J Cell Physiol,* 229, 1584-1594.

6. Kirby, TJ, Chaillou, T and **McCarthy, JJ**. (**2015**). The role of microRNAs in skeletal muscle health and disease. *Front Biosci,* 20:37-77*.*

Book Chapter

1. **McCarthy JJ** and Esser KA. Chapter 65: Skeletal muscle adaptation to exercise. In: *Muscle: Fundamental Biology and Mechanisms of Disease*, edited by Hill JA and Olson, EN. Waltham, PA: Academic Press, **2012**.

2. **McCarthy, JJ**. Chapter 24: Anabolic and Catabolic Signaling Pathways that Regulate Skeletal Muscle Mass in *Nutrition and Enhanced Sports Performance: Recommendations for Muscle Building, edited by* Bagchi D, Nair S, and Sen C. London, England: Reed Elsevier, **2013**.

Presentations

2005 Molecular mechanisms of skeletal muscle plasticity. (*Invited*)
Department of Kinesiology & Health Promotion, University of Kentucky.

MicroRNAs: novel trans-factors regulating skeletal muscle growth?
Muscle Forum, University of Kentucky.

2006 Akt1 is necessary for overload-induced skeletal muscle growth. (*Invited*)
Department of Medicine, University of Pennsylvania.

Molecular mechanisms of skeletal muscle plasticity. (*Invited*)
Department of Physical Education & Exercise Science, Transylvania University, Lexington, KY.

MicroRNA expression during skeletal muscle hypertrophy. (*Selected from abstract*)
Frontiers of Myogenesis Conference, Callaway Gardens Pine Mountain, GA.

2007 Increased expression of microRNA-206 in diaphragm of mdx mouse.
Muscle Forum, University of Kentucky.

2009 MicroRNA expression during skeletal muscle atrophy. (*Invited*)
Experimental Biology Conference, New Orleans, LA.

Genetic mouse models for studying muscle physiology.
Muscle Forum, University of Kentucky.

2010 The generation and care of genetic mouse models for physiology. (*Invited*)
Thailand Physiological Society Conference, Pattaya, Thailand.

From non-coding RNAs to imprinted genes (and their potential role in muscle hypertrophy). (*Invited*)
American College of Sports Medicine Conference, Baltimore, MD

MicroRNA expression during skeletal muscle atrophy. (*Invited*)
American College of Sports Medicine Conference, Baltimore, MD

Satellite cells are not necessary for skeletal muscle hypertrophy. (*Selected from abstract*).
FASEB Summer Research Conference: Skeletal Muscle Satellite & Stem Cells, Carefree, AZ.

2011 Satellite cells are not necessary for skeletal muscle hypertrophy.
Muscle Forum, University of Kentucky.

Robust hypertrophy in satellite cell depleted skeletal muscle.
Department of Physiology, University of Kentiucky.

2012 MicroRNAs in skeletal muscle plasticity. (*Invited*)
microRNA 2012 International Symposium, São Paulo, Brazil.

A novel genetic mouse model to study the role of satellite cells in skeletal muscle hypertrophy. (*Invited*)
Department of Human Physiology, University of Oregon

2013 Ribosome specialization in skeletal muscle.
Muscle Forum, University of Kentucky.

The role of satellite cells in skeletal muscle hypertrophy. (*Invited*)
Department of Kinesiology & Health Promotion, University of Kentucky.

The role of satellite cells in skeletal muscle plasticity. (*Invited*)

Department of Anatomical Sciences and Neurobiology, University of Louisville.

2014 Do males and females build similar skeletal muscle?
AAOS Musculoskeletal Sex Differences Throughout the Lifespan (invited)
Chicago, IL.

Ribosome specialization in adult skeletal muscle.
Department of Physiology, University of Kentucky.

2015 MicroRNA regulation of skeletal muscle hypertrophy.
Experimental Biology
Boston, MA, March 28 - April 1.

MicroRNA regulation of the extracellular matrix during skeletal muscle hypertrophy.
Keynote speaker for symposium on microRNAs and exercise biology.
American College of Sports Medicine Annual Meeting,
San Diego, CA, May 27-30.

Professional Service

Editorial Board
Frontiers in Physiology (Integrative and Exercise sections)
Physiological Genomics

Manuscript Reviews 2014 (17)
Journal of Applied Physiology
American Journal of Physiology (2)
Acta Physiologica
Physiological Genomics
Frontiers in Striated Muscle Physiology
Muscle & Nerve
PLOS One (2)
Nutrients
Experimental Gerontology
Journal of Gerontology
Cells
Journal of Experimental Biology
PLOS Genetics
Nature: Scientific Data
Nature: Cell Death & Differentiation

Manuscripts review in previous 3 years: 2011 (16), 2012 (15), 2013 (18).

Grant Reviews
2007 Austrian Science Foundation (FWF)

Internal reviewer for Kentucky Agricultural Experiment Station Research Proposal

2008 External reviewer for Interdisciplinary Research Initiation Awards (Toledo University)

2009 Association Francaise contre les Myopathies (AFM)

Instituto Pasteur: Fondazione Cenci Bolognetti (start-up grant)

National Institute of Arthritis and Musculoskeletal and Skin Diseases (MIAMS): Small grants for new investigators (R03). *Ad hoc* member (02/09)

National Institute of Arthritis and Musculoskeletal and Skin Diseases (MIAMS): Small grants for new investigators (R03). *Ad hoc* member (09/09)

2010 Motor Neurone Disease Association of United Kingdom

Pepper Center Pilot Project of University of Texas Medical Branch at Galveston

AFM (Association Francaise contre les Myopathies).

Instituto Pasteur: Fondazione Cenci Bolognetti

2011 Telethon (Italian Muscular Dystrophy Association).

National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS): R01 applications. *Ad hoc* member.

2012 NASA Space Biology Muscle Panel.

UTMB Pepper Center Pilot Grants.

National Science Centre (Narodowe Centrum Nauki - NCN) in Poland.

2013 National Science Centre (Narodowe Centrum Nauki - NCN) in Poland.

2014 Wellcome Trust/DBT India Alliance Margdarshi Fellowship

Special Emphasis Panel/Scientific Review Group 2015/01 ZRG1 F10B-B (20): NIH Fellowship applications (F30/F31/F32/F33).

Teaching

2013	Spring	PGY 207	Elementary Physiology: Discussion
		IBS 602	Molecular Biology and Genetics (3 lectures)
2013	Fall	IBS 602	Molecular Biology and Genetics (2 lectures)

			Overall evaluation: 43% excellent
		PGY 206	Elementary Physiology (3 lectures) Overall evaluation: 4.14/5.00 (33.7% excellent)
2014	Spring	PGY 206	Elementary Physiology (3 lectures) Overall evaluation: 4.28/5.00 (42.5% excellent)
2014	Fall	IBS 602	Molecular Biology and Genetics (2 lectures) Overall evaluation: not yet available
		PGY 206	Elementary Physiology (3 lectures) Overall evaluation: not yet available

Students

Undergraduate

2013	Department of Physiology Scholar: Jessica Meuth
2014	Christopher Greb Rooshil Patel

Graduate

2011-present	Primary Advisor for IBS, PhD student: Tyler Kirby Scheduled to graduate August, 2015
2013	IBS, PhD Committee Member: Brian Hodge
	IBS, PhD Committee Member: Julie McLean
	IBS, Rotating Student: Rebekah Lambert
	Outside Examiner, Final Doctoral Examination in Pharmaceutical Sciences: Eleftheria Tsakalozou
2014	IBS, PhD Committee Member: Yuan Wen
	Outside Examiner, Final Doctoral Examination in Pharmaceutical Sciences: Xiaoxi Liu

Post-doctoral Scholars

2013-14	Thomas Chaillou, PhD

SERVICE

2014 IACUC (full member) starting in September, 2014.