

Advances In Skeletal Muscle Biology Conference

WEDNESDAY, March 15, 2023

Reitz Union, University of Florida

Time

1:00-2:00pm **Grant Writing Workshops, *Ground Floor Reitz Union (Rooms Noted Below)***

Sponsored by the Wellstone Center Training/Education Core & the University of Florida

Room G330

R Grants

1:00-1:25

Elisabeth Barton - Key aspects for a successful R grant – a reviewer’s perspective
University of Florida, Gainesville, FL, USA

1:25-2:00

Panel Question & Answer Session

Elisabeth Barton – NIH MTE study section member
University of Florida, Gainesville, FL, USA

Holly Van Remmen – NIH CMAD study section member
Oklahoma Medical Research Foundation, Oklahoma City, OK, USA

Emanuela Gussoni – NIH SMEP study section member
Boston Children’s Hospital, Boston, MA, USA

Room G320

K Grants

1:00-1:25

Rachelle Crosbie – Key aspects for a successful K grant – a reviewer’s perspective
University of California, Los Angeles, CA, USA

1:25-2:00

Panel Question & Answer Session

Rachelle Crosbie – K grant reviewer
University of California, Los Angeles, CA, USA

Benjamin Miller – K grant reviewer
Oklahoma Medical Research Foundation, Oklahoma City, OK, USA

Rita Brookheart – K01 grant recipient
Washington University School of Medicine, St. Louis, MO, USA

Kevin Murach – K99/R00 grant recipient
University of Arkansas, Fayetteville, AR, USA

Room G310

F Grants

1:00-1:25

Laszlo Nagy– Key aspects for a successful F grant – a reviewer’s perspective
Johns Hopkins All Children’s Hospital, St. Petersburg, FL USA

1:25-2:00

Panel Question & Answer Session

Laszlo Nagy – F grant reviewer
Johns Hopkins All Children’s Hospital, St. Petersburg, FL USA

Sean Forbes – F grant reviewer
University of Florida, Gainesville, FL, USA

Jean Kok – F99/K00 grant recipient
Indiana University, Indianapolis, IN, USA

Josh Huot – F32 grant recipient
Indiana University, Indianapolis, IN, USA

2:15pm **Welcome and Opening Remarks, *Rion Ballroom (Third Floor Reitz Union)***

2:30pm **Session I** **Muscle Diseases and Therapeutics**
Chairs *Feng Yue & Lee Sweeney*

2:30-2:55 Rachel Crosbie
University of California, Los Angeles,
Los Angeles, CA, USA Disease Modeling and Therapeutics for Duchenne
Muscular Dystrophy

2:55-3:20 John Lueck
University of Rochester Medical Center,
Rochester, NY, USA Repurposing FDA Approved Drugs for Treatment
of Myotonic Dystrophy Bi-channelopathy

3:20-3:45 Emanuela Gussoni
Boston Children's Hospital,
Boston, MA, USA Tetraspanin CD82 in Normal and Diseased Muscle

3:45-4:00 Thomas Roberts
University of Oxford, Oxford,
England Differential dystrophin distribution at the
sarcolemma following exon skipping and
CRISPR/Cas9-mediated exon deletion in DMD
mouse models

5 min talk with no questions

4:00-4:05 David Hammers
University of Florida,
Gainesville, FL, USA NOX4 inhibition promotes the remodeling of
dystrophic muscle

4:05-4:10 France Piétri-Rouxel
CNRS/institut de Myologie,
Paris, France AAV-microDystrophin and GDF5: a combined
treatment for Duchenne Muscular Dystrophy

4:10-4:15 Jae-Sung You
University of Illinois at
Urbana-Champaign, IL, USA RhoA/ROCK signaling activated by ARHGEF3
contributes to autophagy-dependent muscle
weakness in Duchenne muscular dystrophy

4:15-4:45 **Coffee Break**
Coffee provided

Holmes-Huxley Memorial Keynote Lecture

4:45-5:45 Leslie Leinwand
University of Colorado at Boulder,
Boulder, CO, USA Modulating the Sarcomere in Health and Disease

6:00-8:00pm **Reception and Poster Viewing, *Grand Ballroom (Second Floor Reitz Union)***
Beverages and hors d'oeuvres provided

THURSDAY, March 16, 2023

Rion Ballroom, Reitz Union, University of Florida

Time

8:00am Coffee, Tea, and Pastries, Rion Ballroom Foyers

8:30am **Session II** **Bioenergetics and Metabolism**

Chairs

Jean Fry & Chris Perry

8:30-8:55 Deb Muoio
Duke University Medical Center,
Durham, NC, USA Muscle Adaptations to Time-restricted Feeding:
Pumped up on Ketones

8:55-9:20 Glenn Rowe
University of Alabama at Birmingham,
Birmingham, AL, USA Dissociation of Transcriptional Regulators of
Mitochondrial Biogenesis and Oxidative Capacity

9:20-9:45 Zhen Yan
Virginia Tech, Roanoke, VA, USA mitoAMPK in Sensing Mitochondrial Energetic
Stress and Regulating Mitochondrial Remodeling

9:45-10:00 Jorge Gamboa
Vanderbilt University,
Nashville, TN, USA Skeletal Muscle Mitochondrial Abnormalities in
Chronic Kidney Disease

5 min talk with no questions

10:00-10:05 Junwon Heo
University of Georgia,
Athens, GA, USA Sex differences in skeletal muscle mitochondrial
bioenergetics: the effect of high-fat, high-sugar diet
and volumetric muscle loss injury on pyruvate
dehydrogenase regulation

10:05-10:10 Katie Whytock
Translational Research Institute,
AdventHealth, Orlando, FL, USA Comprehensive interrogation of human skeletal
muscle reveals a dissociation between insulin
resistance and mitochondrial capacity

10:10-10:15 Ashok Pragasam
Cincinnati Children's Hospital
Medical Center, Cincinnati, OH, USA Foxc1 mediated pro metabolic effect of
glucocorticoid receptor gene variant rs6190 on
muscle strength and metabolism

10:15-10:45am **Coffee Break, Rion Ballroom Foyer**
Coffee, tea, and light snacks provided

10:45am **Session III** **Aging of Skeletal Muscle**
Chairs *Ted Graber & Sue Bodine*

10:45-11:10	Fabio Demontis St. Jude Children's Research Hospital, Memphis, TN, USA	Regulators of Muscle Aging and Wasting from Studies in Drosophila and Mice
11:10-11:35	Anna Thalacker-Mercer University of Alabama at Birmingham, Birmingham, AL, USA	Nutrient and Metabolic Determinants of Skeletal Muscle Regeneration
11:35-12:00	Doug Millay Cincinnati Children's Hospital, Cincinnati, OH, USA	Multinucleation in Skeletal Muscle Development and Aging
12:00-12:15	Benjamin Miller Oklahoma Medical Research Foundation, Oklahoma City, OK, USA	Myonuclei Can Replicate DNA

5 min talk with no questions

12:15-12:20	Sestina Falcone Sorbonne University-UMRS974- Inserm-Myology Institute, Paris, France	GDF5 as rejuvenating treatment for age-related neuromuscular failure
12:20-12:25	Matthew Campbell University of Washington, Seattle, WA, USA	Aging alters mitochondrial substrate utilization following muscle contraction
12:25-12:30	Jacob Brown Oklahoma City VA Medical Center, OK, USA	Overexpression of phospholipid hydroperoxide glutathione peroxidase 4 ameliorates sarcopenia

12:30-1:00 **Session IV** **Trainee Data Blitz**

Pre- and post-doctoral trainee data blitz (2 min presentations with no questions)

Chairs *Tyrone Washington & Nicholas Greene*

Human Skeletal Muscle Phosphoproteomic Responses to Insulin and Insulin-Sensitizing Interventions. **Noone, John**, Sanford, James A., Sagendorf, Tyler J., Distefano, Giovanna, Yu, Gongxin, Brennan, Andrea M., Coen, Paul M., Adkins, Joshua N., Qian, Wei-Jun, Goodpaster, Bret H. *Research Institute, AdventHealth, Orlando, FL USA*

The Nuclear Proteome Contributes to the Exercise Transcriptional Response in Skeletal Muscle. **Martin, Ryan A.**; Viggars, Mark R.; Zhang, Xiping; Wolff, Chris A.; Sanford, James A.; Adkins, Joshua N.; Esser, Karyn A. *University of Florida, Gainesville, FL, USA*

Early muscle weakness during C26 cancer precedes atrophy but later recovers within quadriceps in association with mitochondrial compensations. **Delfinis, Luca J.**, Bellissimo, Catherine A., Gandhi, Shivam., DiBenedetto, Sara N., Garibotti, Madison C., Thuan, Arshdeep K., Tsitkanou, Stavroula., Rosa-Caldwell, Megan E.,

Rahman, Fasih A., Cheng, Arthur J., Wiggs, Michael P., Schlattner, Uwe., Quadrilatero, Joe., Greene, Nicholas P., and Perry, Christopher G.R. *York University, Toronto, Canada*

Gadd45a Impairs Mitochondrial Function in Skeletal Muscle and Promotes Skeletal Muscle Atrophy and Weakness. **Marcotte, George.** Miller, Matthew. Kunz, Hawley. Lanza, Ian. Ryan, Zachary. Strub, Matthew. Nair, Sreekumaran. Ebert, Scott. Adams, Chris. *University of Iowa, Iowa City, IA, USA*

Prolonged mechanical muscle loading stimulates mechanosensors and causes metabolic reprogramming in mice. **Vanmunster, Mathias;** Rojo-Garcia, Ana Victoria; Pacolet, Alexander; Jonkers, Ilse; Koppo, Katrien; Lories, Rik; Suhr, Frank. *KU Leuven, Leuven, Belgium.*

Transcriptomic Alteration in Circadian Genes in Multiple Models of Cancer Cachexia. **Morena da Silva, Francielly.** Cabrera, Ana Regina. Scherms, Eleanor R. Washington, Tyrone A. Murach, Kevin A. Greene Nicholas P. *University of Arkansas, Fayetteville, AR, USA*

Impact of Chronic Kidney Disease on Skeletal Muscle Strength and Mitochondrial Function in Peripheral Arterial Disease Patients. **Kim, Kyoungrae,** Thome, Trace, Salyers, Zachary, Yang, Qingping, Stone, Lauren, Vugman, Nicholas, Anderson, Erik, erik.anderson@surgery.ufl.edu, Malcom Randall Veteran Affairs Medical Center; Fazzone, Brian, Schmidt, Emilie, O'Malley, Kerri, Berceci, Scott, Scali, Salvatore, Ryan, Terence. *University of Florida, Gainesville, FL, USA*

Intramuscular Treatment with a Stem Cell-Derived Secretome Product Increases Lean Mass, Ameliorates Fat Mass, and Improves Physical and Muscle Function in Old Mice. **Fennel Zachary,** Petrocelli Jonathan, de Hart Naomi, Hauser Carson, Yee Elena, Bombyck Princess, Lane Thomas, Keirstead Hans, Nistor Gabrielle, Hafen Joelle, Drummond. *University of Utah, Salt Lake City, UT, USA*

The Transcription Regulator ATF4 is a Mediator of Skeletal Muscle Aging. **Miller, Matthew;** Marcotte, George; Basisty, Nathan; Wehrfritz, Cameron; Ryan, Zachary; Strub, Matthew; McKeen, Andrew; Stern, Jennifer; Rasmussen, Blake; Judge, Andrew; Schilling, Birgit; Ebert, Scott; Adams, Christopher. *University of Iowa, Iowa City, IA, USA*

Attenuating Skeletal Muscle Mitochondrial Ca²⁺ Uptake preserves motor and muscle function in Amyotrophic Lateral Sclerosis hSOD1G93A mice. **Renjia Zhong,** Michael Rua, Zachary Brandt, Nina Kim, Trace Thome, Kyoungrae Kim, Tomas A. Cort, Eric M. Kunz, Terrance Ryan, Lan Wei-LaPierre. *University of Florida, Gainesville, FL, USA*

Regulation of skeletal muscle glucose metabolism by Ulk1. **Willoughby, Orion;** Nichenko, Anna; Brisendine, Matt; Amiri, Niloufar; McMillan, Ryan; Specht, Kalyn; Craige, Siobhan; Drake, Joshua. *Virginia Tech, Blacksburg, VA, USA*

Novel role of store operated Ca²⁺ entry in Limb-Girdle Muscular Dystrophy 2A. **Villani, Katelyn.** Zhong, Renjia. Brandt, Zachary. Wei-LaPierre, Lan. Barton, Elisabeth. *University of Florida, Gainesville, FL, USA*

1:00-2:30

Lunch and Poster Session I - Grand Ballroom

Beverages and sandwiches provided

2:30pm	Session V	Cytoskeleton, Sarcomere Structure-Function, and Calcium Handling
	<i>Chairs</i>	<i>Michelle Parvatiyar & Michael Toth</i>
2:30-2:55	Malcolm Irving Kings College London, London, England	Regulation of muscle contraction by the myosin filaments
2:55-3:20	Brian Glancy National Heart, Lung, and Blood Institute, National Institutes of Health, Bethesda, MD, USA	Sustaining Power: Building Energy Networks in Striated Muscle
3:20-3:45	Enrique De La Cruz Yale University, New Haven, CT, USA	Torsional Response of Actin Filaments
3:45-4:00	Johanna Lanner Karolinska Institutet, Stockholm, Sweden	Counteracting Arthritis-Induced Muscle Weakness and Metabolic Dysfunction by Empowering Mitochondrial Health
<u>5 min talk with no questions</u>		
4:00-4:05	Sakthivel Sadayappan University of Cincinnati, OH, USA	Molecular and Cellular Aspects of Distal Arthrogryposis by MYBPC1 Mutations
4:05-4:10	Deena Snoke University of Vermont, Burlington, VT, USA	Longitudinal examination of skeletal muscle structure and function from the tissue to the cellular level in lung cancer patients undergoing treatment
4:10-4:15	Joseph Reynolds University of California, Los Angeles USA	The extracellular matrix environment from dystrophin-deficient muscle contributes to muscle cell membrane fragility in Duchenne muscular dystrophy
4:15-4:45	Coffee Break, Rion Ballroom Foyer Coffee, tea, and light snacks provided	
4:45-5:45	Session VI	Discussion Topic: Fiber Type Traps
	Silvia Blemker, University of Virginia, Charlottesville, VA, USA Susan Brooks, University of Michigan, Ann Arbor, Michigan, USA Karyn Esser, University of Florida, Gainesville, FL, USA Katherine Saul, North Carolina State University, Raleigh, NC, USA	
7:00pm	Dinner at the Swamp Restaurant; (please wear your name tag and lanyard) The speakers will be dining at the Swamp Restaurant and we encourage all attendees to dine there also, so that informal interactions can continue.	

FRIDAY, March 17, 2023

Rion Ballroom, Reitz Union, University of Florida

Time

8:00am Coffee, Tea, and Pastries, Rion Ballroom Foyer

8:25am	Sponsored Workshop	Curi Bio
8:25-8:50am	Curi Bio Shawn Luttrell	Mantarray 3D Engineered Muscle Tissue Platform Demonstrates Clinically-Relevant Disease Stratification of an In Vitro Duchenne Muscular Dystrophy Model
8:55am	Session VII <i>Chairs</i>	Muscle Atrophy and Associated Pathologies <i>Erin Talbert & Denis Guttridge</i>
8:55-9:20	Fabio Penna University of Torino, Torino, Italy	NAD+ Metabolism in Cancer Cachexia
9:20-9:45	Marco Sandri Venetian Institute of Molecular Medicine, University of Padova, Padova, Italy	Novel Players in Muscle Mass Regulation
9:45-10:00	Gilles Gousspillou Université du Québec à Montréal, Montréal, Canada	Depp1 regulates skeletal muscle autophagy and integrity
<u>5 min talk with no questions</u>		
10:00-10:05	Nicholas Thomas University of Kentucky, Lexington KY, USA	Integration of Muscle DNA Methylome and RNA Transcriptome Reveals a Molecular Memory of Prior Injury That May Diminish Muscle Plasticity
10:05-10:10	Thomas Cardaci University of South Carolina, Columbia, SC, USA	Obesity's Impact on Cancer-Induced Skeletal Muscle Wasting and Mitochondrial Dysfunction
10:10-10:15	Benjamin Pryce Medical University of South Carolina, Charleston, SC, USA	NF- κ B Regulates Local Inflammation from Multiple Cells in the Muscle Microenvironment to Promote Wasting in Cancer Cachexia
10:15-10:45am	Coffee Break, Rion Ballroom Foyer Coffee, tea, and light snacks provided	

10:45am	Session VIII <i>Chairs</i>	Muscle Hypertrophy and Regeneration <i>Fabrizio Pin & Thomas Hawke</i>
10:45-11:10	Bert Blaauw University of Padova, Padova, Italy	The Role of Akt-mTORC1 Signaling in Regulating Muscle Mass and Function
11:10-11:35	Gretchen Meyer Washington University in St. Louis, St. Louis, MO, USA	The Role of Leptin in the Regulation of Muscle Mass and Strength by Adipose Tissue
11:35-12:00	Gustavo Nader The Pennsylvania State University, University Park, PA, USA	Anabolic Deficits in Cancer and Chemotherapy: Are We Lost in Translation?
12:00-12:15	Kevin Murach University of Arkansas, Fayetteville, AR, USA	The Role of MYC in Muscle
<u>5 min talk with no questions</u>		
12:15-12:20	Thi Thu Hao Nguyen The University of Texas Health Science Center, Houston, TX, USA	Estrogen-related receptor alpha (ERR α) promotes skeletal muscle regeneration in Duchenne Muscular Dystrophy
12:20-12:25	Andreas Patsalos Johns Hopkins All Children's Hospital, St. Petersburg, FL USA	Spatiotemporal macrophage subtype specification guides the formation of tissue regeneration zones in physiological and chronic inflammation
12:25-12:30	Quan Zhang University of Tennessee Health Science Center, Memphis, TN, USA	Autophagy flux regulation by mTORC1 and BMP Signaling During Serum-induced Myotube Hypertrophy.
12:30-2:00	Lunch and Poster Session II - Grand Ballroom <i>Beverages and sandwiches provided</i>	
2:10	Session IX <i>Chairs</i>	Exercise and Systems Biology <i>Ashley Smuder & Karyn Esser</i>
2:10-2:35	Jorge Ruas Karolinska Institutet, Stockholm, Sweden	A Critical Role for Communication Between Different Cell Types in Skeletal Muscle During Atrophy and Regeneration
2:35-3:00	Sarah Lessard Joslin Diabetes Center and Harvard Medical School, Boston, MA, USA	How Metabolic Disease Impacts Muscle Remodeling with Exercise

3:00-3:25	Rita Brookheart Washington University School of Medicine, St. Louis, MO, USA	New Discoveries Connecting Mitochondria and Muscle Mass to Exercise Tolerance
3:25-3:40	Katarzyna Goljanek- Whysall University of Galway, Galway, Ireland	A New Role for Modified microRNAs in Muscle Wasting During Ageing and Disease
<u>5 min talk with no questions</u>		
3:40-3:45	Danesh Sopariwala University of Texas Health Science Center, Houston, TX, USA	Skeletal Muscle Estrogen-Related Receptors Are The Indispensable For Exercise Fitness
3:45-3:50	Mark Viggars University of Florida, Gainesville, FL, USA	Loss of the muscle circadian clock significantly alters the molecular program of exercise adaptation
3:50pm	Presentation of Awards	
4:00pm	Farewell	

Scientific Organizers:

Andrew Judge, University of Florida

Sarah Judge, University of Florida

Karyn Esser, University of Florida

Leonardo Ferreira, University of Florida

Terence Ryan, University of Florida

Lee Sweeney, University of Florida

Administrative Organizer:

Christa Stout, University of Florida

Administrative Assistant:

Amanda Abdala, University of Florida

**Thank you for attending, we hope to see again for the next
Advances in Skeletal Muscle Biology Conference!**

