

ADVANCES IN SKELETAL MUSCLE BIOLOGY IN HEALTH AND DISEASE CONFERENCE PROGRAM

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WEDNESDAY, March 6, 2019

Reitz Union, University of Florida

Time

12:15-1:15pm Grant-Writing Workshop, Ground Floor

Room G330

12:15-12:45 **R Grants** - Key aspects for a successful grant
Gordon Mitchell, University of Florida, USA

12:45-1:15 **Panel Question & Answer Session**
Gordon Mitchell, University of Florida, USA
Esther Dupont-Versteegden, University of Kentucky, USA
Anastasia (Natasha) Kralli, Johns Hopkins Medical School, USA
Thomas Cheever, NIAMS- National Institutes of Health, USA

Room G320

12:15-12:45 **K Grants** - Key aspects for a successful grant
Gabrielle Kardon, University of Utah, USA

12:45-1:15 **Panel Question & Answer Session**
Gabrielle Kardon, University of Utah, USA
Erin Talbert, Medical University of South Carolina, USA
Joshua Drake, University of Virginia, USA
Helen Lin, NIAMS- National Institutes of Health, USA

Room G310

12:15-12:45 **F Grants** - Key aspects for a successful grant
Amanda Taylor Boyce, NIAMS- National Institutes of Health, USA

12:45-1:15 **Panel Question & Answer Session**
Amanda Taylor Boyce, NIAMS- National Institutes of Health, USA
Tom Clanton, University of Florida, USA
Michael Sunshine, University of Florida, USA

1:30pm

Welcome and Opening Remarks, Rion Ballroom (Third Floor Reitz Union)

Michael Reid Dean, College of Health and Human Performance
Professor, Applied Physiology and Kinesiology
University of Florida

Lee Sweeney Director, UF Myology Institute
Professor; Pharmacology and Therapeutics
University of Florida

Leonardo Ferreira Associate Professor, Applied Physiology and Kinesiology
University of Florida

1:45pm	Session <i>Chair</i>	<u>Muscle Diseases: Biology & Biomarkers</u> <i>Glenn Walter</i>
1:45-2:10	Melissa Spencer University of California Los Angeles USA	Therapeutics for the Muscular Dystrophies
2:10-2:35	Gillian Butler-Browne Université Pierre et Marie Curie France	Towards Therapy for OPMD
2:35-3:00	Gordon Lynch University of Melbourne Australia	Therapeutic potential of skeletal muscle plasticity for muscle diseases
3:00-3:25	Pascal Bernatchez University of British Columbia Canada	Muscular Dystrophy: a new type of lipid handling disease?
3:25-3:50	Barry Byrne University of Florida USA	Gene Therapy Strategies for NMD: Clinical Considerations

Short talks selected from abstracts (4 min presentations with no questions)

3:50-3:54	Niclas Bengtsson University of Washington USA	In vivo correction of dystrophin expression in old dystrophic dogs
3:55-3:59	Brian Clarke Novartis Institutes for Biomedical Research USA	Protein kinase A activation inhibits DUX4 gene expression in myotubes from patients with facioscapulohumeral muscular dystrophy
4:00-4:04	Talita Conte Mcgill University Canada	A missense mutation in DCST2 causes a new dominant Strongman Phenotype by dysregulating skeletal muscle calcium handling
4:05-4:09	Ann Durbin Wave Life Sciences Ltd USA	Preclinical Studies of WVE-N531, an Investigational Stereopure Exon 53 Skipping Oligonucleotide for Duchenne Muscular Dystrophy
4:10-4:15	Orna Halevy The Hebrew University of Jerusalem Israel	Hydroxy group requirement for halofuginone-dependent inhibition of muscle fibrosis and improvement of histopathology in DMD

4:15-4:45pm ***Coffee Break, Rion Ballroom West Foyer***
Coffee, tea, and light snacks provided

Keynote Lecture

4:45 – 5:45	Gillian Butler-Browne Université Pierre et Marie Curie France	The yellow brick road: from myosin to novel therapies
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6:00pm **Reception and Poster Viewing, *Grand Ballroom***

THURSDAY, March 7, 2019*Rion Ballroom, Reitz Union, University of Florida***Time****7:45am** **Coffee, Tea, and Pastries, Rion Ballroom West Foyer****8:00am****Session****Mechanisms of Muscle Wasting***Chair**Andrew Judge*

8:00-8:25

Marco Sandri
Venetian Institute of
Molecular Medicine
Italy

Novel Players in Muscle Wasting

8:25-8:50

Gerald Supinski
University of Kentucky
College of Medicine
USAA Stimulating Experience: MagStim Assessment of Muscle
in ICU Patients

8:50-9:15

Jason Doles
Mayo Clinic
USAMicroenvironment Alterations in Wasting Skeletal
Muscle

9:15-9:40

Scott Ebert
Emmyon
USADiscovery of New Nutritional & Pharmaceutical
Approaches to Skeletal Muscle Atrophy**Short talks selected from abstracts (4 min presentations with no questions)**

9:40-9:44

Andrea Armani
University of Padova
ItalyNovel Insights into the role of MUSA1 in skeletal muscle
biology

9:45-9:49

David Hughes
University of Iowa
USAUnravelling the role of a novel E3 ligase in skeletal muscle:
manipulation through in vivo electroporation

9:50-9:54

Isabella Salamone
Northwestern University
USASex-specific response to glucocorticoid steroids in skeletal
muscle

9:55-9:59

Joanne Young
CYTOO
USADevelopment of a Robust Rescue Assay for Muscle Wasting
Using Human Primary Myoblasts from Young and Elderly
Donors**10:00-10:30am*****Coffee Break, Rion Ballroom West Foyer****Coffee, tea, and light snacks provided***10:30am****Session****Muscle Force Transmission and EC-Coupling***Chair**Lee Sweeney*

10:30-10:55

Susan Hamilton
Baylor College of Medicine
USA

Heat Sensitivity and Malignant Hyperthermia

10:55-11:20

Coen Ottenheijm
University of Arizona
USA

Diaphragm pathology in the critically ill

11:20-11:45 Feliciano Protasi Store-Operated Ca²⁺ Entry in Skeletal Muscle: Where?
Università degli Studi
"G. d'Annunzio" Chieti-Pescara
Italy

11:45-12:10 Michael Toth Skeletal muscle adaptations to cancer and
University of Vermont chemotherapeutics and the protective effects of exercise
USA

Short talks selected from abstracts (4 min presentations with no questions)

12:10-12:14 Frank Li Deleting Nebulin's C-terminus Reveals its Importance
University of Arizona to Sarcomeric Structure and Function and is Sufficient to
USA Invoke Nemaline Myopathy

12:15-12:19 Yulia Lomonosova Mechanical properties of sarcolemma following peptide-
University of Oxford conjugated phosphorodiamidate morpholino oligomer
United Kingdom treatment in a mouse model of Duchenne Muscular Dystrophy

12:20-12:24 Xenia Massana Muñoz Different in vivo impact of Dynamin 2 mutations implicated in
Institut de Génétique Charcot-Marie-Tooth peripheral neuropathy and
Biologie Moléculaire Centronuclear Myopathy
et Cellulaire
France

12:25-12:29 Taejeong Song fsMyBP-C is a vital regulator of fast skeletal muscle contraction
University of Cincinnati
USA

12:30-2:30pm *Poster Session I – Grand Ballroom*
Beverages and boxed lunches provided

2:30pm **Session** **Nutrition and Muscle Metabolism**
Chair *Anna Thalacker-Mercer*

2:30-2:55 Greg Cartee Mechanisms for Post-Exercise Muscle Glucose Uptake
University of Michigan
USA

2:55-3:20 Anastasia (Natasha) Kralli Regulatory networks for exercise-induced oxidative
Johns Hopkins University metabolism adaptations
School of Medicine
USA

3:20-3:45 Yen-Chun (Charly) Lai Skeletal Muscle SIRT3 in Metabolic Syndrome-Associated
Indiana University Pulmonary Hypertension
Purdue University Indianapolis
USA

Short talks selected from abstracts (4 min presentations with no questions)

3:45-3:49 Ted Graber Inducible Skeletal Muscle Specific Knockout of DEP
University of Texas domain-containing 5 Increases mTORC1 Signaling, Muscle
USA Cell Hypertrophy, and Mitochondrial Respiration

3:50-3:54 Melissa Markofski Aerobic exercise-induced response of circulating follistatin
University of Houston and GDF-15 are dependent on intensity and duration
USA

3:55-4:25pm

Coffee Break, Rion Ballroom West Foyer

Coffee, tea, and light snacks provided

4:25-4:50

Paul Coen
AdventHealth
USA

Mitochondrial Energetics and fuel metabolism in
Sarcopenia

Short talks selected from abstracts (4 min presentations with no questions)

4:50-4:54

Gretchen Meyer
Washington University
USA

Brown fat paracrine signaling promotes muscle growth
during regeneration

4:55-4:59

Yazmin Rovira Gonzalez
Johns Hopkins School
of Medicine
USA

Mss51 deletion enhances muscle metabolism and glucose
homeostasis in mice

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

5:00-5:35

Chair: Leonardo Ferreira

Poster 8: In silico screening for potentially aberrant novel essential splice sites (PANESS) created by single nucleotide variants (SNVs) in the human genome. **Bruels, Christine;** Li, C; Mendoza, T; Khan, J; Reddy, H; Estrella, E; Ghosh, P; Darras, B; Lidov, H; Pacak, C; Kunkel, L; Modave, F; Draper, I; Kang, P

Poster 17: The role of myostatin in type 1 diabetes myopathy. **Dial, Athan G;** Monaco C.M.F.; Hughes M.C.; Ramos S.V.; McGlory C.; Perry C.G.R.; Hawke TJ

Poster 18: Proteomic profiling of skeletal muscle from cachectic pancreatic cancer patients. **D'Lugos, Andrew C;** Judge, SM; Underwood, PW; Trevino, JG; Judge, AR

Poster 33: Mineralocorticoid Receptor Myofiber Knockout and Antagonists Lead to Complementary Beneficial Effects on Muscular Dystrophy Pathology and Function. **Hauck, J. Spencer;** Lowe, J; Rastogi, N; McElhanon, K; Petrosino, J; Peczkowski, K; Chadwick, A; Zins, J; Accornero, F; Janssen, P; Weisleder, N; Rafael-Fortney, J

Poster 39: Skeletal Muscle Abnormalities in a Novel Rodent Model of Postmenopausal Heart Failure with Preserved Ejection Fraction. **Kelley, Rachel;** Noriega, A; Hahn, D; Kumar, R; Muscato, D; Brinson, S; Ferreira, L

Poster 92: Succinate, a wasting associated metabolite, alters satellite cell metabolism and impairs muscle regeneration. **Joseph, Josiane;** Arneson, P; Doles, J

Poster 105: Reduced Extracellular Vesicle Biogenesis Contributes to Disuse-Induced Skeletal Muscle Atrophy. **Van Pelt, Douglas W;** Vechetti, IJ; Hunt, ER; Confides, AL; Butterfield, TA; Dupont-Versteegden, EE

Poster 113: SIRT5 is associated with myogenic differentiation. **Blum, Jamie;** Gheller, B; Epstein, R; Thalacker-Mercer, A

Poster 116: The non-essential amino acids serine and glycine are indispensable for human muscle progenitor cell proliferation. **Gheller, Brandon;** Blum, J; Thalacker-Mercer, A

Poster 129: Skeletal Muscle-Resident Perivascular Stem/Stromal Cells Synthesize Immunomodulatory Factors in Response to Contraction. **Dvoretzkiy, Svyatoslav;** Drnevich, J; Rhodes, J; Boppart, M

Poster 140: Mitochondrial DNA Mutations Cause Neuromuscular Junction Degeneration. **Anagnostou, Maria-Eleni**; Burke, SS; Konokhova, Y; Ferguson, C; Fenton, A; Kim, M; Someya, S; Hepple, RT

Poster 157: Phytochemical Nrf2 activator has age and sex specific effects on mitochondrial function and gait in a novel aging guinea pig model. **Musci, Robert V**; Andrie, K; Valenti, Z; Walsh, M; Campbell, M; Bork, S; Sanford, J; Afzali, M; Santangelo, KS; Miller, BF; Hamilton, KL

Poster 162: Macrophage infiltration and activation in young and old skeletal muscle following lengthening contractions **Sorensen, Jacob R**; Kaluhiokalani, JP; Hyldahl, RD

Poster 173: Sex-specific differences in skeletal muscle mitochondrial bioenergetics in Type 1 Diabetes. **Monaco, Cynthia**; Hughes, M; Ramos, S; Laham, R; Perry, C; Hawke, T

7:00pm

Dinner at the Swamp Restaurant;

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 8, 2019

Rion Ballroom, Reitz Union, University of Florida

Time

7:45am **Coffee, Tea, and Pastries, Rion Ballroom West Foyer**

8:00am **Session** **Muscle Hypertrophy and**
Mechanotransduction

Chair *Elisabeth Barton*

8:00-8:25 Chris Fry Aging Muscle Growth and Plasticity
University of Texas
Medical Branch
USA

8:25-8:50 Gabrielle Kardon Molecular and Cellular Regulation of Muscle Regeneration
University of Utah
USA

8:50-9:15 Lorenzo Puri MyoD re-wiring of 3D chromatin architecture during
Sanford Burnham Prebys nuclear reprogramming toward myogenesis
Medical Discovery Institute
USA

9:15-9:40 Mary Baylies Coordination of Nuclear Scaling and Muscle Cell Size
Sloan Kettering Institute During Development and in Disease
USA

Short talks selected from abstracts (4 min presentations with no questions)

9:40-9:44 Kathryn Aguilar-Agon Using in-vitro, bioengineered models of skeletal muscle to
Loughborough University investigate treatment modalities for Osteoarthritis (OA)
United Kingdom

9:45-9:49 Bradley Gordon Arrdc2 and Arrdc3 Expression is Reduced in Skeletal
Florida State University Muscle by Anabolic Stimuli and Directly Related to
USA Autophagy Suppression

9:50-9:54 Adam Johnston A transient wave of cellular senescence impacts muscle
University of Prince fibre size following myotrauma
Edward Island
Canada

9:55-9:59 Lucas Smith Constricted migration and associated nuclear damage
University of California Davis impair myoblast differentiation
USA

10:00-10:30am ***Coffee Break, Rion Ballroom West Foyer***
Coffee, tea, and light snacks provided

10:30am **Session** **Skeletal Muscle Aging: Metabolism and**
Function

Chair *Karyn Esser*

10:30-10:55 Dawn Lowe Sex as a Biological Variable: When Estradiol and Estrogen
University of Minnesota Receptors Affect Skeletal Muscle Physiology
USA

10:55-11:20	Charlotte Peterson University of Kentucky USA	Resident Macrophages in Skeletal Muscle Adaption to Physical Activity and Aging
11:20- 11:45	Brian McDonagh NUI Galway Ireland	Targeting Mitochondrial Dynamics in Skeletal Muscle Aging
11:45-12:10	Carlos Moraes University of Miami USA	DNA editing enzymes as tools to eliminate mutant mtDNA

Short talks selected from abstracts (4 min presentations with no questions)

12:10-12:14	Young Jang Georgia Institute of Technology USA	Microfluidic 3D model of heterochronic parabiosis to study the systemic regulation of skeletal muscle
12:15-12:19	Yifan Li University of South Dakota USA	Deubiquitinase UCHL1 Regulates Skeletal Muscle Metabolism
12:20-12:24	Joshua Drake University of Virginia USA	Mitochondria-associated AMPK Mediates Mitochondrial Quality Control in Skeletal Muscle
12:25-12:29	Yuhoo Kim NHLBI/NIH USA	3D mitochondrial network formation during postnatal skeletal muscle development

12:30-2:00pm *Poster Session II– Grand Ballroom
Beverages and boxed lunches provided*

2:00pm **Session** *Mitochondria and Redox Biology*
Chair *Scott Powers*

2:00-2:25	Christopher Perry York University Canada	Targeting mitochondrial bioenergetics to treat muscle weakness in Duchenne muscular dystrophy
2:25-2:50	Chris Ward University of Maryland USA	Redox Tunes the Cytoskeleton to Regulate Function
2:50-3:15	Malcolm Jackson University of Liverpool England	Role of Local Denervation in Disruption of Redox Regulation During Aging
3:15-3:40	Terence Ryan University of Florida USA	Mitochondria and Ischemic Muscle Injury

3:45pm **Presentation of Poster Awards**

4:00pm **Farewell**

Administrative Organizer

Christa Stout, Myology Institute, University of Florida

Scientific Organizers

Andrew Judge, University of Florida

Lee Sweeney, University of Florida

Leonardo Ferreira, University of Florida

Karyn Esser, University of Florida

Scientific Advisory and Review Committee

Glenn Walter, University of Florida

Russel Hepple, University of Florida

Elisabeth Barton, University of Florida

Sarah Judge, University of Florida