Molecular mechanisms of muscle wasting during aging and disease

Congressi Stefano Franscini, Monte Verità, Ascona, Switzerland
Sunday September 23, 2018 – Friday September 28, 1018

Program

Sunday	**September 23, 2018**
16.00 - 18.00	Registration
18.00 - 19.00	**Reception**

Keynote Lecture

19.00 Pura Muñoz-Cànoves
Muscle stem cell dysfunction with aging: cause and consequences

Followed by an “icebreaker”

Monday	**September 24, 2018 - Morning**	
08.30 - 08.50	Welcome address from CSF and Monte Verità	
	Session	**Repair of skeletal muscle**
	Chair	Simone Spuler
Speakers		
08.50 - 09.15	Michael Rudnicki	*Molecular regulation of muscle stem cell function*
09.15 - 09.40	Florian Bentzinger	*Extrinsic regulation of muscle stem cell specification*
Short talks		
09.40 - 09.55	Remi Mounier	*AMPKα2 as a regulator of muscle cell differentiation and skeletal muscle homeostasis*
09.55 - 10.10	Fabien Le Grand	*High-dimensional single-cell cartography reveals novel skeletal muscle resident cell populations*
10.10 - 10.40	**Coffee Break**	
Speakers		
10.40 - 11.05	Andrew Brack	*Lineage tracing reveals a subset of reserve muscle stem cells capable of clonal expansion under stress*
11.05 - 11.30	Carmen Birchmeier	*Oscillatory expression of Hes1 and MyoD allow activated satellite cells to maintain an undifferentiated state*
Short talks		
11.30 - 11.45	Peter Vrtacnik	*Somatic mutagenesis in satellite cells reduces the efficiency of muscle regeneration*
11.45 - 12.00	Davide Gabellini	*The Trithorax protein Ash1L promotes myoblast fusion by activating Cdon expression*
12.00 - 12.30	**Lunch**	

Monday September 24, 2018 - Afternoon

	Session	**Nerve-muscle connection**
	Chair	David Glass
Speakers		
13.30 - 13.55	Lin Mei	*Sarcoglycan alpha mitigation of neuromuscular junction decline in aged mice by stabilizing Lrp4*
13.55 - 14.20	Markus Ruegg	*The role of mTOR in NMJ maintenance*
Short talks		
14.20 - 14.35	Laure Strochlic	*Distinct branches of Wnt signaling regulate mammalian neuromuscular connectivity*
14.35 - 14.50	Daisy Proietti	*Role of muscle interstitial cells in neurogenic muscular atrophy*
14.50 - 15.20	**Coffee Break**	
Speakers		
15.20 - 15.45	David Beeson	*Mechanisms and treatment with β2-adrenergic receptor agonists for hereditary disorders of neuromuscular synapse*
15.45 - 16.10	Charlotte Sumner	*Failed perinatal motor axon sorting is associated with impaired myofiber growth in spinal muscular atrophy (SMA)*
Short talks		
16.10 - 16.25	Anna Rostedt Punga	*miRNA profile in affected skeletal muscles of MuSK+ EAMG mice reveal novel intracellular targets for muscle weakness*
16.25 - 16.40	Aaron Russel	*MicroRNA inhibition to improve skeletal muscle health in amyotrophic lateral sclerosis (ALS)*
17.00 - 19.00	**Poster Session** (with drinks and snacks) – **Posters 1 to 31**	
19.15 - 20.45	**Dinner**	

Tuesday	**September 25, 2018 - Morning**	
	Session	**Mechanisms of muscle plasticity**
	Chair	Markus Ruegg
Speakers		
08.50 - 09.15	Nathan LeBrasseur	*The role of myostatin in the control of muscle size*
09.15 - 09.40	Marco Sandri	*A novel player in autophagy regulation and muscle wasting*
Short talks		
09.40 - 09.55	Hyeon-Ju Jeong	*Skeletal muscle-specific PRMT1 deletion causes muscle atrophy via deregulation of PRMT6/FoxO3a axis*
09.55 - 10.10	Gonzalo Blanco	*Transcriptional up-regulation of Chaperone Assisted Selective Autophagy factors in animal models of KY-deficient hereditary myopathy*
10.10 - 10.40	**Coffee Break**	
Speakers		
10.40 - 11.05	David Glass	*Signaling required for muscle maintenance in the setting of aging*
11.05 - 11.30	Tea Shavlakadze	*Age-related pathway signatures – relevance for treating aging disorders*
Short talks		
11.30 - 11.45	Paul Gregorevic	*A metabolic role for YAP in the regulation of skeletal muscle attributes*
11.45 - 12.00	Shuichi Watanabe	*Skeletal muscle specific cofactor Vgll2/3 dependent function of Teads (Tead1-4) is indispensable for mTOR signal regulation and muscle fiber type specification*
12.00 - 14.00	**Lunch Break**	
	Free Afternoon	
19.15 - 20.45	**Dinner**	

Wednesday	**September 26, 2018 - Morning**	
	Session	**Muscle and metabolism**
	Chair	Matt Kaeberlein
Speakers		
08.50 - 09.15	Michael Hall	*mTOR signaling in growth and metabolism*
09.15 - 09.40	Mara Fornaro	*IGF signaling and its effect on muscle metabolism*
Short talks		
09.40 - 09.55	Francesca Solagna	*Treatment with soluble activin type IIB in a mouse model of polycystic kidney disease improves muscle mass and strength and reduces the progression of kidney disease*
09.55 - 10.10	Anurag Singh	*Translating Urolithin A benefits on muscle mitochondria into humans*
10.10 - 10.40	**Coffee Break**	
Speakers		
10.40 - 11.05	Simone Spuler	*Human muscle-derived CLEC14A-positive cells with regenerative potential independent of PAX7*
11.05 - 11.30	Rafael de Cabo	*Caloric restriction and its effect on skeletal muscle*
Short talks		
11.30 - 11.45	Daniel Ham	*Rapamycin attenuates sarcopenia in mice*
11.45 - 12.00	Aaron Hinken	*NOPE is a novel modulator of TGF-β family member activity and body composition*
12.00 - 13.30	**Lunch Break**	

Wednesday	**September 26, 2018 - Afternoon**	
	Session	**Epigenetics and non-coding RNA**
	Chair	Alessandra Sacco
Speakers		
13.30 - 13.55	Rhonda Bassel-Duby	*Micropeptides encoded by lncRNA in muscle*
13.55 - 14.20	Thomas Braun	*Posttranscriptional processes regulating the metabolic switch during differentiation of skeletal muscle stem cells*
Short talks		
14.20 – 14.35	Alyson Fiorillo	*miR-146a inhibits dystrophin production and directly activates innate immune signaling to promote inflammation in multiple muscle disorders*
14.35 - 14.50	Jozef Dulak	*Silencing of miR-378a attenuates dystrophic phenotype in mdx mice*
14.50 - 15.20	**Coffee Break**	
Speakers		
15.20 - 15.45	Vittorio Sartorelli	*A muscle-specific enhancer RNA mediates Cohesin recruitment and regulates transcription in trans*
15.45 - 16.10	Robert Krauss	*Regulation of satellite cell quiescence and activation by niche adhesive junctions*
Short talks		
16.10 - 16.25	Barbara Franke	*Mechanosensing in the kinase region of titin*
16.25 - 16.40	Giorgia Careccia	*HMGB1 as novel target in Duchenne Muscular Dystrophy*
17.00 – 19.00	**Poster Session** (with drinks and snacks) – **Posters 32 to 62**	
19.15 - 20.45	**Dinner**	

Thursday September 27, 2018 - Morning

	Session	**Mechanisms of aging**
	Chair	Michael Rudnicki
Speakers		
08.50 - 09.15	Peter de Keizer	*Targeted apoptosis of senescent cells against aging and cancer*
09.15 - 09.40	James Kirkland	*Age-related dysfunction, cellular senescence, and senolytic agents: The path toward translation*
Short talks		
09.40 - 09.55	Akiyoshi Uezumi	*Roles of interstitial mesenchymal progenitors in the maintenance of skeletal muscle and its implications for sarcopenia*
09.55 - 10.10	Thomas Vogler	*Amyloid-like TDP-43 myo-granules associate with sarcomeric RNAs during skeletal muscle formation*
10.10 - 10.40	**Coffee Break**	
Speakers		
10.45 - 11.10	Matt Kaeberlein	*Targeting mTORC1 signaling to promote healthy longevity*
11.10 - 11.35	Luigi Ferrucci	*The aging of skeletal muscle*
Short talks		
11.35 - 11.50	Marco De Cecco	*Endogenous Retroelements become de-repressed and active in skeletal muscle of aging mice*
12.00 - 13.30	**Lunch Break**	

Thursday	**September 27, 2018 - Afternoon**	
	Session	**Muscle wasting diseases**
	Chair	Rhonda Bassel-Duby
Speakers		
13.30 - 13.55	Alessandra Sacco	*Stem cell-based strategies to treat muscle wasting*
13.55 – 14.20	Denis Guttridge	*Insights in rhabdomyosarcoma pathogenesis*
Short talks		
14.20 - 14.35	Domagoj Cikes	*Changes of mitochondrial mechanics trigger metabolic crisis and cachexia*
14.35 - 14.50	Foteini Mourkioti	*A robust Pax7EGFP mouse that enables the visualization of muscle stem cell dynamics*
14.50 – 15.05	Brad Olwin	*Cellular responses during regeneration of skeletal muscle*
15.10 - 15.30	**Coffee Break**	
Speakers		
15.30 - 15.55	Kevin Campbell	*Structural studies of dystroglycan extracellular matrix receptor function in skeletal muscle*
15.55 - 16.20	Jeff Chamberlain	*Augmented muscle function via systemic gene delivery with AAV*
Short talks		
16.20 - 16.35	Stefano Previtali	*Jab1 in the pathogenesis of Merosin deficient congenital muscular dystrophy (MDC1A)*
16.35 - 16.55	Gordon Lynch	*Therapeutic potential of slow muscle programming by low-frequency stimulation for muscle wasting and muscular dystrophy*
16.55 - 17.10	Mattia Quattrocelli	*Weekly and daily glucocorticoid steroids divergently remodel muscle metabolism and function*
17.10 -	CSF Award Ceremony	
19.15 -	**Gala Dinner**	
Friday	**September 28, 2018**	
	Departure	

Posters

List of poster titles and presenting author. Refer to the number of your poster to locate the board where your poster can be displayed. The list is sorted alphabetically by presenting author's last name.

For the full authors list of each poster, check the corresponding abstract.

Authors of **posters nr. 1 to 31** please attend your poster in Session 1 (Monday).
Authors of **posters nr. 32 to 62** please attend your poster in Session 2 (Wednesday).

1. Redox remodeling causes "leakiness" in Ryanodine Receptor (RyR1): New Insight into the molecular etiology of chronic hypobaric hypoxia induced skeletal muscle atrophy
Akanksha Agrawal

2. Activating the MasR/Ang1-7 Pathway Reduces Muscle Atrophy and Function Loss Following Denervation
Hind M. Albadrani

3. Identification of a novel TFEB-exercise dependent gene
Andrea Armani

4. Implantation of MCK-PGC-1α myogenic progenitors after muscle damage results in enhanced oxidative phenotype
Marc Beltrà

5. Identification of novel molecular targets to manipulate satellite cell function
Anna Benedetti

6. The role of Raptor/mTORC1 in adult skeletal muscle
Bert Blaauw

7. Sarcopenia chronicles: dynamics of gene expression during aging of rat skeletal muscles
Anastasiya Börsch

8. Vivo-morpholinos targeting dynamin 2 ameliorate pathological signs of myotubular myopathy
Caroline Bogni

9. Rev-erb-α exacerbates endoplasmic reticulum stress-induced apoptosis in mouse skeletal muscle
Alexis Boulinguiez

10. Supplementation of Schisandra Fructus ethanol extract increased insulin sensitivity and muscle mass in aged mice
Hojung Choi

11. Investigating anti-cachectic role of Unacylated Ghrelin
Sara Clerici

12. Genes differentially expressed during reversion of androgend dependent skeletal muscle atrophy
Priscila O. Coelho

13. Improving muscle wasting in cancer cachexia
Paola Costelli

14. IGFN1 interacts with the actin nucleator COBL and is required for myoblast fusion
Tobias Cracknell

15. Opposing effects of 25-hydroxy- and 1α,25-dihydroxy-vitamin D_3 on pro-cachectic cytokine- and cancer conditioned medium-induced atrophy in C2C12 myotubes
Marilisa De Feudis

16. Role of mitoK_{ATP} in skeletal muscle
Giulia Di Marco

17. CaVβ1: The missing link from voltage sensing to muscle mass homeostasis
Sestina Falcone

18. Physiopathological characterization of the role of MCUb in skeletal muscle regeneratin
Simona Feno

19. Acylated ghrelin, in contrast to unacylated ghrelin, fails to directly counteract muscle wasting *in vivo*
Michele Ferrara

20. **Exercise prevents cancer-induced fatigue by affecting skeletal muscle, systemic metabolism and anemia**
Regula Furrer

21. **Characterization of the D2/*mdx* mouse as a clinically relevant model of Duchenne Muscular Dystrophy and demonstration that treatment with mRK35, a murine anti-myostatin antibody, induces functional improvements in D2/mdx and aged Bl10/mdx mice**
Sweta Girgenrath

22. **Modulating bone morphogenetic signalling in cancer cachexia**
Adam Hagg

23. **Effects of metformin and N-acetyl-L-cysteine on congenital muscular dystrophy type 1A disease progression in mice**
Vahid M. Harandi

24. **Aging associated reduction in skeletal muscle stem cell proliferation rate is accompanied by reduced focal adhesion formation, and increased YAP signaling**
Mohammad Haroon

25. **Collagen XIII secures development and maturation of the neuromuscular synapse**
Anne Heikkinen

26. **TGF-β signalling differentially affects myogenic and fibrotic gene expression in muscle stem cells and myotubes**
Michèle M. G. Hillege

27. **Effects of aberrant accumulation of MFG-E8 at neuromuscular junction on skeletal muscle aging**
Madoka Ikemoto-Uezumi

28. **The MuSK-BMP pathway is required for biphasic BMP-regulated myogenesis**
Diego Jaime

29. **The role of Cdon in the generation of embryonic stem cell-derived motor neuron**
Jong Sun Kang

30. **Time of day and exercise: a new role for muscle contraction as time cue**
Denise Kemler

31. **Expression of a slow myosin motor (β-MyHC) drives physiology and metabolism in skeletal muscle**
Genevieve C. Kerr

32. **Ex2 suppresses muscle wasting through PDK1/Akt activation augmenting muscle mass increase**
Hye Been Kim

33. **Acute sleep deprivation impairs skeletal muscle protein synthesis**
Severine Lamon

34. **Wnt inhibitory factor-1 biding to a promyogenic receptor Cdo is critical for reciprocal modulation of Wnt signal and promyogenic kinases**
Sang-Jin Lee

35. **GLP-1 analogue, exendin-4, ameliorates dexamethasone-induced muscle atrophy through regulating atrophy-related gene expression**
Jong Han Lee

36 **Inducing mitophagy in muscle stem cells with Urolithin A restores muscle function in muscular dystrophy**
Peiling Luan

37. **The interference with IL-6 trans-signaling modulates secondary mechanisms of dystrophic muscle**
Carmen Miano

38. **Pax7/MyoD high-content screening of myogenic fate in human primary myoblasts**
Joris Michaud

39. **Role of the AKT/mTOR/ FoxO pathway in muscle protein homeostasis**
Giulia Milan

40. **MicroRNA regulation of the Ndrg2 gene in skeletal muscle cells**
Bilal A. Mir

41. **Development of screening system for identification of novel factors influencing muscle fiber types**
Norio Motohashi

42. **SIRT1 inhibition restores PABPN1-dependent muscle wasting**
Cyriel S. Olie

43. **Group I Paks support muscle regeneration and counteract cancer-associated muscle atrophy**
Rosanna Piccirillo

44. **Data-driven single-myofibertyping reveals age-associated muscle-specific patterns**
Vered Raz

45. **Role of ghrelin peptides in the onset of sarcopenia**
Simone Reano

46. **HDAC4 mediates the responses to multiple stimuli in skeletal muscle**
Alessandra Renzini

47. **FGF21 controls mitophagy and muscle mass**
Vanina Romanello

48. **HIF prolyl hydroxylase inhibition protects skeletal muscle from eccentric contraction-induced injury**
Alan J. Russell

49. **Muscle wasting and recovery in a Drosophila gut tumor model**
Pedro Saavedra

50. **Manipulating BMP pathway to prevent NMJ's dismantling and denervation in Cancer Cachexia**
Roberta Sartori

51. **Platelet releasate as a key driver for skeletal myogenesis**
David Scully

52. ***C.elegans*** **as a model to decipher muscle aging mechanisms**
Florence Solari

53. **The TGF-β-signalling inhibitor, follistatin concomitantly increases muscle mass and insulin sensitivity in skeletal muscle**
Lykke Sylow

54. Generation of a new mouse to model pancreatic cancer-induced muscle wasting and cachexia
Erin E. Talbert

55. Stem Cell regulation in muscular dystrophy
Elisia D. Tichy

56. Identification of age-related modulators of protein synthesis in the muscle
Lionel Tintignac

57. Nature and role of interstitial non myogenic cells in human fibrotic muscles
Capucine Trollet

58. Disuse atrophy is characterized by marked decrease in mitochondrial content and function
Rick B. Vega

59. CD36 deficiency restores impaired satellite cell proliferation in response to high-fat diet
Sandrine Verpoorten

60. Muscular improvement to physical exercise in Myasthenia Gravis patients
Elisabeth Westerberg

61. Iron metabolism regulates cancer related skeletal muscle wasting
Elisabeth Wyart

62. Expression of Swedish mutant APP in skeletal muscles results in muscle wasting-like deficits
Wen-Cheng Xiong