

Report on Abstracts of the 15th Meeting of IIM, the Interuniversity Institute of Myology - Assisi (Italy), October 11-14, 2018

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Abstract

On October 11-14, 2018, the 15th Meeting of the Interuniversity Institute of Myology (IIM) took place in the city Assisi, Italy. Muscle researchers from Italy, and various European and North-American countries gathered to discuss recent results on the physiology and diseases of skeletal muscle. The program showcased keynote lectures from world-renowned international speakers presenting advances in muscle stem cells, circadian rhythm, organismal development and growth, muscle physiology, and bioengineering. Novel, unpublished results from young trainees were presented as oral communications or posters, based on selection from submitted abstracts. Young trainees were directly involved in several aspects of the meeting by being responsible of organizing a scientific session, arranging three round tables tailored to the interests of their peers and chairing all scientific sessions. The meeting offered a unique opportunity for young researchers to present their work, have feedback from more experienced colleagues and establish collaborations to further understanding of muscular diseases and develop therapeutic strategies. The open, informal and friendly atmosphere of the meeting stimulated lively discussions, instrumental to highlight key areas of muscle research and foster scientific cross-fertilization and new collaborations. The meeting was very successful. A sign that the IIM community will continue to deliver important contributions to the training of young students and fellows, promoting our understanding of muscle formation and activity, the mechanism of muscle diseases and the progress toward therapeutic approaches. The Myology field is strong and articulated in basic, translational and early clinical research, moving toward the development of treatments for several muscle diseases as documented by the abstracts of the IIM meeting.

Key Words: Human denervated muscle; SCI; Elderly, Recovery of external-work contractility; Home Based Functional Electrical Stimulation, Myokines, IGF-1.

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The Interuniversity Institute of Myology (IIM) was founded in 2003 with the purpose of supporting the training of young researchers and foster the collaboration of investigators involved in muscle research in Universities and Research Centers in Italy and abroad. Young trainees are at the core of IIM mission, as well as the promotion of interdisciplinary and collaborative research to advance the understanding of muscle development, the regulation of its activity, its repair upon injury and how alteration of these processes bring about pathological conditions. The ultimate goal is to stimulate researchers, clinicians and patient associations to collaborate for accelerating progress

toward the development of treatments for neuromuscular diseases. The 15th IIM Meeting took place in Assisi, Italy from October 12 to 15, 2018. Researchers, clinicians, and representative of patients and pharma organizations from Italy met with international colleagues to discuss recent results in the muscle field. The meeting was opened by a Special Lecture by Giorgio Fanò, one of the IIM founders and the first director of IIM, which gave an historic perspective of muscle research to celebrate IIM 15th birthday. There were four Keynote Lectures. Shahragim Tajbakhsh (Institut Pasteur-France) described recent results concerning the extrinsic and intrinsic regulation

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of muscle stem cell activity during homeostasis and regeneration. Paolo Sassone-Corsi (University of California Irvine-USA) presented findings revealing the molecular connections between epigenetics, metabolic pathways and the circadian clock. Carmine Settembre (TIGEM-Italy) illustrated how the developmental regulation of lysosome biogenesis shapes cellular identity and function. Nenad Bursac (Duke University-USA) summarized recent developments in the engineering of three-dimensional human skeletal muscle tissues as platform for the development of novel therapeutics for muscle disorders. Based on the submitted abstracts, thirty seven contributions were selected for Oral Communications that were grouped in seven Sessions chaired by young trainees: 1. Signaling in muscle growth, homeostasis and disease; 2. Satellite cells and muscle regeneration in healthy muscle and in diseases; 3. Synaptic transmission and E-C coupling in healthy and diseased muscle; 4. Genetic and epigenetic alterations in muscle dystrophies and myopathies; 5. Metabolic alterations and muscle diseases; 6. Muscle fibrosis, sarcopenia and cachexia; 7. Therapeutic approaches for muscle diseases. Forty Poster presentations, always on display during the entire Meeting, completed the Program. Talks and Posters generated lively and exciting scientific discussions, which were continued through spontaneous gatherings of several groups at coffee breaks and after lunch and dinner leading to the development of new collaborations. Together with the Italian, the international participation is increasing every year, a strong indication that this community of myologists is able to attract scientists with a wide range of expertise. The meeting has been very successful and instrumental to promote the engagement of experienced researchers and junior scientists for the identification of emerging areas of research aimed at understanding the causative mechanisms of muscle diseases and develop more efficient therapeutic strategies. On the first evening of the meeting, young trainees organized Roundtable Discussions during which students and fellows discussed about issues and new ideas in an informal way, over food and drinks provided by local producers. The roundtables were organized on Muscle regeneration and tissue engineering (moderated by Nenad Bursac and Shahrugim Tajbakhsh); Metabolism, exercise and signaling pathways in muscle wasting (moderated by Maria Pennuto and Paolo Sassone-Corsi); Muscular dystrophies (moderated by Davide Gabellini and Graziella Messina). On the second evening of the meeting, guided tours were organized to Spello (one of the most beautiful villages in Italy) including a visit to Cappella Baglioni (famous for Pinturicchio's frescoes) (https://en.wikipedia.org/wiki/Baglioni_Chapel), the "Infiorate" museum (<http://www.infiorataspello.it>) and a nearby Roman villa (<https://www.villadeimosaici dispello.it/en>), which has been recently restored and displays astonishing mosaics. The evening concluded

with a "ancient roman" style show and dinner in the wonderful rooms of Spello town hall. Finally, an Award Ceremony was held on the last evening of the meeting to congratulate Marianna Cosentino, Ersilia Fornetti, Enrico Pozzo and Valentina Taglietti winners of prizes for best Oral and Poster presentations selected by an international panel composed by the Invited Speakers and members of the IIM Scientific Committee.

Since 2010, the collections of abstracts presented to the annual IIM Meeting were published in the European Journal of Translational Myology, an Open Source Journal whose broad contents are retrievable in PUBMED from 2014 and more recently in SCOPUS and the eWeb of Science. The collections of abstracts of IIM Meetings provide information on research lines on basic and translational myology. More clinically oriented myology results, related to muscle repair and rehabilitation, were also published in the collections of abstracts of the PaduaMuscleDays, a series of International Meetings that were held in Euganei Hills and Padua, Italy. All together, these collections of abstracts show that results from basic, translational and clinical myology are maturing toward the common goals of improving the quality of life and finding a cure for neuromuscular patients.¹⁻¹⁷ It is very likely that the IIM community will continue to deliver important contributions to these themes and attract a broader and interdisciplinary audience.

List of acronyms

IMM - Interuniversity Institute of Myology

Author's contributions

Authors equally contributed to write the manuscript.

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