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演題 **Muscle fiber types: identification by anti-myosin antibodies and characterization of the signaling pathways that modulate their plasticity**

演者

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Abstract

Mammalian skeletal muscle comprises different fiber types, whose identity is first established during embryonic development by intrinsic myogenic control mechanisms and is later modulated by various factors. The relative proportion of the different fiber types varies strikingly between species, and in humans shows significant variability between individuals. Myosin heavy chain isoforms, whose complete inventory and expression pattern are now available, provide a useful marker for fiber types, both for the four major forms present in trunk and limb muscles. Dr. Schiaffino has been interested in defining the heterogeneity of muscle cells in skeletal muscle, focusing on the characterization of myosin heavy chain isoforms using specific anti-myosin monoclonal antibodies developed in his lab.

His research activity is not only defining skeletal muscle myosins but also exploring cell signaling to control fiber type specification and atrophy/hypertrophy changes in adult skeletal muscle. Using an in vivo transfection approach, aimed at generating selective perturbations of different signaling pathways with constitutively active or dominant negative constructs, he was able to identify specific pathways that modulate muscle fiber size and type. The characterization of these pathways is raising increasing interest in clinical medicine, given the potentially beneficial effects of muscle fiber type switching in the prevention and treatment of metabolic diseases.



Selected references:

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