UNIVERSITÀ DEGLI STUDI DI PADOVA

MyoPALM - Deciphering the role of protein S-palmitoylation in skeletal muscle physiopathology

Duchenne muscular dystrophy (DMD) is the most prevalent form of childhood muscular dystrophy, affecting approximately 1 in 3500 newborn boys. DMD patients experience early-onset and rapidly progressive muscle weakness, leading to the loss of mobility and premature death. The burden of muscular dystrophies extends beyond the physical challenges faced by patients, indeed it poses significant social and economic implications, impacting patients' quality of life, necessitating social welfare support and incurring substantial healthcare costs. So far there is no cure for DMD, emphasizing the urgent need to intensify research efforts aimed at uncovering new pathomolecular mechanisms and developing treatment strategies. Protein lipidation, especially protein Spalmitoylation, has gained attention in several diseases, but its role in skeletal muscle function and dystrophic conditions remains completely unexplored. MyoPALM is an innovative project that aims to bridge this knowledge gap by investigating the contribution of protein S-palmitoylation in adult skeletal muscle function. This will be accomplished through in vivo manipulation of the enzymes involved with this pathway and using cutting-edge palmitoyl-proteomic approaches. Furthermore, by exploiting the mdx mouse model, we aim to explore the potential role of protein S-palmitoylation in the pathogenesis of DMD. By unravelling this unexplored perspective, MyoPALM aims to lay the foundation for identifying new druggable targets, paving the way for future therapeutic strategies to benefit DMD patients. Through collaboration between the École Polytechnique Fédérale de Lausanne (CH) and the University of Padova (IT), the applicant seeks to reinforce his technical skills and scientific knowledge, aspiring to become an independent researcher within the European Union.

UNIPD Supervisor: Paolo Bonaldo
MSCA Fellow: Samuele Metti
Department: Department of Molecular Medicine
Coordinator: Università degli Studi di Padova (Italy)
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