PhD Marie Skłodowska-Curie

A PhD position is available at in the research group of **Gabriella Minchiotti** at **IGB-CNR** within the framework of the Marie Skłodowska-Curie Innovative Training Network (ITN) on

REcreating the ideal Niche: environmental control Of cell Identity in Regenerating and diseased muscles (RENOIR)

RENOIR is a European Training Network that aims to develop and implement a PhD programme in the field of muscle regeneration and aging

The major objective of RENOIR research programme is to ultimately unravel, using **novel and integrated biotechnological tools**, **the progressive decline in skeletal and cardiac muscle mass and functionality** that represents the most critical and complex features associated with human ageing and disease.

Project Description

Several studies support the emerging concept that inflammation controls stem cell fate/behaviour coordinating tissue repair and this balance is probably skewed in patients with late phases of chronic diseases, like muscle dystrophies (Munoz-Canoves and Serrano, 2015).

In this context, we will investigate the role of the TGFβ family coreceptor Cripto in the cross talk between different cells of the muscle tissue during acute injury and in chronic disease (Guardiola et al., 2012; Iavarone et al., 2020), by combining in vivo and in vitro approaches.

The Early Stage Researcher (ESR) will investigate the mechanism(s) underlying Cripto-dependent control of muscle stem (Satellite) Cells (SC) heterogeneity and identify the genes/signalling pathways and/or chromatin modifications regulated by Cripto in SCs, using tamoxifen inducible SC-specific Cripto knockout lineage tracing mice (Pax7-CreERT2::R26 mtmg::Criptoloxp/).

ESR will also analyse the signaling pathways/genes involved in the crosstalk between macrophage population and endothelial cell progenitors by using the myeloid lineage-specific Cripto knockout lineage tracing mice mice (LyzMCre::R26mtmg::Criptoloxp/Loxp). ESR will perform RNAseq analyses on FACS-sorted macrophages to gain further insight into the mechanism(s) underlying Cripto- dependent control of macrophage plasticity and proper vascular remodeling (Iavarone et al., 2020).

We will also explore how to exploit the recombinant Cripto protein to optimize both ex vivo and in vivo approaches to improve muscle regeneration and to eventually ameliorate acute and chronic muscle diseases.

For further Information and for the Application process Visit

https://renoir-itn.eu/

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