



# Modeling Skeletal Muscle Tissue Regeneration with Stem Cell-Macrophage Interaction

**KOIKE Hiroyuki**

Assistant Professor, Department of Biochemistry & Molecular Biology  
Nippon Medical School

The loss of muscle mass due to aging is called sarcopenia, and the elucidation of its pathogenesis and the development of treatment and prevention methods are important issues for our country. Sarcopenia is a pathological condition that mainly involves post-injury muscle regenerative failure, and a full understanding of the molecular mechanisms of the regenerative process is expected to provide important insight into the development of prevention methods.

However, most of the previous studies have been limited to analysis of genetically modified animals, and it has been difficult to elucidate the complex interactions that vary with the progress of muscle regeneration. To solve these issues, the establishment of an *in vitro* evaluation system that can easily analyze complex molecular mechanisms in human skeletal muscle tissue has been desired. In this study, I focus on secondary sarcopenia, a pathological condition mainly caused by post-injury muscle regeneration failure, and aim to establish a system to mimic *in vivo* to evaluate this condition by applying the method for constructing functional miniature tissues called organoids from human iPS cells.

■ URL

<https://www.nms.ac.jp/college/schoolroom/kisoigaku/taisya-eiyougaku.html>

Modelling human skeletal muscle regeneration from tissue injury

