BDR SEMINAR (Kobe/online hybrid)

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Tokyo Metropolitan Institute of Gerontology

Tuesday, February 22, 2022

10:00-11:00

1F Auditorium, DB Building C, Kobe / Broadcast online via Zoom

Zoom meeting URL will be announced on the event day by e-mail.

※This seminar is only for BDR members.

Roles for mesenchymal stromal cells in skeletal muscle maintenance and adaptation

Summary

Organs are roughly divided into parenchyma and stroma. Mesenchymal stromal cells (MSCs) represent a major component of the stroma, but their function in vivo remains unclear. We identified MSCs in skeletal muscle and revealed that they contribute to pathological processes such as adipogenesis and fibrosis. In addition to their pathological role, MSCs have also been shown to exert a function in supporting muscle regeneration. How MSCs exert these opposing functions in muscle pathogenesis and regeneration is still unknown. In this seminar, I will present the regulatory mechanism in which retinoic acid signaling controls MSC fate. I will also present our recent advances revealing a critical role of MSCs in steady-state muscle maintenance (Uezumi et al., J Clin Invest, 2021) and unexpected mechanisms of muscle hypertrophy whereby MSCs relay the mechanical signal to muscle stem cells to induce their proliferation (Kaneshige et al., Cell Stem Cell, 2022). All of these studies indicate that MSCs play an essential role in organ maintenance by supporting the parenchyma in vivo. Thus, I would also like to discuss the potential of a new scientific field that can be called "stroma science", which integrates the research fields of each organ with a focus on MSCs.

Host: Mitsuru Morimoto

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