



第 447 回 つくば分子生命科学セミナー

TSUKUBA MOLECULAR LIFE SCIENCE SEMINAR

Title : Macrophages and osteoclasts in the regulation of haematopoietic niches.

Speaker : Dr. Stuart Fraser

Associate Professor

Disciplines of Physiology, Anatomy & Histology

School of Medical Sciences, University of Sydney

Date : Dec 27th, 2018 (Thu) 17:00-18:30

Place : Igaku Gakkei-to Room 483

Abstract :

Haematopoiesis, or “the crafting of the blood”, begins in the yolk sac then moves to various locations throughout the developing embryo until the bones form and a life-long niche for blood production is established. We have found specialised macrophage populations playing roles in the haematopoietic niches throughout development and during physiological stress. In the yolk sac, we have identified a previously unreported macrophage population residing on the outermost layer which is developmentally regulated and may re-model the yolk sac absorptive epithelial layer, which in turn stimulates haematopoiesis. In the bone marrow, we have focused on exploring the interactions between central macrophages and the erythroblasts which surround them, in multicellular structures termed erythroblastic islands. Detailed analyses of erythroblastic islands at the nanometer scale have revealed cell-cell interactions and developmental pathways that had not previously been observed. This led us to ask whether all bones are equally able to support blood production. In exploring this, we have found that anaemic stress leads to profound changes in osteoclast gene expression demonstrating that specialised macrophages play important roles in establishing and maintaining the haematopoietic niche throughout life.

References:

Yumine A, **Fraser ST**, Sugiyama D. Regulation of the embryonic erythropoietic niche: a future perspective. *Blood Res.* 2017 Mar;52(1):10-17. doi: 10.5045/br.2017.52.1.10.

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連絡先： 筑波大学医学医療系 高橋 智 （内線 7516、satoruta@md.tsukuba.ac.jp）

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協会代表：筑波大学医学医療系 久武幸司 TSM セミナー担当：筑波大学医学医療系 入江賢児