

THE ROLE OF THE NICHE FACTOR THROMBOPOIETIN IN HEMATOPOIETIC STEM CELL MAINTENANCE AND LINEAGE DIFFERENTIATION

Circulating blood cells originate from one common cell in the adult bone marrow, hematopoietic stem cells. Understanding the mechanisms that determine hematopoietic stem cell fate is necessary to understand the pathology behind various hematopoietic diseases and improve the outcomes of stem cell therapies. The bone marrow (BM) microenvironment (i.e. the niche) governs the maintenance, proliferation, and differentiation of hematopoietic stem cells. Among the various niche factors influencing hematopoietic stem cell fate, the cytokine thrombopoietin, uniquely regulates hematopoietic stem cell self-renewal along as stem cell differentiation to megakaryocyte lineages. I have studied that mature megakaryocytes may act as niche cells to hematopoietic stem cells through the production of thrombopoietin (Nakamura-Ishizu et al, J Exp Med, 2015, Nakamura-Ishizu et al, BBRC, 2014). These studies indicated a close relation of hematopoietic stem cells and megakaryocyte lineage cells. We are therefore currently analyzing how thrombopoietin regulates the direct commitment of hematopoietic stem cells to megakaryocyte lineage.

ABOUT THE SPEAKER

Dr Ayako Ishizu (Uses the name Ayako Nakamura-Ishizu for publication) received M.D. from Tokyo Women's Medical University (TWMU). After completing residency in Internal Medicine (Hematology), she pursued studies in histology and developmental biology at TWMU and received her Ph.D. in 2009. She then transferred to Professor Toshio Suda's lab at Keio University for post-doctorate studies. She continues her works under Professor Suda, currently as a senior research scientist, in the Cancer Science Institute, National University of Singapore. Her research interest lies in the basic science in hematopoietic stem cells, especially on how their cell fate (survival and differentiation) depend on the microenvironment that they reside in.

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Seminar Room, MD10
Level 2, Anatomy Museum