BDR SEMINAR via Zoom

Masanori Miyanishi

RIKEN Center for Biosystems Dynamics Research

Wednesday, September 23, 2020

13:00-14:00

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

※This seminar is open only to BDR members.

Necessary to reformat our understanding of how the hematopoiesis is maintained or changed?

Summary

The hematopoietic system is a highly dynamic organ that produces about a trillion new blood cells a day. A small number of hematopoietic stem cells (HSCs) are thought to be the major source to support this entire cellular production, ensuring well-balanced hematopoiesis throughout an organism's lifespan, and providing continuous differentiation and cell division. However, a unified view on what mechanisms are crucial for maintaining this homeostasis has yet to be shown. In recent years, the advent of analytical techniques such as lineage tracing and single-cell transcriptomics has introduced a new concept of heterogeneity. Based on this concept, it is now widely recognized in the field of HSC research that multiple HSC clones with functionally distinct cell fates are produced during development and continually adapt to external stimuli such as inflammation and aging. We have previously reported that all HSCs which possess life-long self-renewal capacity and multipotency exist within the Lineage-cKit+Sca-1+Flk2-CD34-/loCD150+Hoxb5+ subset. Capitalizing on this, we have discovered several novel findings that can challenge the conventional concepts.

In this seminar, I would like to introduce our new hypothesis on how the cell fate of HSCs is determined and how these cellular changes occur during the aging process.

Host: Tomoya Kitajima

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