

# ASHBi SEMINAR

## Hematopoietic stem cells and hematopoietic system - from mouse, monkey to human -

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Date **Friday, 28 June 2024**

Time **15:00 – 16:00 [JST]**

Venue **Conference Room Onsite Only\***  
**B1F, Faculty of Medicine Bldg. B**



\*Register via the right QR code

Self-renewal and differentiation are inherent properties of hematopoietic stem cells (HSCs) that are necessary to support hematopoiesis; however, the precise underlying mechanisms remain unclear. I aim to understand HSCs and hematopoiesis by leveraging a multidimensional approach encompassing analysis of murine, non-human primate, and human samples.

First, in murine models, single cell transplantation alongwith mathematical modeling were employed to elucidate the dynamics of HSC behavior and mechanisms. I identified novel insight of HSC differentiation. In human studies, my objective is to delineate the distinctive markers and functional molecules associated with HSCs. Single-cell gene expression analysis of a large number of cord blood samples identified novel markers and molecular candidates for HSCs. In the case of the cynomolgus monkeys, I aim to establish an experimental platform such as lineage tracing system, which is difficult to achieve in humans, for HSC studies. Nevertheless, basic understanding of cynomolgus HSCs, including their existence, identification of their markers, and establishment of culture system, remains unclear, prompting initial investigations to address these knowledge gaps. I identified HSCs and markers of HSCs, and characterized transcriptomic heterogeneity of HSCs.

Thus, I used mouse, primate, and human samples to characterize HSCs and the hematopoietic system, drawing on the strengths of each while complementing each.

Organizer : Graduate School of Medicine  
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