

# ASHBi SEMINAR

## Single cell transplantation assay unveiled a novel model of hematopoiesis

Lecturer: **Dr. Ryo Yamamoto**

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**Date: Wednesday, 7<sup>th</sup> August 2019**

**Time: 16:00–17:00**

**Venue: seminar room 107, Faculty of Medicine Bldg. D**

In the classical model, hematopoietic stem cells (HSCs) give rise to multipotent progenitors (MPPs) of reduced self-renewal potential and that MPPs eventually produce lineage-committed progenitor cells in a stepwise manner. Using single-cell transplantation combined with 5-lineage tracing system, we unexpectedly found myeloid-committed stem cells (MySCs) together with HSCs. Paired-daughter cell assays revealed that HSCs can directly differentiate into MySCs (yielding HSC-MySCs pairs). These results provide the first experimental evidence that the loss of self-renewal and the stepwise progression through specific differentiation stages are not essential for lineage commitment of HSCs. Furthermore, we found a special subset of aged MySCs (termed latent-HSCs), which re-acquire multipotency following transplantation into secondary recipients.

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