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Consistency and variability of murine hematopoietic stem cell aging

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STELLINGEN

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Consistency and variability of murine hematopoietic stem cell aging

Daozheng Yang

1. The HSC aging signature is highly enriched for cell membrane-related transcripts and identifies age-associated heterogeneity. (*This thesis*)
2. Transplantation studies have indicated that HSCs isolated from different strains are functionally different and also age differently. Therefore, comparing HSCs from different genetic background provides an alternative strategy to identify HSC regulators. (*This thesis*)
3. *Selp* is the most consistently up-regulated gene in aged LT-HSCs. In aged bone marrow *Selp* marks LT-HSCs with impaired reconstitution potential and an aged transcriptome. (*This thesis*)
4. Aged HSCs are exposed to a niche containing more pro-inflammatory cytokines, which likely contributes to the age-associated HSC dysfunctions. (*This thesis*)
5. Transplantation of aged HSCs into young recipients restores a young-like transcriptome, specifically by repressing pro-inflammatory pathways, highlighting the important role of the bone marrow microenvironment in HSC aging. (*This thesis*)
6. Weak people adapt to the environment, strong people change the environment, cowards are eliminated by the environment.
7. O ever youthful, O ever weeping. *Jack Kerouac*
8. Great truths are always simple (大道至简) . *Zhi Tao*
9. You never fail until you stop trying. *Albert Einstein*