

Project Summary

John Hansen Research Grant 2020

What is the optimal stem cell source for transplantation? Population dynamics of post-transplant hematopoiesis using single cell analysis of somatic mutations

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The aim of this project is to unravel the impact of donor source on the long-term genomic integrity and on the clonal dynamics of transplanted hematopoietic stem cells (HSCs) in human recipients, using single-cell retrospective lineage tracing. It is hypothesized that transplantation reduces the number of HSCs that contribute to hematopoiesis, thus predisposing to (age-related) clonal hematopoiesis and its long-term health consequences. Furthermore, as the number of active HSC clones and their genomic integrity decrease during ageing, HSCT recipients from younger donors may have prolonged polyclonal blood production and fewer long-term health problems compared to recipients from old donors.