

Improving umbilical cord blood stem cell engraftment by *ex vivo* expansion of hematopoietic stem and progenitor cells

1. Impaired thymopoiesis is associated with severe infections after double umbilical cord blood transplantation (dUCBT). Monitoring of sjTREC⁺ T cell recovery in dUCBT patients should therefore be considered to identify patients in need for intensified support. (*this thesis*)
2. Exogenous Wnt3a protein promotes differentiation of both mouse and human hematopoietic stem and progenitor cells in growth factor-driven serum-free expansion cultures. (*this thesis*)
3. The aryl hydrocarbon receptor antagonist StemRegenin1 promotes *ex vivo* expansion of both human hematopoietic progenitor cells and stem cells through inhibition of differentiation. (*this thesis*)
4. The B cell-prone nature of the immunodeficient NOD scid gamma (NSG) xenograft model hampers the evaluation of the full engraftment potential of human (expanded) hematopoietic stem and progenitor cells. (*this thesis*)
5. Labeling of (cord blood-derived) hematopoietic stem and progenitor cells with ¹⁹F-containing PLGA nanoparticles does not affect their functional characteristics and is therefore a promising technique for *in vivo* tracking of transplanted hematopoietic cells. (*this thesis*)
6. Our scientific understanding is biased by a literature that is more likely to publish a single positive finding than dozens of failed attempts to achieve the same result. (*J.Knight, Nature 2003*)
7. Storage of cord blood units in private cord blood banks should be discouraged by medical professionals in view of the extremely low change of clinical autologous application.
8. To determine the success of (expanded) hematopoietic stem and progenitor cell transplantation, long term T cell reconstitution should be an endpoint in addition to short term neutrophil and platelet recovery.
9. Robust expansion of hematopoietic stem and progenitor cells obviates the need to select umbilical cord blood units with high cell doses and results in an increased usable inventory and a reduced cell count threshold for banking, enhancing the chance to find a better HLA-matched unit. (*Wagner et al. Cell Stem Cell 2016*)
10. Female physicians in 'dual-doctor marriages' report more limitations in their professional lives compared to female physicians married to a non-physician. Ambitious female doctors should therefore consider to marry a fire fighter. (*Adjusted from Sobecks et al. Ann Int Med 1999*)
11. Give a woman the right pair of shoes and she can conquer the world. (*Marilyn Monroe*)