Mesenchymal stem cells in skeletal muscle regeneration

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Stellingen behorend bij het proefschrift / Propositions as part of this thesis

Mesenchymal stem cells in skeletal muscle regeneration

1. In an *in vivo* model of ongoing skeletal muscle regeneration/remodeling human mesenchymal stem cells and/or their derivatives continue to contribute to skeletal muscle repair for long periods of time. (This thesis)

2. Ageing of human mesenchymal stem cells may occur in different tissues at different rates. (This thesis)

3. The presence of human-specific β-spectrin and dystrophin in murine skeletal muscle tissue treated with human mesenchymal stem cells following cardiotoxin injury argues for the myogenic reprogramming of the donor cell nuclei. (This thesis)

4. Since downregulation of MHC class I surface expression renders human mesenchymal stem cells (hMSCs) vulnerable to recognition and cytolysis by natural killer cells, multiple immune evasion strategies are likely required to make hMSCs non-immunogenic and thereby universally transplantable. (This thesis)

5. For mesenchymal stem cells, identifying a standardized tissue and donor source, isolation and expansion procedures, definition of markers to improve homogeneity, dosing and administration site will affect their safety and efficacy in cell therapy. (Myers et al. Expert Opin Biol Ther 2010;10:1663-1679)

6. Adult mesenchymal stem cells may not be as 'powerful' or diverse as embryonic stem cells may one day become, but at present they offer many advantages for developing cellular therapeutics: ease of isolation, expansion potential, stable phenotype, shippability, and compatibility with different delivery methods and formulations. (Le Blank and Pittinger. Cytotherapy 2005;7:36-45)

7. The unexpected recall of autoreactive dystrophin-specific T cells suggests that the monitoring of cellular immune responses should be a priority for any experimental therapy designed to increase the number of dystrophin-positive myofibers in patients with Duchenne muscular dystrophy. (Mendell et al. N Engl J Med 2010;363:1429-1437)

8. If there were no regeneration, there could be no life. If everything regenerated, there would be no death. (Richard J. Goss)

9. Three main challenges in science are: getting funds, getting results and getting publications.

10. Short, simple and precise are valuable qualities in research.

11. To accept a challenge is not hard, to bring it to a good end is.

12. To grow a red wood sequoia tree you need more than the right soil and water.