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From teeth, skin, blood to heart : induced pluripotent stem cells as an in vitro model for cardiac disease

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Author: Dambrot, Cheryl S.

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STELLINGEN:

Behorend bij het proefschrift getiteld:

From Teeth, Skin, Blood to Heart: Induced Pluripotent Stem Cells as an in vitro Model for Cardiac Disease

1. Skin fibroblasts and cells from milk teeth can be readily isolated and reprogrammed even after prolonged storage of the source tissue in a simple salt solution. – this thesis
2. Solving technical issues still confronting induced pluripotent stem cell (iPSC) technology, including identifying integration number and location of reprogramming DNA sequences as well as a robust cardiac differentiation, contributes to a more rapid realization of the potential of iPSCs by reducing the time required between obtaining primary cell cultures for reprogramming and selecting the best human iPSC lines for the question to be addressed. -this thesis.
3. Cardiomyocytes derived from induced pluripotent stem cells generated from patients with hypertrophic cardiomyopathy have an intrinsic hypertrophic phenotype independent of overload on the heart. –this thesis
4. Serum masks the hypertrophic phenotype of pluripotent stem cell-derived cardiomyocytes from hypertrophic cardiomyopathy patients – this thesis
5. Induced pluripotent stem cells will probably provide models for disease first, cures later. Cyranoski D Nature 2008.
6. The biggest challenge for successful iPSC-mediated disease modeling and therapy is to generate functionally relevant cell types from iPSCs. Ye Z et al Int J Hematol 2012.
7. Human embryonic stem cells and induced pluripotent stem cells exhibit many equivalent biological features, but due to their subtle differences, they have distinct but complementary roles in research. Bellin M et al Nature Reviews 2012.
8. Over the past decade, the ability to culture and differentiate human embryonic stem cells has offered researchers a novel therapeutic that may, for the first time, repair regions of the damaged heart. Mignone J et al Circulation Journal 2010.
9. If you are not prepared to be wrong, you will never come up with anything original. Sir Ken Robinson, 2009
10. All life is an experiment. The more experiments you make the better. Ralph Waldo Emerson (May 25, 1803 – April 27, 1882)
11. Being a scientist means living on the borderline between your competence and your incompetence. If you always feel competent, you aren't doing your job. Carlos Bustamante (May 6, 1951-present)
12. If you can't think of any good experiments to do, do something. Jon Epstein: Nirm 2012