Multimodal visualization of adult stem cells in inner ear and brain pathology

Schomann, T.

Stellingen behorend bij het proefschrift getiteld
Multimodal Visualization of Adult Stem Cells in Inner Ear and Brain Pathology

1. Bioluminescence imaging is suitable to visualize cells in the cochlea of guinea pig cadavers, but will also be suitable for visualization in living guinea pigs.

2. Contrary to other rodent species, round window membrane application of ouabain cannot be used to selectively destroy type-I SGCs in the guinea pig cochlea.

3. The ability of hair-follicle-bulge-derived stem cells to integrate into modiolus tissue explants and differentiate into cells, which express neuronal markers, *in vitro* underlines their potential for treatment of neurodegenerative disorders in the cochlea.

4. Hair-follicle-bulge-derived stem cells might outperform mesenchymal stem cells in the treatment of traumatic brain injury, because they do not produce harmful extracellular masses within the brain.

5. Multimodal imaging, i.e., the combination of fluorescence, bioluminescence, and magnetic resonance imaging as well as light microscopy, is feasible and extremely useful to compare the results of *in vitro* with *in vivo* experiments.

6. Cells cultured in a chemically defined culture medium without xenogenic components are less prone to induce immune response reactions after transplantation.

7. The perfect stem cell source for regenerative therapy has not been found… yet.

8. A biological approach for the restoration of sensorineural hearing loss is preferred to the use of hearing devices.

9. Stable long-term tracking of stem cells, using a robust *in vivo* reporter system, is needed in the clinic to reliably assess the value of cell-based therapy.

10. The lack of a tail hampers inner ear research in the guinea pig.

11. The cartoons at http://phdcomics.com/ state the unadorned truth.

12. PhD research is like finding Nemo: Just keep swimming.