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Title (English) GFP-transfection of human and guinea pig inner ear cells and the development of a transplantation model for regenerating the auditory nerve			
Title (Swedish)			
Abstract Different in vitro transfection techniques were evaluated in order to mark human and guinea pig inner ear cells with Green Fluorescent Protein (GFP). Parameters such as cell survival and transfection efficiency were analysed for three different cell types from the spiral ganglion of the inner ear; neural progenitor cells, Schwann cells and neurons. Cells from a GFP-transgenic mouse were also evaluated. The final goal of this study is to develop a technique to transplant these cells to the inner ear of patients with sensorineural deafness or severe hearing loss to improve the effect of a cochlear implant through auditory neurogenesis (the first step of neuronal differentiation). A transplantation model is here proposed. In addition, the development of transfection techniques may be useful for future in vitro-studies of human inner ear cells. In this study, adult human auditory neural progenitor cells and Schwann cells were successfully transfected with high efficiency and cell survival using a nucleofection technique. A liposome-mediated transfection technique was less successful. However, guinea pig Schwann cells could be transfected with this technique. So far, no neural transfection was detected.			
Keywords Inner ear, GFP, transfection, transplantation, progenitor, Schwann cells			
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