



## Abstract DGA 2009

### Future strategies of hearing rehabilitation

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More than 600 million people suffer from neurosensory diseases, with hearing loss being one of the dominant causes of all ages. Deafness affects 2-3 children in 1000 born, over 10% of adults and 30% of elderly individuals above 65 years of age. Most patients with a hearing problem are diagnosed with sensorineural hearing loss primarily caused by hair cell dysfunction. Threshold shifts and loss of discrimination may be due to auditory neuropathy that is probably more frequent than earlier understood and studies of the human inner ear may suggest that additional filtering and synchronous activity exist in the first neuron that could play important roles for speech coding. Electric stimulation of peripheral and central auditory system is a remarkable accomplishment in modern medicine and combined electro-acoustic stimulation paradigm and bilateral use may further improve spectral resolution and music perception. New research in molecular medicine, gene therapy, stem cell inducement and nanotechnology may lead to further breakthroughs in diagnostic and new causative treatments of diseases of the auditory systems. We anticipate a challenging future in regenerative medicine with new techniques to induce cell repair and treatment modalities in patients suffering from neural deafness. However, it is also imperative not to furnish unrealistic promises but give reasonable prospects for future progress. We need better understanding of central disorders using brain mapping as well as treatment of many ear diseases such as Meniere's disease, NF2 and chronic middle ear diseases. This presentation will focus on some of these problems and try to foresee strategies for further progress of hearing rehabilitation.

