

Stem Cell 'Deafness Cure' Closer

Stem cells that could be used to restore hearing have been successfully created.

A Sheffield University team took stem cells from embryos and converted them into cells that behave like sensory hair cells in the human inner ear. Their discovery could ultimately help those who have lost hair cells through noise damage and some people born with inherited hearing problems. But any cure is still some years away, experts told the journal Stem Cell. The Sheffield team is now working on the next stage of the research to check if the cells can restore hearing.

Currently, hair cell damage is irreversible and causes hearing problems in some 10% of people worldwide. Embryonic stem cells could change this because they have the unique ability to become any kind of human cell. Not only could they be used to replace the lost hair cells, but also any damaged nerve cells along which the signals generated by the hair cells are transmitted to the brain. But the use of stem cells is controversial - opponents object on the grounds that it is unethical to destroy embryos in the name of science. Lead researcher Dr Marcelo Rivolta, said: "The potential of stem cells is very exciting. We have now an experimental system to study genes and drugs in a human context.

"Moreover, these cells would help us to develop the technologies needed to deliver them into damaged tissues, such as the cochlea, in order to restore the different cell types. "This should facilitate the development of a stem cell treatment for deafness." Dr Ralph Holme, director of biomedical research at RNID, said: "Stem cell therapy for hearing loss is still some years away but this research is incredibly promising and opens up exciting possibilities by bringing us closer to restoring hearing in the future." Vivienne Michael of Deafness Research UK said: "This study highlights the importance of stem cell research. "In addition to the future potential for restoring hearing with stem cell therapy, the recent research success means that we may now have better ways to test the efficacy and toxicity of new drugs on auditory cells."

Professor David McAlpine, director of the Ear Institute, University College London, said: "Is this the ultimate upgrade for the iPod generation? "The possibility of regenerating the sensory cells of the inner ear, so easily damaged by exposure to loud sound, has just moved a step closer. "If scientists can find out ways to deliver new cells to the inner ear, and wire them up correctly, then "plug and play" hearing could be the future."