

April 7, 2009: A research team at the University of Sheffield in the United Kingdom have replicated auditory neurons from stem cells, a breakthrough that could, in the future, help restore hearing in deaf individuals – potentially including people with NF2-related deafness. This is a groundbreaking finding. Cells of the hearing system cannot regenerate themselves so once these nerves are damaged or lost – as they are following surgery to remove an NF2-related vestibular schwannoma – deafness is permanent.

The key research discovery has been made by Dr Marcelo Rivolta and his colleagues. They have been able to turn fetal stem cells into sensory hair cells or auditory neurons, cells that are critical in hearing function. This research progress will be reported on at a meeting of the UK National Stem Cell Network in Oxford, England this week.

The long-term goal is that these newly generated cells could be surgically inserted into the human brain and would restore lost hearing. The approach is currently being tested in animals. Though it is in its very early days, if this is successful, then looking ahead the technique could "potentially benefit NF2 with nerve regeneration," says Dr. Gareth Evans (St. Mary's Hospital, Manchester, England), a worldwide leader in NF2 clinical care and research.

Though it will be some years before this hearing restoration approach can be tested in humans, similar research in the UK has used stem cells to restore eye tissue in macular degeneration, a common cause of blindness. Clinical trials using stem cells to treat macular degeneration in patients will begin in 2010 or 2011.