

## Deafness gene discovered by scientists

A gene that causes deafness in the elderly has been identified by scientists.

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Published: 7:00AM GMT 10 Nov 2009

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The findings will help doctors better understand the nature of age-related decline in hearing and may lead to new therapies to prevent or treat the condition.

The gene is a protein called Bak that makes hair cells in the inner ear self-destruct as people grow older.

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Researchers at the University of Wisconsin found that removing the gene in mice prevented the death of these cells and stopped deafness developing in the animals.

Tests on five and 15 month old mice found those who had the protein knocked out had much better hearing than mice whose genes were left alone.

Most mice display at least some degree of age-related-hearing loss (AHL) and the age of onset varies from three months to 20 months.

Dr Tomas Prolla and colleagues, whose findings are published in Proceedings of the National Academy of Sciences, said: "Bak is required for the development of age-related-hearing loss."

The condition is a universal feature of ageing in humans and other mammals and is the most common sensory disorder in the elderly population.

It affects more than four-in-10 people over the age of 65 and because of its high prevalence it is a "major social and health problem", said Dr Prolla.

Dr Prolla said: "The molecular mechanisms underlying AHL are unknown and currently there is no treatment for the disorder.

"Here we report mice with a deletion of the gene Bak exhibit reduced age-related cell death of neurons and hair cells in the inner ear and prevention of AHL."

He said AHL is characterised by an age-dependent decline of auditory function associated with loss of sensory hair cells and spiral ganglion (SG) neurons in the inner ear.

Dr Prolla said: "Hair cells and SG neurons do not regenerate in mammals and loss of these long-lived cells leads to permanent hearing impairment."

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