

Reversing Cell Death for Improved Hearing



Bernd Fritsch
DEO Chair & Full Professor, Biology

CURRENT RESEARCH

Understanding the molecular basis of ear development to restore hearing once it is lost

Hearing loss in the aging population will lead to several hundred million hearing defected people worldwide while balance dysfunction of the elderly has even more dire consequences. When the oldest members of our communities fall and break a leg or a hip they have a hard time recovering, if they recover at all. What do these two incredible challenges for the elderly have in common? The biological mechanisms behind hearing loss and balance dysfunction can both be traced back to cells in the ear. Dr. Bernd Fritsch, of the University of Iowa, aims to delay the onset of neurosensory loss so that seniors can enjoy their 'golden years' communicating as they used to and furthermore, being able to take part in physical activities without the risk of falling.

Past research has primarily focused upon understanding why the cells in the inner ear die. However, the conceptual problem is that nobody can tell which cells die unless they are already dying. More importantly, even if we are to understand how the cells die, it does not help us to keep the remaining cells alive, and prolong their health. Instead, Dr. Fritsch's research focuses on generating models that allow for the study of the molecular signature of an increasingly smaller population of viable cells to figure out what makes some of these cells survive while others die much earlier. Using a unique combination of novel mouse mutants to generate for the first time, animals in which all hair cells die prematurely, Dr. Fritsch and his team are coming closer to developing treatments to boost these molecular signatures in all cells thereby increasing the viability of entire populations of cells for the benefit of organism.

Current research includes:...

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AFFILIATION

University of Iowa

EDUCATION

- Ph.D., in Biology, 1978 , Technical University of Darmstadt
- M.S., in Biology, 1973 , Technical University of Darmstadt
- Heisenberg Fellow , 1986 - 1990

AWARDS

- Distinguished Research Career Award, Creighton University, 1993
- Outstanding Mentor Award, Creighton University, 2007
- Iowa Entrepreneurial Endowed Professor, University of Iowa, 2008
- Fellow of the American Association for the Advancement of Science, 2010
- CDRC study section review service, 2007-2011
- and 1 more...

RESEARCH AREAS

Life Science, Genomics / Congenital, Neurological / Cognitive, Regenerative Medicine

FUNDING REQUEST

Your contributions will support the continued research of Dr. Bernd Fritsch, of the University of Iowa, as he conducts basic research to one day improve the longevity of our hearing abilities and our balance. Donations will fund the necessary \$12K for mouse quarters, \$85K for personnel, and an additional \$40K for materials and supplies. In choosing to support Dr. Fritsch, you will play a role in improving quality of life for the aging population as hearing and balance disorders correlate with mental decline.