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## Hydrogen protects auditory hair cells from free radicals

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### Abstract

Reactive oxygen species (ROS) play a role in the degeneration of auditory hair cells because of aging, noise trauma, or ototoxic drugs. Hydrogenation is a fundamental reduction/de-oxidation reaction in living organisms. This study thus examined the potential of hydrogen to protect auditory hair cells from ROS-induced damage. To generate ROS, we applied antimycin A to explant cultures of auditory epithelia, and examined the effect of hydrogen on the protection of hair cells against ROS. Incubation with a hydrogen-saturated medium significantly reduced ROS generation and subsequent lipid peroxidation in the auditory epithelia, leading to increased survival of the hair cells. These findings show the potential of hydrogen to protect auditory hair cells from ROS-induced damage.

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