

## **WHAT'S THAT YOU SAY? NEW RESEARCH HOLDS PROMISE FOR REPAIRING HEARING LOSS.**

If you like the volume cranked, listen up – I've got good news for you. New scientific research has identified a drug that can restore hearing in noise-deafened experimental animals. That's excellent news not just for us head bangers, but also for factory workers, builders, combat soldiers and others who are exposed to excessive noise.

I have a long list of things I should not do because they will affect my health in later life. Watch that cholesterol or you might get atherosclerosis, exercise regularly or you might get heart disease, protect your ears from loud noise or you might go deaf. The list goes on. Pharmaceutical companies have done a booming business making drugs that counteract or delay the effects of these and other environmental hazards. This essentially allows us to carry on doing what we like without worrying about the impact it might have on our health. Whether this is a good solution is debatable, but it is an approach that works for many people – just take your Zarator (atorvastatin) and enjoy that steak.

But we all have our weaknesses. Although I try to eat right and get plenty of exercise, I like my music loud. And although I have given some thought to the consequences of this behaviour, my approach has been to consider learning sign language. Enter a new possibility.

Hearing is made possible through the activity of cells in our inner ear. These cells can sense the vibration caused by sound waves, convert it into a nerve impulse, and send that information to our brain. And what's more, different cells are sensitive to different sounds – some cells sense high tones whilst others sense low tones, and still others sense the whole range of tones in between. When cells die, we lose the ability to hear the tones that those cells respond to. Unfortunately, loud noise can overwork these cells and kill them. And they can't be replaced; at least not in us, but they can be in birds and reptiles. So researchers undertook studies firstly to figure out how these cells are replaced in other species, and secondly to make that process happen in the mouse, whose hearing is much like ours. They discovered that the biological process that is used to form the cells is shut off in us (and mice), but not in birds or reptiles. Moreover, they identified a drug that allows the generation process to be switched back on, thereby producing cells to replace the ones that die.

Although incredibly promising, there is still a long way to go before this is available to us. In the mean time, check out the wonderful resources at Deaf Aotearoa (<http://www.deaf.org.nz>) – they do incredible stuff.

---

**REFERENCE:** Mizutani et al (2013) "Notch Inhibition Induces Cochlear Hair Cell Regeneration and Recovery of Hearing after Acoustic Trauma." *Neuron*, vol. 77: pp58-69.