ReSound

For people with Cochlear Implants

Winter 2018 **Issue 57**

"A winters day, Bleaklow in the peaks past Glossop"

Manchester CICADA — a charity supporting implant patients

This newsletter has been produced on behalf of the Manchester CICADA Charity

contents

Editorial

Welcome to the Winter edition of Resound.

At this time of year it is useful to look forward and make plans for such things as events for the new season. Included in this edition are a couple of items for the coming year such as the guided tour of the Terracotta warriors exhibition in Liverpool and the AGM and Annual dinner in March but a more complete list will be available by the time of the AGM. If you have an idea for a meeting/lunch/event then please let anyone on the EC know.

As mentioned before, any photographs from previous events or news you would like to share with us please send it to me at the address on the back page.

In this issue we have updates on developments taking place in the world as usual and also contributions from members.

Our 'Ten Minute Interview' this issue is from a CI user who is setting up a blog with the focus on matters that we would find interesting and I do encourage those of you who subscribe to Blogs to have a look at his website.

We welcome all the new members who have joined this last year and who will hopefully feature in interviews in subsequent issues of the magazine.

The drop-in sessions at the MRI and also other hospitals such as Tameside General are doing well and if you think that you could help your local hospital in any way do get in touch with anyone from the EC and we will do all we can to help.

All of us on the EC thank you all for your continued support throughout the year and look forward to seeing you at an event or meeting soon, the next event is the AGM and Dinner which is at the Liner Hotel in Liverpool on March 17th.

Kevin Williams - Editor

Xmas Lunch at the Liner

by Kevin Williams

Scenes from the Xmas meal held at the Liner Hotel in Liverpool on the 25th November last year.

They say Xmas is getting earlier each year! Everyone enjoyed a nice meal and a stroll around Liverpool afterwards.

Assistive Devices at the MRI

by John Newton

The CI clinic at Manchester Royal Infirmary has opened a drop-in centre to provide advice about assistive devices.

Some of you may already have heard about this. It is open from 2pm to 4pm every Monday. Drop-in does not mean that you arrive by parachute but that no appointment is necessary, you just turn up to the reception area at the clinic.

It is open to any hearing aid or CI user. The centre has a selection of devices which can be used to improve your hearing experience in specific situations, such as watching the TV, attending meetings, talking with your partner in the car or in a restaurant or even waking you up in the morning. You can try them out there and then and even borrow them to try at home.

Unfortunately such equipment doesn't come courtesy of the NHS. You have to pay for them! Nor does the centre actually sell the gear, if you decide you would like to buy some item after trying it out, you will be put in touch with the suppliers.

The room is managed by volunteers who are pretty knowledgable about deafness and about the equipment. If you decide to try something at home, you have to deposit a cheque for the value with the clinic.
The cheque isn't cashed, just put in the safe until the item is returned.
Cheques are being used less and less nowadays so you need to remember to bring yours if you visit the centre.

There are two main suppliers of such devices, Action on Hearing Loss and Connovans both of whom publish comprehensive catalogues and have informative websites.

My own experience is that the wide variety of things available can be very confusing, particularly because they are all sold under brand names like Conversor Pro or Roger Pen which don't tell you much about what they do.

The chance to actually handle them and try them out at the centre helps overcome such confusion. There aren't many places in the country where you can do this.

I have been one of the volunteers at the centre for a few months now. I agreed to do it because I thought it would be a good way of meeting potential CICADA members (and also because I wanted to learn more about the devices for my own benefit!) I have enjoyed meeting and talking to the "customers" and particularly learning more about the problems which deafness causes and the possible solutions.
If you are considering buying such gear, I would strongly recommend that you drop-in and try them out before you buy.

Engineering music to sound better with cochlear implants

When hearing loss becomes so severe that hearing aids no longer help, a cochlear implant not only amplifies sounds but also lets people hear speech clearly.

Music is a different story.

"I've pretty much given up listening to music and being able to enjoy it," says Prudence Garcia-Renart, a musician who gave up playing the piano a few years ago.

"I've had the implant for 15 years now and it has done so much for me. Before I got the implant, I was working but I could not use a phone, I needed somebody to take notes for me at meetings, and I couldn't have conversations with more than one person. I can now use a phone, I recognize people's voices, I go to films, but music is awful."

Cochlear implants are designed to process speech, which is a much simpler auditory signal compared with music. People with severe hearing loss also have lost auditory neurons that transmit signals to the brain.

It's not possible to tweak the settings of the implant to compensate for the loss of auditory neurons, says Anil Lalwani, MD, director of the Columbia Cochlear Implant Program. "It's unrealistic to expect people with that kind of nerve loss to process the complexity of a symphony, even with an implant."

Instead, Dr. Lalwani and members of Columbia's Cochlear Implant Music Engineering Group are trying to reengineer and simplify music to be more enjoyable for listeners with cochlear implants. "You don't necessarily need the entire piece to enjoy the music," Dr. Lalwani says. "Even though a song may have very complex layers, you can sometimes just enjoy the vocals, or you can just enjoy the instruments."

Right now the group is testing different arrangements of musical compositions to learn which parts of the music are most important for listener enjoyment. "It's not the same for somebody who has normal hearing," Dr. Lalwani says, "and that's what we have to learn."

Down the road, Dr. Lalwani thinks software will be able to take an original piece of music and reconfigure it for listeners or give the listener the ability to engineer their own music.

"Our eventual goal, though, is to compose music for people with cochlear implants based on what we've learned," Dr. Lalwani says. "Original pieces of music that will possibly have less rhythmic instruments, less reverb, possibly more vocals--something that is actually designed for them."

The study is titled, "Music Engineering as a Novel Strategy for Enhancing Music Enjoyment in the Cochlear Implant Recipient." The other contributors are: Gavriel D. Kohlberg, Dean M. Mancuso, and Divya A. Chari.

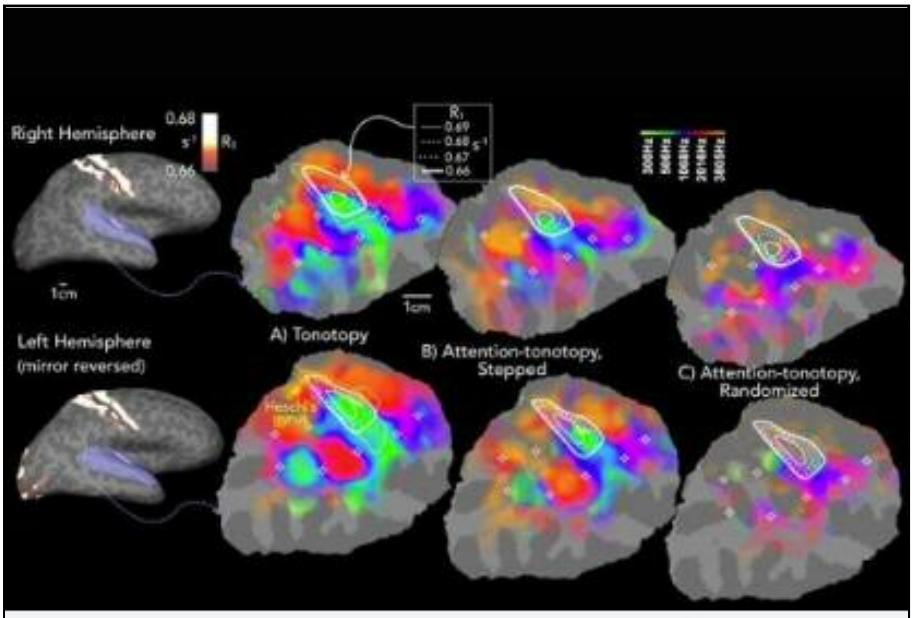
Story Source:
Materials provided by Columbia University Medical Center. Note: Content may be edited for style and length.

Selecting sounds: How the brain knows what to listen to

New noninvasive approach reveals brain mechanisms of auditory attention

How is it that we are able -- without any noticeable effort -- to listen to a friend talk in a crowded café or follow the melody of a violin within an orchestra?

Scientists have developed a new approach to how the brain singles out a specific stream of sound from other distracting sounds.



This image shows auditory cortical maps of sound frequency and attention.

Credit: Carnegie Mellon University

A team led by scientists at Carnegie Mellon University and Birkbeck, University of London has developed a new approach to how the brain singles out a specific stream of sound from other distracting sounds.

Using a novel experimental approach, the scientists non-invasively mapped sustained auditory selective attention in the human brain. Published in the Journal of Neuroscience, the study lays crucial groundwork to track deficits in auditory attention due to aging, disease or brain trauma and to create clinical interventions, like behavioral training, to potentially correct or prevent hearing issues.

"Deficits in auditory selective attention can happen for many reasons -- concussion, stroke, autism or even healthy aging. They are also associated with social isolation, depression, cognitive dysfunction and lower work force participation.

Now, we have a clearer understanding of the cognitive and neural mechanisms responsible for how the brain can select what to listen to," said Lori Holt, professor of psychology in CMU's Dietrich College of Humanities and Social Sciences and a faculty member of the Center for the Neural Basis of Cognition (CNBC).

To determine how the brain can listen out for important information in different acoustic frequency ranges -- similar to paying attention to the treble or bass in a music recording -- eight adults listened to one series of short tone melodies and ignored another distracting one, responding when they heard a melody repeat.

To understand how paying attention to the melodies changed brain activation, the researchers took advantage of a key way that sound information is laid out across the surface, or cortex, of the brain.

The cortex contains many 'tonotopic' maps of auditory frequency, where each map represents frequency a little like an old radio display, with low frequencies on one end, going to high on the other.

These maps are put together like pieces of a puzzle in the top part of the brain's

temporal lobes.

When people in the MRI scanner listened to the melodies at different frequencies, the parts of the maps tuned to these frequencies were activated. What was surprising was that just paying attention to these frequencies activated the brain in a very similar way -- not only in a few core areas, but also over much of the cortex where sound information is known to arrive and be processed.

The researchers then used a new high-resolution brain imaging technique called multiparameter mapping to see how the activation to hearing or just paying attention to different frequencies related to another key brain feature, or myelination.

Myelin is the 'electrical insulation' of the brain, and brain regions differ a lot in how much myelin insulation is wrapped around the parts of neurons that transmit information.

In comparing the frequency and myelin maps, the researchers found that they were very related in specific areas: if there was an increase in the amount of myelin across a small patch of cortex, there was also an increase in how strong a preference neurons had for particular frequencies.

"This was an exciting finding because it potentially revealed some shared 'fault lines' in the auditory brain," said Frederic Dick, professor of auditory cognitive neuroscience at Birkbeck College and University College London.

"Like earth scientists who try to understand what combination of soil, water and air conditions makes some land better for growing a certain crop, as neuroscientists we can start to understand how subtle differences in the brain's functional and structural architecture might make some regions more 'fertile ground' for learning new information like language or music."

Story Source:
Materials provided by Carnegie Mellon University. Original written by Shilo Rea. Note: Content may be edited for style and length.

Specially timed signals ease tinnitus symptoms in first test aimed at the condition's root cause

Millions of Americans hear ringing in their ears -- a condition called tinnitus -- but a new study shows an experimental device could help quiet the phantom sounds by targeting unruly nerve activity in the brain.

Results of the first animal tests and clinical trial of the approach resulted in a decrease in tinnitus loudness and improvement in tinnitus-related quality of life.

Millions of Americans hear ringing in their ears — a condition called tinnitus — and new research shows an experimental device could help quiet the phantom sounds by targeting unruly nerve activity in the brain.

In a new study in Science Translational Medicine, a team from the University of Michigan reports the results of the first animal tests and clinical trial of the approach, including data from 20 human tinnitus patients.

Based on years of scientific research into the root causes of the condition, the device uses precisely timed sounds and weak electrical pulses that activate touch-sensitive nerves, both aimed at steering damaged nerve cells back to normal activity.

Human participants reported that after four weeks of daily use of the device, the loudness of phantom sounds decreased,

and their tinnitus-related quality of life improved. A sham "treatment" using just sounds did not produce such effects.

Results from tests in guinea pigs and a double-blind human study funded by the Coulter Foundation validate years of preclinical research funded by the National Institutes of Health, including previous tests in guinea pigs.

The U-M team has new NIH funding for an additional clinical trial to further refine the approach. U-M holds a patent on the concept behind the device and is developing it for potential commercialization.

"The brain, and specifically the region of the brainstem called the dorsal cochlear nucleus, is the root of tinnitus," said Susan Shore, the U-M Medical School professor who leads the research team."

When the main neurons in this region, called fusiform cells, become hyperactive and synchronize with one another, the phantom signal is transmitted into other centers where perception occurs.

"If we can stop these signals, we can stop tinnitus. That is what our approach attempts to do, and we're encouraged by these initial parallel results in animals and humans."

A dual-stimulus approach to treating tinnitus

The approach, called targeted bimodal auditory-somatosensory stimulation, involves two senses. The device plays a sound into the ears, alternating it with precisely timed, mild electrical pulses delivered to the cheek or neck.

This sets off a process called stimulus-timing dependent plasticity, or STDP, which was first explored in animals and led to long-term changes in the rate at which the nerves fire.

The approach aims to reset the activity of fusiform cells, which normally help our brains receive and process both sounds and sensations such as touch or vibration — what scientists call somatosensory inputs.

Under normal conditions, fusiform cells help our brains focus on where sounds are coming from, and help us tune out sensations that result from the movement of our own head and neck.

But the U-M team's previous work in animals showed that loud noise can trigger a change in the nerve cells' activity — altering its timing so that they fire off synchronized signals spontaneously instead of waiting for an actual sound in the environment.

The toll of tinnitus

These events in animals parallel what happens in humans.

After exposure to such things as loud noises, head or neck trauma, or other triggering events, some people develop a persistent sensation that they're hearing sounds like ringing or a grinding noise.

Approximately 15 percent of Americans have some level of tinnitus, but the worst symptoms occur in about 10 percent of sufferers, according to estimates based on interviews with nationally representative samples of Americans.

Many of those with more severe tinnitus also have hearing loss.

Some cases are severe. As many as 2

million people can't work or carry out other daily activities because of the tinnitus itself, or the psychological distress it causes them. Tinnitus is the most common cause of service-connected disability among veterans of the U.S. military.

Current approaches to tinnitus treatment focus include efforts to address the psychological distress it causes, for instance through cognitive behavioral therapy.

Other approaches use sound to mask the phantom sounds or attempt to modulate the brain response.

For more severe cases, some patients turn to invasive, and therefore riskier, approaches such as deep brain stimulation and vagal nerve stimulation. The current approach provides a novel and unique, non-invasive strategy that aims to modulate and correct the aberrant neural pathways that cause tinnitus.

Study details

Shore and her colleagues are based in U-M's Kresge Hearing Research Institute, which is part of the Department of Otolaryngology at Michigan Medicine, U-M's academic medical center.

Co-first authors Kendra Marks, David Martel and Calvin Wu are members of the Shore laboratory.

They recruited a particular kind of tinnitus sufferer for their study: those who can temporarily alter their symptoms if they clench their jaws, stick out their tongues, or turn or flex their necks.

These maneuvers, Shore says, appear to be self-discovered ways of changing the activity of fusiform cells — providing an external somatosensory signal to modulate their tinnitus.

The U-M device delivers sounds matched to the loudness and pitch of the phantom sounds that each patient hears. It also delivers mild electrical impulses applied to the area of the head involved in the patients' own tinnitus-altering maneuvers.

The crucial timing of the auditory and electrical stimulation came directly from tests in guinea pigs that had noise-induced tinnitus, reported in the new study. Those tests showed that specific timing between delivery of the two kinds of stimuli was necessary to suppress the hyperactive fusiform cells.

After patients had the device calibrated to their own tinnitus symptoms, they learned to apply its earphones and electrodes for a 30-minute session each day.

Half the group received the bimodal sound-and-electricity treatment for the first four weeks, while the other half received just sounds. Then, they all took a four-week break, and started the next four weeks receiving the opposite of what they'd received before. None of them knew which option they got first.

Every week, the patients took a survey about how much their tinnitus was affecting their lives, and a test of how loud their tinnitus sounds were.

Results in human participants

Overall, the loudness of phantom sounds decreased only after the actual, or bimodal, treatment, but not the sham treatment of sound only. For some the decrease was around 12 decibels, about the magnitude of an electric light bulb's hum. Two participants said their tinnitus disappeared completely.

The quality of life survey — where a low score indicates less impact from tinnitus — is called TFI, and is measured on a 100-point scale. Statistical modeling of the results revealed that, on average, patients experienced significantly reduced scores for the active treatment, though the size of the effect in individual patients varied.

On average, scores also stayed lower for weeks after treatment ended. This effect was not significant for the sham treatment.

No patient experienced a worsening of symptoms or quality of life, or other adverse events. Some said their phantom sounds got less harsh or piercing, or became easier to ignore.

"We're definitely encouraged by these results, but we need to optimize the length of treatments, identify which subgroups of patients may benefit most, and determine if this approach works in patients who have nonsomatic forms of the condition that can't be modulated by head and neck maneuvers," Shore said.

Story Source:
Materials provided by Michigan Medicine - University of Michigan. Note: Content may be edited for style and length.

...and from down under...

Sensorion and Cochlear Announce Collaboration to Study Combination Therapies for Cochlear Implant Patients

MONTPELLIER, France and SYDNEY, Australia, Sensorion, a biotech company pioneering novel treatments for inner ear diseases, and Cochlear Limited, the global leader in implantable hearing solutions, today jointly announce a strategic collaboration focused on improving hearing outcomes in patients with cochlear implants.

The collaboration will evaluate therapeutic approaches using SENS-401 in combination with cochlear implants, with preclinical studies initiating in 2018, and potential clinical trials to begin as soon as 2019.

As part of this strategic collaboration, Cochlear will invest €1.6 million in shares of Sensorion. In exchange, Cochlear will receive a right of first negotiation for a global license to use SENS-401 in patients with certain implantable devices.

Cochlear is the global leader in implantable hearing solutions and invests more than AUD$150 million a year in research and development. The company is also involved in more than 100 research collaborations in 20 countries. Cochlear is the technology and market leader in cochlear implants. These devices replace the function of the damaged inner ear, converting digitally-coded sound into electrical impulses that stimulate the hearing nerve and then the brain, where they are interpreted as sound.

Sensorion, a clinical stage biopharmaceutical company with strong academic and partner networks, scientific excellence and execution capabilities, is focused on delivering first-in-class therapeutics for debilitating inner ear disorders, which represent a global market of more than $10 billion.

Sensorion is developing SENS-401, a small molecule clinical candidate for hearing loss.

The preclinical combination studies will evaluate SENS-401's therapeutic effect on hearing outcomes achieved with Cochlear's implantable devices. SENS-401 has demonstrated in preclinical models (noise and drug induced hearing loss) the capacity to enhance survival and preserve functional integrity of hair cells in the inner ear. It has the potential to improve hearing outcomes for patients undergoing cochlear implant surgery.

"This innovative approach of combining SENS-401 with cochlear implants may allow for better hearing outcomes," said Lawrence Lustig, MD, Howard W. Smith Professor and Chair, Department of Otolaryngology-Head & Neck Surgery, Columbia University Medical Center. "SENS-401 has the potential to provide cochlear protection following the implantation procedure, to support long-term functional stability of the implant, and to prevent continued degeneration in some patients."
"Addressing hearing loss is a societal priority"

said Frank Lin, M.D., Ph.D., Associate Professor of Otolaryngology, Head and Neck Surgery, Johns Hopkins University School of Medicine. “In particular, it has substantive implications for the cognitive and physical well-being of older adults that will likely have broader effects on public health.”

“Our collaboration has the potential to be transformational for both partners, as well as for patients suffering from hearing loss,” said Nawal Ouzren, CEO of Sensorion. “In children, the sense of hearing is crucial to development, language and learning; in older adults, hearing impairment can be disabling and isolating.

We believe that our collaborative efforts could ultimately result in life-changing benefits to implanted patients and we look forward to initiating mid-stage clinical testing as soon as 2019.”

“Cochlear is committed to advance hearing therapies and we look forward to leveraging our combined knowledge and capabilities,” stated Jan Janssen, Chief Technology Officer of Cochlear. “Sensorion has a promising portfolio of therapeutic candidates and we believe that the demonstrated effects of SENS-401 may strategically complement our technology.

We are excited for what our combined efforts could mean for providing even better outcomes for implant recipients.”

About SENS-401

SENS-401, R-azasetron besylate, is a drug candidate that aims to protect and preserve inner ear tissue when lesions are present that can cause progressive or sequelar hearing impediments.

A small molecule that can be taken orally or via an injection, SENS-401 has received Orphan Drug Designation in Europe for the treatment of sudden sensorineural hearing loss, and Orphan Drug Designation from the US FDA for the prevention of Cisplatin-induced ototoxicity in pediatric populations.

New plastic medical implants 'will be less likely to be rejected'

Funding has been made available to create plastic implants that are less likely to be rejected by the body.

The plastic-based medical implants will be developed by Imperial College’s Dr Rylie Green who has received over £1m from EPSRC to take the work forward.

Conventional medical implants can trigger inflammatory responses that are difficult to control and can lead to rejection, a situation that plastic medical implants could alleviate.

Dr Green from Imperial’s Department of Bioengineering will use EPSRC’s funds to explore new types of plastics that are combined with natural body proteins. These will form implants that encourage interaction with surrounding nerves to prevent rejection.

“This research could help to improve the quality of implants so that they are not rejected by the body so easily,” said Dr Green. “Ultimately, this could lead to improvements in cochlear implants or new types of bionic eye implants.”
According to Imperial, Dr Green will bring together concepts from tissue engineering, plastic design and bionic device technology to create soft and flexible plastic bioelectronics that are more compatible at the cellular level with the body, which will prevent rejection and minimise the formation of scar tissue.

Government regulations around use of these implants are complex, which adds to the cost of their development.

The team will also use funds from the project to demonstrate the safety of these new types of implants and the potential benefit to patients. To do so, they will try to improve the public’s perception and understanding of these technologies by leading public outreach activities and interacting with industry partners.

Dr Green added: "These activities will be key to moving plastic-based medical implants towards use in humans and creating high-resolution implants that improve patient quality of life."

Dr Green is one of eight researchers awarded grants to address long-term health challenges through the development of innovative healthcare technologies.

The EPSRC Healthcare Technologies Challenge Awards winners will use their share of £8m in funding to address long-term health challenges through the development of innovative healthcare technologies.

These include next-generation prosthetic hands and endoscopy devices to cancer treatment devices controlled by the body's electrical signals and optimising surgical interventions in the hip.

Hearing implant uses lasers to shoot sound into your ear

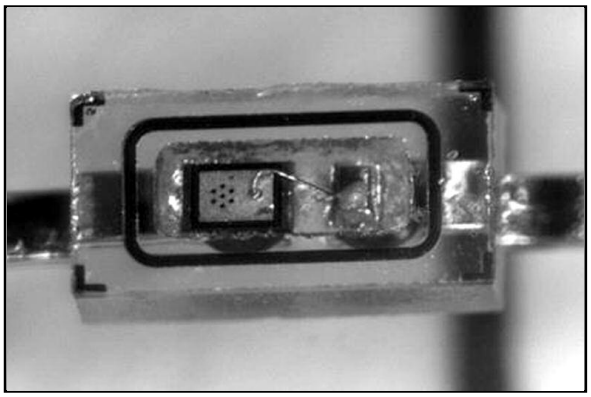
By Frank Swain

"Blinking lights are not just for Christmas trees"

A new implantable device uses pulses of light to stimulate auditory nerves, offering an improvement on existing cochlear implants.

Traditional implants rely on a series of electrodes that lie directly against the membrane of the inner ear, and use electrical signals to stimulate the auditory nerves lying beneath. However, implanting them can further damage hearing, and electrical currents can spread easily through the neural tissue to stimulate nearby cells, which the patient hears as noise.

The new work, coordinated by the Swiss Center for Electronics and Microtechnology in Alpnach, Switzerland, builds on the recent discovery of the "optoacoustic effect" – namely, that cells can be stimulated by pulses of infrared light. But exactly how this happens has been a source of some controversy.



Dissipating the heat of the lasers was a roadblock (CSEM)

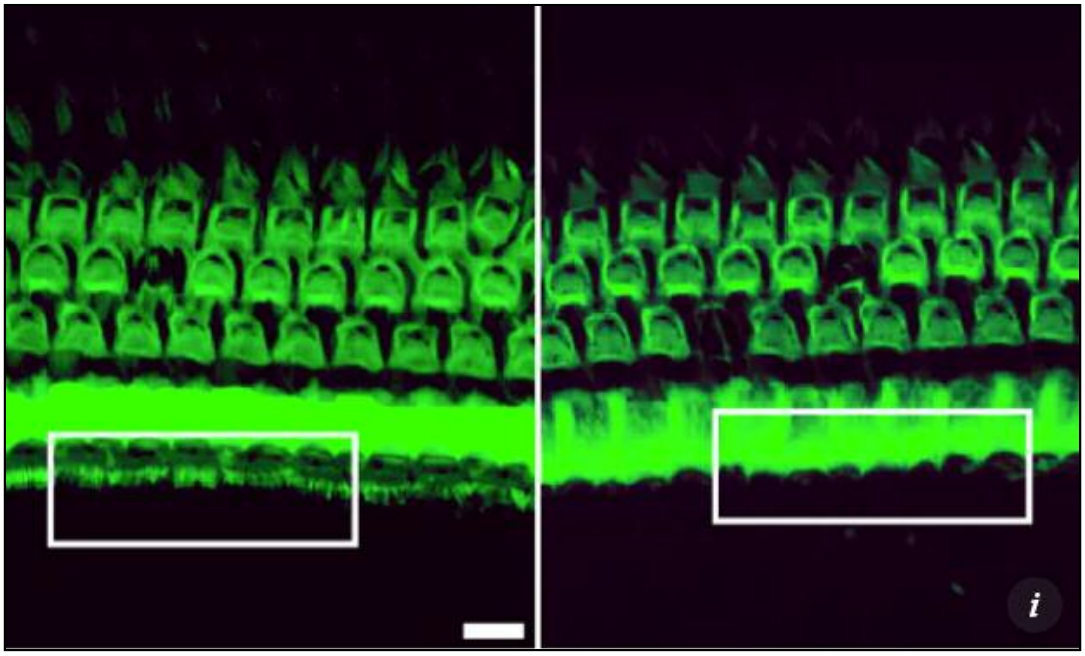
One theory suggests that it works because rapidly heating nerve cells with light pulses causes them depolarise, triggering an action potential.

A competing theory has it that the laser pulses rapidly heat water molecules in the inner ear, causing tiny shockwaves that vibrate the hairs in the same way sound waves normally do. Now, Nicole Kallweit and her colleagues at Laser Zentrum Hannover in Germany have found evidence for the latter: their system did not work in guinea pigs which had intact auditory nerves but were missing their hair cells. This supports the optoacoustic stimulation theory, they say, and they aim use this refinement of the optoacoustic effect to develop a new generation of cochlear implants.

The devices were developed as part of the €4 million Active Implant for Optoacoustic Natural sound enhancement project, partially funded by the EU. Their next focus will be to make the system more energy efficient so that the battery lasts longer. Rather than replace existing cochlear implants, it's likely that the two technologies will be combined, to give patients a system with greater flexibility that can adapt to their needs over time.

Breakthrough for genetic hearing loss as gene editing prevents deafness in mice

Prospect of a new class of therapies that could transform future treatment of genetic hearing loss, at the root of nearly half of all cases of deafness



X-Rays showing hair cell recovery

Deafness has been prevented in mice using gene editing for the first time, in an advance that could transform future treatment of genetic hearing loss.

The study found that a single injection of a gene editing cocktail prevented progressive deafness in baby animals that were destined to lose their hearing.

"We hope that the work will one day inform the development of a cure for certain forms of genetic deafness in people," said Prof David Liu, who led the work at Harvard University and MIT.

Nearly half of all cases of deafness have a genetic root, but current treatment options are limited. However, the advent of new high-precision gene editing tools such as Crispr has raised the prospect of a new class of therapies that target the underlying problem.

Crispr, or to give it its full name, **Crispr-Cas9**, allows scientists to precisely target and edit pieces of the genome.
Crispr is a guide molecule made of RNA, that allows a specific site of interest on the DNA double helix to be targeted.
The RNA molecule is attached to Cas9, a bacterial enzyme that works as a pair of "molecular scissors" to cut the DNA at the exact point required. This allows scientists to cut, paste and delete single letters of genetic code.

The study, published in the journal Nature, focused on a mutation in a gene called Tmc1, a single wrong letter in the genetic code, that causes the loss of the inner ear's hair cells over time.

The delicate hairs, which sit in a spiral-shaped organ called the cochlea, vibrate in response to sound waves. Nerve cells pick

up the physical motion and transmit it to the brain, where it is perceived as sound.

'Chemical surgery' can correct genetic mutations behind many diseases.

If a child inherits one copy of the mutated Tmc1 gene they will suffer progressive hearing loss, normally starting in the first decade of life and resulting in profound deafness within 10 to 15 years.

However, since most people affected by the mutation will also have a healthy version of the gene, inherited from their other parent, the scientists wanted to explore whether deleting the faulty version worked as a treatment.

Liu and colleagues used gene editing technology known as Crispr-Cas9, which acts as a molecular scissors, snipping the genome to disable a target gene. The team injected the gene editing solution into the inner ears of baby mice with the hearing loss mutation. After eight weeks, hair cells in treated ears resembled those in healthy animals – densely packed and tufted with hairlike bundles. The hair cells of untreated mice, in contrast, looked damaged and sparse.

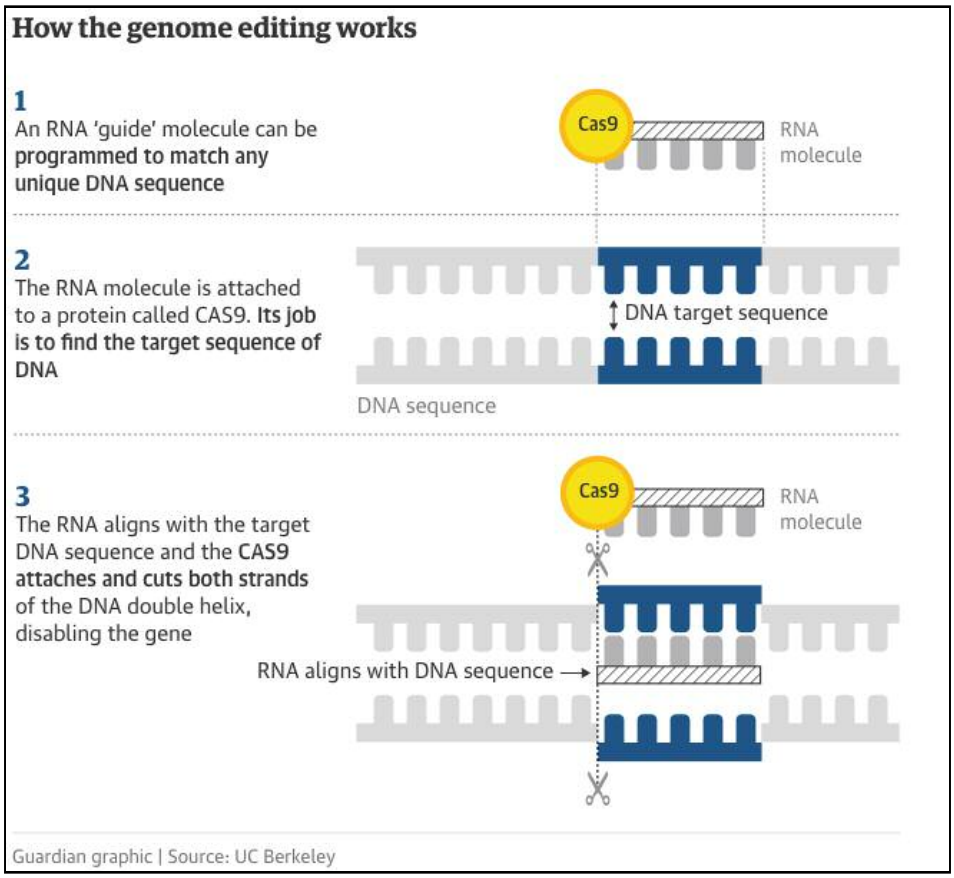
Then the researchers conducted a hearing test on the mice by placing electrodes on their heads and monitoring the activity of brain regions involved in hearing.

Researchers needed more sound to spark brain activity in untreated mice compared with treated mice, the team found. On average, after four weeks, treated ears could hear sounds about 15 decibels lower than untreated ears. "That's roughly the difference between a quiet conversation and a garbage disposal," Liu said.

Simon Waddington, a reader in gene transfer technology at University College London, described the study as an elegant application of new gene editing tools. "Hitherto incurable and often even untreatable diseases are now within the scope of gene therapy," he said.

The team plans to develop the therapy in larger animals to ensure the method is safe and effective, before moving closer to a patient trial.

Previously, the option to carry out screening for genetic causes of deafness during IVF treatments has prompted an ethical debate, with some deaf couples seeking to use screening to select embryos carrying the deafness gene. In the UK, this was banned under legislation introduced in 2008. Liu added: "We also recognise the importance and remain mindful of cultural considerations within the deaf community as this work moves forward."



RONDO 2 and SONNET: a choice of upgrade options from MED-EL

If it is time for you to upgrade your audio processor, MED-EL now has two great options: the new RONDO 2 and the SONNET.

RONDO 2: Easy to Use. Easy to Charge. Easy to Wear.

Changing batteries is history with the RONDO 2. This new single-unit audio processor includes a fully integrated rechargeable battery. No more carrying batteries; simply recharge your RONDO 2 overnight on the revolutionary wireless charging pad (similar to a charging pad used to charge a watch) and in just 4 hours you will have 18 hours of battery life.

Wireless Charging

RONDO 2's innovative wireless charging makes it easy to power up your processor overnight—just like your phone. But unlike your phone there are no cables: simply place RONDO 2 on the charge pad and it will charge automatically.

You'll never have to change a battery ever again.

This small and lightweight audio processor is worn off the ear, and easily hidden under hair or blends in thanks to a range of stylish hair-design covers. For more information about the RONDO 2 visit www.medel.com/rondo2

Stay Connected

Sometimes it can be hard to hear your best. Noisy public places can be difficult, as can talking on the phone or hearing the TV clearly.

RONDO 2 connects seamlessly with Bluetooth neckloops and hearing induction loops to bring the sound straight to your ears, even across a busy room. This gives you optimal hearing wherever you are, so you'll never miss out on those important moments.

SONNET with rechargeable battery kit

Or, if you prefer a behind-the-ear option, why not choose the SONNET with a choice of wearing options including rechargeable battery kits. There are three SONNET rechargeable battery kit options: a micro battery pack, a standard battery pack, or a mixed pack containing both micro and standard options to provide complete flexibility

for all lifestyles.

The 2.4GHz wireless ready SONNET offers a number of options to connect to external audio sources or assistive listening devices so you can listen to music on the go.

For more information about the SONNET visit www.medel.com/sonnet
Whichever option you choose you will benefit from MED-EL's FineHearingTM to bring you closer to natural hearing. MED-EL's Automatic Sound Management system will ensure you enjoy optimum hearing in all environments without manually changing programmes.

To discuss your eligibility for an upgrade to either the RONDO 2 or the SONNET please contact your audiologist/CI centre. For more information about the SYNCHRONY cochlear implant system visit www.medel.com.

The Terracotta Warriors Exhibition

The Exhibition will held be at the Liverpool World Museum from February to October this year.

After a successful guided tour around St George's hall last year we are looking to organise a guided tour of this exhibition.
All attendess with be able to participate fully with our Neck Loops which have now been used on several events in the last year with good results. Once we have a date confirmed will will contact everyone directly and also put details on the Website. If anyone doesn't know about the Terracotta army here is some of the background.

For over 2,000 years, an underground army of life-sized terracotta warriors secretly guarded the tomb of China's First Emperor, Qin Shi Huang, until a chance discovery in 1974 unlocked the mysteries of a vanished empire.

Showcasing objects from one of the world's greatest archaeological discoveries, this unmissable exhibition spans almost 1,000 years of Chinese history; from the conflicts and chaos of the Warring States period, to the achievements and legacy of the Qin and Han dynasties.

The exhibition will include a number of objects that have never been on show in the UK before including material from museums and institutes from across Shaanxi Province, excavated over the last 40 years from the Imperial Mausoleum and selected tombs. These spectacular artefacts will shed light on the Emperor's pursuit of immortality and show how he prepared for the afterlife, as well as help us to understand more about everyday life in China more than two thousand years ago.

Interview with Aidan Toomey

By Kevin Williams

Aidan Toomey talks to Resound about his new online blog: "Toomey Cochlear Pro." A new online blog for people interested in the world of cochlear implants and hearing loss.

What inspired you to set up the blog?

Historically, in 2001, I had a cochlear implant operation. My 3 cousins have also had operations and very recently my brother took the cochlear implant plunge. Prior to the operation, I was at rock bottom. At the time, I remember feeling very alone and there wasn't much information that I could refer to online. Today this has changed and there is a wealth of information available.

But, it is my belief that there can never be too much information. For my family and I, our journeys have been very different but ultimately enlightening. We have learned so much and we have a lot to offer in terms of empathy and sharing our experiences. It is these journeys that have inspired me to write this blog.

How would you describe your blog?

I describe myself as the Cochlear Implant Blogger. The blog focus is very much on the stories. We all have a story to tell. Sometimes we will have an experience in relation to hearing loss. We will want to share this and what better place to share your story than through the worldwide web? I have found writing the blog to be a positive emotional journey.

For example, there is an article about bullying. it was difficult to write as it brought back childhood memories. But, it was important for me to share this story. I believe it is an issue that needs to be discussed.

The blog also contains interviews with people who have a connection with hearing loss. For example, there is an interview with the Palantypist/Speech to Text Reporter *Franny Barrett*. Many of you will know Franny. The interview helps us to learn more about the man himself; his goals, thoughts and aspirations.

How would you describe yourself? Who is Aidan Toomey?

In a nutshell, I am a travelling footballer, an online English teacher, and a writer with a coffee addiction. I love meeting and talking to people. I'm a very good listener and I love to hear stories. When I travel, many people will talk to me and they tell me stories about their lives. As a travelling footballer I also get to meet people and build new friendships along the way.

What is the best thing you have done in your life?

Undoubtedly, the best thing was my decision to have a cochlear implant. I was rock bottom in terms of my communication and mental health. It helped me to create a new chapter in my life and to become a confident person again.

If you'd been told one thing that you weren't told when you were a teenager, what would you like to have heard?

I never used to believe in myself. My older brother has always provided me with pearly words of wisdom along the way and in one conversation when I was in my late 20's and considering a new career path and location change, he said to me, 'Believe in yourself'. It may sound like a cliché but his words really helped spur me on to a new career in the North West of England. These words still help me today when I am seeking inspiration and motivation.

What do you hope to achieve from the blog?

It would be brilliant to have people contributing their stories, comments and ideas. Alongside this, I'd love to build up contacts, partnerships and friendships. If anyone would like to contribute, do an interview for the blog or has an idea about how we can work together, please do get in touch. Obviously the success of the blog is dependent on an audience so I really hope people will enjoy the content and spread the word.

The Toomey Cochlear Pro blog will be launched on February 12th 2018 at: - www.toomeycochlearpro.com

Sign up to the free monthly newsletter on the website.

Aidan is contactable at: - https://www.toomeycochlearpro.com/contact-us

Snippets!

Beryl Hardman

It seems as if there is more understanding of the blind than the deaf, as blindness is more visual. There is nothing more frustrating than being told " It doesn't matter " when not hearing first time round. I complained at my audiology clinic where I get batteries, as I was spoken to by the receptionist with her head down, a department where I would expect better training.There are a number of people who assume we are stupid when we don't hear.and the fact is quite the contrary

When in a restaurant recently I was treated with an amazed look, when asked where I would like to sit, and I replied in a quiet area with good light, for as you all know, it is just as important to be able to see the person's face whom you are with, as facial expressions and lipreading are just as

important to telling what a person is saying.

Let us hope there will be better understanding of our deaf predicaments in the future as well as new technology

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Norah Clewes

Hi
YouTube is great for videos of songs, 'how to' tips etc. & most are subtitled. In the case of songs you can always check one out which has the lyrics - usually written at the side or sometimes embedded on the video.

These are great ways of practising listening.

Alan Corcoran

Did I hear what you just said? Think about that!
Many years ago, shortly after I had started work. I invited my friend to help with some car maintenance in my garage at home. I had started to go deaf then and wore hearing aids. At one point he suddenly turned to me and asked, "Is the girl next door a CONCRETER? "

Now remember this is the early 60's when women were begging to pursue all types of new jobs, even allegedly, burning their bra's!
"No" I replied " I'm sure she is not a concreter, in fact, I don't think she has even started work"

There followed the obligatory stunned silence, you all know what I mean, I could almost see his brain working, to try and make any sense of my reply. Then, slowly, the realisation dawns. "No you daft bat" he says" what I asked was, "Is the girl next door CALLED GRETA"

Some years later I recounted that story at a lip reading class, and the teacher (a "hearing" person) said we can all make such mistakes. She recalled, that one day she found she was running out of petrol and pulled into this filling station, it was a new company that was just setting up and was new to her. On filling up, she found she did not have enough cash required, "Can I pay by cheque" she asked the cashier.

"Certainly madam, please make the cheque payable to L. FOIL", she duly did this and handed it over. Again the stunned silence! "I'm sorry madam" says the cashier handing the cheque back, "but it should be made out to ELF OIL"

Then at the same class, a librarian, again a hearing person, said she was once asked if there were any books on THAILAND "Certainly sir, over here in the travel section, they are in alphabetically order, - here we have America, Europe, ah, and here is THAILAND.

Short pause! Then "Eh no! I'm sorry miss, but I have just had my bathroom re fitted and I wanted to know how to do the TILING"
You just have to laugh don't you, "but we are not alone"

Tinnitus Week is taking place from 5-11 February

The aim of the week is to raise awareness of the condition, which affects approximately 1 in 10 of the population.

Raising awareness together

For the first time, the international tinnitus community will join forces to shine a light on the condition, targeting as many people as possible in order to raise awareness of how tinnitus impacts on the lives of those living with it.

This year, alongside the Tinnitus Research Initiative, Tinnitus Hub and the American Tinnitus Association, we are giving Tinnitus Week a real international boost. A new website has been set up, as a central resource collecting all the initiatives which will be taking place in 2018.

This website can be found at www.tinnitusweek.com.

We've been encouraging organisations, from across the world, who deal with tinnitus and other hearing related issues such as hyperacusis and hearing loss, to work together to raise awareness of tinnitus during Tinnitus Week.

As such we're hoping a large variety of activities will take place during the week across the globe, including local events, tinnitus information days, media interviews, science communication activities and much more.

If you will be doing anything during Tinnitus Week to help boost tinnitus awareness, please email join@tinnitusweek.com with the details and if suitable, these will be added to the Tinnitus Week site.

Notes for the diary

AGM and dinner - Liner Hotel Liverpool - March 17th 2018

This is your chance to tell us what you would like to see happening in the charity (and a great chance to meet up for a meal) More details about this will be sent out soon.

And finally ...

We would like to hear as soon as possible from people wanting to come to the Terracotta exhibition so we can organise the event, also if you are able to come to the Annual Dinner and AGM an early indication would be appreciated!

Resound Notes Section

We welcome contributions from members on any subject that would be of interest to others, (including your CI experiences) your recent experiences with the health service, meet ups, activities or other news about yourself.

If you have something that you think may be of interest to others email it to:
editor@manchestercicada.org.uk

or fill in the form online at
http://www.manchestercicada.org.uk/resound-2/

or write to:
Kevin Williams, 107 Manchester Road, Hyde, Cheshire SK14 2BX.

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