Docket #: S20-169

Extracochlear neurostimulation system for restoration of hearing

Stanford researchers are investigating a new method and possible apparatus for neurostimulation of the cochlea for restoration of hearing while minimizing damage to residual hearing. Unlike current cochlear implantation methods, the proposed device is positioned externally to the cochlea and does not require cochlea penetration which is understood to be the mechanism of action behind residual hearing loss. This invention addresses the risk of loss of residual hearing with improvements in extracochlear implants including new methods for insertion, better biocompatible materials, and new uses of machine learning to synthesize electrode signals.

Stage of Development

- Conceptual
- Plans to conduct *in vivo* research

Applications

- **Treatment and restoration of hearing in adults** with severe-to-profound high-frequency sensorineural hearing loss

Advantages

- **Extracochlear** vs. intracochlear implant
- **More likely to preserve residual hearing** since this method does not require the cochlea to be penetrated which is understood to be the mechanism of action behind residual hearing loss
- **Less potential side effects** than current implantation method

- Indications for a cochlear implant have expanded considerably thus preserving the patient's own residual/existing hearing will be extremely important

Patents

- Published Application: WO2022081949
- Published Application: 20230338734
- Published Application: 20260315797
- Issued: 12,616,837 (USA)

Innovators

- Jay Dhuldhoya
- Saniya Ali
- David Hindin
- Francis Wong
- Peter Santa Maria
- Bianca Yu

Licensing Contact

Seth Rodgers

Licensing Manager, Life Sciences

Email