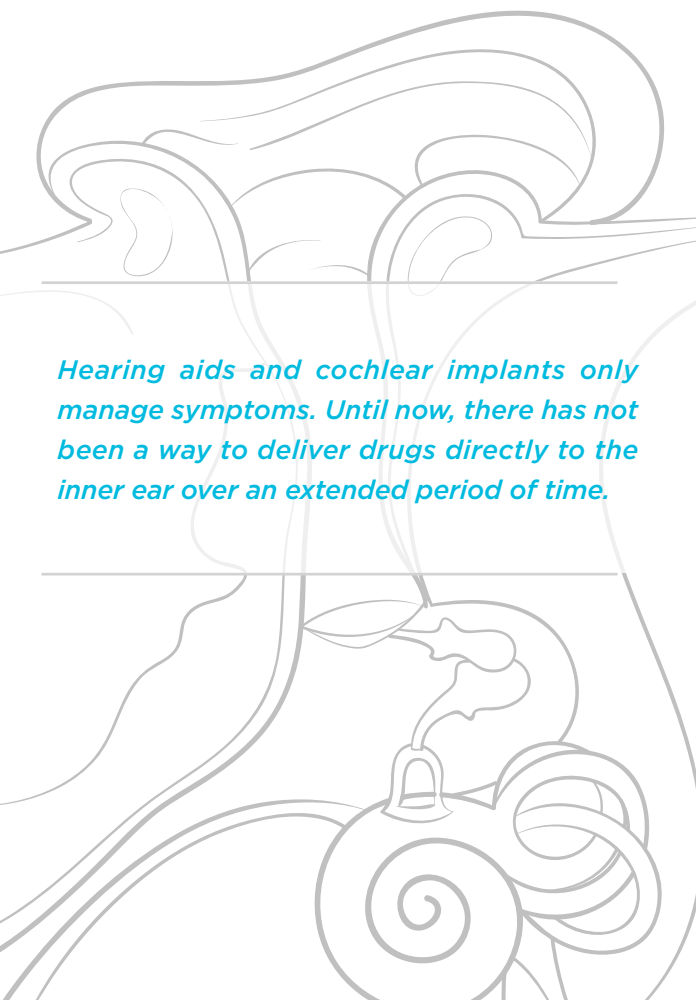


DRAPER[®]

INTRACOCCHLEAR DRUG DELIVERY

Delivering Drugs Directly
to the Inner Ear

Hearing aids and cochlear implants only manage symptoms. Until now, there has not been a way to deliver drugs directly to the inner ear over an extended period of time.



**Hearing loss affects
360 million people,
more than 5% of the world's population ^[1]**

**In the US alone, 48 million people
have a significant hearing impairment. ^[2]**

**\$750 billion USD per year
in untreated hearing loss costs. ^[3]**

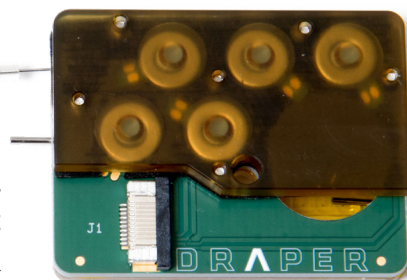
Draper designed and prototyped the first implantable micropump that provides targeted, controllable and extended intracochlear drug delivery (ICDD). This device enables both realistic testing of drugs and delivery of approved drugs for treatment. Combining expertise in miniaturization and microfluidics, Draper's ICDD device enables

- Effective diffusion and precise dose control
- Concurrent infusion of one or more compounds
- Continuous drug delivery programmable over periods from hours to months

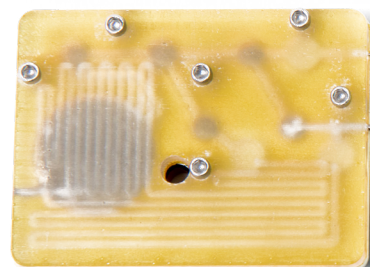
Accuracy and safety were assessed in guinea pig subjects. With further miniaturization, ICDD offers a path to a delivery system for new otic therapies, bridging the gap between drug candidates and patients with hearing loss.

CURRENT
PROTOTYPE

FRONT ▶
REVERSE ▼



40 mm



[1] World Health Organization: Deafness and hearing loss, www.who.int/mediacentre/factsheets/fs300/en/

[2] Center for Hearing and Communication: Statistics and facts about hearing loss, <http://chchearing.org/facts-about-hearing-loss/>

[3] World Health Organization: Action for Hearing Loss, www.who.int/pbd/deafness/world-hearing-day/WHD2017Brochure.pdf

At Draper, we believe exciting things happen when new capabilities are imagined and created.

Whether formulating a concept and developing each component to achieve a field-ready prototype or combining existing technologies in new ways, Draper engineers apply multidisciplinary approaches that deliver new capabilities to customers. As a not-for-profit research and development company, Draper focuses on the design, development and deployment of advanced technological solutions for the world's most challenging and important problems.

DRAPER[®]

CONTACT

HALEH ARMIAN

DRAPER, Business Development

harmian@draper.com

JEFF BORENSTEIN

DRAPER, Technical Director

jborenstein@draper.com

WWW.DRAPER.COM

17-0181 _V1