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METHOD TO INCREASE LONGEVITY & EFFICACY IN NEURAL ARRAYS

BIOTECHNOLOGY

Method of increasing the real surface area of electrodes through addition of a textured coating for enhanced longevity and efficacy.

TECHNOLOGY TYPE

Biosensors
Neurology

STAGE OF DEVELOPMENT

- *In vitro* tests demonstrated neural tissue preference of textured surfaces.

- Product developed.

IP PROTECTION

U.S. Utility Patent Pending
Pseudorporous Surface of Implantable Materials and Methods of Making the Same
US20150343204A1

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U-5438

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TECHNOLOGY SUMMARY

Physicians increasingly use neural arrays as therapeutic treatment for neurological disorders despite their shortcomings. Neural arrays are limited by functional efficiency and longevity concerns, cause glial scar tissue to develop and encapsulate the implant, which inhibits electrical signal stimulation, and degrade over time due to the growing impedance barrier that requires increased charge flow to stimulate an action potential.

Researchers at the University of Utah have developed an electrode with a platinum coating that addresses many of these shortcomings. The electrode has a highly biocompatible, pseudoporous electrode-tissue interface and a modified texture that increases its real surface area. The invention requires less electrical signal to successfully stimulate neuron action potentials, which decreases risk to surrounding neural tissue and increases longevity of the array. *In vitro* testing indicated the modified texture also reduced neural scar tissue surrounding the array.

FEATURES AND BENEFITS

- Improves electrode efficacy and longevity.
- Decreases risk of overstimulating neural tissue.
- Demonstrates compatibility with existing neural arrays.

RECENT PUBLICATIONS

Leber, M., Bhandari, R., Mize, J., Warren, D.J., Shandhi, M.M., Solzbacher, F., Negi, S. (2017). Long term performance of porous platinum coated neural electrodes. *Biomedical Microdevices. 19*(3):62. doi: 10.1007/s10544-017-0201-4

INVENTOR PROFILE

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