Neural Probe Array for Stable, Reliable Long-Term Implant Function

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing an improved neural probe array designed for reliable and stable long-term implant function.

Overview

Electrodes inserted into the brain can be used to monitor and record neural activity. However, conventional electrode arrays have several limitations, including a short functional life.

The Invention

UW-Madison researchers have developed an improved neural probe array that is designed for reliable and stable long-term implant function. The new design is more biocompatible than previous neural interfaces.

The array can be subdurally implanted in the brain to record intracranial field potentials in animals or humans and then transmit that information to an external device. Also, several apertures are located between the two sides of the array for drug delivery. They can be used to enhance the device's biocompatibility or to treat neurological disorders.

Applications

- Stroke recovery
- Pain control
- Tremor or seizure control
- May be useful for motor control in patients with spinal injury

Key Benefits

- Can be stably implanted in patients for much longer periods than conventional electrodes
- Greater contact site density allows better target coverage of the brain's motor control section
- Uses biocompatible polymers unlike existing devices made of silicon
- Smaller and more flexible than current designs: molds well to the brain without displacing brain tissue
- Provides better signal to noise ratio
- Simple and inexpensive to manufacture: can be mass-produced using photolithography or laser curing, unlike current devices
- Less invasive than conventional electrodes
- Inclusion of apertures allows release of chemicals into the brain for improved biocompatibility

- Medical Devices : Neurological Devices

For current licensing status, please contact Jeanine Burmania at jeanine@warf.org or 608-960-9846