Chronic Sequential Sensorimotor Neural Probe Array

Tech ID: 22178 / UC Case 2008-475-0

BRIEF DESCRIPTION

As of 2007, there are roughly 2 million individuals living with major limb loss (excluding fingers and toes) in the United States and every year there are more than 185,000 new amputations. Additionally, it is estimated that between 200,000 and 450,000 Americans are currently living with spinal cord injury, though that number is commonly believed to be under-reported. There is a large unmet need for an effective chronic interface between nervous tissue and prosthetic devices.

The useable life of currently employed neural probes is typically less than one year due to a variety of factors including: scar formation or tissue encapsulation around the probes, dislocation, probe deterioration, severed nerve regression (displacement) and other factors.

University of California researchers have developed a micro-implantable device (Chronic Sequential Neural Probe Array) that interfaces with peripheral nerves chronically. The device can be used to both sense and stimulate the never fiber when triggered with an external controller. In addition, the device (probe array) is designed to store drugs in a series of micro chambers for the delivery of the drug to the nerve. The drugs can be used to extend the viability of the nerve and probe array by limiting the formation of scar tissue and the resulting loss of potential at the electrode. Further, the device contains a series of arrays that, each of which can be deployed to interface with the target nerve when the function of the previous array has deteriorated.

The Chronic Sequential Neural Probe Array is designed for patients with an axonal injury in the peripheral nerves or spinal cord who require chronic intervention where stimulation of and/or recording from the axonal bundles is desired. There are two major categories of potential patients: those dealing with paralysis and those dealing with spinal cord injury (SCI) or amputation.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	8,452,418	05/28/2013	2008-475

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OTHER INFORMATION

CATEGORIZED AS

- **Medical**
  - Delivery Systems
  - Devices
  - Diagnostics
  - Disease: Musculoskeletal Disorders
  - Other
  - Rehabilitation
- **Engineering**
  - Other

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