# Non-invasive, Easy to Use, Hand-held Therapy for chronic Nerve Pain

Tech ID: 23435 / UC Case 2013-176-0

## BACKGROUND

Peripheral nerve injury may result in the development of chronic intractable pain. Some patients prove unresponsive to conservative pain management techniques. Traditional treatment options, usually involve medications, chemical, thermal or surgical ablation procedures following diagnostic local anesthetic blockade. Therefore, there is a need to develop an effective non-invasive therapy in treating peripheral neuropathic pain to assist the 20 million suffering in the US with the current estimated US market size of $60 billion.

## TECHNOLOGY DESCRIPTION

UC San Diego researchers have developed a non-invasive, healthcare professional-administered, portable, and transcutaneous magnetic stimulation (tMS) device which converts a rapid discharge of electric current into dynamic magnetic flux to modulate neuronal functions to treat peripheral neuropathic pain. The device offers a range of treatment frequency (0.2-5 Hz), adjustable pulse widths and amplitudes for different clinical applications. The device also offers laser guidance to the center of the magnetic flux to locate treatment area. A disposable to assist in guidance has also been developed to increase treatment efficacy. To assist in postmarket surveillance, reimbursement and creating a value proposition or direct purchase of devices, an encrypted outcome data communication component is built in to transmit status back to a medical facility.

Using a current, commercially-available magnetic stimulator, the UCSD researchers demonstrated that low-frequency (0.5 Hz) tMS reduced overall long term pain by 80%, with a maintenance treatment given at 4-6 weeks interval, in patients with pain due to peripheral nerve injury. 90% of these patients have failed medication and injection therapy. Patient preference suggests more frequent treatments to as many as multiple per week and at home availability.

## APPLICATIONS

This device can be used as a home health care non-invasive treatment for various applications such as myofascial (muscle) pain, nerve entrapment pain, neuroma pain, and skin anesthesia in lieu of local anesthetics. This platform technology allows for differentiated products with features tailored to specific needs for clinical, home health and field applications. This treatment can significantly lower the treatment costs of patients with chronic nerve pain, which creates the potential for value-based pricing rather than cost-based pricing. Therefore, the platform is capable of an initial value-priced base product, which may then be followed up with a fully featured product, dependent on reimbursement code limits.

## STATE OF DEVELOPMENT

A prototype has been developed with availability of CAD and PCB schematic files.

## PATENT STATUS

| Country | Type | Number | Dated | Case |
|---|---|---|---|---|
| United States Of America | Issued Patent | 10,369,373 | 08/06/2019 | 2013-176 |

Additional Patent Pending

## RELATED MATERIALS

## CONTACT

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## OTHER INFORMATION

**KEYWORDS**

chronic pain, portable, device, pain relief, entrapment pain, neuroma pain

**CATEGORIZED AS**

- **Medical**
  - Devices
  - Disease: Central Nervous System

**RELATED CASES**

2013-176-0

▶ Transcutaneous magnetic stimulation (TMS) in alleviating post-traumatic peripheral neuropathic pain States: a case series. Leung A, Fallah A, Shukla S. Pain Med. 2014 Jul;15(7):1196-9. doi: 10.1111/pme.12426. Epub 2014 Mar 25. - 03/25/2014

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