# Pain Management – Medical Device

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## Technology description

Brief Description

Chronic pain remains a daunting medical condition for growing numbers of patients worldwide whether it is associated with other disease conditions as a symptom or as a stand-alone syndrome. Often treatments are inadequate at best. Moreover, pain is perceived differently by individuals and ranking as a standard is not an accurate science, which creates a not only a diagnostic but dosing challenge.

The invention is a closed loop system – an electrical sensor – that can be used as a predictive, diagnostic and/or therapeutic medical device. The system is comprised of an implantable electrode, electrical lead, and a data processor that senses electrical activity in a patent and in turn converts the electrical signals into pain signatures, which are a pattern of neuronal firing representing peripheral neural damage and inflammation. In response to a detected pain signature, a treatment protocol is administered of one or more specific focused electrical pulses of a particular duration directed to a sensory thalamus.

## Application area

Applications include for use in predicting, diagnosing and treating pain and related states. Another compelling application is in the area of drug development to test drug efficacy for patients with pain. Pain from sciatica, peripheral neuropathy, monoradiculopathies, trigeminal neuralgia, postherpetic neuralgia, phantom limb pain, and complex regional pain syndromes, among others, represent potential targets for this innovative device.

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