The Office of Technology Management

UNIVERSITY OF TEXAS ARLINGTON

# Automatic Pain Recognition and Inhibition (APRI™)

**Tech ID**: UTA 07-07

**INVENTORS:** Jung-Chih Chiao, Thermpon Ativanichayaphong, Yuan B. Peng, Ji Wei He

## TECHNOLOGY NEED

Chronic pain is a significant health problem. It affects physiological conditions, such as raised blood pressure and glucose levels, decreased digestive activity and blood flow, and produces psychosocial problems such as fear, depression, isolation, anxiety, insomnia and suicidal tendency. Conventional stimulators are open-loop systems in which doctors can only obtain the results for pain management from patients' verbal feedback. Stimulating signals are programmed during device installation and cannot be modified after the patients leave the hospital. Further, tethered integration of neurorecorders and neurostimulators in a patient's body is not suitable for safe, long-term use because wired connections degrade over time.

## INVENTION DESCRIPTION/SOLUTION

To address this issue, researchers at UTA have developed a miniature wireless implantable neuronal signal sensor and stimulator that can provide an optimal signal feedback control. Neuronal signals are recorded and directly transmitted to an implantable stimulator that delivers pulses that alter neural signals to mitigate pain. Therefore, an integrative system consisting of miniature wireless neuronal signal sensor and stimulator implants is invented to investigate the inhibitory effects and achieve the maximum comfort level for individuals through an intelligent closed-loop feedback mechanism.

## APPLICATIONS

- Chronic pain management
- Parkinson’s disease tremor control
- Other neurodisorders

## KEY BENEFITS

- Small in size
- Wireless
- Accurate
- Automatic, continuous, closed-loop feedback mechanism

## STAGE OF DEVELOPMENT

Prototype
Extensive tests done

## INTELLECTUAL PROPERTY STATUS

Patent granted

**About the Inventors:**
**Jung-Chih Chiao**
**Yuan B. Peng**

**Contact information**
For licensing, please contact
Sharon Ngwenya, Ph.D.
**sngwenya@uta.edu**
**otm@uta.edu**
P: 817.272.1130

**Our mailing Address:**
The Office of Technology Management
701 S Nedderman drive,
Suite 350, Arlington, TX 76019

**Connect with us:**