Therapeutics & Vaccines

Long-Lasting, Non-Narcotic Protein for Treatment of Acute or Chronic Pain

View U.S. Patent No. 9,447,405 in PDF format.

WARF: P130093US02

Inventors: Eric Johnson, Sabine Pellett, William Tepp, Tony Yaksh, Marc Marino, Qinghao Xu

The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a therapeutic molecule that provides stable, reversible regulation of spinal neurons that affect pain transmission and could be used to treat pain.

Overview

Millions of people in the U.S. suffer from chronic pain each year. Narcotic-based medications commonly are given for pain relief, but they are not always effective and can lead to addiction.

Botulinum toxin is a neurotoxin currently used to treat muscle spasms, migraines and excessive sweating. The botulinum protein is made of two chains, a heavy chain that targets it to neuronal cells and a light chain that cleaves synaptic proteins, eventually preventing the release of neurotransmitters. Because neurotransmitter release is linked to pain transmission, botulinum toxin potentially may be used to treat pain; however, the full length toxin affects all neurons (including those needed for involuntary activities like breathing), rather than just those involved in pain processing.

The Invention

UW–Madison researchers have developed a chimeric protein that may be used to treat acute or chronic pain. The protein consists of a peptide ligand that specifically targets neurons involved in pain processing and a botulinum toxin light chain protein that blocks the release of neurotransmitters that cause pain. The therapeutic could be delivered through the spine to result in long-lasting, stable and reversible regulation of pain.

Applications

- Treating acute or chronic pain

Key Benefits

- Reversible
- Stable and long-lasting
- Non-narcotic
- Specifically targeted to neurons associated with pain processing

Stage of Development

Successfully tested in mice.

Additional Information

For More Information About the Inventors

- Eric Johnson

Related Intellectual Property

- View Divisional Patent in PDF format.

Tech Fields

- Therapeutics & Vaccines : Analgesics & palliative care

For current licensing status, please contact Rafael Diaz at rdiaz@warf.org or 608-960-9847