Lead Inventor: Benjamin Chu, Ph.D., Distinguished Professor, Department of Chemistry

Title: Nanostructured Smart Gel for Pain Management

Background: Chronic pain has been traditionally defined as pain persisting for at least 3-6 months but now is defined as pain that extends beyond the period of tissue healing and/or when low levels of identified pathology are insufficient to explain the presence and/or extent of the pain. Chronic pain afflicts 24% of all Americans, most prominently affecting women over the age of 50 years. Lidocaine is one of the most widely used anesthetic drugs today, especially during surgery and dental procedures and works by inhibiting the stimulants needed to initiate neuronal impulses to the brain, resulting in the ‘loss’ of the sensation of pain. As a topical drug, however, lidocaine has a relatively short half-life of only 1.5 to 2 hours in an intravenous injection because it is metabolized quickly by the liver. Even though the time frame in which lidocaine works is extremely short, it is commonly used as the local anesthetic of choice amongst professionals due to its hypoallergenic quality.

Technology Description: The present invention uses a thermally responsive carrier for controlled delivery of a known and desired amount of lidocaine, as well as other therapeutic agents, including prilocaine, bupivacaine, ropivacaine molecules, analogs and mixtures thereof, to an injured site with pre-designed release profile over a flexible time period ranging from hours to 10-15 days. The thermoreversible sol-gel carrier, which is a liquid at room temperature and a gel at body temperature, allows versatile deployment methods to be implemented during medical procedures.

Applications: Controlled, time release localized pain medication delivery system.

Advantages: Controlled time release delivery system for lidocaine, as well as other anesthetic drugs, utilizing specially designed, flexible smart gel platforms.


For additional information please contact: Ms. Donna Tumminello

Assistant Director
dtumminello@notes.cc.sunysb.edu

Phone: 631-632-4163