

SickKids' Corporate Ventures office licenses peptide discovered by Research Institute scientists to treat chronic pain

A new pharmaceutical technology licensed in February by the Corporate Ventures office at The Hospital for Sick Children (SickKids) may help treat neuropathic and inflammatory pain in children and adults, but without the serious side effects that can accompany currently available treatments.

The peptide was discovered in the laboratory of Dr. Michael Salter, Senior Scientist at the SickKids Research Institute and the Director of the University of Toronto Centre for the Study of Pain and reported in a paper in the journal *Nature Medicine* in December 2008. The peptide was patented by the Corporate Ventures office, and was licensed on February 24 to NoNO Inc, a Toronto biotech firm founded by Dr. Michael Salter and Dr. Michael Tymianski, Senior Scientist at the University Health Network.

Corporate Ventures considers NoNO Inc. to be an excellent licensee for this technology, as the company has extensive experience in the development of peptide therapeutics similar to that developed by Dr. Salter's laboratory.

“A major roadblock in chronic pain research has been translating knowledge of biological mechanisms into therapeutic approaches that are both effective and safe” said Salter. “We were able to move past that roadblock with our discovery of a novel peptide based therapeutic approach, which may lead to a new and previously unsuspected way of treating chronic pain.”

Hypersensitivity in chronic pain depends on the activation of receptors in the brain and spinal cord known as NMDA receptors, which are regulated by a protein called Src. Current treatments for pain block the activation of NMDA receptors, however in doing so certain physiological functions of the receptors are also blocked, leading to unwanted side effects. The peptide discovered by Salter prevents the Src protein from interacting with NMDA receptors, which helps mitigate pain hypersensitivity without the unwanted side effects. This discovery may have relevance in the management of chronic pain.

Acute pain, like stubbing your toe or cutting your finger, only lasts for a short time, but chronic pain can be much more serious and last for decades. Adults and children suffering from nerve injury, cancer, HIV-AIDS, stroke and some neuroimmune disorders can become hypersensitive to pain stimuli, and even stimuli that are usually not painful, such as a light touch or slight cooling.

The researchers at SickKids have conducted studies using different rat and mouse models, which showed that the peptide lowered pain hypersensitivity without affecting other brain functions. Additional research and development will be needed prior to a drug based on this peptide technology entering clinical trials.