# Preclinical Data on Angiochem Pain Program Published in Journal of Clinical Investigation

# *ANG2002 Successfully Crosses the Blood Brain Barrier, Reaches Therapeutic Concentration in the Brain and Induces Analgesia*

Montreal, Canada, February 18, 2014 – [Angiochem](http://angiochem.com/), a clinical stage biotechnology company developing drugs that are uniquely capable of crossing the blood-brain barrier (BBB), today announced that its neuropeptide conjugate, ANG2002, a new chemical entity formed by conjugation of the peptides Angiopep-2 (An2) and neurotensin, successfully crosses the BBB to achieve therapeutic concentrations in the brain. Analgesic efficacy was demonstrated at low systemic doses of ANG2002 in rat models of neuropathic, inflammatory, and cancer pain, this efficacy was associated with a good safety profile. Despite its non-opiate mechanism, ANG2002 analgesic efficacy is similar to that of morphine. Furthermore, these results underscore the potential of the company’s technology to develop novel biologic therapeutics that crosses the BBB for CNS-related indications.

In the paper entitled, “Conjugation of a brain-penetrant peptide with neurotensin provides antinociceptive properties,” Demeule, et.al. The Journal of Clinical Investigation, February 17, 2014, Angiochem researcher’s in collaboration with Prof. Philippe Sarret of the Université de Sherbrooke demonstrated active transport of a neuropeptide by targeting an endogenous receptor system within the BBB:

* Neurotensin is known to be an important modulator of nociceptive pain transmission with established effective analgesia when administered directly into the brain.
* ANG2002 reaches the brain in therapeutic concentrations.
* ANG2002 has demonstrated a similar activity to morphine in a tail flick pain model.
* Administration of ANG2002 induced dose-dependent analgesia in both acute and tonic phases of pain in the formalin-induced inflammatory pain model.
* ANG2002 effectively reversed pain behaviors induced by the development of neuropathic and bone cancer pain in animal models at doses as low as 0.05 mg/kg.

“Neurotensin does not penetrate the blood-brain barrier and is only active when administered directly into the brain, thereby limiting its potential as a therapeutic agent. ANG2002, our novel peptide conjugate of neurotensin, is showing great potential as a first-in-class analgesic with activity similar to opioids but without opioid side effect profiles,” commented Jean Paul Castaigne, MD, President and CEO of Angiochem. “Our goal is to find a partner to further evaluate ANG2002 in chronic pain syndromes as well as further clinical and commercial development of this promising drug candidate.”

**About ANG2002**

ANG2002 is a new chemical entity formed by the conjugation of the peptides Angiopep-2 (An2) and neurotensin. The analgesic effect of ANG2002 has been demonstrated in a number of widely accepted preclinical models of acute pain, inflammatory pain, post-operative, neuropathic pain, and cancer pain. In all those models, the activity was equal to morphine and gabapentin without the side effect profile of these molecules.

[**About Angiochem**](http://www.angiochem.com/en/profile.shtml)

Angiochem is a clinical-stage biotechnology company discovering and developing new breakthrough peptide drug conjugates that leverage the LRP-1 mediated pathway to cross the BBB to treat neurological diseases. These new compounds have the potential to address significant medical needs, many of which are insurmountable due to the fundamental physiological challenge posed by the BBB.

Angiochem is developing a focused product pipeline, including small molecules and biologics, for the potential treatment of a wide range of CNS diseases, including primary brain cancer, brain metastases, lysosomal storage diseases and pain. Founded in 2003, Angiochem maintains headquarters in Montreal, Canada. For additional information about the Company, please visit [http://www.angiochem.com](http://www.angiochem.com/).

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