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New research uncovers a cascade of reactions within nerve cells that relay sensations of pain associated with inflammation. The findings, which are published in the *British Journal of Pharmacology*, indicate that drugs designed to curb this pathway may help relieve inflammatory pain in sufferers.

Previous studies identified that a molecule called Rac1 maintains chronic neuropathic pain resulting from injury to the nervous system. Jun Chen, MD, PhD, of the Fourth Military Medical University in China, and his colleagues wondered if Rac1 might also be involved with chronic inflammatory pain, which is caused by tissue injury, trauma, and diseases such as arthritis. An estimated 20 percent of people worldwide suffer with chronic pain. with the majority of cases being inflammatory pain.

"We found that Rac1 can be activated in chronic inflammatory pain and drugs that

curb this reaction can relieve pain, offering the promise of new drugs for pain treatment in the clinic," said Dr. Chen.

These findings were based on experiments involving rats: when investigators injected the paws of rats with bee venom to cause inflammation, Rac1 was activated and set off a cascade of reactions involved in pain perception. In contrast, giving the rodents a molecule that inhibits Rac1 (called NSC23766) before or after the bee venom injection reduced their paw flinches and their pain hypersensitivity.

All studies involving animals were reported in accordance with a set of guidelines referred to as ARRIVE (Animals in Research: Reporting In Vivo Experiments).