

## PAIN

## Coral extract could soothe pain

Research from Taiwan indicates that capnellene (GB9), a compound extracted from the soft coral *Capnella imbricata*, could prove useful for treating neuropathy and neuropathic pain. Neuropathic pain responds variably to currently available drugs; painkillers, antidepressants and anti-epilepsy drugs often have no effect. “Capnellene could be the first of a new generation of painkillers that are more effective than steroids or opiates and do not have their potential side effects or their addiction-forming



Image provided by Jack Anderson

properties,” comments senior author Zhi-Hong Wen.

Capnellene and its acetylated derivative GB10 both inhibited inducible nitric oxide synthase (iNOS) and cyclooxygenase-2 (COX2) expression in interferon- $\gamma$ -stimulated mouse microglial BV2 cells. This is an established *in vitro* model of neuroinflammation commonly used to screen for new drug candidates with antineuroinflammatory activity. Both compounds inhibited interferon- $\gamma$ -induced iNOS and COX2 in a concentration-dependent manner, and the levels of both proinflammatory molecules were reduced almost to control levels at the highest GB9 and GB10 concentrations tested.

GB9 and GB10 also inhibited nociceptive sensitization and thermal hyperalgesia in a rat model of neuropathic pain. The rats, which had an induced chronic constriction injury, had fewer activated microglial cells than usual after intraperitoneal injection of GB9. They also showed increased expression of COX2 in the dorsal horn of the lumbar spinal cord on the side of the injury. “GB9 and GB10, which

have a chemical structure that lacks a steroid or opioid backbone, showed antineuroinflammatory activity *in vivo* as well as *in vitro*—the neurological functions of the rats were definitely affected,” comments Wen.

“Capnellene could be the first of a new generation of painkillers...”

The researchers have now applied for a patent for capnellene in view of its promise as an antineuroinflammatory and antinociceptive agent. “We are currently investigating the effects of GB9 and GB10 in other animal models of osteoarthritic pain, multiple sclerosis and Parkinson disease, as the compounds could also be potent therapeutic agents for a range of neuroinflammatory diseases,” says Wen.

Kathryn Senior

**Original article** Jean, Y.H. *et al.* Capnellene, a natural marine compound derived from soft coral, attenuates chronic constriction injury-induced neuropathic pain in rats. *Br. J. Pharmacol.* doi:10.1111/j.1476-5381.2009.00323.x