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A Compound Found In The Sea Provides Promising New Treatment For Neuropathic Pain

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A paper just published in the *British Journal of Pharmacology* reports that a compound originally isolated from a soft coral (*Capnella imbricate*) could lead scientists to develop a new variety of treatments for neuropathic pain. This composite is collected at Green Island off Taiwan and could be a new option for treatment. Neuropathic pain is chronic and occasionally follows damage to the nervous system. Presently this type of pain is very poorly controlled by the usual analgesics: aspirin like drugs (NSAIDS) or even opioids like morphine. New treatments are urgently required.

Inflammation in the nervous system is a major contributing factor for this condition according to recent research. Microglia and astrocytes are supporting cells that surround the nerve cells. They are activated by inflammation. These activated cells release compounds called cytokines that can stimulate nerves carrying pain sensation (nociceptive pathways). This causes the person to experience from mildly uncomfortable stimuli to very painful (hyperalgesia), or stimuli that would normally induce no discomfort at all or aching (allodynia). As a result, cold drafts or lightly brushing the skin can produce intense pain. This severely affects the

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person's quality of life.

There is a range of treatments that give some relief to some patients. Nearly all were found empirically and with many other effects. For example, Amitriptyline is an anti depressant currently used for urinary incontinence and it has given relief in neuropathic pain. Similarly, gabapentin and pentagabalin are two drugs designed for treating epilepsy and they have also proved helpful for some sufferers. On the other hand, a lot of patients do not respond to these presently existing drugs.

Dr Zhi-Hong Wen, played an important role in a research study searching for new compounds that have potential for use in pain relief. He says: "New, effective and safe painkillers are urgently needed for patients with neuropathic pain." Dr Wen and his collaborators work at the Department of Marine Biotechnology and Resources, at the National Sun Yat-Sen University in Taiwan.

Capnellene is a chemical that was originally isolated in 1974. However, it is only recently that scientists have started to understand its potential. Interestingly, the structure of capnellene is extremely different from pain-relieving drugs presently used. Original experiments indicated that it could possibly have pain-relieving properties. Dr Wen, together with Yen-Hsuan Jean MD, PhD and other colleagues tested capnellene. They also studied a second very similar compound. They used isolated microglial cells and experimental models of the condition in rats.

Their findings confirmed that the compounds considerably reduced pain-related activities in isolated microglia. In addition, these compounds also significantly reversed hyperalgesic behaviour in the experimental rats.

Dr Wen says: "To provide better quality of life, we need new drugs that can act rapidly and have specific functions with low side effects. Moreover, we need better management for chronic pain conditions."

He comments: "Today there are few pharmacological agents that can help people suffering from neuropathic pain, but we believe that these marine-derived compounds could lead to the development of a new range of drugs of great potential."

"Capnellene, a natural marine compound derived from soft coral, attenuates chronic constriction injury-induced neuropathic pain in rats."

Yen-Hsuan Jean, WuFu Chen, Chun-Sung Sung, Chan-Yih Duh, Shi-Ying Huang, Chan-Shing Lin, Ming-Hon Tai, Shun-Fen Tzeng and Zhi-Hong Wen
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[British Journal of Pharmacology](#)

Written by Stephanie Brunner (B.A.)

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