Researchers identify nerves associated with ciguatera, deadly tropical disease

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(Medical Xpress)—Researchers from The University of Queensland's Institute for Molecular Bioscience (IMB) have identified the nerves involved in the painful tropical disease called ciguatera.

The disease, caused by toxins found in reef fish called ciguatoxins, is the world's most common form of non-bacterial food poisoning, affecting 50,000-500,000 people each year.

The most prominent symptom of ciguatera is cold allodynia, a disorder where exposure to cool objects or water causes severe burning pain and electric shock-like sensations.

There is currently no cure.

The research team, which was led by Professor Richard Lewis and Dr Irina Vetter and included colleagues from Friedrich-Alexander-University of Erlangen-Nuremberg in Germany, examined the effect of ciguatoxins on the body's nervous system.

In a detailed study of nerve channels, the team found that ciguatoxins don't directly affect the channels responsible for sensing pain and cold.

"We identified the channels in the nervous system that the ciguatoxins act on, which in turn activate the nerves that sense cold and pain," Dr Vetter said.

"It's the first time anyone has established the molecular and cellular basis of ciguatoxin-induced cold pain and may lead to a treatment for this symptom."

The first recorded incident of ciguatera was in 1774, when British sailors led by Captain James Cook were exploring the coast of Vanuatu and experienced a peculiar type of poisoning after eating fish.

In addition to the burning pain associated with cool temperatures, ciguatera also causes nausea, diarrhoea, intense itchiness and abdominal pain.

The discovery was reported in EMBO Journal.

Provided by University of Queensland