

Newly identified spider toxin may help uncover novel ways of treating pain and human diseases

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Spider venom toxins are useful tools for exploring how ion channels operate in the body. These channels control the flow of ions across cell membranes, and are key components in a wide variety of biological processes and human diseases.

A newly identified toxin from the American Funnel Web spider acts on T-type and N-type [calcium channels](#), researchers from the University of California at Riverside have discovered. The toxin offers a new target for studying T-type channels, which play a role in [congestive heart failure](#), hypertension, epilepsy and pain.

"The blocking mechanism of the toxin is different from classical pore blocker toxins and voltage modifier toxins," says lead researcher Xiao Zhang, a postdoc at the Del Webb Center for Neuroscience in La Jolla, Calif. "It indicates a new toxin blocking mechanism on voltage-gated ion channels."

Zhang purified the toxin and created a recombinant version as part of his doctoral research at the University of California, Riverside. "If we can develop a calcium-channel blocker based on this [toxin](#), we could have a new way to identify how these channels work and develop drugs for treating pain and disease," says Zhang.

More information: The presentation, "A Spider Toxin and its

Recombinant Isoform Block T-type and N-type Calcium Channels with High Affinity" by Xiao Zhang, Li Dai, and Michael E. Adams is at 1:00 p.m. on Wednesday, March 9, 2011 in the Baltimore Convention Center, Room 307. ABSTRACT: tinyurl.com/4nhp7m6

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