# A Snail May Hold the Key to an "Ultra-Fast-Acting" Diabetes Treatment

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Snails may not be the speediest creatures in the animal kingdom, but these slimy slowpokes may be the key to creating a new class of rapid-action type 2 diabetes treatments. According to a recent study published in the journal Natural Structural and Molecular Biology, researchers in Australia discovered a certain type of marine cone snail that while hunting emits an insulin-based venom which could hold potential for developing human therapies for the blood sugar disorder, Science Daily reports.

Type 2 diabetes occurs when the body develops a resistance to insulin, the hormone that helps lower blood glucose levels after eating. When this happens, too much sugar enters the bloodstream and can cause a wide array of health issues, including fatigue, headache, blurred vision, increased urination and a buildup of toxic acids in the blood. If left untreated, type 2 diabetes can be deadly. There are artificial insulin-based therapies that control the condition in minutes, but cone snail venom might make an even more efficient diabetes solution possible.

When researchers studied the three-dimensional structure of the sea creature's insulin-based venom, they learned that natural proteins in the substance immobilized the snail's prey via hyperglycemic shock. The team also found that the protein, called Con-Ins GI, operated much more efficiently than human insulin and could bind to this hormone's receptors, signifying its potential for translation into human therapies.

"The structure of human insulins contain an extra 'hinge' component that has to open before any 'molecular handshake' or connection between insulin and receptor can take place," explained Mike Lawrence, PhD, an associate professor at Melbourne's Walter and Eliza Hall Institute of Medical Research and lead study author. "We found that cone snail venom insulins work faster than human insulins by avoiding these structural changes…. They are essentially primed and ready to bind to their receptors."

The team's findings build on an earlier study that initially uncovered the cone snail's novel use of insulin to trap its victims. But a new snail-based blood sugar drug isn't likely to come out any time soon. Researchers must now test how exactly the venom will work in the human body and whether it's safe to use in a pharmaceutical setting.

In the meantime, click here to learn about current type 2 diabetes treatment options.