

Super-Toxic Snake Venom Could Yield New Painkillers

By [Katherine Harmon](#) | October 3, 2012 | [14](#)



Image of black mamba snake courtesy of Wikimedia Commons/Bill Love/Blue Chameleon Ventures

A bite from the black mamba snake (*Dendroaspis polylepis*) can kill an adult human within 20 minutes. But mixed in with that toxic venom is a new natural class of compound that could be used to help develop new painkillers.

Named “mambalgins,” these peptides block acute and inflammatory pain in mice as well as morphine does, according to a new study.

Researchers, led by Sylvie Diochot, of the Institute of Molecular and Cellular Pharmacology at Nice University, Sophia Antipolis in France, purified the peptides from the venom and profiled the compounds’ structure. They then were able to test the mambalgins in strains of mice with various genetic tweaks to their pain pathways. Diochot and her colleagues determined that the mambalgins work by blocking an as-yet untargeted set of neurological ion channels associated with pain signals. The findings were published online October 3 in *Nature* (*Scientific American* is part of Nature Publishing Group).

As a bonus, mambalgins did not have the risky side effect of respiratory depression that morphine does. And the mice developed less tolerance to them over time than is typical with morphine.



Image of black mamba's black mouth courtesy of Wikimedia Commons/Tad Arensmeier

Experimenting with the newfound compounds should also help researchers learn more about the mechanisms that drive pain. As the researchers noted in their paper, “It is essential to understand pain better to develop new analgesics. The black mamba peptides discovered here have the potential to address both of these aims.”

Venoms from plenty of other species of animals, including spiders, scorpions, ants and even snails, have also been studied for their analgesic potential.

Just don't try extracting any of this venom in the wild. There is antivenom for the black mamba snake's bite, but it is not always available, and without it, the bites are usually fatal. These snakes can move along at speeds up to about 20 kilometers per hour and grow to up to 4.4 meters in length.



About the Author: Katherine Harmon is an associate editor for *Scientific American* covering health, medicine and life sciences. Follow on Twitter [@katherineharmon](https://twitter.com/katherineharmon).