

Corals and humans evolved complex mechanisms for necessary cell death

For us to live, parts of us must die. Every day, billions of our cells shrink, break up into small parcels, and get tidied away by other janitorial cells. This gentle, organised cellular suicide is called apoptosis, and we depend upon it.

There are many ways of triggering apoptosis, and one route involves two large groups of proteins: the tumour necrosis factors (TNFs), and the receptors that they stick to.

Now, Steven Quistad from San Diego State University has discovered that corals—small tentacle animals that build mighty reefs—have their own TNFs and TNF receptors. To his surprise, he didn't just find TNFs, he found lots of them. We have genes for 18 different TNFs and 29 corresponding receptors, and the coral has a similar number—13 TNFs and 40 receptors. “That's more receptors than anyone had ever seen in any organism,” says Quistad.

And why is that surprising? Because “they were expected to have just one,” he says. “This is part of a really cool shift that's happening in evolutionary biology,” says Quistad. “We've learned a lot from flies and worms, but they have led us to these erroneous conclusions about the evolution of all animal life. The assumption has been that older things should be simpler. If we saw something in flies and worms, it should be even simpler in a more ancient organism like a coral. But corals are actually more similar to humans in multiple ways, and flies and worms turn out to be very strange animals.”

Read the full, original story: [Half a Billion Years of Suicide](#)