Ctenophores, long-underestimated outcast of animal kingdom, now challenge design of evolutionary tree

In the journal *Trends in Ecology & Evolution*, a group of scientists published a tub-thumping defense of sponges and other supposedly simple animals. In their paper, Casey Dunn, Sally Leys, and Steve Haddock argue that humans have systematically underestimated these creatures, largely because of our innate bias against organisms outside our taxonomic clique. That clique, actually called a clade, includes all of the so-called bilaterians—animals with left-right symmetry that share a single ancestor. Tigers, hummingbirds, octopuses, scorpions, crocodiles, mantises, sharks, earthworms: all are bilaterians.

But ctenophores have gained some popularity in recent years, particularly since in 2008 Dunn, a Brown University biologist, compared genes from twenty-nine animals belonging to several phyla and concluded that ctenophores were the first to diverge from the rest of the animal kingdom hundreds of millions of years ago – not sponges, as had been believed for centuries. This revised tree, with ctenophores on the earliest branch, complicates several once tidy stories about the evolution of animal traits, notably the nervous system. Sponges lack neurons entirely, but their genes seem to allow for chemical signalling of some kind. Ctenophores have nervous systems but lack the genes that other animals use to build neurons and neurotransmitters. If sponges are the earlier of the two clades, the story unfolds neatly: they had the genetic building blocks for a nervous system, which ctenophores elaborated and bilaterians went to town on. But this narrative shatters if ctenophores branched off first. It could mean that they evolved nervous systems independently from all other animals, including us.

The GLP aggregated and excerpted this blog/article to reflect the diversity of news, opinion and analysis. Read full, original post: Consider the sponge