Gene-tree gives insight into evolution of unusual group

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Abstract

The Gyliauchenidae Goto & Matsudaira, 1918 is a small, discrete group of digeneans found in the posterior intestine and rectum of herbivorous marine fishes in the Indo-Pacific. The dietary constraints of this environment have selected for striking adaptations within the gastrointestinal tract of these worms. Despite their interesting morphology, this group has been little studied and accordingly, the taxonomy of the group is poorly understood. As part of a major investigation of the taxonomy, systematics and evolutionary biology of the Gyliauchenidae, we have constructed gene trees. Here we present a phylogeny based on the mitochondrial ND1 gene. Using this tree, we can hypothesise patterns for the evolution of the major features of the gastrointestinal tract. The heritability of these characters will be of enormous benefit in understanding the taxonomy of this remarkable, albeit small, family of digeneans.

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