

**Supplementary Fig. S1.** Skate phylogenetic tree created with MrBayes (v. 3.2.6), using a GTR+G model (Ronquist *et al.*, 2012). Analysis was run for 50,000,000 generations, sampling every 500 generations following a burn-in of 10,000,000 generations. Tree was plotted using ggtree (Yu *et al.*, 2017). The blue dots indicate posterior probability values

*≥* 95%. The tree is also available on TreeBase (<https://www.treebase.org/treebase-web/user/treeList.html?id=22981&treeblockid=46700>).



**Supplementary Fig. S2.** Cestode phylogenetic tree created in MrBayes (v. 3.2.6), generated using a GTR+G model (Ronquist *et al.*, 2012). Analysis was run for 50,000,000 generations, sampling every 500 generations following a burn-in of 10,000,000 generations. Tree was plotted using ggtree (Yu *et al.*, 2017). The blue dots indicate posterior probability values *≥* 95%. The tree is also available on TreeBase (<https://www.treebase.org/treebase-web/user/treeList.html?id=22981&treeblockid=46699>).