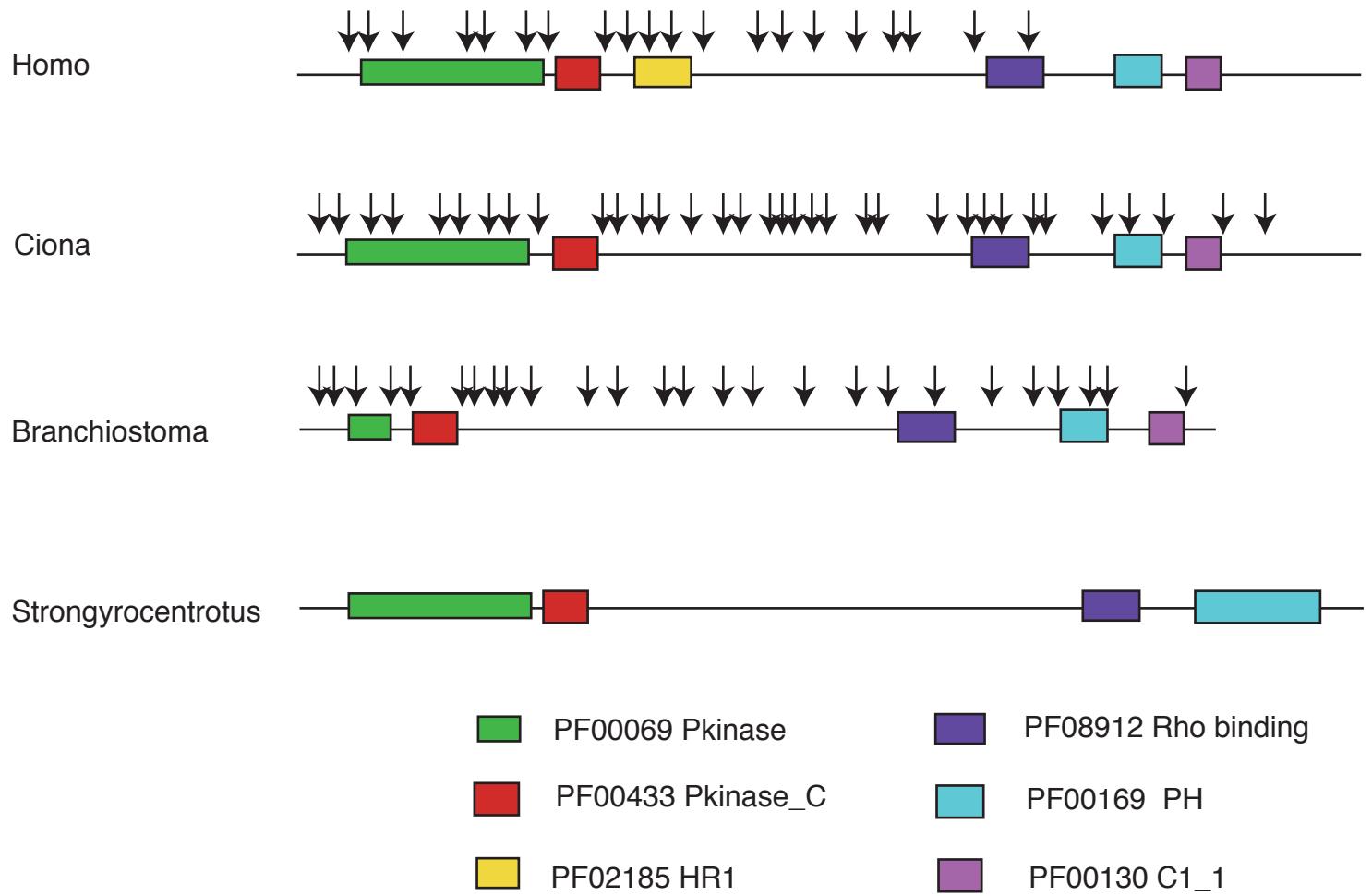
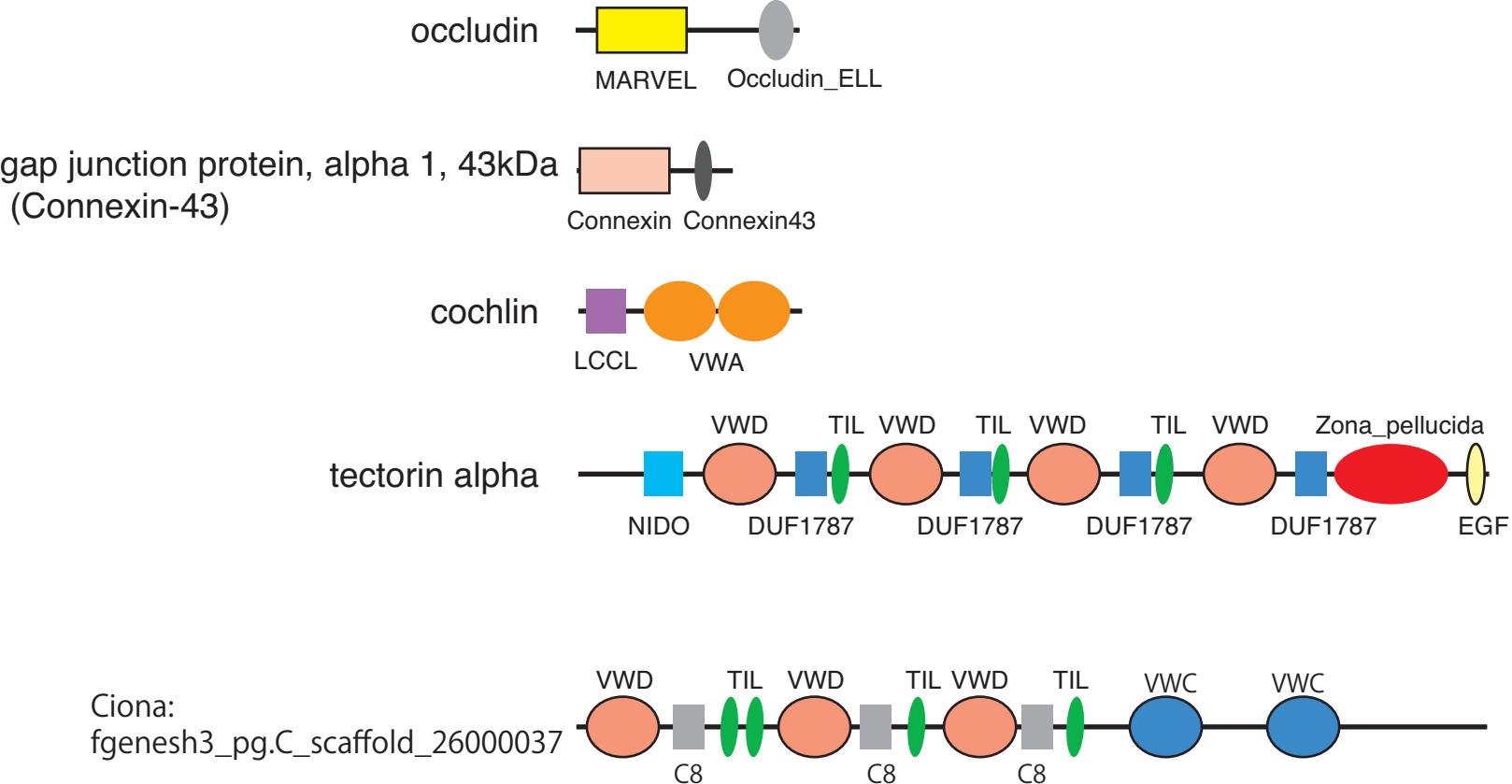


Supp. Figure 1. Domain structures of proteins in which the combination of EGF domain and Thyroglobulin domain was acquired convergently in deuterostomes.



Supp Figure 2. Domain structure of the Rho kinase gene. HR1 domain (PF02185) is inserted in the vertebrate genes between the Pkinase_C (PF00433) domain and Rho binding domain (PF08912) which are found in the other deuterostomes. Arrows indicate position of introns. Because the genome sequence is not found in the database, intron position is not shown for the sea urchin gene model.

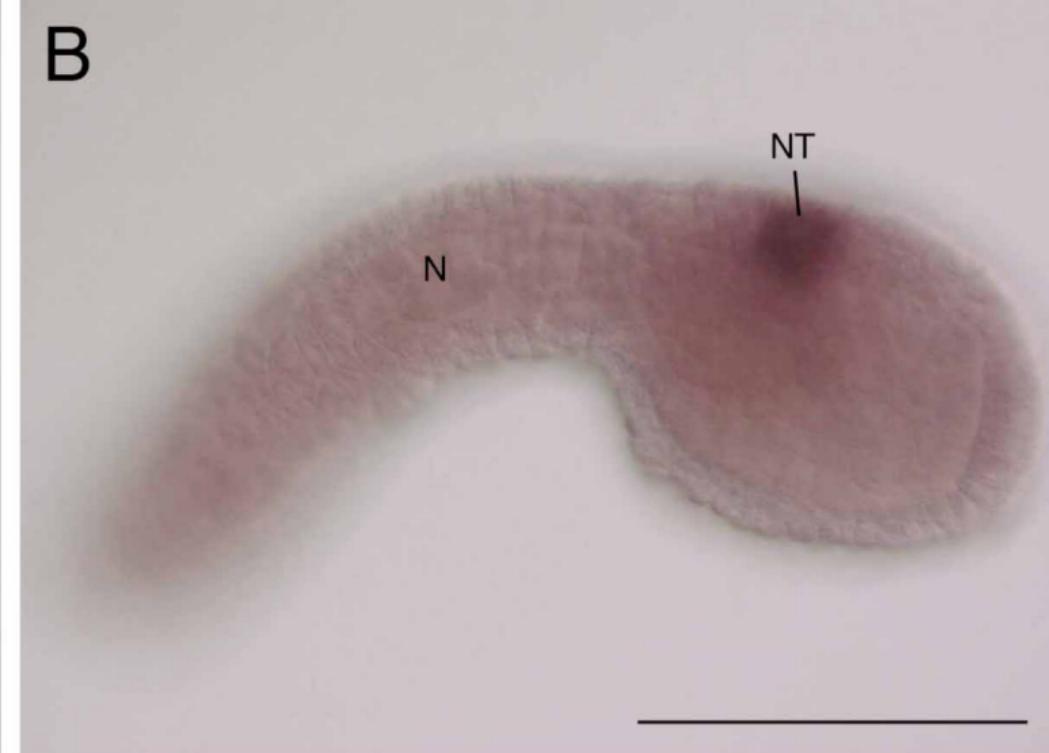


Supp. Fig. 3. Domain structures of proteins encoded by genes that function in the vertebrate cell-adhesion machineries and auditory systems. These genes contain domain pairs unique to the vertebrates, thus were created by domain shuffling. We were unable to find gene models that show similar domain architecture in Ciona and Branchiostoma, although gene models that have repeats of vWD-TIL domains were found in Ciona (fgenesh3_pg.C_scaffold_26000037) and Branchiostoma (fgenesh2_pg.scaffold_69000010).

A



B



Supp. Fig. 4. Expression of ascidian genes that encode proteins with chordate-specific domain pairs. Expression of the *Ciona* homologs of SCO-spondin(A) and SP-D (B) in the neural tube of tailbud embryos is shown. Scale bars, 50 μ m.