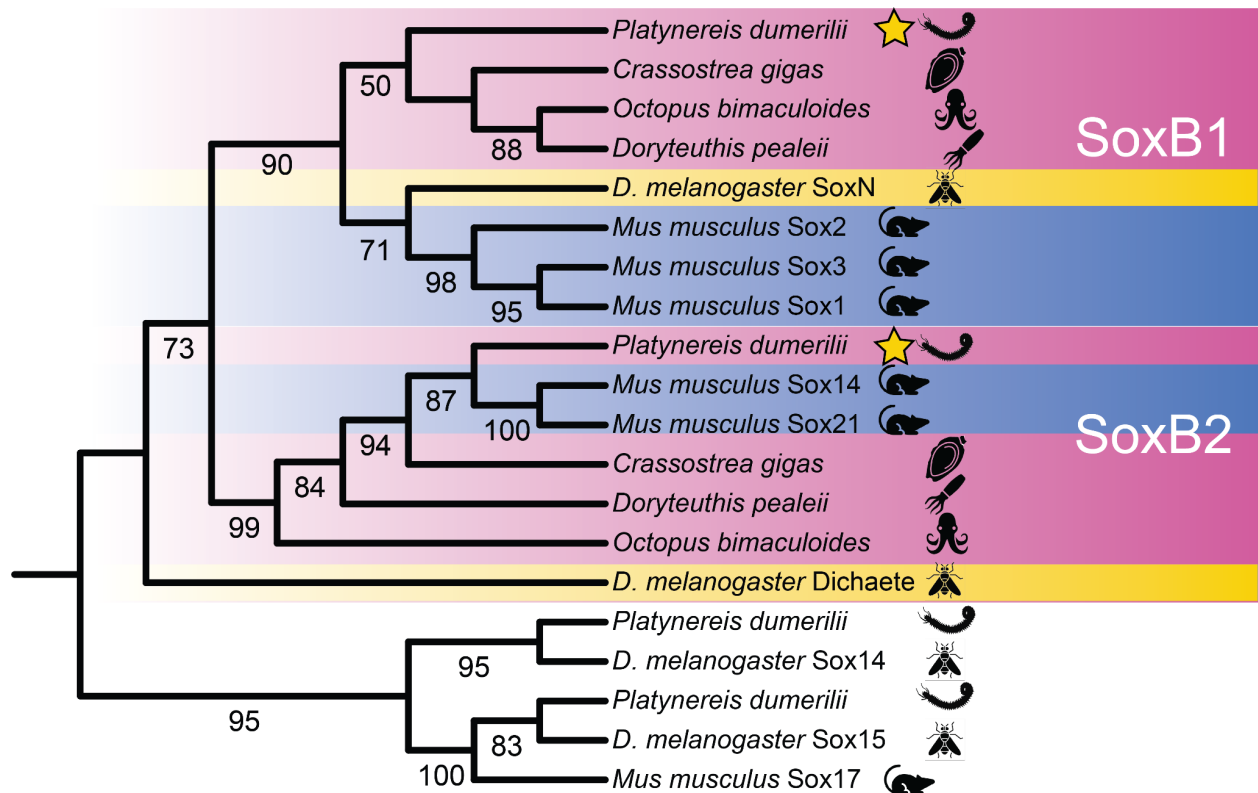
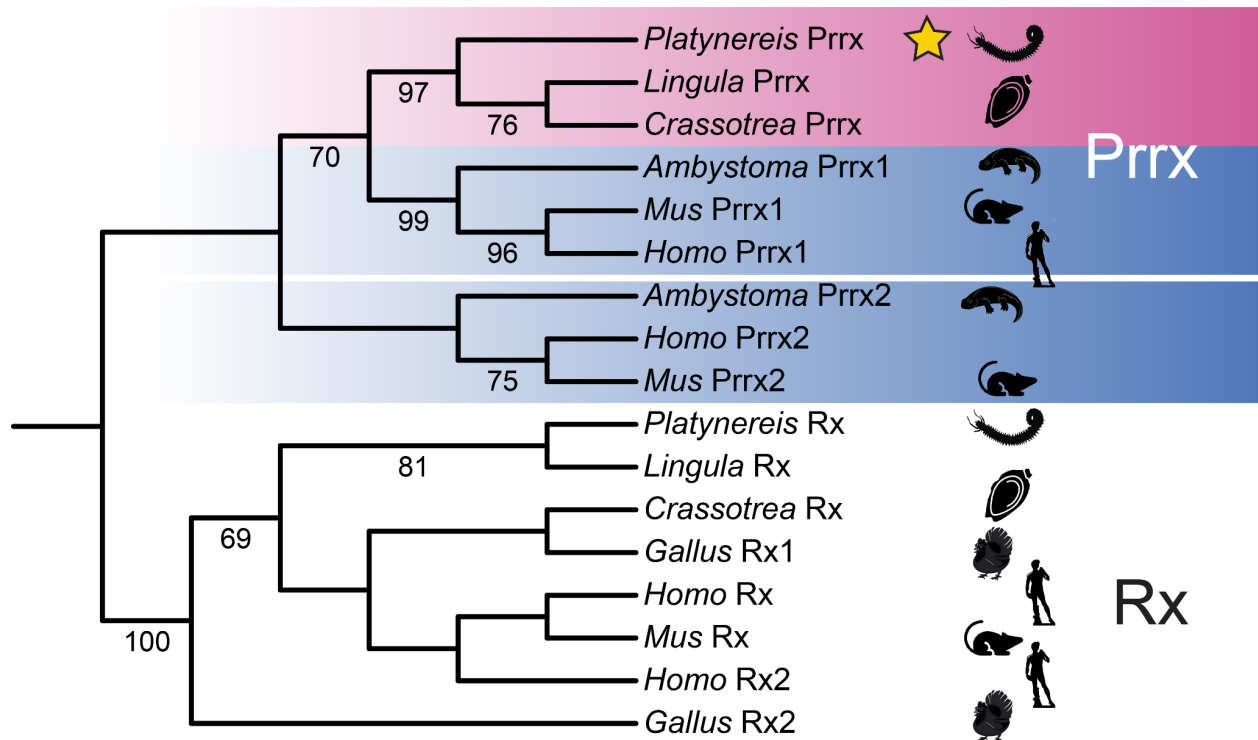


# Supplementary Data 6:

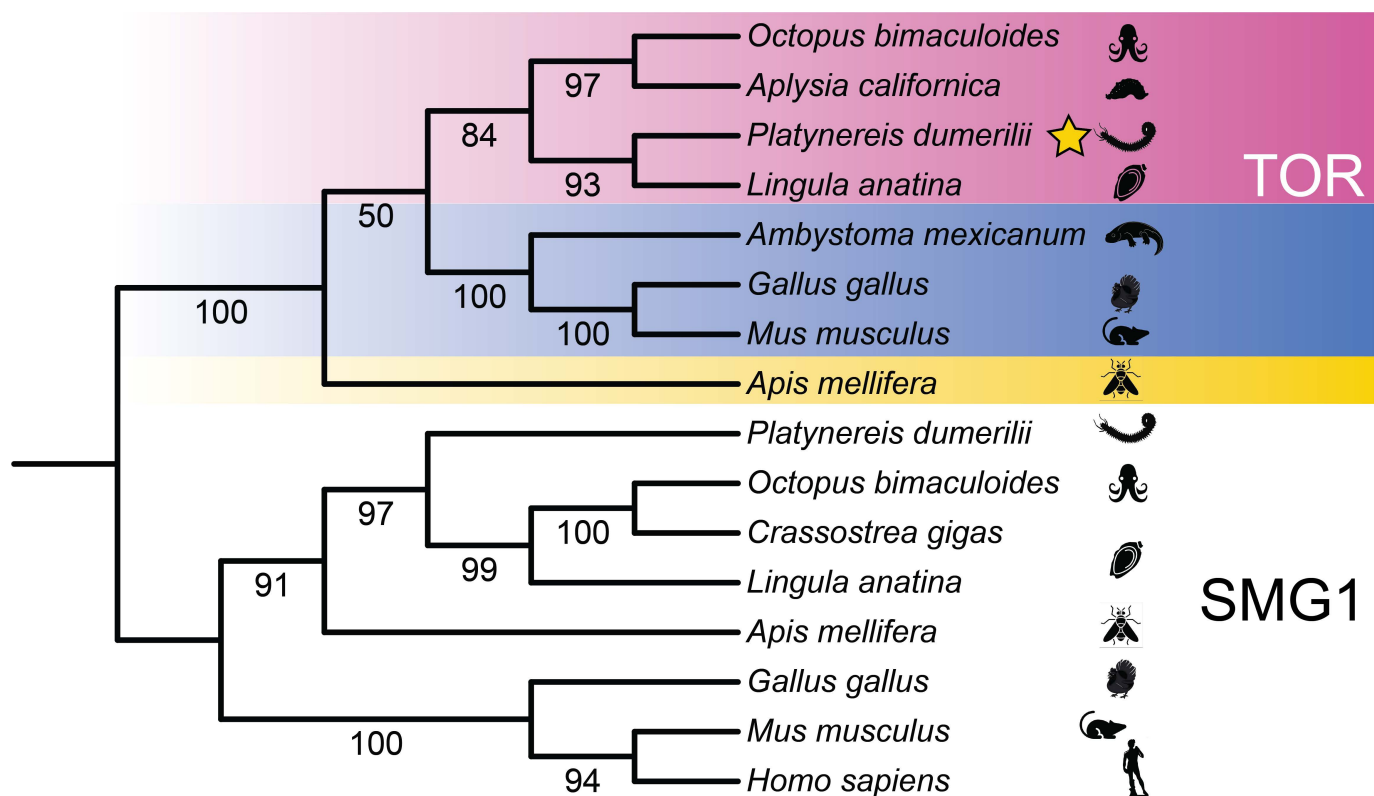
## Molecular phylogenetic analyses of selected genes



**Supplementary Data 6 Figure 1. Orthology relationships of *Platynereis* SoxB proteins.** Sequence identifiers: **SoxB1 group:** KT266552.1 (*Platynereis dumerilii*), XP\_011455662.1 (*Crassostrea gigas*), XP\_014780771.1 (*Octopus bimaculoides*), OM481471.1 (*Doryteuthis pealeii*), NP\_524735.1 (*Drosophila melanogaster*), ENSMUSP00000137203, ENSMUSP00000096755, ENSMUSP00000115237 (*Mus musculus*); **SoxB2 group:** SoxB2 group: ANS60443.1 (*Platynereis dumerilii*), ENSMUSP0000009131, ENSMUSP00000127396 (*Mus musculus*), XP\_011433975.1 (*Crassostrea gigas*), OM481470.1 (*Doryteuthis pealeii*), XP\_014789971.1 (*Octopus bimaculoides*), NP\_524066.1 (*Drosophila melanogaster*); Outgroup: P40656.3, P40657.2 (*Drosophila melanogaster*), Q61473.1 (*Mus musculus*), *Platynereis dumerilii*: CAY12635.1, this study. Bootstrap support (in %) is indicated below relevant nodes.



**Supplementary Data 6 Figure 2. *Platynereis* Prrx is a homolog of vertebrate Prrx proteins.** Sequence Identifiers: **Prrx proteins:** XGX14289 / PQ334003 (*Platynereis dumerilii*; this study); XP\_013387302.1 (*Lingula anatina*), XP\_011417364.1 (*Crassostrea gigas*), AMEX60DD201018450.2 (*Ambystoma mexicanum*), NP\_035257.1 (*Mus musculus*), NP\_008833.1 (*Homo sapiens*), Prrx2: AMEX60DD201050342.16 (*Ambystoma mexicanum*), NP\_057391.1 (*Homo sapiens*), NP\_033142.2 (*Mus musculus*); **Outgroup (Rx proteins):** XP\_011417364.1 (*Mus musculus*), NP\_038463.2, NP\_001306003.2 (*Homo sapiens*), NP\_001230653.1, NP\_989435.2 (*Gallus gallus*), XP\_023932426.1 (*Lingula anatina*), AAU20320.1 (*Platynereis dumerilii*), XP\_011427710.2 (*Crassostrea gigas*). Bootstrap support (in %) is indicated below relevant nodes.



**Supplementary Data 6 Figure 3. *Platynereis* possesses a TOR ortholog.** Sequence Protein identifiers: **TOR:** AVY54328.1 (*Octopus vulgaris*), XP\_005094248.1 (*Aplysia californica*), XGX14290 / PQ334004 (*Platynereis dumerilii*; this study), XP\_013395747.1 (*Lingula anatina*), GB44905-PA (*Apis mellifera*), AMEX60DD301051133.3 (*Ambystoma mexicanum*), ENSGALP00000005274 (*Gallus gallus*), IQ9JLN9 (*Mus musculus*); **Outgroup (SMG1):** XGX14291 / PQ334005 (*Platynereis dumerilii*; this study), XP\_052825533.1 (*Octopus bimaculoides*), XP\_011454765.2 (*Crassostrea gigas*), XP\_013417614.1 (*Lingula anatina*), KAG9429244.1 (*Apis mellifera*), XP\_040539861.1 (*Gallus gallus*), XP\_006507741.1 (*Mus musculus*), NP\_055907.3 (*Homo sapiens*). Bootstrap support (in %) is indicated below relevant nodes.