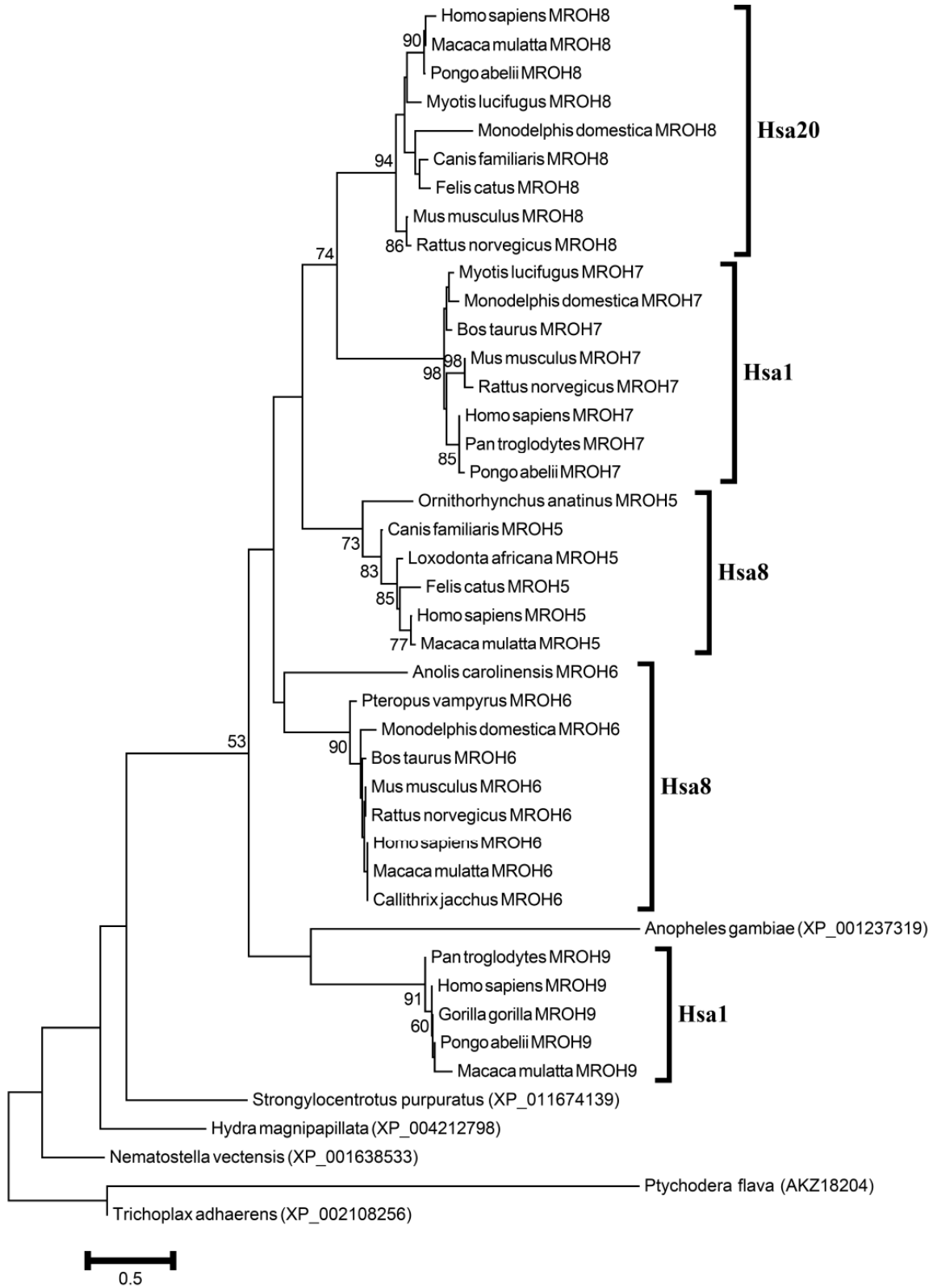**Additional file 3: Neighbor Joining Trees of gene families (residing on human chromosomes 1/2/8/20) using JTT method**
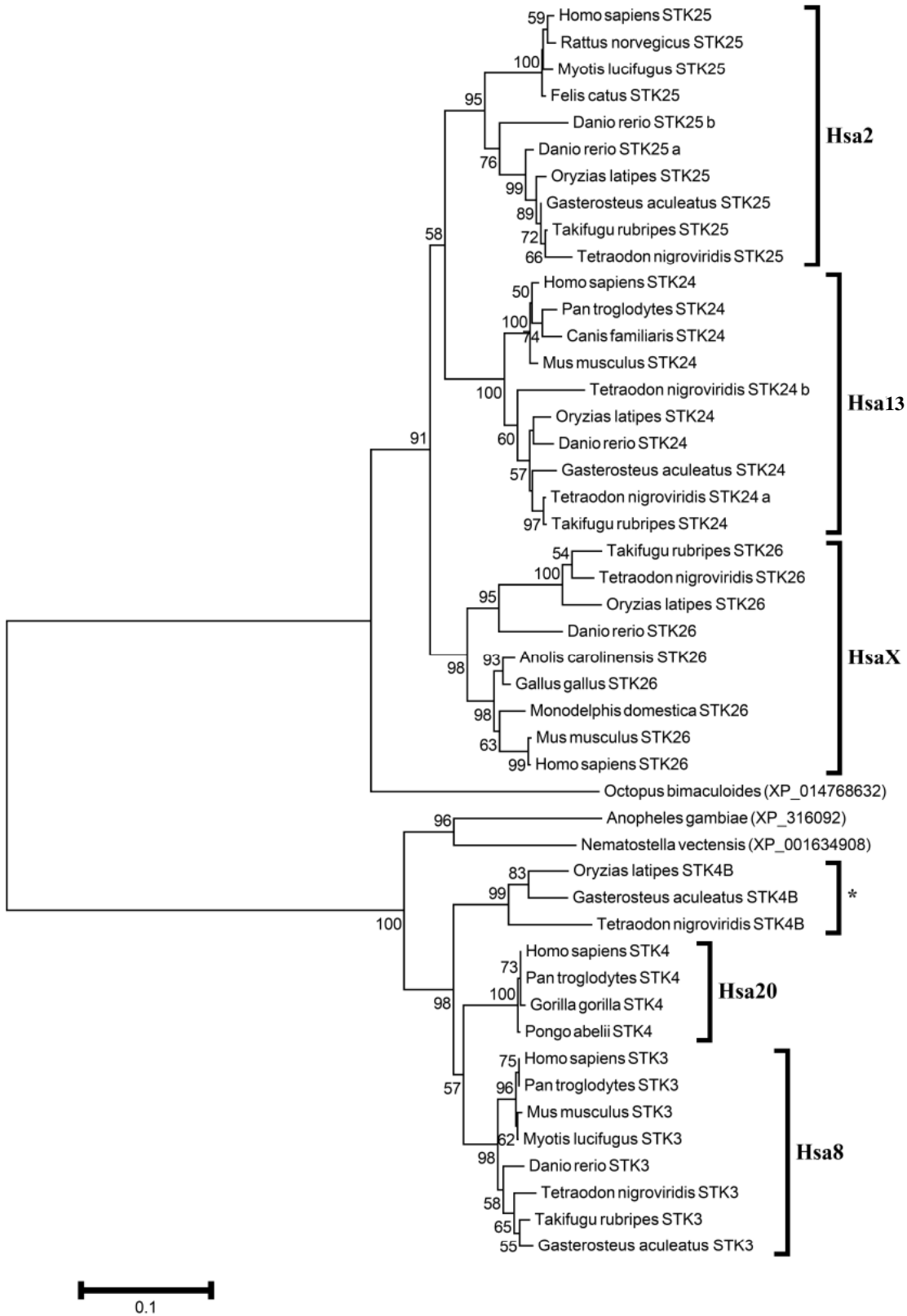
**Co-duplicated group-1**

**MROH8 and STK**

*Maestro Heat-like Repeat-containing Protein Family -MROH*



**Phylogenetic tree of MROH family.**

Neighbor-Joining tree of the MROH family members. Symbols and parameters are the same as described in supplementary Figure 1.1

***Serine/Threonine-Protein Kinase-STK***



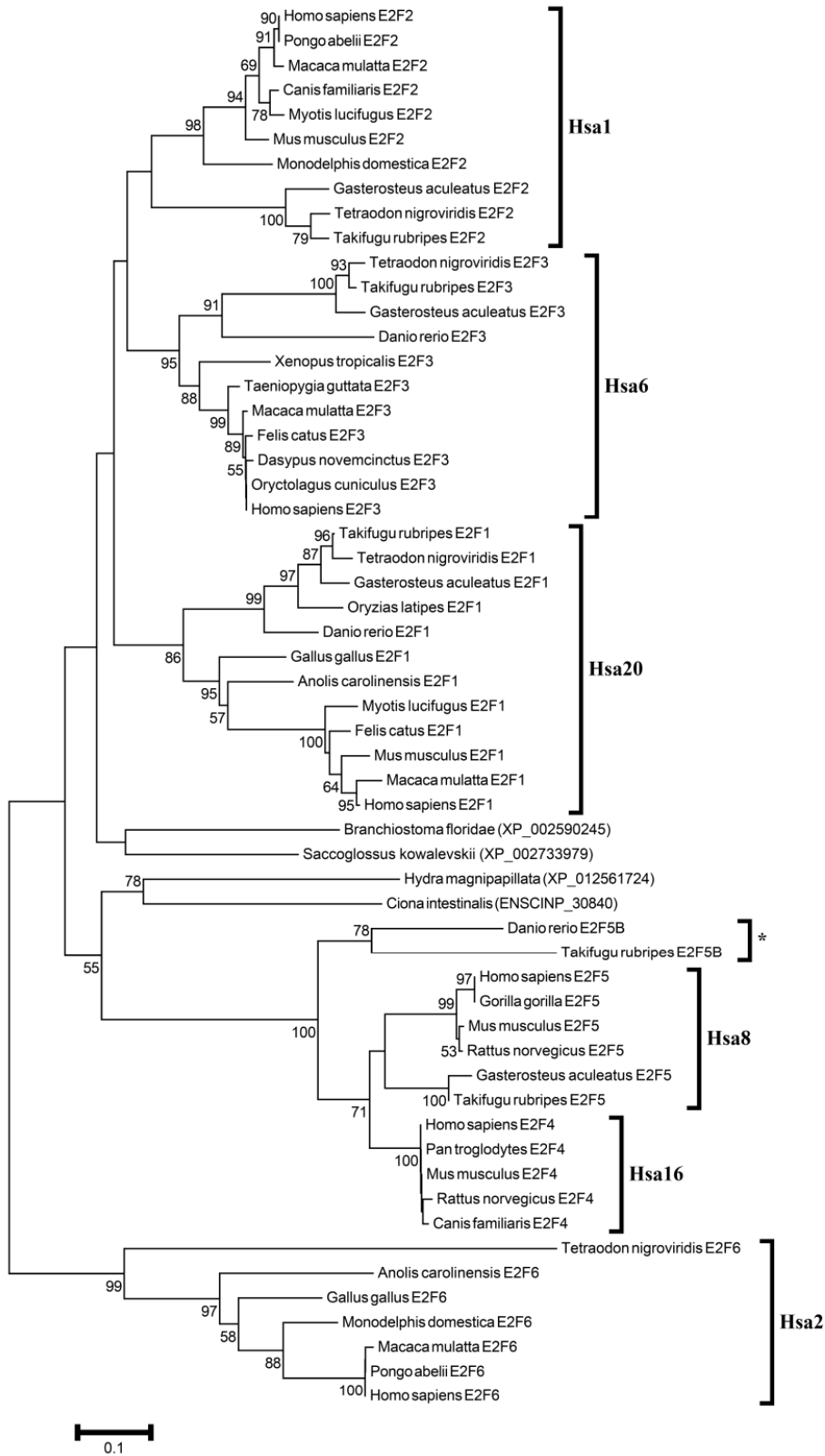**Phylogenetic tree of STK family.**

Neighbor-Joining tree of the STK family members. Symbols and parameters are the same as described in supplementary Figure 1.1

# Co-duplicated group-2

# E2F, STMN1, EYA*

Asterisks (*) represent families published previously by our research group (for details see main text).
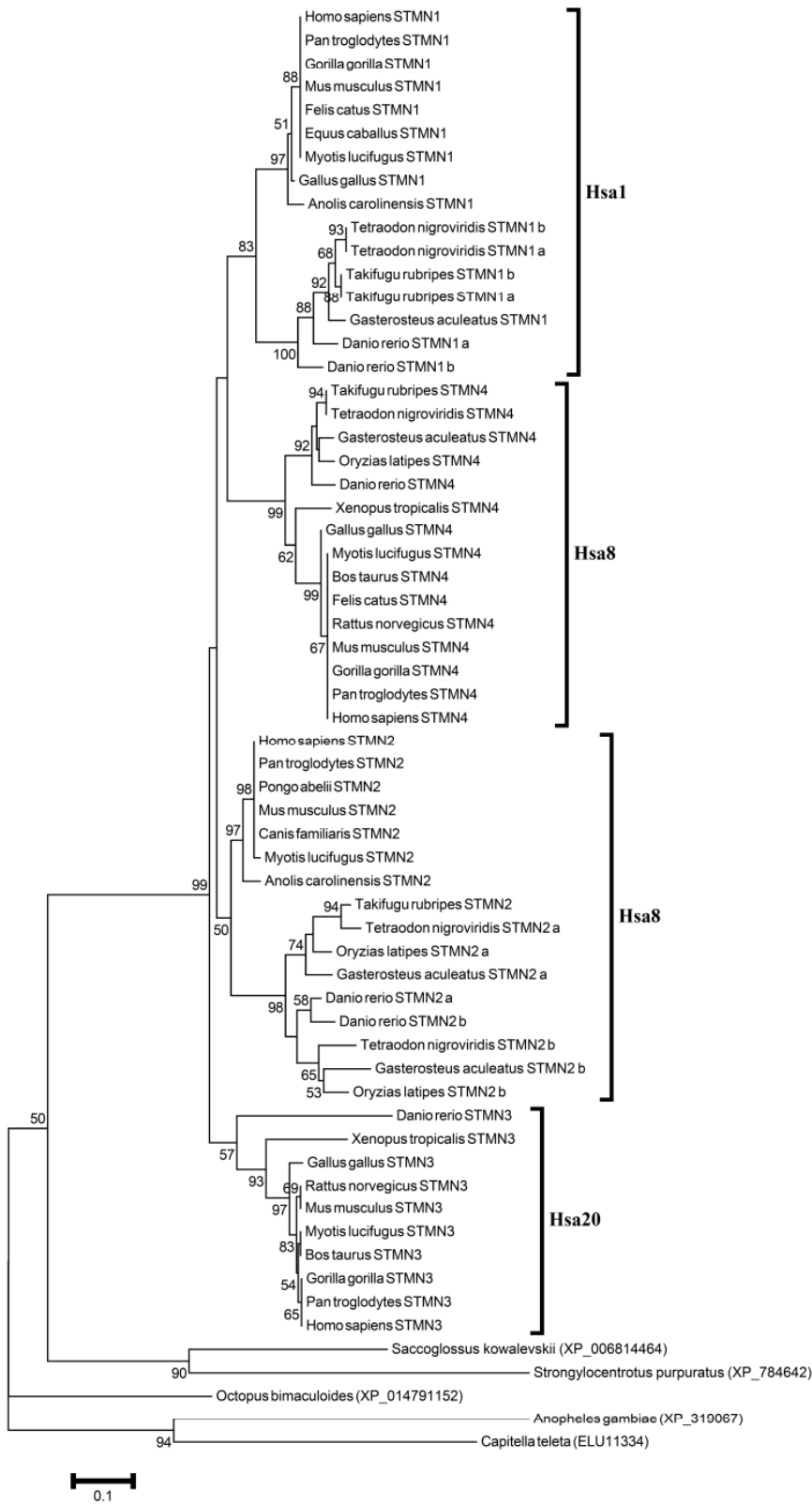
**Phylogenetic tree of E2F family.**

Neighbor-Joining tree of the E2F family members. Symbols and parameters are the same as described in supplementary Figure 1.1
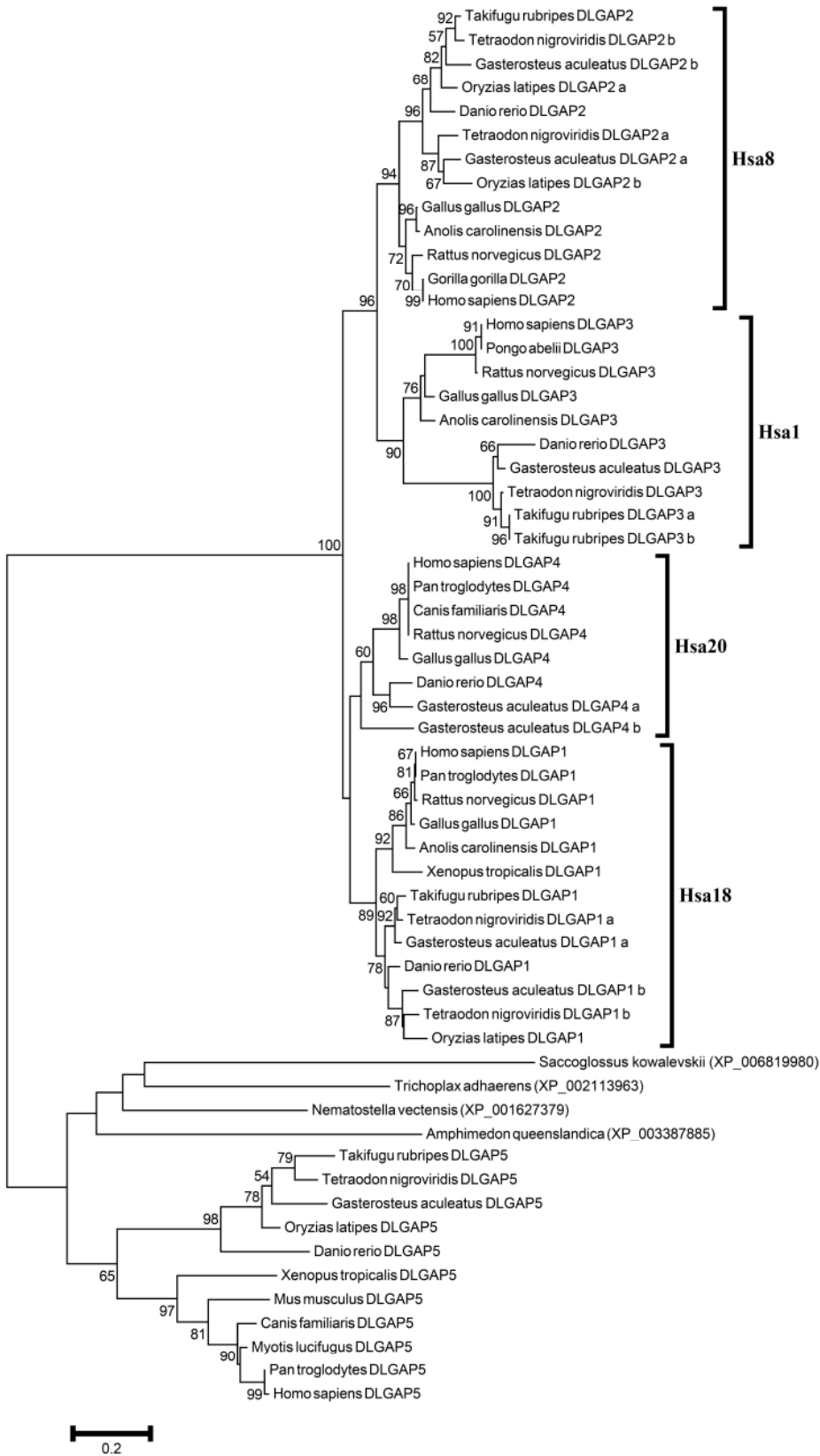
## Phylogenetic tree of STMN family.

Neighbor-Joining tree of the STMN family members. Symbols and parameters are the same as described in supplementary Figure 1.1

# Co-duplicated group-3
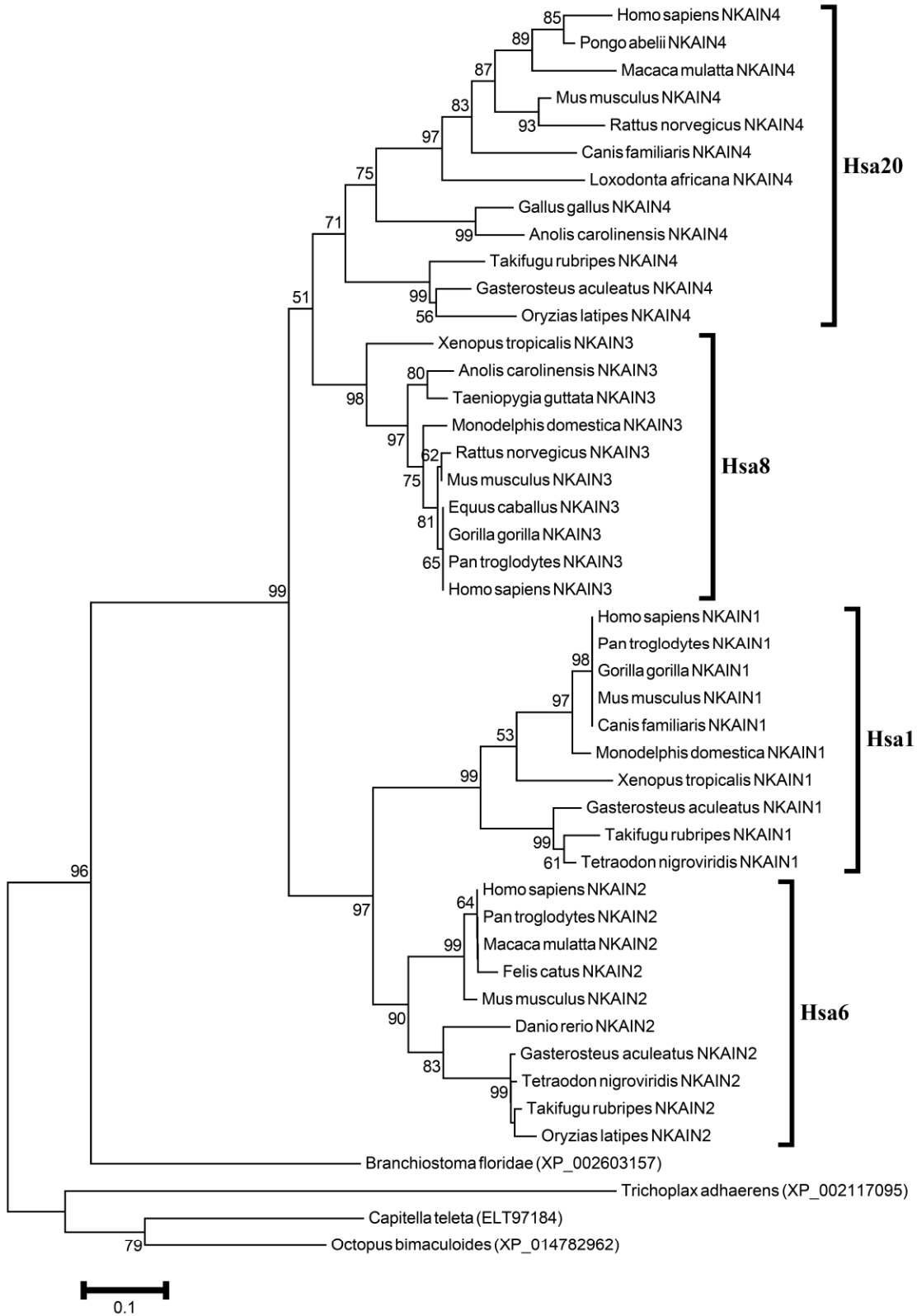
# HCK*, DLGAP, NKAIN, KCNQ, MATN4*

**_Discs, large Drosophila Homolog-associated Protein-DLGAP_**



**Phylogenetic tree of DLGAP family.**

Neighbor-Joining tree of the DLGAP family members. Symbols and parameters are the same as described in supplementary Figure 1.1
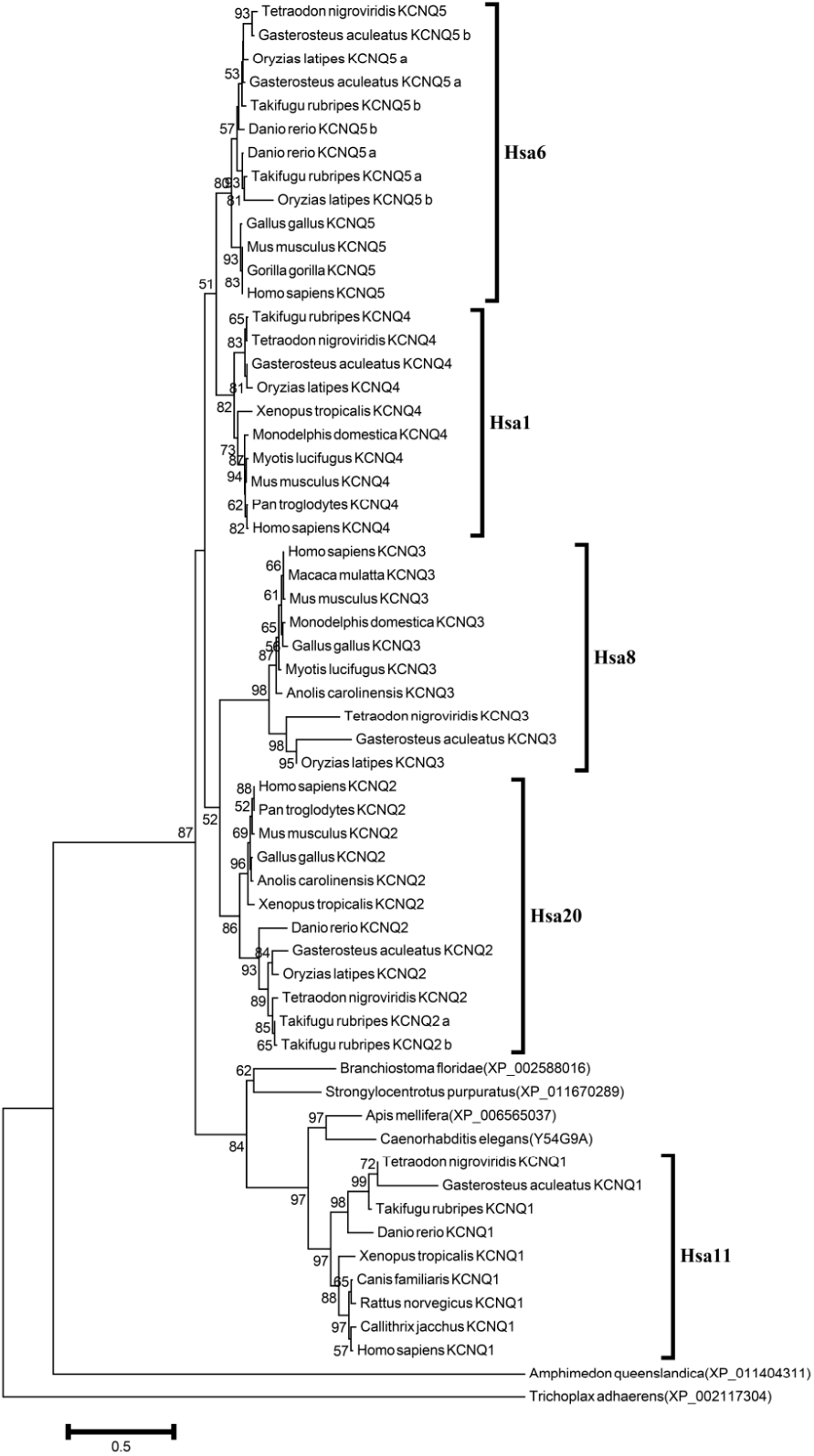
## Na+/K+ Transporting ATPase Interacting Protein-NKAIN



**Phylogenetic tree of NKAIN family.**

Neighbor-Joining tree of the NKAIN family members. Symbols and parameters are the same as described in supplementary Figure 1.1

*Potassium Voltage-Gated Channel subfamily Q-KCNQ*
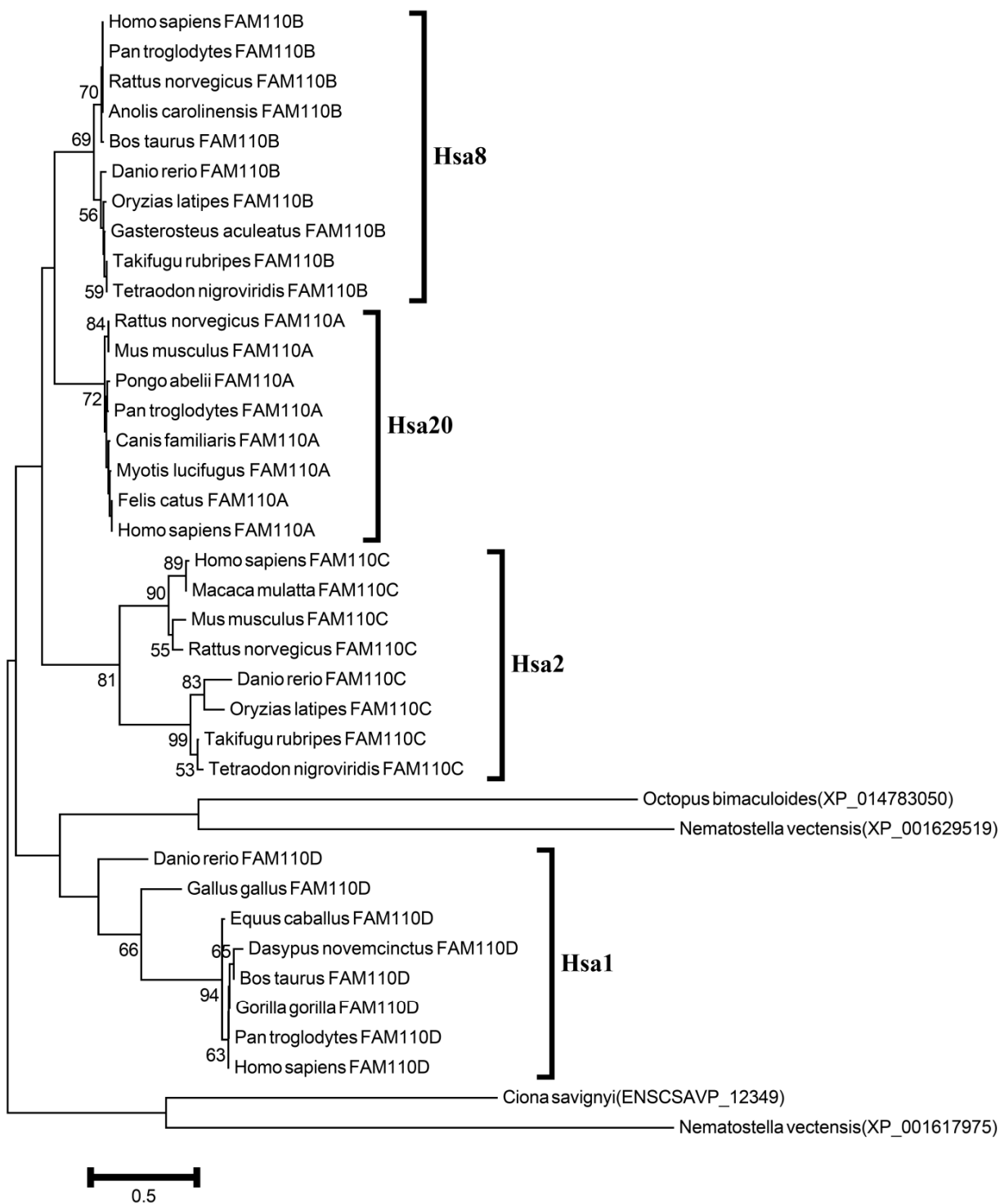


## Phylogenetic tree of KCNQ family.

Neighbor-Joining tree of the KCNQ family members. Symbols and parameters are the same as described in supplementary Figure 1.1

# Co-duplicated group-4

# FAM110, NCOA, KCNS*, YTHDF, XKR, MYT

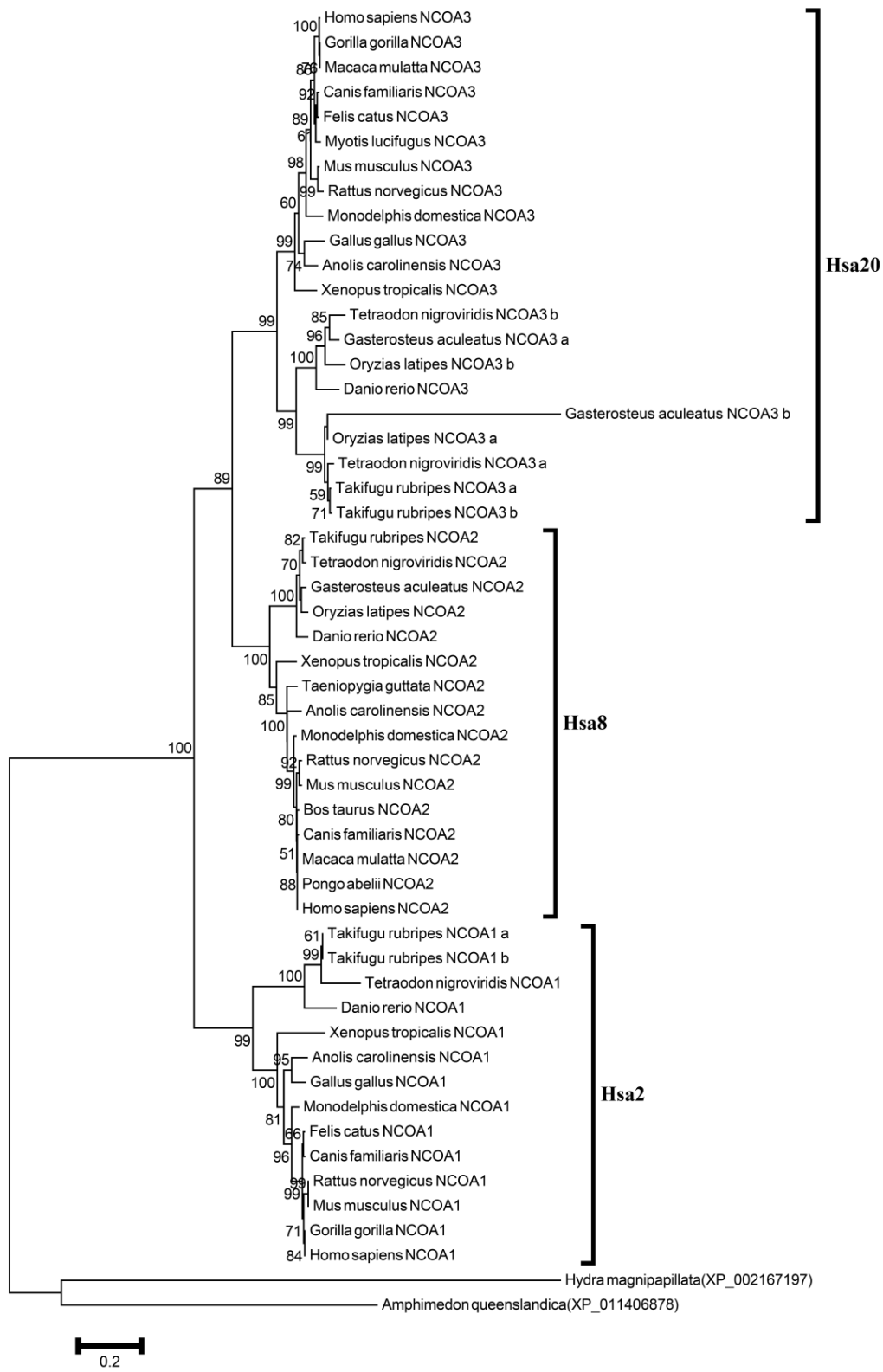**Asterisks (*)** represent families published previously by our research group (for details see main text).

**Phylogenetic tree of FAM110 family.**

Neighbor-Joining tree of the FAM110 family members. Symbols and parameters are the same as described in supplementary Figure 1.1
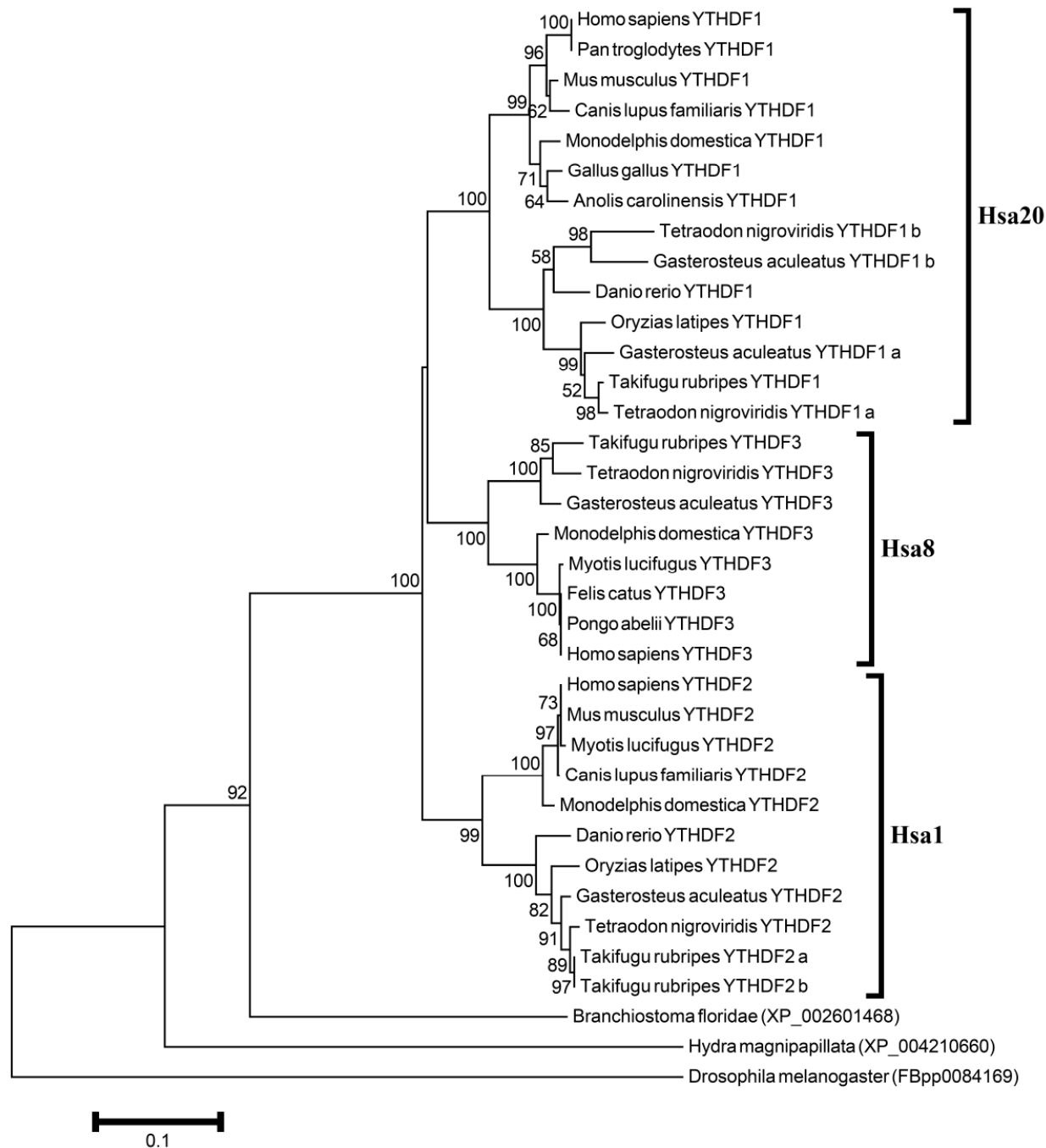
*Nuclear Receptor Coactivator-NCOA*



**Phylogenetic tree of NCOA family.**

Neighbor-Joining tree of the NCOA family members. Symbols and parameters are the same as described in supplementary Figure 1.1

**Phylogenetic tree of YTHDF family.**

Neighbor-Joining tree of the YTHDF family members. Symbols and parameters are the same as described in supplementary Figure 1.1

## X Kell Blood Group Precursor-related Family-XKR



## Phylogenetic tree of XKR family.

Neighbor-Joining tree of the XKR family members. Symbols and parameters are the same as described in supplementary Figure 1.1
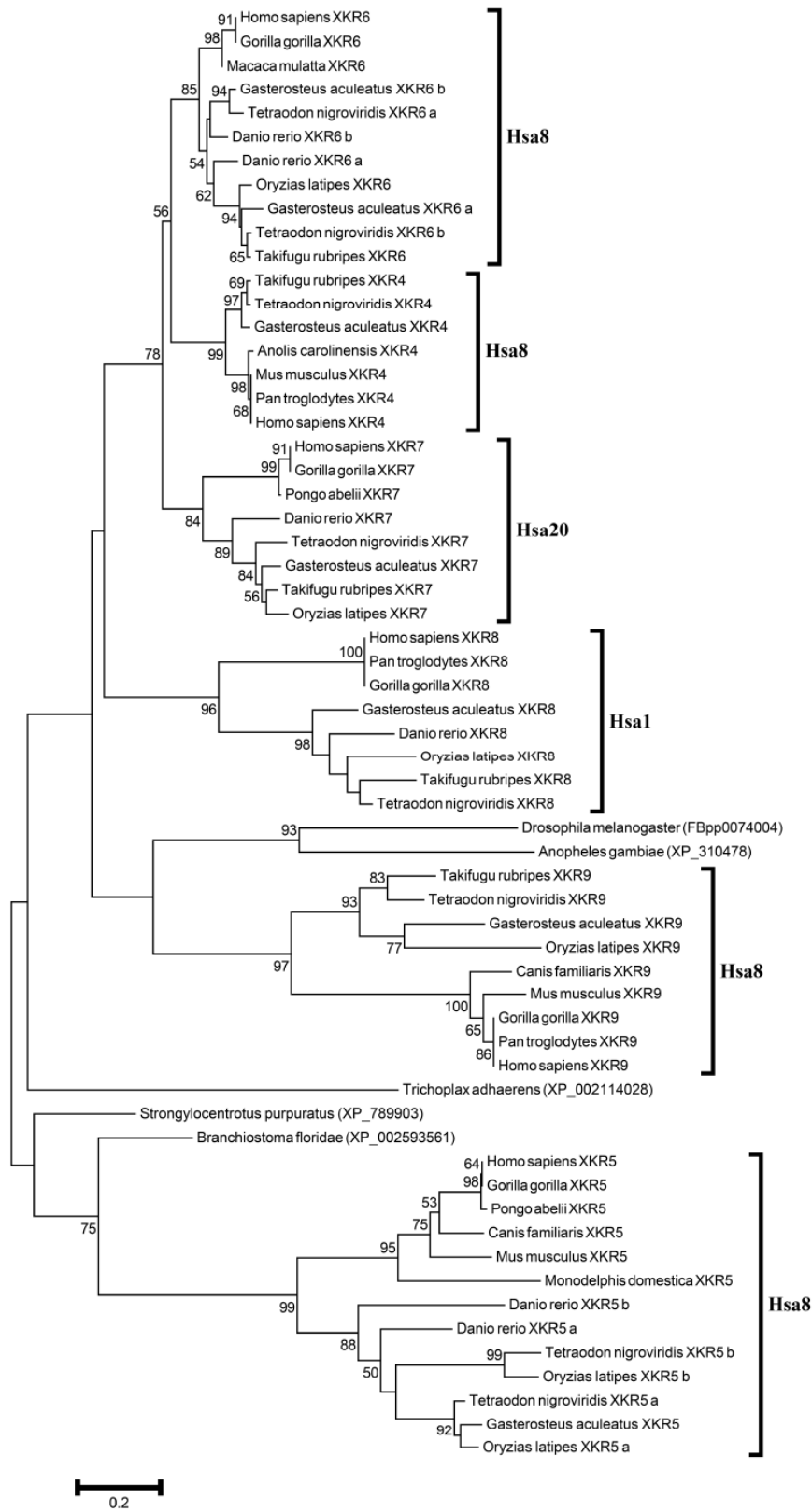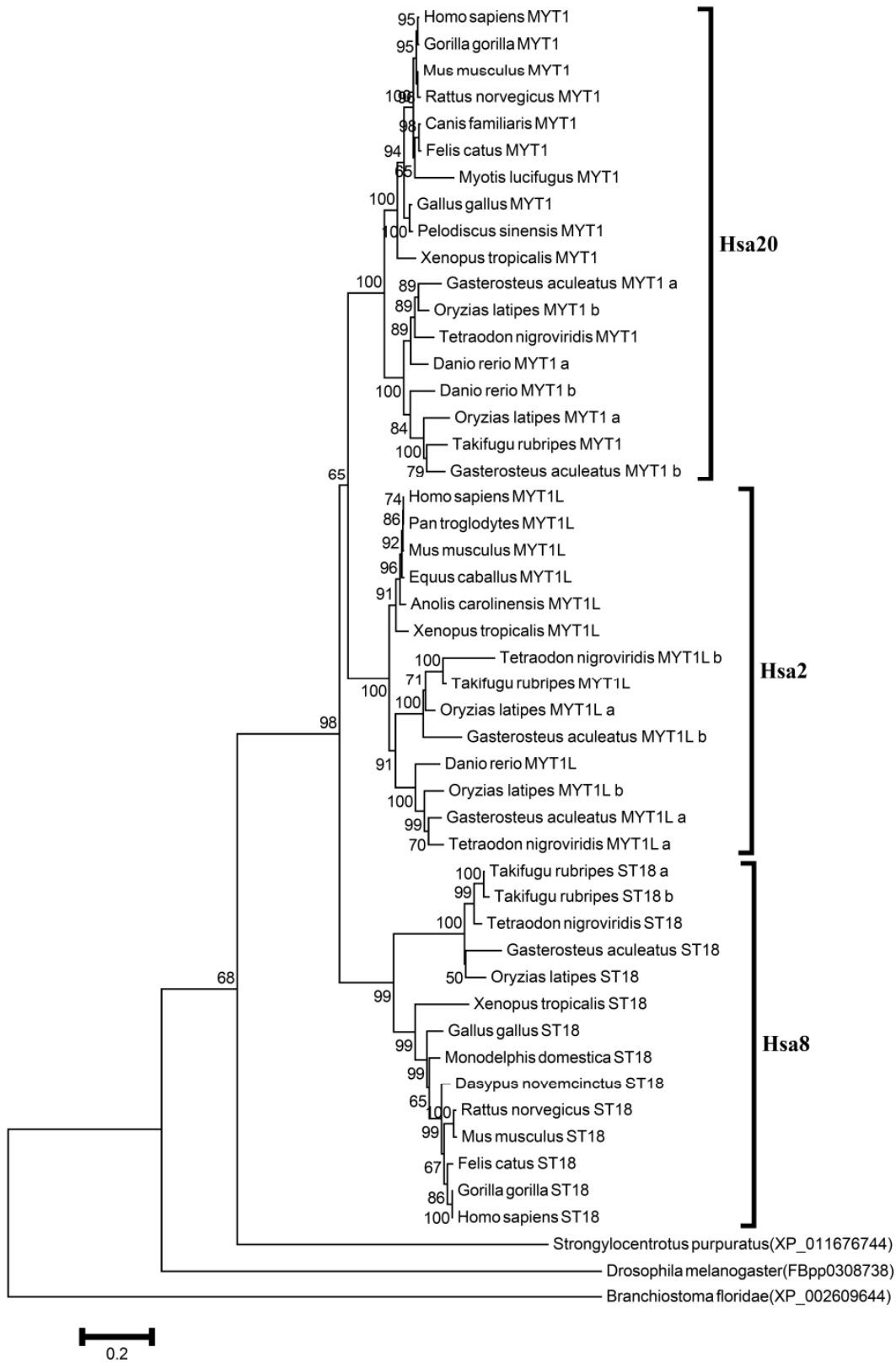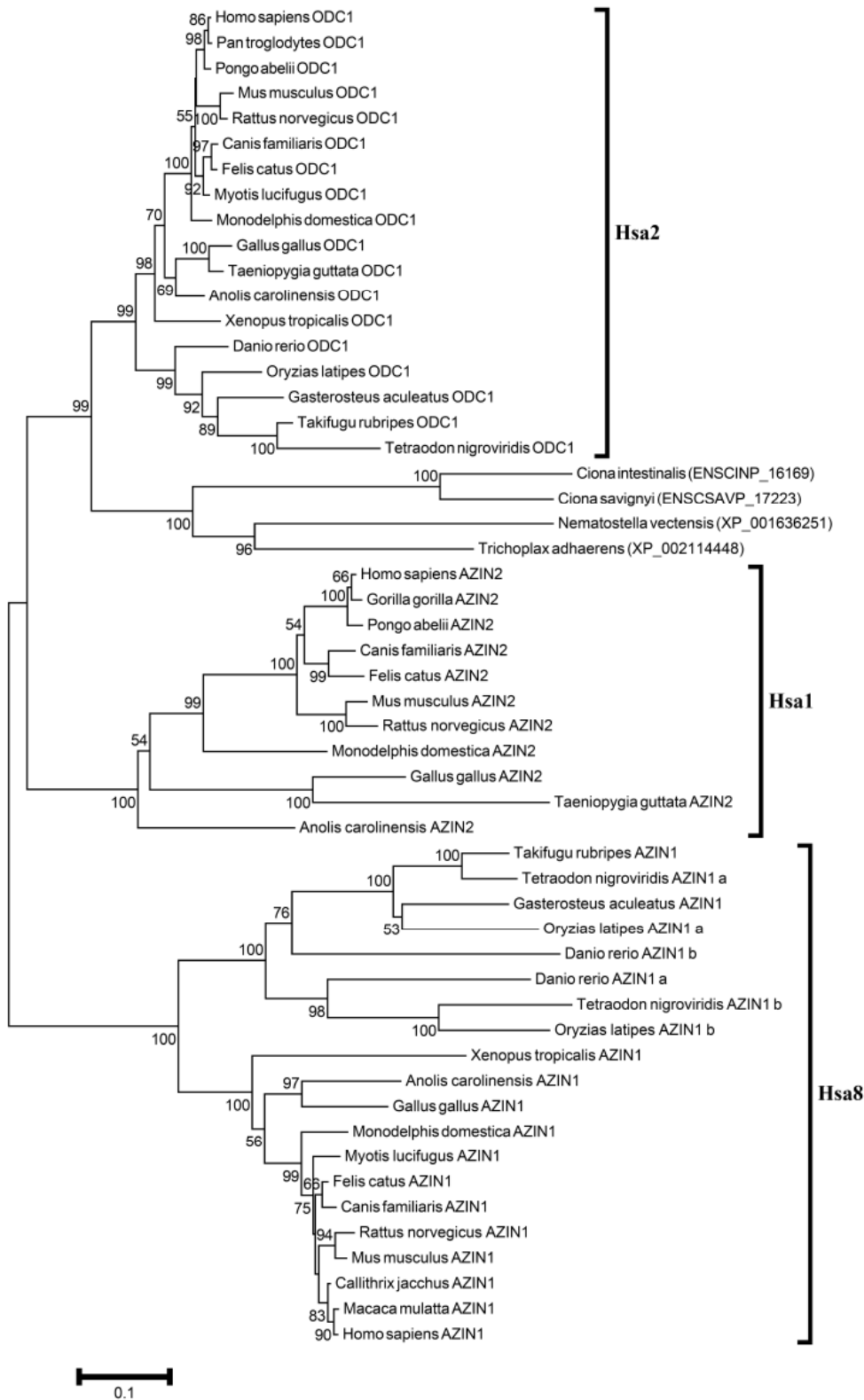
***Myelin Transcription Factor-MYT***



**Phylogenetic tree of MYT family.**

Neighbor-Joining tree of the MYT family members. Symbols and parameters are the same as described in supplementary Figure 1.1

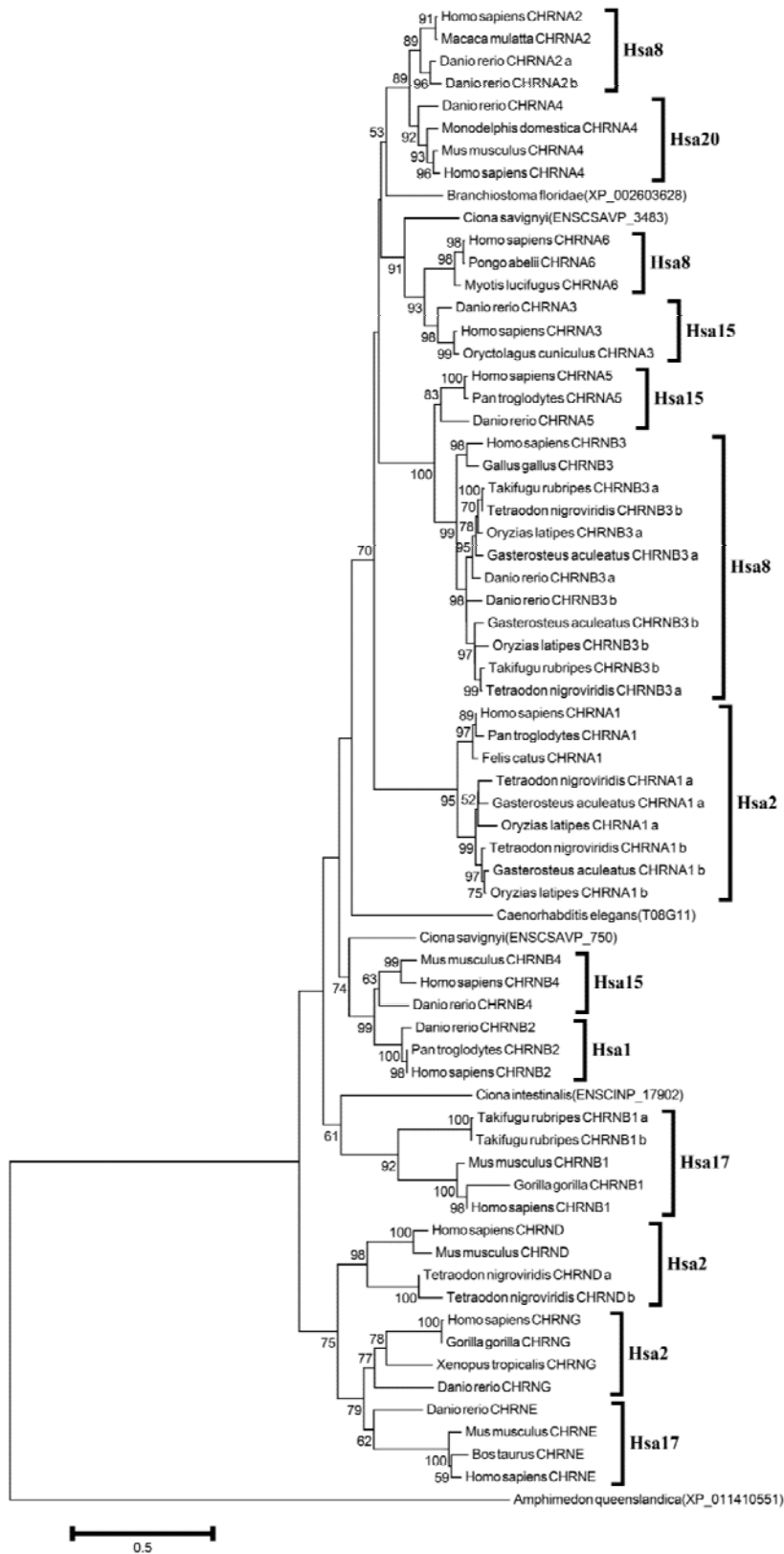**Other gene families analyzed in the present study**

**Antizyme Inhibitor-AZIN**



**Phylogenetic tree of AZIN family.**
Neighbor-Joining tree of the AZIN family members. JTT matrix-based method was used. Complete-deletion option was used. Numbers on branches represent bootstrap values (based on 1000 replications) supporting that branch; only the values ≥50% are presented here. Scale bar shows amino acid substitution per site.
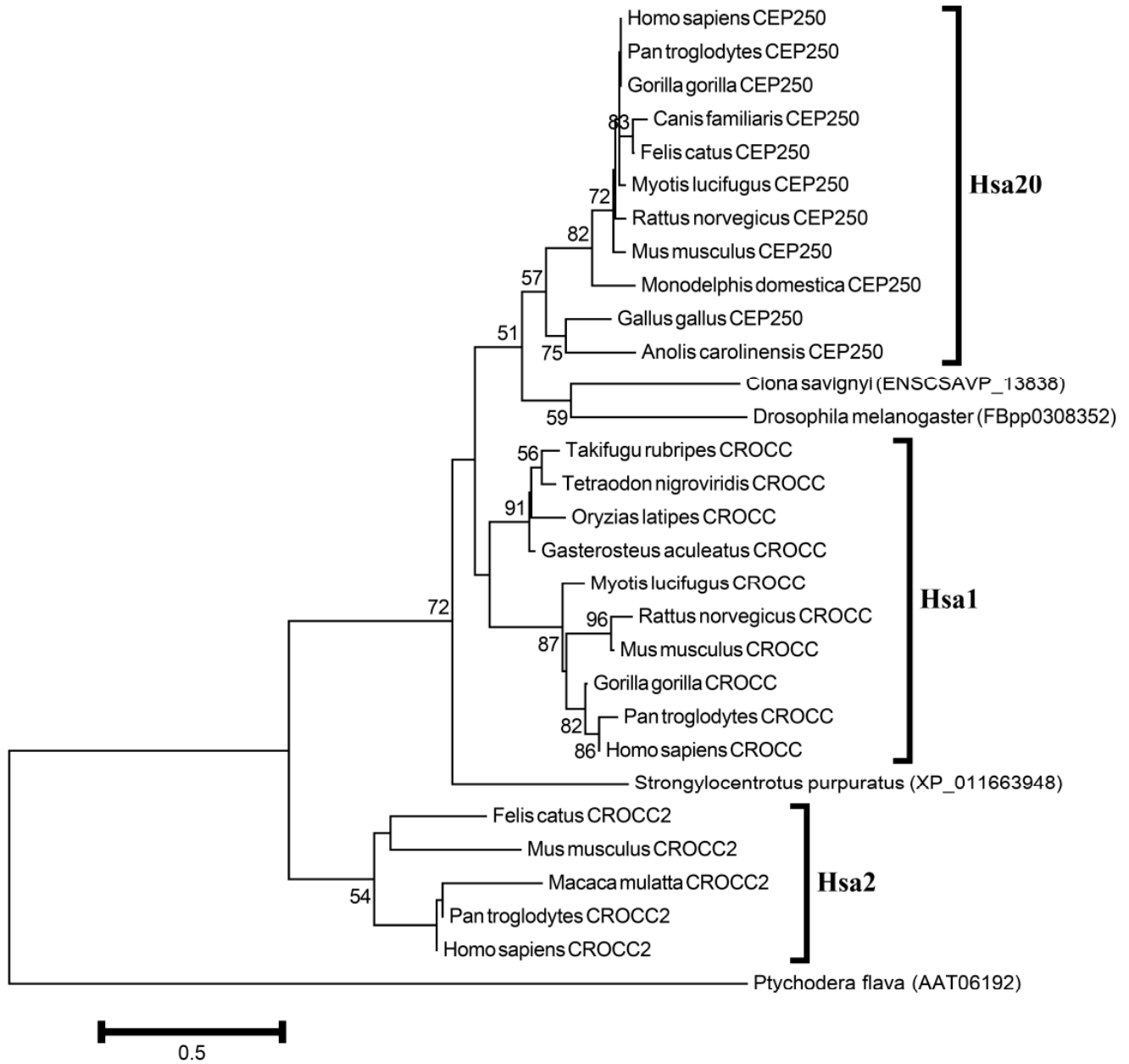
*Cholinergic Receptor Nicotinic Subunits-CHRN*



**Phylogenetic tree of CHRN family.**

Neighbor-Joining tree of the CHRN family members. Symbols and parameters are the same as described in supplementary Figure 1.1
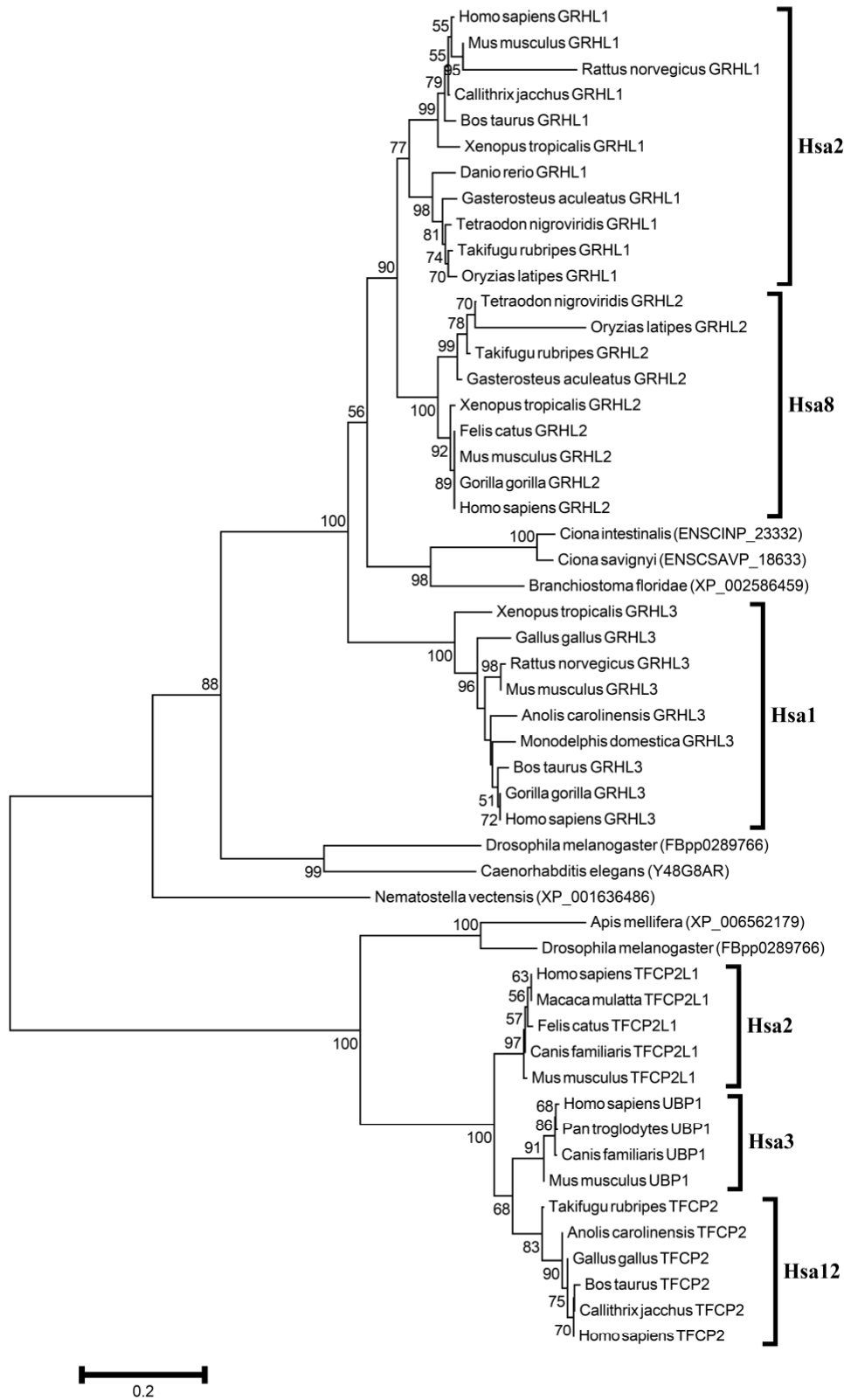
*Ciliary Rootlet Coiled-Coil Protein-CRO*



**Phylogenetic tree of CRO family.**

Neighbor-Joining tree of the CRO family members. Symbols and parameters are the same as described in supplementary Figure 1.1
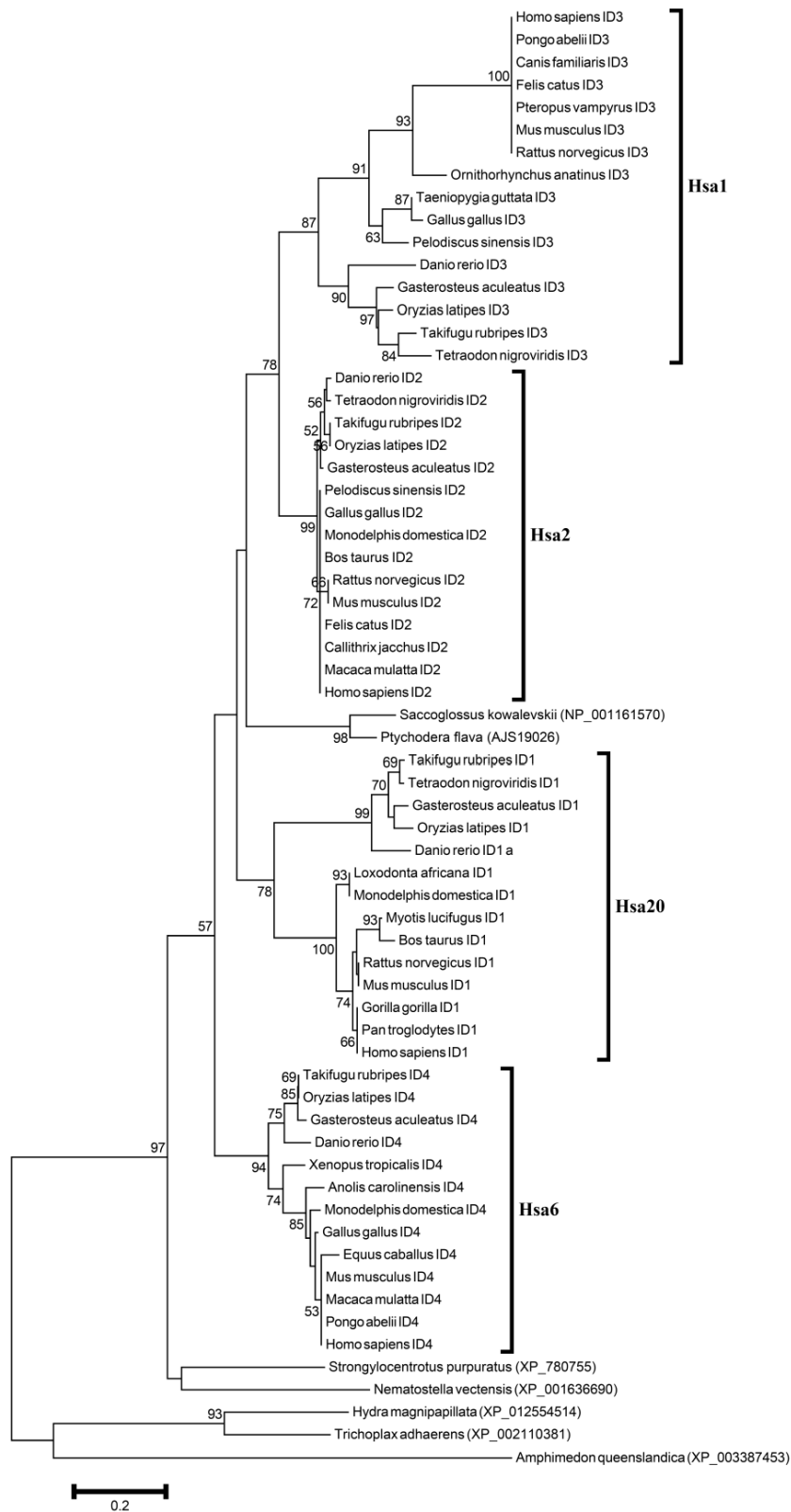
*Grainyhead like Transcription factor-GRHL*



**Phylogenetic tree of GRHL family.**

Neighbor-Joining tree of the GRHL family members. Symbols and parameters are the same as described in supplementary Figure 1.1
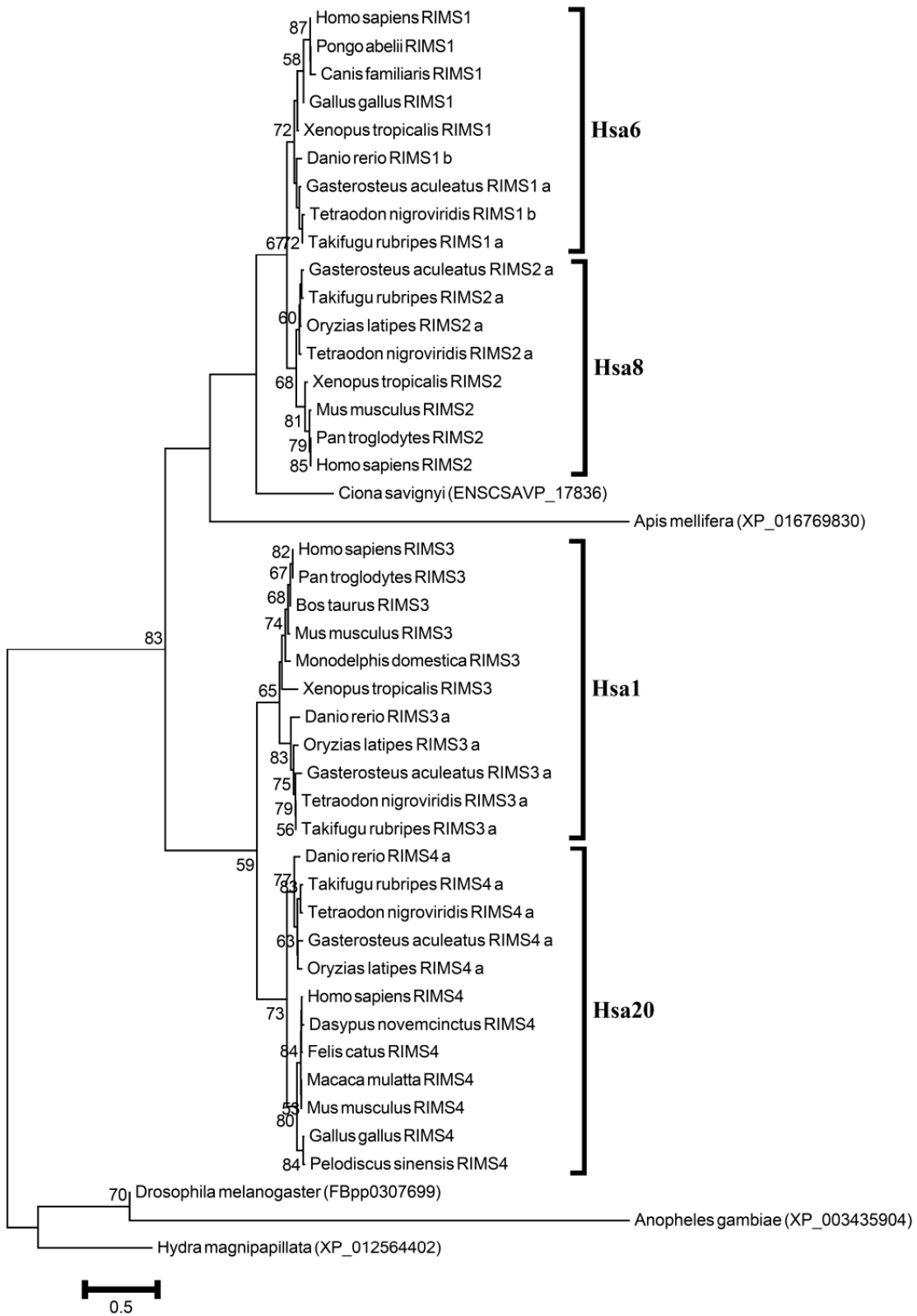
*Inhibitor of DNA Binding protein-ID*



**Phylogenetic tree of ID family.**

Neighbor-Joining tree of the ID family members. Symbols and parameters are the same as described in supplementary Figure 1.1

# Regulator of G-protein Signaling-RGS



**Phylogenetic tree of RGS family.**

Neighbor-Joining tree of the RGS family members. Symbols and parameters are the same as described in supplementary Figure 1.1
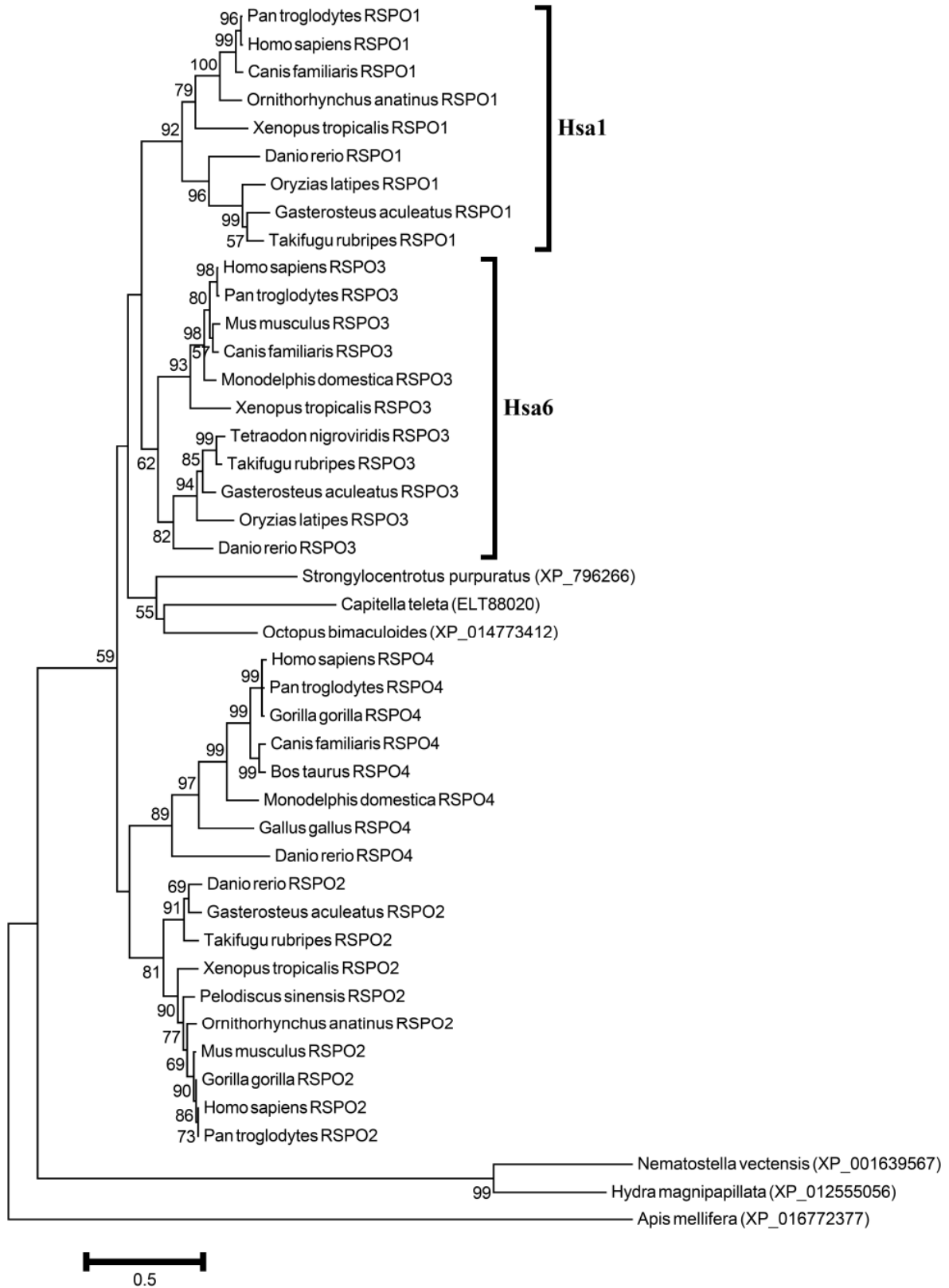
*Regulating Synaptic Membrane Exocytosis Protein -RIMS*



## Phylogenetic tree of RIMS family.

Neighbor-Joining tree of the RIMS family members. Symbols and parameters are the same as described in supplementary Figure 1.1
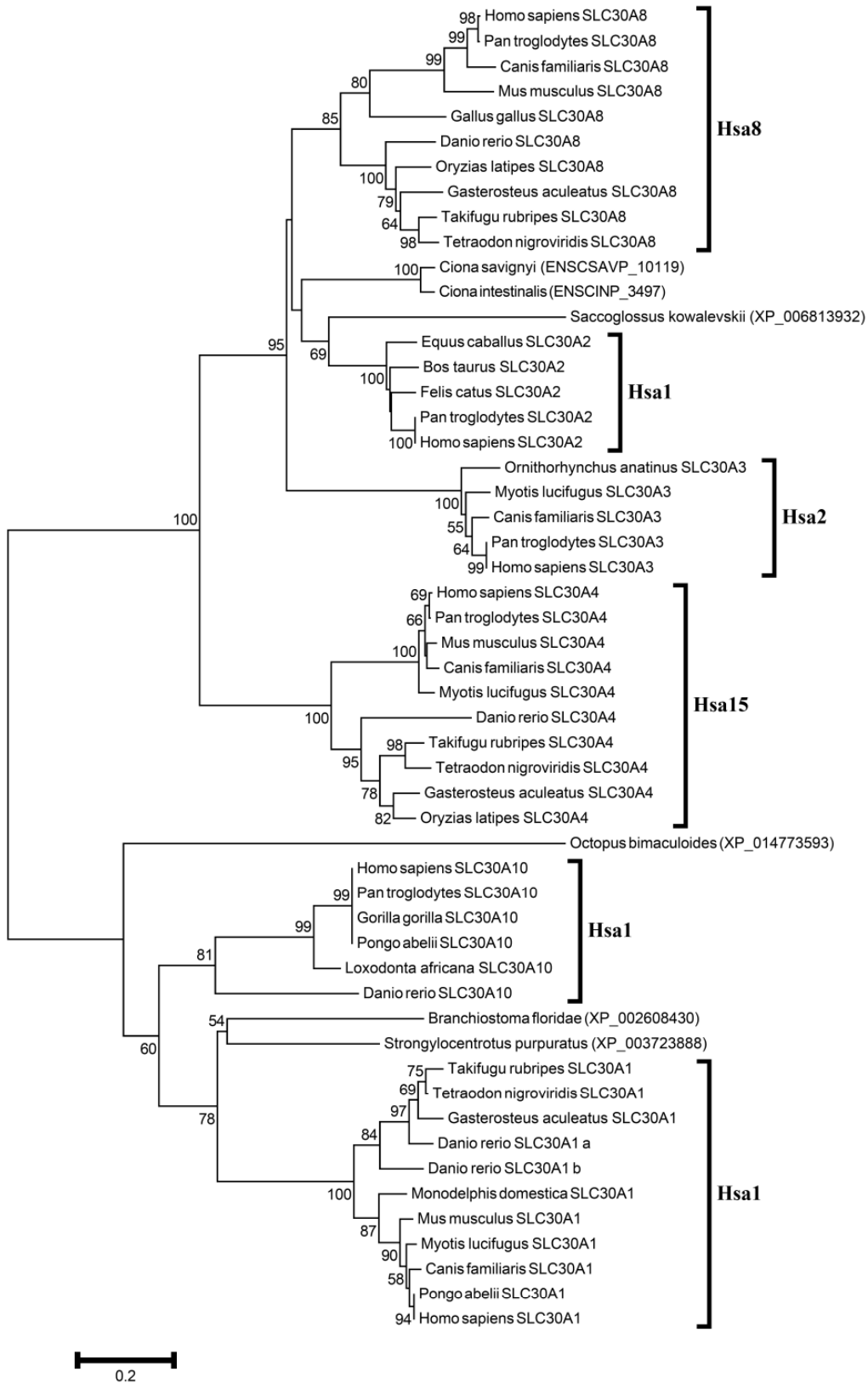
# R-Spondin Homolog-RSPO



**Phylogenetic tree of RSPO family.**

Neighbor-Joining tree of the RSPO family members. Symbols and parameters are the same as described in supplementary Figure 1.1
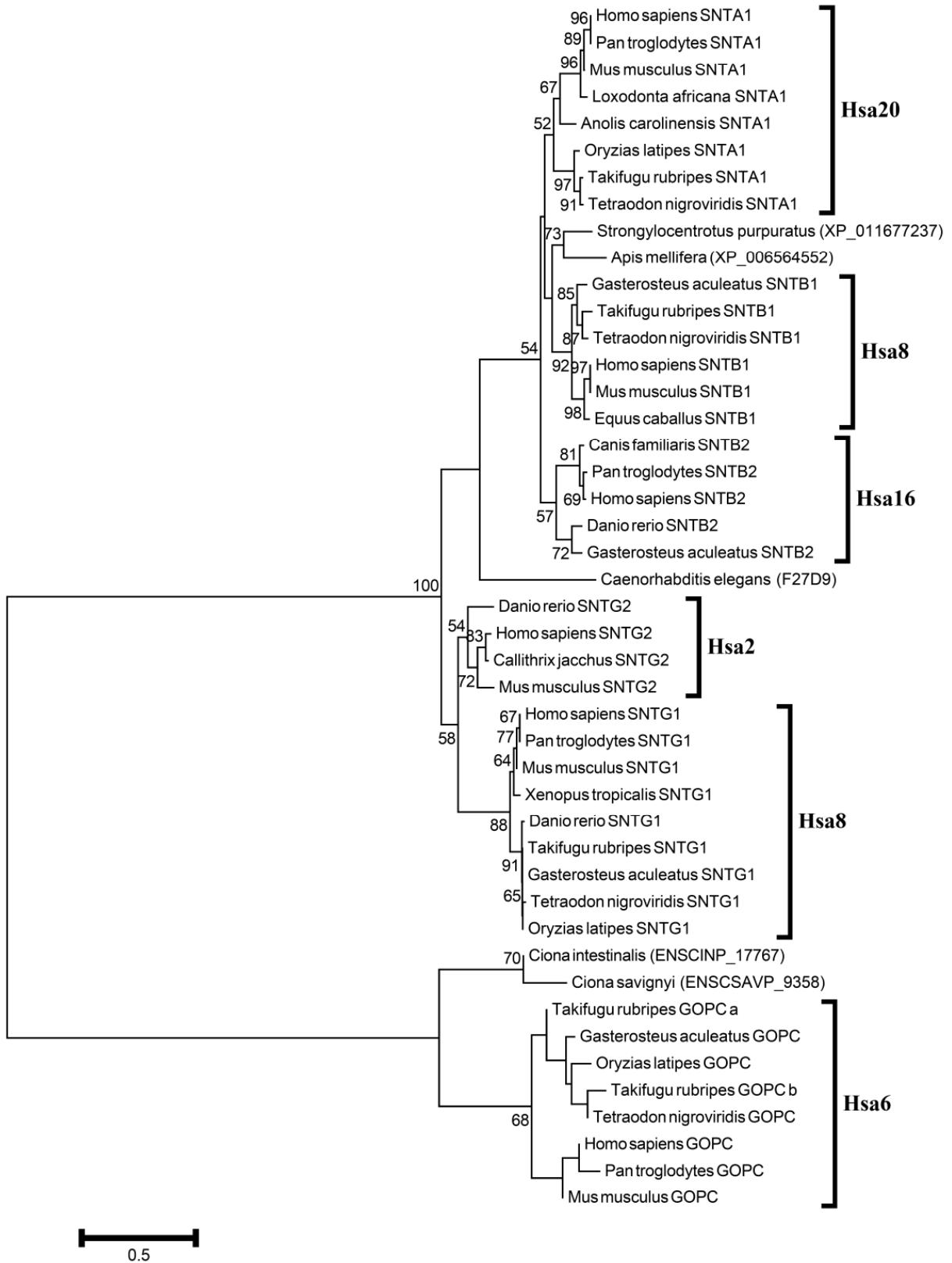
*Solute Carrier Family-SLC*



**Phylogenetic tree of SLC family.**

Neighbor-Joining tree of the SLC family members. Symbols and parameters are the same as described in supplementary Figure 1.1

***Syntrophin, Gamma-SNT***



**Phylogenetic tree of SNT family.**

Neighbor-Joining tree of the SNT family members. Symbols and parameters are the same as described in supplementary Figure 1.1
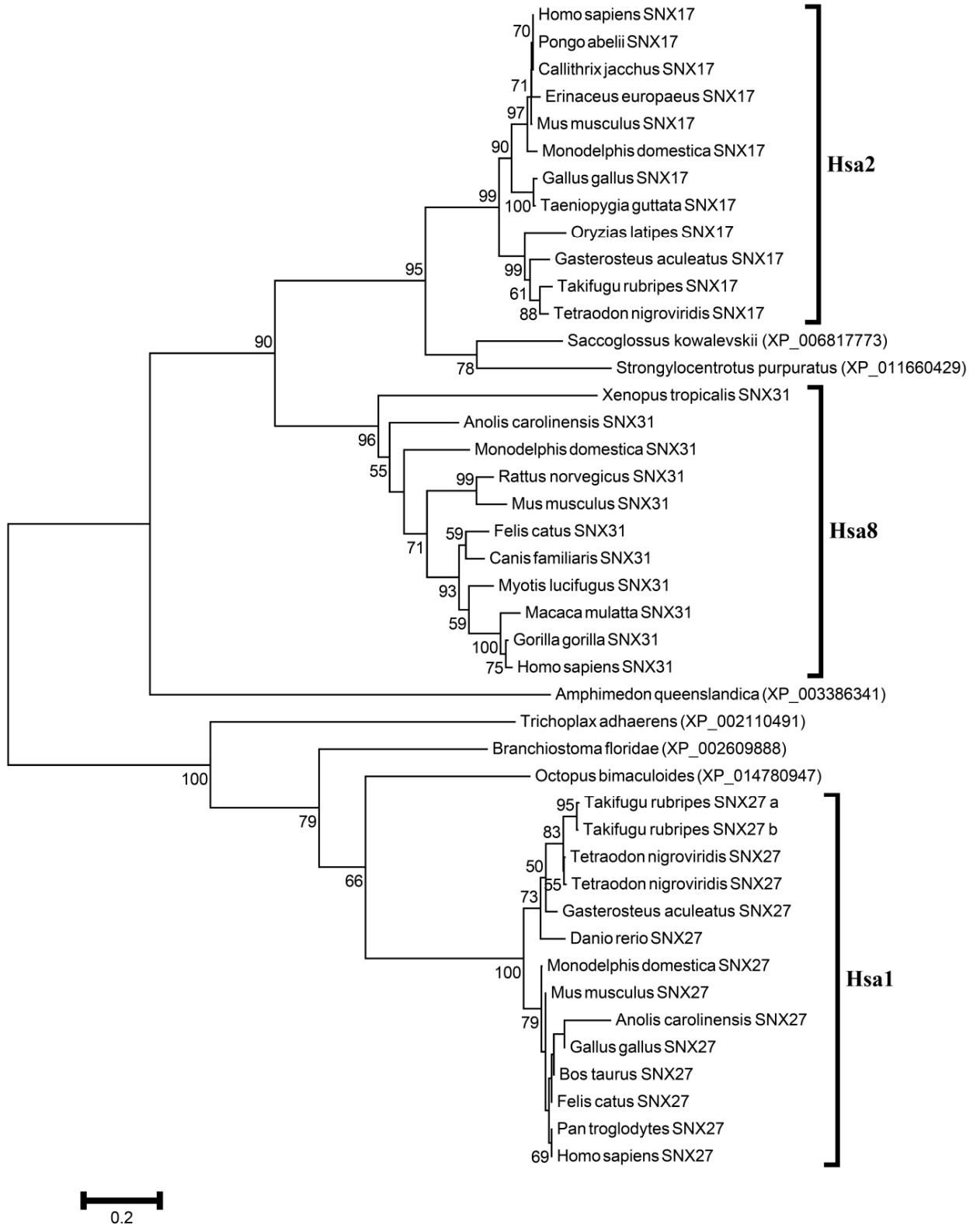
**Phylogenetic tree of SNX family.**

Neighbor-Joining tree of the SNX family members. Symbols and parameters are the same as described in supplementary Figure 1.1

**_Transcription Elongation factor A (SII) Protein-TCEA_**



## Phylogenetic tree of TCEA family.

Neighbor-Joining tree of the TCEA family members. Symbols and parameters are the same as described in supplementary Figure 1.1
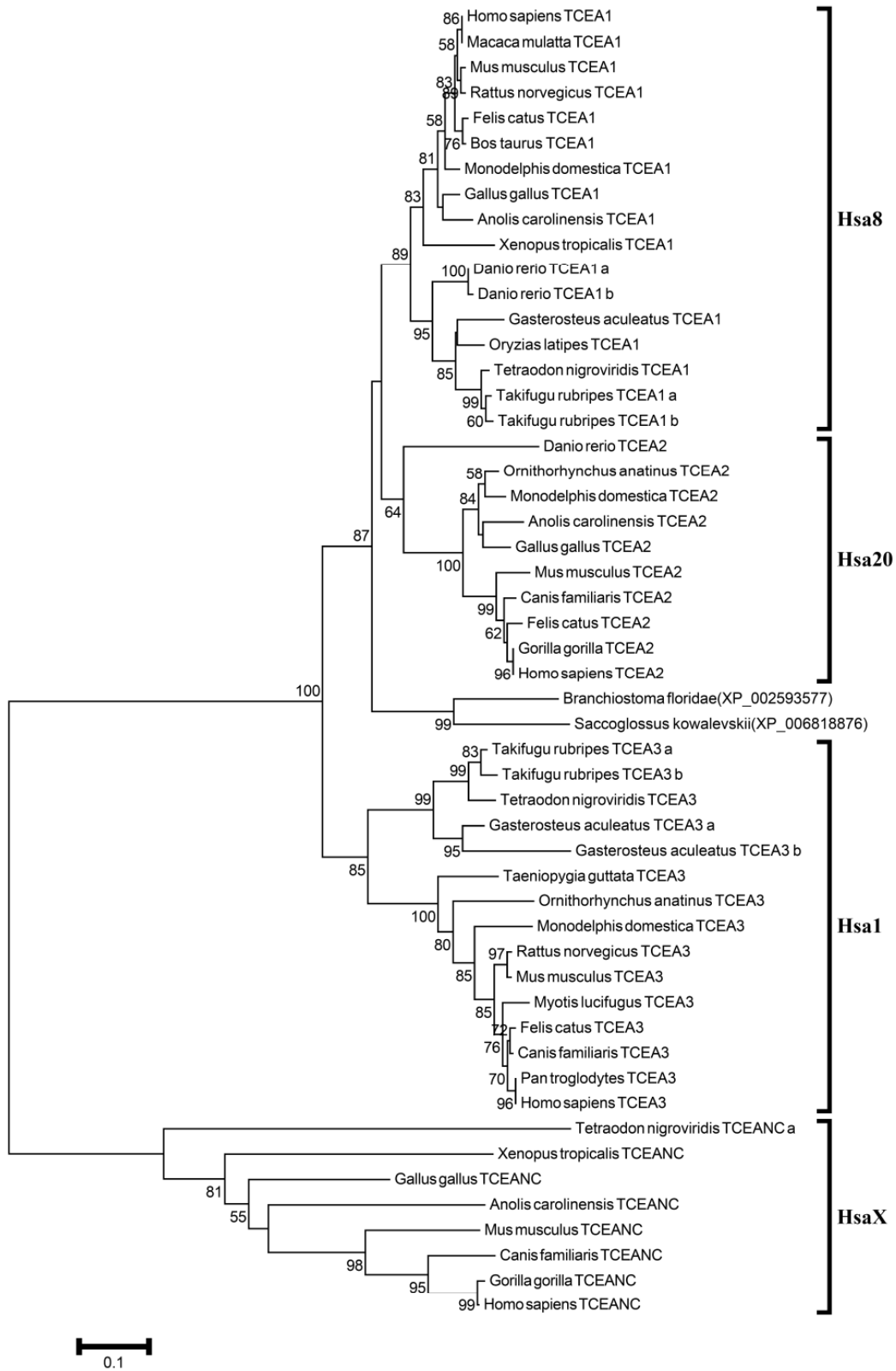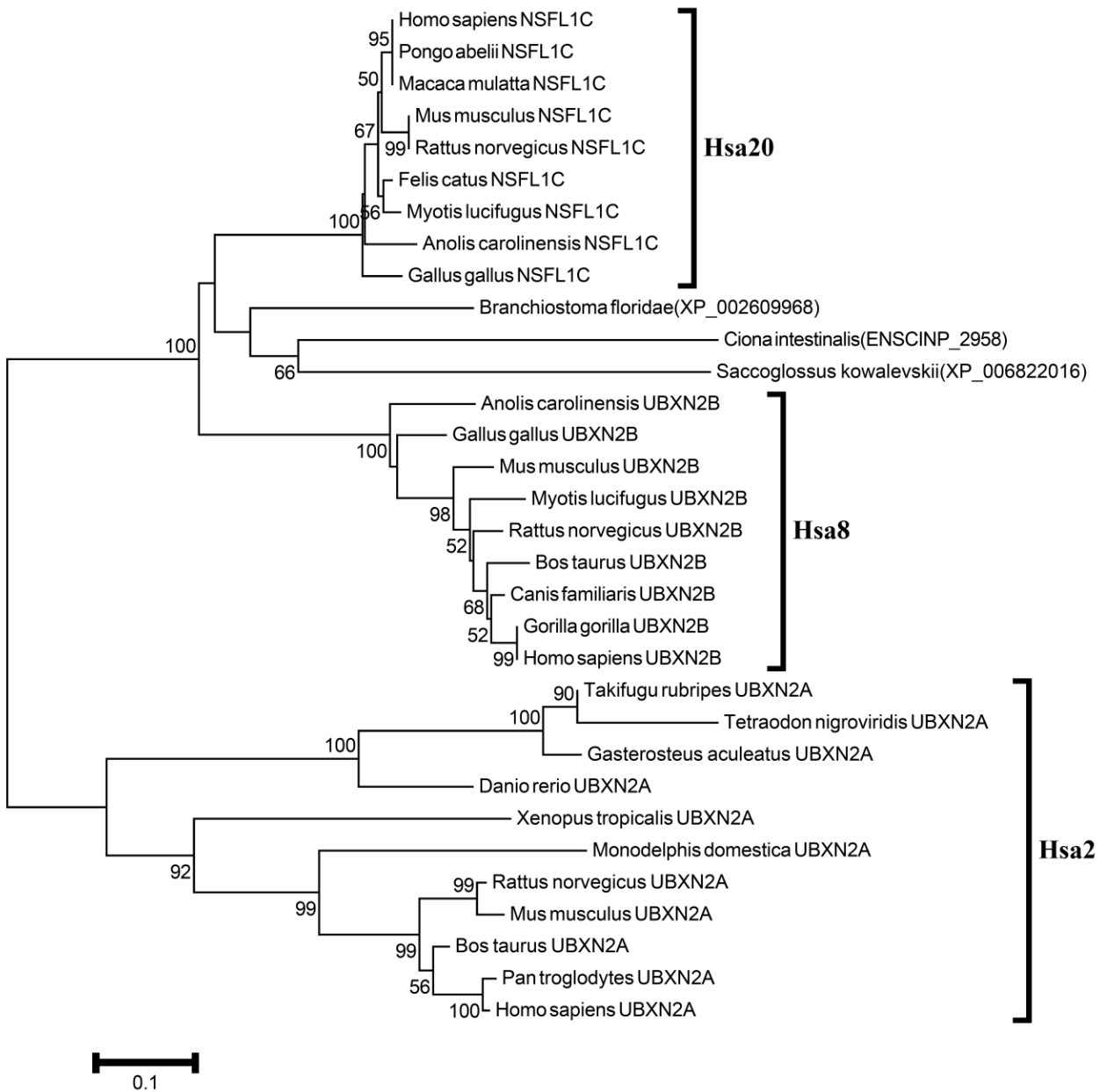
*UBX Domain-Containing Protein-UBXN*



**Phylogenetic tree of UBXN family.**

Neighbor-Joining tree of the UBXN family members. Symbols and parameters are the same as described in supplementary Figure 1.1