

ST4. List of metazoan sequences used in the phylogenetic analysis of 2DBD-NRs (see also Wu and Loverde 2023).

| Taxon                | protein_ID  |
|----------------------|---|
| Annelida             | CAC9635804.1 Ofus.G091856 Owenia fusiformis LBD989..1145  |
| Annelida             | CAD5121447.1 DgyrCDS9955 Dimorphilus gyrociiliatus LBD447..620  |
| Annelida             | KAI0207292.1 hypothetical protein LSAT2_008100 Lamellibrachia satsuma LBD1166..1314                                       |
| Annelida             | KAI0207833.1 hypothetical protein LSAT2_007485 Lamellibrachia satsuma LBD533..691   |
| Annelida             | KAI0243018.1 hypothetical protein LSAT2_009224 Lamellibrachia satsuma LBD877..1064  |
| Brachiopoda          | XP_013400322.1 uncharacterized protein LOC106166339 isoform X1 Lingula anatina LBD665..824                                |
| Chordata             | CAH1264236.1 NR1D1 Branchiostoma lanceolatum LBD528..687  |
| Chordata             | ref XP_035674285.1 1-713 nuclear receptor subfamily 1 group D member 1-like isoform X4 Branchiostoma floridae LBD531..690 |
| Echinodermata        | XP_022091311.1 uncharacterized protein LOC110979630 Acanthaster planci LBD661..828  |
| Echinodermata        | XP_030854207.1 uncharacterized protein LOC100893306 Strongylocentrotus purpuratus LBD836..985                             |
| Echinodermata        | XP_033102511.1 uncharacterized protein LOC117105468 Anneissia japonica LBD644..781  |
| Echinodermata        | XP_033628725.1 uncharacterized protein LOC117291223 Asterias rubens LBD657..824   |
| Echinodermata        | XP_038073373.1 uncharacterized protein LOC119741619 Patiria miniata LBD668..835   |
| Echinodermata        | XP_041469312.1 uncharacterized protein LOC121419081 Lytechinus variegatus LBD830..996                                     |
| Mollusca: Gastropoda | <b>BPPAALocus 8214 Transcript 1/1 1/ORF17 Lymnaea stagnalis LBD1145..1313</b>   |
| Mollusca: Gastropoda | CAG5125116.1 unnamed protein product Candidula unifasciata LBD894..1049   |
| Mollusca: Gastropoda | GFN82368.1 Zinc finger protein Plakobranthus ocellatus LBD1299..1474  |
| Mollusca: Gastropoda | GFR71482.1 nuclear receptor ROR-beta Elysia marginata LBD1336..1504   |
| Mollusca: Gastropoda | GFS22057.1 retinoic acid receptor RXR-alpha Elysia marginata LBD1228..1430  |
| Mollusca: Gastropoda | <b>GSLYST00003556001 Lymnaea stagnalis LBD867..1035</b>   |
| Mollusca: Gastropoda | RUS87101.1 hypothetical protein EGW08_005177 partial Elysia chlorotica LBD652..822  |
| Mollusca: Gastropoda | XP_005095909.2 uncharacterized protein LOC101854010 Aplysia californica LBD1595..1740                                     |
| Mollusca: Gastropoda | XP_005103360.2 uncharacterized protein LOC101857659 Aplysia californica LBD958..1128                                      |
| Mollusca: Gastropoda | XP_005112947.2 uncharacterized protein LOC101857539 Aplysia californica LBD1395..1564                                     |
| Mollusca: Gastropoda | XP_013065455.1 PREDICTED nuclear receptor subfamily 1 group D member 2-like Biomphalaria glabrata LBD700..868             |
| Mollusca: Gastropoda | XP_025103483.1 uncharacterized protein LOC112569789 Pomacea canaliculata LBD676..860                                      |
| Mollusca: Gastropoda | XP_041351218.1 uncharacterized protein LOC121370170 Gigantopelta aegis LBD764..933  |
| Mollusca: Gastropoda | XP_045168098.2 uncharacterized protein LOC123531312 Mercenaria mercenaria LBD867..1014                                    |
| Mollusca: Gastropoda | XP_045175060.2 uncharacterized protein LOC123536177 isoform X1 Mercenaria mercenaria LBD782..948                          |
| Mollusca: Gastropoda | XP_046364309.2 uncharacterized protein LOC124140669 Haliotis rufescens LBD786..940  |
| Mollusca: Gastropoda | XP_046379417.2 uncharacterized protein LOC124151125 Haliotis rufescens LBD976..1111                                       |
| Mollusca: Gastropoda | XP_046571180.1 nuclear receptor subfamily 2 group C member 1-like Haliotis rubra LBD739..912                              |
| Mollusca: Gastropoda | XP_046577572.1 uncharacterized protein LOC124285391 Haliotis rubra LBD925..1120   |
| Mollusca:Bivalvia    | CAC5379089.1 unnamed protein product Mytilus coruscus LBD668..832   |
| Mollusca:Bivalvia    | CAC5405050.1 unnamed protein product Mytilus coruscus LBD823..991   |
| Mollusca:Bivalvia    | CAG2230085.1 unnamed protein product Mytilus edulis LBD436..570   |
| Mollusca:Bivalvia    | KAH3855004.1 hypothetical protein DPMN_097564 Dreissena polymorpha LBD939..1086   |
| Mollusca:Bivalvia    | VDI76762.1 blastNuclear receptor subfamily 1 group I member 2 Mytilus galloprovincialis LBD669..833                       |
| Mollusca:Bivalvia    | XP_011428801.2 uncharacterized protein LOC105329306 isoform X1 Crassostrea gigas LBD816..986                              |
| Mollusca:Bivalvia    | XP_019919868.2 probable nuclear hormone receptor HR3 isoform X2 Crassostrea gigas LBD504..650                             |
| Mollusca:Bivalvia    | XP_021367015.1 probable GPI-anchored adhesin-like protein PGA55 Mizuhopecten yessoensis LBD881..1056                      |
| Mollusca:Bivalvia    | XP_022329720.1 uncharacterized protein LOC11128416 Crassostrea virginica LBD818..988                                      |
| Mollusca:Bivalvia    | XP_022331995.1 nuclear receptor ROR-beta-like isoform X1 Crassostrea virginica LBD504..648                                |
| Mollusca:Bivalvia    | XP_033734716.1 uncharacterized protein LOC117323546 isoform X1 Pecten maximus LBD964..1113                                |
| <b>Nematoda</b>      | <b>EGT43828.1 hypothetical protein CAEBREN_02528 Caenorhabditis breneri</b>   |
| Platyhelminthes      | gb AAR32910.1 1-1527 two-DBD-nuclear receptor Schistosoma mansoni LBD567..641   |
| Platyhelminthes      | gb AAW88550.2 1-1861 nuclear receptor 2DBD-gamma Schistosoma mansoni LBD479..554  |
| Platyhelminthes      | KAA0185392.1 Protein embryonic gonad Fasciolopsis buski LBD1458..1650   |
| Platyhelminthes      | KAH9284012.1 Nuclear receptor ROR-alpha Echinococcus granulosus LBD882..1069  |
| Platyhelminthes      | VDK37619.1 unnamed protein product Taenia asiatica LBD880..1070   |
| Rotifera             | CAF0776371.1 unnamed protein product Brachionus calyciflorus LBD415..557  |
| Rotifera             | CAF0869039.1 unnamed protein product Rotaria sp. Silwood1 LBD325..474   |
| Rotifera             | CAF1025086.1 unnamed protein product Adineta ricciae LBD318..469  |
| Rotifera             | CAF1066507.1 unnamed protein product Brachionus calyciflorus LBD259..408  |
| Rotifera             | CAF1211849.1 unnamed protein product Adineta steineri LBD308..480   |
| Rotifera             | CAF1284752.1 unnamed protein product Rotaria sordida LBD256..403  |
| Rotifera             | CAF1622127.1 unnamed protein product partial Adineta ricciae LBD320..471  |
| Rotifera             | CAF1635244.1 unnamed protein product Rotaria magnacalcarata LBD323..478   |
| Rotifera             | CAF2064338.1 unnamed protein product Rotaria magnacalcarata LBD299..446   |
| Rotifera             | CAF2401455.1 unnamed protein product Rotaria sp. Silwood2 LBD307..458   |
| Rotifera             | CAF3303110.1 unnamed protein product Rotaria socialis LBD325..480   |
| Rotifera             | CAF4632909.1 unnamed protein product partial Rotaria socialis LBD308..459   |