

Table S3. Conservation of selected different strand nested gene structures in vertebrates

The table lists 91 different strand nested (DN) gene structures that were selected from *Ho MR, Tsai KW, Lin WC. (2012) A unified framework of overlapping genes: Towards the origination and endogenic regulation. Genomics 100: 231-239.* We included in the list only (i) clear protein-coding nested gene pairs that are conserved in human and mouse (ii) in which the nested gene is flanked by protein coding exons of the host gene. So we excluded those nested gene structures in which either the host or the nested gene is a RNA gene, pseudogene or a predicted ORF, or if the flanking exon of the host gene is non-coding or first signal sequence exon.

Simple analysis of conservation:

young = nested gene structure is absent (not annotated) in coelacanth and zebrafish genomes (Ensembl v72).

conserved = nested gene structure is present (annotated) in coelacanth and/or zebrafish AND in both *X. tropicalis* and chicken genomes.

not conserved = nested gene structure is present in coelacanth and/or zebrafish genomes BUT is missing or disrupted in either chicken or *X. tropicalis* genomes.

LRR-domain containing genes are underlined.

Host gene	Nested gene	Conservation	Explanation
<i>ACAD11</i>	<i>CCRL1</i>	conserved	
<i>ACSF2</i>	<i>CHAD</i>	conserved	
<i>ANO3</i>	<i>MUC15</i>	young	
<i>ARHGAP6</i>	<i>AMELX</i>	young	
<i>ARL13B</i>	<i>STX19</i>	conserved	
<i>ART3</i>	<i>CXCL10</i>	young	
<i>ART3</i>	<i>CXCL11</i>	young	
<i>ASTN2</i>	<i>TRIM32</i>	not conserved	nested gene absent in <i>X. tropicalis</i>
<i>BET3L</i>	<i>FAM26E</i>	conserved	
<i>BRF1</i>	<i>BTBD6</i>	conserved	
<i>CEP85L</i>	<i>PLN</i>	young	
<i>CACNA2D3</i>	<u><i>LRTM1</i></u>	not conserved	both genes absent in <i>X. tropicalis</i>
<i>CACNA2D4</i>	<u><i>LRTM2</i></u>	conserved	
<i>CASK</i>	<i>GPR34</i>	conserved	
<i>CASK</i>	<i>GPR82</i>	not conserved	nested gene absent in <i>X. tropicalis</i>
<i>CCDC146</i>	<i>FGL2</i>	conserved	
<i>CDC20B</i>	<i>GPX8</i>	conserved	
<i>CDC73</i>	<i>B3GALT2</i>	conserved	
	<u><i>ECM2</i></u>	not conserved	
<i>CENPP</i>	<u><i>ASPN</i></u>	not conserved	host and OMD absent in <i>X. tropicalis</i>
	<u><i>OMD</i></u>	not conserved	
	<u><i>OGN</i></u>	not conserved	
<i>COG5</i>	<i>GPR22</i>	conserved	
<i>CORO7</i>	<i>VASN</i>	conserved	
<i>CSMD2</i>	<i>HMGB4</i>	young	
<i>CTNNA1</i>	<u><i>LRRTM2</i></u>	not conserved	nested gene absent in <i>X. tropicalis</i>
<i>CTNNA2</i>	<u><i>LRRTM1</i></u>	conserved	
<i>CTNNA3</i>	<u><i>LRRTM3</i></u>	not conserved	host gene absent in <i>X. tropicalis</i>
<i>CTPS2</i>	<i>S100G</i>	young	
<i>DOCK1</i>	<i>FAM196A</i>	conserved	
<i>DOCK2</i>	<i>FAM196B</i>	conserved	
<i>DOCK7</i>	<i>ANGPTL3</i>	conserved	
<i>ECE2</i>	<i>CAMK2N2</i>	conserved	
<i>FAM83E</i>	<i>SPACA4</i>	young	
<i>FBXL13</i>	<u><i>LRRC17</i></u>	not conserved	nested gene absent in <i>X. tropicalis</i>
<i>FYCO1</i>	<i>CXCR6</i>	not conserved	host gene absent in <i>X. tropicalis</i> , nested gene absent in chicken
<i>GFM1</i>	<i>LXN</i>	conserved	
<i>GIGYF2</i>	<i>KCNJ13</i>	conserved	

<i>GLRA4</i>	<i>TMEM31</i>	young	
<i>GTF2F2</i>	<i>KCTD4</i>	conserved	
<i>HERC3</i>	<i>NAP1L5</i>	young	
<i>IFT140</i>	<i>TMEM204</i>	conserved	
<i>IFT74</i>	<u><i>LRRC19</i></u>	conserved	
<i>IL1RAPL2</i>	<i>TEX13A</i>	young	
<i>IMMP2L</i>	<u><i>LRRN3</i></u>	not conserved	host gene absent in <i>X. tropicalis</i>
<i>IQGAP2</i>	<i>F2RL2</i>	conserved	
<i>ITGAE</i>	<i>GSG2</i>	young	
<i>LIMS2</i>	<i>GPR17</i>	conserved	
<i>LRBA</i>	<i>MAB21L2</i>	conserved	
<i>MACROD1</i>	<u><i>FLRT1</i></u>	young	
<i>MACROD2</i>	<u><i>FLRT3</i></u>	conserved	
<i>MCM9</i>	<i>ASF1A</i>	young	
<i>MCPH1</i>	<i>ANGPT2</i>	conserved	
	<i>GPR171</i>	young	host gene absent in <i>X. tropicalis</i>
	<i>P2RY14</i>	young	
<i>MEDI2L</i>	<i>GPR87</i>	young	
	<i>P2RY13</i>	not conserved	
	<i>P2RY12</i>	not conserved	
<i>METTL9</i>	<i>IGSF6</i>	young	
<i>MTOR</i>	<i>ANGPTL7</i>	conserved	
<i>NBEA</i>	<i>MAB21L1</i>	conserved	
<i>NF1</i>	<i>EVI2A</i>	conserved	
<i>NF1</i>	<i>EVI2B</i>	conserved	
<i>NF1</i>	<i>OMG</i>	conserved	
<i>NT5DC1</i>	<i>COL10A1</i>	young	
<i>PC</i>	<u><i>LRFN4</i></u>	not conserved	both genes absent in chicken
<i>PDGFD</i>	<i>DDI1</i>	young	
<i>PI4KA</i>	<i>SERPIND1</i>	conserved	
<i>PNKD</i>	<i>TMBIM1</i>	young	
<i>PRKG1</i>	<i>CSTF2T</i>	young	
<i>PSMD1</i>	<i>HTR2B</i>	conserved	
<i>RAB37</i>	<i>CD300LF</i>	young	
<i>RALGPS1</i>	<i>ANGPTL2</i>	conserved	
<i>RALGPS2</i>	<i>ANGPTL1</i>	conserved	
<i>RB1</i>	<i>LPAR6</i>	conserved	
<i>RNF123</i>	<u><i>AMIGO3</i></u>	not conserved	nested gene absent in <i>X. tropicalis</i>
<i>RTDR1</i>	<i>GNAZ</i>	conserved	
<i>SHC4</i>	<i>EID1</i>	young	
<i>SLC5A10</i>	<i>FAM83G</i>	conserved	
<i>SND1</i>	<u><i>LRRC4</i></u>	not conserved	host gene absent in chicken
<i>SORCS2</i>	<i>PSAPL1</i>	young	
<i>SYN1</i>	<i>TIMP1</i>	not conserved	nested gene absent in <i>X. tropicalis</i>
<i>SYN3</i>	<i>TIMP3</i>	conserved	
<i>TBCD</i>	<i>ZNF750</i>	conserved	
<i>TFB1M</i>	<i>CLDN20</i>	not conserved	nested gene absent in <i>X. tropicalis</i>
<i>TG</i>	<i>SLA</i>	young	
<i>UBAC2</i>	<i>GPR183</i>	conserved	
	<i>GPR18</i>	conserved	
<i>VEPH1</i>	<i>PTX3</i>	conserved	
<i>WDFY4</i>	<u><i>LRRC18</i></u>	conserved	
<i>XPNPEP3</i>	<i>DNAJB7</i>	young	