**Region A**

Zebrafish 6018 ACATAAAACCCGCATTTCTCAGTTTTCAAATGTCTCATTG----AGGC-TCTCACAGGCTT 6067

Gar ACATAAAACCTGTGTTTCTCAGTTTTCAAATATCTTATTG----AGCC-TCTCATAG-CTT

Coelacanth ACATAAAACCAGTGTTACTCAGTTTTCAA-TGTCTTATTG----AGCCCTCTCACAG-CTT

Cichlid ACACAAAACCAATGTTTCTCAGTTTTCAGATGTCTCATTG----AAGGCTCGTTTGG-CTT Stickleback ACATAAAACCAGTGATTCTCAGTATTCAGATATCGCATTG--------------ACG-CTT

Chick ATATAAAACCTGTGTTACTCAGTTTTCAA-TATCTCATTG----AACT-TCTCACAG-CTT Zebrafinch ATATAAAACCTGTGTTACTCACTTTTCAA-TATCTCATTG----AACA-TCTCACAG-CTT

Turtle ATATAAAACCTCTGTTACTCAGTTTTCAA-TATCTCATTG----AGCC-TCTCACAG-CTT

Opossum TCACAAAACCTGGGGTTCTCTGCTTTCAA-TATGTCATTGTGTGGCCGC-CTCGCAG-CTT

Mouse TCACAGAACCTGGGTGACTCAGCTTTCAG-TGGGGCATTG-----TGGC-CTCCCAG-CTT

 \* \* \*\*\*\* \*\*\* \*\*\*\* \* \*\*\*\* \* \*\*\*

Zebrafish 6068 TGATATTTTAAGTAGGTATCACAACAAAGGGGCA-ACAAATGG 6115

Gar TGATATTTTAAGTAGGTATCACAACAAAAGGACA-ACAAATGG

Coelacanth TGATATTTTAAGTAGGTATCACAACAAAGGGACA-ACAAATGG

Cichlid TGATATTTTAAGTAGGTATCACAAATAAAGGGCC-AATAGGA-

Stickleback TGATATTTTAAGTAGGTATCACAACAAAAGGGCT-TCACCTGG

Chick TGATATTTTAAGTAGGTATCACAACAAAGGGAAA-AGAAGTGA

Zebrafinch TGATATTTTAAGTAGGTATCACAACAAAGGGAAACAGAAGTGA

Turtle TGATATTTTAAGTAGGCATCACAACAAAGGGAAA-ACAAATGA

Opossum TGATATTTTAAGTCGGAATCCTAACAAAGCAAAG-ACAGATGA

Mouse TGATATTACAAGTGAGCGTCAAAACAAAGGGGCT-TCGAGGGG

 \*\*\*\*\*\*\* \*\*\*\* \* \*\* \*\* \*\*

**Region B**

Zebrafish 24696 ACAACCATTGATGCCTT-ATACAGTTACAGGCCACCACAATCATTTTACTGTTGGAAGGT 24754

Gar ACAGTCACTGATGGCTT-ATACTGTTACAGGCCATCACAATCATTTTACTGTTGG--AGC

Coelacanth ACAGTCACCAACAAGATGATAGTGTTACAATCCATTACAAAGATTTTACTGTTGGAAAGT

Cichlid ACAGCCATTGATGGCCT-CTAGAGTTTCATCCTTCAACAATCACTTGCCTGTTGCAAGGT

Stickleback ACAGCCATTGATGGCCT-CTAGAGTTTCATCCTTCCACAATCATTTGCCTGTTGGAAGGT

Tetraodon ATAGCCATTGATGGCCT-ATTGAGTTTCATCCTTCCACAATTGCTTGCCTGTTGGAAGGT

Turtle ACCGTCACCAGGAGCCAGATTGTGTTACCCTTCATCACAAAGATTTCACTGTTGGAAAGT

 \* \*\* \* \*\*\* \* \*\*\*\* \*\* \*\*\*\*\*\* \*

Zebrafish 24755 GCAGAGAAATCCACTGTCCTCCCAAAAGGTATTTGAGACCTGCAGCTAAGAATCAAAGGG 24814

Gar ACAGGGTATTCTAATG-CCTTCTGAAAGGTATTTGAAACCTGAAGGCAGGAATCAAAGGG

Coelacanth GTAGAGCATTCTAATG-CTTTCTGAAAGGTATTTGAAACTTGAAGTCAGGAATCAAAGAG

Cichlid GCAGCCGCTCT-------------GCAGGCATATGAAACCTGCAGCTAACAATCAAAGAG

Stickleback GCAGCCACTCT-------------GCAGGCATCTGAGACCTGCAGCTAACAATCACTGAG

Tetraodon GCAGCCGCTTT-------------GGAGGTATCTGAAACCTGCTGCTAACAATCAAAGAG

Turtle GTAGAGTATTCTGATG-CTTTCTGAAAGCTATTTGAAATTTGAAGTCAAGAATCAAAGAG

 \*\* \*\* \*\*\* \* \*\* \* \*\*\*\*\* \* \*

Zebrafish 24815 CTGCAGAGGTATAAGGAAGACCTATCTGGTTTCAAG 24850

Gar ATCTGAAGGTATAAGAAAG-CCTATCCAATTTCAAG

Coelacanth AGCTGAAAGTAGAAGAAAG-CCTATCCAATTTCAAG

Cichlid CTGTAGAAGTATAGGACAGACCTATCTAGTTACAGA

Stickleback CTGTAGGAGCATCAGACAGACCTCTCCGGTTTCACA

Tetraodon CTGTATGAGTATACGACAGACCTATCTGGTTACAGA

Stickleback CTGTAGGAGCATCAGACAGACCTCTCCGGTTTCACA

Turtle AGGTGAAAGTGTAAGAAAG-CCTATCCAGTTTCAAG

 \* \* \* \*\* \*\*\* \*\* \*\* \*\*

**Region C**

Zebrafish 25510 GTTGCCAATTTGTTTGCAG---TGCG-TTGGGACTGTACGGGAGTTCTTTCTGAG-CCCC 25554

Gar GTTGCCAATTTGTTTGCAA---TGCG-GTCGAACTGTACGGGAGATCTTTTTGCC----T

Coelacanth GTTGCCAATTTGTTTGCAA---TGCTGTTCTAACTGTACGGGAGTTCTT-TTTC---TCC

Platyfish GTTGCTGATTTGTTTGCTA---TGTG-CTGGAACTGTACTAGACTTCTTTCTGAAGAGTC Stickleback GTTGCCAATTTGTTTGCTG---TGTG-CTGGAACTGTACGAGAGCTCTTTGTGAGGCGCC

Chick GTTGCCAATTTGTTTGCAA---TGCA-TTCTGACTGTACGGGAGTTCTT-TTTT---TCC

Zebrafinch GTTGCCAATTTGTTTGCAA---TGCA-TTCTGACTGTACGGGAGTTCTT-TTCT---GCC

Lizard GTTGCCAATTTGTTTGTAA---TGCA-TTCTGACTGTACGGGAGTTCTT-TTTAC--TCC

Turtle GTTGCCAATTTCTTTGCAA---TGCA-TTCTGACTGTACGGGAGTTCTT-TTTC---TCC

Tropicalis GTTGGCAATTTGTTTGCAG---TGCT-TTCTGCCTGCACCGGAGCTCTTGTTTTC-CCCC

Platypus GTTGCCAATTTGTTTGCAA---TGCG-TGGTGACTGTACAGGAGCCCTT-TTTC---TCC

Human GCTGTCAGTTTGCAGGCAGGTGTGGGACAGGGCCTAGGCAGGCTCTTTCCCTGGG-----

 \* \*\* ..\*\*\* : \* :. \*\* ..\*\*. .\* .\*. \* \*

Zebrafish 25565 TGACAAGCAGGTGAGATCAAAGTAAACCTGGACAAAAGGG----GCTCAACAGTGATTTG 25620

Gar TGACAGGCAGGTGAGATCAAAGAGCGAGGGGACAAAAGGC----GCTCAGCAGCGATTTG

Coelacanth TGACAGGCAGGTGAGATCAAAGTGGTGCAGGACAAAAGGG----GCTCAGCAGTGATTTG

Platyfish TGACAAGCAGGTGAGATCAAAGTCCTGG-GGACAAAAGAG----GCTCTGCAGCGATTTG Stickleback TGACAAGCAGGTGAGATCAAAGTCAGGG-GGACAAAAGAG----GCTCAGCAGCGATTTG

Chick TGACAGGCAGGTGAGATCAAAGTGGTGCAGGACAAAAGGG----GCTCAGCAGTGATTTG

Zebrafinch TGACAGGCAGGTGAGATCAAAGTGGTGCAGGACAAAAGGG----GCTCAGCAGTGATTTG

Lizard TGACAGGCAGGTGAGATCAAAGTGATGGAGGACAAAAGGG----GCTCAGCAGTGATTTG

Turtle TGACAGGCAGGTGAGATCAAAGTGGTGCAGGACAAAAGGG----GCTCAGCAGTGATTTG

Tropicalis TGACAAGCAGGTGAGATCAAAGCGACCCAGGACAAAGGGG----GCTCCACAGTGATTTG

Platypus TGACAGGCAGGTGAGATCAAAGAGGGGCAGTACAAAAGGGGCTGGCTCAGCAGTGATTTG

Human TGACAGGCAGGCAAGATCAAAAGCTGTTGGGACAAAAGGG----GCTGAG--GTGAATTG

 \*\*\*\*\*.\*\*\*\*\* .\*\*\*\*\*\*\*\*. \* \*\*\*\*\*.\*. \*\*\* . \* \*\*:\*\*\*

Zebrafish 25621 TCAGGGGACGAGAGGCATTCCCGTCTG--------------GCTCTAGCCAGGCCCTCAG 25666

Gar TCAGGGGACGAAAGGCAGTCCTGTCTGGGAAAGTGGCTGCAGCCCCGGCCGGGCCCTCAG

Coelacanth TCAGGGGACGAAAGGCAGGCCTGTCTGGGAAAGTGGCTGTAGCCCAGACCGGGCCTTCAG

Platyfish TCAGGAGACGAGAGGCAG---CGGCTG--------------GATT----CAG-CCCTCTG Stickleback TCAGGAGACGAGAGGCAG---CGGCCG--------------GGTC----CAG-CCCTCTG

Chick TCAGGGGACGAAAGGCAGTCCTGTCTGGGAAAGTGGCTGTAGCCCAGAACGAGCCTTCAG

Zebrafinch TCAGGGGACGAAAGGCAGTCCTGTCTGGGAAAGTGGCTGTAGCCCAGAACGAGCCTTCAG

Lizard TCAGGGGACGAAAGGCAGTCTTGTCTGGGAAAGTGGCTGTAGCCCAGAACGATCCTTCAG

Turtle TCAGGGGACGAAAGGCAGTCCTGTCTGGGAAAGTGGCTGTAGCCCAGAACGAGCCTTCAG

Tropicalis TCAGGGGACGAAAGGCAGCGCTGTCTGGGAAATCAACTGCAGCCCAGAACGGGCCTTCAC

Platypus TCAGGGGACGAAAGGCA-TCCTGTCTGGGAAAGTGGCTGCAGCCCAGAACGGGCCTTCAG

Human TCCTGG--CCAAAGGCAGGGCACTCTGGGACAGTG--TGCAGCCCAGTCAGG--CCTCAG

 \*\*. \*. \* \*.\*\*\*\*\* \* \* \* ... \* \*\*:

Zebrafish 25667 ATCACTAGCGCAAAAAAAAAAAAAAAAAAAAAACGCCATGAGAAAAAGTACAGCAGAAAA 25726

Gar ATCACTGGCACACTAAAGAAATCGT---------GGCATGAGAAAAAGTACAGCAAAAAA

Coelacanth ATCACTAACACACTAAAGAAATCAT---------GGCATGAGAAAAAGTACAGCAGAAAA

Platyfish ATCACCGCCTCACTAAAGAAATCTG---------CCCATGAGAAAAAGTACAGCAGAAAG Stickleback ATCACCGCCCCACCAAAGAACTCTG---------TCCATGAGAAAAAGTACAGCAGAAAG

Chick ATCACTAACACACTAAAGAAATCAT---------GGCATGAGAAAAAGTACAGCAGAAAA

Zebrafinch ATCACTAACAGACTAAAGAAATCAT---------GGCATGAGAAAAAGTACAGCAAAAAA

Lizard ATCACTAACACGCTAAAGAAATCAT---------GGCATGAGAAAAAGTACAGCAGAAAA

Turtle ATCACTAACACACTAAAGAAATCAT---------GGCATGAGAAAAAGTACAGCAGAAAA

Tropicalis TTCAGCAGG--ACTAAAGAAATCGC---------GGCATGAGAAAATGTACAGCAGAAAA

Platypus ATCACTAACACACTAAAGAAATCAT---------GGCATGAGAAAAAGTACAGCAGAAAA Tropicalis TTCAGCAGG--ACTAAAGAAATCGC---------GGCATGAGAAAATGTACAGCAGAAAA

Human ACATGCACCCCAGAAGAACCCCCAC-----------CCTGACAGCAAG--CACCATGTGG

 : .: . . \*.\*.... . \*.\*\*\* \*..\*:\* \*\* \*\* .:..

Zebrafish 25727 GGTTCAGAGGTCAG-CTTGATTTGGTCTGGATTGTG------------------CAAAAG 25767

Gar GGTTCAAAGGTCAG-TTTGATTTGGTTTGGATTATTGGTGCCTCCTTCCTTGGACAAAAG

Coelacanth GGTTCAAAGGTCAG-TTTGATTTGGTTTGGATTATTGGTGCCTCTTTT--AATGAAAGAG

Platyfish GGTTCAAAGGTCAT-TTTGATTTGCTCTGGATTACTGGTACCTCCTTTTCCCTCCATTAA Stickleback GGTTCAAAGGTCAT-TTTGATTTGCTCTGGATTACTGGTACCTCCTTTTTCCTCTGCTAA

Chick GGTTCAAAGGTCAG-TTTTATTTGGTTTGGATTATTGGTGCCTCCTTTTAAACCAAAGAG

Zebrafinch GGTTCAAAGGTCAG-TTTTATTTGGTTTGGATTATTGGTGCCTCCTTTCAAATCAAAGAG

Lizard GGTTCAAAGGTCAG-TTTTATTTGGTTTAGATTGTTGGTGCCTCCTTTTCAACCACAGAC

Turtle GGTTCAAAGGTCAG-TTTTATTTGGTTTGGATTATTGGTGCCTCCTTTTAAACCAAAGAG

Tropicalis GGTTCAAAGGTCAGGGTTGATTTGGTTCGGATTATAGGAGCCTCCTTT--------TAAA

Platypus GGTTCAAAGGTCAG-TTTTATTTGGTTTGGATTATTGGTGCCTCCTTTCAAACCAGAGTA

Human GGGTCAAAGGTCGG--GGTGTTTGGCTTGGATTACGG-TGCCTGCCTTTCACCCAGAGCA

 \*\* \*\*\*.\*\*\*\*\*. .\*\*\*\* .\*\*\*\*. \*

Zebrafish 25768 AACCAG----------AAAAAAGACTAG----TGACTATTAAGCTTTGTTGAAGGGGGAG 25816

Gar AGCCAA----------GAAAAAGAACCG---ATGGCTAATAACCTTTGTAATCTTG-GAA

Coelacanth CAAAAAGAA---------TAAGGAATAG------ACCAATAACCTTCACTGTTATACATA

Platyfish AAGAGG---------GAGCCAAGAAAAGGGCCTTGCTAATAACATTTGTATTATTGCAGA Stickleback AAGAGGGCTGGGGGCGGGGCAAGAAAAGGACCTGGCTAATAACCTTTGTATTATTGCAGA

Chick CAAGAAGGG------GAAAAAAGAACAG------GCTAATAACCTTTGTTATTGTCCAGG

Zebrafinch CAAGAAGGGG-----GAAAAAAGAACAG------GCTAATAACCTTTGTTATTGTCCAGG

Lizard CAAGAGGGG--------GGAAAGAACAG------GCTAATAACTGCTATTATTGTCCAGG

Turtle CAAGAGGG---------AAAAAGAACAG------GCTAATAACCCTTGTTATTGTCCAGG

Tropicalis CCTGAG-------------AAAGAACAG------GATAATAACCTTTGTTAATGTCCGGG

Platypus --AGAGAGG---------AAAAGAACTG------GCTAATAACCTTTGTTACTGGGGGGA

Human AGAAAG-----------CCAGAGAGCAG------GATAAGAACCTTCCGGATTGGAACTG

 .. ... \*: \*\* .. .

**Region D**

Zebrafish 27881 CCAAA-GGGCAGGGAGATTTGTAGATGATGGTGCTAATTACGAGAATGGTAACCA-TAAT 27898 Coelacanth CCCAA--GGCAGAGAGATTTGTAGATGATGGTGCTAATTATGAAAATGGTAACCA-TAAT

Gar CCAAA-GGGGAGAGAGATTTGTAGATGATGGTGCTAATTATGAAAATGGTAACCA-TAAC

Cichlid CCAAA-GGGCAGAGAGATTTGTAGATGATGGTGCTAATTACCAGAATG-AAACCA-TAAT

Platyfish CCAAA-GGGCAGAGAGATTTGTAGAAGATGGTGCTAATTACCAGAATGCAAACCA-TAAT

Stickleback CCAAA-GGGCAGGGAGATTTGTAGATGATGGTGCTAATTACCAGAATGCAAACCA-TAAT

Tetraodon CCAAA-GGGCAGAGAGATTTGTAGACGATGGTGCTAATTACCAAAATGCAAACCA-TAAT

Tropicalis CCAAA-GGCACAAGGGCTTTGAAA-TGATGGCGCTAATTATGAAAATAGCAAGGAGTAAT

Chick CCCA--GGGCGGAAAGATTTGTAGATGATGGTGCTAATTATGAAAATG------------

Turkey CCCG--GGGCGGAAAGATTTGTAGATGATGGTGCTAATTATGAAAATG------------

Zebrafinch CCCA--GGGCGGAAAGATTTGTGGCTGATGGCGCTAATTATGAAAATG------------

Turtle CCCA--GGGCGGAAAGATTTGTAGATGATGGTGCTAATTATAAAAATGGTAACCA-TAAT

Opossum CCCAAAGGCAGCAGCGCTGGGGAGATGATGGCGGTAATTAGCAAAATCGTCCCCA-TAAT

Platypus CCCAGAGGCG-AAGAGTTGGGGCGATGATGGGGCTAATTAGGAAAATAGGAACCA-TAAT

 \*\* \*\* \* \* \*\*\*\*\* \* \*\*\*\*\*\* \*\*\*\*\* \*

Zebrafish 27899 GCGACCAAGATGGAAGCAATTTAGGCAGAAGTCATTTG 27976

Coelacanth GTTACCAAGATGGAAGCAATTTGAGCAG-AGTCGTTTG

Gar GCGACCAATATGGAAACAATTTAAGCAAAAGTCATTTG

Cichlid GTGACCAAGATGGAAGCAATTTAGGCAGTAGTCATTTA

Platyfish GTGACCAAGATGGAAGCAATTTAGGCAGTAGTCATTTA

Stickleback GCGACCAAGATGGAAGCAATTTAGGCAGTAGTCATTTA

Tetraodon GTGACCAAGATGGAAGCAATTTACGCAGCAGTCATTTA

Tropicalis GTTACCAAGATGGAAGCAATTTGGGCAAAAGTCATTTG

Chick -TGATCAAGATGGAAGCAGTTTGAGCAGAAGTCATTAA

Turkey -TGATCAAGATGGAAGCTATTTGAGCAGAAGTCATTAA

Zebrafinch -TGATCAAGATGGAAACAATTTGAGCAAAAGTCATTAG

Turtle GTGATCAAGATGGAAGCAATTTGAGCAAAAGTCATTAA

Opossum GGGAGCAAGCTGGAAGCAATTTGCGGAGCAGTTATTAA

Platypus GCCACCAAGATGGAAGCAATTTCAGCCGAAGTTATTAA

 \* \*\*\* \*\*\*\*\* \* \*\*\* \* \*\*\* \*\*