A

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                                        CREB                CBX                 CBX
Coelacanth_HOXA     TGTGGCATATACTGTTGGATGTCAACTCCCCAAAACCATAAAACTTACTTTAATGGCACC
Xenopus_HOXA        TGTACTATATAATGTTGGTCGTCTACTCCCTAAAACCATAAAACTTACTTTAATAGCCCC
Shark_HOXA          TGTAGAATATACTGTTGGTTGTCAACTCCCCAAAACCATAAAACTTACTTTAATGACACC
Opossum_HOXA        TGTGGTATATAATGTTGGATGTCAACTCCCCAAAACCATAAAACTTACTTTAATGGCACC
Human_HOXA          TGTGGTATATAATGTTGGATGTCAACTCCCCAAAACCATAAAACTTACTTTAATGGCCCC
Mouse_HOXA          TGTGGTATATAATGTTGGATGTCAACTCCCCAAAACCATAAAACTTACTTTAATGGCCCC
Opossum_HOXB        ----------ACCGCGCGGTGTCAACTCCCCAAAACCATAAAACTAACTTTATGGACCTC
Human_HOXB          ----------ACTGCGCGGTGTCAACTCCCCAAAACCATAAAACTAACTTTATGGACCTC
Mouse_HOXB          ----------ACCGCGCGGTGTCAACTCCCCAAAACCATAAAACTAACTTTATGGACCTC
Shark_HOXB          TGTGAAATATATTGTACCTTGTCAACTCCCCAGAACCATAAAACTAACTTTAACGACCCC
Xenopus_HOXB        TGTGAAATATATTGTACATTGTCAACTCCCTAAAACCATAAAACTAACTTTATGGAGCAC
Coelacanth_HOXB     TGTGAAATATATTGTACATTGTCAACTCCCCAAAACCATAAAACTAACTTTATGGATCCC
                             *  *      *** ****** * ************ ******      *
                    E-box
Coelacanth_HOXA     ACGTGACATTTTATAGCCAGTGAGCCTATCTATCTCTGCTATGGATGAT---TTTACGAT
Xenopus_HOXA        ACGTGACTTTTTATAGCCAGTGAGCCTATCTGTCTGTGCTATGGAGGAT---TTTACGAT
Shark_HOXA          ACGTGATTTTTTATAGCCAGTGAGGCTATCAGTCTGTGCTATGGATGAT---TTTACGAT
Opossum_HOXA        ACGTGACTTTCTATAGCCAGTGAGCCTATCTGTCTGTGCTATGGATGAT---TTTACGAT
Human_HOXA          ACGTGACGTTTTATAGCCAGTGAGCCGATCTGTCTGTGCTATGGATGAT---TTTACGAT
Mouse_HOXA          ACGTGACGTTTTATAGCCAGTGAGGCGATCTGTCTGTGCTATGGATGAT---TTTACGAT
Opossum_HOXB        ACGTGACTTTCTCGAGCCAGTGAGGGG-TATCTGTCTGACTTCTCGGCGATTTTTACGAT
Human_HOXB          ACGTGACTTTCTCGAGCCAGTGAGGGG-TATCTGTCTGACTTCTCGGCGATTTTTACGAT
Mouse_HOXB          ACGTGACTTTCTCGAGCCAGTGAGGGG-TATCTGTCTGACTTCTCGGCGATTTTTACGAT
Shark_HOXB          ACGTGACTTTTCGGAGCCAGTAGGGGTATCT--GCTCGCGGTTCGGGCGATTTTTACGAT
Xenopus_HOXB        ACGTGACTTTTGCGAGCCAGTGAGGGGGTCTGAGCCTGAGGTCTGGGCCATTTGTACCAT
Coelacanth_HOXB     ACGTGACTTTTGAGAGCCAGTGAGGGA-TATCTGTCTGAGGTCCGTGCGATTTTTACGAT
                    ******  **    *******  *    *        *   *    *     * *** **
                                                        Brachyury
Coelacanth_HOXA     CTTATCCAAAGGCAA-AACCCTATTCATTTGGCACCCAAATGTCATATAGCCGGAACTCG
Xenopus_HOXA        GTAATTCATAGACAA-AACCCTATTCATTTGGCAAGCAAATGTCACATAGCCGGAACTAG
Shark_HOXA          CTAATTCATAGACAA-AACCCTATTCATTTGGCACCCAAATGTCATATAGCCGGAACTGA
Opossum_HOXA        CTAATTCATAGACAA-AACCCTATTCATTTGGCACCCAAATGTCATATAGCCGG AACTGG
Human_HOXA          CTAATTCATAGACAA-AACCCTATTCATTTGGCACCCAAATGTCATATAGCCGGAACTGG
Mouse_HOXA          CTAATTCATAGACAA-AACCCTATTCATTTGGCACCCAAATGTCATATAGCCGGAACTGG
Opossum_HOXB        CTAACTTCGAGATAAAACCCCTATCCATTTGACATCTAAATGTCATAGCGACTTTTGGGA
Human_HOXB          CTAACTTCGAGATAAAACCCCTATCCATTTGACATCTAAATGTCATAGCGACTTTTGGGA
Mouse_HOXB          CTAACTTCGAGATAAAACCCCTATCCATTTGACATCTAAATGTCATAGCGACTTTTGGGG
Shark_HOXB          CTAACTTTGAGATAAATACCCAATTCAGTTGACATCCCAATGTCATACCGAGTTCTTGTA
Xenopus_HOXB        GGAACTTCTACATAA-AACCCAATCCATTTGACATGGAAATGTCATACCTACTTGGGCTT
Coelacanth_HOXB     CTAACTTCTAGATAA-AACCCAATCCATTTGACATCTAAATGTCATACCTACTTTTGCTA
                       *     *    **   *** ** ** *** **     ******* *
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Coelacanth_HOXA     GGGTAATAAAGTTTACTGTTTTATAACTTTAAAAGGAAGACACCCTTGTTAGCAGCAA--
Xenopus_HOXA        AGCTTATAAAGTTTACTGTTATATAACTTAAGAAGGCAAGAGGGTAAGCAGTTAGAAGGG
Shark_HOXA          GGTGTATAAAAGTTTACTGTTTATAACTTTAAAGGACAGACACCAACTAAGCAGAAAGG-
Opossum_HOXA        GGCTTATAAAGTTTACTGTTTTCTAACTTTTAAAGGAA-----GGCATCAATGTAAGCAG
Human_HOXA          GGCTTATAAAGTTTACTGTTTTATAACTTTTAAAAGGAAAGACGGCATCAGTGTAAGCAG
Mouse_HOXA          GGCTTATAAAGTTTACTGTTTTATAACTTTTAAAAGGAAAGACGGCATCCGTGTAAGCAG
Opossum_HOXB        TAGTTTGCTATCGATAAAGGAAAAAAAATAAAGGGGGGGAGG-GGCAAAGGGGGGCGAA-
Human_HOXB          TAGTTTGCTATCGACAAAGGGAGACAAAGTCAAGGGGTGAAG-GGAAAGGAGGGCCAAG-
Mouse_HOXB          TAGTTTGCTTTCGGCAAAGGGGGACAAAGTCATGGGGTGAGA-GGGAAGGAGGACCCAA-
Shark_HOXB          TATGTAGTTTGTTATATTCACAAGGGAACACGCACATTGCAG-GATAGAACTCACATTT-
Xenopus_HOXB        TACTTTGCCCAAATCACCAAA----GGGGACGGGGATGCCTT-GGCTTCACTCTGCTCT-
Coelacanth_HOXB     TAGTTTGCTATTGTTAAAAAA----TAGAAGGGAAAACGAGC-AGATGGCCGTGGACCT-


Coelacanth_HOXA     ------------------------------------------------------------
Xenopus_HOXA        GGATCCCTT-----------TC-ATTGCCATTACAGCCTGAGAAGAGTTAGCTCTCC---
Shark_HOXA          ---GTAAAAGTGCTGATCCCTA-CTTGCTGTCAGGAGCTAAGACGTGCTTTTTTTCTCTG
Opossum_HOXA        GCAGTAAGTGTGCAAATCTTTA-GTTACTCTTAGA-AGCTCAGAAGAGT----TAACCAA
Human_HOXA          TCGGTAAATGTGCAAATCTCTA-GTTGCGCTTTAGCTGCTCTGAGGAGT----TTCCCAA
Mouse_HOXA          CCAGTAAATGTGCAAATCTCTA-GTTGGGCTTTAGCTGCTCTGAGGAGT----TTCCCAG
Opossum_HOXB        ---CAGACACTCCTGGACTTTCGACCGGTCGCCTCCCTAGCTCTCCCCCCCAC--CC---
Human_HOXB          ---TAGAGCCTCCACGACCCTCGGCTTCC--TCCTCACC---AGCTCCCCCTC--CC---
Mouse_HOXB          ---AACAGCCTCCAAGACCCTCACCATCT--CTTCACCGGCTCCCCCTCCCCC--CC---
Shark_HOXB          ---GCTGTTTG----AATTATCAACTACACTACCTATAAGAAATGGACCTATTTGGTAAG
Xenopus_HOXB        ---GGGGTAAG-----TTTCCC-A-------CTAAACTTTCTCTCTAATTCGTTTGCCC-
Coelacanth_HOXB     ---GGCAGCGC----ACCTCAC-ACTCCTCTCAAAACTCACTTAAGAAGTGCCTTAACAG

Coelacanth_HOXA     ------------------------------------------------------------
Xenopus_HOXA        ---AAGCTAATG---AGAGGTAA----GT-CCATTTTGAAAGGCTTGAGGTGCTTA----
Shark_HOXA          -GTCTGCCTTCA---TGCGGTAA----GT-AAACTCTAAAACGAAAGATACCTGTT----
Opossum_HOXA        -TCGAGCTATGG---TGGGGGTA----AG-TAACATTACATTTGTAGCGA----------
Human_HOXA          -TCGAGCTAGGA---TGGGGTAA----G--TAC-CTTCAATTTGTAGCAA----------
Mouse_HOXA          -TGGAGCTAGGA---TGGGGTAA----G--TAC-TTTCCATTTGTAGCAA----------
Opossum_HOXB        -CCCAAGTCCTG-TAAGAAGTTTG---GC-TAAGAAGGGAGAGATTGAGCTGGGTAAGTG
Human_HOXB          -TCCAAGTCCAG-TAAGAAGTTGG---GC-CAAGCTGGAAGGGATTGACCGGGT-AAGTG
Mouse_HOXB          -CACAGGTCCTG-TAAGAAGTTGG---GC-CCAGCTGGAAGGGATTG-ACCGGT-AAGTG
Shark_HOXB          -TTGAGCTTAAACTAAACCTGTT----ACACAAAAGATGACTCTTAGAAACGTAAAGTTA
Xenopus_HOXB        ------------------------------------------------------------
Coelacanth_HOXB     TGGGAGATTAAGTTGGTAAGTTTATAAACTCAAAACATTACTTGATGGAAGCAAAAGCTA
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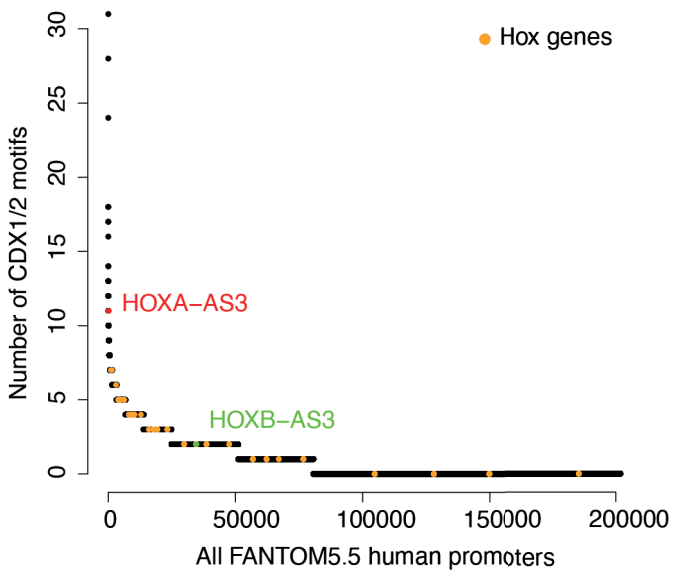
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