

Alignment zebrafish-mouse element A

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A_zebra -----GTAGCGTAGTAGGCCAGTAAAGCAGC---TACAACCTGCACAGTTTAAAAACGTGGCAAATACCTC-----AG K20
A_mouse CCAAAGCAGGCCCTCTCTGTGACAGATTTCTGATTCACGCTCCCTCAGTACAGAACAGCAGCAGCAGCAGCAGTGCACAGAACTCTCTGACTGACATATCTCTGCTGTGGTGGTGA
          * * * * *
A_zebra AATATAG--GCTATATGTCA----TATATGCCATATATATACATCAITTTTGTATACATTTTAAATGTGTGTAGCATGTA-----CAAACAT-----
A_mouse CTGGTACCCGCCCTGACTGCTGCCTTGTACTGTGTTTCAGAGAGAGGCTTTCTGAACCATGGGTATCTGAAGGAGCTGACGATGATGCAAGAGACACGGCCTTAGTAGGAGCCCG
          ** * * * * *
A_zebra -----ATTTTCATCTTT---CCACTTACCACTAGAAGGAAGCCTGCTGACCACTGTTGAGAACCACTGCTCTAGAGTAATTTTCAAGACACGATTCCAATCC
A_mouse GCCTCTCTAGTTGTCAACCACGCTCAATGTTTTCACAGATTCATCGCTACATCTTGCAGGCCACCAACTCCGCCA----TGCCTTGAACACAGAGCCAGAGATGCTGCAAAATC
          * * * * *
A_zebra K20 ACTCAAACAGTTTCTGTGTGAAAGCCTCACACCTGACAGCGGTG--AGATCTGTCTGTAGTTAAC-----ATGTGTAAGAAATATTGTGACGACATAGCTCACCGCAGGG
A_mouse TC--ACTCCCTTATATCTGCCAGTGCCTGGGACCTACAAATAGACATTCGCTGTCTGTGAGTTCTGTATAGAGTGGTGGGAAAGGAAGAAATGTGACGGCACACAGGCACATGGGGAA
          * * * * *
A_zebra TTCCCATTTGTCTCCCGAGGAGGCTTAAAAATCCCCCTCACATCCCCCTTGGCTCTTTAGGGCGCTGTGTGTAGGAGGATATGTGGGATTCCCCATACAAGCGTCCAAAGCAC
A_mouse TCCCTTTTGTCTCCCACTGC-TTCTTCAAAGGATTCAGATC----TCTGACTCCCTTGGAGCATCCCTGTGTGGGTGGCTCTGTGGGTTCCCTGCAATGACaaaaaaaaaaaa
          * * * * *
A_zebra ACAGGAGAACTGGACAGAAGACCCGCTGTAAGCAGAATGCTGGAGTGGGACTCTCCCTAT-AGCTTGGCTGGCTCATCTACTTTTGGGGCCGA-----ATCGAGGCAGGTG
A_mouse aaaaaaaaaaaaaaaaaa-----aaGCAAAGCAAAGCCCTGGATTGGCTTCCCTCAAATGCGAGACTCTGGATTTAAAAAAGATAGGGATACAAGCATGCTCAGGGAAATGCA
          * * * * *
A_zebra GAAGAGGCGAGCGC--TCGCTCCTTACACCGCAGATTCAGTGGGA--CGTCA---AG-CTCTCGTTTTCTCACAGCTGTGAGTGTGATGTGTCAGAGAAGAAGAGCTGG--AGATG
A_mouse GAGCGCGGAGCAGAGGTGGGCTGAGGAATGCCGCCTCCTCAGGGGGCAGCAGTCAAAGCGCTGGCTCATCGCGGTGTCAAAGCCGAGTCTGCAGGTAATAGCAATGAGATGCTT
          * * * * *
A_zebra K20 AAACACACACACACACAGGAGAGAAGAATAGCTTAGTACTGACTTGTGCTGTGCGCTCAAATGATTTTAGTGTGTGCAAAATACTTATTAAAAATGAGCT-----
A_mouse CCTCCCACTCAGATTCACACTGGAAGCTCGGGTATTGCT-----GGAGCCGATCCACACCGCTGCCATTACAACCCCGCTCTTTCAAGGAAACTCGAGGCCCTCTTAAA
          * * * * *
A_zebra -----GAAACAACACA-----ATTCTGGAGGTTTTTTGGTGGAGACCTAATGTTTACTCTGCATTTTTATCTGTGTGTGCACCTCTAAC
A_mouse TGTGGCGCGGCCAGCCAGCCAGAGCGGTTGAGCAACAGACACAGAAAGCTGTCACTTTCTGGCTCCAGCAGTACACTTATGTGCTCTTGTCTTCTGT-----GAC
          * * * * *
A_zebra ATAATCATTAAAGTAAGTTAACTATTTTTTCCAATTTAAATGGATTAACATTTTTTAAAAAATAAGTTGTCCCGCGCCCACACCCCCCCCCTCTCAAAAAAAAAAAGAAATGT
A_mouse ATGTCAGTTATCCAAGC--CACTTCTGCATCACTCGAGGACTACATATTTGTATGAACAAACCTGTGGAGCCAAACCCCAACCCCGCCCTCC-----
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Alignment zebrafish-mouse core element B

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B_zebra CCCCAGTCCATGAATGTCCCAATACAGTCCAAACTACAGACAGGGCA----ATTTTCTCTGACGTGCTCTGCCATCTTGTTTTGACAGCGGGCAAAAGGAGGTCCAATGATGCCT
B_mouse CAGGAAAAAGAGAAATATAGCAGACACTAGAAAGTCCACACCGCCACCTCCGCCATCTCCCTACATTTCCACGTCCTGTGACAGTCTCTCAACAATGAGTTGAAG--ATTGATGCTT
          * * * * *
B_zebra Mafb TTGTTGGAGCAGACGAACCTTGCAGACGAGCTCCAGATCCAAAGCCTGCTTCTCTGCTGTGTTGGCCG-----Mafb vHnfl GTGGTTAATCTTCAACC
B_mouse TCAGGGATAATGAAGCCTGGAGCCACCTTAAAGACGTACAGATTAGTGTC--CGTTCTCTCTGATGGGCTGAGAGATGGGAGAAAAATCAGCAGATTTCTGTGTTAATGTCAACC
          * * * * *
B_zebra Mafb AGGTACAGGAATGACCGTTGCCTTACGAGTGGAAAGTGTGTGCTCCATCCGCTCCCTGCAGAAAGCTCCACTTAGCTTGTCTTGGGCTTGAACCGCCATGTCGAATAGCTCTC
B_mouse AGTACAGTACCGGTATAAA--GCACAGGGCCGACAAAGGGGCTTGACAGGCCAGCCCTCCAGCCTATTGAAGTCCGGCTGTACTTGC--GTAAGTCCCTTGTCTAATAGCTACT
          * * * * *
B_zebra GGGTGTCTCCGCTCTTATCC-----CTAAAGACTGGAGAAAGCGCTGGACCATGATGGAGGAGGCTTGTATGGGACAACAAGAGCTCTGCAGCCGAGTCCACTGAG
B_mouse GAGCTGTCTCCCTGGCTCCCTGCTGCTGACGGAGACTTCTCTGGGAAAAGTCTTGTCAACAAGCATGATGAAGTAGGGCTTGTATGTGTACAAGATGCTCTGATAGCAGGCCACTTCT
          * * * * *
B_zebra Mafb Mafb Mafb TCGGCTAATCATCTACTGTCATCTCAGCTCTGGAGGTGAAAGTCTGTGGCCAG
B_mouse GAGACTAATCATCACTTTCAGATTCCAGCCAGGGCTCACTACAGGCCAG
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Alignment zebrafish-mouse core element C

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C_zebra --GCAGAGCTGTGTGTCAGGGGTGAAGACACAAGGCCAGTGGCAGGCTTTTCTCCCAAAGCCGATACCACTGCAGGGCCCGGGCC--TCTCTGAGTGTCCAGCACCCTCTCC
C_mouse ATGGCAGCCTTGCCTCTTAGGACAAAGCCCAATAGCAAGCTGATACCCTTTTGACTAATCCGAGGGAAGCCACTGCTGGAACCTGTGCTTTTCTGTTGGCTCCCTGCAGAACTTTC
          * * * * *
C_zebra HP Meis Meis Sp AAATGATGATTAATCACGGAGTGTCTAAGAGGGGGGGTGTGACCCTGACA---CA-GCCATAATGTGTGTCACCAGAGTCTGGATTGCCAGCGGTGGTGTGGTGGATGTCC
C_mouse AAATGATGATTAATCACTGCATAAATGGCAGCATTGACAACCACATAA--TGACAGAGAGAAAGCTGAGACAGGGGCTCAACCGTGGGTGCTTGGCCGCCAGTCCCGGTGGTGGAGAAC
          * * * * *
C_zebra HP Meis GAGGAAGTGGATGACCTCGACCT--CTGTCATTAAACAAGAGAA-----GAAACAAAACAGACAACAAAAAAGAAAGCAGCAGGCTGTGAGGGAGAGTTTGTGGGAATAAAT
C_mouse CCAGAAGTGGATGGCTCGCAAGTGTTGACACTTGTAGTGTCTTGTCTTTTACAAGGGTGGCCACTTCTACCAATTCAACAAACTGGGCTCGGAGCAGCAGATGGACTGGACTCACTT
          * * * * *
C_zebra Meis Meis Meis GAGAGTTTTGACATTAGCGAACGTAAGTAAACGCAAGTAGTCCTGACACGACATGACACGCTGAACTTGTGGAAGTTTGGAGTCTGTTGCTCTCATCAGCGAAAGAGGAGCCGA
C_mouse CCTGTGGCTGTGAGAAGCAAGGAGAAATGCCTCAA-----CAAACAACAAACAGGTTCCAATGGCATCTTAATG-----GCAACGGAATGAGAGCC
          * * * * *
C_zebra Meis HP GGTTTCTTGACAGTACAAATGAAGCCGATTCATTATTTTCCAGGAAATCGCTCTGCGCAGACGAAGTGGAGATGACAGCGTGGGCTACTGCCATTTGGATGGAGATGAATC
C_mouse ACTGGCTGCAGATGGCAGCTTCTCACTGTAGTGAAGGCTTTAGGAAGTTTCTGCTGATAGCA-----CTTCAGATTACCCTAACCTGTGCTCTACTAATTTGAAAAATATGATAC
          * * * * *
C_zebra Meis Meis Meis HP Meis Meis Meis Meis Meis Meis Meis Meis Meis Meis Meis Meis Meis Meis Meis Meis Meis Meis Meis
C_mouse ACTGAGATCAGACAGGGCTCCGAAGAGTCAATTACACTCGGCAGCAATATCAAAGCTCATCTCTTCGACACCGGAAATAAGACAGTCTCTCTTAATAACAAAAAATAAAGAAAT
          * * * * *
C_zebra GCTCTACTGAAACCCCATTAAGCCCGTCTCCAAGACAGCTCATAGCATAGCGGAATATCCCCCGTTTGTGTAATCTATCAACTCTATTGCTTCCACTATCCTATCTTAA
C_mouse AAAGCAGAAATGAGGTCTAATGCCCATCTCAGTTGACCAAGCTATAGCGATGAGAAGTTTCTCTAATTTTCAATTTCTCTGGGCTGTGACTCCCTGCCCTAAGGAAT
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S1 Fig. Sequence alignments of enhancers between different species and search for putative transcription factor binding sites.

The first panels show sequence alignments of zebrafish and mouse entire element A and core regions from elements B, C, E and F. The non-conserved element D sequence is also shown. The last panel shows a sequence alignment of zebrafish and koi carp element A. Conserved nucleotides are marked by a star, and characterized or putative binding sites for transcription factors are indicated: Krox20 (K20) in red, Mafb in blue, vHnf1 in green, Hox/Pbx (HP) in purple, Meis in pink, and Sp in orange.