

Supplementary information

Bmp signaling regulates Hand1 in a dose-dependent manner during heart development

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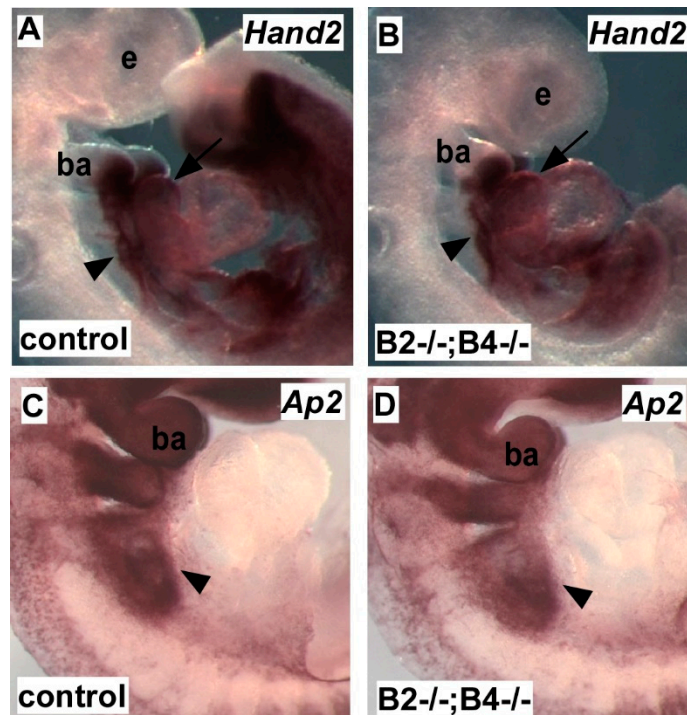


Figure S1. *Hand2* is not changed in control and *Bmp2/4* mutant. (A, B) Whole-mount in situ hybridization at E9.5 embryo showing *Hand2* expression (arrows and arrow heads). (C, D) Whole-mount in situ hybridization at E9.5 embryo showing *Ap2* expression (arrow heads). e, eye; ba, branchial arch.

- GCCG core consensus in GC-rich sequences
- Smad4 recognized Smad binding element (SBE) motif
- BMP-responsive element (BRE)

location on Chromosome 11 (Ensembl)

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11:57647580 TAAGGTGGAAGACATCTGTAAGAACACCACGCCGGTGTTTGTGTGTGCCGGCGAAGGGAT
11:57647520 GAGCCTGTGTATATGTATGGACCTGTCATGGAGTCCAGGATGAAGACTGCTGGAGTCAGA
11:57647460 ACTGTGCTGTCTTGAGAATCCAGGCCCTTTCCACCCAGGTTCCCTCATTCTGAGAGTGAC
11:57647400 TCCCAACCCGCAGGGCACAAGAACCCGCGGAGCAGCTGCGCAGCTGCGGAACCGCCGCT
11:57647340 TCCCGGGGAGCCTTCCCCAGGCCCTGGCTGAGCCCAACCCAGCGCTGCGGGCGCCAGG
11:57647280CGCCTGCAAAAGCAGCGGGTTCCAGTTCGCCTGGGGCAGGAAAGTGAGGTTCTCCGGAT
11:57647220 CTCTTTCCACTGCCGCTCACAATCTCTTGCAACAACCAAGTTCTCACAGGTGGGACCTTGGG
11:57647160 GCTCAGACCTCAGCGACTGAGCTTCCATCCACGCCCTCAAAGCGAGATTACTCTCACAGAC
11:57647100 ACGCAGAAATCACAATTTCGCACACATTCCTAGGATTTACACACAGGGACTGTCATCTGT
11:57647040 TGAGCCACGACCTACTCCACATTCGTTTTCACTTACCCACTTGCTACTGGGCCTCACAT
11:57646980 CCCGTCTGCGCACGGTGGCCTCTCTCCCACTGTCCCTGCCTGGTAATTGTCTTACACAAG
11:57646920 CTGGGCCTCAGCGAGCAACTTTTCGAGTGGCTGGATCAGAAGCGAATTAAGAATTTGA
11:57646860 CATCATCTCATTTCCTTAACTGACATTTGATAGGCACAAGCCCACCTAGGGAAGGA
11:57646800 GCGAGACCAGAAATGTTGGTGAGGATGGAGGGGTCCTAGGGACAGGGACCTTAATGAAA
11:57646740 AGATGAAGAAGACCCAGAGTTTCAAGCTTAAAGCCTGGTCTCCCACGTTCTTATCAACT
11:57646680 CTTGGAAAGCCATCTCTTTGTGGAATCCACCTTGGAGAATCTAGGCTGATGGGAGCAA
11:57646620 CACAAGGTTGCACAGATATTCCTGCCTCAGCAGAGTGAGTGTGAAGCGCCTAGGCTGTT
11:57646560 TCTCCGTGGATATCAGGGGTGGGGGTGGGCTGGTTTCTTCCAGTGTGAGCCTCAGTGGAA
11:57646500 GTATCTTTATAGGATCAAAGATTTTCATGCAGGTGGCGAGCCAGATGGAGTGAGCAGCCC
11:57646440 AGCAGTCGCCGGCTCCTTAGCCCTACGTGCGAATCTTCCGAAGACACCGGGGAGTCCTGC
11:57646380 CACAGAGATGCCTTGGGGCCAAGGCGCCGCCAGGCTGCCTCGCCACCAGCTCAGCCTGCC
11:57646320 GGCGTTTACACCGAACCAGGCGCCTGAGAGGCTAGAGGAGCAGAGATCAGCCACCGTCTC
11:57646260 CACCCCCAACCCCCAAGCCCGGAACAAACTGGTCAGTGCCCAAGAGCTGGAAGCCCCGCT

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Figure S2. Diagram of the Bmp/Smad regulatory element in the 5' upstream of *Hand1* genomic sequence (at upper) and its phylogenetic sequence alignment (at lower).