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| **Supplementary table 1. shRNA sequences and Primers for PCR** | | | |
|  |  | **Forward primer** | **Reverse primer** |
| RT-PCR | BMP3 | CCCAAGTCCTTTGATGCCTA | TGGTACACAGCAAGGCTCAG |
|  | ID1 | GGTGAGCAAGGTGGGATTC | GACACAAGATGCGATCGTCC |
|  | ID3 | ATTCTTTGAATCCGCGGCTC | CGTTCACAGCCCGCTTAAAT |
|  | SMAD4 | CCTGCTCCTGAGTATTGGTGTTCC | CTCTCAATGGCTTCTGTCCTGTGG |
|  | CASP7 | GCTGACTTCCTCTTCGCCTATTCC | TGCCTGGCAACTCTGTCATTCAC |
|  | CDNK1A | GCTGAGCCGCGACTGTGATG | CCTCCAGTGGTGTCTCGGTGAC |
|  | BMP2 | TGACGAGGTCCTGAGCGAGTTC | TGAGTGCCTGCGATACAGGTCTAG |
|  | FST | CTGCTGCTGCTCTGCCAGTTC | CCTCCTTGCTCAGTTCGGTCTTG |
|  | ACVR2B | AGACACGGGAGTGCATCTACT | GCCTATCGTAGCAGTTGAAGTC |
|  | GAPDH | CATCACCATCTTCCAGGAGCG | TGACCTTGCCCACAGCCTTG |
| MSP | BMP3-U | TTTAGTGTTGGAGTGGAGATGGTGTTTG | AAACACAACCAAATACAACAAAAT  AACAA |
|  | BMP3-M | TTTAGCGTTGGAGTGGAGACGGCGTTC | CGCGACCGAATACAACGAAATAACGA |
| Q-MSP | BMP3-BS | TTTCGTTGTATTCGGTCGC | GCTACGAAACACTCCGAAA |
|  | ACTB-BS | TTTGTTTTTTTGATTAGGTGTTTAAGA | CACCAACCTCATAACCTTATC |
| Proble | BMP3-prb | 5'-HEX TTCGGGTTTCGTGCGTTTTCGTTTT-BHQ1-3' | |
|  | ACTB-prb | 5'-Cy5 AGTGTTGTGGGTGTAGGTATTAATATTG-BHQ2 3' | |
| shRNA | BMP3 | GGCCA AATCTCATCG AGATATCTCG AGATATCTCG ATGAGATTTG GCC | |
|  | SMAD2 | CACCGCCAGTTACTTACTCAGAACCTCAAGAGGGTTCTGAGTAAGTAACTGGC | |
|  | TAK1 | CACCGGACATTGCTTCTACAAATACTCAAGAGGTATTTGTAGAAGCAATGTCC | |
|  | BMPR2 | CACCGCTTGTGATGGAGTACTATCCTCAAGAGGGATAGTACTCCATCACAAGC | |
|  | ActRIIB | CACCGGGAGTGCATCTACTACAACGTCAAGAGCGTTGTAGTAGATGCACTCCC | |
|  | Control | CACCGCAAGCAAATAGCTTGCTTGATCAAGAGTCAAGCAAGCTATTTGCTTGC | |

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| **Supplementary table 2. Immunohistochemistry showed the expression of BMP3 in tissue samples** | | | | | |
|  | No staining | Weak staining | Moderate staining | Strong staining | Total |
|  | <10% | 10%-30% | 30%-50% | >50% |  |
| Normal (n=31) | 0 | 4 (12.9%) | 8 (25.81%) | 19 (61.29%) | Neg (12.90%)  Pos (87.10%) |
| Adenoma (n=52) | 2 (3.85%) | 22 (42.30%) | 15 (28.85%) | 13 (25%) | Neg (46.15%)  Pos (53.85%) |
| Carcinoma (n=37) | 11 (29.73%) | 13 (35.14%) | 10 (27.02%) | 3 (8.11%) | Neg (64.86%)  Pos (35.14%) |
| Neg, negative (<30%), Pos, positive (≥30%) [1]. | | | | | |

1. Kodach Ll, Wiercinska E, de Miranda Nf, Bleuming Sa, Musler Ar, Peppelenbosch Mp, Dekker E, van den Brink Gr, van Noesel Cj, Morreau H, et al. The bone morphogenetic protein pathway is inactivated in the majority of sporadic colorectal cancers. Gastroenterology. 2008;5:1332-41.