

Human TGF $\beta$ / BMP Signaling Pathway PCR Array
<b>TGF<math>\beta</math> Superfamily Ligands:</b>
<u>Activin:</u> INHA, INHBA, INHBB.
<u>BMP:</u> AMH, BMP1, BMP2, BMP3, BMP4, BMP5, BMP6, BMP7, GDF2 (BMP9), GDF3 (VGR-2), GDF5 (CDMP-1), GDF6, GDF7.
<u>Nodal:</u> NODAL.
<u>TGF<math>\beta</math>:</u> TGFB1, TGFB2, TGFB3.
<u>Inhibitor/Cofactors:</u> BAMBI, CHRD, DCN, FST, LEFTY1, LTBP1, LTBP2, NOG, TGFBI, TGFBRAP1, THBS1, TGIF1.
<b>TGF<math>\beta</math> Superfamily Receptors:</b>
<u>Activin:</u> ACVR1 (ALK2), ACVR2A, ACVRL1 (ALK1).
<u>BMP:</u> AMHR2, BMPR1A (ALK3), BMPR1B (ALK6), BMPR2.
<u>TGF<math>\beta</math>:</u> TGFBR1, TGFBR2, TGFBR3.
<b>Transcription Factors and Regulators:</b> DLX2, FOS, GSC, HIPK2, ID1, JUN, JUNB, MYC, RUNX1 (AML1), SMAD1 (MADH1), SMAD2 (MADH2), SMAD3 (MADH3), SMAD4 (MADH4), SMAD5 (MADH5), SMAD7, SOX4, STAT1, TGFB1I1, TSC22D1 (TGFB1I4).
<b>SMAD Target Genes:</b>
<u>TGF<math>\beta</math>/Activin-Responsive:</u> ATF4, CDKN1A (p21WAF1/p21CIP1), CDKN1B (p27KIP1), CDKN2B (p15INK2B), COL1A1, COL1A2, DCN, EMP1, FOS, GADD45B, GSC, HERPUD1, IFRD1, IGF1, IGFBP3, IL6, JUN, JUNB, MYC, PDGFB, SERPINE1 (PAI-1), TGFB1I1, TNFSF10, TSC22D1 (TGFB1I4), TGFBI, TGIF1.
<u>BMP-Responsive:</u> BGLAP (Osteocalcin), DLX2, ID1, ID2, JUNB, SOX4, STAT1.
<u>Molecules Regulating Signaling of the TGF-<math>\beta</math> Superfamily:</u> BAMBI, BMPER, CDKN2B (p15INK2B), CHRD, ENG (Evi-1), MECOM, FST (Follistatin), HIPK2, NOG, PLA1 (uPA), RUNX1 (AML1), SMURF1.
<b>Adhesion and Extracellular Molecules:</b>
<u>Adhesion Molecules:</u> BGLAP (Osteocalcin), ENG (Evi-1), TGFB1I1, TGFBI.
<u>Extracellular Matrix Structural Constituents:</u> BGLAP (Osteocalcin), COL1A1, COL1A2, LTBP1, LTBP2, TGFBI.
<b>Genes Involving in Cellular and Developmental Processes:</b>
<u>Apoptosis:</u> CDKN1A (p21WAF1/p21CIP1), CDKN1B (p27KIP1), HIPK2, IGFBP3, INHA, INHBA, STAT1, TGFB1.







Reproduction: AMH, AMHR2, FST (Follistatin), INHA, INHBA, INHBB.

Skeletal Development: BGLAP (Osteocalcin), BMP1, BMP2, BMP3, BMP4, BMP5, BMP6, BMP7, BMPR2, CHRD, COL1A1, COL1A2, IGF1, INHA, INHBA, NOG.