SANTA CRUZ BIOTECHNOLOGY, INC.

BMP-7 (4E7): sc-53917

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Bone morphogenic proteins (BMPs) are members of the TGFβ superfamily. BMPs are involved in the induction of cartilage and bone formation. *In vivo* studies have shown that BMP-2 (also designated BMP-2A) and BMP-3 can independently induce cartilage formation. Smad3 association with the TGFβ receptor complex and Smad1 translocation to the nucleus are observed after the addition of BMP-4 (also designated BMP-2B), suggesting that BMP-4 may play a role in activation of the Smad pathway. BMP-5, BMP-6 and BMP-7 all share high sequence homology with BMP-2, indicating that they each may be able to induce cartilage formation. BMP-8 (also designated OP-2) is thought to be involved in early development, as detectable expression has not been found in adult organs.

REFERENCES

1. Wozney, J.M., et al. 1988. Novel regulators of bone formation: molecular clones and activities. Science 242: 1528-1534.
2. Celeste, A.J., et al. 1990. Identification of transforming growth factor β family members present in bone-inductive protein purified from bovine bone. Proc. Natl. Acad. Sci. USA 87: 9843-9847.

CHROMOSOMAL LOCATION

Genetic locus: BMP7 (human) mapping to 20q13.31; Bmp7 (mouse) mapping to 2 H3.

SOURCE

BMP-7 (4E7) is a mouse monoclonal antibody raised against amino acids 293-431 of BMP-7 of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide, 0.1% gelatin and < 1% glycerol.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

BMP-7 (4E7) is recommended for detection of BMP-7 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for BMP-7 siRNA (h): sc-39748, BMP-7 siRNA (m): sc-39749, BMP-7 shRNA Plasmid (h): sc-39748-SH, BMP-7 shRNA Plasmid (m): sc-39749-SH, BMP-7 shRNA (h) Lentiviral Particles: sc-39748-V and BMP-7 shRNA (m) Lentiviral Particles: sc-39749-V.

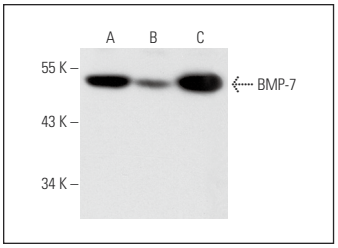
Molecular Weight of BMP-7: 55 kDa.

Positive Controls: F9 cell lysate: sc-2245, MIA PaCa-2 cell lysate: sc-2285 or mouse embryo extract: sc-364239.

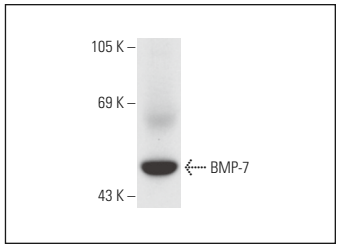
RESEARCH USE

For research use only, not for use in diagnostic procedures.

DATA



BMP-7 (4E7): sc-53917. Western blot analysis of BMP-7 expression in MIA PaCa-2 (**A**), NTERA-2 cl.D1 (**B**) and F9 (**C**) whole cell lysates.



BMP-7 (4E7): sc-53917. Western blot analysis of BMP-7 expression in mouse embryo tissue extract.

SELECT PRODUCT CITATIONS

1. Fiaschetti, G., et al. 2011. Bone morphogenetic protein-7 is a MYC target with prosurvival functions in childhood medulloblastoma. Oncogene 30: 2823-2835.
2. Morone, S., et al. 2012. Overexpression of CD157 contributes to epithelial ovarian cancer progression by promoting mesenchymal differentiation. PLoS ONE 7: e43649.
3. Gustafson, B., et al. 2015. BMP-4 and BMP antagonists regulate human white and beige adipogenesis. Diabetes 64: 1670-1681.
4. Prahasanti, C., et al. 2020. Exfoliated human deciduous tooth stem cells incorporating carbonate apatite scaffold enhance BMP-2, BMP-7 and attenuate MMP-8 expression during initial alveolar bone remodeling in wistar rats (rattusnorvegicus). Clin. Cosmet. Investig. Dent. 12: 79-85.
5. Cortez, M.A., et al. 2020. Bone morphogenetic protein 7 promotes resistance to immunotherapy. Nat. Commun. 11: 4840.
6. Chen, F., et al. 2021. Histone deacetylase 3 aberration inhibits Klotho transcription and promotes renal fibrosis. Cell Death Differ. 28: 1001-1012.
7. Luo, W., et al. 2021. BMP9-initiated osteogenic/odontogenic differentiation of mouse tooth germ mesenchymal cells (TGMCS) requires Wnt/β-catenin signalling activity. J. Cell. Mol. Med. 25: 2666-2678.
8. Albadrani, G.M., et al. 2021. Quercetin prevents myocardial infarction adverse remodeling in rats by attenuating TGF-β1/Smad3 signaling: different mechanisms of action. Saudi J. Biol. Sci. 28: 2772-2782.
9. Wei, S., et al. 2021. Hyperoside suppresses BMP-7-dependent PI3K/Akt pathway in human hepatocellular carcinoma cells. Ann. Transl. Med. 9: 1233.
10. Ma, R., et al. 2024. Targeting tumor heterogeneity by breaking a stem cell and epithelial niche interaction loop. Adv. Sci. 11: e2307452.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.