

BMP-2/4 (H-1): sc-137087

BACKGROUND

Tumor growth factor, or TGF β , is the prototypic member of a family of secreted proteins that regulate cellular proliferation and differentiation. Related proteins include the activins and the bone morphogenic proteins or BMPs. Like TGF β , the BMPs signal through a heteromeric receptor complex (TGF β R) composed of type I (TGF β RI) and type II (TGF β RII) receptors. Both the type I and the type II receptors contain an intrinsic serine/threonine kinase activity. Although signaling downstream of the TGF β R is poorly understood, several proteins have been implicated. Six TGF β /BMP effector proteins, designated Smad1-6, may function as tumor suppressors. Smad proteins have been suggested to be transcription factors, acting similarly to the Stat family which associates directly with activated receptors and then translocates to the nucleus. Evidence supporting this assertion is drawn from the observation that Smad3 physically associates with the TGF β R complex and that Smad1 is translocated to the nucleus 30-60 minutes after the addition of BMP-4.

REFERENCE

1. Wozney, J.M., et al. 1988. Novel regulators of bone formation: molecular clones and activities. *Science* 242: 1528-1534.
2. Massague, J. 1990. The transforming growth factor- β family. *Annu. Rev. Cell Biol.* 6: 597-641.
3. 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: BMP2 (human) mapping to 20p12.3, BMP4 (human) mapping to 14q22.2; Bmp2 (mouse) mapping to 2 F2, Bmp4 (mouse) mapping to 14 C1.

SOURCE

BMP-2/4 (H-1) is a mouse monoclonal antibody raised against amino acids 300-350 of BMP-2/4 of human origin.

PRODUCT

Each vial contains 200 μ g IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

BMP-2/4 (H-1) is available conjugated to agarose (sc-137087 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-137087 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-137087 PE), fluorescein (sc-137087 FITC), Alexa Fluor[®] 488 (sc-137087 AF488), Alexa Fluor[®] 546 (sc-137087 AF546), Alexa Fluor[®] 594 (sc-137087 AF594) or Alexa Fluor[®] 647 (sc-137087 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-137087 AF680) or Alexa Fluor[®] 790 (sc-137087 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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STORAGE

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

APPLICATIONS

BMP-2/4 (H-1) is recommended for detection of precursor and mature BMP-2 and BMP-4 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

BMP-2/4 (H-1) is also recommended for detection of precursor and mature BMP-2 and BMP-4 in additional species, including canine, bovine and porcine.

Molecular Weight of mature BMP-2: 54-56 kDa.

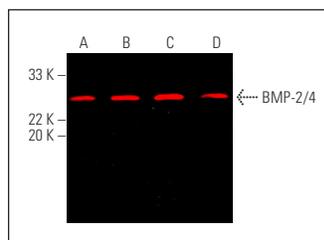
Molecular Weight of BMP-2 precursor: 14 kDa.

Molecular Weight of BMP-4 precursor: 25-27 kDa.

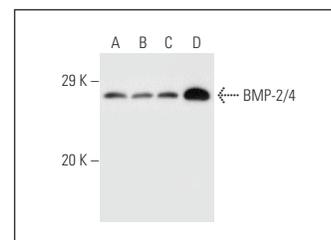
Molecular Weight of mature BMP-4: 14 kDa.

Positive Controls: SHP-77 whole cell lysate: sc-364258, SW480 cell lysate: sc-2219 or COLO 320DM cell lysate: sc-2226.

DATA



BMP-2/4 (H-1): sc-137087. Near-infrared western blot analysis of BMP-2/4 expression in SHP-77 (A), SW480 (B), COLO 320DM (C) and A549 (D) whole cell lysates. Blocked with UltraCruz[®] Blocking Reagent: sc-516214. Detection reagent used: m-IgG κ BP-CFL 790: sc-516181.



BMP-2/4 (H-1): sc-137087. Western blot analysis of BMP-2/4 expression in SHP-77 (A), A549 (B), SW480 (C) and COLO 320DM (D) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Kim, J.L., et al. 2012. Osteogenic activity of silymarin through enhancement of alkaline phosphatase and osteocalcin in osteoblasts and tibia-fractured mice. *Exp. Biol. Med.* 237: 417-428.
2. Diaz-Tocados, J.M., et al. 2017. Dietary magnesium supplementation prevents and reverses vascular and soft tissue calcifications in uremic rats. *Kidney Int.* 92: 1084-1099.
3. Willems, B.A., et al. 2018. Ucma/GRP inhibits phosphate-induced vascular smooth muscle cell calcification via Smad-dependent BMP signalling. *Sci. Rep.* 8: 4961.
4. Chu, C., et al. 2019. Evaluation of epigallocatechin-3-gallate (EGCG) modified collagen in guided bone regeneration (GBR) surgery and modulation of macrophage phenotype. *Mater. Sci. Eng. C Mater. Biol. Appl.* 99: 73-82.

RESEARCH USE

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