

#4697 Store at -20°C

Human BMP2

✓ 10 µg

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rev. 11/19/09

This product is intended for research purposes only. This product is not intended to be used for therapeutic or diagnostic purposes in humans or animals.

Entrez-Gene ID #650
Swiss-Prot Acc. #P12643

Molecular Wt.	Source	Purity
26 kDa	Human Recombinant Protein	>95%

Background: Bone morphogenetic proteins (BMPs) were first identified as molecules that can induce ectopic bone and cartilage formation (1,2). BMPs are synthesized as precursor proteins that are processed by cleavage to produce mature proteins. BMPs initiate signaling by binding to a receptor complex containing type I and type II serine/threonine receptor kinases that then phosphorylate Smad (mainly Smad1, 5 and 8), resulting in the translocation of Smad to the nucleus. BMP was also reported to activate MAPK pathways in some systems (3,4).

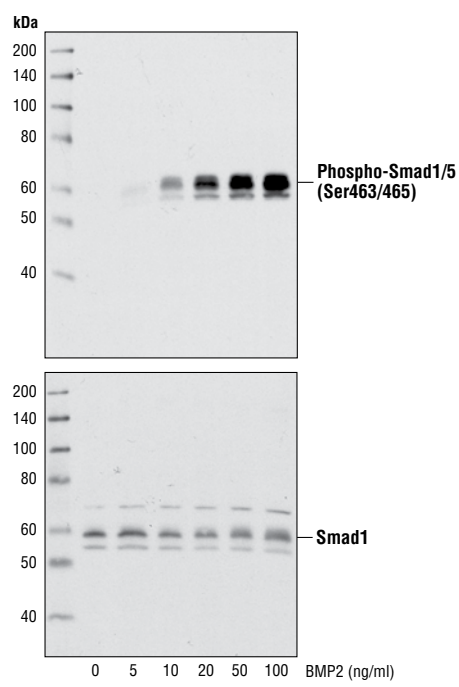
Source/Purification: Recombinant human BMP2 was prepared in *E. coli* and is supplied in a lyophilized form. A greater than 95% purity was determined by reverse-phase HPLC and SDS-PAGE.

Directions for Use: The working concentration of BMP2 generally ranges from 20-50 ng/ml.

Specific Activity: The ED₅₀ as determined by the cytolysis of MC3T3-E1 cells is less than 50 ng/ml.

Background References:

- (1) Wang, E.A. et al. (1988) *Proc Natl Acad Sci USA* 85, 9484-8.
- (2) Wozney, J.M. et al. (1988) *Science* 242, 1528-34.
- (3) Kawabata, M. et al. (1998) *Cytokine Growth Factor Rev* 9, 49-61.
- (4) Nohe, A. et al. (2004) *Cell Signal* 16, 291-9.



Western blot analysis of extracts from serum-starved HT-1080 cells, untreated and treated for 30 minutes with various concentrations of Human BMP2, using Phospho-Smad1/5 (Ser463/465) (41D10) Rabbit mAb #9516 (upper) and Smad1 Antibody #9743 (lower).

Storage: Lyophilized product is very stable at -20°C. It is recommended to reconstitute with 10 mM HCl at a concentration of 0.1 mg/ml, which can be further diluted in aqueous solutions as needed. Addition of a carrier protein (0.1% HSA or BSA) is recommended for long-term storage.

For application specific protocols please see the web page for this product at www.cellsignaling.com.

Please visit www.cellsignaling.com for a complete listing of recommended companion products.

Material Safety Data Sheet (MSDS) for BMP-2

I. Identification:

Product name: BMP-2
Product Catalog: 4697
Manufacturer Supplier: Cell Signaling Technology
 3 Trask Lane
 Danvers, MA 01923 USA
 978-867-2300 TEL
 978-867-2400 FAX
 978-578-6737 EMERGENCY TEL

II. Composition/Information:

III. Hazard Identification:

Substance Name: Bone morphogenetic protein 2
Synonyms: recombinant human BMP-2, Diboterminal alpha
CAS#: 246539-15-1

CAUTION: This product contains material of human origin and is not for use in humans. To the best of our knowledge, the chemical, physical, and toxicological properties of this material have not been established.

IV. First Aid Measures:

NFPA Rating: **Health:** 1 **Flammability:** 0 **Reactivity:** 0

Inhalation: If inhaled, remove to fresh air. If breathing is difficult, get medical attention.

Ingestion: If swallowed, wash out mouth with water provided person is conscious. Get medical attention.

Skin exposure: In case of contact, immediately wash skin with soap and water for at least 15 minutes. Remove contaminated clothing. Wash clothing before reuse.

Eye exposure: In case of contact with eyes, immediately flush eyes with water for at least 15 minutes. Get medical attention.

V. Fire Fighting Measures:

Flash Point: Data not available.

Autoignition Temperature: Data not available.

Explosion: Data not available.

Fire extinguishing media: Water spray, dry chemical, alcohol foam, or carbon dioxide.

Firefighting: Wear protective clothing and self-contained breathing apparatus to prevent contact with skin and eyes. May emit toxic fumes under fire conditions.

VI. Accidental Release Measures: Wear appropriate personal protective equipment as indicated in Section VIII. Sweep up material and avoid raising dust. Transfer to a closed chemical waste container for disposal. Wash spill site after material has been picked up for disposal.

VII. Handling And Storage:

Storage: Store in tightly closed container at -20°C.

Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling.

VIII. Exposure Controls/Personal:

Ventilation System: A system of local and/or general exhaust is recommended.

Skin Protection: Wear compatible chemical resistant gloves and protective clothing.

Eye protection: Wear protective safety glasses or chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

IX. Physical And Chemical Properties

Appearance: powder
pH: data not available
Melting Point: data not available
Boiling Point: data not available
Freezing Point: data not available
Volatile Organic Compounds: data not available
Solubility: data not available

X. Stability and Reactivity:

Stability: Very stable under normal conditions.

Materials to avoid: Strong acids, strong bases.

Hazardous Decomposition: Data not available.

XI. Toxicological Information:

Acute Effects: Not established. May cause irritation inhaled, ingested or absorbed.

Chronic Effects: Not established. May be harmful if inhaled, ingested or absorbed.

Potential Health Effects: Not established.

Inhalation: May be harmful, may be irritating to mucous membranes and upper respiratory tract.

Skin: May be harmful if absorbed through skin. May cause skin irritation.

Eyes: May cause eye irritation.

Ingestion: May be harmful if swallowed.

To the best of our knowledge, the chemical, physical, and toxicological properties of this material have not been thoroughly investigated.

XII. Ecological Information: Data not available for this product.

XIII. Disposal Considerations: Dispose of in accordance with federal, state, local environmental regulations.

XIV. Transport Information:

DOT: Proper Shipping Name: None.

Hazard Class: This substance is considered non-hazardous for transport.

IATA: Proper Shipping Name: None.

Non-Hazardous for air transport: This substance is considered non-hazardous for air transport.

XV. Regulatory Information:

EU Regulations/Classifications/Labeling Information: None.

US Regulatory Information:

SARA Listed: No.

Canada (WHMIS): DSL No, NDSL No.

XVI. Other Information:

This compound is sold only for research use only. It is not for use in humans. To the best of our knowledge, this document is accurate. It is intended to serve as a guide for safe use of this product in a laboratory setting by experienced personnel. The burden of safe use of this material rests entirely with the user. Cell Signaling Technology, Inc., shall not be held liable for any damage resulting from the handling of or from contact with the above product.