

DESCRIPTION

Species Reactivity	Human/Primate
Specificity	Detects human and primate BMP-9 in ELISAs. In sandwich immunoassays, less than 0.1% cross-reactivity with recombinant human (rh) BMP-3, rhBMP-4, rhBMP-5, rhBMP-6, rhBMP-7, and rhBMP-10 is observed.
Source	Polyclonal Goat IgG
Purification	Antigen Affinity-purified
Immunogen	<i>E. coli</i> -derived recombinant human BMP-9 Ser320-Arg429 Accession # Q9UK05
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with BSA as a carrier protein.

APPLICATIONS

Please Note: Optimal dilutions should be determined by each laboratory for each application. *General Protocols* are available in the *Technical Information* section on our website.

Human/Primate BMP-9 Sandwich Immunoassay	Reagent
ELISA Capture	2-8 µg/mL
ELISA Detection	0.1-0.4 µg/mL
Standard	Human/Mouse/Primate BMP-9 Antibody (Catalog # MAB3209) Human/Primate BMP-9 Biotinylated Antibody (Catalog # BAF3209) Recombinant Human BMP-9 (Catalog # 3209-BP)

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.2 mg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <ul style="list-style-type: none"> • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 6 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

Human BMP-9, also known as growth and differentiation factor 2 (GDF-2), is a member of the BMP subgroup of the TGF-β superfamily proteins that signal through heterodimeric complexes composed of type I and type II BMP receptors. BMP-9 regulates the development and function of a variety of embryonal and adult tissues (1, 2). The human BMP-9 cDNA encodes a 429 amino acid (aa) precursor that includes a 22 aa signal sequence, a 298 aa propeptide, and a 111 aa mature protein (3). Unlike with other BMP family proteins, the propeptide does not interfere with the biological activity of BMP-9 and remains associated with the mature peptide after proteolytic cleavage (4). Human and mouse BMP-9 share 96% aa sequence identity. Within the mature protein, human BMP-9 shares 64% aa sequence identity with human BMP-10 and less than 50% aa sequence identity with other BMPs. BMP-9 is expressed by non-parenchymal cells in the liver, (5, 6) where it promotes lipid metabolism and inhibits glucose production (7). BMP-9 exerts a prolonged hypoglycemic effect which may be due to an enhancement of insulin release (7). BMP-9 interacts with a high affinity specific heteromeric receptor expressed on liver endothelial cells that has been identified as ALK-1 (4-6). In the embryonal CNS, BMP-9 functions in the development and maintenance of the cholinergic neuronal phenotype (8-10). BMP-9 also induces the differentiation of mesenchymal stem cells into the chondrogenic lineage (11, 12). At low concentrations, BMP-9 is a proliferative factor for hematopoietic progenitor cells, but at higher concentrations, it enhances TGF-β1 production and inhibits hematopoietic progenitor colony formation (13).

References:

1. Chen, D. *et al.* (2004) *Growth Factors* **22**:233.
2. Miyazono, K. *et al.* (2005) *Cytokine Growth Factor Rev.* **16**:251.
3. Celeste, A.J. *et al.* (1994) *J. Bone Miner. Res.* **9**:S136.
4. Brown, M.A. *et al.* (2005) *J. Biol. Chem.* **280**:25111.
5. Song, J.J. *et al.* (1995) *Endocrinology* **136**:4293.
6. Miller, A.F. *et al.* (2000) *J. Biol. Chem.* **275**:17937.
7. Chen, C. *et al.* (2003) *Nat. Biotechnol.* **21**:294.
8. Lopez-Coviella, I. *et al.* (2000) *Science* **289**:313.
9. Lopez-Coviella, I. *et al.* (2005) *Proc. Natl. Acad. Sci.* **102**:6984.
10. Lopez-Coviella, I. *et al.* (2002) *J. Physiol. Paris* **96**:53.
11. Majumdar, M.K. *et al.* (2001) *J. Cell. Physiol.* **189**:275.
12. Hills, R.L. *et al.* (2005) *J. Orthoped. Res.* **23**:611.
13. Ploemacher, R.E. *et al.* (1999) *Leukemia* **13**:428.