

#### DESCRIPTION

<b>Species Reactivity</b>	Human
<b>Specificity</b>	Detects human GDF-11/BMP-11 in direct ELISAs. In direct ELISAs, no cross-reactivity with recombinant human BMP-6 or recombinant mouse GDF-8 is observed.
<b>Source</b>	Monoclonal Mouse IgG <sub>1</sub> Clone # 743833
<b>Purification</b>	Protein A or G purified
<b>Immunogen</b>	<i>E. coli</i> -derived recombinant human GDF-11/BMP-11 Asn299-Ser407 Accession # O95390
<b>Conjugate</b>	Alexa Fluor Plus 405 Excitation Wavelength: 404 nm Emission Wavelength: 455 nm
<b>Formulation</b>	Supplied 0.2 mg/mL in a saline solution containing BSA and Sodium Azide.  *Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions.

#### 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.

**Immunohistochemistry** Optimal dilution of this antibody should be experimentally determined.

#### DATA

##### PREPARATION AND STORAGE

**Shipping** The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.

**Stability & Storage** Protect from light. Do not freeze. 12 months from date of receipt, 2 to 8 °C as supplied

#### BACKGROUND

Growth Differentiation Factor 11 (GDF-11), also known as BMP-11, is a member of the TGF-β superfamily and is highly related to GDF-8. GDF-11 encodes a 407 amino acid (aa) prepropeptide which contains a signal sequence for secretion and an RXXR proteolytic processing site to yield a 109 aa residue carboxy-terminal mature protein (1). Mature GDF-11 contains the canonical 7-cysteine motif common to other TGF-β superfamily members; however, like the TGF-βs, Activins and GDF-8, GDF-11 also contains one extra pair of cysteine residues. At the amino acid sequence level, mature human, mouse, rat and chicken GDF-11 are 99-100% identical. GDF-11 and GDF-8 share 90% amino acid sequence identity within the mature protein. As detected by *in situ* hybridization, GDF-11 is expressed in diverse regions of the mouse embryo: tailbud, somitic precursors, limbs, mandibular and branchial arches, dorsal neural tube, odontoblasts, nasal epithelium, and particular regions of the brain (1, 2). Likewise, a targeted deletion of GDF-11 in mice results in a spectrum of abnormalities including palatal malformation, vertebral defects, elongated trunks with a reduced or absent tail, missing or malformed kidneys, and an increased number of neurons in the olfactory epithelium (2-5). An intriguing finding in the knockout mice was that the trunk elongation was due to an increase in the number of thoracic vertebrae (4). This implicates GDF-11 as the first secreted factor to influence the specification of segmental identity in vertebrates (3). In fact, GDF-11 does regulate expression of segmental transcription factors, the Hox genes (6). GDF-11 signals through the Activin type II receptors and induces phosphorylation of Smad2 to mediate axial patterning (7). Despite the strong expression in the limb throughout development, no limb abnormalities were found in the knockout mice. However, *in vitro* micromass studies indicate that GDF-11 inhibits myogenic and chondrogenic cell differentiation and may impact formation and development of the limb skeleton (6).

#### References:

1. Gamer, L.W. *et al.* (1999) *Dev. Biol.* **208**: 222.
2. Nakashima, M. *et al.* (1999) *Mech. Dev.* **80**:185.
3. Gad, J.M. and P.P.L. Tam (1999) *Curr. Biol.* **9**:R783.
4. McPherron, A.C. *et al.* (1999) *Nat. Genet.* **22**:260.
5. Esquela, A.F. and S.J. Lee (2003) *Dev. Biol.* **257**:356.
6. Gamer, L.W. *et al.* (2001) *Dev. Biol.* **229**:407.
7. Oh, S.P. *et al.* (2002) *Genes & Dev.* **16**:274.

#### PRODUCT SPECIFIC NOTICES

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