

DESCRIPTION

Species Reactivity	Human/Mouse
Specificity	Detects mouse Indian Hedgehog (Ihh) in direct ELISAs and Western blots. This antibody is specific for the N-terminal peptide of mouse Ihh (amino acids (aa) 66-240). In Western blots, this antibody does not cross-react with recombinant mouse (rm) Dhh (aa 23-198 or aa 199-396), rmlhh (aa 241-449), rhShh (aa 24-197), or rmShh (aa 25-198 or aa 199-437).
Source	Monoclonal Rat IgG _{2B} Clone # 187515
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	<i>E. coli</i> -derived recombinant mouse Indian Hedgehog Cys28-Gly202 Accession # P97812
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details.

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.

	Recommended Concentration	Sample
Western Blot	1 µg/mL	Recombinant Mouse Indian Hedgehog, N-Terminus (Catalog # 1705-HH)

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.5 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	<p>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</p> <ul style="list-style-type: none"> ● 12 months from date of receipt, -20 to -70 °C as supplied. ● 1 month from date of receipt, 2 to 8 °C, reconstituted. ● 6 months from date of receipt, -20 to -70 °C, reconstituted.

BACKGROUND

The *hedgehog* (*hh*) gene encoding a secreted protein was originally identified in *Drosophila* as a segment polarity gene. The vertebrate homologues of Hh comprise several proteins including sonic hedgehog (Shh), Indian hedgehog (Ihh), and Desert hedgehog (Dhh) (1). Hedgehog proteins are important signaling molecules during embryonic development and are highly conserved within and across species (1). Mouse and human Ihh share 100% amino acid (aa) identity in the signaling domain, while mouse Ihh and Shh share 90% aa identity in the N-terminal signaling domain. Ihh mRNA expression is detected in fetal lung, gut, stomach, liver, kidney, pancreas and strongly in cartilage, in growth regions of the developing bone (2, 3). Ihh, along with parathyroid hormone related protein, regulate the rate of chondrocyte proliferation and differentiation (4). Ihh is also involved in yolk sac vasculogenesis, playing an important role in differentiation of epiblast cells into endothelial and red blood cells (5). Mouse Ihh cDNA encodes a 411 aa polypeptide with a predicted 27 aa signal peptide. This polypeptide is cleaved to generate a 45 kDa precursor protein that undergoes the same post-translation processing as Shh (3). An autocatalytic reaction yields a 19 kDa amino-terminal domain Ihh-N protein that retains all known signaling capabilities, and a 23 kDa carboxy-terminal domain Ihh-C protein (3). Since hydrophobic modifications to Shh, including the substitution of the N-terminal cysteine residue with two hydrophobic isoleucine residues, can also increase its potency (6), a similar modification was made for Ihh. This modified form also shows increased potency in a bioassay measuring induction of alkaline phosphatase. At the cell surface, Hedgehog activity is mediated by a multicomponent receptor complex involving the 12-pass transmembrane protein Patched (Ptc) which binds Hedgehogs with high affinity and Smoothened (Smo), a signaling seven transmembrane G-protein coupled receptor (1).

References:

1. Ingham, P. and A. McMahon (2001) *Genes & Dev.* **15**:3059.
2. Marigo, V. *et al.* (1995) *Genomics* **28**:44.
3. Valentini, R.P. *et al.* (1997) *J Biol Chem.* **272**:8466.
4. Vortkamp, A. *et al.* (1996) *Science* **273**:613.
5. Byrd, N. *et al.* (2002) *Development* **129**:361.
6. Taylor, F.R. *et al.* (2001) *Biochemistry* **40**:4359.