

## DESCRIPTION

<b>Species Reactivity</b>	Mouse
<b>Specificity</b>	Detects mouse Hip in direct ELISAs and Western blots.
<b>Source</b>	Monoclonal Rat IgG <sub>2A</sub> Clone # 217413
<b>Purification</b>	Protein A or G purified from hybridoma culture supernatant
<b>Immunogen</b>	Mouse myeloma cell line NS0-derived recombinant mouse Hip Met1-Arg678 Accession # AAD31172
<b>Formulation</b>	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
<b>Western Blot</b>	1 µg/mL	Recombinant Mouse Hip (Catalog # 1568-HP)

## PREPARATION AND STORAGE

<b>Reconstitution</b>	Reconstitute at 0.5 mg/mL in sterile PBS.
<b>Shipping</b>	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
<b>Stability &amp; Storage</b>	<p><b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b></p> <ul style="list-style-type: none"> <li>• 12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>• 1 month, 2 to 8 °C under sterile conditions after reconstitution.</li> <li>• 6 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

## BACKGROUND

Hedgehog signaling proteins act as mitogens, morphogens, or inducing factors in many different cell types during embryonic development. They aid in growth, patterning, and morphogenesis in both vertebrates and insects (1). Hip (Hedgehog-interacting protein) is a type I transmembrane protein identified for its ability to bind biologically active Sonic Hedgehog. It is comprised of 700 aa, and includes a hydrophobic signal sequence, two EGF-like domains near the C-terminus, and a 22 amino acid membrane-spanning region at the C-terminal end (2). Hip has only been identified in vertebrates and binds all three mammalian Hedgehogs: sonic (Shh), desert (Dhh), and Indian (Ihh). Like the Hedgehog receptor Patched, Hip is a transcriptional target of Hedgehog signaling (2). Unlike Patched, Hip's ability to bind hedgehogs is not involved in transducing a signal intracellularly, rather it regulates the availability of Hedgehog ligand extracellularly (3). Transgenic mice overexpressing Hip in proliferating chondrocytes display skeletal defects similar to those observed in Ihh mutant mice. These results indicate that Hip is involved in attenuating Hedgehog signaling (2). The expression pattern of Hip correlates with its ability to interact with all three mammalian Hedgehogs. It is expressed in a variety of organs, adjacent with sites of hedgehog expression. For instance, Shh is expressed in the epithelium of the lung, and Hip is found in the underlying lung mesenchyme (2). In fact, Hip knock-out mice exhibit neonatal lethality with respiratory failure due to defective branching morphogenesis. This phenotype correlates with altered expression of Shh markers suggesting an increase in Shh signaling (3). Interestingly, other developmental mechanisms that rely on normal Shh signaling, such as dorsal-ventral patterning of the neural tube, development of the somites, and organ laterality appeared histologically normal in Hip<sup>-/-</sup> mice (3). Mouse and human Hip share 94% amino acid identity through the entire protein sequence (4).

## References:

1. Ingham, P.W. and A.P. McMahon (2001) *Genes & Dev* **15**:3059.
2. Chuang, P-T. and A.P. McMahon (1999) *Nature* **397**: 17.
3. Chuang, P-T. *et al.* (2003) *Genes & Dev.* **17**:342.
4. Bak, M. *et al.* (2001) *Cytogenet. Cell Genet.* **92**:300.