

## Monoclonal Antibody to ISM1 - Purified

**Alternate names:** C20orf82, ISM, Isthmin-1

**Catalog No.:** AM33075PU-S

**Quantity:** 25 µg

**Concentration:** 0.5 mg/ml

**Background:** Isthmin is a secreted protein, and it was initially identified in the *Xenopus* midbrain-hindbrain organizer (MHB) or isthmus organizer, where it is highly expressed. The MHB is an important signaling center in vertebrates and regulates the polarized morphological differentiation of the adjacent tectum and cerebellum. Mouse Isthmin is a 454 amino acid protein containing a Thrombospondin Type 1 Repeat (TSR) domain in the central region and an Adhesion-associated domain in MUC4 and Other Proteins (AMOP) domain at the C-terminal. The TSR domains are highly conserved with 98% identity between mouse and human; 87-88% identity between mouse and *Xenopus*. The C-terminal AMOP domains are also highly conserved with 99% identity between mouse and human; 91% identity between mouse and *Xenopus*. Mouse isthmin nucleotide sequence is similar to the human chromosome 20 open reading frame 82 (C20orf82). The *Ism1* gene is conserved in human, chimpanzee, dog, cow, chicken, and zebrafish. Isthmin has angiostatic activity *in vitro* and *in vivo*. Isthmin inhibits EC capillary network formation mainly by interfering with the early stages of *in vitro* angiogenesis on matrigel. Isthmin inhibits VEGF-induced EC proliferation and induces apoptosis in the presence of VEGF. Overexpression of isthmin in B16 melanoma inhibits tumor growth and tumor angiogenesis in mice. Knockdown of isthmin in zebrafish embryos leads to abnormal intersegmental vessel (ISV) formation in the trunk.  
**Structure:** 454 aa with a predicted molecular weight of 51 kD.  
**Distribution:** Isthmin is highly expressed in the midbrain-hindbrain organizer.  
**Function:** Isthmin has angiostatic activity *in vitro* and *in vivo*.  
**Interaction:** Isthmin interacts with endothelial cells.

**Uniprot ID:** [A2ATD1](#)

**NCBI:** [NP\\_001119962.1](#)

**GeneID:** [319909](#)

**Host / Isotype:** Rat / IgG2a

**Recommended** SM15P, SM15PX

**Isotype Controls:**

**Clone:** B058E2

**Immunogen:** Full length Mouse Isthmin 1 recombinant protein.

- Format:** **State:** Liquid purified IgG fraction  
**Purification:** Affinity Chromatography  
**Buffer System:** PBS, pH 7.2  
**Preservatives:** 0.05% Sodium Azide
- Applications:** **Western blot:** Each lot of this antibody is quality control tested.  
Use 1 µg/ml antibody dilution buffer for each mini-gel.  
Other applications not tested. Optimal dilutions are dependent on conditions and should be determined by the user.
- Molecular Weight:** 51 kDa (Predicted)
- Specificity:** This *B058E2* monoclonal antibody recognizes Mouse Isthmin-1 and **does not** cross-react with Human.
- Species Reactivity:** **Tested:** Mouse.
- Storage:** Store undiluted at 2-8°C.  
**DO NOT FREEZE!**  
Shelf life: one year from despatch.
- General Readings:** 1. Pera EM, Kim JI, Martinez SL, Brechner M, Li SY, Wessely O, et al. Isthmin is a novel secreted protein expressed as part of the Fgf-8 synexpression group in the *Xenopus* midbrain-hindbrain organizer. *Mech Dev.* 2002 Aug;116(1-2):169-72. PubMed PMID: 12128218.  
2. Xiang W, et al. 2009. *J. Cell. Mol. Med.* 15:359.  
3. Zhang Y, Chen M, Venugopal S, Zhou Y, Xiang W, Li YH, et al. Isthmin exerts pro-survival and death-promoting effect on endothelial cells through  $\alpha$ 5 $\beta$ 1 integrin depending on its physical state. *Cell Death Dis.* 2011 May 5;2:e153. doi: 10.1038/cddis.2011.37. PubMed PMID: 21544092.
- Pictures:** **Western Blot analysis:** 100 ng of recombinant mouse isthmin was resolved by electrophoresis, transferred to nitrocellulose, and probed with anti-Isthmin-1 Antibody Cat.-No AM33075PU (Clone B058E2). Proteins were visualized using a Goat anti-Rat IgG secondary conjugated to HRP and chemiluminescence detection.

