

Phospho-SMAD2(T220) Antibody Blocking peptide
Synthetic peptide
Catalog # BP3675a**Specification****Phospho-SMAD2(T220) Antibody Blocking peptide**
- Product InformationPrimary Accession [Q15796](#)**Phospho-SMAD2(T220) Antibody Blocking peptide**
- Additional Information**Gene ID 4087****Other Names**

Mothers against decapentaplegic homolog 2, MAD homolog 2, Mothers against DPP homolog 2, JV18-1, Mad-related protein 2, hMAD-2, SMAD family member 2, SMAD 2, Smad2, hSMAD2, SMAD2, MADH2, MADR2

Target/Specificity

The synthetic peptide sequence used to generate the antibody [AP3675a](/products/AP3675a) was selected from the region of human Phospho-SMAD2-T220. A 10 to 100 fold molar excess to antibody is recommended. Precise conditions should be optimized for a particular assay.

Format

Peptides are lyophilized in a solid powder format. Peptides can be reconstituted in solution using the appropriate buffer as needed.

Storage

Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C.

Precautions

This product is for research use only. Not for use in diagnostic or therapeutic procedures.

Phospho-SMAD2(T220) Antibody Blocking peptide
- Protein Information**Phospho-SMAD2(T220) Antibody Blocking peptide - Background**

SMAD2 is a 58 kDa member of a family of proteins involved in cell proliferation, differentiation and development. The Smad family is divided into three subclasses: receptor-regulated Smad's, activin/TGF β receptor-regulated (Smad2 and 3) or BMP receptor regulated (Smad1, 5, and 8); the common partner, (Smad4) that functions via its interaction to the various Smad's; and the inhibitory Smad's, (Smad6 and Smad7). Smad2 consists of two highly conserved domains, the N terminal Mad homology (MH1) and the C-terminal Mad homology 2 (MH2) domains. The MH1 domain binds DNA and regulates nuclear import and transcription while the MH2 domain conserved among all the Smad's regulates Smad2 oligomerization and binding to cytoplasmic adaptors and transcription factors. Activated Smad2 associates with Smad4 and translocates as a complex into the nucleus, allowing its binding to DNA and transcription factors. This translocation of Smad2 (as well as Smad3) into the nucleus is a central event in TGF β signaling. Phosphorylation of threonine 8 in the calmodulin binding region of the MH1 domain by extracellular signal regulated kinase 1 (ERK 1) enhances Smad2 transcriptional activity, which is negatively regulated by calmodulin. The regulation of Smad2 phosphorylation on threonine 8 by ERK 1 and calmodulin is critical for Smad2 mediated signaling.

Phospho-SMAD2(T220) Antibody Blocking peptide - References

Papageorgis, P., et.al., Cancer Res. 70 (3), 968-978 (2010) Funaba, M., et.al., J. Biol. Chem. 277 (44), 41361-41368 (2002)

Name SMAD2

Synonyms MADH2, MADR2

Function

Receptor-regulated SMAD (R-SMAD) that is an intracellular signal transducer and transcriptional modulator activated by TGF-beta (transforming growth factor) and activin type 1 receptor kinases. Binds the TRE element in the promoter region of many genes that are regulated by TGF-beta and, on formation of the SMAD2/SMAD4 complex, activates transcription. May act as a tumor suppressor in colorectal carcinoma. Positively regulates PDPK1 kinase activity by stimulating its dissociation from the 14-3-3 protein YWHAQ which acts as a negative regulator.

Cellular Location

Cytoplasm. Nucleus. Note=Cytoplasmic and nuclear in the absence of TGF-beta. On TGF-beta stimulation, migrates to the nucleus when complexed with SMAD4 (PubMed:9865696, PubMed:21145499). On dephosphorylation by phosphatase PPM1A, released from the SMAD2/SMAD4 complex, and exported out of the nucleus by interaction with RANBP1 (PubMed:16751101, PubMed:19289081). Localized mainly to the nucleus in the early stages of embryo development with expression becoming evident in the cytoplasm at the blastocyst and epiblast stages (By similarity)
{ECO:0000250|UniProtKB:Q62432,
ECO:0000269|PubMed:16751101,
ECO:0000269|PubMed:19289081,
ECO:0000269|PubMed:21145499,
ECO:0000269|PubMed:9865696}

Tissue Location

Expressed at high levels in skeletal muscle, endothelial cells, heart and placenta.

Phospho-SMAD2(T220) Antibody Blocking peptide - Protocols

Provided below are standard protocols that you may find useful for product applications.

- [Blocking Peptides](#)