

Recombinant Human SMAD5 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP50903

Size: 10ug, 100ug

Protein Name: SMAD family member 5 (SMAD 5) (hSmad5) (JV5-1) (Mothers against decapentaplegic homolog 5) (MAD homolog 5) (Mothers against DPP homolog 5)

Synonym: SMAD5, MADH5

UniProt ID: Q99717

UniProt Link: www.uniprot.org/uniprotkb/Q99717/entry

Species Source: Human

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 465 AA

Molecular Weight: 52 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MTSMASLFSFTSPAVKRLLGWKQGDEEEKWAEKAVDALVKKLKKKKGAMEEELKALSSPGQPSKC
VTIPRSLDGRLLQVSHRKGLPHVIYCRVWRWPDQLQSHHELKPLDICEFPFGSKQKEVCINPYHYKRVE
SPVLPPVLVPRHNEFNPNQHSLLVQFRNLSHNEPHMPQNATFPDSFHQPNNTPFPLSPNSPYPPSPA
SSTYPNSPASSGPGSPFQLPADTPPPAYMPPDDQMGQDNSQPMDTSNMIPQIMPSSISSRDVQPV
AYECPKHWCISIVYYELNNRVGEAFHASSTSVLVDGFTDPSNNKSRFCLGLLSNVNRNSTIENTRRHI
GKGVHLYYVGGEVYAECLSDSSIFVQSRNCNFHHGFHPTTVCKIPSSCSLKIFNNQEFAQLLAQSVN
HGFEAVYELTKMCTIRMSFVKGWGAHEYHRQDVTSTPCWIEIHLHGPLQWLDKVLTKMGSPLNPISS
VS

3. Buffer Composition

Liquid format: PBS-based buffer containing 50% glycerol. Glycerol concentration can be customized upon customer request; please state special requirements when placing your order.

Lyophilized format: Buffer before lyophilization is PBS supplemented with 6% trehalose.

4. Storage Conditions

Upon receipt, store the product at -20 °C or -80 °C. Aliquot the product for on-demand use to preserve protein activity and prevent denaturation and inactivation caused by repeated freeze-thaw cycles.

5. Product Description

This product is recombinant SMAD family member 5 (SMAD 5) (hSmad5) (JV5-1) (Mothers against decapentaplegic homolog 5) (MAD homolog 5) (Mothers against DPP homolog 5) produced using the HEK293T eukaryotic cell expression system. It is suitable for in-vitro functional assays, protein-protein interaction studies, antibody preparation and other biomedical research applications.

Protein Function: Transcriptional regulator that plays a role in various cellular processes including embryonic development, cell differentiation, angiogenesis and tissue homeostasis (PubMed:12064918, PubMed:16516194). Upon BMP ligand binding to their receptors at the cell surface, is phosphorylated by activated type I BMP receptors (BMPRI) and associates with SMAD4 to form a heteromeric complex which translocates into the nucleus acting as transcription factor (PubMed:9442019). In turn, the hetero-trimeric complex recognizes cis-regulatory elements containing Smad Binding Elements (SBEs) to modulate the outcome of the signaling network (PubMed:33510867). Non-phosphorylated SMAD5 has a cytoplasmic role in energy metabolism regulation by promoting mitochondrial respiration and glycolysis in response to cytoplasmic pH changes (PubMed:28675158). Mechanistically, interacts with hexokinase 1/HK1 and thereby accelerates glycolysis (PubMed:28675158).

Subcellular Localization: Cytoplasm . Nucleus . Mitochondrion . Note=Cytoplasmic in the absence of ligand. Migrates to the nucleus when complexed with SMAD4.

6. Notes

- Avoid repeated freeze-thaw cycles to maintain protein stability and biological activity.
- Please specify special buffer-composition requirements at the time of order placement.
- For research use only. Not intended for clinical diagnosis, therapeutic use or commercial manufacturing.