

SMAD3 Protein, Human/Mouse/Rat (sf9, His-GST)

Cat. No.:	HY-P73636
Synonyms:	Mothers against decapentaplegic homolog 3; mMad3; Smad3; Madh3
Species:	Rat
Source:	Sf9 insect cells
Accession:	Q8BUN5 (M1-S425)
Gene ID:	17127
Molecular Weight:	Approximately 75.9 kDa

PROPERTIES

Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 µm filtered solution of 20 mM Tris, 500 mM NaCl, 2 mM GSH, 10% Glycerol, pH 7.4. Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween 80 are added as protectants before lyophilization.
Endotoxin Level	<1 EU/µg, determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH ₂ O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	<p>The SMAD3 protein serves as a receptor-regulated SMAD (R-SMAD), functioning as an intracellular signal transducer and transcriptional modulator activated by TGF-beta and activin type 1 receptor kinases. It binds the TRE element in the promoter region of genes regulated by TGF-beta, and upon forming the SMAD3/SMAD4 complex, activates transcription. Additionally, SMAD3 can form a SMAD3/SMAD4/JUN/FOS complex at the AP-1/SMAD site to regulate TGF-beta-mediated transcription. This protein plays a role in wound healing, potentially modulating the growth and migration of primary keratinocytes and altering TGF-mediated chemotaxis of monocytes, with its impact on wound healing being hormone-sensitive. SMAD3 also acts as a regulator of chondrogenesis and osteogenesis and inhibits the early healing of bone fractures. Furthermore, it positively regulates PDPK1 kinase activity by stimulating its dissociation from the negative regulator 14-3-3 protein YWHAQ. The protein exists as a monomer in the absence of TGF-beta and forms a homooligomer in its presence, or a heterotrimer with C-terminally phosphorylated SMAD2 or SMAD3 and SMAD4 to form the transcriptionally active SMAD2/SMAD3-SMAD4 complex. SMAD3 interacts with various proteins involved in diverse cellular processes, including signal transduction, transcriptional regulation, ubiquitination, and protein-protein interactions.</p>
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Caution: Product has not been fully validated for medical applications. For research use only.

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