

Class: SMAD2	
Attributes:	
Molecule Type:	Protein
Primary Sequence:	
Source:	NCBI
Accession Number:	gi: 51173730
Synonyms:	MADH2, MADR2
Molecular Weight (kDa):	52
Cellular location:	GO:0005737: cytoplasm GO:0005634: nucleus
Chromosome location:	18q21.1
Structure:	
Domain Information:	CDD: 14787 : MH1 domain; MH1 is a small DNA binding domain, binding in an unusual way involving a beta hairpin structure binding to the major groove CDD: 14788 : MH2 domain; C terminal domain of SMAD family proteins, responsible for receptor interaction, transactivation, and homo- and heterooligomerization; also known as Domain B in dwarfin family proteins
Modifications:	GO:0042301: phosphate binding (phosphorylate) GO:0043130: ubiquitin binding (ubiquitinated) GO:0042803: protein homodimerization activity (dimerize) GO:0042803: "trimerize" GO:0007183: Smad protein heteromerization
Processes involved in:	GO:0007179: TGF-beta receptor signaling pathway GO:0007181: TGF-beta receptor complex assembly GO:0043037: Translation GO:0005160: TGF-beta receptor binding GO:0030579: ubiquitin-dependent Smad protein catabolism GO:0007184: Smad protein nuclear translocation GO:0008134: transcription factor binding
Responsibilities:	Collaborators:
SMAD2 propagates the TGF-beta signal via its phosphorylation by TGF-beta RI, which activates the SMAD2 protein and promotes gene expression	TGF-beta RI (Wu et al., 2001)
Trimerization for SMAD2 binding and nuclear translocation	SMAD2 (Kawabata et al., 1998)
Heterodimerization for SMAD4 binding and nuclear translocation	SMAD3 (Nakao et al., 1997)
Smad2 binds to SMAD4 facilitating Smad4 translocation to the nucleus where it binds to DNA	SMAD4 (Souchelnytskyi et al., 1997)
SARA recruits SMAD2 to the TGF-beta receptors facilitating SMAD2 phosphorylation	SARA (Tsukazaki et al., 1998, Wu et al., 2000)
E2 conjugating enzyme begins ubiquitination process for degradation of SMAD2	Ubch5b/c (Lin et al., 2000, Zhang et al., 2001)
Mediates proteasome-dependent degradation of activated SMAD2 via its E3 conjugating activity	Smurf2 (Lin et al., 2000)
Protein complex used for the degradation of SMAD2 to downregulate the TGF-beta signaling pathway	26S proteasome (Lo and Massague, 1999)

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