

## COMP Protein, Human, Recombinant (His)

### General Information

Synonyms:	THBS5;MED;EPD1;PSACH;cartilage oligomeric matrix protein;EDM1
Protein Construction:	A DNA sequence encoding the human COMP (NP_000086.2) precursor (Met 1-Ala 757) was expressed with a C-terminal polyhistidine tag. Predicted N terminal: Gln 21
Species:	Human
Expression Host:	HEK293 Cells
Accession:	P49747-1
Molecular Weight:	82.4 kDa (predicted); 120-130 kDa (reducing condition, due to glycosylation)

### QC Testing

Biological Activity:	Measured by its ability to induce adhesion of ATDC5 mouse chondrogenic cells. When cells are added to COMP-coated plates (0.625 µg/mL and 100 µL/well), approximately >30% cells will adhere specifically after 60 minutes at 37°C.
Purity:	> 80 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/µg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 µm filter, containing PBS, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

### Preparation and Storage

**Reconstitution:**  
Reconstituted with sterile deionized water to 0.25 mg/mL. Reconstitution conditions may vary depending on the lot.

#### Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

#### Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

### Protein Background

Cartilage Oligomeric Matrix Protein (COMP), also referred to as Thrombospondin-5, is a non-collagenous extracellular matrix (ECM) protein and belongs to the subgroup B of the thrombospondin protein family. This protein is expressed primarily in cartilage, ligament, and tendon, and binds to other ECM proteins such as collagen I, II and IX with high affinities depending on the divalent cations Zn<sup>2+</sup> or Ni<sup>2+</sup>. COMP is a secreted glycoprotein that

is important for growth plate organization and function. It is suggested to play a role in cell growth and development, and recent studies have revealed the possible mechanism that it protects cells against death by elevating members of the IAP (inhibitor of apoptosis protein) family of survival proteins. Mutations in COMP cause two skeletal dysplasias, pseudoachondroplasia (PSACH) and multiple epiphyseal dysplasia (EDM1), and up-regulated expression of COMP are observed in rheumatoid arthritis and certain carcinomas.

### Reference

- Posey KL, et al. (2004) Role of TSP-5/COMP in pseudoachondroplasia. *Int J Biochem Cell Biol.* 36(6): 1005-12.
- Chen FH, et al. (2005) Interaction of cartilage oligomeric matrix protein/thrombospondin 5 with aggrecan. *J Biol Chem.* 282(34): 24591-8.
- Posey KL, et al. (2008) The role of cartilage oligomeric matrix protein (COMP) in skeletal disease. *Curr Drug Targets.* 9(10): 869-77.
- Tan K, et al. (2009) The crystal structure of the signature domain of cartilage oligomeric matrix protein: implications for collagen, glycosaminoglycan and integrin binding. *FASEB J.* 23(8): 2490-501.

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