Data Sheet (Cat.No.TMPY-01724)

TargetMol

Osteoprotegerin Protein, Human, Recombinant (His)

General Information

Synonyms:	OCIF;OPG;MGC29565;TR1;PDB5;tumor necrosis factor receptor superfamily member 11b
Protein Construction:	A DNA sequence encoding the human TNFRSF11B (NP_002537.3) (Met 1-Leu 401) was fused with a polyhistidine tag at the C-terminus. Predicted N terminal: Glu 22
Species:	Human
Expression Host:	HEK293 Cells
Accession:	O00300
Molecular Weight:	45.3 kDa (predicted); 55 kDa (reducing condition, due to glycosylation)

QC Testing

Biological Activity:	Immobilized Osteoprotegerin Protein, Human, Recombinant (His Tag) at 2 μg/mL (100 μL/well) can bind RANKL Protein, Human, Recombinant (ECD, hFc Tag), the EC50 is 13-64 ng/mL.
Purity:	> 97 % 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:

A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

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

Osteoprotegerin or TNFRSF11B is a member of the TNF-receptor superfamily. This protein is an osteoblast-secreted decoy receptor that functions as a negative regulator of bone resorption. This protein specifically binds to its ligand, osteoprotegerin ligand, both of which are key extracellular regulators of osteoclast development. Studies of the mouse counterpart also suggest that this protein and its ligand play a role in lymph-node organogenesis

and vascular calcification. Alternatively spliced transcript variants of this gene have been reported, but their full length nature has not been determined. Osteoprotegerin/TNFRSF11B acts as decoy receptor for RANKL and thereby neutralizes its function in osteoclastogenesis. This protein may inhibit the activation of osteoclasts and promotes osteoclast apoptosis in vitro. Bone homeostasis seems to depend on the local RANKL/OPG ratio. Osteoprotegerin/TNFRSF11B also play a role in preventing arterial calcification, act as decoy receptor for TRAIL and protect against apoptosis. TRAIL binding blocks the inhibition of osteoclastogenesis.

Reference

Collin-Osdoby P. (2005) Regulation of vascular calcification by osteoclast regulatory factors RANKL and osteoprotegerin. Circ Res. 95 (11): 1046-57.
Boyce BF, et al. (2007) Biology of RANK, RANKL, and osteoprotegerin. Arthritis Res. Ther. 9 Suppl 1: S1.
Blázquez-Medela AM, et al. (2011) Osteoprotegerin and diabetes-associated pathologies. Curr Mol Med. 11 (5): 401-16.

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