Recombinant Human SOST/Sclerostin His-tag

Catalog Number: 10962-ST

DESCRIPTION

Source	Chinese Hamster Ovary cell line, CHO-derived human SOST/Sclerostin protein Gln24-Tyr213, with a N-terminal 7-His tag Accession # Q9BQB4.1
N-terminal Sequence Analysis	His of Tag
Predicted Molecular Mass	22 kDa

SPECIFICATIONS

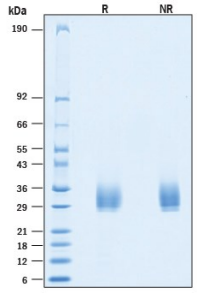
SDS-PAGE	25-35 kDa, under reducing conditions.
Activity	Measured by its ability to inhibit Wnt-3a-induced alkaline phosphatase production by MC3T3-E1 mouse preosteoblast cells. The ED_{50} for this effect is 1.50-6.00 µg/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 500 µg/mL in PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 3 months, -20 to -70 °C under sterile conditions after reconstitution.

DATA

SDS-PAGE



Recombinant Human SOST/Sclerostin His-tag Protein SDS-PAGE. 2 µg/lane of Recombinant Human SOST/Sclerostin His-tag Protein (Catalog # 10962-ST) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 25-35 kDa.

BACKGROUND

Sclerostin (SOST) is a member of the Cerberus/differential screening-selected gene in neuroblastoma (DAN) family, a group of secreted glycoproteins characterized by a cysteine-knot motif. The Cerberus/DAN family consists of multiple members originally identified as putative BMP antagonists including Dan, SOST, Cerberus, Gremlin, USAG-1, PRDC, and Coco (1, 2). While the overall sequence identity between family members is low, they have conserved spacing of six cysteine residues in the C-terminus which form the structurally conserved cysteine-knot motif. Cerberus and Dan have an additional cysteine residue used for dimerization; however, SOST does not and is secreted as a monomer (1). Mature human SOST shares 90% amino acid sequence identity with mouse and rat SOST. SOST appears to be the first example of a BMP antagonist predominately localized to osteoclasts and functions as an important regulator of bone homeostasis by inhibiting bone mineralization (3). SOST has been shown to have unique ligand specificity by binding directly to BMP-5, -6, and -7 with high affinity and BMP-2 and -4 with low affinity thereby repressing BMP-induced osteogenesis (4). Mutations in the SOST gene can cause several bone dysplasia disorders characterized by progressive skeletal overgrowth including sclerosteosis and van Buchem disease (5). Additionally, SOST has been shown to be a strong Wnt antagonist by directly binding the Wnt co-receptors LRP5 and LRP6 (6).

References:

1. Nolan, K. and Thompson, T.B. (2014) Protein Sci. **23**:999.
2. Balemans, W. *et al.* (2001) Hum. Mol. Genet. **10**:537.
3. van Bezooijen, R.L. *et al.* (2004) J. Exp. Med. **199**:805.
4. Kusu, N. *et al.* (2003) J. Biol. Chem. **278**:24113.
5. Brunkow, M.E. *et al.* (2001) Am. J. Hum. Genet. **68**:577.
6. Kim, J. *et al.* (2020) Nat Commun **11**:5357.

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