Recombinant Human Osteocrin

Catalog Number: 9669-ON

DESCRIPTION

Source	*E. coli*-derived human Osteocrin protein Val28-Gly133, with a C-terminal 6-His tag Accession # P61366
N-terminal Sequence Analysis	Val28
Predicted Molecular Mass	13 kDa

SPECIFICATIONS

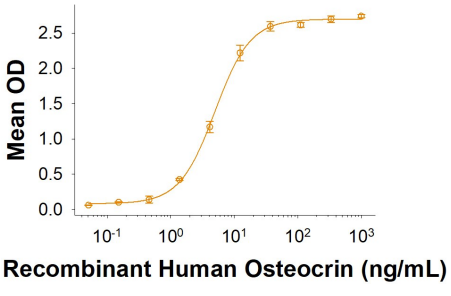
SDS-PAGE	18 kDa, reducing conditions
Activity	Measured by its binding ability in a functional ELISA. When Recombinant Human NPRC/NPR3 Fc Chimera (Catalog # 10233-NR) is immobilized at 2 µg/mL (100 µL/well), the concentration of Recombinant Human Osteocrin that produces 50% of the optimal binding response is 2-20 ng/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 250 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

Binding Activity



When Recombinant Human NPRC/NPR-3 Fc Chimera (Catalog # 10233-NR) is immobilized at 2 µg/mL, Recombinant Human Osteocrin (Catalog # 9669-ON) binds with an ED_{50} of 2-20 ng/mL.

BACKGROUND

Osteocrin, also known as Musclin, is a secreted protein that is primarily expressed in bone and muscle. It is synthesized as a proprotein (11 kDa) that undergoes proteolytic processing to generate a mature 50 amino acids (5 kDa) C-terminal peptide (1). It was found to modulate osteoblast differentiation and to regulate glucose metabolism in muscles (2). Human Osteocrin proprotein shares 77% and 78% amino acid sequence identity with the rat and mouse protein, respectively. Secretion of Osteocrin has been shown to be increased with exercise and is associated with metabolically beneficial formation of brown fat (3). Osterocrin has also been attributed to increases in exercise endurance through promotion of mitochondrial biosynthesis (4). Based on similarities with NPs (natriuretic peptides), Osteocrin was found to interact with NP clearance receptor NPR-C. This interaction is thought to modulate the availability of NPs, importantly increasing CNP which has been shown to stimulate endochondral ossification and elongate bones (5). In primates, Osteocrin may have evolved to regulate neuronal structure and function (6).

References:

1. Nishizawa, H. *et al.* (2004) J Bio Chem **279**:19391.
2. Thomas, G. *et al.* (2003) J Bio Chem **278**:50563.
3. Jeramic, N. *et al.* (2017) J Cell Physiol **232**:61.
4. Subbatino, E. *et al.* (2015) Proc Natl Acad Sci U S A **112**:16042.
5. Kanai, Y. *et al.* (2017) J of Clin Invest **127**:4136.
6. Ataman, B. *et al.* (2016) Nature **539**:242.

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