

## Recombinant Human Osteoprotegerin Fc Chimera (Human OPG-Fc)

### Product Information

Product Name	Cat#	Size
	92527ES10	10 µg
Recombinant Human Osteoprotegerin Fc Chimera (Human OPG-Fc)	92527ES60	100 µg
	92527ES76	500 µg

### Product Description

Osteoprotegerin (OPG), also called OCIF (osteoclastogenesis inhibitory factor) is a secreted 55-60 kDa protein that regulates bone density. As a member of the tumor necrosis factor receptor (TNFR) superfamily of proteins, it is designated TNFRSF11B. Human OPG cDNA encodes 401 amino acids (aa) including a 21 aa signal peptide and a 380 aa mature soluble protein with four TNFR domains, two death domains and a heparin-binding region. The cysteine-rich TNFR domains are essential for ligand interaction, while a cysteine at the C-terminus mediates homodimerization. Mature human OPG shares 86%, 87%, 92%, 92% and 88% amino acid sequence identity with mouse, rat, equine, canine and bovine OPG, respectively. OPG is widely expressed and constitutively released as a homodimer by mesenchymal stem cells, fibroblasts and endothelial cells. Regulation of its expression by estrogen, parathyroid hormone and cytokines is complex and changes with age. OPG has been called a decoy receptor for the TNF superfamily ligands, TRANCE (tumor necrosis factor-related activation-induced cytokine), also called RANK L (receptor activator of NF kappa B ligand), and TRAIL (TNF-related apoptosis-inducing ligand), which also bind TNF family receptors RANK and TRAIL receptors 1-4, respectively. TRAIL decreases the release of OPG from cells that express it, while OPG inhibits TRAIL-induced apoptosis. Expression of RANK L on the cell surface, and thus its ability to stimulate osteoclastogenesis, is regulated by OPG by intracellular and extracellular mechanisms. Within osteoblasts, interaction of the basic domain of OPG with RANK L in the Golgi inhibits RANK L secretion. Extracellularly, OPG binding to RANK L results in clathrin-mediated internalization and degradation of both proteins. Binding of OPG by syndecan-1 heparin sulfates on multiple myeloma cells also results in OPG internalization and degradation, contributing to bone loss.

### Product Properties

<b>Accession</b>	O00300
<b>GeneID</b>	4982
<b>Source</b>	Yeast-derived Human OPG-Fc, Glu22-Lys194.
<b>Molecular Weight</b>	Approximately 109.6 kDa.
<b>AA Sequence</b>	<p>ETFPPKYLHY DEETSHQLLC DKCPPGTYLK QHCTAKWKTV CAPCPDHYYT DSWHTSDECL            YCSPVCKELQ YVKQECNRTH NRVCECKEGR YLEIEFCLKH RSCPPGFGVV QAGTPERNTV            CKRCPDGFSS NETSSKAPCR KHTNCSVFGL LLTQKGNATH DNICSGNSES TQKCGIDVTL            EPKSSDKTHT CPPCPAPEFE GAPSVFLFPP KPKDTLMISR TPEVTCVVVD VSHEDPEVKF            NWYVDGVEVH NAKTKPREEQ YNSTYRVVSV LTVLHQDWLN GKEYKCKVSN KALPTPIEKT            ISKAKQPRE PQVYTLPPSR DELTKNQVSL TCLVKGFYPS DIAVEWESNG QPENNYKTFP            PVLDSDGSEFF LYSKLTVDKS RWQQGNVFSC SVMHEALHNH YTQKSLSLSP GK</p>
<b>Tag</b>	with an C-terminal Fc
<b>Physical Appearance</b>	Sterile Filtered White lyophilized (freeze-dried) powder.
<b>Purity</b>	> 95 % by SDS-PAGE and HPLC analyses.

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<b>Biological Activity</b>	The ED <sub>50</sub> as determined by neutralizing the stimulation of U937 cells is less than 10 ng/mL, corresponding to a specific activity of $> 1.0 \times 10^5$ IU/mg in the presence of 10 ng/mL soluble rHuRANKL (sRANKL). Fully biologically active when compared to standard.
<b>Endotoxin</b>	< 1.0 EU per 1µg of the protein by the LAL method.
<b>Formulation</b>	Lyophilized from a 0.2 µm filtered concentrated solution in 20 mM PB, pH 6.0, 150 mM NaCl, 0.02 % Tween-80.
<b>Reconstitution</b>	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Reconstitute in sterile distilled water or aqueous buffer containing 0.1% BSA to a concentration of 0.1-1.0 mg/mL. Stock solutions should be apportioned into working aliquots and stored at $\leq -20^\circ\text{C}$ . Further dilutions should be made in appropriate buffered solutions.

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## Shipping and Storage

The products are shipped with ice pack and can be stored at  $-20^\circ\text{C}$  to  $-80^\circ\text{C}$  for 1 year.

Recommend to aliquot the protein into smaller quantities when first used and avoid repeated freeze-thaw cycles.

## Cautions

1. Avoid repeated freeze-thaw cycles.
2. For your safety and health, please wear lab coats and disposable gloves for operation.
3. For research use only!