Recombinant Human IGFBP3/IBP3 Protein (His Tag)

Catalog Number: PKSH031612

Note: *Centrifuge before opening to ensure complete recovery of vial contents.*

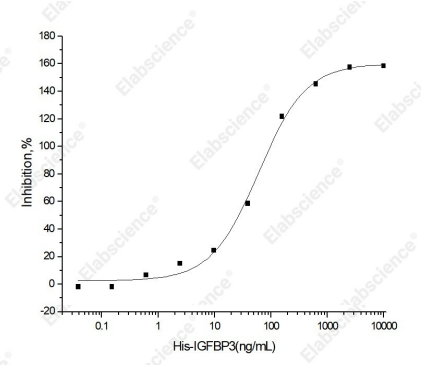
Description

Species	Human
Source	HEK293 Cells-derived Human IGFBP3/IBP3 protein Gly28-Lys 291, with an N-terminal His
Calculated MW	31 kDa
Observed MW	40-45 kDa
Accession	NP_000589.2
Bio-activity	1. Immobilized human IGF2 at 10 μg/mL (100 μl/well) can bind biotinylated Human His-IGFBP3, The EC_{50} of biotinylated Human His-IGFBP3 is 18 ng/mL. 2. Immobilized human IGF1 at 10 μg/mL (100 μl/well) can bind biotinylated Human His-IGFBP3, The EC_{50} of biotinylated Human His-IGFBP3 is 24 ng/mL. 3. Measured by its ability to inhibit the biological activity of IGFI or IGFII on MCF7 human breast adenocarcinoma cells (Karey, K. P. et al. (1988) Cancer Research 48:4083.). The ED_{50} for this effect is typically 0.02-0.2 μg/mL in the presence of 14 ng/mL human IGFII.

Properties

Purity	> 85% as determined by reducing SDS-PAGE.
Endotoxin	< 1.0 EU per μg of the protein as determined by the LAL method.
Storage	Generally, lyophilized proteins are stable for up to 12 months when stored at -20 to -80°C. Reconstituted protein solution can be stored at 4-8°C for 2-7 days. Aliquots of reconstituted samples are stable at < -20°C for 3 months.
Shipping	This product is provided as lyophilized powder which is shipped with ice packs.
Formulation	Lyophilized from sterile PBS, pH 7.4 Normally 5% - 8% trehalose, mannitol and 0.01% Tween 80 are added as protectants before lyophilization. Please refer to the specific buffer information in the printed manual.
Reconstitution	Please refer to the printed manual for detailed information.

Data



Measured by its ability to inhibit the biological activity of IGFI or IGFII on MCF7 human breast adenocarcinoma cells (Karey, K.P. et al. (1988) Cancer Research 48:4083.). The ED_{50} for this effect is typically 0.05-0.2 μg/mL in the presence of 14 ng/mL human IGFII.

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Background

The Insulin-like Growth Factor (IGF) signaling system plays a central role in cellular growth, differentiation and proliferation. IGFBP3 is the most abundant IGF binding protein in human serum and has been shown to be a growth inhibitory, apoptosis-inducing molecule, capable of acting via IGF-dependent and IGF-independent mechanisms. It appears to function both by cell cycle blockade and the induction of apoptosis. IGFBP3 can be transported to the nucleus by an importin beta mediated mechanism, where it has been shown to interact with the retinoid X receptor alpha and possibly other nuclear elements. IGFBP3 antiproliferative signalling appears to require an active transforming growth factor beta (TGF-beta) signalling pathway, and IGFBP3 stimulates phosphorylation of the TGF-beta signalling intermediates Smad2 and Smad3. IGFBP3 has IGF-independent roles in inhibiting cell proliferation in cancer cell lines. Nuclear transcription factor, retinoid X receptor (RXR)-alpha, and IGFBP3 functionally interact to reduce prostate tumor growth and prostate-specific antigen in vivo. Several clinical studies have proposed that individuals with IGFBP3 levels in the upper range of normal may have a decreased risk for certain common cancers. This includes evidence of a protective effect against breast cancer, prostate cancer, colorectal cancer, and lung cance r. Moreover, IGFBP3 inhibits insulin-stimulated glucose uptake into adipocytes independent of IGF.

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