

### General Information

Synonyms	growth hormone-dependent binding protein; IBP-3; IBP3BP-53; IGF-binding protein 3;IGFBP-3;
Accession #	P17936
Source	Human embryonic kidney cell, HEK293-derived human IGFBP3 protein
	Gly28-Lys291
Predicted Molecular weight	28.7 kDa

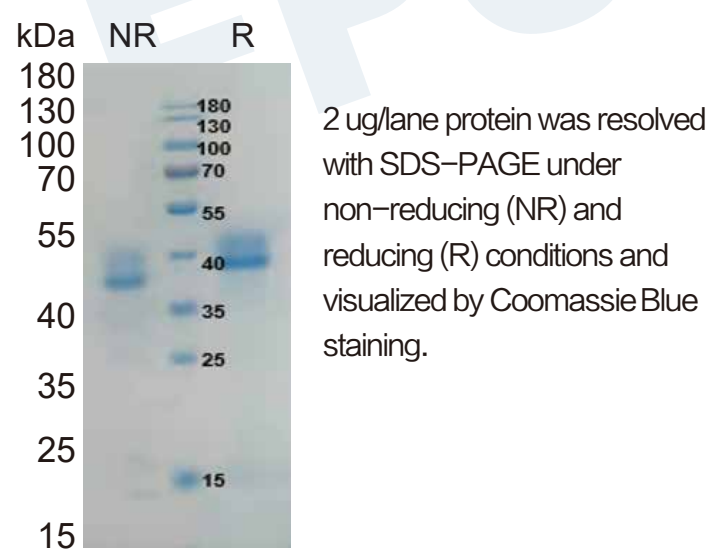
### Components and Storage

Formulation	Solution protein. Dissolved in sterile PBS buffer . This solution can be diluted into other aqueous buffers. Centrifuge the vial prior to opening.
Storage and Stability	Avoid repeated freeze-thaw cycles. It is recommended that the protein be aliquoted for optimal storage. 12 months from date of receipt, -20 to -70 °C as supplied.

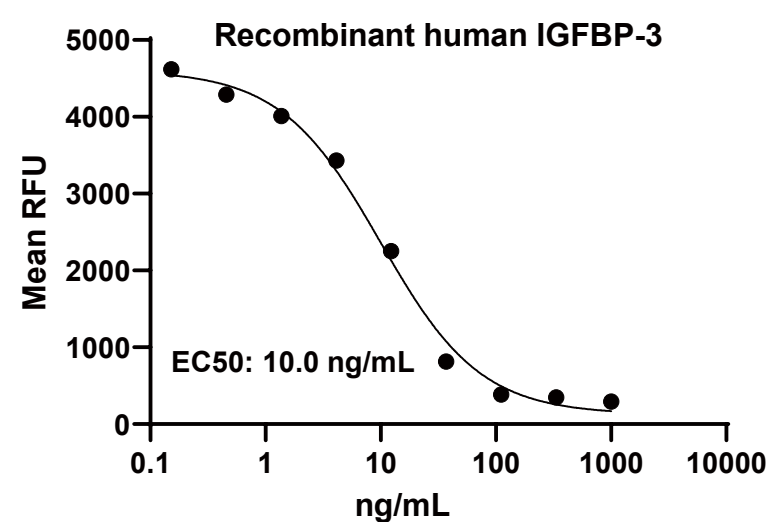
### Quality

Purity	> 95%, determined by SDS-PAGE.
Endotoxin Level	<0.010 EU per 1 ug of the protein by the LAL method.
Activity	Measured by its ability to inhibit the biological activity of IGF-I or IGF-II on MCF-7 human breast cancer cells. The EC50 for this effect is 6-14 ng/mL.

### SDS-PAGE



### Bioactivity



Measured by its ability to inhibit the biological activity of IGF-I or IGF-II on MCF-7 human breast cancer cells.

### Background

**Insulin-like growth factor binding protein-3 (IGFBP-3)** is one of six members of the insulinlike growth factor (IGF) binding protein superfamily which function to modulate the biological activity of IGF (1). Human IGFBP-3 is the major binding protein of IGF where it exists in circulation as a ternary complex with the acid-labile subunit (ALS) (2). Like other IGFBP members, human IGFBP-3 includes a cysteine-rich C-terminal domain, a highly variable central linker domain, and another N-terminal cysteine-rich domain (2, 3). Human IGFBP-3 cDNA encodes a 291 amino acid (aa) precursor protein with a 27 aa signal peptide that is processed to generate the 264 aa mature protein. Mature human IGFBP-3 shares 82% aa sequence identity with both mouse and rat IGFBP-3. Post-translational glycosylation and phosphorylation of IGFBP-3 modifies the affinities of the binding protein. Proteolysis of IGFBP-3 by tissue plasminogen activator (tPA), a disintegrin and metalloproteases (ADAMs), and prostate specific antigen (PSA) contributes to IGFBP-3 degradation or a reduction in its affinity for IGF (4-6). The majority of soluble IGFBP-3 found in circulation is secreted from hepatic non-parenchymal cells. IGFBP-3 expression can be modulated by p53 as well as by various cytokines and growth factors (7, 8). In addition to its role in stabilizing and transporting circulating IGF, IGFBP-3 has been shown to potentiate EGF-EGFR-mediated cell growth through the activation of sphingosine kinase1 (SPHK1) and sphingosin-1-phosphate (S1P) (9, 10). IGFBP-3 has also been shown to modulate adipogenesis (11). Binding of IGFBP-3 to non-IGF-related ligands has been shown to regulate TGF-beta signaling, DNA damage, apoptosis, autophagy, and gene transcription (12).

### Reference

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