Recombinant Mouse IGFBP-3

Catalog Number: 775-B3

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived mouse IGFBP-3 protein Pro22-Gln291 with substitutions Arg250Gln, Gln259Arg, Ser260Gly, Arg271Pro Accession # CAA57271.1
N-terminal Sequence Analysis	Pro22
Predicted Molecular Mass	29.4 kDa

SPECIFICATIONS

SDS-PAGE	40-50 kDa, reducing conditions
Activity	Measured by its ability to inhibit the biological activity of IGF-I or IGF-II on MCF-7 human breast cancer cells. Karey, K.P. *et al.* (1988) Cancer Research **48**:4083. The ED_{50} for this effect is 0.125-0.5 µg/mL in the presence of 30 ng/mL Recombinant Mouse IGF-II (Catalog # 792-MG).
Endotoxin Level	<0.01 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation	Lyophilized from a 0.2 µm filtered solution in Acetonitrile and TFA. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100 µg/mL in sterile 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.

BACKGROUND

Insulin-like growth factor binding protein-3 (IGFBP-3) is one of six members of the insulin-like growth factor (IGF) binding protein superfamily which function to modulate the biological activity of IGF (1). 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, IGFBP-3 includes a cysteine-rich c-terminal domain, a highly variable central linker domain, and another N-terminal cysteine-rich domain (2, 3). Mouse 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 mouse IGFBP-3 shares 82% and 95% aa sequence identity with human and rat IGFBP-3, respectively. 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 metaloproteases (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-β signaling, DNA damage, apoptosis, autophagy, and gene transcription (12). Interactions with non-IGF-related ligands is thought to contribute, in part, to the dichotomous stimulatory and inhibitory effects of IGFBP-3 on cell growth (2).

References:

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