

Recombinant Human IGF-II (Animal-Free)

Catalog# / Size	714104 / 50 µg
Regulatory Status	RUO
Other Names	Insulin-like growth factor II, somatomedin A
Description	IGF-II is a member of the IGF family, comprised of three members (IGF-I, IGF-II, and insulin). IGF-I and IGF-II share approximately 50% similarity with insulin at the amino acid level. IGF-II is synthesized as a 180 amino acid prepro-IGF-II; pro-IGF-II is processed to its mature, active protein form by glucose regulating protein 94 (GRP94), which possesses chaperone activity towards IGF-II. GRP94 and IGF-II play a key role in muscle differentiation. Seven binding proteins have been described (IGFBP-1 to -7). IGFBPs extend the half life and regulate the availability of the IGF I and IGF II. It has been described that IGFBP3 is the main circulating binding protein for IGFs; in serum, approximately 75% of circulating IGF-I and IGF-II bind to IGFBP3 and the co-carrier acid labile subunit (ALS). IGF-II binds to three receptors, and the binding to IGFIR promotes cell proliferation, survival, differentiation, and migration as well as metabolic function of IGF-II. Embryonic stem cell differentiation into endothelial cells is promoted by the binding of IGF-II to IGFR1. IGF-II binding to IGF-1IR induces internalization and clearing of IGF-II. Osteogenic differentiation and bone formation is enhanced by IGF-II through bone morphogenetic protein-9 (BMP-9). Polymorphisms of IGF-II are associated with obesity, cardiovascular risk factors, and hypertension.

Product Details

Source	Human IGF-II, amino acids (Ala25-Glu91) (Accession# X03562.1), was expressed in <i>E. coli</i> .
Molecular Mass	The 67 amino acid recombinant protein has a predicted molecular mass of approximately 7.5 kD. The N-terminal amino acid is Ala.
Purity	>98%, as determined by Coomassie stained SDS-PAGE and HPLC analysis.
Formulation	Lyophilized, carrier-free.
Endotoxin Level	Less than 0.1 ng per µg of protein.
Storage & Handling	Unopened vial can be stored at -20°C or -70°C. For maximum results, quick spin vial prior to opening. Reconstitute in water to a concentration of 0.1-1.0 mg/ml. Do not vortex. It is recommended to further dilute in a buffer, such as 5% Trehalose, and store working aliquots at -20°C to -80°C. Avoid repeated freeze/thaw cycles.
Activity	ED ₅₀ is ≤ 2.0 ng/ml, corresponding to a specific activity of ≥ 5.0 x 10 ⁵ units/mg as determined by its ability to stimulate the proliferation of mouse FDC-P1 cells.
Application	Bioassay
Application Notes	This product is reactive with human and mouse.

Antigen Details

Structure	Growth factor
Distribution	Astrocytes, podocytes, hepatocytes, microglia, osteoblast, myoblast.
Function	IGF-II induces mitogenesis, proliferation, growth, differentiation, and angiogenesis. IGF-II is a mediator of growth hormone action. IGF-II is involved in neuronal and muscular differentiation as well as organ development. TGF-β1 diminishes IGF-II gene expression and secretion in myoblasts.
Ligand/Receptor	IGF-I receptor, Insulin receptor isoform A, and IGF-II receptor (M-6-P-R).
Cell Type	Neural Stem Cells, Mesenchymal Stem Cells, Hematopoietic stem and progenitors, Embryonic Stem Cells

Biology Area Cell Biology, Signal Transduction, Stem Cells

Molecular Family Growth Factors, Cytokines/Chemokines

Antigen References

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2. Chen L, *et al.* 2010. *J. Bone Miner Res.* 25:2447.
3. Ostrovsky O, *et al.* 2010. *Biochim. Biophys. Acta.* 1803:333.
4. Gardner S, *et al.* 2011. *Mol. Endocrinol.* 25:128.
5. Piecewicz SM, *et al.* 2012. *PLoS One* 7:e32191.
6. Church DN, *et al.* 2012. *Oncogene* 31:3635.
7. Hale LJ, *et al.* 2013. *J. Pathol.* 230:95.
8. Liu ZK, *et al.* 2012. *PLoS One* 7:e45224.

Gene ID [3481](#)

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