Recombinant Mouse IGF-II/IGF2

Catalog Number: 792-MG

DESCRIPTION

Source	*E. coli*-derived mouse IGF-II/IGF2 protein Ala25-Glu91 Accession # P09535
N-terminal Sequence Analysis	Ala25
Predicted Molecular Mass	7.4 kDa

SPECIFICATIONS

Activity	Measured in a serum-free cell proliferation assay using MCF-7 human breast cancer cells. Karey, K.P. *et al.* (1988) Cancer Research **48**:4083. The ED_{50} for this effect is 2-10 ng/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>97%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
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.

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BACKGROUND

IGF-II (Insulin-like growth factor II; also multiplication-stimulating polypeptide/MSP and somatomedin-A) is a secreted 8 kDa polypeptide that belongs to the insulin family of peptide growth factors (1, 2, 3). It is part of a complex system of growth and metabolic-regulating proteins that is particularly important during development. It has been associated with nervous system proliferation and differentiation, myelination, adrenal cortical proliferation, and skeletal growth and differentiation (4). In human, IGF-II is primarily synthesized by the liver, and circulates at high levels in both fetus and adult. In rodent, however, IGF-II levels drop after the perinatal period, an effect attributed to the lack of a key gene promoter (2, 5). This may indicate that postnatally, IGF-II has either a limited, or local effect only in rodent. For example, evidence suggests IGF-II may be the intermediary for SHH induction of VEGF attendant with local neovascularization (6). Rodent cells known to express IGF-II include astrocytes (7), hepatocytes (8), osteoblasts (9), embryonic striated muscle cells (10, 11) plus Kupffer cells and Ito cells (12). Mouse IGF-II is synthesized as a 180 amino acid (aa) preproprecursor (13). It contains a 24 aa signal sequence, a 67 aa mature region, and an 89 aa C-terminal prodomain that is alternatively referred to as the E-peptide. Mature IGF-II is 91% and 97% aa identical to human and rat IGF-II, respectively. Proper processing of IGF-II requires the chaperone activity of GRP94 (14). This generates an 8 kDa mature form, an 18 kDa, 156 aa proform, and a potential 11 kDa, 88 aa “Big” form (aa 25-112). This 11 kDa ”Big” form would be equivalent to human 15-16 kDa IGF-II, with the 5 kDa difference attributable to the presence of O-linked glycosylation (15). There is an additional 34 aa proteolytic fragment that is termed preptin and contains aa 93-126 of the preproprecursor. This is distinct from IGF-II, is secreted by pancreatic b cells, and facilitates insulin secretion (16, 17). IGF-II has multiple binding partners. It binds to IGF-IR, the Insulin receptor (IR)-type A and IGF-IR:IR-A hybrids, the type 2 IGF receptor (IGF-2R), and IGF binding proteins 1-6 (18, 19). The first three receptors initiate downstream signaling events, the IGF-2R sequesters local IGF-II, and the six IGFBPs regulate IGF-II activity in various tissues.

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