Recombinant Human IGF-I/IGF-1

Catalog Number: 291-G1

DESCRIPTION

Source	*E. coli*-derived human IGF-I/IGF-1 protein Gly49-Ala118 Accession # P05019
N-terminal Sequence Analysis	Gly49
Predicted Molecular Mass	7.6 kDa

SPECIFICATIONS

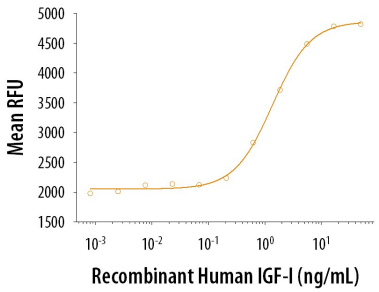
SDS-PAGE	7 kDa, reducing conditions
Activity	Measured in a serum-free cell proliferation assay using MCF-7 human breast cancer cells. Karey, K.P. *et al.* (1988) Cancer Research **48**:4083. The ED_{50} for this effect is 0.3-1.5 ng/mL. The specific activity of recombinant human IGF-I/IGF-1 is approximately 2.5 IU/µg, which is calibrated against recombinant human IGF-I/IGF-1 WHO International Standard (NIBSC code: 91/554).
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>97%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 200 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.

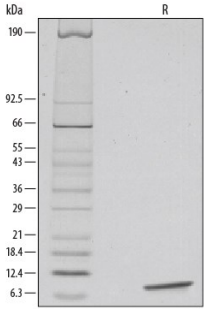
DATA

Bioactivity



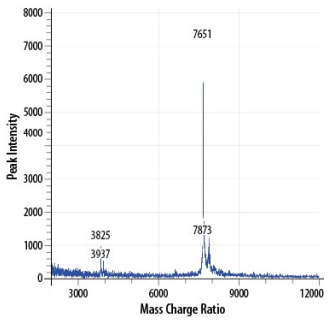
Recombinant Human IGF-I/IGF-1 (Catalog # 291-G1) stimulates proliferation in the MCF-7 human breast cancer cell line. The ED_{50} for this effect is 0.3-1.5 ng/mL.

SDS-PAGE



1 µg/lane of Recombinant Human IGF-I/IGF-1 was resolved with SDS-PAGE under reducing (R) conditions and visualized by silver staining, showing a single band at 7 kDa.

Mass Spectrometry



MALDI-TOF analysis of Recombinant Human IGF-I/IGF-1.The major peak corresponds to the calculated molecular mass, 7650 Da. The minor peak at 7873 is a matrix-associated artifact of the MALDI-TOF.

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BACKGROUND

Insulin-like growth factor I, also known as somatomedin C, is the dominant effector of growth hormone and is structurally homologous to proinsulin. Human IGF-I/IGF-1 is synthesized as two precursor isoforms with N- and alternate C-terminal propeptides (1). These isoforms are differentially expressed by various tissues (1). The 7.6 kDa mature IGF-I/IGF-1 is identical between isoforms and is generated by proteolytic removal of the N- and C-terminal regions. Mature human IGF-I/IGF-1 shares 94% and 96% aa sequence identity with mouse and rat IGF-I/IGF-1, respectively (2), and exhibits cross-species activity. It shares 64% aa sequence identity with mature human IGF-II/IGF-2. Circulating IGF-I/IGF-1 is produced by hepatocytes, while local IGF-I/IGF-1 is produced by many other tissues in which it has paracrine effects (1). IGF-I/IGF-1 induces the proliferation, migration, and differentiation of a wide variety of cell types during development and postnatally (3). IGF-I/IGF-1 regulates glucose and fatty acid metabolism, steroid hormone activity, and cartilage and bone metabolism (4-7). It plays an important role in muscle regeneration and tumor progression (1, 8). IGF-I/IGF-1 binds IGF-I R, IGF-II R, and the insulin receptor, although its effects are mediated primarily by IGF-I R (9). IGF-I/IGF-1 association with IGF binding proteins increases its plasma half-life and modulates its interactions with receptors (10).

References:

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