

#### 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<sub>50</sub> for this effect is 0.3-1.5 ng/mL.

**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.

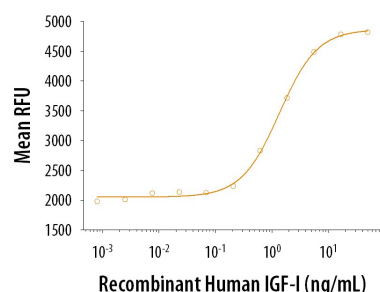
**Shipping** The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

**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.

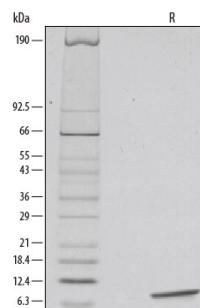
#### DATA

##### Bioactivity



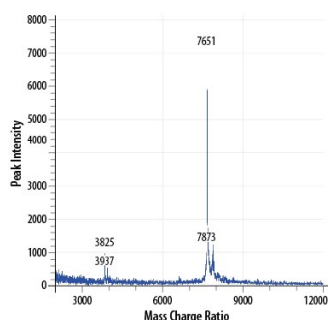
**Bioactivity of Human IGF-1 Protein** Recombinant Human IGF-I / IGF-1 (Catalog # 291-G1) stimulates proliferation in the MCF-7 human breast cancer cell line. The ED<sub>50</sub> for this effect is 0.3-1.5 ng/mL.

##### SDS-PAGE



**Recombinant Human IGF-1 / IGF-1 Protein 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



**Bioactivity of Human IGF-1 Protein** 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.

**BACKGROUND**

Insulin-like growth factor I (IGF-I or IGF-1), also known as somatomedin C, is the dominant effector of growth hormone and is structurally homologous to proinsulin. Human 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-1 protein is identical between isoforms and is generated by proteolytic removal of the N- and C-terminal regions. Mature human IGF-1 shares 94% and 96% aa sequence identity with mouse and rat 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 is produced by hepatocytes, while local IGF-I is produced by many other tissues in which it has paracrine effects (1). IGF-I induces the proliferation, migration, and differentiation of a wide variety of cell types during development and postnatally (3). IGF-I 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). The IGF-I protein associates with IGF binding proteins thereby increasing its plasma half-life and modulating its interactions with receptors (10).

**References:**

1. Philippou, A. *et al.* (2007) *In Vivo* **21**:45.
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3. Guvakova, M.A. (2007) *Int. J. Biochem. Cell Biol.* **39**:890.
4. Clemmons, D.R. (2006) *Curr. Opin. Pharmacol.* **6**:620.
5. Bluher, S. *et al.* (2005) *Best Pract. Res. Clin. Endocrinol. Metab.* **19**:577.
6. Garcia-Segura, L.M. *et al.* (2006) *Neuroendocrinology* **84**:275.
7. Malesmud, C.J. (2007) *Clin. Chim. Acta* **375**:10.
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