

**DESCRIPTION**

**Source** *E. coli*-derived  
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 typically 0.3-1.5 ng/mL.  
The specific activity of recombinant human IGF-I is approximately 2.5 IU/μg, which is calibrated against recombinant human IGF-I 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.

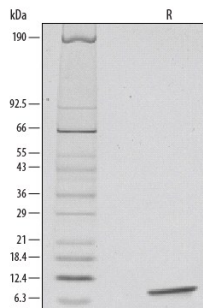
**Shipping** The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

**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.

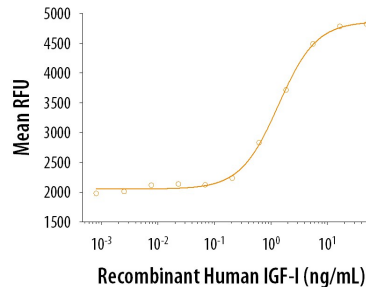
**DATA**

**SDS-PAGE**



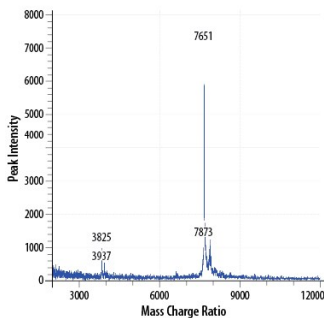
1 μg/lane of Recombinant Human IGF-I was resolved with SDS-PAGE under reducing (R) conditions and visualized by silver staining, showing a single band at 7 kDa.

**Bioactivity**



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

**Mass Spectrometry**



MALDI-TOF analysis of Recombinant Human IGF-I. 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, also known as somatomedin C, is the dominant effector of growth hormone and is structurally homologous to proinsulin. Human IGF-I 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 is identical between isoforms and is generated by proteolytic removal of the N- and C-terminal regions. Mature human IGF-I shares 94% and 96% aa sequence identity with mouse and rat IGF-I, respectively (2), and exhibits cross-species activity. It shares 64% aa sequence identity with mature human IGF-II. 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 binds IGF-I R, IGF-II R, and the insulin receptor, although its effects are mediated primarily by IGF-I R (9). IGF-I association with IGF binding proteins increases its plasma half-life and modulates its interactions with receptors (10).

**References:**

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2. Sandberg-Nordqvist, A.C. *et al.* (1992) *Brain Res. Mol. Brain Res.* **12**:275.
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. Malemud, C.J. (2007) *Clin. Chim. Acta* **375**:10.
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