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## Animal-Free<sup>™</sup> Recombinant Human IGF-I/IGF-1

Catalog Number: AFL291

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DESCRIPTION		
Source	<i>E. coli</i> -derived human IGF-I/IGF-1 protein Gly49-Ala118 Accession # P05019.1 Produced using non-animal reagents in an animal-free laboratory.	
N-terminal Sequence Analysis	Gly49	
Predicted Molecular Mass	7.6 kDa	

SPECIFICATIONS		
Activity	Measured in a serum-free cell proliferation assay using MCF-7 human breast cancer cells. Karey, K.P. <i>et al.</i> (1988) Cancer Research <b>48</b> :4083. The ED <sub>50</sub> for this effect is 0.3-1.5 ng/mL.	
	The specific activity of recombinant human IGF-I/IGF-1 is >1000 IU/mg, which is calibrated against the 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 0.2 mg/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.			
	<ul> <li>12 months from date of receipt, -20 to -70 °C as supplied.</li> </ul>			
	1 month, 2 to 8 °C under sterile conditions after reconstitution.			
	<ul> <li>3 months -20 to -70 °C under sterile conditions after reconstitution</li> </ul>			

### 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-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% as 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-I/IGF-2. Circulating IGF-I/IGF-1 is produced by hepatocytes, while local IGF-I/IGF-1 is produced by mony 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-I R, IGF-I 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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- 9. LeRoith, D. and S. Yakar (2007) Nat. Clin. Pract. Endocrinol. Metab. 3:302.
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## **R**Dsystems

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## MANUFACTURING SPECIFICATIONS

Animal-Free Manufacturing Conditions

Our dedicated controlled-access animal-free laboratories ensure that at no point in production are the products exposed to potential contamination by animal components or byproducts. Every stage of manufacturing is conducted in compliance with R&D Systems' stringent Standard Operating Procedures (SOPs). Production and purification procedures use equipment and media that are confirmed animal-free.

Production

- All molecular biology procedures use animal-free media and dedicated labware.
- Dedicated fermentors are utilized in committed animal-free areas.

#### Purification

- Protein purification columns are animal-free.
- Bulk proteins are filtered using animal-free filters.
- Purified proteins are stored in animal-free containers in a dedicated cold storage room.

#### Quality Assurance

- Low Endotoxin Level.
- No impairment of biological activity.
- High quality product obtained under stringent conditions.
- For ex vivo research or bioproduction, additional documentation can be provided.

Please read our complete Animal-Free Statement

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