

Product Information

LONG®R³IGF-I Liquid, Media Grade

1 mg/mL filtered solution in 100 mM acetic acid

CATALOG NO. 91590C

Description

LONG®R³IGF-I is a recombinant analog of human insulin-like growth factor-I (IGF-I) that has been specifically engineered for the enhancement of cell culture performance. LONG®R³IGF-I is more biologically potent *in vitro* than either insulin or native IGF-I and has been shown to significantly increase recombinant protein production. It is ideal for both research and large-scale culture systems utilizing serum-free or low-level serum applications. All cells that have a growth response to insulin in cell culture have the potential to respond to LONG®R³IGF-I. LONG®R³IGF-I is effective in commercially relevant cell types including CHO, PER.C6® and HEK 293. Hybridomas and fibroblasts have also been shown to respond to LONG®R³IGF-I. LONG®R³IGF-I is produced in a patented *E. coli* expression system without the use of animal-derived components. Liquid LONG®R³IGF-I is supplied as a 1 mg/mL filtered solution in 100 mM acetic acid.

LONG®R³IGF-I is also available as a lyophilized powder, Catalog No. 85580C.

Precautions

This product is for further manufacturing use. THIS PRODUCT IS NOT INTENDED FOR HUMAN OR THERAPEUTIC USE.

Storage and Stability

Liquid LONG®R³IGF-I in the original unopened vial is stable for 18 months when stored at 2 to 8 C. Formal ICH Q7A compliant studies are ongoing to further assess the long-term stability liquid LONG®R³IGF-I.

	Format	Shelf-life (2 to 8 C storage)
91590C	Liquid (1 mg/mL)	18 months (ongoing)

After opening a vial of liquid LONG®R³IGF-I, the product should be stored re-capped in the original vial at 2 to 8 C. It is imperative that the vial is re-capped properly to form an airtight seal, as the volatile nature of the acetic acid solution can result in evaporation and consequentially a concentration of the LONG®R³IGF-I in solution.

Methods for Use

Liquid LONG®R³IGF-I is a low-bioburden product and should be sterile filtered before use. The liquid LONG®R³IGF-I product, or media containing LONG®R³IGF-I at the working concentration, should be filtered through a low protein-binding membrane such as Polyvinylidene Difluoride (PVDF) or Polyethersulfone (PES) with a pore size of 0.22 µm.

Addition to Cell Culture Medium

The recommended final concentration range of LONG®R³IGF-I for use as a growth factor supplement in cell culture is 10 - 100 µg/L. Given that the optimum concentration varies depending upon the cell line, clone and the particular media formulation, it is recommended that a titration of LONG®R³IGF-I be performed for each cell line. In some instances a brief adaptation phase may be necessary for optimal cell culture performance. Inclusion of LONG®R³IGF-I in the culture feed is advantageous in some applications.

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Adaptation

There are two basic methodologies for adapting cells to medium containing LONG®R³IGF-I.

Direct Substitution

- Some clones do not require weaning and can be grown immediately in an alternative insulin-free medium that contains an appropriate quantity of LONG®R³IGF-I (10 - 100 µg/L, recommend starting at 50 µg/L).

Gradual Weaning

- Gradually wean cells into medium containing LONG®R³IGF-I (recommend starting at 50 µg/L) by decreasing the insulin concentration in the medium at each passage. For example, if the starting concentration of insulin is 10 mg/L, reduce the concentration to 5 mg/L, then 2.5 mg/L, then 1.25 mg/L, etc., at each successive passage.
- During adaptation, you may notice a slight decrease in doubling times. Slower growth rates may not impact overall protein yield as LONG®R³IGF-I can increase culture viabilities and overall specific protein productivity.
- If the decrease in doubling time is significant — i.e. less than half the normal doubling time — repeat passaging in medium with the same LONG®R³IGF-I concentration until the cells recover.
- As the cells become adapted to lower concentrations of insulin (< 1.25 mg/L), periodically test the ability of the clone to grow in medium without insulin (i.e. medium only containing LONG®R³IGF-I). The point at which insulin can be fully removed from the medium will vary with each cell line.

Characteristics

Appearance

Clear liquid

Bioburden

≤ 100 CFU/mL

Biological Activity

ED₅₀ < 10 ng/mL (stimulation of protein synthesis in L6 myoblasts)

Concentration

0.9 - 1.1 mg/mL

Endotoxin

< 0.10 EU/µg protein

Identity

Confirmed by N-terminal sequence analysis and HPLC (18 residues 95% single sequence)

Purity

≥ 95% as determined by SDS-PAGE

References

- Francis, G., et al. *J. Mol. Endocrinol.* (1992) 8:213-223.
- Thomas, J., Fung, V. *Animal Cell Technology: Products of Today, Prospects for Tomorrow* (1993) 91.
- Morris, A., Schmid, J. *Biotechnol. Prog.* (2000) 16:693-697.

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