ITS-E Animal Component Free product information

PI-C3213 V1.2

Product Name

Name: ITS-E Animal Component Free Cell Culture Medium Supplement (100X)

Cat. No.: C3213-0005

Size: 5 mL

Product Description

Insulin-transferrin-selenite-ethanolamine (ITS-E) can significantly reduce the demand of culture cells for fetal bovine serum (FBS) by supplementing these important common nutrients [1,2].

When the concentration of FBS is below 4%, either ITS or ITS-E can promote the growth of various adherent cells. It has been shown that the four supplemental ingredients can be utilized by most mammalian cells. They can promote cell proliferation in the presence of less than 10% of serum by various cells. During cell culture with 2% - 4% FSB, supplementation with ITS or ITS-E into the medium can achieve a similar proliferation rate as in 10% FSB [3].

1. As a polypeptide hormone, insulin has multiple metabolic (catabolic) effects on mammalian cells, promoting glucose and amino acid uptake, fat production, monovalent cation and phosphate transport, and protein and nucleic acid synthesis [4].
2. As a carrier of iron, transferrin can also help reduce the toxic levels of oxygen free radicals and hydrogen peroxide [5].
3. Selenite is a cofactor of glutathione peroxidase and other proteins and is used as an anti-oxidant in culture media.
4. Ethanolamine plays an important role in the proliferation of mammalian cells and it is a precursor of phosphoethanolamine, the head group of a type of phospholipids important for plasma membrane synthesis [6].

Storage and Stability

The product should be kept at **2 - 8°C**.
The product is **light-sensitive** and therefore should not be left in the light.
Shelf life: 12 months from date of manufacture

Application

ITS-E is recommended for the supplementation of F12, DMEM/F12, DMEM, Earle's, and other culture media.

Procedure

ITS-E is a 100X concentrate.

Pipette 5 mL ITS-E Animal Component Free Cell Culture Medium Supplement into 500 mL culture medium. To achieve optimal cell growth, generally speaking, an addition of 2-4% FBS is needed to make up a complete culture medium.

Main Components

Components	ITS	ITS-E
Human insulin (recombinant)	Y	Y
Transferrin (clinical grade)	Y	Y
Selenite acid	Y	Y
Ethanolamine	N	Y
Sodium pyruvate	N	Y

Quality Control

1. pH test
2. Osmotic pressure testing
3. Mycoplasma detection
4. Endotoxin contamination test
5. Sterility test
6. Cell proliferation test

Manufacturer

Shanghai Dr. Cell Co., Ltd.

Issue Date

Feb 2024

Precaution and Disclaimer

For research use only, not for clinical diagnosis, and treatment.

Reference

1. Barnes D, Serum-free animal cell culture. *BioTechniques*, 5: 534 (1987).
2. Barnes D, and Sato G, *Cell*, 22:649(1980).
3. Wolpe, S.D., in Mammalian Cell Culture. J.P. Mather ed., Plenum Pres.
4. Kelley, D.S. *et al.*, Effects of insulin, dexamethasone, and glucagon on the amino acid transport ability of four rat hepatoma cell lines and rat hepatocytes in culture. *Cancer Res.*, 38, 4591-4601 (1978).
5. Guilbert, L.J., and Iscove, N.N., Partial replacement of serum be selenite, transferrin, albumin, and lecithin on haemopoietic cell culture. *Nature*, 263, 594-595 (1976).
6. Sasaki H., Kume H., Nemoto A., Narisawa S., Takahashi N. Ethanolamine modulates the rate of rat hepatocyte proliferation in vitro and in vivo. Proceedings of the National Academy of Sciences of the United States of America. 94:7320–7325 (1997).