

Corning® Insulin-Transferrin-Selenium (ITS)

Technical Brief

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Introduction

Serum is a complex supplement containing proteins, growth factors, hormones, amino acids, sugars, trypsin inhibitors, and lipids. Although the major constituents of serum such as albumin and transferrin are consistently present, some of the minor components are present at high variable concentrations from lot-to-lot causing unpredictable effects on cell growth and health. These minor components include nutrients such as amino acids, nucleosides, sugars, growth factors, hormones, minerals, and lipids.¹

Downstream purification is the leading disadvantage to using serum in cell culture media. For example, monoclonal antibody production and recombinant protein secretion both require purification to remove serum-derived gamma-globulin and other proteins from the media.

Corning Insulin-Transferrin-Selenium (ITS), 100x, is a growth supplement that should be added at 10 mL/L medium. Supplementation enables a reduction in the FBS requirements of the culture. The components of ITS are required for optimal performance of cells in serum-free or serum-reduced culture.

Insulin is a hormone that promotes glucose and amino acid uptake by the cell. It is thought that the mitogenic effects of insulin are due to the insulin-like growth factor receptor, IGF-1 receptor.

Transferrin is an iron transport protein that functions to transport iron into the cell. The protein also serves to detoxify the medium from oxygen radicals and peroxides.²

Selenium is an enzyme cofactor that activates glutathione peroxidase, a player in the detoxification of oxygen radicals.³

Formula

Selenious Acid: 0.00067 g/L

Human recombinant insulin: 1.00 g/L

Human recombinant transferrin: 0.55 g/L

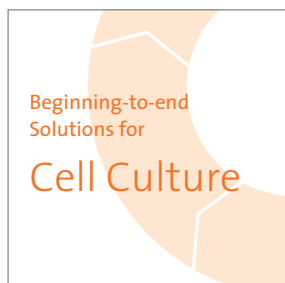
References

1. Freshney, R. Ian. Culture of Animal Cells: A Manual of Basic Technique. 4th. ed. New York: Wiley-Liss, 1994: 100
2. Freshney, R. Ian. 99.
3. Freshney, R. Ian. 101.

Ordering Information

| Cat. No. | Description | Size | Qty/Pk |
|-----------|------------------------------------|-------|--------|
| 25-800-CR | Insulin-Transferrin-Selenium (ITS) | 10 mL | 1 |

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At Corning, cells are in our culture. In our continuous efforts to improve efficiencies and develop new tools and technologies for life science researchers, we have scientists working in Corning R&D labs across the globe, doing what you do every day. From seeding starter cultures to expanding cells for assays, our technical experts understand your challenges and your increased need for more reliable cells and cellular material.

It is this expertise, plus a 160-year history of Corning innovation and manufacturing excellence, that puts us in a unique position to offer a beginning-to-end portfolio of high-quality, reliable cell culture consumables.

For additional product or technical information, please visit www.cellgro.com or call 1.800.235.5476.

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