Insulin-Transferrin-Selenium (ITS)

Serum is a complex supplement containing proteins, growth factors, hormones, amino acids, sugars, trypsin inhibitors, and lipids. Although the major constituents of serum are known such as albumin and transferrin, some of the minor components and their effect on cell growth have not been fully determined. These minor components include nutrients such as amino acids, nucleosides, and sugars, growth factors, hormones, minerals, and lipids.

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 from the media.

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 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.

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

Insulin-Transferrin-Selenium

25-800-CR
1 x 10 mL
Storage: 2°C to 8°C
Shipping: 15°C to 30°C

Formula:
Selenious Acid: 0.00067 g/L
Human recombinant insulin: 1.00 g/L
Human recombinant transferrin: 0.55 g/L

References
3. Freshney, R. Ian. 91-94.

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