



Insulin-Transferrin-Selenium

100X

(For General Tissue Culture Applications)

CAUTION: Human origin materials are non-reactive (donor level) for anti-HIV 1 & 2, anti-HCV, and HB_sAg. Handle in accordance with established bio-safety practices

Cat. No. 41400 10 mL

Storage Conditions: 2 to 8°C

Introduction

Insulin, selenium, and transferrin have been shown to be components which are required for optimal performance of serum-free media.¹ Insulin has pleiotropic anabolic effects on mammalian cells. It promotes glucose and amino acid uptake, lipogenesis,^{2,3} monovalent cation and phosphate transport, protein and nucleic acid synthesis.^{2,3}

Transferrin serves as a carrier for iron.⁴ It may also help to reduce toxic levels of oxygen radicals and peroxide.⁵ Selenite is a co-factor for glutathione peroxidase and other proteins^{6,7} and is used as an anti-oxidant in media.⁸

Description

Insulin-Transferrin-Selenium supplementation to many conventional synthetic nutrient media permits substantial reduction in the FBS requirement for routine maintenance of many cell types. GIBCO Insulin-Transferrin-Selenium Supplement contains Sodium Selenite, Insulin and Transferrin prepared in Earle's Balanced Salt Solution without Phenol Red. Each 10 mL vial of Insulin-Transferrin-Selenium will supplement one liter of medium. Insulin-Transferrin-Selenium is designed as a supplement for RPMI-1640 and Earle's Minimal Essential Medium, and will enhance the growth of various cell types at Fetal Bovine Serum concentrations less than 4%.

Formulation (Prepared in Earle's Balanced Salt Solution w/o Phenol Red):

Component	Concentration(g/L)
Sodium Selenite (anhydrous)	0.00067
Insulin	1.00
Transferrin	0.55

Transferrin

0.55

Instructions for Use

GIBCO Insulin-Transferrin-Selenium is a 100X supplement which is added to conventional media at a ratio of 10 mL of Insulin-Transferrin-Selenium per liter of medium. In general, it is necessary to add 2 to 4% Fetal Bovine Serum to achieve optimal growth, although some established cell cultures may require less serum supplementation following initial adaptation.

Quality Control Testing

Each lot of Insulin-Transferrin-Selenium is tested for performance by determining the plating efficiency of Vero cells at 50 and 100 cells/well in a 6-well dish in Earle's MEM supplemented with 1% Insulin-Transferrin-Selenium and 1% FBS.

The relative plating efficiency must be at least 80% of the reference control Earle's MEM + 10% FBS.

References:

- ¹Bottenstein, J., Hayashi, I., Hutchings, S., Masui, H., Mather, J., McClure, D.B., Ohasa, S., Rizzino, A., Sato, G., Serrero, G., Wolfe, R. and Wu, R., *Methods in Enzymology*, vol.LVIII pp. 94-109, Academic Press, New York (1979).
- ²Czech, M.P., *Ann. Rev. Biochem.*, **46**:359-384 (1977).
- ³White, A., Handler, P. and Smith, E.L., *Principles of Biochemistry*, McGraw Hill, New York (1973).
- ⁴Aisen, P., *Iron in Biochemistry and Medicine*, ed. Jacobs, A. and Worwood, M., Academic Press, New York, pp. 87-129 (1980).
- ⁵Willson, R. L., *Iron Metabolism, Ciba Foundation Symposium 51*, (New Series), Elsevier, Amsterdam, pp. 331-349 (1977).
- ⁶Combs, G.F. Jr. and Combs, S.B., *The Role of Selenium in Nutrition*, pp. 205-263 (1986).
- ⁷Gill, G.N., Crivello, J.F., Hornsby, P.J. and Simonian, M.H., *Growth of Cells in Hormonally Defined Media*, pp. 461-492, ed. Sato, G.H., Pardee, A.B. and Sirbasku, D.A., Cold Spring Harbor Laboratory (1982).
- ⁸Stadtman, T.C., *FASEB, J.1*, pp. 375-379 (1987).

For further information on this or other GIBCO™ products, contact Technical Services at the following:

United States TECH-LINESM : 1 800 955 6288

Canada TECH-LINE: 1 800 757 8257

Outside the U.S. and Canada, refer to the GIBCO products catalogue for the TECH-LINE in your region.

You may also contact your Invitrogen Sales Representative or our World Wide Web site at www.invitrogen.com.

For research use only.
CAUTION: Not intended for human or animal diagnostic or therapeutic uses.