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TECHNICAL INFORMATION

Catalog Number: 2001344
ITS Premix Solution

Description: Culture of mammalian cells under serum free or near serum free conditions has greatly improved maintenance and control of cell proliferation and differentiation. Reduced serum content, with the introduction of defined media supplements, can provide valuable insight into the mechanism of cell growth and differentiation. It has also greatly facilitated the commercial production and purification of cell culture-derived biologicals. Reduction in the serum content of media also minimizes the negative impact of serum variability. ITS™ culture supplement provides insulin, transferrin, and selenium as required by most cultured cells, thus decreasing or eliminating serum requirements.[1,2] Insulin is a hormone supplement, transferrin a binding protein for hormones and nutrients, and selenium functions as a cofactor in the glutathione peroxidase pathway which may aid cell proliferation through its involvement in the scavenging of free radicals. Use of ITS™ as a media supplement has included metabolic labeling experiments in embryonal carcinoma cells,[3] determination of the effect of hormones and growth supplements on rhythmic contraction and survival of rat cardiac cells,[4] long term culture and transformation of human colon and other GI epithelial cells,[5] demonstration of the insulin requirements for LH-stimulated production of progesterone by bovine luteal cells,[6] culture of human mesangial cells from kidney glomeruli,[7] and culture of melanoma and astrocytoma cells in serum free medium.[8]

ITS™ Premix will stimulate cell proliferation while decreasing substantially the serum requirements for culture of many cell types as diverse, for example, as contractile rat heart cells and human colon mucosal epithelial cells. Basal media supplemented with ITS™ Premix and as little as 2% Fetal Bovine Serum support proliferation of many diploid and heteroploid cell lines at rates equivalent to those obtained with 10% serum.

Quantity and Form: 5 ml solution containing 0.5 mg/ml Insulin, 0.5 mg/ml Transferrin, and 0.5 ug/ml Selenious Acid.

Use: One milliliter of solution is sufficient to supplement 100 mL of medium, yielding the following final concentrations:

Insulin: 5 micrograms/ml
Transferrin: 5 micrograms/ml
Selenious Acid: 5 nanograms/ml

After opening, If entire contents of vial are not to be used immediately, aseptically aliquot single use portions into sterile plastic tubes, and store at -20°C.

Biological Activity: ITS™ Premix has been tested for mitogenic activity in as serum-free cell proliferation assay using HeLa cells (ATCC CCL 2.2). HeLa cells were cultured for 4 days in DMEM/F12 medium supplemented with 15 mM Hepes buffer, 10 ng/ml Epidermal Growth Factor, 100 ng/ml Fibroblast Growth Factor, 18 ng/ml Hydrocortisone in the presence or absence of ITS™ Premix (prepared as in Use section). Each lot will typically support a 2 fold increase in the number of HeLa cells over negative controls (no ITS™ Premix).

Sterility: ITS™ Premix is sterile filtered through a 0.2 micron filter. It has been tested and found negative for the presence of bacteria, fungi, and mycoplasma.

Storage and Stability: Unopened ITS™ Premix is stable until the expiration date stated on the label when stored at +4ºC, or for 3 months after opening, when stored in aliquots at -20ºC. Avoid multiple freeze thaws.

Availability:

Catalog # 2001344, ITS™ Premix, 5 ml size (sufficient for 0.5 liters)

References:

– Barnes, D., *BioTechniques*, **v. 5**:534 (1987).
– Barnes, D., and Sato, G., *Cell*, **v. 22**:649 (1980).
– Tienari, J., et. al., *J. Cell Science*, **v. 92**:561 (1983).

– Mohamed, S.N.W., et. al., *In Vitro*, **v. 19**:471 (1983).
– Moyer, M.P., and Aust, J.B., *Science*, **v. 224**:1445 (1984).
– Poff, J.P., et. al., *J. Reprod. Fert.*, **v. 82**:135 (1988).
– Martin, J., et. al., *Kidney International*, **v. 36**:790 (1989).
– Furukawa, K., et. al., *J. Immunol.*, **v. 142**:848 (1989).