

Chick Embryo Extract

Chick Embryo Extract (CEE) is used as a supplement in some growth media formulations.

Benefits

- Save time and money by purchasing a QA product instead of producing the product in house.
- Each batch of CEE is subjected to sterility and chemical analysis.
- Each batch of CEE is also tested by assaying for growth and the differentiation of mouse muscle cells - cells were derived from H-2K^b-tsA58 transgenic mouse ^{7, 13}.
- Two different product formulations are available – frozen and lyophilised.
- Material available with and without the addition of antibiotic.
- Free samples available for evaluation to mitigate batch variation.

Preparation

CEE is produced from chick embryos (Bovans Goldline). Eggs are collected from registered flocks found to be free from clinical signs of notifiable disease. The material is processed and filtered to 0.2 micron. This product is typically prepared with the addition of antibiotics. Material without antibiotic may be supplied on request.

Key Applications

To cultivate neural crest stem cells (NCSC) *in vitro*, a special neural crest stem cell medium (NCSCM) is required. The most complex part of the NCSCM is the preparation of CEE which provides a source of essential growth factors for growing rat neural crest stem cells and other types of neural explants.

CEE has also been used for the successful expansion of many specific stem cells and has demonstrated the ability to facilitate DNA demethylation.

Product Codes & Availability

Product Code	Pack Size	Antibiotic
CE-650-J - Frozen	20mL	Penicillin, Streptomycin & Amphotericin
CE-650-F - Frozen	500mL	
CE-650-DL - Lyophilised	10mL	
CE-650-JL - Lyophilised	20mL	

Storage & Use

Recommended storage is -20°C or below. Lyophilised product may be stored at +4°C. Recommended to reconstitute lyophilised product to 10ml using sterile water, agitate to mix. It is advised that lyophilised product is filtered through 0.2 micron filter after reconstitution to maintain sterility.

Literature

1. Beurg, M., *et al.* (1999) Differential Regulation of Skeletal Muscle L-type Ca²⁺ Current and Excitation-contraction Coupling by the Dihydropyridine Receptor Beta Subunit. *Biophys. J.*, 76(4): 1744-1756.
2. Bultynck, G., *et al.* (2001) Characterization and Mapping of the 12kda Fk506-binding Protein (Fkbp12)-binding Site on Different Isoforms of the Ryanodine Receptor and of the Inositol 1,4,5-trisphosphate Receptor. *Biochem. J.*, 354: 413-422.
3. Christman, S. A., *et al.* (2005) Chicken Embryo Extract Mitigates Growth and Morphological Changes in a Spontaneously Immortalized Chicken Embryo Fibroblast Cell Line. *Poultry Science*, 84(9):1423-1431.
4. Erbay, E. and Chen, J. (2001) The Mammalian Target of Rapamycin Regulates C2C12 Myogenesis via a Kinase- Independent Mechanism. *J. Biol. Chem.*, 276(39): 36079-36082.
5. Hagiwara, Y., *et al.* (1981) Chick Embryo Extract, Muscle Trophic Factor and Chick and Horse Sera as Environments for Chick Myogenic Cell Growth. *Develop., Growth and Differ.*, 23(3): 249-254 doi:10.1111/j.1440-169X.1981.00249.x
6. Hennige, A. M., (2008) Fetuin-A Induces Cytokine Expression and Suppresses Adiponectin Production. *PLoS One*, 3(3): e1765 doi: 10.1371/journal.pone.0001765.
7. Jat, P.S., *et al.* (1991) Direct Derivation of Conditionally Immortal Cell Lines from an H-2Kb-Tsa58 Transgenic Mouse. *PNAS*, 88(12): 5096-5100.
8. Kessler, P.D., *et al.* (1996) Gene Delivery to Skeletal Muscle Results in Sustained Expression and Systemic Delivery of a Therapeutic Protein. *PNAS*, 93(24): 14082-14087.
9. Krützfeldt, J., *et al.* (2000) Insulin Signalling and Action in Cultured Skeletal Muscle Cells From Lean Healthy Humans With High and Low Insulin Sensitivity. *Diabetes*, 49(6): 992-998.
10. Lecce, J. G., *et al.* (1953) Chick Embryo Extract, an Enrichment for Certain Strains of Pleuropneumonia Like Organisms Isolated from Man. *J. Bacteriol.*, 66(5): 622-623.
11. Kita, K., *et al.* (1998) Influence Of Chicken Embryo Extract On Protein Synthesis Of Chicken Embryo Depends On Cell Density. *AJAS*, 11(6): 713-717.
12. Mann, C.J., *et al.* (2001) Antisense-Induced Exon Skipping and Synthesis of Dystrophin in the Mdx Mouse. *PNAS*, 98(1): 42-47.
13. Morgan, J.E., *et al.* (1994) Myogenic Cell Lines Derived from Transgenic Mice Carrying a Thermolabile T Antigen: A Model System for the Derivation of Tissue-Specific and Mutation-Specific Cell Lines. *Dev Biol.*, 162(2): 486-498.
14. Mu, X., *et al.* (2013) Chick Embryo Extract Demethylates Tumor Suppressor Genes in Osteosarcoma Cells. *Clin Orthop Relat Res.*, [Epub ahead of print]
15. Muses, S., *et al.* (2011) A New Extensively Characterised Conditionally Immortal Muscle Cell-Line for Investigating Therapeutic Strategies in Muscular Dystrophies. *PLoS One*, 6(9): e24826 doi: 10.1371/journal.pone.0024826.
16. Pajtler, K., *et al.* (2010) Production of Chick Embryo Extract for the Cultivation of Murine Neural Crest Stem Cells. *J. Vis. Exp.* (45), e2380, doi:10.3791/2380.
17. Slater, C.R. (1976) Control of Myogenesis In Vitro by Chick Embryo Extract. *Dev. Biol.*, 50(2): 264-284.
18. Stefan, N., *et al.* (2007) Genetic Variations in PPARD and PPARGC1A Determine Mitochondrial Function and Change in Aerobic Physical Fitness and Insulin Sensitivity during Lifestyle Intervention. *J. Clin. Endocrinol. Metab.*, 92(5): 1827- 1833.
19. Suzuki, K., *et al.* (2001) Intracoronary Infusion of Skeletal Myoblasts Improves Cardiac Function in Doxorubicin-Induced Heart Failure. *Circulation*, 18:104 (12 Suppl 1) I213-I217 doi: 10.1161/ hc37t1.094929.
20. Turbow, M. M. (1966) Trypan Blue Induced Teratogenesis of Rat Embryos Cultivated In Vitro. *J. Embryo. Exp. Morphol.* 15(3): 387-395.
21. Weigert, C., *et al.* (2004) Palmitate, but Not Unsaturated Fatty Acids, Induces the Expression of Interleukin-6 in Human Myotubes through Proteasome-dependent Activation of Nuclear Factor-κB. *J. Biol. Chem.*, 279(23): 23942-23952.
22. Yablonka-Reuveni, Z. (1995) Myogenesis in the Chicken: The Onset of Differentiation of Adult Myoblasts is Influenced by Tissue Factors. *Basic and Applied Myology*, 5(1):33.
23. Zimmermann, W. H., *et al.* (2002) Tissue Engineering of a Differentiated Cardiac Muscle Construct. *Circ. Res.*, 90(2): 223-230 doi: 10.1161/hh0202.103644.

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