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BioWhittaker® UltraMDCK™ Serum-free Medium

Introduction

UltraMDCK™ Medium (Cat. No. 12-749Q) is a defined serum-free medium designed to support the growth of MADIN-DARBY canine kidney cells at low and high plating densities.

The MDCK cell line was originated by S.H. Madin and N.B. Darby in September of 1958 from a kidney of an apparently normal, adult, female cocker spaniel. The cells are heteroploid with an epithelial-like morphology. MDCK cells are used in the isolation of influenza A and influenza B viruses. They have been found to be susceptible to vesicular stomatitis (Indiana strain) virus, vaccina, Coxsackie B-5, reovirus types 2, 3 and adenovirus types 4 and 5[1]. MDCK cells have been used in functional studies such as the mechanisms of passive salt transport[2], protein[3], lipid[4] and drug[5] transport. MDCK cells have also been used in *in vitro* growth regulation studies[6] and in cytotoxicity tests[7].

The advantages of using a serum-free defined medium such as UltraMDCK™ Medium in the biotechnology industry and research labs are many. They include: 1) A defined growth environment without the inconsistencies and concerns of serum; 2) Simplified downstream purification procedures; 3) Lonza's strict adherence to FDA's IVD and regulatory guidelines; 4) Superior growth characteristics without the growth inhibitors commonly found in serum or growth factors to stimulate the growth of undesirable cell types.

UltraMDCK™ Medium is an optimized basal medium supplemented with only two proteins – recombinant human insulin and bovine transferrin, yielding a very low protein formulation. MDCK cells grown in UltraMDCK™ Medium are smaller and more densely packed than cells grown in the presence of serum.

Cultures can stay confluent for at least two weeks without medium change. Cells will continue to grow from the monolayer forming spherical structures called "floaters". "Floaters" can be harvested, pelleted by centrifugation and plated into fresh medium. They will re-attach and grow into a new monolayer.

A monolayer of MDCK cells is difficult to trypsinize especially when grown in a serum-supplemented medium. However, when grown in UltraMDCK™ Medium, trypsinization becomes less difficult.

UltraMDCK™ Medium is offered in 1 liter plastic bottles as a "complete" medium. UltraMDCK™ Medium has a shelf-life of one year.

References

1. R. Hay, et al. ATCC Catalogue of Cell Lines & Hybridomas. 7th edition: 21. 1992.
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3. J. Liu, et al. Identification of a putative tyrosine - o - sulphate (TyrS) receptor possibly functioning in the biosynthetic transport of tyrosine - sulphated proteins in Madin-Darby canine kidney cells. Biochem J. 294: 407-417. 1993.
4. G. van Meer and W. van't Hof. Epithelial sphingolipid sorting is insensitive to reorganization of the Golgi by nocodazole, but is abolished by monensin in MDCK cells and by brefeldin A in Caco-2 cells. J. Cell Sci 104: 833-942.1993.
5. G. Ranaldi, K. Islam, and Y. Sambuy. Epithelial cells in culture as a model for the intestinal transport of antimicrobial agents. Antimicrob Agents Chemother. 36: 1374-81.1992.
6. P. Boerner and M.H. Saier, Jr. Nutrient Transport and Growth Regulation in Kidney Epithelial Cells (MDCK) Cultured in a Defined Medium. In Growth of Cells in Hormonally Defined Media, Book A, Cold Spring Harbor Conferences on Cell Proliferation Volume 9, (ed. G.H. Sato, A.B. Pardee, and D.A. Sirbasku) pp. 555-565.1982.
7. R.F. Vesonder, H. Gasdorf and R.E. Peterson. Comparison of the cytotoxicities of Fusarium metabolites and Alternaria metabolite AALtoxin to cultured mammalian cell lines. Arch Environ Contam Toxicol 24: 473-7.1993.

Storage

2℃ to 8℃

Ordering Information

Catalog Number	Description	Size
12-749Q	UltraMDCK™ Medium with L-glutamine	1 L

Product Use Statement

THESE PRODUCTS ARE FOR RESEARCH USE ONLY. Not approved for human or veterinary use, for application to humans or animals, or for use in clinical or *in vitro* procedures.