

MATERIAL SALES OPPORTUNITY: 27008B

DATA SHEET INFORMATION FOR

Cell Line Names:

UB-OC2 (Organ of Corti cell line number 2)

Host species:

Mouse (C57 Black6)

Phenotype and Useful Applications:

Epithelial cell line suitable for studies on:

Inner ear development

Gene expression and function of inner ear-specific genes

In vitro screening for gene activation and promoter analysis

Ototoxicity (prescribed drugs and agents that ameliorate their affects)

Function of inherited deafness mutations

Functional analysis of ion channels, receptors and signalling pathways in vitro

Genotype:

Cells derived from C57 Bl6 mice carrying a stable insertion of the conditional immortalising gene H-2Kb-tsA58, which describes a temperature-sensitive variant of the SV40 immortalising gene that encodes the large tumour antigen under the control of the γ -interferon-sensitive MHC Class 1 promoter. The transgenic mouse is called the ImmortomouseTM (Jat et al 1991 Proc. Nat. Acad. Sci. USA 88, 5096-5100)

Characterisation & Specificity of Strain:

Derived from cochlear epithelium (organ of Corti), most likely the greater epithelial ridge (GER), at embryonic day E13.5 (plug in mouse designated E0.5 and birth at E18-19). At this stage the sensory hair cells have not differentiated and cells from the GER retain the capacity to differentiate as hair cells. UB/OC-2 was characterised by timed expression under differentiating conditions in vitro of a combination of gene and protein markers for epithelial cells and for inner ear sensory cells. These include Cytokeratin, Vimentin, Myosin VIIa, Myosin VI, Brn3c, α 9AChR/ α 10AChR and a combination of functional ion channels (see references). Screened with Affymetrix mouse Micro-arrays. The cells differ from UB/OC-1 by expressing more differentiation markers (eg Myosin VIIa and α 9AChR) under immortalising conditions. Thus they are easier for functional studies on these molecules.

Relevant publications involving the strain:

Rivolta MN, Grix N, Lawlor P, Ashmore JF, Jagger DJ, Holley MC (1998). Auditory hair cell progenitors immortalised from the mammalian inner ear. *Proc Roy Soc* **B265**: 1595-1603.

Jagger DJ, Holley MC & Ashmore, JF (1999). Ionic currents expressed in a cell line derived from the organ of Corti of the Immortomouse. *Pflugers Arch* **438**: 8-14.

Jagger D, Griesenger CB, Rivolta MN, Holley MC, Ashmore JF (2000). Calcium signalling mediated by the α 9 acetylcholine receptor in a cochlear cell line from the Immortomouse. *J. Physiol.* **527**:49-54.

Clough RL, Sud R, Davis-Silberman N, Hertzano R, Avraham KB, Holley MC, and Dawson SJ (2004) Brn-3c (POU4F3) regulates BDNF and NT-3 promoter activity. *Biochem Biophys Res Comm* 324: 372-381

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