Product sheet

OK Cells | 606465

General information

Description	The OK cell line is a permanent epithelial-like cell culture derived from kidney tissue of an adult female American opossum (Didelphis virginiana). Established in vitro, this cell line is notable for its non-diploid chromosomal modal number of 23 and its adaptability to tissue culture conditions. Initially derived from mixed cell types, the culture evolved into predominantly epithelial cells after eight passages. The OK cell line has been extensively characterized in terms of morphology, chromosomal constitution, and growth dynamics, making it a robust model for cytogenetic and chromosome isolation studies. One of the key features of the OK cell line is its utility in chromosome studies, especially for isolating the mammalian X chromosome. The opossum X chromosome is significantly smaller (approximately 30% smaller than the smallest autosomes) and does not contain large blocks of constitutive heterochromatin, facilitating separation from autosomes through techniques like flow microfluorometry and gradient centrifugation. The stable karyotype of the OK cells, with the presence of a distinctive metacentric marker chromosome, enhances their application in genomic and chromosomal studies. The paternal X chromosome's preferential inactivation in this marsupial provides a comparative model for studying mechanisms underlying X-chromosome inactivation in mammals. OK cells have also demonstrated resilience and adaptability in various culture conditions, including serum variations and different mitotic-arresting agents like Velban (vinblastine sulfate), which is particularly effective for achieving high mitotic indices for chromosome isolation. The cell line's ability to synchronize and produce high yields of metaphase cells further underscores its suitability for detailed chromosomal analyses, including DNA content quantification and high-resolution imaging of chromosomal spreads.
Organism	Opossum
Tissue	Kidney, cortex, Proximal tubule
Synonyms	Opossum Kidney, OK-WT

Characteristics

Age	Adult
Gender	Female
Morphology	Epithelial-like
Growth properties	Monolayer, adherent

Regulatory Data

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Citation	OK (Cytion catalog number 606465)
Biosafety level	1
NCBI_TaxID	9267
CellosaurusAccession	CVCL_0472

Biomolecular Data

Receptors expressed	Alpha2-adrenergic, serotonin, parathyroid hormone, atrial natriuretic factor

Handling

Culture Medium	EMEM (MEM Eagle), w: 2 mM L-Glutamine, w: 2.2 g/L NaHCO3, w: EBSS (Cytion article number 820100a)
Supplements	Supplement the medium with 10% FBS and 1% NEAA
Dissociation Reagent	Accutase
Subculturing	Remove the old medium from the adherent cells and wash them with PBS that lacks calcium and magnesium. For T25 flasks, use 3-5 ml of PBS, and for T75 flasks, use 5-10 ml. Then, cover the cells completely with Accutase, using 1-2 ml for T25 flasks and 2.5 ml for T75 flasks. Let the cells incubate at room temperature for 8-10 minutes to detach them. After incubation, gently mix the cells with 10 ml of medium to resuspend them, then centrifuge at 300xg for 3 minutes. Discard the supernatant, resuspend the cells in fresh medium, and transfer them into new flasks that already contain fresh medium.
Fluid renewal	2 to 3 times per week
Freeze medium	As a cryopreservation medium, we use complete growth medium (including FBS) + 10% DMSO for adequate post-thaw viability, or CM-1 (Cytion catalog number 800100), which includes optimized osmoprotectants and metabolic stabilizers to enhance recovery and reduce cryo-induced stress.

Thawing and Culturing Cells	1. Confirm that the vial remains deeply frozen upon delivery, as cells are shipped on dry ice to maintain optimal temperatures during transit. 2. Upon receipt, either store the cryovial immediately at temperatures below -150°C to ensure the preservation of cellular integrity, or proceed to step 3 if immediate culturing is required. 3. For immediate culturing, swiftly thaw the vial by immersing it in a 37°C water bath with clean water and an antimicrobial agent, agitating gently for 40-60 seconds until a small ice clump remains. 4. Perform all subsequent steps under sterile conditions in a flow hood, disinfecting the cryovial with 70% ethanol before opening. 5. Carefully open the disinfected vial and transfer the cell suspension into a 15 ml centrifuge tube containing 8 ml of room-temperature culture medium, mixing gently. 6. Centrifuge the mixture at 300 x g for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium. 7. Gently resuspend the cell pellet in 10 ml of fresh culture medium. For adherent cells, divide the suspension between two T25 culture flasks; for suspension cultures, transfer all the medium into one T25 flask to promote effective cell interaction and growth. 8. Adhere to established subculture protocols for continued growth and maintenance of the cell line, ensuring reliable experimental outcomes.
Incubation Atmosphere	37°C, 5% CO_2, humidified atmosphere.
Shipping Conditions	Cryopreserved cell lines are shipped on dry ice in validated, insulated packaging with sufficient refrigerant to maintain approximately −78 °C throughout transit. On receipt, inspect the container immediately and transfer vials without delay to appropriate storage.
Storage Conditions	For long-term preservation, place vials in vapor-phase liquid nitrogen at about −150 to −196 °C. Storage at −80 °C is acceptable only as a short interim step before transfer to liquid nitrogen.

Quality Control & Molecular Analysis

Sterility	Mycoplasma contamination is excluded using both PCR-based assays and luminescence-based mycoplasma detection methods. To ensure there is no bacterial, fungal, or yeast contamination, cell cultures are subjected to daily visual inspections.