Product sheet

TCMK-1 Cells | 305361

Description	TCMK-1 is a mouse kidney epithelial cell line that was transformed using simian virus 40 (SV40). This cell line was established to study SV40-induced cellular transformation and oncogenesis in murine kidney tissue. The transformation process resulted in cells with an altered morphology, increased proliferative capacity, and the ability to maintain continuous growth in vitro. TCMK-1 cells exhibit a predominantly epithelial phenotype with some spindle-shaped cells and multinucleated giant cells, which are common features of transformed cell lines. One of the key characteristics of TCMK-1 is the presence of SV40 large T-antigen, which plays a role in disrupting normal cell cycle regulation by inactivating tumor suppressor proteins such as p53 and RB. This mechanism facilitates uncontrolled cell division and enhances cellular survival. Immunofluorescence studies have confirmed the expression of SV40-specific antigens in TCMK-1 cells, providing further evidence of viral-induced transformation. Additionally, despite their transformed nature, these cells have not been observed to form tumors in vivo when injected into immunocompetent mice. TCMK-1 has been used in research involving viral oncogenesis, kidney cell physiology, and cellular transformation mechanisms. Due to its SV40 transformation, it serves as a useful model for studying viral-host interactions and the molecular pathways associated with cell immortalization. However, researchers should take into account that the presence of SV40 T-antigen may impact normal cellular functions, which could influence experimental outcomes.
Organism	Mouse
Tissue	Kidney
Disease	Normal
Synonyms	TCMK1, Transformed C3H Mouse Kidney-1

Breed/Subspecies	C3H/Mai
Age	1-2 months
Gender	Unspecified
Morphology	Epithelial
Growth properties	Adherent

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Citation	TCMK-1 (Cytion catalog number 305361)
Biosafety level	1
NCBI_TaxID	10090
CellosaurusAccession	CVCL_2772
GMO Status	GMO-S1: This murine kidney-derived cell line (TCMK-1) contains an SV40 T-Antigen introduced by infection with SV40 strain 777, supporting transformed and sustained proliferation. The viral sequences are stably present. This classification applies only within Germany and may differ elsewhere.

Antigen expression	H-2k
Tumorigenic	No; No, in immunosuppressed mice; Yes, in semisolid medium
Viruses	SV40
Virus susceptibility	Vesicular stomatitis, Glasgow (Indiana); Human poliovirus 1
Mutational profile	
Karyotype	Modal number = 78; range = 64 to 157. All cells showed 2-6 acrocentric chromosomes with secondary constrictions and 1-4 biarmed chromosomes per cells. Sixty percent of the cells had one or more minute chromosomes.

Culture Medium	RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO3 (Cytion article number 820700a)
Supplements	Supplement the medium with 10% FBS and 10 mM HEPES, 2,5g/L Glucose, 1 mM Sodiumpyruvate
Dissociation Reagent	Accutase 10 min at 37°C

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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.
Split ratio	1 to 3
Seeding density	2 to 4 x 10^4 cells/cm^2
Fluid renewal	Every 2 to 3 days
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.

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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.
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.