Product sheet

PtK2 Cells | 608316

General information

Description	PtK2 cells are an epithelial cell line derived from the kidney of a male long-nosed potoroo, Potorous tridactylis, a marsupial species. These cells are well-known for their large size and the small number of chromosomes (2n = 12), making them particularly useful in cytogenetic studies. Due to their easily visualized chromosomes, PtK2 cells serve as an excellent model for studying mitosis, chromosome movement, and the structural aspects of cell division. Additionally, they maintain a flat morphology throughout the cell cycle, including during mitosis, which aids in the observation of cellular processes under microscopy. PtK2 cells exhibit specific virus susceptibility patterns, being resistant to adenovirus 5, coxsackievirus B5, and poliovirus 2, while being susceptible to coxsackievirus A9, herpes simplex, vaccinia, and vesicular stomatitis viruses. Furthermore, these cells possess intermediate filaments composed of keratin, which contribute to their structural integrity. In biomedical research, PtK2 cells are often utilized in the study of cell division, virus-host interactions, and cytoskeletal organization.
Organism	Potoroo
Tissue	Kidney
Synonyms	Pt K2 (NBL-5), NBL-5, Pt-K2, PTK-2, Ptk-2, PTK 2, PtK 2, PTK2, Pt K2, Ptk2, Potorous tridactylus Kidney 2

Characteristics

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

Regulatory Data

Citation	PtK2 (Cytion catalog number 608316)
Biosafety level	1
NCBI_TaxID	9310
CellosaurusAccession	CVCL_0514

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Biomolecular Data

Virus susceptibility	Coxsackievirus A9, herpes simplex, vaccinia, vesicular stomatitis (Ogden)
Virus resistance	Adenovirus 5, coxsackievirus B5, poliovirus 2
Reverse transcriptase	Negative
Products	Keratin

Handling

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
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.
Seeding density	1×10^4 cells/cm^2
Post-Thaw Recovery	After thawing, plate the cells at 5×10^4 cells/cm^2 and allow the cells to recover from the freezing process and to adhere for at least 24 hours.
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.
Flask Coating	None
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.