

PtK1 Cells | 608393**General information****Description**

PtK1 is a kidney epithelial cell line derived from the rat kangaroo, *Potorous tridactylus*. Known for its large, flat cells, PtK1 is widely used in microscopy, particularly in studies involving mitosis and chromosome behavior. The large size of its chromosomes makes PtK1 an ideal model for visualizing chromosome dynamics during cell division, making it a popular choice in cytogenetic and molecular biology research.

PtK1 cells have also been utilized in studies involving cell fusion and hybridization, particularly between marsupial and eutherian species. These cells are often employed in somatic cell genetics due to their suitability for drug resistance selection. Researchers have developed drug-resistant variants of PtK1, making them useful for isolating hybrid cells and advancing our understanding of chromosome segregation and gene mapping in interspecies hybrids.

The cells are positive for keratin by immunoperoxidase staining.

Organism

Potoroo

Tissue

Kidney

Synonyms

Pt K1 (NBL-3), NBL-3, PTK-1, PTK 1, PtK 1, PTK1, PtK1, Pt-K1, Ptk1, *Potorous tridactylus* Kidney 1

Characteristics**Age**

Adult

Gender

Female

Morphology

Epithelial-like

Growth properties

Monolayer, adherent

Regulatory Data**Citation**

PtK1 (Cytion catalog number 608393)

Biosafety level

1

NCBI_TaxID

9310

CellosaurusAccession

CVCL_0489

PtK1 Cells | 608393**Biomolecular Data**

Virus susceptibility	Vesicular stomatitis (Indiana)
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Virus resistance	Poliovirus 2
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Reverse transcriptase	Negative
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Products	Keratin
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Handling

Culture Medium	RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO ₃ (Cytion article number 820700a)
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Supplements	Supplement the medium with 10% FBS
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Dissociation Reagent	Accutase
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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.
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Fluid renewal	2 times per week
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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.
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PtK1 Cells | 608393

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 $300 \times g$ 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

PtK1 Cells | 608393

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.