Product sheet

HK-2 Cells | 305021

General information

Description	The HK-2 cell line is a well-characterized human proximal tubular epithelial cell line derived from normal adult kidney tissue. These cells exhibit typical epithelial morphology and retain many of the biochemical and functional properties of proximal tubular cells, making them a valuable model for studying renal physiology and pathophysiology. HK-2 cells are known for their ability to perform active transport and exhibit brush border enzyme activities, which are essential for their role in renal reabsorption processes. HK-2 cells express a range of transporters and receptors, including those for glucose, amino acids, and various ions, reflecting their role in renal filtration and reabsorption. They are also responsive to hormonal regulation, such as by parathyroid hormone and aldosterone, which influence their transport activities. Due to these characteristics, HK-2 cells are extensively used in nephrotoxicity studies, drug screening, and research on renal diseases such as acute kidney injury and chronic kidney disease. Moreover, HK-2 cells have been utilized in studies investigating renal cell carcinoma and other kidney-related cancers. They provide a reliable in vitro system for examining cellular responses to toxic agents, oxidative stress, and hypoxia. Researchers also employ HK-2 cells to explore the molecular mechanisms underlying fibrosis and inflammation in the kidney. Overall, the HK-2 cell line is a critical tool in renal research, offering insights into both normal kidney function and disease pathogenesis.
Organism	Human
Tissue	Kidney, cortex, proximal tubule
Synonyms	Hk-2, HK2, Human Kidney-2

Characteristics

Age	Adult
Gender	Male
Ethnicity	European
Morphology	Epithelial
Growth properties	Adherent

Identifiers / Biosafety / Citation

Citation	HK-2 (Cytion catalog number 305021)

Biosafety level	HK-2 cells are generally classified as Biosafety Level 1 in Germany (ZKBS). However, due to their immortalization with HPV-16 oncogenes, some institutions may handle them at Biosafety Level 2 as a precaution. Consult local biosafety guidelines for specific handling procedures.

Expression / Mutation

Receptors expressed	Epidermal growth factor(EGF), expressed
Protein expression	Alkaline Phosphatase, Gamma Glutamyltranspeptidase, Leucine Aminopeptidase, Acid Phosphatase, Cytokeratin, Alpha 3, Beta 1 Integrin, Fibronectin

Handling

Culture Medium	EMEM, w: 2 mM L-Glutamine, w: 1.5 g/L NaHCO3, w: EBSS, w: 1 mM Sodium pyruvate, w: NEAA (Cytion article number 820100c)
Medium supplements	Supplement the medium with 10% FBS
Passaging solution	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.
Split ratio	1:2 to 1:4
Fluid renewal	2 to 3 times per week
Freeze medium	CM-1 (Cytion catalog number 800100)

Handling of cryopreserved cultures

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.

Quality control / Genetic profile / HLA

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.

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STR profile

Amelogenin: x,x
CSF1PO: 13
D13S317: 9
D16S539: 11,12
D5S818: 12
D7S820: 10,11
TH01: 9
TPOX: 8,9
vWA: 17,18
D3S1358: 16,17
D21S11: 28,3
D18S51: 12
Penta E: 10,11
Penta D: 9,12
D8S1179: 10,14
FGA: 20,22
D1S1656: 12,13
D6S1043: 12,13
D2S1338: 17,25
D12S391: 17.3,22
D19S433: 15,15.2