# RKO

305035

## GENERAL INFORMATION

### Description

RKO cells are a human colorectal carcinoma cell line widely used in research related to colon cancer. They are derived from a moderately well-differentiated adenocarcinoma of the colon and are notable for their wild-type p53 status, which is uncommon among many cancer cell lines. This feature makes RKO cells particularly valuable for studying p53 functions and the cellular mechanisms of DNA repair and apoptosis in the context of colorectal cancer.
RKO cells exhibit epithelial morphology and are characterized by their genetic stability and responsiveness to a variety of genetic and pharmacological manipulations. They are utilized in studies focusing on the molecular pathways involved in cancer progression, including cell cycle regulation, signal transduction, and metastasis. RKO cells provide insights into the role of various genes and environmental factors in colorectal cancer development and offer a platform for testing the efficacy of anti-cancer drugs.
Additionally, RKO cells are used to explore the complex interactions between cancer cells and their microenvironment, as well as the immune response to tumor cells. Their sensitivity to chemotherapeutic agents and radiation makes them suitable for use in drug discovery and development, helping to identify potential therapeutic targets and evaluate new treatment strategies for colorectal cancer.
Overall, RKO cells are a fundamental resource in colorectal cancer research, contributing significantly to our understanding of the disease's molecular biology and aiding in the development of more effective treatments.

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| **Tissue** | Colon |
| **Disease** | Colon carcinoma |

## CLASSIFICATION

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| **Organism** | Human |
| **Growth properties** | Adherent |
| **Biosafety level** | 1 |

## CHARACTERISTICS

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| **Morphology** | Epithelial |
| **Tumourigenic** | Yes |

## IDENTIFIERS

### Citation

RKO (Cytion catalog number 305035)

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| **NCBI TaxID** | 9606 |
| **Cellosaurus** | CVCL_0504 |

## EXPRESSION AND SUSCEPTIBILITY

### Receptors expressed

Urokinase receptor(u-PAR)

## HANDLING AND CULTURE

### Culture medium

EMEM (MEM Eagle), w: 2 mM L-Glutamine, w: 2.2 g/L NaHCO3, w: EBSS (Cytion article number 820100a)

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| **Incubation atmosphere** | 37°C, 5% $CO_2$, humidified atmosphere. |

### Supplements

Supplement the medium with 10% FBS and 1% NEAA

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| **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.

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| **Fluid renewal** | 2 to 3 times per week |

### Thawing and culturing

Confirm that the vial remains deeply frozen upon delivery, as cells are shipped on dry ice to maintain optimal temperatures during transit. 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.
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.
Perform all subsequent steps under sterile conditions in a flow hood, disinfecting the cryovial with 70% ethanol before opening.
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.
Centrifuge the mixture at 300 x g for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium.
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.
Adhere to established subculture protocols for continued growth and maintenance of the cell line, ensuring reliable experimental outcomes.

## QUALITY CONTROL AND CRYOPRESERVATION

### 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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| **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. |

### 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.

### 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.

## DONOR

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| **Ethnicity** | African |

## LEGAL AND SAFETY

### Safety precautions

When planning to store a cryovial in liquid nitrogen for future thawing, it is mandatory to adhere to stringent safety measures. Appropriate protective gloves and clothing are essential, and the use of a face mask or safety goggles is required during the transfer of frozen samples to or from the liquid nitrogen tank. This is to mitigate the risk of injury from potential cryovial explosions upon removal, which can result in the projection of sharp fragments.

### Warranty

At Cytion, we stand behind the quality and viability of our products.
We guarantee that our cells will be viable at the start of culture for
60 days after shipment from our facilities.
We assure that all materials conform to the specifications described in the
Certificate of Analysis and/or Product Sheet.
For full details, please refer to our
Warranty Statement.

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| **Material Transfer Agreement required** | Yes |

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