Product sheet

VMRC-RCZ | 305886

Description	The VMRC-RCZ cell line is a human renal cell carcinoma (RCC) line established from a patient with clear cell type kidney cancer. It was derived to investigate the biological and genetic underpinnings of renal carcinogenesis, particularly with regard to chromosomal abnormalities and tumor progression. Cytogenetic analysis of VMRC-RCZ has revealed deletion of the short arm of chromosome 9, specifically within the 9p21-22 region. This deletion implicates the loss of key tumor suppressor genes such as CDKN2A, which is commonly associated with various malignancies and plays a role in cell cycle regulation. In broader cancer genome analyses, VMRC-RCZ has contributed to the mapping of homozygous deletions across multiple tumor types. These studies show that regions like 9p21 often exhibit structural instability in cancer cell lines, including VMRC-RCZ, suggesting that genomic deletions in this region may confer a selective growth advantage during tumor evolution. Additionally, VMRC-RCZ has been incorporated into high-resolution genomic profiling platforms for the systematic identification of cancer-related mutations and copy number alterations, making it a valuable model for studying RCC pathogenesis and for the exploration of potential therapeutic vulnerabilities in renal malignancies.
Organism	Human
Tissue	Kidney
Disease	Renal cell carcinoma
Metastatic site	Renal
Synonyms	VMRCRCZ, Virginia Mason Research Center-Renal Cancer Z

Age	Age unspecified
Gender	Sex unspecified
Ethnicity	Caucasian
Growth properties	Adherent

Citation	VMRC-RCZ (Cytion catalog number 305886)

Product sheet

VMRC-RCZ | 305886

Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_1791

Mutational profile	Mutation: TP53, Simple, p.Asp48Valfs*74 (c.143_146del4), Heterozygous (Cosmic-CLP=909781), VHL, Simple, c.463+2T>C, Heterozygous, Note=Splice donor mutation (Cosmic-CLP=909781)

Culture Medium	EMEM (MEM Eagle), w: 2 mM L-Glutamine, w: 2.2 g/L NaHCO3, w: EBSS (Cytion article number 820100a)
Supplements	Supplement the medium with 10% FBS
Dissociation Reagent	Accutase
Split ratio	A ratio of 1:6 is recommended.
Fluid renewal	2 to 3 times per week
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.

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.