

22RV1 Cells | 305037

General information

Description

The 22Rv1 cell line is a human prostate carcinoma cell line that was established from a xenograft initiated by the inoculation of a hormone-refractory prostate cancer cell line, CWR22, into athymic nude mice. The CWR22 xenograft was derived from a primary prostate carcinoma. Upon regression after castration and subsequent relapse, the 22Rv1 cell line was established from the relapsed tumor, which exhibited androgen-independent growth.

22Rv1 cells express the androgen receptor (AR) and prostate-specific antigen (PSA), essential markers in prostate cancer research and therapeutic targeting. Notably, this cell line contains a variant form of the AR known as AR-V7. This splice variant lacks the ligand-binding domain, enabling it to remain constitutively active and contribute to the androgen-independent proliferation of 22Rv1 cells, a critical aspect of castration-resistant prostate cancer (CRPC).

The 22Rv1 cell line is extensively used to investigate the mechanisms underlying the transition from androgen-dependent to androgen-independent prostate cancer growth, a key challenge in the treatment of advanced prostate cancer. 22Rv1 cells have facilitated significant advancements in understanding the molecular biology of CRPC, including the role of AR variants in resistance to androgen deprivation therapy (ADT) and the development of novel therapeutic strategies aimed at overcoming this resistance.

In summary, the 22Rv1 cell line, serves as a critical model for studying CRPC. Exhibiting androgen-independent growth, these cells express key prostate cancer markers such as AR and PSA, and notably contain the AR-V7 variant, which is constitutively active due to the absence of the ligand-binding domain. The 22Rv1 cell line's unique properties make it invaluable for exploring the transition from androgen-dependent to independent growth in prostate cancer, and thereby aid in the development of new therapeutic approaches to tackle advanced stages of the disease.

Organism Human

Tissue Prostate

Disease Prostate carcinoma

Synonyms 22Rv1, 22Rv-1, 22rv1, CWR-22rv1, CWR22-Rv1, CWR22R-V1, CWR22-R1, CWR22Rv1, CWR22R

Characteristics

Age Adult

Gender Male

Ethnicity European

Morphology Epithelial

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Growth properties	Adherent
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Regulatory Data

Citation	22RV1 (Cytion catalog number 305037)
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Biosafety level	2
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NCBI_TaxID	9606
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CellosaurusAccession	CVCL_1045
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Biomolecular Data

Antigen expression	Prostate-specific antigen (PSA)
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Tumorigenic	Yes
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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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Doubling time	40 to 60 hours
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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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Split ratio	1:3 to 1:6
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Fluid renewal	2 to 3 times per week
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Freeze medium	As a cryopreservation medium, 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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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.

STR profile

Amelogenin: x,y
CSF1PO: 10,11
D13S317: 9,12
D16S539: 12
D5S818: 11,13
D7S820: 9,10,11
TH01: 6,9,3
TPOX: 8
vWA: 15,21
D3S1358: 15
D21S11: 30
D18S51: 13,14
Penta E: 5,13
Penta D: 9,12
D8S1179: 13,14
FGA: 20,23