C4-2

305752

GENERAL INFORMATION

Description

The C4-2 cell line is an androgen-independent human prostate cancer model derived from the parental LNCaP cell line. It was established through a stepwise in vivo selection process involving co-injection of LNCaP cells with human bone stromal cells (MS cells) into castrated immunodeficient mice, leading to the emergence of androgen-insensitive tumors. The C4-2 subline was specifically derived from the C4 variant after further passage in castrated hosts, and it retains the ability to grow and form tumors in androgen-depleted conditions without the need for stromal support.

C4-2 cells maintain the prostate-specific antigen (PSA) production and expression of the androgen receptor (AR), including the characteristic T877A AR point mutation inherited from LNCaP, but display reduced androgen responsiveness compared to the parental line. While LNCaP cells require androgens for growth, C4-2 cells proliferate in androgen-depleted environments and continue to express PSA and AR-regulated genes, making them a robust model for castration-resistant prostate cancer (CRPC). In vitro, C4-2 cells grow more rapidly than LNCaP under standard culture conditions, and they also exhibit improved tumorigenicity in vivo. When injected subcutaneously into immunocompromised mice, C4-2 cells readily form tumors, a feature that contrasts with the slower or less consistent tumorigenic potential of LNCaP cells.

The C4-2 model has been widely used to study mechanisms of resistance to androgen deprivation therapy (ADT), the role of intracrine androgen metabolism, and the molecular pathways underpinning CRPC progression. It retains expression of prostate-specific membrane antigen (PSMA), although at lower levels than LNCaP, and displays unique responses to androgen stimulation and antiandrogen therapies. These attributes make C4-2 a cornerstone model for evaluating new therapeutics targeting advanced prostate cancer.

Tissue	Metastatic
Disease	Prostate carcinoma

Synonyms

- LNCaP-C4-2
- LNCaP subline C4-2
- C4-2
- C42
- Sp 2817

CLASSIFICATION

Organism	Human
Sex	Male
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Morphology	Epithelial-like

IDENTIFIERS

Citation

C4-2 (Cytion catalog number 305752)

NCBI TaxID	9606

Cytion GmbH
Nikola-Tesla-Str. 3
69124 Heidelberg
Tel: +49 (0)6221 405780
info@cytion.com
cytion.com

Registered office Heidelberg
VAT ID: DE283292917
Local court Mannheim - HRB 714394
CEO / Geschäftsführer: Jonathan Steubing

Banking information
Sparkasse Heidelberg
IBAN: DE35 6725 0020 0009 2076 86
BIC: SOLADES1HDB

Cellosaurus	CVCL_4782

EXPRESSION AND SUSCEPTIBILITY

Mutational profile

Mutation: AR, Simple, p.Thr878Ala (c.2632A>G), Hemizygous. Mutation, MEN1, Simple, p.Tyr318Ter (c.954T>G) (p.Tyr313Ter, c.939T>A), Heterozygous (from parent cell line).Mutation, PIK3R1, Simple, p.Arg639Ter (c.1915C>T), Heterozygous (from parent cell line).Mutation, PTEN, Simple, p.Lys6Argfs*4 (c.17_18delAA), Unspecified (from parent cell line).

HANDLING AND CULTURE

Culture medium

DMEM:Hams F12 (4:1)

Incubation atmosphere	37°C, 5% CO_2, humidified atmosphere.

Supplements

Supplement the medium with 10% hia FBS

Seeding density	2 - 3 x 10^4 cells/cm2
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.

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

Donor age	50 years
Ethnicity	Caucasian

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.

Disclaimer

Our cells are provided for in vitro laboratory research purposes exclusively and are not intended for clinical or diagnostic use, nor are they to be administered to humans or used for veterinary purposes. Users must adhere to all applicable guidelines and regulations for the handling and use of these cells in a research setting.

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.

Material Transfer Agreement required	Yes