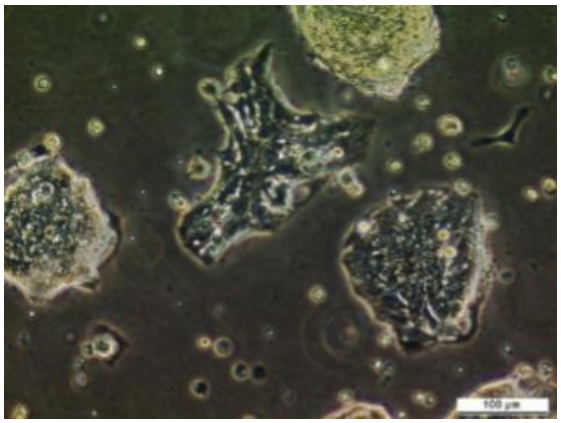
Cell line profile

VCaP (ECACC catalogue no. 06020201)

Cell line history

This Vertebral-Cancer of the Prostate (VCaP) cell line was established in 1997 from prostate cancer tissue harvested from a metastatic lesion to a lumbar vertebral body of a patient with hormone refractory prostate cancer. It was passaged in xenografts in mice prior to being cultured *in vitro*.



Key characteristics

VCaP has been reported to express copious quantities of prostate specific antigen (PSA). This cell line also expresses prostatic acid phosphatase (PAP), cytokeratin-18 and the androgen receptor, and is androgen sensitive in vitro and in vivo. It is the only prostate cancer cell model that express the Androgen receptor splice variant, AR-V7, and the TMPRSS2-ERG gene fusion. VCaP has a doubling time of approximately 53 hours.

Applications

This cell line offers a cell-based model system of human prostate cancer. The cells are tumourigenic in SCID mice. As VCaP expresses wild type androgen receptor and can also grow in an androgen-independent manner, it is an ideal cell line for studying castrationresistant prostate cancer.

Culture tips

VCaP cells are delicate. Take care to always treat them gently, i.e., slow centrifuge speeds, do not pipette aggressively, etc.

VCaP cells can grow as a monolayer and in floating or adherent clusters (Figures 1 & 2). Cell clumps will likely be present, and it may be difficult to break up all of them. Our lab has found that it is better to leave them in small clumps than to over-pipette them.

Floating cell clusters and heavy debris are normal characteristics of VCaP cells. Do not discard the floating cells clumps; gently centrifuge cells suspended in media and add them back to parental flask.

Our lab has found that coating culture flasks with matrigel can improve adherence and reduce the amount of floating cells (see protocol step 1).

VCaP cells grow very slowly. It may take 2-3 weeks for a T-75 flask to reach confluency.

VCaP cells should always be cultured with conditioned media (for T-75 flasks: 9mL fresh media + 1mL old media). Conditioned media can be saved/stored at -20°C for future use.

VCaP cells are very sensitive to trypsin. Do not subculture them in media containing trypsin.

Key references

Korenchuk, S; Lehr, JE; MClean, L; Lee, YG; Whitney, S; Vessella, R; Lin, DL; Pienta, KJ (2001). "VCaP, a cell-based model system of human prostate cancer". In vivo (Athens, Greece). 15 (2): 163–8.

PMID 11317522. Sprenger, Cynthia C. T.; Plymate, Stephen R. (6 May 2014). "The Link Between Androgen Receptor Splice Variants and Castration-Resistant Prostate Cancer". Hormones and Cancer. 5 (4): 207–217. doi:10.1007/s12672-014-0177-y. PMC 4308035 Freely accessible.

Related cell lines	ECACC catalogue number	Description
PC-3	90112714	Human prostate adenocarcinoma. COSS1998469 Prostate (Carcinoma; Adenocarcinoma
PNT1A	95012614	Normal human post pubertal prostate immortalised with SV40.
PNT2	95012613	Normal human prostate immortalised with SV40.
SerBob	10021101	Spontaneously immortalized human prostate cancer (requires foetal bovine serum (FBS)).
Shmac 1	11102001	Prostate cancer.
Shmac 4	10112302	Prostate cancer moderately well differentiated, early stage.

Shmac 5	10112303	Prostate cancer moderately well differentiated, early stage.
P4E6	10112301	Prostate cancer well differentiated, early stage.
LNCap clone FGC	89110211	Human Caucasian prostate carcinoma. Cosmic sample COSS2580128 Prostate (Carcinoma; Adenocarcinoma) (LNCap)
Bob	10021102	Spontaneously immortalized human prostate cancer (serum-free)
22Rv1	05092802	Human prostate xenograft. Cosmic sample COSS1689707 Prostate (Carcinoma; Adenocarcinoma)
PNT1A (SERUM FREE)	07052901	Normal human prostate immortalised with SV40 (serum free)
PNT2 (SERUM FREE)	07042701	Human prostate normal, serum-free