Data Sheet

VOA1066 Human Undifferentiated Endometrial Carcinoma Cell Line

SCC489

Pack Size: ≥ 1x10^6

Store in liquid nitrogen.

FOR RESEARCH USE ONLY

Not for use in diagnostic procedures. Not for human or animal consumption.

Background

Endometrial cancer (EC) is the sixth most common cancer globally in women, with an estimated 417,367 new cases in 2020.[1] EC can be divided in two types: estrogen-dependent type I which is the most common and estrogen-independent type II that is more aggressive.[2] Within type II, one subtype is dedifferentiated EC, where an undifferentiated carcinoma develops from a low-grade endometroid endometrial cancer.[2] Dedifferentiated EC has a worse prognosis, with a median survival of 6 months and disease-related death rate ranges from 41% to 75% occurring in the first 5 years after diagnosis.[3]

VOA1066 is a human undifferentiated endometrial carcinoma cell line derived from endometrial primary tumor tissue collected at the time of surgery from a 74-year old woman.[2] VOA1066 is tumorogenic *in vivo*, has metastatic ability in immunodeficient mice and the xenografted tumor morphology is similar to that of the primary tumor. This cell line is chromosomally and genomically stable, and has a single translocation identified by karyotype.[2] VOA1066 contains few somatic mutations which include inactivating mutations of ARID1A and ARID1B, and a heterozygous hotspot DICER1 mutation in its RNase IIIb domain.[2] Genomic studies of dedifferentiated EC have shown three types of inactivating mutations in subunits of the SWI/SNF chromatin remodeling complex including SMARCA4, SMARCB1 and ARID1B.[4] VOA1066 can be used to study the effects of SWI/SNF mutations in EC as well as to understand the pathogenesis of the disease.

Source

VOA1066 undifferentiated endometrial carcinoma cell line was isolated from endometrial primary tumor tissue.

Short Tandem Repeat

D3S1358: 14, 15	D7S820: 8, 11	vWA: 16	FGA: 23, 24	D8S1179: 11, 13
D21S11: 29, 31.2	D18S51: 12, 17	D5S818: 11, 15	D13S317: 11, 12	D16S539: 11,12
TH01: 7, 9.3	TPOX: 9, 11	CSF1PO: 10, 11	AMEL: X	Penta D: 12
Penta E: 7, 10				

Quality Control Testing

- VOA1066 cells are verified to be of human origin and negative for mouse, rat, Chinese hamster, Golden Syrian hamster, and non-human primate interspecies contamination, as assessed by a Contamination Clear panel by Charles River Animal Diagnostic Services.
- Cells tested negative for infectious diseases against a Human Essential CLEAR panel by Charles River Animal Diagnostic Services.
- Cells tested negative for mycoplasma.

Storage and Handling

VOA1066 cells should be stored in liquid nitrogen until use. The cells can be cultured for at least 10 passages after initial thawing without significantly affecting the cell marker expression and functionality.

Representative Data

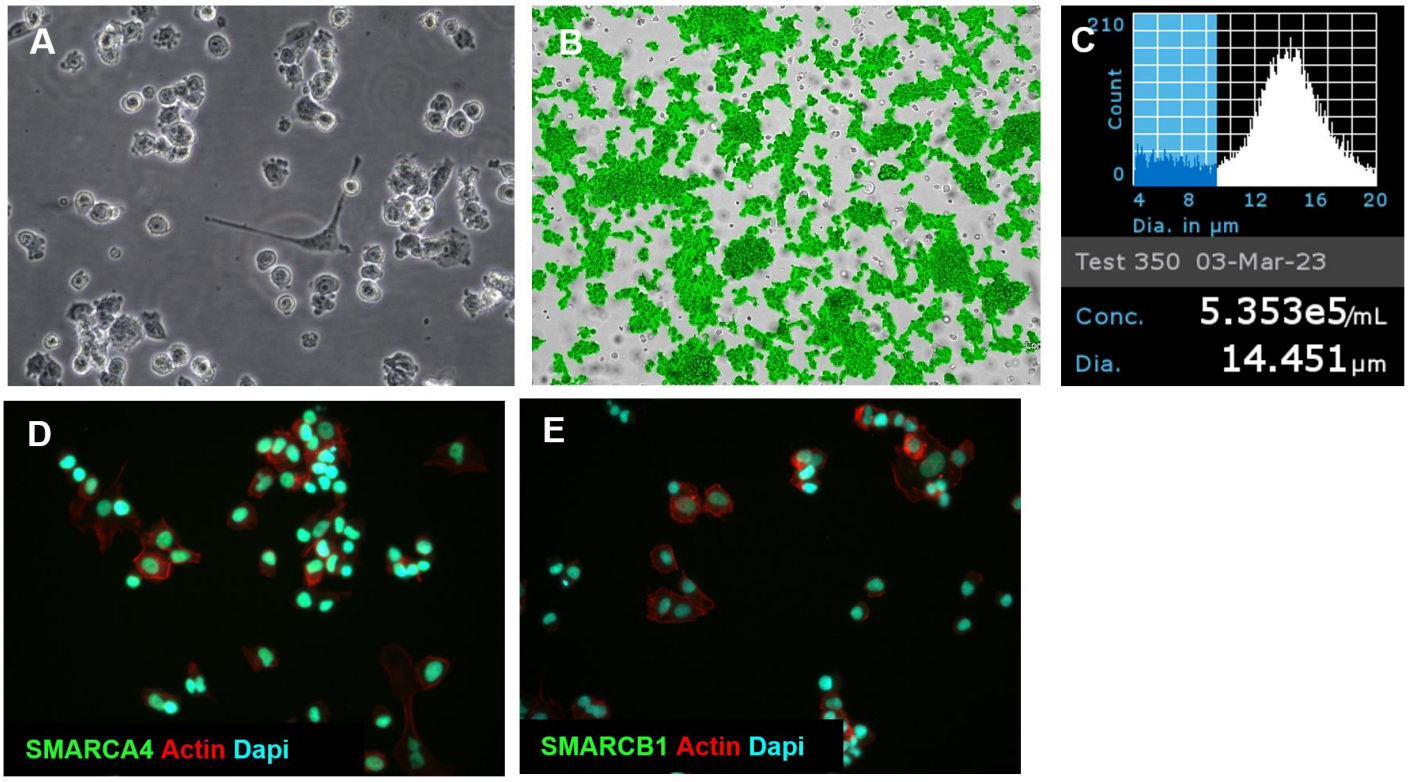

Figure 1. Bright-field image of VOA1066 cells one day after thaw in a T75 flask (**A**). Cell confluency was assessed throughout the culture using the Millicell® Digital Cell Imager (**B**, Cat. No. MDCI10000). Cell counting was performed using Scepter™ 3.0 handheld automated cell counter using 40 µm sensor tips (**C**, Cat. No. PHCC360KIT). Cells express actin (**D** and **E**, Cat. No. 49409), SMARCA4/BRG1 (**D**, Abcam 110641), and SMARCB1, (**E**, Cell Signaling Technologies 91735).

Protocols

Thawing the Cells

1. Do not thaw the cells until the recommended medium is on hand. Cells can grow on standard tissue cultureware surfaces without any additional coating. Cells are thawed and expanded in VOA1066 Expansion Medium comprising DMEM High-glucose medium (Cat. No. D5796) and 10% FBS (Cat. No. ES-009-B).
2. Remove the vial of frozen VOA1066 cells from liquid nitrogen and incubate in a 37 °C water bath. Closely monitor until the cells are completely thawed. Maximum cell viability is dependent on the rapid and complete thawing of frozen cells.

   IMPORTANT: Do not vortex the cells.
3. As soon as the cells are completely thawed, disinfect the outside of the vial with 70% ethanol. Proceed immediately to the next step.
4. In a laminar flow hood, use a 1- or 2-mL pipette to transfer the cells to a sterile 15 mL conical tube. Be careful not to introduce any bubbles during the transfer process.
5. Using a 10 mL pipette, slowly add dropwise 9 mL of VOA1066 Expansion Medium (Step 1 above) to the 15 mL conical tube.

   IMPORTANT: Do not add the entire volume of media all at once to the cells. This may result in decreased cell viability due to osmotic shock.
6. Gently mix the cell suspension by slowly pipetting up and down twice. Be careful not to introduce any bubbles.

   IMPORTANT: Do not vortex the cells.
7. Centrifuge the tube at 300 x *g* for 2-3 minutes to pellet the cells.
8. Decant as much of the supernatant as possible. Steps 5-8 are necessary to remove residual cryopreservative (DMSO).
9. Resuspend the cells in 15 mL of VOA1066 Expansion Medium and transfer the cell mixture to a T75 tissue culture flask.
10. Incubate the cells at 37 °C in a humidified incubator with 5% CO_2.

Subculturing the Cells

Cells tend to aggregate; some cells are lightly adherent while others may grow as floating suspension.

1. Do not allow the cells to grow to confluency. VOA1066 cells should be passaged at ~ 80-85% confluency.
2. Carefully observe if there are any floating cell suspension. If so, collect the floating cells and set aside.
3. Rinse the flask with DMEM base media (D5796) being careful to not dislodge the weakly adherent cells. Aspirate carefully after the rinse.
4. Apply 3-5 mL of Accutase® and incubate in a 37 °C incubator for 3-5 minutes.
5. Inspect the flask and ensure the complete detachment of cells by gently tapping the side of the flask with the palm of your hand. Add 5-7 mL of VOA1066 Expansion Medium to the plate.
6. Swirl the flask to mix the cell suspension. Transfer the dissociated cells to the cell suspension from step 2.
7. Centrifuge the tube at 300 x *g* for 3-5 minutes to pellet the cells.
8. Discard the supernatant, then loosen the cell pellet by tapping the tip of the tube with a finger.
9. Apply 2-5 mL of VOA1066 Expansion Medium to the conical tube and resuspend the cells thoroughly. Large cell clumps may be broken up by gentle trituration.

   IMPORTANT: Do not vortex the cells.
10. Count the number of cells using a hemocytometer or a Scepter™ 3.0 handheld automated cell counter.
11. Plate the cells to the desired density. Typical split ratio is 1:6.

Cryopreservation of the Cells

VOA1066 cells may be frozen in VOA1066 Expansion Medium supplemented with 10% DMSO using a Nalgene® slow freeze Mr. Frosty™ container.

References

1. Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, Bray F. 2021. Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. CA Cancer J Clin. 71(3): 209–249.
2. Wang Y, Tao VL, Shin CY, Salamanca C, Chen SY, Chow C, Köbel M, Ben-Neriah S, Farnell D, Steidl C, et al. 2020. Establishment and characterization of VOA1066 cells: An undifferentiated endometrial carcinoma cell line. PLoS One. 15(10): e0240412.
3. Al-Loh S, Al-Hussaini M. 2013. Undifferentiated endometrial carcinoma: a diagnosis frequently overlooked. Arch Pathol Lab Med. 137(3): 438–442.
4. Wang Y, Hoang L, Ji JX, Huntsman DG. 2020. SWI/SNF complex mutations in gynecologic cancers: molecular mechanisms and models. Annu Rev Pathol. 15: 467–492.

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