Product sheet

SCC-7 Cells | 305622

General information

Description	The SCC-7 (or SCC-VII) cell line is a murine squamous cell carcinoma model derived from the spontaneous tumor of a C3H mouse. It has been widely utilized in cancer research, particularly for studies involving tumor radiation responses, chemotherapy, and hypoxia-related resistance mechanisms. SCC-7 is known for its adaptability in syngeneic C3H mice, where it forms solid tumors upon subcutaneous inoculation. This characteristic makes it a suitable preclinical model for evaluating therapeutic interventions and understanding the cellular responses to treatment. Studies on SCC-7 tumors have demonstrated their heterogeneity in sensitivity to chemotherapeutic agents. For instance, in experiments evaluating the cytotoxic effects of CCNU (1-(2-chloroethyl)-3-cyclohexyl-1-nitrosourea), SCC-7 showed enhanced sensitivity when treated in combination with the hypoxic radiosensitizer misonidazole. The addition of misonidazole increased the cytotoxic effects of CCNU, potentially due to the enhancement of DNA crosslinking or inhibition of DNA repair mechanisms under hypoxic conditions. Importantly, the enhancement ratio for SCC-7 was reported to be approximately 1.7 to 1.8, indicating a significant increase in tumor cell killing. SCC-7 tumors are often used to explore the impact of hypoxia on treatment resistance. These tumors display characteristics of hypoxic regions, which mimic the clinical challenge of oxygen deprivation within solid tumors. The tumor's clonogenic potential is also assessed through survival assays, which determine the fraction of viable cells post-treatment, providing critical insights into treatment efficacy. SCC-7 serves as a robust preclinical model for squamous cell carcinoma research. Its use in radiation biology, hypoxia studies, and chemotherapeutic evaluation has contributed significantly to understanding tumor responses to therapy and developing strategies to overcome treatment resistance.
Organism	Mouse
Tissue	Abdominal wall
Disease	squamous cell carcinoma
Synonyms	SCC-7, SCCVII/St, SCCVII, SCC VII

Characteristics

Breed/Subspecies	C3H
Age	Unspecified
Gender	Unspecified
Morphology	Epithelial-like

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Growth properties	Adherent

Regulatory Data

Citation	SCC-7 (Cytion catalog number 305622)
Biosafety level	1
NCBI_TaxID	10090
CellosaurusAccession	CVCL_V412

Biomolecular Data

Handling

Culture Medium	RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO3 (Cytion article number 820700a)
Supplements	Supplement the medium with 10% FBS
Dissociation Reagent	Accutase
Seeding density	1 to 3 x 10^4 cells/cm^2
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.

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.