Product sheet

SW480-Luc | 305698

General information

Description	SW480-Luc is a bioluminescent derivative of the human SW480 colon adenocarcinoma cell line, engineered to stably express a firefly luciferase reporter gene. The parental SW480 cell line was established from a primary colon adenocarcinoma of a 51-year-old Caucasian male patient and is widely used as a model of primary colorectal cancer. SW480 cells exhibit epithelial-like morphology and harbor key oncogenic mutations including KRAS G12V, TP53 R273H and P309S, and APC truncation, making this line a relevant model for studying the role of Wnt/β-catenin and KRAS signaling in colorectal cancer. Importantly, SW480 was derived from the same patient as SW620 but represents the primary tumor, allowing comparative studies of primary versus metastatic colorectal cancer biology. The stable luciferase integration in SW480-Luc enables sensitive, quantitative bioluminescence imaging (BLI) of tumor burden in subcutaneous and orthotopic xenograft models using immunocompromised hosts. The emitted luminescent signal correlates with viable tumor cell number, supporting noninvasive longitudinal monitoring of tumor engraftment, growth kinetics, and therapeutic response. SW480-Luc is widely used for in vivo evaluation of KRAS-targeted agents, Wnt pathway inhibitors, and chemotherapeutic regimens in colorectal cancer, as well as for comparative studies with the matched metastatic SW620 line. SW480-Luc retains the established molecular characteristics of the parental SW480 line, including KRAS, TP53, and APC mutations. The luciferase modification substantially enhances experimental throughput and sensitivity for in vivo pharmacodynamic studies. Researchers should verify luciferase activity, mutational profile, and growth kinetics under their specific experimental conditions prior to large-scale preclinical use.
Organism	Human
Tissue	Colon
Disease	Colon adenocarcinoma

Characteristics

Age	51 years
Gender	Male
Ethnicity	Caucasian
Morphology	Epithelial-like
Growth properties	Adherent

Regulatory Data

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Citation	SW480-Luc (Cytion catalog number 305698)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_C8Y1
GMO Status	GMO-S1: This cell line contains a stably integrated firefly luciferase reporter cassette (Luc2, codon-optimized) introduced via replication-incompetent lentiviral transduction. The resulting polyclonal cell population was maintained under puromycin selection (1–5 µg/mL). S1 containment is required. This classification applies only within Germany and may differ elsewhere.

Biomolecular Data

Receptors expressed	Epidermal growth factor (EGF), keratin (immunoperoxidase staining). Matrilysin, a metalloproteinase associated with tumor invasiveness, is not expressed.
Protein expression	P53 protein; Luc2 (firefly, codon-optimized)
Antigen expression	HLA A2, B8, B17, blood type A, Rh+. Luc2 (firefly, codon-optimized)
Isoenzymes	G6PD, B, PGM1, 2, PGM3, 1, 6PGD, A, PEP-D, 1, ES-D, 1
Tumorigenic	Yes, in nude mice
Viruses	Reverse transcriptase negative
Virus susceptibility	Human immunodeficiency virus (HIV, LAV)
Products	Carcinoembryonic antigen (CEA) 0.7 ng/106 cells/10 days, keratin, TGF-β. The cells have been reported to produce GM-CSF.
Mutational profile	Mutation: p.Gln1338Ter, Homozygous; Mutation: p.Gly12Val, Homozygous; Mutation: p.Arg273His, Heterozygous; Mutation: p.Pro309Ser, Heterozygous

Handling

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Culture Medium	Ham's F12, w: 1.0 mM stable Glutamine, w: 1.0 mM Sodium pyruvate, w: 1.1 g/L NaHCO3 (Cytion article number 820600a)
Supplements	Supplement the medium with 10% FBS
Dissociation Reagent	Accutase
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.
Split ratio	1 to 3
Seeding density	1-3*10^4/cm²
Fluid renewal	2 to 3 times per week
Freeze medium	As a cryopreservation medium, we use complete growth medium + 10% DMSO for adequate post-thaw viability.

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 200 x g for 5 minutes, carefully discard the supernatant containing freezing medium. 7. Follow the procedure described under Post-Thaw Recovery
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