Product sheet

CCRF-CEM-C7 Cells | 300398

General information

Description	The CCRF-CEM-C7 cell line is a clone derived from the parent CCRF-CEM cell line, which itself originates from a human acute lymphoblastic leukemia (ALL) of the T-cell type. This cell line was established from peripheral blood taken from a 4-year-old female patient with ALL. The CCRF-CEM-C7 cell line is extensively used in biomedical research, particularly in studies related to cancer biology, drug screening, and mechanisms of chemotherapy resistance. CCRF-CEM-C7 cells are characterized by their robust growth in vitro and are commonly used to assess the cytotoxicity of anti-cancer compounds. These cells express several key markers of T-cell development and are often utilized to investigate T-cell leukemia pathogenesis, T-cell signaling pathways, and the cellular responses to DNA damage. The line has also been important in studies investigating the role of apoptosis in cancer cells, making it a valuable resource for understanding the mechanisms of programmed cell death in response to therapeutic agents. Given its origin and characteristics, CCRF-CEM-C7 serves as a model system for T-cell acute lymphoblastic leukemia, providing insights into the biological behavior of this malignancy and offering a platform for testing therapeutic strategies targeting cellular pathways specific to T-cell malignancies.
Organism	Human
Tissue	Blood
Disease	Childhood T acute lymphoblastic leukemia
Synonyms	CCRF-CEM C7, CCRF/CEM-C7, CEM-C7, CEM C7, CEMC7, CEM clone 7

Characteristics

Age	3 years 11 month
Gender	Female
Ethnicity	Caucasian
Growth properties	Suspension

Regulatory Data

Citation	CCRF-CEM-C7 (Cytion catalog number 300398)

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NCBI_TaxID	9606
CellosaurusAccession	CVCL_6825

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
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.
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

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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.