BCRJ Code:	0063
Cell Line:	CCRF-CEM
Species:	Homo sapiens
Vulgar Name:	Human
Tissue:	Peripheral Blood
Cell Type:	T Lymphoblast
Morphology:	Lymphoblast
Disease:	Acute Lymphoblastic Leukemia
Growth Properties:	Suspension
Sex:	Female
Age/Ethinicity:	4 Year / Caucasian
Derivation:	Human lymphoblasts from peripheral blood of a child with acute leukemia.
Applications:	This cell line is a suitable transfection host.
DNA Profile:	Amelogenin: X CSF1PO: 10,11 D13S317: 11,12 D16S539: 10,13 D5S818: 12,13 D7S820: 9,13 THO1: 6,7 TPOX: 8 vWA: 17,19
Tumor Formation::	IN SYRIAN HAMSTER [PubMed: 4295047]
Products:	Genes Expressed: CD3; Homo sapiens, expressed ,CD5; Homo sapiens, expressed ,CD7; Homo sapiens, expressed ,CD4; Homo sapiens, expressed
Biosafety:	1

Culture Medium:	RPMI-1640 medium modified to contain 2 mM L-glutamine, 1 mM sodium pyruvate, 4500 mg/L glucose and fetal bovine serum to a final concentration of 10%.
Subculturing:	Cultures can be maintained by addition of fresh medium. Alternatively, cultures can be established by centrifugation with subsequent resuspension at 1 x 10e5 viable cells/mL. Maintain cultures at a cell concentration between 1 x 10e5 and 1 x 10e6 cells/mL. NOTE: Do not allow the cell concentration to exceed 1 x 10e6 cells/mL. Population Doubling Time about: 24-30 hours
Subculturing Medium Renewal:	Every 2 to 3 days
Culture Conditions:	Atmosphere: air, 95%; carbon dioxide (CO2), 5% Temperature: 37°C
Cryopreservation:	95% FBS + 5% DMSO (Dimethyl sulfoxide)
Thawing Frozen Cells:	SAFETY PRECAUTION: Is highly recommend that protective gloves and clothing always be used and a full face mask always be worn when handling frozen vials. It is important to note that some vials leak when submersed in liquid nitrogen and will slowly fill with liquid nitrogen. Upon thawing, the conversion of the liquid nitrogen back to its gas phase may result in the vessel exploding or blowing off its cap with dangerous force creating flying debris. 1. Thaw the vial by gentle agitation in a 37°C water bath. To reduce the possibility of contamination, keep the Oring and cap out of the water. Thawing should be rapid (approximately 2 minutes). 2. Remove the vial from the water bath as soon as the contents are thawed, and decontaminate by dipping in or spraying with 70% ethanol. All of the operations from this point on should be carried out under strict aseptic conditions. 3. For cells that are sensitive to DMSO is recommended that the cryoprotective agent be removed immediately. Transfer the vial contents to a centrifuge tube containing 9.0 mL complete culture medium and spin at approximately 125 x g for 5 to 7 minutes. 4.Discard the supernatant and Resuspend cell pellet with the recommended complete medium (see the specific batch information for the culture recommended dilution ratio). 5. Incubate the culture in a appropriate atmosphere and temperature (see "Culture Conditions" for this cell line). NOTE: It is important to avoid excessive alkalinity of the medium during recovery of the cells. It is suggested that, prior to the addition of the vial contents, the culture vessel containing the growth medium be placed into the incubator for at least 15 minutes to allow the medium to reach its normal pH (7.0 to 7.6).

References:	Foley GE, et al. Continous culture of human lymphoblasts from peripheral blood of a child with acute leukemia. Cancer 18: 522-529, 1965. PubMed: 14278051 Sandstrom PA, Buttke TM. Autocrine production of extracellular catalase prevents apoptosis of the human CEM T-cell line in serum-free medium. Proc. Natl. Acad. Sci. USA 90: 4708-4712, 1993. PubMed: 8506323 Adams RA. Formal discussion: the role of transplantation in the experimental investigation of human leukemia and lymphoma. Cancer Res. 27: 2479-2482, 1967. PubMed: 4170381 Uzman BG, et al. Morphologic variations in human leukemic lymphoblasts (CCRF-CEM cells) after long-term culture and exposure to chemotherapeutic agents. A study with the electron microscope. Cancer 19: 1725-1742, 1966. PubMed: 5224274 Adams RA, et al. Leukemia: serial transplantation of human leukemic lymphoblasts in the newborn Syrian hamster. Cancer Res. 27: 772-783, 1967. PubMed: 4295047 Miranda L, et al. Isolation of the human PC6 gene encoding the putative host protease for HIV-1 gp160 processing in CD4+ T lymphocytes. Proc. Natl. Acad. Sci. USA 93: 7695-7700, 1996. PubMed: 8755538 CCRF-CEM is a T lymphoblastoid cell line derived by G.E. Foley, et al. using cells obtained in November, 1964 from peripheral blood buffy coat of a 4-year-old Caucasian female with acute lymphoblastic leukemia.
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ATCC:	CCL-119