BCRJ Code:	0370
Cell Line:	HuT-78
Species:	Homo sapiens
Vulgar Name:	Human
Cell Type:	Cutaneous T lymphocyte
Morphology:	Lymphoblast
Disease:	Sezary Syndrome
Growth Properties:	Suspension
Sex:	Male
Age/Ethinicity:	53 Year / Caucasian
Applications:	This cell line is a suitable transfection host.
Tumor Formation::	Yes, in nude mice when injected intracranially
Products:	Genes Expressed: interleukin 2, tumor necrosis factor alpha (TNF alpha), CD4; Homo sapiens. Antigen Expression: CD4; Homo sapiens Receptor Expression: interleukin 2 (IL-2), expressed
Biosafety:	1
Culture Medium:	Iscove's Modified Dulbecco's Medium (IMDM) contains 2 mM L-glutamine, 4500 mg/L glucose and 20% of fetal bovine serum.

Subculturing:	Cultures can be maintained by addition of fresh medium or replacement of medium. Alternatively, cultures can be established by centrifugation with subsequent resuspension in fresh medium at 2 X 105 viable cells/ml. Maintain cultures at cell concentrations between 5 X 104 and 8 X 105 viable cells/mL. Maintain cell density at less than 1 X 106 cells/mL. NOTE: For more information on enzymatic dissociation and subculturing of cell lines consult Chapter 12 in Culture of Animal Cells, a manual of Basic Technique by R. Ian Freshney, 6th edition, published by Alan R. Liss, N.Y., 2010. Population Doubling Time about 65 hours
Subculturing Medium Renewal:	Two to three times weekly
Culture Conditions:	Atmosphere: air, 95%; carbon dioxide (CO2), 5% Temperature: 37°C
Cryopreservation:	95% FBS + 5% DMSO (Dimethyl sulfoxide)

Thawing Frozen Cells:

SAFETY PRECAUTION: It is strongly recommended to always wear protective gloves, clothing, and a full-face mask when handling frozen vials. Some vials may leak when submerged in liquid nitrogen, allowing nitrogen to slowly enter the vial. Upon thawing, the conversion of liquid nitrogen back to its gas phase may cause the vial to explode or eject its cap with significant force, creating flying debris.

1. Thaw the vial by gently agitating it in a 37°C water bath. To minimize contamination, keep the O-ring and cap out of the water. Thawing should be rapid (approximately 2 minutes).
2. Remove the vial from the water bath as soon as its contents are thawed and decontaminate it by dipping in or spraying with 70% ethanol. From this point, all operations must be performed under strict aseptic conditions.
3. For cells sensitive to DMSO, it is recommended to remove the cryoprotective agent immediately. Transfer the vial contents to a centrifuge tube containing 9.0 mL of complete culture medium and centrifuge at approximately 125 × g for 5 to 7 minutes.
4. Discard the supernatant and resuspend the cell pellet in the recommended complete medium (see specific batch information for the appropriate dilution ratio).
5. Incubate the culture under appropriate atmospheric and temperature conditions (see "Culture Conditions" for this cell line).

NOTE: It is important to avoid excessive alkalinity of the medium during cell recovery. To minimize this risk, it is recommended to place the culture vessel containing the growth medium in the incubator for at least 15 minutes before adding the vial contents. This allows the medium to stabilize at its normal pH (7.0 to 7.6).

References:

Gootenberg JE, et al. Human cutaneous T cell lymphoma and leukemia cell lines produce and respond to T cell growth factor. J. Exp. Med. 154: 1403-1418, 1981. PubMed: 6975346 Mann DL, et al. Origin of the HIV-susceptible human CD4+ cell line H9. AIDS Res. Hum. Retroviruses 5: 253-255, 1989. PubMed: 2567177 Gazdar AF, et al. Mitogen requirements for the in vitro propagation of cutaneous T-cell lymphomas. Blood 55: 409-417, 1980. PubMed: 6244013 Chen TR. Karyotypic derivation of H9 cell line expressing human immunodeficiency virus susceptibility. J. Natl. Cancer Inst. 84: 1922-1926, 1992. PubMed: 1460674 O'Connell MA, et al. Cellular proliferation and activation of NF kappa B are induced by autocrine production of tumor necrosis factor alpha in the human T lymphoma line HuT 78. J. Biol. Chem. 270: 7399-7404, 1995. PubMed: 7706285 Hu SX, et al. Development of an adenovirus vector with tetracycline-regulatable human tumor necrosis factor alpha gene expression. Cancer Res. 57: 3339-3343, 1997. PubMed: 9269991 Kolanus W, et al. alphaLbeta2 integrin/LFA-1 binding to ICAM-1 induced by cytohesin-1 a cytoplasmic regulatory molecule. Cell 86: 233-242, 1996. PubMed: 8706128 Bloom TJ, Beavo JA. Identification and tissue-specific expression of PDE7 phosphodiesterase splice variants. Proc. Natl. Acad. Sci. USA 93: 14188-14192, 1996. PubMed: 8943082 Hut 78 was derived from peripheral blood of a patient with Sezary syndrome. The line has the properties of a mature human T cell with helper/inducer activity. It releases IL-2, and has receptors for IL-2. The growth rate is stimulated by IL-2. TNF alpha is an autocrine growth factor for Hut 78.

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