BCRJ Code:	0242
Cell Line:	U-937
Species:	Homo sapiens
Vulgar Name:	Human
Tissue:	Pleura/Pleural Effusion, Lymphocyte, Myeloid
Morphology:	Monocyte
Disease:	Histiocytic Lymphoma
Growth Properties:	Suspension
Sex:	Male
Age/Ethinicity:	37 Year / Caucasian
Derivation:	The U-937 cell line was derived by Sundstrom and Nilsson in 1974 from malignant cells obtained from the pleural effusion of a patient with histiocytic lymphoma.
Applications:	This cell line is a suitable transfection host.
DNA Profile:	Amelogenin: X CSF1PO: 12 D13S317: 10,12 D16S539: 12 D5S818: 12 D7S820: 9,11 THO1: 6, 9.3 TPOX: 8,11 vWA: 14, 15
Products:	lysozyme; beta-2-microglobulin (beta 2 microglobulin); tumor necrosis factor (TNF), also known as tumor necrosis factor alpha (TNF-alpha, TNF alpha), after stimulation with phorbol myristic acid (PMA)
Biosafety:	1

Addtional Info:	Studies since 1979 have shown that U-937 cells can be induced to terminal monocytic differentiation by supernatants from human mixed lymphocyte cultures, The cells are negative for immunoglobulin production and Epstein-Barr virus expression. The cells express the Fas antigen, and are sensitive to TNF and anti-Fas antibodies.
Culture Medium:	RPMI-1640 medium modified to contain 2 mM L-glutamine, 4500 mg/L glucose and 10% of fetal bovine serum.
Subculturing:	Cultures can be maintained by the addition of fresh medium or replacement of medium. Alternatively, cultures can be established by centrifugation with subsequent resuspension at 1 to 2 X 10e5 viable cells/mL. Maintain cell density between 1 X 105 and 2 X 10e6 viable cells/mL. T-75 flasks are recommended for subculturing this cell line.
Subculturing Medium Renewal:	Add fresh medium every 3 to 4 days (depending on cell density)
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:

Ralph P, et al. Lysozyme synthesis by established human and murine histiocytic lymphoma cell lines. J. Exp. Med. 143: 1528-1533, 1976. PubMed: 1083890 . Gene expression during normal and malignant differentiation. London: Academic Press; 1985. . International symposium on new trends in human immunology and cancer immunotherapy. Paris: Doin Editeurs; 1980. Koren HS, et al. In vitro activation of a human macrophage-like cell line. Nature 279: 328-331, 1979. PubMed: 450085 Gidlund M, et al. Natural killer cells kill tumour cells at a given stage of differentiation. Nature 292: 848-850, 1981. PubMed: 7266653 Olsson I, et al. Induction of differentiation of the human histiocytic lymphoma cell line U-937 by 1 alpha,25-dihydroxycholecalciferol. Cancer Res. 43: 5862-5867, 1983. PubMed: 6315218 Morimoto H, et al. Overcoming tumor necrosis factor and drug resistance of human tumor cell lines by combination treatment with anti-Fas antibody and drugs or toxins. Cancer Res. 53: 2591-2596, 1993. PubMed: 7684321 Giovannangeli C, et al. Accessibility of nuclear DNA to triplex-forming oligonucleotides: The integrated HIV-1 provirus as a target. Proc. Natl. Acad. Sci. USA 94: 79-84, 1997. PubMed: 8990164 Brigino E, et al. Interleukin 10 is induced by recombinant HIV-1 Nef protein involving the calcium/calmodulin-dependent phosphodiesterase signal transduction pathway. Proc. Natl. Acad. Sci. USA 94: 3178-3182, 1997. PubMed: 9096366 Reid YA, et al. Cell Line Cross-contamination of U-937. J. Leukocyte Biol. 57: 804, 1995. PubMed: 7759961 Sundstrom C, Nilsson K. Establishment and characterization of a human histiocytic lymphoma cell line (U-937). Int. J. Cancer 17: 565-577, 1976. PubMed: 178611

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