KU812

305306

GENERAL INFORMATION

Description

The KU812 cell line is a human leukemic cell line originally derived from a patient with chronic myelogenous leukemia (CML) in the blastic crisis phase. It is notable for its capacity to differentiate into basophilic and erythroid lineages under specific conditions, making it a valuable tool for studying hematopoietic differentiation and related malignancies. The cell line exhibits characteristics of basophilic precursors, including the presence of metachromatic granules that are positive for toluidine blue and astra blue staining, and it synthesizes histamine, indicative of basophilic activity.
KU812 cells are particularly relevant in investigating complement activation-related pseudoallergy (CARPA) and hypersensitivity reactions mediated by basophils. This utility stems from their robust response to complement proteins like C3a and C5a, which trigger the release of histamine and other inflammatory mediators, mimicking pseudoallergic reactions. KU812 cells express cell-surface markers such as CD63 and CD203c, which are associated with basophilic activation and degranulation. These markers have been employed in flow cytometry-based protocols to evaluate the immunological compatibility of nanomedicines and other biologics.
Additionally, KU812 cells demonstrate erythroid differentiation potential when cultured in erythropoietin-supplemented conditions. This includes spontaneous maturation into erythroid cells capable of synthesizing various hemoglobins, such as adult and fetal forms. These features underline their utility in studying erythropoiesis alongside basophilic differentiation, making KU812 a versatile model for hematological research.

Tissue	Peripheral blood
Disease	Chronic myelogenous leukemia, BCR-ABL1 positive

Synonyms

- Ku812
- KU-812
- KU.812
- KU 812

CLASSIFICATION

Organism	Human
Sex	Male
Growth properties	Suspension
Biosafety level	1

CHARACTERISTICS

Morphology	Lymphoblast-like
Cell type	Basophil progenitor cell

Karyotype

The cells contain at least one Ph1 (Philadelphia) chromosome.

IDENTIFIERS

Citation

KU812 (Cytion catalog number 305306)

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NCBI TaxID	9606
Cellosaurus	CVCL_0379

EXPRESSION AND SUSCEPTIBILITY

Antigen expression

CD3, ANPEP (CD13)

Mutational profile

Mutation: TP53, p.Lys132Arg (c.395A>G), homozygous; Gene fusion: BCR-ABL, BCR exon 14 fused to ABL1 exon 2 (b3a2 transcript)

HANDLING AND CULTURE

Culture medium

RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO3 (Cytion article number 820700a)

Incubation atmosphere	37°C, 5% CO_2, humidified atmosphere.

Supplements

Supplement the medium with 10% FBS, add 2.5 g/L glucose and 10 mM HEPES

Subculturing

Gather the suspension cells in a 15 ml tube and gently wash the adherent cells with PBS lacking calcium and magnesium (use 3-5 ml for T25 flasks and 5-10 ml for T75 flasks). Apply Accutase (1-2 ml for T25 flasks, 2.5 ml for T75 flasks) ensuring full coverage of the cell layer. Allow the cells to incubate at room temperature for 10 minutes. Following incubation, combine and centrifuge both the suspension and adherent cells. After centrifugation, carefully resuspend the cell pellet and transfer the cell suspension into new flasks containing fresh medium.

Seeding density	3 x 10^5 cells/mL
Fluid renewal	2 to 3 times per week

Thawing and culturing

Confirm that the vial remains deeply frozen upon delivery, as cells are shipped on dry ice to maintain optimal temperatures during transit. 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.
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.
Perform all subsequent steps under sterile conditions in a flow hood, disinfecting the cryovial with 70% ethanol before opening.
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.
Centrifuge the mixture at 300 x g for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium.
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.
Adhere to established subculture protocols for continued growth and maintenance of the cell line, ensuring reliable experimental outcomes.

QUALITY CONTROL AND CRYOPRESERVATION

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.

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.

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.

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.

DONOR

Donor age	38 years
Ethnicity	Japanese

LEGAL AND SAFETY

Safety precautions

When planning to store a cryovial in liquid nitrogen for future thawing, it is mandatory to adhere to stringent safety measures. Appropriate protective gloves and clothing are essential, and the use of a face mask or safety goggles is required during the transfer of frozen samples to or from the liquid nitrogen tank. This is to mitigate the risk of injury from potential cryovial explosions upon removal, which can result in the projection of sharp fragments.

Warranty

At Cytion, we stand behind the quality and viability of our products.
We guarantee that our cells will be viable at the start of culture for
60 days after shipment from our facilities.
We assure that all materials conform to the specifications described in the
Certificate of Analysis and/or Product Sheet.
For full details, please refer to our
Warranty Statement.

Material Transfer Agreement required	Yes

PRODUCT DETAILS

Composition table