Product sheet

Cytion

KU812 Cells | 305306

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.
Organism	Human
Tissue	Peripheral blood
Disease	Chronic myelogenous leukemia, BCR-ABL1 positive
Synonyms	Ku812, KU-812, KU.812, KU 812

Age	38 years
Gender	Male
Ethnicity	Japanese
Morphology	Lymphoblast-like
Cell type	Basophil progenitor cell
Growth properties	Suspension

Product sheet

Cytion

KU812 Cells | 305306

Citation	KU812 (Cytion catalog number 305306)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_0379

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

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, 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	3×10^5 cells/mL
Fluid renewal	2 to 3 times per week
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.

Product sheet

Cytion

KU812 Cells | 305306

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.

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.