DT40

305249

GENERAL INFORMATION

Description

The DT40 cell line is derived from chicken (Gallus gallus) and is primarily used as a model for studying B-cell biology and immunology. Originating from an avian leukosis virus-induced bursal lymphoma, DT40 cells are unique due to their high rate of homologous recombination, making them particularly valuable for gene targeting studies. This characteristic allows for efficient and precise genetic modifications, facilitating research in various fields including DNA repair, chromosomal dynamics, and gene function.
DT40 cells exhibit rapid growth and a stable karyotype, which are advantageous traits for experimental reproducibility and consistency. They are extensively used to study the mechanisms of immunoglobulin gene conversion and diversification, contributing significantly to our understanding of the adaptive immune system. Moreover, DT40 cells are employed in pharmacological research to screen for potential therapeutic compounds and to analyze cellular responses to DNA damage.
In addition to their applications in immunology and genetic research, DT40 cells are also instrumental in investigating cellular signaling pathways. They provide a robust system for dissecting the roles of various proteins and genes in signal transduction, apoptosis, and cell cycle regulation. The ease of genetic manipulation in DT40 cells, combined with their biological relevance, continues to make them a crucial tool in biomedical research. However, it is essential to note that findings in DT40 cells should be validated in mammalian systems due to species-specific differences.

Disease	Chicken bursal lymphoma

Synonyms

- DT-40
- DT 40
- DT40B
- LSCC-DT40

CLASSIFICATION

Organism	Chicken
Sex	Female
Growth properties	Suspension
Biosafety level	1

CHARACTERISTICS

Morphology	Lymphoblast-like
Cell type	B cell
Tumourigenic	Yes, in syngeneic chickens

IDENTIFIERS

Citation

DT40 (Cytion catalog number 305249)

NCBI TaxID	9031
Cellosaurus	CVCL_0249

Cytion GmbH
Nikola-Tesla-Str. 3
69124 Heidelberg
Tel: +49 (0)6221 405780
info@cytion.com
cytion.com

Registered office Heidelberg
VAT ID: DE283292917
Local court Mannheim - HRB 714394
CEO / Geschäftsführer: Jonathan Steubing

Banking information
Sparkasse Heidelberg
IBAN: DE35 6725 0020 0009 2076 86
BIC: SOLADES1HDB

EXPRESSION AND SUSCEPTIBILITY

Receptors expressed

Immunoglobulin M

Protein expression

Immunoglobulin M

Oncogenes

C-MYC

Viruses

Transformant: Avian leukosis virus (ALV)

HANDLING AND CULTURE

Culture medium

DMEM, w: 4.5 g/L Glucose, w: 4 mM L-Glutamine, w: 3.7 g/L NaHCO3, w: 1.0 mM Sodium pyruvate (Cytion article number 820300a)

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

Supplements

Supplement the medium with 10% FBS, 0.05 mM 2-mercaptoethanol, 5% Chicken serum, 10% Tryptose Phosphate Broth
→ 2-mercaptoethanol only 2-3 days stable in medium and 24 hrs at 37°C - protect from light

Dissociation reagent	None

Subculturing

Suspension cells: Remove cells from substrate by pipetting with fresh medium. To obtain single cells, pass the suspension several times through a 22 gauge needle and dispense into new flasks.

Seeding density	2 to 4 x 10^5 cells/ml

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

Breed / subspecies	Hy-Line SC
Donor age	1 day

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