Product sheet

DT40 Cells | 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.
Organism	Chicken
Disease	Chicken bursal lymphoma
Synonyms	DT-40, DT 40, DT40B, LSCC-DT40

Characteristics

Breed/Subspecies	Hy-Line SC
Age	1 day
Gender	Female
Morphology	Lymphoblast-like
Cell type	B cell
Growth properties	Suspension

Regulatory Data

Citation	DT40 (Cytion catalog number 305249)

DT40 Cells | 305249

Biosafety level	1
NCBI_TaxID	9031
CellosaurusAccession	CVCL_0249

Biomolecular Data

Receptors expressed	Immunoglobulin M
Protein expression	Immunoglobulin M
Oncogenes	C-MYC
Tumorigenic	Yes, in syngeneic chickens
Viruses	Transformant: Avian leukosis virus (ALV)

Handling

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)
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
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.

DT40 Cells | 305249

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.

Quality Control & Molecular Analysis

DT40 Cells | 305249

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.