CHO-K1 suspension adapted

603486

GENERAL INFORMATION

Description

CHO-K1 cells are a subline derived from the CHO cell line, which was originally established in the early 1950s from a Chinese hamster ovary. CHO-K1 cells are widely utilized in the production of therapeutic monoclonal antibodies and other biopharmaceuticals. Their extensive use in biopharmaceutical protein production and vaccines is attributed to their eukaryotic nature, which allows for proper folding, assembly, and post-translational modifications such as glycosylation, which influences the stability, efficacy, and safety of the produced proteins.
In the realm of recombinant protein production, the CHO-K1 cell line is used to express a wide array of proteins, including monoclonal antibodies, growth factors, cytokines, and enzymes. These proteins have applications in therapeutic treatments, diagnostic assays, and vaccine formulations.
CHO-K1 cells exhibit a robust growth rate and are adaptable to various culture conditions, including suspension and adherent cultures, making them highly valuable for large-scale bioproduction processes. They possess a high level of genetic stability and are used for stable cell line development as they are capable of amplifying and expressing exogenous genes efficiently, which is critical for producing high yields of recombinant proteins.
CHO-K1 chinese hamster cells can be easily transfected with a variety of vectors for gene expression, facillitating gene editing or knockdown. This flexibility allows researchers to introduce specific genes, silence genes, or even perform targeted gene editing using technologies like CRISPR-Cas9 in CHO-K1 host cells.
In conclusion, the chinese hamster CHO-K1 cells and CHO cells are pivotal in biotechnological research and biopharmaceutical production, offering a versatile platform for the study of gene function and the large-scale production of recombinant proteins.

Tissue	Ovary

Applications

This cell line is an optimal choice for toxicology, industrial biotechnology and bioproduction.

Synonyms

- CHO K1
- CHOK1
- CHO cell clone K1
- GM15452

CLASSIFICATION

Organism	Chinese hamster
Sex	Female
Growth properties	Suspension
Biosafety level	1

CHARACTERISTICS

Morphology	Epithelial-like

Karyotype

Chromosome Frequency Distribution 50 Cells: 2n = 22. Stemline number is hypodiploid

Doubling time	22 hours

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IDENTIFIERS

Citation

CHO-K1 suspension adapted (Cytion catalog number 603486)

NCBI TaxID	10029
Cellosaurus	CVCL_0214

EXPRESSION AND SUSCEPTIBILITY

Virus susceptibility

Vesicular stomatitis (Indiana), Getah virus Virus Resist: poliovirus 2, modoc virus, Button Willow virus

Reverse transcriptase	Negative

HANDLING AND CULTURE

Culture medium

CD CHO ThermoFisher, serum free ready to use.

Incubation atmosphere	37°C, 5% CO_2, humidified atmosphere. Cells must be cultivated on an orbital shaker in baffled Erlenmeyer shake flasks at 110 rpm.

Supplements

L-glutamine: add to a final 8 mM (typically 40 mL per liter of a 200 mM stock) before use. This is mandatory for CD CHO. Add anti-clumping agent 1:100 and HT supplement 1:100 to the cell suspension.

Dissociation reagent	None

Subculturing

Gently homogenize the cell suspension in the flask by pipetting up and down, then take a representative sample to determine the cell density per ml. Dilute the suspension to achieve a cell concentration of 1 x 10^5 cells/ml with fresh culture medium, and aliquot the adjusted suspension into new flasks for further cultivation.

Seeding density	4 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	Adult

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.

Disclaimer

Our cells are provided for in vitro laboratory research purposes exclusively and are not intended for clinical or diagnostic use, nor are they to be administered to humans or used for veterinary purposes. Users must adhere to all applicable guidelines and regulations for the handling and use of these cells in a research setting.

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