Product sheet

CHO-K1 Cells (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.
Organism	Chinese hamster
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

Characteristics

Age	Adult
Gender	Female
Morphology	Epithelial-like
Growth properties	Suspension

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Regulatory Data

Citation	CHO-K1 suspension adapted (Cytion catalog number 603486)
Biosafety level	1
NCBI_TaxID	10029
CellosaurusAccession	CVCL_0214

Biomolecular Data

Virus susceptibility	Vesicular stomatitis (Indiana), Getah virus Virus Resist: poliovirus 2, modoc virus, Button Willow virus
Reverse transcriptase	Negative
Karyotype	Chromosome Frequency Distribution 50 Cells: 2n = 22. Stemline number is hypodiploid

Handling

Culture Medium	CD CHO ThermoFisher, serum free ready to use.
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
Doubling time	22 hours
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

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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.
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. Cells must be cultivated on an orbital shaker in baffled Erlenmeyer shake flasks at 110 rpm.
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

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.