AB2.2

305738

GENERAL INFORMATION

Description

The AB2.2 cell line is a widely utilized murine embryonic stem (ES) cell line derived from the 129S7 (also known as 129P2/OlaHsd) mouse strain. It has played a prominent role in gene targeting and transgenic mouse generation due to its robust capacity for in vitro expansion and genetic manipulation. AB2.2 cells are pluripotent, capable of contributing to all germ layers, and have been instrumental in producing germline-competent chimeras. However, like many ES cell lines maintained over extended culture periods, AB2.2 is prone to chromosomal instability, especially aneuploidy involving chromosome 8.

Cytogenetic analysis of AB2.2 and its sub-lines has revealed a high frequency of chromosomal abnormalities, with mosaic and pure trisomy 8 being particularly common. In one study, AB2.2 displayed a mosaic karyotype involving gains of chromosomes 8 and Y, including configurations such as 42,XY,+Y,+8 / 41,XY,+Y / 40,XY. Among its sub-lines, additional karyotypic anomalies were identified, such as double trisomies involving chromosomes 8 and 11, and complex derivative chromosomes arising from unbalanced translocations involving chromosome 8. These structural and numerical aberrations are associated with decreased germline transmission efficiency, and their presence complicates interpretation of genotype-phenotype relationships in chimeric animals.

Given its genetic background and susceptibility to chromosomal instability, AB2.2 remains a powerful tool in mouse genetics, but it requires careful quality control. Routine karyotype screening-including both G-banding and FISH-is recommended before proceeding with blastocyst injection to ensure the chromosomal integrity necessary for reliable germline transmission and accurate phenotypic analyses.

Tissue	Blastocyst

Applications

Stem cell research

CLASSIFICATION

Organism	Mouse
Sex	Male
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Cell type	Embryonic stem cell

IDENTIFIERS

Citation

AB2.2 (Cytion catalog number 305738)

NCBI TaxID	10090
Cellosaurus	CVCL_C261

HANDLING AND CULTURE

Incubation atmosphere	37°C, 5% CO_2, humidified atmosphere.
Seeding density	3 to 5 x 10^4 cells/ cm2

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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	Embryo

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

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