

BRL-3A Cells | 500129

General information

Description

The BRL-3A cell line is derived from the normal liver of a male Buffalo rat. Established in 1976, this cell line is an important in vitro model primarily used for studying hepatocyte function, liver regeneration mechanisms, and hepatotoxicity. BRL-3A cells retain several characteristics of primary hepatocytes, including the ability to synthesize albumin and other serum proteins, making them a valuable tool in hepatological research. These cells exhibit an epithelial-like morphology and are adherent with a high growth rate in culture.

Scientific interest in BRL-3A extends to its application in the study of liver-specific viral infections, drug metabolism, and the effects of various growth factors and cytokines on liver cells. Researchers also utilize BRL-3A cells to investigate the impact of toxins and carcinogens on liver function, providing insights into hepatocarcinogenesis and liver injury. The cells are known to respond to peroxisome proliferators and have been used to test the efficacy and safety of pharmaceuticals potentially affecting liver function.

However, despite their versatility, users of the BRL-3A cell line must consider the limitations inherent to a non-human model, as results may not always directly translate to human liver physiology. This factor underscores the importance of corroborating findings with additional models and experimental approaches.

Organism Rat

Tissue Liver

Synonyms BRL3A, BRL 3A, Buffalo Rat Liver-3A

Characteristics

Growth properties Adherent

Identifiers / Biosafety / Citation

Citation BRL-3A (Cytion catalog number 500129)

Biosafety level 1

Expression / Mutation

Products Multiplication stimulating activity (MSA).

Handling

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Culture Medium Ham's F12, w: 1.0 mM stable Glutamine, w: 1.0 mM Sodium pyruvate, w: 1.1 g/L NaHCO₃ (Cytion article number 820600a)

Medium supplements Supplement the medium with 10% FBS

Passaging solution Accutase

Subculturing Remove the old medium from the adherent cells and wash them with PBS that lacks calcium and magnesium. For T25 flasks, use 3-5 ml of PBS, and for T75 flasks, use 5-10 ml. Then, cover the cells completely with Accutase, using 1-2 ml for T25 flasks and 2.5 ml for T75 flasks. Let the cells incubate at room temperature for 8-10 minutes to detach them. After incubation, gently mix the cells with 10 ml of medium to resuspend them, then centrifuge at 300xg for 3 minutes. Discard the supernatant, resuspend the cells in fresh medium, and transfer them into new flasks that already contain fresh medium.

Split ratio A ratio of 1:3 to 1:6 is recommended

Seeding density Seeding density of 1×10^4 cells/cm² is recommended.

Fluid renewal 2 to 3 times per week

Freezing recovery After thawing, plate the cells at 5×10^4 cells/cm² and allow the cells to recover from the freezing process and to adhere for at least 24 hours.

Freeze medium CM-1 (Cytion catalog number 800100) or CM-ACF (Cytion catalog number 806100)

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Handling of cryopreserved cultures

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. Optionally, skip centrifugation but remove any remaining freezing medium after 24 hours.
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.

Quality control / Genetic profile / HLA

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.

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STR profile

Rat_D1Wox31: 100,104
Rat_D2Wox37: 156
Rat_D19Wox11: 220,224
Rat_D10Wox8: 266
Rat_D4Wox7: 157
Rat_D2Wox27: 207
Rat_D5Rat33: 122
Rat_D10Wox11: 165
Rat_D1Wox23: 218,222
Rat_D12Wox1: 402
Rat_D6Wox2: 100
Rat_D8Wox7: 185
Rat_D6Cebr1: 233
SRY: x,x