

General information

Description

The F9 cell line, a murine embryonal carcinoma model derived from a testicular teratoma of the C57BL/6 mice, serves as an important tool in developmental biology and embryology. F9 cells are capable of differentiation into parietal endoderm when exposed to retinoic acid and dibutyryl cyclic AMP (cAMP). This differentiation is marked by significant changes in cellular behavior and protein expression, including the synthesis of plasminogen activator, laminin, and type IV collagen. These proteins are crucial for understanding the processes of tissue development and matrix formation in early embryonic stages.

It is noted that cAMP's effectiveness in inducing differentiation in F9 cells is conditional upon prior treatment with retinoic acid, indicating a complex interplay between these signaling molecules in triggering developmental pathways. Additionally, F9 cells are characterized by having three copies of the beta 1 integrin gene, which may influence cell adhesion and mobility, further underscoring their utility in studying cell interactions and extracellular matrix composition. Safety profiling of these cells includes testing for ectromelia virus (mousepox), for which they have been found negative, ensuring their suitability for a broad range of experimental applications without the risk of viral contamination.

Organism Mouse

Tissue Testis

Disease Teratocarcinoma

Characteristics

Age Embryo

Gender Male

Morphology Epithelial-like

Growth properties Adherent

Identifiers / Biosafety / Citation

Citation F9 (Cytion catalog number 400174)

Biosafety level 1

Expression / Mutation

F9 Cells | 400174

Viruses	MAP-test negative: Sendai, Ektromelie, Polyoma, K-Virus, Kilham, Reo 3, PVM, LCM, M.pulmonis, MVM, Theiler's GD VII, Toolan's H-1, MHV, LDV, RCV/SDA, M-Adenovirus, B.piliformis.
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Products	Plasminogen activator, laminin, type IV collagen
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Handling

Culture Medium	DMEM, w: 4.5 g/L Glucose, w: 4 mM L-Glutamine, w: 1.5 g/L NaHCO ₃ , w: 1.0 mM Sodium pyruvate (Cytion article number 820300a)
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Medium supplements	Supplement the medium with 10% FBS
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Passaging solution	Accutase
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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.
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Split ratio	A ratio of 1:2 is recommended
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Seeding density	Coat cell culture flasks with Gelatine. 1×10^4 cells/cm ² will yield in a confluent layer in about 4 days.
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Fluid renewal	2 to 3 times per week
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Freezing recovery	After thawing, plate the cells at 5×10^4 cells/cm ² and allow the cells to recover from the freezing process and to adhere for at least 24 hours.
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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.