Product sheet

F9 Cells | 400174

General information

Description	Explore the remarkable potential of F9 cells, an epithelial-like cell line derived from the testis of Mus musculus (mouse) with embryonal testicular teratoma. With their unique characteristics and diverse applications, F9 cells have become invaluable tools in cancer research and 3D cell culture studies. Let us delve into these cells' magnetic properties and applications, shedding light on their differentiation capabilities and molecular mechanisms. F9 cells exhibit an epithelial morphology resembling the cell structure in epithelial tissues. They have been widely employed as a model system to investigate the intricate molecular mechanisms associated with cellular differentiation. Traditionally considered nullipotent, F9 cells can be stimulated to differentiate into parietal endoderm by retinoic acid and di butyryl cyclic AMP (cAMP) in the culture medium. Remarkably, these differentiating cells synthesize plasminogen activator, laminin, and type IV collagen, which indicates their maturation process. Notably, cAMP exhibits its activity exclusively on cells treated with retinoic acid, further highlighting the importance of this combination in inducing differentiation. One intriguing characteristic of F9 cells is their maintenance of three copies of the beta one integrin gene, providing researchers with unique insights into cellular adhesion and signalling pathways. These cells encapsulate the genetic information necessary for the appearance of the differentiated phenotype, making them ideal for somatic cell genetic experiments. The potential applications of F9 cells extend beyond cancer research. They have proven to be valuable in 3D cell culture, providing researchers with a three-dimensional platform to mimic the complex cellular interactions observed in vivo. Their ability to differentiate into derivatives of all three germ layers, not only endodermal-like results, under specific culture conditions is fascinating. This versatility enables scientists to explore various biological phenomena, including early mouse embryogenesis and the molecular events associated with cellular differentiation. F9 cells possess a doubling time of approximately 24 hours, ensuring an ample supply for experimental needs. This rapid proliferation rate allows for efficient cell culture expansion and enables researchers to perform time-sensitive experiments efficiently. Initially deposited by S. Strickland, the F9 cell line holds immense promise for advancing biological research. Its wide range of applications, including cancer research and 3D cell culture studies, makes it an indispensable tool for scientists seeking to unravel the mysteries of cellular differentiation and embryogenesis. By leveraging the unique characteristics and capabilities of F9 cells, researchers can pave the way for groundbreaking discoveries and novel therapeutic interventions. Unlock the potential of F9 cells and embark on a transformative journey in biological science. Experience their versatility, reliability, and significance in many research applications. Join the scientific community in harnessing the power of F9 cells to uncover the secrets of cellular differentiation and shape the future of biomedical research.
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

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.
Products	Plasminogen activator, laminin, type IV collagen

Handling

Culture Medium	DMEM, w: 4.5 g/L Glucose, w: 4 mM L-Glutamine, w: 1.5 g/L NaHCO3, w: 1.0 mM Sodium pyruvate (Cytion article number 820300a)
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 1:2 is recommended
Seeding density	Coat cell culture flasks with Gelatine. 1 x 10^4 cells/cm^2 will yield in a confluent layer in about 4 days.
Fluid renewal	2 to 3 times per week
Freezing recovery	After thawing, plate the cells at 5 x 10^4 cells/cm^2 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)

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.