Data Sheet

WB-F344 Rat Liver Progenitor Cell Line

Immortalized Cell Line

SCC253

Pack Size ≥ 1x10^6 viable cells/vial

Store at: Liquid nitrogen

FOR RESEARCH USE ONLY

Not for use in diagnostic procedures. Not for Human or Animal Consumption.

Background

Among adult organs, the liver has the unique ability to regenerate after injury, a feature that has generated a high level of interest in liver progenitor cells for therapeutic uses. Liver progenitor cells (also known as oval cells) have potential to differentiate into either of the two epithelial cell types in the liver, biliary epithelial cells or hepatocytes.[1] The inherent versatility and clinical applicability of liver progenitor cells highlight the importance of cellular models for this cell type.

WB-F344 is a highly cited, spontaneously immortalized rat liver progenitor cell line. WB-F344 cells are derived from adult tissue yet have the characteristic phenotype of oval cells and proliferate rapidly.[3] WB-F344 cells express markers of liver progenitor cells, including EpCAM, Thy1, and α-fetoprotein.[3] WB-F344 cells are non-tumorigenic, but can undergo neoplastic transformation both in response to treatment with carcinogenic agents[4] and spontaneously when maintained in a post-confluent state.[5] The WB-F344 cell line is a well-established and versatile model for studies of liver cell renewal, differentiation, and origination of hepatic cancers.

Source

WB-F344 rat liver progenitor cell line was isolated from the liver epithelium of an adult Fischer-344 rat.[2]

Quality Control Testing

- Each vial contains ≥ 1x10^6 viable cells.
- Cells are tested negative for infectious diseases by a Mouse/Rat Comprehensive CLEAR Panel by Charles River Animal Diagnostic Services.
- Cells are verified to be of rat origin and negative for interspecies contamination from mouse, human, Chinese hamster, Golden Syrian hamster, and non-human primate (NHP) as assessed by a Contamination Clear panel by Charles River Animal Diagnostic Services.
- Cells are negative for mycoplasma contamination.

Storage and Handling

WB-F344 Rat Liver Progenitor Cells should be stored in liquid nitrogen. The cells can be cultured for at least 10 passages after initial thawing without significantly affecting functionality.

Representative Data

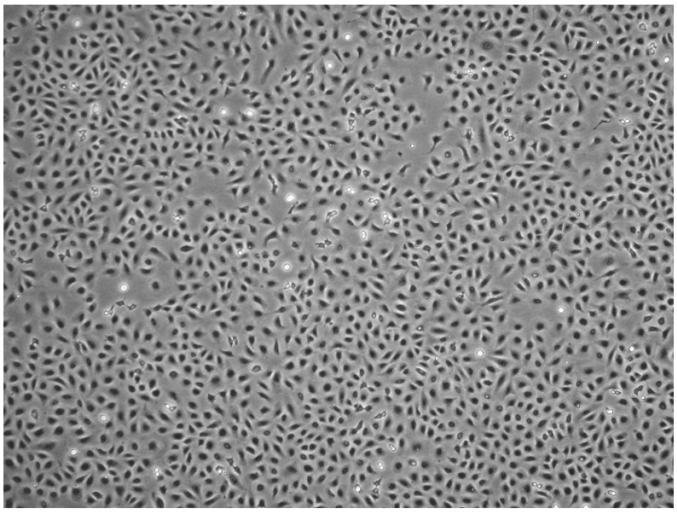

Figure 1. Brightfield image of WB-F344 rat liver progenitor cells one day after thaw in a T75 flask.

Protocols

Thawing Cells

WB-F344 cells proliferate rapidly. We recommend thawing cells into a T225 flask.

1. Do not thaw the cells until the recommended medium is on hand. Cells can grow on normal tissue cultureware surfaces without any additional coating.

   Cells are thawed and expanded in WB-F344 Expansion Medium comprised of Modified IMEM with L-Glutamine (ThermoFisher A1048901) with 25 mM HEPES (Cat. No. TMS-003-C), 50 µg/mL Gentamycin (Cat. No. 345815), 1 mL/L Insulin at 10 mg/mL (Cat. No. I0516) and 10% FBS (Cat. No. ES-009-B).
2. Remove the vial of frozen WB-F344 cells from liquid nitrogen and incubate in a 37 °C water bath. Closely monitor until the cells are completely thawed. Maximum cell viability is dependent on the rapid and complete thawing of frozen cells.

   IMPORTANT: Do not vortex the cells.
3. As soon as the cells are completely thawed, disinfect the outside of the vial with 70% ethanol. Proceed immediately to the next step.
1. In a laminar flow hood, use a 1- or 2-mL pipette to transfer the cells to a sterile 50 mL conical tube. Be careful not to introduce any bubbles during the transfer process.
2. Using a 10 mL pipette, slowly add dropwise 9 mL of WB-F344 Expansion Medium (Step 1 above) to the 15 mL conical tube.

   IMPORTANT: Do not add the entire volume of media all at once to the cells. This may result in decreased cell viability due to osmotic shock.
3. Gently mix the cell suspension by slowly pipetting up and down twice. Be careful not to introduce any bubbles.

   IMPORTANT: Do not vortex the cells.
4. Centrifuge the tube at 300 *x g* for 2-3 minutes to pellet the cells.
5. Decant as much of the supernatant as possible. Steps 5-8 are necessary to remove residual cryopreservative (DMSO).

6. Resuspend the cells in 50 mL of WB-F344 Expansion Medium.
7. Transfer the cell mixture to a T225 tissue culture flask.
8. Incubate the cells at 37 °C in a humidified incubator with 5% CO_2.

Subculturing Cells

9. WB-F344 cells should be passaged at ~80-85% confluency. Do not allow the cells to grow over 85% confluency.
10. Carefully remove the medium from the T225 tissue culture flask containing the 80% confluent layer of WB-F344 cells.
11. Rinse the flask with 50 mL 1X PBS. Aspirate after the rinse.
12. Apply 25 mL of Accutase™ and incubate in a 37 °C incubator for 3-5 minutes.
13. Inspect the flask and ensure the complete detachment of cells by gently tapping the side of the flask with the palm of your hand.
14. Add 25 mL of WB-F344 Expansion Medium to the plate.
15. Gently rotate the flask to mix the cell suspension. Transfer the dissociated cells to a 50 mL conical tube.
16. Centrifuge the tube at 300 *x g* for 3-5 minutes to pellet the cells.
17. Discard the supernatant, then loosen the cell pellet by tapping the tip of the tube with a finger.
18. Apply 2-5 mL of WB-F344 Expansion Medium to the conical tube and resuspend the cells thoroughly.

    IMPORTANT: Do not vortex the cells.
19. Count the number of cells using a hemocytometer.
20. Plate the cells to the desired density. Typical split ratio is 1:6.

Cryopreservation of Cells

WB-F344 cells may be frozen in WB-F344 Expansion Medium and 10% DMSO using a Nalgene® slow freeze Mr. Frosty® container.

References

1. Int J Exp Pathol 2005, 86(1): 1-18.
2. Stem Cells Cloning 2010, 3: 39-47.
3. Exp Cell Res 1984, 154(1): 38-52.
4. Am J Pathol 1989, 135(1): 63-71.
5. Am J Pathol 1998, 153(6): 1913-1921.

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