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Product Information

Rat Hepatic Stellate Cells (RHSC)

Catalog Number	10RA-017	Cell Number	0.5 x 10 ⁶ cells/vial
Species	<i>Rattus norvegicus</i>	Storage Temperature	Liquid Nitrogen

Description

Hepatic stellate cells (HSC) are pericytes found in the perisinusoidal space presenting myofibroblast-like or lipocyte phenotypes. They participate in the homeostasis, repair, and regeneration of liver extracellular matrix, and control retinol metabolism, storage, and release. Following liver injury, HSC proliferate, transform into myofibroblast-like cells, and produce type I collagen in the fibrotic liver. HSC have been implicated as a regulator of hepatic microcirculation via cell contraction in the pathogenesis of intrahepatic portal hypertension [1]. HSC also possess voltage-activated calcium current, express the low affinity nerve growth factor receptor p75, and undergo apoptosis in response to nerve growth factor stimulation [2, 3]. These insights into the molecular regulation of HSC activation will help lead to new therapeutic approaches in treatment of hepatic fibrosis by reducing morbidity and mortality in patients with chronic liver injury.

iXCells Biotechnologies provides high quality Rat Hepatic Stellate Cells (RHSC), which are isolated from young DS rat liver and cryopreserved at P2, with >0.5 million cells in each vial. RHSC express desmin and α -actin. They are negative for HIV-1, HBV, HCV, mycoplasma, bacteria, yeast, and fungi and can further expand for 5 population doublings in Stellate Cell Growth Medium (Cat# MD-0014) under the condition suggested by iXCells Biotechnologies.

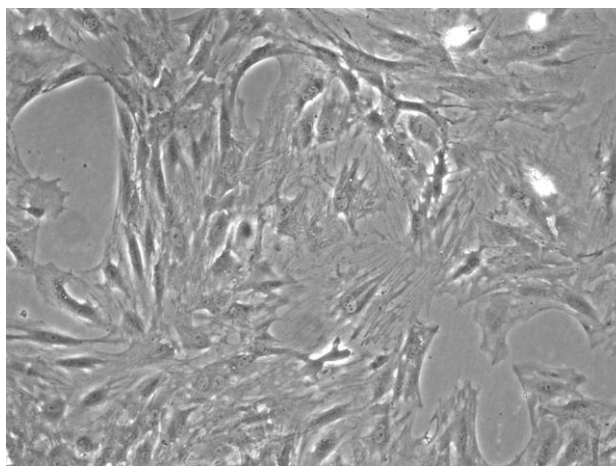


Figure 1. Rat Hepatic Stellate Cells (phase contrast).

Product Details

Tissue	Young DS rat liver
Package Size	0.5 x 10 ⁶ cells/vial
Passage Number	P2
Shipped	Cryopreserved
Storage	Liquid nitrogen
Growth Properties	Adherent
Media	Stellate Cell Growth Medium (Cat# MD-0014)

Protocols

Thawing of Frozen Cells

1. Upon receipt of the frozen Rat Hepatic Stellate Cells (RHSC), it is recommended to thaw the cells and initiate the culture immediately in order to retain the highest cell viability.
2. To thaw the cells, put the vial in 37°C water bath with gentle agitation for ~1 minute. Keep the cap out of water to minimize the risk of contamination.
3. Pipette the cells into a 15ml conical tube with 5ml fresh Stellate Cell Growth Medium (Cat# MD-0014).
4. Centrifuge at 1000rpm (~220g) for 5 minutes under room temperature.
5. Remove the supernatant and resuspend the cells in fresh culture medium.
6. Culture the cell in 100 mm culture dish or T75 flask.

Note: Culture vessels should be pre-coated with 0.1% Gelatin for more than 20 minutes at room temperature before use.

Safety Precaution: it is highly recommended that protective gloves and clothing should be used when handling frozen vials.

Standard Culture Procedure

1. RHSC can be cultured in Stellate Cell Growth Medium (Cat# MD-0014).
2. When cells reach ~80-90% confluence, remove the medium, and wash once with sterile PBS (5ml/T75 flask).
3. Add ~2.5 ml of 0.25% Trypsin-EDTA to the flask and incubate for ~3 minutes at 37°C. Neutralize the enzyme by adding 2-3 volumes of cell culture medium.
4. Centrifuge 1,000 rpm (~220 g) for 5min and resuspend the cells in desired volume of medium.
5. Seed the cells on the new Gelatin-coated culture vessels at 5×10^3 cells/cm².

References

- [1] Reynaert H, Thompson MG, Thomas T, Geerts A. (2002) Hepatic stellate cells: role in microcirculation and pathophysiology of portal hypertension. *Gut* 50:571-581.
- [2] Rockey D. C. (2001) Hepatic blood flow regulation by stellate cells in normal and injured liver. *Semin Liver Dis* 21(3):337-49.
- [3] Oide H, Tateyama M, Wang XE, Hirose M, Itatsu T, Watanabe S, Ochi R, Sato N. (1999) Activated stellate (Ito) cells possess voltage-activated calcium current. *Biochim. Biophys. Acta.* 1418:158-164.
- [4] Trim N, Morgan S, Evans M, Issa R, Fine D, Afford S, Wilkins B, Iredale J. (2000) Hepatic stellate cells express the low affinity nerve growth factor receptor p75 and undergo apoptosis in response to nerve growth factor stimulation. *Am. J. Pathol.* 156(4):1235-1243.

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