What’s in the box?

Customers receive cryopreserved hHSC along with detailed protocols for thawing, plating, serial passage, and cryopreservation, including recommended media and cryopreservation formulations. Protocols include exemplary images at each stage of culture, and our standard product characterization includes lot-specific data on post-thaw viability, cell size, population doubling rate, and expression of standard markers, such as GFAP and SMA. Furthermore, each lot is tested for mycoplasma using a sensitive molecular test (Roche MycoTool) prior to commercial release. Typical stellate cell morphology in culture is shown at passage 2.

Comparison of HSC derived from healthy- vs. disease-origin tissues

HSC are available from both healthy and diseased donor tissues, and stellate cells isolated from disease-origin tissues retain some features associated with a disease-activated phenotype. Both morphologic and phenotypic differences can be detected. Generally, expression of GFAP is diminished and SMA is increased in disease-origin cells. This suggests that at least some aspects of the disease phenotype are retained in the in vitro culture system.
Characteristics of healthy-origin vs. disease-origin stellate cells

Disease origin tissues are assessed and scored by a board-certified pathologist with respect to steatosis, inflammation, fibrosis, and degree of Non-Alcoholic Fatty Liver Disease (NAFLD). Disease-origin tissues often display a greater degree of steatosis or fibrosis (picrosirius red histological stain, below). In a simple experiment comparing smooth muscle actin (ACTA2), collagen (COL1A1) and TGFβ expression in (2) healthy-origin (H) and (2) disease-origin (F) lots of stellate cells at passage 2, expression of all three activation-associated genes was higher in the disease-origin cells.

What our customers say:
The cells appear to be of high quality. They exhibit a spindle-like phenotype characteristic of activated HSCs 24 hours after plating on cell culture plastic. All lots could be expanded and engrafted after transplantation into immune-deficient mice where they could be activated to efficiently express collagen I.

--Holger Willenbring, MD, PhD, Professor; UCSF

To learn more about hepatic stellate cells, please visit our website and review the following references from Kisseleva, T. et al:
Gastroenterology 2012 Sep; 143(3):765-76.e1-3.

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