



# TissueSpec® Liver ECM Hydrogel

Catalog # MTSLV101

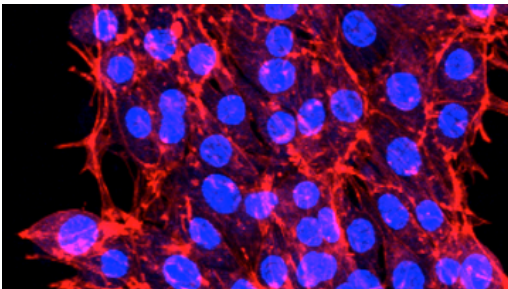
TissueSpec® Liver ECM Hydrogel is a versatile extracellular matrix product comprised of collagens and other ECM molecules of liver-specific origin (porcine). TissueSpec® hydrogels provide liver cells a soft, physiologic substrate for 3D cell culture that is easy to use and enhances cell function and cell-cell interactions.

Human liver ECM hydrogel is available through custom order.

## Features

- Derived from normal porcine liver tissue
- Contains liver-specific matrix components
- Supports liver cell and organoid cultures
- Compatible with standard cell culture protocols
- Lot-to-lot consistent
- Easy to use

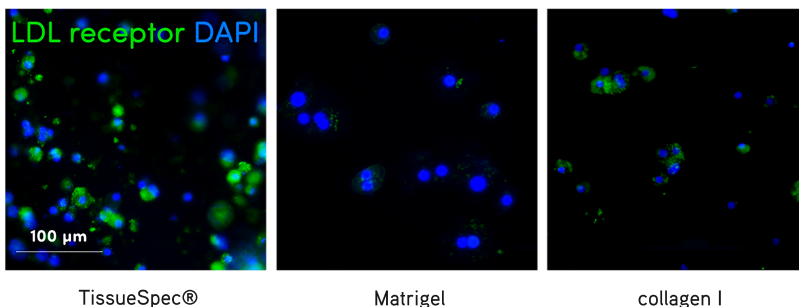
## Applications in 3D cell culture



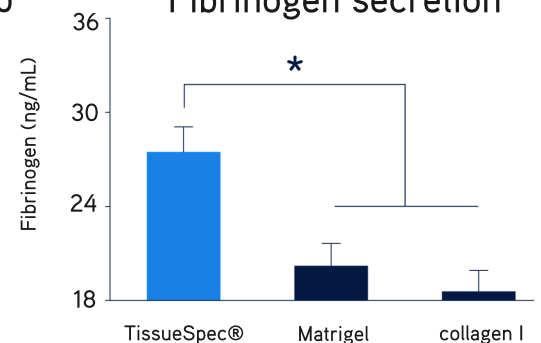
TissueSpec® Liver ECM Hydrogel can be applied as a thin gel on which to culture liver cells and study cell activity and function. Liver cells migrate into the hydrogel, enabling migration and invasion assays. To study liver cell-cell interactions and microtissue structures, encapsulate and culture liver cells or organoids within 3D TissueSpec® Liver ECM Hydrogel.

## Hepatocyte function in TissueSpec® Liver ECM Hydrogel

### a Low-density lipoprotein uptake



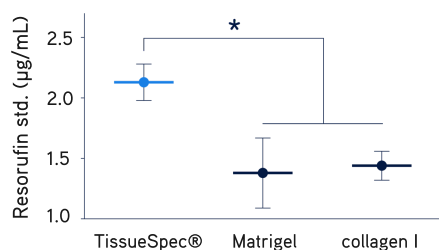
### b Fibrinogen secretion



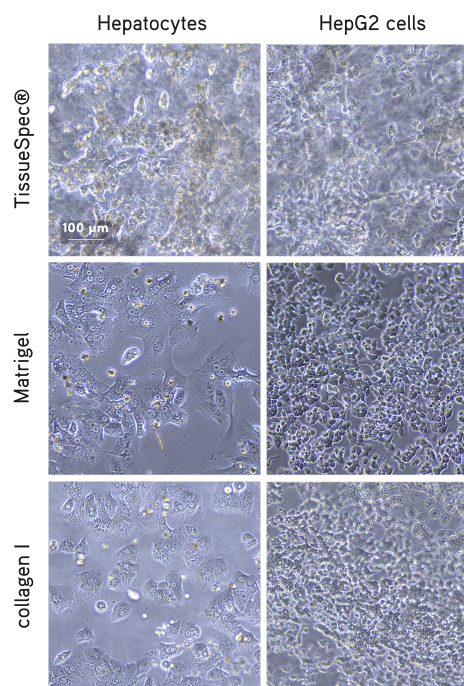
Primary human hepatocytes cultured in thin hydrogels (1 mm, 4 mg/mL) of TissueSpec® Liver matrix, Matrigel, and collagen I showed significantly higher (a) expression of LDL receptor and (b) secretion of fibrinogen ( $p < 0.05$ ) in TissueSpec® Liver ECM Hydrogel compared to hepatocytes cultured in Matrigel and collagen I.

# Liver cell activity in TissueSpec® Liver ECM Hydrogel

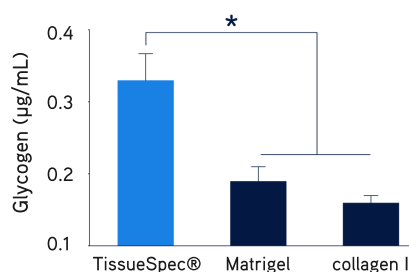
## a Cytochrome P450 (CYP1A2) activity



## c 3D structure formation



## b Glycogen storage



HepG2 (hepatocarcinoma) cells cultured in thin hydrogels (1 mm, 4 mg/mL) of TissueSpec® Liver matrix, Matrigel, and collagen I showed **significantly (a) enhanced cytochrome P450 activity** ( $p < 0.05$ ) and **(b) greater glycogen storage** ( $p < 0.05$ ) in TissueSpec® Liver ECM Hydrogel compared to hepatocytes cultured in Matrigel and collagen I. (c) TissueSpec® Liver matrix supported **3D structure formation** of primary human hepatocytes and HepG2 cells.

# TissueSpec® Liver ECM Hydrogel composition & consistency

## a Mass spec profile\*

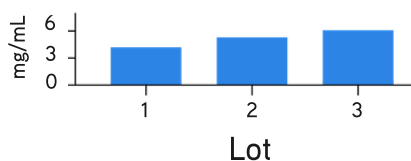
ECM components	Biomolecules
collagens	type I, II, III, IV, V, VI
laminins	laminin $\gamma$ 1
glycoproteins	fibrillin 1, 2 mucin 5AC, 6
proteoglycans	heparin sulfate
matrix-associated	albumin

\* partial list of components

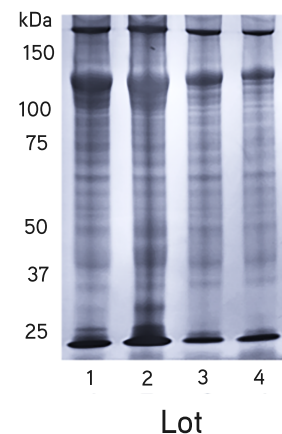
## b Key components (µg/mL)

collagens (soluble)	4,200-6,100
elastin	1,200-1,500
glycosaminoglycans	50-150

## c Collagen



## d Electrophoresis



(a) Proteomic profile by mass spectrometry indicates that **TissueSpec® Liver ECM Hydrogel has a unique, liver-specific signature**. (b) Ranges of key liver hydrogel matrix components. (c) Collagen concentration and (d) gel electrophoresis demonstrate a **consistent protein profile** across multiple TissueSpec® Liver ECM Hydrogel lots.