

Product Characterization Sheet

HH1036

Human Hepatocytes, Catalog Number 82006



Classification

Plateability	Plateable
Number of days plateable	5 days
Confluency	90 %
P450 Inducibility	Yes
Transporter activity	No
Number of donors	1

Donor Demographics

Gender	Male
Age	55 years
Race	Caucasian
Cause of death	Head trauma 2 nd to ICH
BMI	26.0
Smoking	Yes
Alcohol	Yes
Substance abuse	No
Medical history	Bipolar, depression, ischemic colitis
Infectious diseases	HBV-, HCV-, HIV-, CMV-

Post-thaw Viability and Yield

Viability	93 %
Yield	6.5 million

Characterization: Hepatocytes were thawed using 37°C UCRM™ and centrifuged for 10 minutes at 100g. After removing the supernatant, hepatocytes were re-suspended in UPCM™ and counted for viability and yield using the Trypan Blue exclusion method. Cells were plated in a hand-coated collagen 24-well plate at a 0.7 million cells per mL density, 0.5 mL per well, and allowed to attach 4-6 hours prior to a Matrigel® overlay.

P450 Induction

Drug Metabolizing Enzyme	Substrate (μM)	Incubation Time (minutes)	Fold Induction (Gene Expression)	Fold Induction (Activity)
CYP1A2	Omeprazole (50)	30	76.15 ± 6.45	6 ± 0.3
CYP2B6	Phenobarbital (1000)	30	6.25 ± 0.57	2.5 ± 0.34
CYP3A4	Rifampin (20)	30	21.20 ± 3.65	5.8 ± 0.87

CYP450 Induction Assessment: 96 well cultures at a cell density of 0.5 million hepatocytes/mL (50,000 hepatocytes/well) were used in the CYP450 induction assessment. The hepatocytes were cultured as collagen-Matrigel® sandwich for 1 day followed by treatment duration of 48 hours for mRNA and 72 hours for activity using known enzyme inducers. Induction in CYP450 activity was assessed by quantifying respective metabolite formation by LC-MS/MS. Gene expression was quantified by RT-PCR. Values reflect mean and standard deviation of triplicate treatments (N=3).

Drug Metabolism Activity

Drug Metabolizing Enzyme	Substrate (μM)	Incubation Time (minutes)	Metabolite Quantified	Activity (pmol/minute/million cells)
CYP1A2	Phenacetin (100)	15	Acetaminophen	37.5
CYP2A6	Coumarin (50)	30	7-Hydroxycoumarin	259.2
CYP2B6	Bupropion (500)	15	Hydroxybupropion	39.0
CYP2C8	Paclitaxel (20)	15	6α-Hydroxypaclitaxel	1.4
CYP2C9	Diclofenac (25)	15	4-Hydroxydiclofenac	74.6
CYP2C19	S-Mephenytoin (250)	30	4-Hydroxymephenytoin	3.9
CYP2D6	Dextromethorphan (15)	15	Dextrorphan	6.9
CYP2E1	Chlorzoxazone (250)	15	6-Hydroxychlorzoxazone	49.2
CYP3A4	Midazolam (20)	10	1-Hydroxymidazolam	24.9
	Testosterone (200)	15	6β-Hydroxytestosterone	512.8
ECOD	7-Ethoxycoumarin (100)	30	7-Hydroxycoumarin	137.2
UGT	7-Hydroxycoumarin (100)	30	7-Hydroxycoumarin glucuronide	543.7
Sulfotransferase	7-Hydroxycoumarin (100)	30	7-Hydroxycoumarin sulfate	32.7

CYP450 Activity Assessment: The hepatocytes were incubated at a cell density of 0.5 million cells/mL in a 48-well plate (125,000 hepatocytes/well) for the designated time durations with isoform-selective substrates. The metabolites were identified and analyzed using LC-MS/MS.

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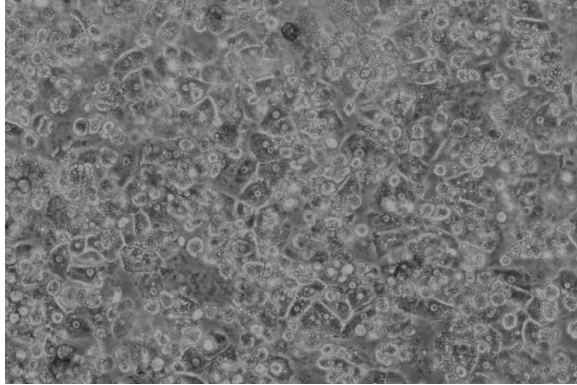
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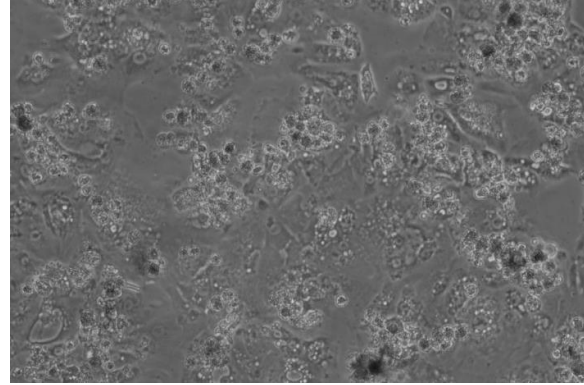


Photomicrographs (100X, Phase Contrast)

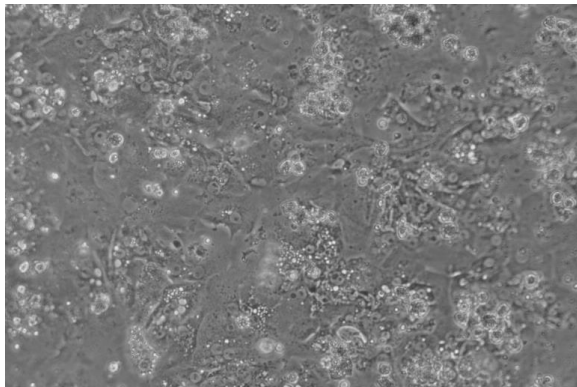
Phase Contrast Day 2



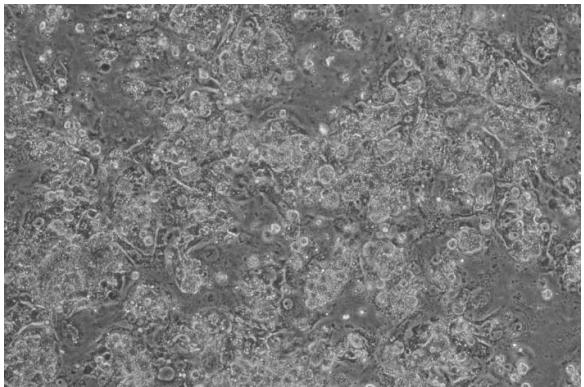
Phase Contrast Day 4



Phase Contrast Day 5



Long-term Human Plasma Incubation Day 7



Monolayer Comments: HH1036 has a good attachment efficiency and a confluency of 90 % by 24 hours. Hepatocyte monolayer takes several days to become confluent. Stretching of the hepatocytes is observed, but monolayer remains intact through day 5.

Human Plasma Incubation: The hepatocytes were cultured at a cell density of 0.35 million hepatocytes/ 0.5 mL in a 24-well plate as a collagen-Matrigel® sandwich. On day 2, the hepatocytes were treated with media containing human plasma and received subsequent media changes every other day to assess long term effects of plasma on morphology.

IVAL cell culture media and tissue culture plates used in this evaluation:

- Recovery of thawed hepatocytes - Cat. No. 81015 - UCRM™ Universal Cryopreservation Recovery Media, 50 mL tube
- Initial plating of hepatocytes - Cat. No. 81016 - UPCM™ Universal Primary Cell Plating Media, 50 mL tube
- Sandwich culture with 0.25 mg Matrigel® - Cat. No. 81018/81019 - HIM™ Hepatocyte Induction Media, 50 mL tube/500 mL bottle
- Suspension and incubation of hepatocytes - Cat. No. 81039/81040 - HQM™ Hepatocyte Incubation Media, 50 mL tube/500 mL bottle
- Collagen coated plates - Cat. No. 71006, 71008 - CellAffix™ 24-well and 96-well Collagen Hand Coated tissue culture plate, 5 plates per pack

To inquire about our products and services or for technical questions please contact:

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