

# Product Characterization Sheet

## PHHX8020



MetMax™ Pooled Human Hepatocytes, Catalog Number 82215-82221 (see list)

### Specifications

Number of donors	49
Volume	2.5 mL
Cell concentration	$2.0 \times 10^6$ /mL

### Drug Metabolizing Enzyme Activities

Drug metabolizing enzyme activity assessment: MetMax™ pooled human hepatocytes were thawed in a 37°C water bath. A 1000 µL Eppendorf pipette (with tip) was used to pipet up and down three times to achieve homogeneity. MetMax™ hepatocytes were prepared at a density of 2 million cells per mL. Equal volumes of MetMax™ hepatocytes and 2X substrate were incubated for 15 minutes with isoform-selective substrates at 37°C. The final cell density of MetMax™ hepatocytes and substrate was 1.0 million cells/mL in a 96-well plate (96 well plates pre-loaded with 50 µL of 2X substrates per well, and metabolism initiated by adding 50 µL of MetMax™ hepatocytes to each of the wells, 100,000 hepatocytes/well). The metabolites were identified and analyzed using LC-MS/MS.

Drug Metabolizing Enzyme	Substrate(µM)	Metabolite Quantified	Activity(pmol/minute/ million cells)
CYP1A2	Phenacetin (100)	Acetaminophen	$4.18 \pm 0.367$
CYP2A6	Coumarin (50)	7-HC, 7-HC-Sulfate, 7-HC-Glucuronide	$441.1 \pm 8.39$
CYP2A6	Coumarin (50)	7-Hydroxycoumarin	$141 \pm 7.39$
CYP2A6	Coumarin (50)	7-Hydroxycoumarin Glucuronide	$71.1 \pm 3.75$
CYP2A6	Coumarin (50)	7-Hydroxycoumarin Sulfate	$29.9 \pm 2.76$
CYP2B6	Bupropion (500)	Hydroxybupropion	$39.8 \pm 1.02$
CYP2C8	Paclitaxel (20)	6α-hydroxypaclitaxel	$137.6 \pm 10.22$
CYP2C9	Diclofenac (25)	4-OH Diclofenac	$12.4 \pm 2.21$
CYP2C19	S-Mephenytoin (250)	4-OH S-Mephenytoin	$173 \pm 1.26$
CYP2D6	Dextromethorphan (15)	Dextrophan	$170 \pm 25.4$
CYP2E1	Chlorzoxazone (250)	6-OH Chlorzoxazone	$17.26 \pm 0.3$
CYP3A4-1	Midazolam (20)	1-Hydroxymidazolam	$118 \pm 3.53$
CYP3A4-2	Testosterone (200)	6β-hydroxytestosterone	$100.44 \pm 3.34$
ECOD	7-Ethoxycoumarin (100)	7-HC, 7-HC-Sulfate, 7-HC-Glucuronide	$564 \pm 35.6$
UGT	7-Hydroxycoumarin (100)	7-Hydroxycoumarin Glucuronide	$12.8 \pm 0.68$
SULT	7-Hydroxycoumarin (100)	7-Hydroxycoumarin Sulfate	$267 \pm 15.3$
GST	Acetaminophen (10)	Acetaminophen Glutathione	$27.9 \pm 0.53$
UGT	Acetaminophen (10)	Acetaminophen Glucuronide	$54.1 \pm 4.03$
SULT	Acetaminophen (10)	Acetaminophen Sulfate	$35.1 \pm 1.71$

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FMO	Benzydamine HCl (250)	Benzydamine-N-Oxide	23.6 ± 0.74
MAO	Kynuramine HCl (160)	4-hydroxyquinoline	1129 ± 41.1
AO	Carbazeran HCl (10)	4-Hydroxycarbazeran	1183 ± 94.6
NAT1	4-Aminobenzoic HCl (200)	N-Acetyl-p-aminobenzoic acid	27.7 ± 1.76
NAT2	Sulfamethazine (100)	N-Acetyl-sulfamethazine	42.9 ± 4.02

### Donor Demographics

Lot	Ethnicity	Gender	Age	BMI	COD	Alcohol	Tobacco	Substance	Medical History	Infectious disease	CMV+/-
HH1004	Caucasian	Male	30	26.9	HEAD TRAUMA-BLUNT INJURY	YES	YES	YES	N/A	HBV-, HCV-, HIV-,	CMV-
HH1006	Hispanic	Male	65	37.0	ANOXIA/CVA	NO	NO	NO	N/A	HBV-, HCV-, HIV-,	CMV+
HH1012	Caucasian	Male	22	25.2	ANOXIA, ASPHYXIATION	YES	YES	YES	DEPRESSION	HBV-, HCV-, HIV-,	CMV+
HH1014	Caucasian	Male	15	20.0	ANOXIA, ASPHYXIATION	YES	YES	YES	DEPRESSION	HBV-, HCV-, HIV-,	CMV+
HH1017	Hispanic	Female	64	24.7	CVA-ICH	NO	NO	NO	MULTIPLE SCLEROSIS	HBV-, HCV-, HIV-,	CMV-
HH1019	Caucasian	Male	17	23.0	HEAD TRAUMA/ MVA	NO	NO	YES	N/A	HBV-, HCV-, HIV-,	CMV+
HH1028	Hispanic	Male	43	23.9	CVA-ICH	NO	NO	NO	N/A	HBV-, HCV-, HIV-,	CMV+
HH1029	Caucasian	Male	51	18.0	ANOXIA 2ND TO CVA	YES	YES	YES	ARRHYTHMIA UNDIAG-UNTREATED	HBV-, HCV-, HIV-,	CMV+
HH1030	Caucasian	Male	31	20.5	ANOXIA-2ND SI ASPHYXIATION	YES	NO	YES	N/A	HBV-, HCV-, HIV-,	CMV-
HH1034	Caucasian	Male	49	29.9	CVA 2ND TO ICH	YES	NO	NO	HTN-COMPLIANT	HBV-, HCV-, HIV-,	CMV+
HH1035	Caucasian	Female	46	22.0	ANOXIA/DRUG OD	NO	YES	YES	HYPERTENSION, RX ABUSE	HBV-, HCV-, HIV-,	CMV-

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HH1037	Caucasian	Male	45	25.5	CVA 2ND TO ICH	YES	YES	YES	HYPERTENSION	HBV-, HCV-, HIV-,	CMV+
HH1039	Caucasian	Male	67	21.7	HYPERTENSION 2ND TO ICH	YES	YES	YES	HTN-COMPLIANT	HBV-, HCV-, HIV-,	CMV+
HH1040	Caucasian	Female	69	28.9	CVA 2ND TO ICH	YES	YES	NO	SEE DONOR INFO	HBV-, HCV-, HIV-,	CMV+
HH1042	Caucasian	Male	57	23.0	HT 2ND TO BLUNT INJURY	YES	YES	YES	HTN, COPD, GERD	HBV-, HCV-, HIV-,	CMV+
HH1047	Hispanic	Male	44	23.5	HT 2ND TO BLUNT INJURY	YES	YES	YES	ASTHMA	HBV-, HCV-, HIV-,	CMV+
HH1048	Caucasian	Male	50	31.7	GSW-HEAD	YES	YES	YES	N/A	HBV-, HCV-, HIV-,	CMV+
HH1049	Hispanic	Male	9	19.5	CNS TUMOR	NO	NO	NO	CNS TUMOR	HBV-, HCV-, HIV-,	CMV-
HH1056	Caucasian	Female	52	32.3	CVA 2ND TO ICH	NO	YES	NO	ASTHMA	HBV-, HCV-, HIV-,	CMV-
HH1059	Caucasian	Male	65	25.3	CVA Stroke	NO INFO	NO INFO	NO INFO	N/A	HBV-, HCV-, HIV-,	NOT TESTED
HH1063	Caucasian	Female	64	30.6	CVA Stroke ICH	YES	NO	NO	BREAST CANCER	HBV-, HCV-, HIV-,	CMV-
HH1064	Caucasian	Female	18	23.2	HT 2ND TO BLUNT INJURY	YES	YES	NO	RIGHT LOBE ONLY	HBV-, HCV-, HIV-,	CMV-
HH1065	Caucasian	Female	66	15.7	CVA/STROKE	YES	NO	NO	ANOREXIA	HBV-, HCV-, HIV-,	CMV+
HH1069	African American	Female	61	41.4	CVA 2ND TO ICH	YES	NO	NO	Cardiac stent, HTN, Diabetes with dialysis	HBV-, HCV-, HIV-,	CMV+
HH1071	Hispanic	Male	18	26.2	HT 2ND TO BLUNT INJURY	NO	YES	YES	DEPRESSION	HBV-, HCV-, HIV-,	CMV-
HH1077	Caucasian	Female	41	24.5	CVA 2ND TO ICH	YES	YES	YES	ASTHMA, SEIZURES	HBV-, HCV-, HIV-,	CMV-
HH1084	Caucasian	Male	33	20.8	CVA 2ND TO ICH	YES	NO	NO	N/A	HBV-, HCV-, HIV-,	CMV-

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HH1088	Caucasian	Male	48	41.3	ANOXIA/CVA	NO	NO	NO	HEMODIALYSIS/HTN/DIABETES	HBV-, HCV-, HIV-,	CMV-
HH1093	Caucasian	Female	62	22.7	ANOXIA, SUICIDE	NO	NO	NO	N/A	HBV-, HCV-, HIV-,	CMV-
HH1099	Caucasian	Male	46	41.4	CVA ICH	YES	NO	NO	HTN / DIABETES-DIABETES ONLY KNOWN UPON ADMISSION	HBV-, HCV-, HIV-,	CMV-
HH1101	African American	Male	19	22.8	GSW/HOMOCIDE	NO	NO	NO	HEMOPHILIA/ONLY LEFT KIDNEY	HBV-, HCV-, HIV-,	CMV+
HH1105	Asian	Female	59	21.4	CVA/STROKE/ICH	NO	NO	NO	HEMODIALYSIS/HTN/DIABETES	HBV-, HCV-, HIV-,	CMV+
HH1108	Caucasian	Male	27	19.3	SEIZURES/CEREBAL PALSY	NO	NO	NO	CEREBAL PALSY	HBV-, HCV-, HIV-,	CMV-
HH1109	Caucasian	Female	53	32.2	CVA/ICH	YES	NO	NO	HTN, SEIZURES	HBV-, HCV-, HIV-,	CMV-
HH1110	Hispanic	Male	47	25.2	CVA/ICH	YES	YES	NO	DIABETES/HTN	HBV-, HCV-, HIV-,	CMV+
HH1111	Caucasian	Female	52	40.3	ANOXIA CVA	NO	YES	YES	HTN, COPD, FIBROMYALGIA, PILL ABUSE	HBV-, HCV-, HIV-,	CMV+
HH1112	African American	Male	19	22.8	GSW/HOMOCIDE	NO	NO	NO	HEMOPHILIA/ONLY LEFT KIDNEY	HBV-, HCV-, HIV-,	NOT TESTED
HH1115	Caucasian	Male	18	36.9	ANOXIA/CVA	NO	NO	NO	N/A	HBV-, HCV-, HIV-,	NOT TESTED
HH1116	Caucasian	Male	54	39.53	CVA/STROKE/ICH	NO	NO	NO	DIABETES/HTN/CAD	HBV-, HCV-, HIV-,	CMV-
HH1127	Caucasian	Male	43	41.1	ANOXIA	NO	NO	NO	HTN, DIABETES	HBV-, HCV-, HIV-,	CMV-

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HH1129	Caucasian	Female	0	NA	Anencephaly	NA	NA	NA	NA	HBV-, HCV-, HIV-,	NA
HH1158	Hispanic	Female	69	29.60	CVA 2ND TO ICH	NO	NO	NO	HTN, DIABETES, KIDNEY DISEASE	HBV-, HCV-, HIV-,	CMV +
HH1159	Caucasian	Male	52	26.58	ANOXIA/CVA	YES	YES	NO	N/A	HBV-, HCV-, HIV-,	CMV+
HH1169	Caucasian	Male	67	23.1	CVA/STROKE	YES	NO	NO	HTN/sarcoidosis	HBV-, HCV-, HIV-,	CMV-
HH1119	Caucasian	Female	64	21.01	CVA/STROKE/ICH	NO	YES	NO	HTN	HBV-, HCV-, HIV-,	CMV+
HH1130	Asian	Male	39 weeks	11.4	None given	NO	NO	NO	HTN	HBV-, HCV-, HIV-,	N/A
HH1067	Caucasian	Male	17	23.0	HEAD TRAUMA/MVA	NO	NO	YES	NA	HBV-, HCV-, HIV-	CMV+

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

- Substrate preparation for incubation of hepatocytes - Cat. No. 81039/81040 - HQM™ Hepatocyte Incubation Media, 50 mL tube/500 mL bottle
- Available MetMax™ Human Hepatocyte Products:

82215: PHHX MetMax®-C, Complete; High Performance Pooled Human Hepatocytes, 2.5mL, 5x10<sup>6</sup> cells, Mixed Gender

82216: PHHX-OX; Pathway Specific MetMax™ Pooled Human Hepatocyte; 2.5 mL; 5 x 10<sup>6</sup> cells; Mixed Gender

82217: PHHX-UGT; Pathway Specific MetMax™ Pooled Human Hepatocyte; 2.5 mL; 5 x 10<sup>6</sup> cells; Mixed Gender

82218: PHHX-SULT; Pathway Specific MetMax™ Pooled Human Hepatocyte; 2.5 mL; 5 x 10<sup>6</sup> cells; Mixed Gender

82219: PHHX-NAT; Pathway Specific MetMax™ Pooled Human Hepatocyte; 2.5 mL; 5 x 10<sup>6</sup> cells; Mixed Gender

82220: PHHX-GST; Pathway Specific MetMax™ Pooled Human Hepatocyte; 2.5 mL; 5 x 10<sup>6</sup> cells; Mixed Gender

82221: PHHX-MT; Pathway Specific MetMax™ Pooled Human Hepatocyte; 2.5 mL; 5 x 10<sup>6</sup> cells; Mixed Gender

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

- In Vitro ADMET Laboratories by phone at +1 (866) 458-1094 or +1 (410) 869-9037 or email at [info@invitroadmet.com](mailto:info@invitroadmet.com)