

INVITROCYP™ Mixed Gender Human Microsomes — Liver, M-Class, 50-Donor Pool,
Frozen, 10 mg @ 20 mg/mL

Product: X008067 | Lot: EGW****

Storage: ≤ -70 °C

**** Refer to CC: TCC-22-0001.

Protein & p450 Concentration

Protein	20—29 mg/mL	27 mg/mL
Total P450	≥ 0.220 nmol/mg	0.329 nmol/mg
Volume	≥ 0.5 mL	0.54 mL

Protein and p450 values are average concentrations of samples from the beginning, middle, and end of the production run.

Metabolic Activity

Enzyme	Substrate	Conc. [μM]*		Metabolite	Result**		
		K _m *	V _{max} *		K _m *	V _{max} *	
ECOD	7- Ethoxycoumarin O-Deethylation	7-Ethoxycoumarin	75	NA	7-HC, 7-HCG, and 7-HCS***	379	NA
UGT	7-Hydroxycoumarin Glucuronidation	7-Hydroxycoumarin	30	NA	7-HCG	2452	NA
CYP1A2	Phenacetin O-Deethylation	Phenacetin	50	500	Acetaminophen	272	595
CYP2A6	Coumarin 7-Hydroxylation	Coumarin	3	40	7-HC, 7-HCG, and 7-HCS	389	685
CYP2B6	Bupropion Hydroxylation	Bupropion	50	400	Hydroxybupropion	199	370
CYP2C8	Amodiaquine N-Desethylation	Amodiaquine	2	NA	Desethylamodiaquine	1009	NA
CYP2C9	Tolbutamide Methyl-hydroxylation	Tolbutamide	125	1000	4'-Methylhydroxytolbutamide	168	322
CYP2C19	S-Mephenytoin 4'-Hydroxylation	S-Mephenytoin	50	500	4'-Hydroxymephenytoin	36.7	67.3
CYP2D6	Dextromethorphan O-Demethylation	Dextromethorphan	8	50	Dextrorphan	46.0	116
CYP2E1	Chlorzoxazone 6-Hydroxylation	Chlorzoxazone	50	500	6-Hydroxychlorzoxazone	442	1054
CYP3A4	Testosterone 6β-Hydroxylation	Testosterone	40	600	6β-Hydroxytestosterone	1061	2183
CYP3A4	Midazolam 1-Hydroxylation	Midazolam	4	24	1-Hydroxymidazolam	388	783

*Measured at apparent K_m and V_{max} concentration where appropriate **Metabolite rate of formation is measured in pmol/min/mg

***7-hydroxycoumarin (7-HC), 7-hydroxycoumarin glucuronide (7-HCG), 7-hydroxycoumarin sulfate (7-HCS)

Metabolic assays are run in triplicate. Activity results analyzed by HPLC-UV or LC/MS/MS validated procedures. Metabolite formation for all enzymes is measured after incubation at 37°C, 5% CO₂. Final protein concentrations and incubation times are as follows: ECOD, UGT, CYP1A2, CYP2B6 and CYP2C19 – 30 min/0.50 mg/mL; CYP2C9, CYP2D6 and CYP2E1 – 30 min/0.25 mg/mL; CYP2A6 – 10 min/0.50 mg/mL; CYP3A4 – 10 min/0.25 mg/mL and CYP2C8 – 10 min/0.025 mg/mL

Results for this lot have been derived through validated testing methods and confirmed by Quality Assurance.

Caution: This product was prepared from human tissue. Treat all products containing human-derived materials as potentially infectious, as no known test methods can offer assurance that products derived from human tissues will not transmit infectious agents.

This product is being sold for research and/or manufacturing purposes only. The biological samples supplied by BioIVT, or any material isolated from the samples, are for in-vitro research use only and are not to be used as a source of material for clinical therapies. Human material may be used in vivo in animals. The user assumes all responsibility for its usage and disposal, in accordance with all regulations.

As of March 5th, 2018, "BioIVT" will replace the current brand of BioreclamationIVT and those of each of its affiliates and subsidiaries: IVT Holdings Inc., Asterand Bioscience, Inc., Asterand UK Acquisition limited, Asterand US Acquisition Corporation, Labquote.com LLC, ILSBio LLC, Seratrials LLC, Sera Laboratories International Ltd., Translational Cell Science LLC, Bioreclamation-IVT India Private Limited, In Vitro Inc., In Vitro GmbH, Qualyst Holdings LLC, Qualyst Transporter Solutions LLC.

Donor Demographics, as reported to BioIVT

Age/ Gender	Race	Cause of Death	BMI	Social History	Medical History	Serology****		
						EBV	RPR	CMV
84 Female	Caucasian	CVA	31.2	No ETOH, Tobacco, or Drug use	Hypertension x 30yrs, total knee replacement, hysterectomy, appendectomy; Meds: Celebrex, blood pressure meds, cholesterol meds, flu shot	Not Reported	Negative	Positive
70 Female	Caucasian	ICH/ Stroke	31.7	Tobacco: 1ppd x 25-30yrs - quit 3 months ago; No Tobacco or Drug use	Hypothyroidism, hypertension, hyperlipidemia; Meds: cortisone, Synthroid, aspirin, Lipitor	Not Reported	Negative	Positive
68 Female	Asian	SOH and SAH	29.0	ETOH: None in 28yrs, Champagne before; No Tobacco or Drug use	Uterine Cancer x 25yrs - no chemo or rad but total hysterectomy, allergic to dust and mold, hypertension x 10yrs, NIDDM x 10 yrs, Asthma x 20yrs, Shingles; Meds: Nexium, KCl, Plavix, Chlordiazepoxide, Norvasc, Glyburide, Lipitor	Not Reported	Negative	Positive
58 Female	Caucasian	Anoxia; 2 nd to pulmonary embolism	29.5	ETOH: 6yrs extensively, 1 gallon of vodka everyday - quit 1-1.5yrs ago; Tobacco: 40 pack yrs; Drugs: Marijuana 1x month; Tox screen positive for ETOH and anti-depressants	Bipolar; Meds: antidepressant	Not Reported	Negative	Not Reported
41 Female	Hispanic	Stroke	28.1	No ETOH, Tobacco, or Drug use	Appendectomy 16yrs ago	Not Reported	Negative	Positive
48 Female	Caucasian	CVA/ICH	32.8	Tobacco: ½ ppd x 33yrs; No ETOH or Drug use	Chronic bronchitis, severe undiagnosed cardiac history - close to heart attack; Meds: Advair	IgG +	Negative	Positive
50 Female	Caucasian	Post Op complication	42.8	No ETOH, Tobacco, or Drug use	Bronchitis/ Pneumonia	IgG+	Negative	Positive
53 Female	Caucasian	Anoxia, Cardio-vascular	17.5	ETOH: 2-3 drinks socially - quit 12yrs ago; Tobacco: ½ ppd x 4yrs - quit 30yrs ago; No Drug use	No Medical History Reported	IgG+	Negative	Negative

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						EBV	RPR	CMV
44 Female	Caucasian	Stroke	47.7	No ETOH, Tobacco, or Drug use	Hypertension, Type 2 diabetes (NIDDM), obstructive pulmonary disease, possible renal cell carcinoma	Not Reported	Negative	Positive
77 Female	Caucasian	Stroke/ICH	30.2	ETOH: socially - 1 glass of wine/month; No Tobacco or Drug use	No Medical History Reported	Not Reported	Negative	Positive
52 Female	Caucasian	Blunt Injury, MVA	31.2	No Tobacco use; ETOH and Drug use – specifics unknown	Diabetes, hypertension	IgG+	Negative	Positive
61 Female	Caucasian	Anoxia, Cardiac Arrest	18.0	ETOH: rare beer; No Tobacco or Drug use	Paroxysmal A-Fib, Cancer: Squamous Basal Cell Skin	IgG+	Negative	Negative
72 Female	Caucasian	CVA	29.8	No ETOH, Tobacco, or Drug use	Hypertension - duration unknown Asthma/Bronchitis, hypertension x 20yrs, Cancer: Basal cell Squamous	IgG+	Negative	Negative
71 Female	Caucasian	Anoxia/ Cardio-vascular	28.7	Tobacco: specifics unknown; No ETOH or Drug use	Hypertension x 5yrs, Diabetes x 10yrs	IgG+	Negative	Positive
45 Female	Caucasian	Overdose	31.9	ETOH: 1 pint of liquor every 4 months; Tobacco: 0.5 ppd x 13yrs - quit 1yr ago; Drugs: IVDA 2yrs ago, cocaine and marijuana x 6 months	Breast cancer 1yr ago - did not spread, radiation done and considered cured Type 2 Diabetes - started w/ pills and progressed to insulin shot past 6yrs, hypertension x 6yrs, anxiety, acid reflux, diarrhea on and off past few years, diagnosed with COPD 4yrs ago; Allergic to Penicillin; Meds: Nexium, Tenormin, Lantus insulin, lisinopril, hydrocodone, Norco, ibuprofen, HCTZ, Xanax, Seroquel, Ambien, fibromyalgia meds, pump for COPD	IgG+	Negative	Negative
63 Female	Caucasian	Head Trauma; Blunt Injury	34.0	Tobacco: 1 pack/week - quit 40+yrs ago; No ETOH or Drug use		IgG+	Not Reported	Positive
51 Female	Black	Cerebro-vascular/ Stroke; 2 nd to ICH	30.5	ETOH: Cognac (1-3 glasses/mo) and beer (2-4/mo) x 15yrs - quit 9yrs ago; Tobacco: 1ppd x 30+ yrs; Drugs: Cocaine (specifics unknown)		IgG+	Negative	Positive

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						EBV	RPR	CMV
59 Female	Hispanic	CVA	29.2	ETOH: 2 drinks (Beer, Vodka, Wine) once per month x 10yrs; No Tobacco or Drug use	Hypertension - duration unknown	IgG+	Negative	Positive
42 Female	Caucasian	Head Trauma; MVA	27.9	ETOH: previous - 2yrs ago; Drugs: marijuana; No Tobacco use	No Medical History Reported	IgG+	Negative	Positive
77 Female	Caucasian	ICH	20.0	ETOH: couple of drinks a few times/yr; Tobacco: 2 cigarettes daily - quit 10yrs ago; No Drug use	Hypertension x 12yrs, Cancer - Oral 1yr ago (surgically removed)	IgG+	Negative	Negative
50 Female	Caucasian	Anoxia	36.0	ETOH: 1 pint/day x 5yrs; Drugs: snorted meth over 10yrs ago; No Tobacco use	Hypertension - duration unknown	IgG+	Negative	Negative
73 Female	Caucasian	CVA	29.4	ETOH: 2x/year x 52yrs; No Tobacco or Drug use	CABG, Valve replacement, CHF, Hypertension	Not Reported	Negative	Positive
39 Female	African American	Head Trauma/MVA	17.7	ETOH: 1 can of beer daily x 15yrs; Drugs: positive for marijuana on admission; No Tobacco use	Asthma - duration unknown	IgG+	Negative	Positive
13 Female	Caucasian	CVA/Intra-cranial Hemorrhage	15.9	No ETOH, Tobacco, or Drug use	Chronic Lung disease as an infant	IgG+	Negative	Positive
55 Female	Hispanic	Head Trauma	29.4	ETOH: occasional beer; Tobacco: former smoker; Drugs: marijuana	No Medical History Reported	IgG+	Negative	Negative
48 Male	Hispanic	Head Trauma; 2 nd to Homicide	26.0	ETOH: social - specifics unknown; No Tobacco or Drug use	Heart problems	Not Reported	Negative	Positive
38 Male	Hispanic	CVA	29.3	ETOH: social, 1-2 beers weekends/special occasions; No Tobacco or Drug use	No Medical History Reported	Not Reported	Negative	Negative
29 Male	Caucasian	GSW	30.6	ETOH: Alcoholic; Tobacco: 1ppd x 8yrs; No Drug use	No Medical History Reported	Not Reported	Negative	Negative
85 Male	Caucasian	Head Trauma; 2 nd to Fall from roof	38.2	No ETOH or Tobacco use; No Drug use reported - Tox screen positive for benzodiazepines and opiates	NIDDM >10yrs, Hypertension >10yrs - compliant, ruptured gallbladder - 35yrs ago, flu shot 4mos ago, Cataracts-bilateral; Meds: Oral meds for diabetes, hypertension	IgG+	Negative	Positive
44 Male	Caucasian	MVA	23.1	ETOH: Heavy - specifics unknown; Tobacco: 1 ppd x 20yrs; Drugs: marijuana & cocaine (positive on admit)	No Medical History Reported	Not Reported	Negative	Positive

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						EBV	RPR	CMV
57 Male	Caucasian	Respiratory Distress	32.5	ETOH: 8 oz brandy/day x 20yrs - quit 10yrs ago; Tobacco: 1ppd x 20yrs, quit 10yrs ago; Cocaine x 8yrs - quit 20yrs ago.	Hypertension x 10yrs, GSW abdomen (long ago), PVD, Asthma 2yrs ago (maybe COPD), Appendectomy	Not Reported	Negative	Positive
38 Male	Caucasian	Blunt Head Trauma; 2 nd to MVA	35.1	ETOH: 3-5 beers socially on weekends; Tobacco: 1-2 ppw x 15yrs; Drugs: none reported but positive for THC on admit and benzodiazepines (after ACLS meds)	Hernia repair - 1yr ago	Not Reported	Negative	Negative
46 Male	Caucasian	CVA/ICH	28.0	ETOH: 6 pack per day; Tobacco: 8 cigars x 20yrs; Drugs: Marijuana	Back surgery, Rheumatic fever at age 10	Not Reported	Negative	Positive
53 Male	Caucasian	CVA	37.2	ETOH: Rarely; Tobacco: 1/2 ppd x 12yrs - quit 25yrs; Drug use reported, specifics unknown	CABG, saph vein graft, Hypertension x 8yrs (compliant w/meds), IDDM x 2wks, NIDDM x 5yrs; Meds: Coumadin, hypertension meds, insulin, ameradane, Vicodin	Not Reported	Negative	Positive
53 Male	Caucasian	Anoxia; 2 nd to MVA	44.2	Tobacco: 0.5 ppd x 3yrs, quit ≥ 30yrs ago; No ETOH or Drug use	Cardiac arrest, Gall bladder removed >10yrs ago, Hypertension x 3yrs - compliant with meds; Meds: Hypertension meds, MgSulfate CHF & cardiomyopathy, hypertension x 10yrs, Diabetes x 10yrs	Positive	Negative	Positive
48 Male	African American	CVA; 2 nd to ICH	29.5	ETOH: 3 beers & 1 liquor drink 1x/week x 30yrs; No Tobacco or Drug use	Surgery to repair eye socket. Meds: pain meds - oxycodone, oxycontin, and others	Not Reported	Negative	Positive
44 Male	Caucasian	Anoxia; 2 nd to Asphyxiation	24.8	ETOH: Beer/vodka 4-5x/wk, unknown amt; Tobacco: 1ppd x 15yrs; Drugs: Steroids x 1yr - 19yrs ago, cocaine in 20s-30s, THC in high school	No Medical History Reported	IgG+	Negative	Positive
44 Male	Hispanic	CNS tumor	36.8	No ETOH, Tobacco, or Drug use	No Medical History Reported	Not Reported	Negative	Positive
37 Male	Caucasian	Anoxia; 2 nd to Cardio- vascular	41.9	ETOH: socially on weekends - quit 1.5yrs ago; Tobacco: socially for unknown duration - quit 7-9yrs ago; Drugs: smoked marijuana since college - last use 1 week ago	Jaundice at birth - resolved shortly after, vasectomy, flu vaccine last year; Meds: melatonin, Advil PM	IgG+	Negative	Negative

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						EBV	RPR	CMV
26 Male	Black	GSW to face	32.4	ETOH: social - wine; Tobacco: 1ppd; No Drug use	No Medical History Reported	IgG+	Negative	Positive
13 Male	Caucasian	Head Trauma; 2 nd to MVA	38.8	No ETOH, Tobacco, or Drug use	No Medical History Reported	Negative	Negative	Negative
41 Male	Hispanic	Head Trauma	28.9	ETOH: 5 drinks/day 4 times per week - Liquor/tequila 10 oz once per month; Tobacco: 1ppd x 10yrs - quit 10yrs ago; No Drug use	Hypertension - duration unknown	Not Reported	Not Reported	Positive
58 Male	Caucasian	CVA/ICH	36.7	ETOH: 6 beers/day all adult life; Tobacco: 1 cigarette/day x 15-20yrs - quit 6mos ago; No Drug use	Arrhythmias, Hypertension x 3yrs	IgG+	Negative	Positive
49 Male	Caucasian	Cardiac Arrest	28.5	ETOH: 4 beers 4-5 days/week x 25yrs; Tobacco: 2 ppd - duration unknown; No Drug use	No Medical History Reported	Not Reported	Negative	Positive
49 Male	Hispanic	ICH	39.6	No ETOH, Tobacco, or Drug use	Hypertension - duration unknown	IgG+	Negative	Positive
45 Male	Caucasian	Anoxia, Cardio- vascular	29.5	ETOH: 3-4 vodka/wine per day x 20yrs; Tobacco: ¼ ppd x 20yrs; Drugs: marijuana 2x/day x 20yrs	Hypertension - duration unknown	IgG +	Negative	Positive
53 Male	Caucasian	ICH	28.5	ETOH: 2-3 beers/week; Tobacco: previous tobacco chewer; No Drug use	Hypertension - duration unknown	IgG+	Negative	Positive
58 Male	Black	Anoxia; 2 nd to Natural Causes	21.5	ETOH: 1 beer/wk; Tobacco: 2-3 ppd x 33yrs; Drugs: possibly THC and cocaine on admit, Tox screen positive for cocaine	Heart attack or seizures 2 weeks ago	Positive	Negative	Positive
35 Male	Black	CVA	37.5	ETOH: 3-4 6-packs/day x 21yrs; Tobacco: 1 ppd x 21yrs; No Drug use	Asthma-outgrew in adolescence, Hypertension x 4yrs - no meds, borderline diabetes; HBcAb and NAT Neg	Not Reported	Negative	Negative
53 Male	Caucasian	Anoxia, Cardio- vascular	21.5	ETOH: several beers/day x 37yrs, hard liquor for past 2yrs; Tobacco: 0.5 ppd x 12yrs, 1-2 cigs/day past 8yrs; Drugs: nonprescribed pain medication, cocaine many years ago, occasional marijuana 34yrs ago	No Medical History Reported	IgG-	Negative	Positive

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