

List of Validated Methods (January 2012)

Compound	Matrix	LLOQ	Curve Range	Sample Volume	Anticoagulant	Method	Lab Site
A							
Acetaminophen	Human Plasma	20 ng/mL	20-20000ng/mL	20 µL	Sodium Heparin	LC/MS/MS	Frontage - US
5-Acetylamino-6-Formylamino-3-Methyluracil/1-Methylxanthine	Human Urine	100/100 ng/mL	100/100-25000/25000 ng/mL	20 µL		LC/MS/MS	Frontage - US
Acetylisovaleryltiosin	Rat Plasma/Dog Plasma	10 ng/mL	10-300 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Albuterol	Human Plasma	10 pg/mL	10-4000 pg/mL	1000 µL	K3EDTA	LC/MS/MS	Frontage - US
Alfuzosin	Human Plasma	0.5 ng/mL	0.5-30 ng/mL	200 µL	K2EDTA	LC/MS/MS	Frontage - US
Alprazolam	Human Plasma	0.2 ng/mL	0.2-30 ng/mL	200 µL	K2EDTA	LC/MS/MS	Frontage - US
4-Aminopyridine	Dog Plasma/Rat Plasma	20 ng/mL	20-10000 ng/mL	40 µL	K2EDTA	LC/MS/MS	Frontage - US
Amlodipine	Human Plasma	0.2 ng/mL	0.2-400 ng/mL	200 µL	K3EDTA/K2EDTA	LC/MS/MS	Frontage - US
Amlodipine	Human Plasma	0.2 ng/mL	0.2-40 ng/mL	200 µL	K3EDTA	LC/MS/MS	Frontage - SH
Amoxicillin	Human Plasma	50 ng/mL	50-25000 ng/mL	100 µL	K2EDTA	LC/MS/MS	Frontage - US
Androstenedione	Porcine Fat	200 g	200-8000 ng/g	0.5 g		LC/MS/MS	Frontage - SH
Arginine	Human Plasma	150 ng/mL	150-125000 ng/mL	10 µL	Heparin	LC/MS/MS	Frontage - SH
Angiotensin	Rat Blood	2 ng/mL	2-500 ng/mL	100 µL	Sodium EDTA	LC/MS/MS	Frontage - US
Atazanavir	Human Plasma	25 ng/mL	25-10000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Atorvastatin	Human Plasma	0.2 ng/mL	0.2-200 ng/mL	200 µL	K3EDTA	LC/MS/MS	Frontage - US
Atorvastatin/2-Hydroxy Atorvastatin/ Hydroxy Atorvastatin	Human Plasma	0.2/0.2/0.2 ng/mL	0.2/0.2/0.2-100/100/100 ng/mL	200 µL	K2EDTA	LC/MS/MS	Frontage - US
Azithromycin	Plasma	1 ng/mL	1-1000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - SH
B							
Active B-12	Human plasma/serum	8 pmol/L	8-128 pmol/L	173 µL		MEIA	Frontage - US
B-12	Human plasma/serum	100 pg/mL	100-2000 pg/mL	210 µL		MEIA	Frontage - US
Bergamottin/6', 7' - Dihydroxybergamottin/Naringenin	Grapefruit Juice	0.1/0.1/0.1 µg/mL	0.1/0.1/0.1-20/20/20 µg/mL			LC/MS/MS	Frontage - US
Bivalirudin	Rat/Human Plasma	50/500 ng/mL	50-10000 ng/mL/500-25000 ng/mL	20/50 µL	K2EDTA/Sodium	LC/MS/MS	Frontage - US
Bupropion/Hydroxy Bupropion	Human Plasma	0.5/1 ng/mL	0.5/1-250/500 ng/mL	100 µL	K2EDTA	LC/MS/MS	Frontage - US
Butalbital	Human Plasma		50-5000 ng/mL	200 µL	K3EDTA	LC/MS/MS	Frontage - US
Butalbital/Codeine	Human Plasma	50/1 ng/mL	50/1-5000/200 ng/mL	200 µL	K3EDTA	LC/MS/MS	Frontage - US
Butyric Acid	Rat Plasma	10 µg/mL	10-10000 µg/mL	200 µL	K3EDTA	Capillary Gas	Frontage - US
C							
Caffeine	Human Plasma	20 ng/mL	20-20000 ng/mL	20 µL	Sodium Heparin	LC/MS/MS	Frontage - US
Caffeine/Paraxanthine	Human Plasma	20/20 ng/mL	20/20-20000/20000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Carbamazepine	Human Plasma/Serum	50 ng/mL	50-10000 ng/mL, 500-50000 ng/mL, 50-25000 ng/mL	50 µL	K2EDTA/K3EDTA	LC/MS/MS	Frontage - US
Carbamazepine	Human Plasma	50 ng/mL	500-50000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - SH**
Cabamazepine 10,11-Epoide/Carbamazapine/Valproic Acid	Human Serum	30/50/1000 ng/mL	30/50/1000-15000/25000/50000 ng/mL	50 µL		LC/MS/MS	Frontage - US
Carbamazepine/Lamotrigine/Levetiracetam/Pregabalin/Gabapentin	Human Plasma	500/500/1000/500/500 ng/mL	500/500/1000/500/500-50000/50000/100000/50000/50000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Carboplatin	Human Plasma	1 ng/mL	1-500 ng/mL	100 µL	K2EDTA	LC/MS/MS	*
Ceftazidime	Human Plasma	0.2 µg/mL	0.2-50 µg/mL	25 µL	K2EDTA	LC/MS/MS	Frontage - US
Certirizine	Human Plasma	0.5 ng/mL	0.5-400 ng/mL	50 µL	EDTA	LC/MS/MS	Frontage - US
Ceftobiprole Medocaril	Human Plasma	50 ng/mL	50-1000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - SH
Ceftobiprole	Human Plasma	50 ng/mL	50-25000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - SH
Chlorpheniramine/Hydrocodone/Pseudoephedrine	Human Plasma	0.25/0.05/0.5 ng/mL	0.25/0.05/0.5-12.5/25/250 ng/mL	250 µL	K2EDTA	LC/MS/MS	Frontage - US
Cholic Acid (free)	Human Plasma	2 ng/mL	2-2000 ng/mL	100 µL	K2EDTA	LC/MS/MS	
Cholic Acid/Glycocholic Acid/Taurocholic Acid	Human Plasma	2/2/2 ng/mL	2/2/2-2000/2000/2000 ng/mL	100 µL	K2EDTA	LC/MS/MS	Frontage - US
Ciclesonide/Des-Ciclesonide metabolite	Human Serum	1 pg/mL	1-500 pg/mL	500 µL		LC/MS/MS	Frontage - US
Citalopram	Human Plasma	0.2 ng/mL	0.2-75 ng/mL and 0.2-200 ng/mL	100 µL and 200 µL	K2EDTA/K3EDTA	LC/MS/MS	Frontage - US
Citrulline	Human Plasma	250 ng/mL	250-250000 ng/mL	10 µL	Heparin	LC/MS/MS	Frontage - SH
Clarithromycin	Human Plasma	10 ng/mL	10-5000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US

Clarithromycin	Dried Blood Spot	10 ng/mL	10-5000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Clobazam/Acetazolamide	Human Plasma	5/500 ng/mL	5/500-500/50000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Clobazam/Acetazolamide	Human Plasma	5/500 ng/mL	5/500-500/50000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - SH**
Clonazepam	Human Plasma/Serum	1 ng/mL	1-1000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Clonazepam	Human Plasma	1 ng/mL	1-1000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - SH**
Clopidogrel	Human Plasma	5 pg/mL	5-2000 pg/mL	200 µL	K2EDTA	LC/MS/MS	Frontage - SH
Clopidogrel Acid	Human Plasma	10 ng/mL	10-7000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - SH
Clozapine/ N-Desmethylozapine	Human Plasma	1/1 ng/mL and 5/5 ng/mL	1/1-500/500 ng/mL and 5/5-1000/1000 ng/mL	250 µL and 50 µL	EDTA	LC/MS/MS	Frontage - US
Codeine	Human Plasma	1 ng/mL	1-200 ng/mL	200 µL	K3EDTA	LC/MS/MS	Frontage - US
Codeine / Butalbital	Human Plasma	1, 50 ng/mL	1/50-200/5000	200 µL	K3EDTA	LC/MS/MS	Frontage - US
Colchicine	Human Plasma/WBC	0.02/0.05 ng/mL	0.02-20 ng/mL/0.05-20 ng/mL	100/200 µL	K2EDTA	LC/MS/MS	Frontage - US
Colchicine and 3Demethyl-Colchicine	Human WBC	0.02/0.05 ng/mL	0.02/0.05-5/5 ng/mL	250 µL		LC/MS/MS	Frontage - US
Colchicine/2-Demethyl-Colchicine/3Demethyl-Colchicine	Human Urine	0.2/0.2/0.2 ng/mL	0.2/0.2/0.2-200/200/200 ng/mL	100 µL		LC/MS/MS	Frontage - US
Colchicine/2-Demethyl-Colchicine/3Demethyl-Colchicine	Human Plasma	0.02/0.05/0.05 ng/mL	0.02/0.05/0.05-20/20/20 ng/mL	250 µL	K2EDTA	LC/MS/MS	Frontage - US
Cortisol	Human Serum	1 ng/mL	1-500 ng/mL	50 µL		LC/MS/MS	Frontage - US
Cortisol/6B-Hydroxycortisol	Human urine	1/5 ng/mL	1/5-200/1000 ng/mL	100 µL		LC/MS/MS	Frontage - US

D

Danazol/Ethisterone	Human Serum	0.5, 0.5 ng/mL	0.5/0.5-100/100 ng/mL	200 µL	NA	LC/MS/MS	Frontage - US
Dapoxetine/Desmethyl Dapoxetine	Human Plasma	1/0.2 ng/mL	1/0.2-1000/200 ng/mL	100 µL	K2EDTA	LC/MS/MS	Frontage - US
Desformyl-Formoterol	Rat Plasma	0.5 ng/mL	0.5-20 ng/mL	200 µL	Lithium Heparin	LC/MS/MS	Frontage - US
Desipramine	Human Plasma	0.25 ng/mL	0.25-100 ng/mL	100 µL	K2EDTA	LC/MS/MS	Frontage - US
Dexamethasone	Human Plasma	0.5 ng/mL	0.5-500 ng/mL	100 µL	K2EDTA	LC/MS/MS	Frontage - US
Dexlansoprazole (Lansoprazole)	Human Plasma	5 ng/mL	5-2000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Dextromethorphan/Dextrorphan	Human Urine	5/400 ng/mL	5/400-500/40000 ng/mL	50 µL		LC/MS/MS	Frontage - US
Dextromethorphan and Total Dextrorphan or Total Dextrorphan Only	Human Plasma	0.06/0.6 ng/mL	0.06/0.6-30/300 ng/mL	50 µL	EDTA	LC/MS/MS	Frontage - US
Diazepam	Human Plasma/Human Serum	1 ng/mL	1-1000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Diazepam	Human Plasma	1 ng/mL	1-1000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - SH**
Diazoxide	Dog Plasma	500 ng/mL	500-50000 ng/mL	20 µL	K2EDTA	LC/MS/MS	Frontage - US
Diazoxide	Human Plasma	0.5 µg/mL	0.5-80 µg/mL	20 µL	K2EDTA	LC/MS/MS	Frontage - US
Diclofenac	Human Plasma	1 ng/mL	1-500 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - SH
Diethylene Glycol Monoethyl Ether/Ethoxyethoxy Acetic Acid	Acidified Human Plasma	1/0.1 ng/mL	1/0.1-100/100 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Diltiazem/Desacetyldiltiazem/N-desmethyldiltiazem	Human Plasma	2/0.5/0.5 ng/mL	2/0.5/0.5-500/125/125 ng/mL	50 µL	K2EDTA	LC/MS/MS	*
2,2-Dimethyl Butyric Acid	Dog Plasma	10 ng/mL	10-1250 ng/mL	500 µL	K3EDTA	Capillary Gas	Frontage - US
Diphenoxylate	Human Plasma	2 ng/mL	2-250 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Docetaxel	Human Plasma	2 ng/mL	2-400 ng/mL	100 µL	Heparin	LC/MS/MS	Frontage - US
Donepezil	Human Plasma	0.1 ng/mL	0.1-50 ng/mL	200 µL	K2EDTA	LC/MS/MS	Frontage - US
Doxorubicin	Human Plasma	1 ng/mL	1 -1000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Doxycycline	Human Plasma	50 ng/mL	50-10000 ng/mL	200 µL	K2EDTA	LC/MS/MS	Frontage - US
Doxylamine-N-Oxide	Mouse Plasma	1 ng/mL	1-1000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US

E

Efavirenz	Human Plasma	25 ng/mL	25-10000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Entecavir	Human Plasma	0.05 ng/mL	0.05-20 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Entecavir	Dried Blood Spot	0.05 ng/mL	0.05-20 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Esomeprazole	Human Plasma	2 ng/mL	2-600 ng/mL	200 µL	K3EDTA	LC/MS/MS	Frontage - US
Erlotinib	Human Plasma	2 ng/mL	2-1000 ng/mL	200 µL	K2EDTA	LC/MS/MS	Frontage - US
Ergosterol	Human Plasma	2 ng/mL	2-96 ng/mL	500 µL	K2EDTA	LC/MS/MS	Frontage - SH
Estrone/Equiline	Human Plasma	5/2 pg/mL	5/2-750/300 pg/mL	250 µL	K2EDTA	LC/MS/MS	Frontage - SH
Estrone Sulfate/Equiline Sulfate	Human Plasma	50/50 pg/mL	50/50-15000/15000 pg/mL	100 µL	K2EDTA	LC/MS/MS	Frontage - SH
Ethanol	Sheep Plasma	40 µg/mL	40-3000 µg/mL	400 µL		LC/MS/MS	Frontage - US
Ethisterone	Human Serum	0.5 ng/mL	0.5-100 ng/mL	200 µL		LC/MS/MS	Frontage - US
Ethosuximide	Human Serum	50 ng/mL	50-50000 ng/mL	50 µL		LC/MS/MS	Frontage - US
Etodolac	Human Plasma	0.4 µg/mL	0.4-40 µg/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - SH
Ethinyl Estradiol/Norgestimate/ Desacetyl Norgestimate	17- Human Plasma	2/5/5 pg/mL	2/5/5-1000/2500/2500 pg/mL	500 µL	Lithium Heparin	LC/MS/MS	Frontage - US

F							
Felbamate	Human Plasma/Human Serum	10 ng/mL	10-10000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Felbamate	Human Plasma	10 ng/mL	10-10000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - SH**
Felodipine	Human Plasma	0.05 ng/mL	0.05-15 ng/mL	200 µL	K2EDTA	LC/MS/MS	Frontage - US
Fenofibric Acid	Human Plasma	250 ng/mL	250-25000 ng/mL	200 µL	K2EDTA	LC/MS/MS	Frontage - US
Fexofenadine/Pseudoephedrine	Human Plasma	5/5 ng/mL	5/5-1000/2000 ng/mL	200 µL	K2EDTA	LC/MS/MS	Frontage - US
Fluticasone Furoate	Human Plasma	0.2 pg/mL	0.2-100 pg/mL	1 mL	K2EDTA	LC/MS/MS	Frontage - US
Formoterol	Rat Plasma	0.5 ng/mL	0.5-100 ng/mL	50 µL	Lithium Heparin	LC/MS/MS	Frontage - US
Formoterol	Dog Plasma	50 pg/mL	50-10000 pg/mL	100 µL	Lithium Heparin	LC/MS/MS	Frontage - US
Formoterol	Human Plasma	0.5 pg/mL and 2.5 pg/mL	0.5-30 pg/mL, 0.5-200 pg/mL, and 2.5-200 pg/mL	500 µL	K2EDTA/K3EDTA	LC/MS/MS	Frontage - US
Formoterol	Human Urine	2.5 pg/mL and 20 pg/mL	2.5-200 pg/mL and 20-10000 pg/mL	2 mL and 1.0 mL		LC/MS/MS	Frontage - US
G							
Gabapentin	Human Plasma/Human Serum	10 ng/mL	10-10000 ng/mL	20 µL	K2EDTA	LC/MS/MS	Frontage - US
Gabapentin	Human Plasma	10 ng/mL	10-10000 ng/mL	20 µL	K2EDTA	LC/MS/MS	Frontage - SH**
Gemcitabine	Human Plasma	0.5 ng/mL	0.5-500 ng/mL	100 µL	K2EDTA	LC/MS/MS	Frontage - US
Gemfibrozil	Human Plasma	200 ng/mL	200-20000 ng/mL	200 µL	K2EDTA	LC/MS/MS	Frontage - US
Glipizide	Human Plasma	2 ng/mL	2-800 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - SH
L-Glutamine/L-Asparagine	Human Plasma	0.2/0.05 µg/mL	0.2/0.05-40/10 µg/mL	100 µL	sodium heparin	LC/MS/MS	Frontage - US
L-Glutamine/L-Asparagine	Human Cerebrospinal Fluid	0.2/0.05 µg/mL	0.2/0.05-40/10 µg/mL	100 µL		LC/MS/MS	Frontage - US
Guaifenesin	Human Plasma	10 ng/mL	10-1500 ng/mL	200 µL	Sodium Heparin	LC/MS/MS	Frontage - US
Guaifenesin/Pseudoephedrine	Human Plasma	10/10 ng/mL	10/10-1500/2000 ng/mL	200 µL	Sodium Heparin/K2EDTA	LC/MS/MS	Frontage - US
H							
Hydralzine	Human Blood	0.5 ng/mL	0.5-200 ng/mL	200 µL	K3EDTA	LC/MS/MS	Frontage - US
4β-Hydroxycholesterol	Human Plasma	5 ng/mL	5-500 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
4-Hydroxyestradiol	Rat Plasma/Rat Tissue	0.5 ng/mL, 10 ng/g	0.5-50 ng/mL, 10-500 ng/g	20 µL, 400 µL	Lithium Heparin	LC/MS/MS	Frontage - US
5-Hydroxyindoleacetic Acid	Human Plasma	1 ng/mL	1-200 ng/mL	100 µL	K2EDTA	LC/MS/MS	Frontage - US
1-Hydroxy Midazolam/4-Hydroxy Midazolam	Human Plasma	0.1 ng/mL	0.1-100 ng/mL	100 µL	K2EDTA	LC/MS/MS	Frontage - US
5-Hydroxy Omprozole/Omeprozole Sulfone	Human Plasma	1 ng/mL	1-1000 ng/mL	100 µL	K2EDTA	LC/MS/MS	Frontage - US
Homocysteine	Human Serum/Plasma	2.5 umol/L	2.5-50 umol/L	200 µL		MEIA	Frontage - US
Human Insulin	Beagle Plasma	30 pg/mL	30-30000 pg/mL	25 µL	K2EDTA	ECL	Frontage - US
I							
Ibuprofen	Human Plasma	2 ng/mL	2-2000 ng/mL	200 µL	K2EDTA	LC/MS/MS	Frontage - US
Imipenem	Human Plasma	0.2 µg/mL	0.2-100 µg/mL	50 µL	Sodium Heparin	LC/MS/MS	Frontage - US
Indomethacin	Human Plasma	10 ng/mL	10-4000 ng/mL	50 µL	K2EDTA	LC/MS/MS	*
Ipratropium	Human Plasma	4 pg/mL	4-4000 pg/mL	1000 µL	K3EDTA	LC/MS/MS	Frontage - US
Itraconazole/Hydroxy Itraconazole	Human Plasma	1/1 ng/mL	1/1-500/500 ng/mL	100 µL	Lithium Heparin	LC/MS/MS	Frontage - US
K							
Ketoconazole	Human Plasma	20 ng/mL	20-10000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - SH
Ketoprofen	Human Plasma	5 ng/mL	5-2500 ng/mL	200 µL	K2EDTA	LC/MS/MS	Frontage - US
Ketorolac	Human Plasma	5 ng/mL	5-200 ng/mL	100 µL	K2EDTA	LC/MS/MS	Frontage - US
L							
Lamivudine and Zidovudine	Human Plasma	4/4 ng/mL	4/4 - 4000/4000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Lamotrigine	Human Plasma/Human Serum	5 ng/mL	5-500, 500-50000	200 µL/50 µL	K2EDTA/K3EDTA	LC/MS/MS	Frontage - US
Lamotrigine	Human Plasma	500 ng/mL	500-50000	50 µL	K2EDTA	LC/MS/MS	Frontage - SH**
Lansoprazole	Human Plasma	10 ng/mL	10-2000 ng/mL	100 µL	Sodium Heparin	LC/MS/MS	Frontage - US
Letrozole	Human Plasma	0.5 ng/mL	0.5-150 ng/mL	200 µL	K2EDTA	LC/MS/MS	Frontage - US/SH
Levetiracetam	Human Plasma/Human Serum	500 ng/mL	500-50000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - SH**
Leukotriene B ₄	Human Plasma	0.2 ng/mL/20 pg/mL	0.2-200 ng/mL/20-20000 pg/mL	100 µL/500 µL	heparin/EDTA	LC/MS/MS	Frontage - US
Leukotriene E ₄	Human urine	0.015 ng/mL	0.015-7.5 ng/mL	1000 µL		LC/MS/MS	Frontage - US
Lidocaine	Human Plasma	10 ng/mL	10-5000 ng/mL	20 µL	K2EDTA	LC/MS/MS	Frontage - US
Lidocaine	Rabbit Plasma	10 ng/mL	10-5000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Loperamide	Human Plasma	10 pg/mL	10-2000 pg/mL	200 µL	EDTA	LC/MS/MS	Frontage - US
Lovastatin	Human Plasma	0.5 ng/mL	0.5-48 ng/mL	500 µL	K2EDTA	LC/MS/MS	Frontage - SH
Lovastatin Hydroxy Acid	Human Plasma	0.5 ng/mL	0.5-49 ng/mL	500 µL	K2EDTA	LC/MS/MS	Frontage - SH
M							

Megestrol Acetate	Plasma	2 ng/mL	2-1500 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Menadiione	Human Plasma	1 ng/mL	1-500 ng/mL	500 µL	K2EDTA	LC/MS/MS	Frontage - US
Menaquinone-4	Human Plasma	1 ng/mL	1-500 ng/mL	200 µL	EDTA	LC/MS/MS	Frontage - US
Mesalamine/N-Acetyl Mesalamine	human plasma	5/5 ng/mL	5/5-4000/4000 ng/mL	100 µL	K2EDTA	LC/MS/MS	Frontage - US
Metformin	Human Plasma	5 ng/mL	5-2000 ng/mL	200 µL	K2EDTA	LC/MS/MS	Frontage - US
Metformin	Rat Plasma	50 ng/mL	50-50000 ng/mL	20 µL	K2EDTA	LC/MS/MS	Frontage - US
Methylprednisolone	Human Plasma	0.2 ng/mL	0.2-200 ng/mL	200 µL	K2EDTA	LC/MS/MS	Frontage - SH
Methotrexate/7-hydroxy methotrexate	Human Plasma	1/1 ng/mL	1/1-1000/1000 ng/mL	50 µL	EDTA	LC/MS/MS	Frontage - US
Methylmalonic Acid	Human Serum	20 ng/mL	20-20000 ng/mL	50 µL		GC/MS	Frontage - US
Methylmalonic Acid	Human Serum	5 ng/mL	5-200 ng/mL	50 µL		LC/MS/MS	Frontage - US
Methylphenidate	Human Plasma	50 pg/mL	50-25000 pg/mL	100 µL	K2EDTA	LC/MS/MS	Frontage - US
Methylprednisolone	Acidified/Non-acidified Human Plasma	2 ng/mL, 0.2 ng/mL	2-200 ng/mL, 0.2-200 ng/mL	50 µL, 200 µL	K2EDTA	LC/MS/MS	Frontage - US
Metronidazole	Plasma	1 ng/mL	1-500 ng/mL	100 µL	K2EDTA	LC/MS/MS	Frontage - US
Midazolam	Human Plasma	0.1 ng/mL	0.1-100 ng/mL	20 µL	K2EDTA	LC/MS/MS	Frontage - US
Midazolam/1-Hydroxy Midazolam	Human Plasma	0.1/0.1 ng/mL	0.1/0.1-100/100 ng/mL	200 µL	K2EDTA	LC/MS/MS	Frontage - US
Midazolam/1-Hydroxy Midazolam/4-Hydroxy Midazolam	Human Plasma	0.1/0.1/0.1 ng/mL	0.1/0.1/0.1 - 100/100/100 ng/mL	100 µL	Sodium Heparin	LC/MS/MS	Frontage - US
Montelukast	Human Plasma	1 ng/mL	1-500 ng/mL	100 µL	K2EDTA	LC/MS/MS	Frontage - US
Moxifloxacin	Human Plasma	50 ng/mL	50-6000 ng/mL	200 µL	K3EDTA	LC/MS/MS	Frontage - US
Mycophenolic Acid	Monkey Plasma	0.05 ug/mL	0.05-25 ug/mL	50 µL	Heparin	LC/MS/MS	Frontage - SH
N							
Naproxen	Human Plasma	0.5 µg/mL	0.5-100 ug/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Nevirapine	Human Plasma	50 ng/mL	50-10000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Nifedipine	Human Plasma	0.5 ng/mL	0.5-250 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - SH
Nitrazepam	Human Plasma	0.2 ng/mL	0.2-100 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Norketamine	Rat Plasma/Dog Plasma	100 ng/mL	100-50000 ng/mL	30 µL	K2EDTA	LC/MS/MS	Frontage - US
Nornicotine	Dog Plasma	1 ng/mL	1-150 ng/mL	100 µL	K3EDTA	LC/MS/MS	Frontage - US
O							
Octanoic Acid	Human Plasma	20 ng/mL	20-1000 ng/mL	400 µL	K2EDTA	LC/MS/MS	Frontage - US
1-Octanol	Human Plasma	20 ng/mL	20-1000 ng/mL	100 µL	K2EDTA	LC/MS/MS	Frontage - US
Omeprazole	Human Plasma	0.5 ng/mL and 1 ng/mL	0.5-50 ng/mL and 1-1000 ng/mL	50 µL	EDTA	LC/MS/MS	Frontage - US
Oritavancin	Human Plasma	12.5 ng/mL	12.5-1000 ng/mL	50 µL	K2EDTA, Na2EDTA	LC/MS/MS	Frontage - US
Oxybutynin/Desethyloxybutynin	Human Plasma	0.1/0.5 ng/mL	0.1/0.5-50/250 ng/mL	200 µL	K2EDTA	LC/MS/MS	Frontage - US
Oxcarbazepine	Human Plasma/Human Serum	50 ng/mL	50-5000 ng/mL	50 µL	K2EDTA/K3EDTA	LC/MS/MS	Frontage - US
Oxcarbazepine	Human Plasma	50 ng/mL	50-5000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - SH**
Oxcarbazepine / Hydroxyoxcarbazepine	Human Plasma	10/100 ng/mL	10/100-2500/18000 ng/mL	200 µL	K3EDTA	LC/MS/MS	Frontage - US
Oxymorphone and 6-Hydroxyoxymorphone	Human Plasma	0.05/0.05 ng/mL	0.05/0.05 - 20/20 ng/mL	200 µL	K2EDTA	LC/MS/MS	Frontage - US
P							
Paclitaxel	Human Plasma	2 ng/mL	2-2000 ng/mL	100 µL	K2EDTA	LC/MS/MS	Frontage - US
Paraxanthine	Human Plasma	20 ng/mL	20-20000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Para-nitrophenol	Mouse Plasma	0.1 µg/mL and 1 ng/mL	0.1-100 µg/mL and 1-1000 ng/mL	20 µL	K2EDTA	LC/MS/MS	Frontage - US
Paroxetine	Human Plasma	0.1 ng/mL	0.1-100 ng/mL	200 µL	K2EDTA	LC/MS/MS	Frontage - SH
Pentobarbital	Human Plasma/Human Serum	50 ng/mL	50-5000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Phenobarbital	Human Plasma	50 ng/mL	50-5000 ng/mL	50 µL	K2EDTA/K3EDTA	LC/MS/MS	Frontage - US
Phenobarbital	Human Plasma	50 ng/mL	50-5000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - SH**
p-Hydroxyphenobarbital/p-Hydroxyphenobarbital-O-Glucuronide	Human Plasma	2/2 ng/mL	2/2-1000/1000 ng/mL	200 µL	K2EDTA	LC/MS/MS	Frontage - US
Phenobarbital N-Glucoside	Human Plasma	2 ng/mL	2-1000 ng/mL	200 µL	K2EDTA	LC/MS/MS	Frontage - US
Phenytol	Human Plasma	50 ng/mL and 250 ng/mL	50-5000 ng/mL and 250-10000 ng/mL	50 µL and 20 µL	K2EDTA/K3EDTA	LC/MS/MS	Frontage - US
Phenytoin	Human Plasma	50 ng/mL	50-5000 ng/mL	50 µL	K ₂ EDTA	LC/MS/MS	Frontage - SH**
Phenytoin	Supernatant of Human Plasma	1 ng/mL	1-500 ng/mL	40 µL	K2EDTA	LC/MS/MS	Frontage - US
Phenytoin	Human Serum	50 ng/mL	50-5000 ng/mL	50 µL		LC/MS/MS	Frontage - US
Pioglitazone	Human Plasma	2 ng/mL	2-2000 ng/mL	50 µL	K2EDTA	LC/MS/MS	*
Pregabalin	Human Plasma/Human Serum	500 ng/mL	500-50000 ng/mL	50 µL	K2EDTA/K3EDTA	LC/MS/MS	Frontage - US
Pregabalin	Human Plasma	500 ng/mL	500-50000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - SH**
Primidone	Human Plasma/Human Serum	10 ng/mL	10-10000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Primidone	Human Plasma	10 ng/mL	10-10000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - SH**
Propranolol / 4-hydroxypropranolol	Human Plasma	2/1 ng/mL	2/1-600/300 ng/mL	400 µL	K3EDTA	LC/MS/MS	Frontage - US

Pseudoephedrine	Human Plasma	1 ng/mL	1-1000 ng/mL	100 µL	K2EDTA	LC/MS/MS	Frontage - US
Q							
Quetiapine	Human Plasma	1 ng/mL	1-2000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - SH
Quinapril and Quinaprilat	Human Plasma	1/2 ng/mL	1/2 - 750/1500 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Quinine	Human Plasma	25 ng/mL	25-10000 ng/mL	50 µL	K2EDTA/K3EDTA	LC/MS/MS	Frontage - US
Quinine/3 Hydroxy Quinine	Supernatant of Human Plasma	2.5/2.5 ng/mL	2.5/2.5-1000/1000 ng/mL	50 µL	K2EDTA/K3EDTA	LC/MS/MS	Frontage - US
Quinine/3 Hydroxy Quinine	Human Urine	0.25/0.25 µg/mL	0.25/0.25-50/50 µg/mL	100 µL		LC/MS/MS	Frontage - US
Quinine/3-Hydroxy Quinine	Human Plasma	25/25 ng/mL	25/25-10000/10000 ng/mL	50 µL	K2EDTA/K3EDTA	LC/MS/MS	Frontage - US
R							
Ramipril/Ramiprilat	Human Plasma	0.5/0.5 ng/mL	0.5/0.5-250/250 ng/mL	200 µL	K2EDTA	LC/MS/MS	Frontage - US
Risperidone	Human Plasma	0.2 ng/mL	0.2-50 ng/mL	200 µL	K2EDTA/heparin	LC/MS/MS	Frontage - SH
Risperidone/Paliperidone (9-Hydroxyrisperidone)	Human Plasma	0.1/0.2 ng/mL	0.1/0.2-50/100 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Riluzole	Human Serum	1 ng/mL	1-500 ng/mL	100 µL		LC/MS/MS	Frontage - US
Ritonavir	Human Plasma	25 ng/mL	25-10000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Ropinrole	Human Plasma	5 pg/mL	5-2000 pg/mL	200 µL	K2EDTA	LC/MS/MS	Frontage - SH
Rofecoxib	Human Plasma	10 ng/mL	10-1000 ng/mL	200 µL	K3EDTA	LC/MS/MS	Frontage - US
Rosiglitazone	Human Plasma	2 ng/mL	2-800 ng/mL	200 µL	K2EDTA	LC/MS/MS	Frontage - US
Rufinamide	Human Plasma	20 ng/mL	20-20000 ng/mL	200 µL	K3EDTA	LC/MS/MS	Frontage - US
Rufinamide	Human Plasma	20 ng/mL	20-20000 ng/mL	200 µL	K2EDTA/K3EDTA	LC/MS/MS	Frontage - SH**
S							
Salicylic Acid	Human Plasma	0.1 ng/mL	0.1-100 ng/mL	20 µL	Sodium Heparin	LC/MS/MS	Frontage - US
Salicylic Acid/Acetylsalicylic acid	Human Plasma	50/20 ng/mL	50,000/10,000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Salmon Calcitonin	Human Serum	9 pg/mL	0-400 pg/mL	200 µL		ELISA	Frontage - US
Serotonin	Human Blood	10 ng/mL	10-5000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Sertraline	Human Plasma	0.5 ng/mL	0.5-200 ng/mL	200 µL	K3EDTA	LC/MS/MS	Frontage - US
Simvastatin / Simvastatin Acid	Human Plasma	0.1 ng/mL	0.1-20 ng/mL	100 µL	Sodium Heparin	LC/MS/MS	Frontage - SH
Sotalol	Human Plasma	5 ng/mL	5-3000 ng/mL	200 µL	K3EDTA	LC/MS/MS	Frontage - US
Sphingosine	Human Urine	1 ng/mL	1-1000 ng/mL	50 µL		LC/MS/MS	Frontage - US
Sphingosine/Sphingosine-1-phosphate	Human Urine	1/1 ng/mL	1/1-1000/1000 ng/mL	50 µL		LCMSMS	Frontage - US
Sufentanil	Human Plasma	1 pg/mL	1-1000 pg/mL	200 µL	K2EDTA	LC/MS/MS	Frontage - US
Sumatriptan	Human Urine	100 ng/mL	100-20000 ng/mL	20 µL		LC/MS/MS	Frontage - US
T							
Tacrolimus	Monkey Plasma	0.25 ng/mL	0.25-100 ng/mL	100 µL	Heparin	LC/MS/MS	Frontage - SH
Tamsulosin	Human Plasma	0.2 ng/mL	0.2-40 ng/mL	100 µL	EDTA	LC/MS/MS	Frontage - US
Tempol Hydroxylamine	Human Plasma	5 ng/mL	5-1500 ng/mL	200 µL	EDTA	LC/MS/MS	Frontage - US
Tempol Hydroxylamine	Dog Plasma	5 ng/mL and 1.5 µg/mL	5-1500 ng/mL and 1.5-450 µg/mL	100 µL and 20 µL	EDTA	LC/MS/MS	Frontage - US
Terazosin	Human Plasma	1 ng/mL	1-1000 ng/mL	100 µL	Sodium Heparin	LC/MS/MS	Frontage - US
Terbinafine/N-Desmethylcarboxy Terbinafine	Human Urine	0.1/0.1 ng/mL	0.1/0.1-50/50 ng/mL	400 µL		LC/MS/MS	Frontage - US
Testosterone	Human Plasma/Serum	0.1 ng/mL	0.1-50 ng/mL	200 µL	K3EDTA	LC/MS/MS	Frontage - US
Tetracycline	Human/Sheep Plasma	5 ng/mL	5-500 ng/mL	200 µL	K3EDTA	LC/MS/MS	Frontage - US
Theophylline	Human Plasma	0.1 µg/mL	0.1-40 µg/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Thiodione	Human Plasma	1 ng/mL	1-500 ng/mL	100 µL	K2EDTA	LC/MS/MS	Frontage - US
Thiosulfate	Human Plasma	20 ng/mL	20-2000 ng/mL	100 µL	K2EDTA	LC/MS/MS	Frontage - US
Thiosulfate	Human Urine	50 ng/mL	50-5000 ng/mL	100 µL		LC/MS/MS	Frontage - US
Tiagabine	Human Plasma/Human Serum	1 ng/mL	1-1000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Tiagabine	Human Plasma	1 ng/mL	1-1000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - SH**
Timolol	Human Plasma	5 ng/mL	5-2000 ng/mL	200 µL	K3EDTA	LC/MS/MS	Frontage - US
Tizanidine	Human Plasma	0.1 ng/mL	0.1-100 ng/mL	200 µL	K3EDTA	LC/MS/MS	Frontage - US
Tolbutamide	Human Plasma	2 ng/mL, 30 ng/mL, 50 ng/mL	2-2000 ng/mL, 30-30000 ng/mL, 50-50000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US
Tolbutamide/Omeprazole/Midazolam	Human Plasma	50/1/0.1 ng/mL	50/1/0.1-50000/1000/100 ng/mL	20 µL	EDTA	LC/MS/MS	Frontage - US
Tofisopam (R/S)	Rabbit Plasma	0.5/0.5 ng/mL	0.5/0.5-1000/1000 ng/mL	400 µL	K2EDTA	LC/MS/MS	Frontage - US
Topiramate	Human Plasma/Human Serum	50 ng/mL	50-5000 ng/mL	50 µL	K2EDTA/K3EDTA	LC/MS/MS	Frontage - US
Topiramate	Human Plasma	50 ng/mL	50-5000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - SH**
Tramadol	Human Plasma	0.5 ng/mL	0.5-300 ng/mL	200 µL	K2EDTA	LC/MS/MS	Frontage - US
Triamterene	Human Plasma	2 ng/mL	2-500 ng/mL	200 µL	K2EDTA	LC/MS/MS	Frontage - US
Triazolam	Human Plasma	0.1 ng/mL	0.1-50 ng/mL	100 µL	EDTA	LC/MS/MS	Frontage - US
Triethyleneteramine (inc. metabolites)	Human Plasma	5 ng/mL	5-500 ng/mL	200 µL	Lithium heparin	LC/MS/MS	Frontage - US

Trilostane	Rabbit Serum	100 pg/mL	100-100000 pg/mL	100 µL		LC/MS/MS	Frontage - US
Triamterene	Human Plasma	2 ng/mL	2-500 ng/mL	200 µL	K2EDTA	LC/MS/MS	Frontage - US
Trimethobenzamide	Human Plasma	5 ng/mL	5-2000 ng/mL	200 µL	K3EDTA	LC/MS/MS	Frontage - US

U

Urea	Human Plasma/Dialysate	5 mM	5-50 mM	5 µL		ELISA	Frontage - US
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V

Valproic Acid	Human Plasma/Human Serum	1 µg/mL	1-200 µg/mL, 1000-50000 ng/mL	50 µL	K2EDTA/K3EDTA	LC/MS/MS	Frontage - US
Valproic Acid	Human Plasma	1 µg/mL	1-200 µg/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - SH**
Valsartan	Human Plasma	5 ng/mL	5-5000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - SH
Venlafaxine	Human Plasma	1 ng/mL	1-500 ng/mL	100 µL	K2EDTA	LC/MS/MS	Frontage - US
Vigabatrin	Human Plasma/Human Serum	10 ng/mL	10-10000 ng/mL	50 µL	K2EDTA	LC/MS/MS	Frontage - US

W,X,Y,Z

(S)-Warfarin/(R)-Warfarin	Human Plasma	5/5 ng/mL	5/5-1500/1500 ng/mL	100 µL	K2EDTA	LC/MS/MS	Frontage - US
Zidovudine	Human Plasma	3 ng/mL	3-3000 ng/mL	100 µL	EDTA	LC/MS/MS	Frontage - US
Zolpidem	Human Plasma	1 ng/mL	1-300 ng/mL	200 µL	K2EDTA	LC/MS/MS	Frontage - US
Zolpidem (inc. metabolites)	Human Plasma	1 ng/mL (0.2 ng/mL for metabolites)	1/1/0.2/0.2-300/300/600/600/600 ng/mL	200 µL	K2EDTA	LC/MS/MS	Frontage - US
Zonisamide	Human Plasma/Human Serum	50 ng/mL	50-5000 ng/mL, 50-10000 ng/mL	50 µL	K2EDTA/K3EDTA	LC/MS/MS	Frontage - US
Zonisamide	Human Plasma/Human Serum	50 ng/mL	50-5000 ng/mL	51 µL	K2EDTA	LC/MS/MS	Frontage - SH**

*Method development on-going

** Partial validation

Frontage Laboratories has also developed and validated many proprietary bioanalytical methods for clients. Please inquire for any methods not listed, and we will prepare a customized quotation and project schedule that meets your needs.