













Patient information
Sample information
Physician information

Name:
Date of Birth:
Gender:
Ethnicity:

Your reference:
Reference:
Collection date:

Dr. Name:
Street:
City:
Country:

Clinical indication:

Gene	Genotype	Predicted phenotype	Effect
CYP2B6	*6/*6		Poor Metabolizer : No to very low activity. Drugs converted to active metabolite(s) may have reduced efficacy. Active drugs converted to inactive metabolite(s) may cause side effects or toxicity
CYP2C19	*1/*1		Extensive Metabolizer Normal level of activity. Drugs metabolized at a normal rate.
CYP2C9	*1/*1		Extensive Metabolizer Normal level of activity. Drugs metabolized at a normal rate.
CYP2D6	*1x2/*2x2		Ultrarapid Metabolizer : Increased activity. Drugs converted to active metabolite(s) may cause side effects or toxicity. Active drugs converted to inactive metabolite(s) may lack efficacy.
CYP3A5	*3/*3		Poor Metabolizer : No to very low activity. Drugs converted to active metabolite(s) may have reduced efficacy. Active drugs converted to inactive metabolite(s) may cause side effects or toxicity
SLCO1B1	*1/*1		Normal
VKORC1	*1/*2		Intermediate Metabolizer: Decreased activity. Drugs converted to active metabolites may have reduced efficacy. Active drugs converted to inactive metabolites may cause side effects or toxicity.
ABCB1	A/A		Decreased function
COMT	A/A		Low activity
OPRM1	A/A		Normal function
CYP3A4	*1/*1		Normal function
CYP1A2	*1A/*1F		Normal metabolizer—higher inducibility

Genotype-driven drug summary

Adjustment to the standard dosing or an alternative medication may be required

Group	Substrates
Psychiatry	amitriptyline, amoxapine, atomoxetine, clomipramine, desipramine, doxepin, haloperidol, imipramine, nortriptyline, paroxetine, risperidone, trimipramine, venlafaxine, zuclopenthixol
Cardiology	metoprolol, propafenone, warfarin
Dermatology	
Endocrinology	eliglustat
Gastroenterology	meclizine, ondansetron, tropisetron
Hematology	
Immunology	
Infectious Disease	abacavir, atazanavir, dolutegravir, efavirenz, flucloxacillin, fucytosine, raltegravir
Neurology	donepezil
Oncology	azathioprine, capecitabine, fluorouracil, irinotecan, mercaptopurine, nilotinib, pazopanib, sacituzumab, thioguanine
Other	
Pain	codeine, tramadol
Rheumatology	allopurinol
Urology	

Use as recommended:

Group	Substrates
Psychiatry	amphetamine, aripiprazole, brexpiprazole, citalopram, clobazam, clonidine, clozapine, diazepam, duloxetine, escitalopram, fluoxetine, fluphenazine, fluvoxamine, iloperidone, lofexidine, methylphenidate, mirtazapine, moclobemide, olanzapine, perphenazine, pimozide, pitolisant, quetiapine, sertraline, thioridazine, vortioxetine
Cardiology	acenocoumarol, amiodarone, atenolol, atorvastatin, bisoprolol, carvedilol, clopidogrel, flecainide, fluvastatin, lovastatin, nebivolol, pitavastatin, prasugrel, pravastatin, propranolol, rosuvastatin, simvastatin, ticagrelor
Dermatology	abrocitinib
Endocrinology	nateglinide
Gastroenterology	dexlansoprazole, dronabinol, esomeprazole, lansoprazole, metoclopramide, omeprazole, pantoprazole, rabeprazole
Hematology	avatrombopag, eltrombopag, lusutrombopag
Immunology	cevimeline, tacrolimus
Infectious Disease	pegylated interferon-alpha, ribavirin, voriconazole
Neurology	brivaracetam, carbamazepine, deutetrabenazine, fosphenytoin, galantamine, lamotrigine, oxcarbazepine, phenytoin, tetrabenazine, valbenazine
Oncology	belinostat, erdafitinib, gefitinib, tamoxifen, tegafur
Other	oral contraceptive
Pain	aspirin, carisoprodol, celecoxib, elagolix, flurbiprofen, hydrocodone, ibuprofen, lornoxicam, meloxicam, naproxen, oliceridine, oxycodone, piroxicam, tenoxicam
Rheumatology	
Urology	darifenacin, fesoterodine, mirabegron, tamsulosin, tolterodine

*See Dosing Guidelines at <https://www.pharmgkb.org/guidelinesAnnotations>

List of the substrates: <http://medicine.iupui.edu/clinpharm/ddis/main-table/> (February 15th, 2018)

For more information about genotypes, phenotypes or drug dosage see also: www.pharmgkb.org | www.pharmvar.org

Notes & Interpretation:

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FAMH en génétique médicale

Methodology

Methods: DNA was extracted from blood or saliva samples in accordance with the kit manufacturer's instructions. Genotyping for CYP1A2, CYP2B6, CYP2D6, CYP2C9, CYP2C19, CYP3A4, CYP3A5, SLCO1B1, VKORC1, ABCB1, COMT & OPRM1 (please see table below) was performed using Agena's MassARRAY © System with the associated Agena's VeriDose © Core Panel & VeriDose © CYP2D6 CNV panel kits. In a first step, raw results were analyzed using the MassARRAY PGx Report software. In a second step, this report was generated using Sequence2Script © technology.

Limitations This test will not detect all known variants/alleles that result in altered gene activity. *1 or wild-type alleles are reported by default if those listed were not detected. Only listed alleles are tested for and absence of a detected mutation does not rule out the possibility of sensitivity to a specific drug due to the presence of other mutations, clinical factors, or environmental factors. This report is solely based on substrate-gene interactions.

List of markers tested:

Gene	Allele / Marker Tested
CYP2B6	*6, *18
CYP2D6	*2, *3, *4, *5, *6, *7, *8, *9, *10, *11, *12, *13, *14, *15, *17, *18, *19, *20, *25, *29, *35, *36, *40, *41, *44, *68, *69, *114 copy number variation (5' UTR, Exons 1 & 9, Introns 2, 4, 6 & 7)
CYP2C9	*2, *3, *4, *5, *6, *8, *11, *12, *13, *15
CYP2C19	*2, *3, *4, *5, *6, *7, *8, *17
CYP3A5	*2, *3, *6, *7
SLCO1B1	*5 (rs4149056)
VKORC1	*2 (rs9923231/-1639G>A)
ABCB1	rs1045642
COMT	rs4680
OPRM1	rs1799971
CYP3A4	*1, *2, *17, *22
CYP1A2	*1A, *1C, *1F, *1K, *7, *11

Additional information

Inducers

CYP1A2	CYP2B6	CYP2C8	CYP2C9	CYP2C19	CYP2D6	CYP2E1	CYP3A4/A5
beta-naphthoflavone	artemisinin	rifampin	carbamazepine	carbamazepine		ethanol	barbiturates
broccoli	carbamazepine		dabrafenib	efavirenz		isoniazid	brigatinib
brussel sprouts	dabrafenib		enzalutamide	enzalutamide			carbamazepine
carbamazepine	efavirenz		enzalutamide	enzalutamide			clobazam
char-grilled meat	letermovir		letermovir	letermovir			dabrafenib
insulin	nevirapine		nevirapine	norethindrone			efavirenz
methylcholanthrene	perampanel		phenobarbital	prednisone			elagolix
modafinil	phenobarbital		rifampin	rifampicin			enzalutamide
nafcillin	phenytoin		secobarbital	ritonavir			eslicarbazepine
omeprazole	rifampin		st. john's wort	st. john's wort			glucocorticoids
nafcillin	phenytoin		secobarbital	ritonavir			letermovir
omeprazole	rifampin		st. john's wort	st. john's wort			lorlatinib
rifampin	roflumilast						modafinil
rucaparib							nevirapine
teriflunomide							oxcarbazepine
tobacco							perampanel
							phenobarbital2
							phenytoin2
							pioglitazone
							rifabutin
							rifampin1
							st. john's wort
							telotristat
							trogliptazone1
							vemurafenib

Inhibitors

CYP1A2	CYP1A3	CYP1A4	CYP1A5	CYP1A6	CYP1A7	CYP1A8	CYP3A4/A5
amiodarone cimetidine ciprofloxacin citalopram efavirenz fluvoxamine furafylline methoxsalen quercetin ribociclib simeprevir vemurafenib	clopidogrel thiotepa ticlopidine voriconazole	abiraterone clopidogrel deferasirox gemfibrozil glitazones lapatinib letermovir montelukast perampanel quercetin teriflunomide trimethoprim tucatinib	amiodarone capecitabine ceritinib efavirenz fenofibrate fluconazole fluvastatin fluvoxamine isoniazid metronidazole phenylbutazone quercetin sulfamethoxazole sulfaphenazole voriconazole zafirlukast	armodafinil chloramphenicol cimetidine citalopram esomeprazole felbamate fluoxetine fluvoxamine isoniazid ketonazole luliconazole modafinil omeprazole oral contraceptives oritavancin pantoprazole quercetin ticlopidine topiramate voriconazole	abiraterone amiodarone bupropion celecoxib chlorpromazine cimetidine cinacalcet citalopram clemastine clobazam clomipramine cocaine diphenhydramine doxepin duloxetine escitalopram fluoxetine halofantrine haloperidol hydroxyzine levomepromazine lorcaserin methadone metoclopramide midodrine moclobemide panobinostat paroxetine perphenazine promethazine quinidine ritonavir rolapitant sertraline terbinafine (oral) ticlopidine tripelennamine vemurafenib	diethyl-dithiocarbamate disulfiram quercetin	amiodarone aprepitant atomoxetine boceprevir ceritinib chloramphenicol cimetidine ciprofloxacin clarithromycin crizotinib delavirdine diethyl-dithiocarbamate diltiazem entrectinib erythromycin esomeprazole fluconazole fluvoxamine gestodene grapefruit juice idelalisib imatinib indinavir itraconazole1 ketonazole lesinurad letermovir mibefradil mifepristone nefazodone nelfinavir netupitant/palonosetron norfloxacin norfluoxetine omeprazole pantoprazole perampanel quercetin regorafenib ribociclib ritonavir saquinavir simeprevir starfruit telaprevir telithromycin tucatinib verapamil voriconazole