

PATIENT INFORMATION

NAME: Test 1
DOB: 01/Jan/2022
SEX AT BIRTH: Female

SPECIMEN DETAILS

BARCODE: C7_042324_Optmzd_GenXys
SAMPLE ID: C7_042324_Optmzd_GenXys
TYPE: Buccal Swab
COLLECTED: 01/Jan/2024

ORDERED BY

Test Provider
GENERATED: 23/Apr/2024

This pharmacogenetic information is based on best evidence compiled from guidelines and databases including the FDA Table of Pharmacogenetic Associations and the Clinical Pharmacogenetics Implementation Consortium (CPIC). Please refer to the Methods, Limitations, and Liability Disclaimer at the end of this report.

Medication Summary

The Medication Summary is a list of medications with evidence for the use of pharmacogenetic information, organized by their therapeutic area. Medications are further organized based on drug-gene interactions. Health care providers should consider the information contained in the Medication Report before making any clinical or therapeutic decisions.

- ▲1 Mild or no known interaction
- ▲2 Moderate gene-drug interaction
- ▲3 Serious drug-gene interaction: evaluate and consider alternative medications

Analgesia

- ▲1 —————
- Amitriptyline
- Carisoprodol
- Celecoxib
- Codeine
- Desipramine
- Flurbiprofen
- Hydrocodone
- Ibuprofen
- Imipramine
- Meloxicam
- Nortriptyline
- Piroxicam
- Tenoxicam
- Tramadol
- Venlafaxine

Autoimmune

- ▲1 —————
- Cyclosporine
- Siponimod
- Tacrolimus

Cancer

- ▲1 —————
- Erdafitinib
- Tamoxifen

Cardiovascular

- ▲1 —————
- Atorvastatin
- Carvedilol
- Flecainide
- Lovastatin
- Metoprolol
- Nebivolol
- Pitavastatin
- Pravastatin
- Propafenone
- Propranolol
- Rosuvastatin
- Simvastatin
- ▲2 —————
- Fluvastatin
- Warfarin
- ▲3 —————
- Clopidogrel

Gastroenterology

- ▲1 —————
- Meclizine
- Metoclopramide
- Ondansetron
- ▲2 —————
- Dexlansoprazole
- Dronabinol
- Lansoprazole
- Omeprazole
- Pantoprazole

Infection

- ▲1 —————
- Efavirenz
- Voriconazole

Mental Health

- ▲1 —————
- Amitriptyline
- Amoxapine
- Amphetamine
- Aripiprazole
- Aripiprazole lauroxil

...Mental Health

- ▲1 —————
- Atomoxetine
- Brexpiprazole
- Clomipramine
- Clozapine
- Desipramine
- Doxepin
- Fluvoxamine
- Iloperidone
- Imipramine
- Lofexidine
- Nortriptyline
- Paroxetine
- Perphenazine
- Pimozide
- Protriptyline
- Risperidone
- Thioridazine
- Trimipramine
- Venlafaxine
- Vortioxetine
- Zuclopenthixol
- ▲2 —————
- Alprazolam

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...Mental Health

2

Bromazepam
 Chlordiazepoxide
 Citalopram
 Clobazam
 Clonazepam
 Clorazepate
 Diazepam
 Escitalopram
 Flurazepam
 Lorazepam
 Nitrazepam
 Oxazepam
 Sertraline
 Temazepam
 Triazolam

Neurology

1

Amitriptyline
 Brivaracetam
 Desipramine
 Deutetrabenazine
 Donepezil
 Fosphenytoin
 Galantamine
 Metoprolol
 Nortriptyline
 Phenytoin
 Propranolol
 Tetrabenazine
 Valbenazine
 Venlafaxine

2

Clobazam
 Clonazepam
 Diazepam

Rheumatology

1

Celecoxib
 Flurbiprofen
 Ibuprofen
 Meloxicam
 Piroxicam
 Tenoxicam

Urology

1

Darifenacin
 Fesoterodine
 Mirabegron
 Tamsulosin
 Tolterodine

Other

1

Avatrombopag
 Cevimeline
 Elagolix
 Eliglustat
 Eltrombopag
 Flibanserin
 Oral contraceptives

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Overview

This pharmacogenetic information is based on best evidence compiled from guidelines and databases including the FDA Table of Pharmacogenetic Associations and the Clinical Pharmacogenetics Implementation Consortium (CPIC). In some cases, PharmGKB and the Dutch Pharmacogenetics Working Group (DPWG) may also be referenced.

This document includes:

1. Medication Summary: A list of medications organized by their therapeutic area of use and sorted based on their drug-gene interaction severity.
2. Medication Report: Provides information about factors affecting medication response.
3. Guidelines: A table of guidelines used to produce each interpretation.
4. References: Sources of information used to create this report.
5. Laboratory Report: Contains genetic test results in a technical table.

TreatGx and ReviewGx are clinical decision support tools that expand on the contents on this report.

TreatGx

[TreatGx](#) is clinical decision support software for precision prescribing that identifies condition-specific medication options based on multiple patient factors.



ReviewGx

[ReviewGx](#) uses patient factors including pharmacogenetics to highlight medication safety issues, help optimize medications, and identify deprescribing opportunities.

Components of the Medication Report

For all medications, clinical factors, medical conditions, lab values, drug-gene and drug-drug interactions may contribute to medication response and should be evaluated for each patient. The kidney and liver icon notations are intended for informational purposes only. The patient's kidney/liver function are not used for the purposes of displaying this information, and the potential interactions for that specific medication may not apply. TreatGx and ReviewGx help integrate this information to support precision prescribing and comprehensive medication management. The final genotype/phenotype call is at the discretion of the laboratory director. Medication changes should only be initiated at the discretion of the patient's healthcare provider after a full assessment.

Example:

Generic Name	Codeine	Phenotype	Genetic Test	Results	Source/Evidence
Brand Names	Codeine Contin Tylenol with Codeine No. 2/3/4	Poor metabolizer	CYP2D6	*3/*6	CPIC A ⁶ ; FDA 1 ³⁴
Potential Kidney or Liver Interaction		Implication: CYP2D6 poor metabolizer: greatly reduced metabolism of Codeine may result in decreased response	 Avoid Codeine use		
	TreatGx ReviewGx				

Source/Evidence for Drug-Gene Interactions:

For each medication, a source is listed for each drug-gene interaction. This report prioritizes guidance from CPIC if the drug-gene pair is assigned a CPIC Level of A or B. This is the threshold that CPIC defines as having sufficient evidence for at least one prescribing action to be recommended. See cpicpgx.org/prioritization for a full explanation of CPIC Levels for Genes/Drugs.

Pharmacogenetic information from FDA-approved drug labels or the FDA Table of Pharmacogenetic Associations (<https://www.fda.gov/medical-devices/precision-medicine/table-pharmacogenetic-associations>) is included when available.

If there is no CPIC guideline (level A or B) or FDA guidance, other sources may be referenced, such as DPWG guidelines, PharmGKB clinical annotations, and in some instances, clinical studies. See <https://www.pharmgkb.org/page/clinAnnLevels> for a full explanation of PharmGKB levels of evidence. Use of any of this information is at the discretion of the health professional.

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* Other clinical factors, medical conditions and drug-drug interactions may contribute to medication response.


Medication Report



The **Medication Report** provides information on how pharmacogenetic results affect each medication.



Use TreatGx and ReviewGx to explore personalized medication treatment options, dosing information and medication optimization.


Alprazolam	Phenotype	Genetic Test	Results	Source/Evidence
Xanax	Intermediate metabolizer	CYP2C9	*1/*2	Case-control studies ¹⁴
 ReviewGx	Implication:	CYP2C9 alleles indicate increased risk of Alprazolam-related falls		




Amitriptyline	Phenotype	Genetic Test	Results	Source/Evidence
Elavil	Normal metabolizer	CYP2D6	*1/*41	CPIC A ¹⁶ ; FDA 3 ³⁵
Levate	Intermediate metabolizer	CYP2C19	*1/*2	CPIC A ¹⁶
 TreatGx  ReviewGx	Implication:	CYP2D6 and CYP2C19 alleles do not indicate changes from recommended dose for Amitriptyline (per CPIC strong recommendation). Refer to TreatGx for alternatives and specific dosing recommendations.		

Amoxapine	Phenotype	Genetic Test	Results	Source/Evidence
 ReviewGx	Normal metabolizer	CYP2D6	*1/*41	FDA 3 ³⁵
	Implication:	CYP2D6 alleles do not indicate changes from recommended dose		

Amphetamine	Phenotype	Genetic Test	Results	Source/Evidence
Adzenys	Normal metabolizer	CYP2D6	*1/*41	FDA 1 ³⁵
 TreatGx  ReviewGx	Implication:	CYP2D6 alleles do not indicate changes from recommended dose		

Aripiprazole	Phenotype	Genetic Test	Results	Source/Evidence
Abilify	Normal metabolizer	CYP2D6	*1/*41	DPWG ⁹ ; FDA 1 ³⁵
Aristada				
 TreatGx  ReviewGx	Implication:	CYP2D6 alleles do not indicate changes from recommended dose		

Aripiprazole lauroxil	Phenotype	Genetic Test	Results	Source/Evidence
Aristada	Normal metabolizer	CYP2D6	*1/*41	FDA 1 ³⁵
 ReviewGx	Implication:	CYP2D6 alleles do not indicate changes from recommended dose		

Atomoxetine	Phenotype	Genetic Test	Results	Source/Evidence
Strattera	Normal metabolizer	CYP2D6 (Activity Score)	*1/*41	CPIC A ⁵ ; FDA 1 ³⁵
 ReviewGx	Implication:	CYP2D6 alleles do not indicate changes from recommended dose		
 TreatGx  ReviewGx				

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Drug	Phenotype	Genetic Test	Results	Source/Evidence
Atorvastatin Lipitor  TreatGx ReviewGx	Phenotype Normal function Implication: SLCO1B1 alleles indicate typical exposure to Atorvastatin Consider prescribing desired starting dose and adjust based on disease-specific guidelines	Genetic Test SLCO1B1	Results *1/*1	Source/Evidence CPIC A ⁶ ; FDA 3 ³⁵
Avatrombopag Doptelet ReviewGx	Phenotype Intermediate metabolizer Implication: CYP2C9 intermediate metabolizer: results in higher systemic concentrations of Avatrombopag There is a potential impact on pharmacokinetic properties. The impact of CYP2C9 variants on the safety of Avatrombopag has not been established.	Genetic Test CYP2C9	Results *1/*2	Source/Evidence FDA 3 ³⁵
Brexpiprazole Rexulti  TreatGx ReviewGx	Phenotype Normal metabolizer Implication: CYP2D6 alleles do not indicate changes from recommended dose	Genetic Test CYP2D6	Results *1/*41	Source/Evidence DPWG ⁹ ; FDA 1 ³⁵
Brivaracetam Briviact Brivlera  ReviewGx	Phenotype Intermediate metabolizer Implication: CYP2C19 alleles do not indicate changes from recommended dose	Genetic Test CYP2C19	Results *1/*2	Source/Evidence FDA 1 ³⁵
Bromazepam  ReviewGx	Phenotype Intermediate metabolizer Implication: CYP2C9 alleles indicate increased risk of Bromazepam-related falls	Genetic Test CYP2C9	Results *1/*2	Source/Evidence Case-control studies ¹⁴
Carisoprodol ReviewGx	Phenotype Intermediate metabolizer Implication: CYP2C19 alleles do not indicate changes from recommended dose	Genetic Test CYP2C19	Results *1/*2	Source/Evidence FDA 3 ³⁵
Carvedilol Coreg  TreatGx ReviewGx	Phenotype Normal metabolizer Implication: CYP2D6 alleles do not indicate changes from recommended dose	Genetic Test CYP2D6	Results *1/*41	Source/Evidence FDA 2 ³⁵

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Celecoxib	Phenotype	Genetic Test	Results	Source/Evidence
Celebrex   TreatGx ReviewGx	Intermediate metabolizer (AS 1.5) Implication: CYP2C9 alleles do not indicate changes from recommended dose	CYP2C9 (Star Alleles)	*1/*2	CPIC A ³² ; FDA 1 ³⁵
Cevimeline	Phenotype	Genetic Test	Results	Source/Evidence
Evoxac ReviewGx	Normal metabolizer Implication: CYP2D6 alleles do not indicate changes from recommended dose	CYP2D6	*1/*41	FDA 2 ³⁵
Chlordiazepoxide	Phenotype	Genetic Test	Results	Source/Evidence
Librium ReviewGx	Intermediate metabolizer Implication: CYP2C9 alleles indicate increased risk of Chlordiazepoxide-related falls	CYP2C9	*1/*2	Case-control studies ¹⁴
Citalopram	Phenotype	Genetic Test	Results	Source/Evidence
Celexa  TreatGx ReviewGx	Intermediate metabolizer Implication: Reduced metabolism when compared with CYP2C19 normal metabolizers. Higher plasma concentrations may increase the probability of side effects.  Initiate therapy with recommended starting dose. Consider a slower titration schedule and lower maintenance dose than normal metabolizers (per CPIC moderate recommendation).	CYP2C19	*1/*2	CPIC A ⁴ ; FDA 1 ³⁵
Clobazam	Phenotype	Genetic Test	Results	Source/Evidence
Onfi Sympazan  ReviewGx	Intermediate metabolizer Implication: FDA PGx Table Section 1: Results in higher systemic active metabolite concentrations. Poor metabolism results in higher adverse reaction risk.  FDA PGx Table Section 1: Dosage adjustment is recommended. Refer to FDA labeling for specific dosing recommendations.	CYP2C19	*1/*2	FDA 1 ³⁵
Clomipramine	Phenotype	Genetic Test	Results	Source/Evidence
Anafranil ReviewGx	Normal metabolizer Intermediate metabolizer Implication: CYP2D6 and CYP2C19 alleles do not indicate changes from recommended dose for Clomipramine (per CPIC optional recommendation). Refer to TreatGx for alternatives and specific dosing recommendations.	CYP2D6 CYP2C19	*1/*41 *1/*2	CPIC B ¹⁶ ; FDA 3 ³⁵ CPIC B ¹⁶
Clonazepam	Phenotype	Genetic Test	Results	Source/Evidence
Klonopin Rivotril  TreatGx ReviewGx	Intermediate metabolizer Implication: CYP2C9 alleles indicate increased risk of Clonazepam-related falls	CYP2C9	*1/*2	Case-control studies ¹⁴

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Drug	Phenotype	Genetic Test	Results	Source/Evidence
Clonidogrel Plavix TreatGx ReviewGx	Intermediate metabolizer	CYP2C19	*1/*2	CPIC A ²⁰ ; FDA 1 ³⁵
	Implication: CYP2C19 intermediate metabolizer: reduced metabolism of Clopidogrel to the active compound Increased on-treatment platelet reactivity and increased risk for adverse cardiac and cerebrovascular events 3 Avoid Clopidogrel in the setting of acute coronary syndrome (ACS) or percutaneous coronary intervention (PCI). There is no recommendation in non-ACS or non-PCI settings.			
Clorazepate Gen-Xene Tranxene ReviewGx	Intermediate metabolizer	CYP2C9	*1/*2	Case-control studies ¹⁴
	Implication: CYP2C9 alleles indicate increased risk of Clorazepate-related falls			
Clozapine Clozaril Fazacllo ODT Versacloz TreatGx ReviewGx	Normal metabolizer	CYP2D6	*1/*41	FDA 1 ³⁵
	Implication: CYP2D6 alleles do not indicate changes from recommended dose			
Codeine Codeine Contin Tylenol with Codeine No. 2/3/4 TreatGx ReviewGx	Normal metabolizer	CYP2D6	*1/*41	CPIC A ⁷ ; FDA 1 ³⁵ ; FDA 2 ³⁵
	Implication: CYP2D6 alleles do not indicate changes from recommended dose for Codeine (per CPIC strong recommendation). Refer to TreatGx for alternatives and specific dosing recommendations.			
Cyclosporine Neoral Sandimmune ReviewGx	Poor metabolizer	CYP3A5	*3/*3	PharmGKB 3
	Implication: CYP3A5 alleles do not indicate changes from recommended dose			
Darifenacin Enablex TreatGx ReviewGx	Normal metabolizer	CYP2D6	*1/*41	FDA 3 ³⁵
	Implication: CYP2D6 alleles do not indicate changes from recommended dose			
Desipramine Norpramin TreatGx ReviewGx	Normal metabolizer	CYP2D6	*1/*41	CPIC B ¹⁶ ; FDA 3 ³⁵
	Implication: CYP2D6 alleles do not indicate changes from recommended dose for Desipramine (per CPIC strong recommendation). Refer to TreatGx for alternatives and specific dosing recommendations.			

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Drug	Phenotype	Genetic Test	Results	Source/Evidence
Deutetrabenazine	Phenotype	Genetic Test	Results	Source/Evidence
Austedo	Normal metabolizer	CYP2D6	*1/*41	FDA 1 ³⁵
 ReviewGx	Implication:	CYP2D6 alleles do not indicate changes from recommended dose		
Dexlansoprazole	Phenotype	Genetic Test	Results	Source/Evidence
Dexilant	Intermediate metabolizer	CYP2C19	*1/*2	CPIC B ²² ; FDA 3 ³⁵
 TreatGx  ReviewGx	Implication:	CYP2C19 intermediate metabolizer: reduced metabolism of Dexlansoprazole to less active compounds Higher plasma concentrations of active drug may increase the risk of adverse drug reactions		
	 2	Optional CPIC recommendation: Initiate standard starting dose. For chronic therapy (> 12 weeks) and efficacy achieved, consider a 50% reduction in daily dose.		
Diazepam	Phenotype	Genetic Test	Results	Source/Evidence
Diastat Valium	Intermediate metabolizer Intermediate metabolizer	CYP2C19 CYP2C9	*1/*2 *1/*2	FDA 3 ³⁵ Case-control studies ¹⁴
 TreatGx  ReviewGx	Implication:	CYP2C9 alleles indicate increased risk of Diazepam-related falls CYP2C19 alleles do not indicate changes from recommended dose		
Donepezil	Phenotype	Genetic Test	Results	Source/Evidence
Aricept	Normal metabolizer	CYP2D6	*1/*41	FDA 3 ³⁵
 TreatGx  ReviewGx	Implication:	CYP2D6 alleles do not indicate changes from recommended dose		
Doxepin	Phenotype	Genetic Test	Results	Source/Evidence
Silenor Sinequan	Normal metabolizer Intermediate metabolizer	CYP2D6 CYP2C19	*1/*41 *1/*2	CPIC B ¹⁶ ; FDA 3 ³⁵ CPIC B ¹⁶ ; FDA 3 ³⁵
 TreatGx  ReviewGx	Implication:	CYP2D6 and CYP2C19 alleles do not indicate changes from recommended dose for Doxepin (per CPIC optional recommendation). Refer to TreatGx for alternatives and specific dosing recommendations.		
Dronabinol	Phenotype	Genetic Test	Results	Source/Evidence
Marinol Syndros	Intermediate metabolizer	CYP2C9	*1/*2	FDA 1 ³⁵
 ReviewGx	Implication:	CYP2C9 intermediate metabolizer: reduced metabolism of Dronabinol to less active compounds Higher plasma concentrations of active drug may increase the risk of adverse drug reactions		
	 2	This drug has an FDA therapeutic recommendation, refer to drug monograph or FDA labelling for dosing recommendations		
Efavirenz	Phenotype	Genetic Test	Results	Source/Evidence
Sustiva	Normal metabolizer	CYP2B6	*1/*1	CPIC A ⁸ ; FDA 2 ³⁵
 ReviewGx	Implication:	CYP2B6 alleles do not indicate changes from recommended dose		

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Elagolix	Phenotype	Genetic Test	Results	Source/Evidence
Orilissa  ReviewGx	Normal function Implication: SLCO1B1 alleles indicate a typical response to Elagolix	SLCO1B1	*1/*1	FDA 3 ³⁵
Eliglustat	Phenotype	Genetic Test	Results	Source/Evidence
Cerdelga  ReviewGx	Normal metabolizer Implication: CYP2D6 alleles do not indicate changes from recommended dose Multiple drug-drug interactions may further affect the safety of Eliglustat, refer to drug monograph or FDA labelling for dosing recommendations	CYP2D6	*1/*41	FDA 1 ³⁵
Eltrombopag	Phenotype	Genetic Test	Results	Source/Evidence
Promacta Revolade  ReviewGx	Typical risk of adverse drug reactions Typical risk of adverse drug reactions Implication: F2 and F5 alleles do not indicate changes from recommended dose	Factor V rs6025 Factor II rs1799963	C/C G/G	Product monograph (actionable) ²⁸ PharmGKB 3
Erdafitinib	Phenotype	Genetic Test	Results	Source/Evidence
Balversa ReviewGx	Intermediate metabolizer Implication: CYP2C9 alleles do not indicate changes from recommended dose	CYP2C9 (Star Alleles)	*1/*2	FDA 1 ³⁵
Escitalopram	Phenotype	Genetic Test	Results	Source/Evidence
Cipralext Lexapro  TreatGx ReviewGx	Intermediate metabolizer Implication: Reduced metabolism when compared with CYP2C19 normal metabolizers. Higher plasma concentrations may increase the probability of side effects.  Initiate therapy with recommended starting dose. Consider a slower titration schedule and lower maintenance dose than normal metabolizers (per CPIC moderate recommendation).	CYP2C19	*1/*2	CPIC A ⁴ ; FDA 3 ³⁵
Fesoterodine	Phenotype	Genetic Test	Results	Source/Evidence
Toviaz  TreatGx ReviewGx	Normal metabolizer Implication: CYP2D6 alleles do not indicate changes from recommended dose	CYP2D6	*1/*41	FDA 3 ³⁵
Flecainide	Phenotype	Genetic Test	Results	Source/Evidence
Tambocor  TreatGx ReviewGx	Normal metabolizer Implication: CYP2D6 alleles do not indicate changes from recommended dose	CYP2D6	*1/*41	DPWG ⁹

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Drug	Phenotype	Genetic Test	Results	Source/Evidence
Flibanserin Addyi  ReviewGx	Intermediate metabolizer Implication: CYP2C19 alleles do not indicate changes from recommended dose	CYP2C19	*1/*2	FDA 1 ³⁵
Flurazepam TreatGx ReviewGx	Intermediate metabolizer Implication: CYP2C9 alleles indicate increased risk of Flurazepam-related falls	CYP2C9	*1/*2	Case-control studies ¹⁴
Flurbiprofen Ansaid  TreatGx ReviewGx	Intermediate metabolizer (AS 1.5) Implication: CYP2C9 alleles do not indicate changes from recommended dose	CYP2C9 (Star Alleles)	*1/*2	CPIC A ³² ; FDA 1 ³⁵
Fluvastatin Lescol  TreatGx ReviewGx	Intermediate metabolizer Normal function Implication: SLC01B1 alleles indicate typical exposure to Fluvastatin CYP2C9 alleles indicate increased Fluvastatin exposure as compared with normal metabolizers  For specific CPIC dosing recommendations refer to TreatGx	CYP2C9 SLC01B1	*1/*2 *1/*1	CPIC A ⁶ CPIC A ⁶
Fluvoxamine Luvox  TreatGx ReviewGx	Normal metabolizer Implication: Normal CYP2D6 metabolism Initiate therapy with recommended starting dose (per CPIC strong recommendation).	CYP2D6	*1/*41	CPIC B ⁴ ; FDA 3 ³⁵
Fosphenytoin Cerebyx   ReviewGx	Intermediate metabolizer Implication: CYP2C9 intermediate metabolizer with an activity score of 1.5: slightly reduced metabolism of Fosphenytoin to less active compounds; however, this does not appear to translate into increased side effects CYP2C9 alleles do not indicate changes from recommended dose	CYP2C9	*1/*2	CPIC A ¹⁸ ; FDA 1 ³⁵
Galantamine Razadyne   TreatGx ReviewGx	Normal metabolizer Implication: CYP2D6 alleles do not indicate changes from recommended dose	CYP2D6	*1/*41	FDA 3 ³⁵

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Hydrocodone	Phenotype	Genetic Test	Results	Source/Evidence
Hysingla Zohydro	Normal metabolizer	CYP2D6	*1/*41	CPIC B ⁷
 	Implication:	CYP2D6 alleles do not indicate changes from recommended dose for Hydrocodone (per CPIC strong recommendation). Refer to TreatGx for alternatives and specific dosing recommendations.		
TreatGx ReviewGx				

Ibuprofen	Phenotype	Genetic Test	Results	Source/Evidence
Advil Caldolor Duexis Motrin IB NeoProfen	Intermediate metabolizer (AS 1.5)	CYP2C9 (Star Alleles)	*1/*2	CPIC A ³² ; FDA 3 ³⁵
 	Implication:	CYP2C9 alleles do not indicate changes from recommended dose		
TreatGx ReviewGx				

Iloperidone	Phenotype	Genetic Test	Results	Source/Evidence
Fanapt	Normal metabolizer	CYP2D6	*1/*41	FDA 1 ³⁵
 	Implication:	CYP2D6 alleles do not indicate changes from recommended dose		
TreatGx ReviewGx				

Imipramine	Phenotype	Genetic Test	Results	Source/Evidence
Tofranil	Normal metabolizer	CYP2D6	*1/*41	CPIC B ¹⁶ ; FDA 3 ³⁵
 	Intermediate metabolizer	CYP2C19	*1/*2	CPIC B ¹⁶
Implication:	CYP2D6 and CYP2C19 alleles do not indicate changes from recommended dose for Imipramine (per CPIC optional recommendation). Refer to TreatGx for alternatives and specific dosing recommendations.			

Lansoprazole	Phenotype	Genetic Test	Results	Source/Evidence
Prevacid	Intermediate metabolizer	CYP2C19	*1/*2	CPIC A ²² ; FDA 3 ³⁵
 	Implication:	CYP2C19 intermediate metabolizer: reduced metabolism of Lansoprazole to less active compounds Higher plasma concentrations of active drug may increase the risk of adverse drug reactions		
	Optional CPIC recommendation: Initiate standard starting dose. For chronic therapy (> 12 weeks) and efficacy achieved, consider a 50% reduction in daily dose.			

Lofexidine	Phenotype	Genetic Test	Results	Source/Evidence
Lucemyra	Normal metabolizer	CYP2D6	*1/*41	FDA 1 ³⁵
 	Implication:	CYP2D6 alleles do not indicate changes from recommended dose		
ReviewGx				

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BARCODE: C7_042324_Optmzd_GenXys
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Drug	Phenotype	Genetic Test	Results	Source/Evidence
Lorazepam Ativan ReviewGx	Intermediate metabolizer	CYP2C9	*1/*2	Case-control studies ¹⁴
	Implication:	CYP2C9 alleles indicate increased risk of Lorazepam-related falls		
Lovastatin Altoprev TreatGx ReviewGx	Normal function	SLCO1B1	*1/*1	CPIC A ⁶
	Implication:	SLCO1B1 alleles indicate typical exposure to Lovastatin Consider prescribing desired starting dose and adjust based on disease-specific guidelines		
Meclizine Antivert ReviewGx	Normal metabolizer	CYP2D6	*1/*41	FDA 1 ³⁵
	Implication:	CYP2D6 alleles do not indicate changes from recommended dose		
Meloxicam Anjeso Mobic Qmiiz ODT Vivlodex TreatGx ReviewGx	Intermediate metabolizer (AS 1.5)	CYP2C9 (Star Alleles)	*1/*2	CPIC A ³² ; FDA 1 ³⁵
	Implication:	CYP2C9 alleles do not indicate changes from recommended dose		
Metoclopramide Metonia Reglan TreatGx ReviewGx	Normal metabolizer	CYP2D6	*1/*41	FDA 1 ³⁵
	Implication:	CYP2D6 alleles do not indicate changes from recommended dose		
Metoprolol Kaspargo Sprinkle Lopressor Toprol-XL TreatGx ReviewGx	Normal metabolizer	CYP2D6	*1/*41	DPWG ⁹ ; FDA 3 ³⁵
	Implication:	CYP2D6 alleles do not indicate changes from recommended dose		
Mirabegron Myrbetriq TreatGx ReviewGx	Normal metabolizer	CYP2D6	*1/*41	FDA 3 ³⁵
	Implication:	CYP2D6 alleles do not indicate changes from recommended dose		

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	Phenotype	Genetic Test	Results	Source/Evidence
Nebivolol	Phenotype	Genetic Test	Results	Source/Evidence
Bystolic	Normal metabolizer	CYP2D6	*1/*41	FDA 3 ³⁵
  TreatGx ReviewGx	Implication:	CYP2D6 alleles do not indicate changes from recommended dose		
Nitrazepam	Phenotype	Genetic Test	Results	Source/Evidence
Mogadon	Intermediate metabolizer	CYP2C9	*1/*2	Case-control studies ¹⁴
 ReviewGx	Implication:	CYP2C9 alleles indicate increased risk of Nitrazepam-related falls		
Nortriptyline	Phenotype	Genetic Test	Results	Source/Evidence
Aventyl Pamelor	Normal metabolizer	CYP2D6	*1/*41	CPIC A ¹⁶ ; FDA 3 ³⁵
TreatGx ReviewGx	Implication:	CYP2D6 alleles do not indicate changes from recommended dose for Nortriptyline (per CPIC strong recommendation). Refer to TreatGx for alternatives and specific dosing recommendations.		
Omeprazole	Phenotype	Genetic Test	Results	Source/Evidence
Losec Olex Prilosec	Intermediate metabolizer	CYP2C19	*1/*2	CPIC A ²² ; FDA 3 ³⁵
 TreatGx ReviewGx	Implication:	CYP2C19 intermediate metabolizer: reduced metabolism of Omeprazole to less active compounds Higher plasma concentrations of active drug may increase the risk of adverse drug reactions		
		Optional CPIC recommendation: Initiate standard starting dose. For chronic therapy (> 12 weeks) and efficacy achieved, consider a 50% reduction in daily dose.		
Ondansetron	Phenotype	Genetic Test	Results	Source/Evidence
Zofran Zuplenz	Normal metabolizer	CYP2D6	*1/*41	CPIC A ²
 ReviewGx	Implication:	CYP2D6 alleles do not indicate changes from recommended dose		
Oral contraceptives	Phenotype	Genetic Test	Results	Source/Evidence
ReviewGx	Typical risk of adverse drug reactions	Factor V rs6025	C/C	PharmGKB 1A
	Typical risk of adverse drug reactions	Factor II rs1799963	G/G	PharmGKB 3
	Implication:	F2 and F5 alleles do not indicate changes from recommended dose		
Oxazepam	Phenotype	Genetic Test	Results	Source/Evidence
ReviewGx	Intermediate metabolizer	CYP2C9	*1/*2	Case-control studies ¹⁴
	Implication:	CYP2C9 alleles indicate increased risk of Oxazepam-related falls		

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	Phenotype	Genetic Test	Results	Source/Evidence
Pantoprazole	Phenotype	Genetic Test	Results	Source/Evidence
Pantoloc Protonix Tecta TreatGx ReviewGx	Intermediate metabolizer Implication:	CYP2C19	*1/*2	CPIC A ²² ; FDA 1 ³⁵
	CYP2C19 intermediate metabolizer: reduced metabolism of Pantoprazole to less active compounds			
	Higher plasma concentrations of active drug may increase the risk of adverse drug reactions			
	▲ Optional CPIC recommendation: Initiate standard starting dose. For chronic therapy (> 12 weeks) and efficacy achieved, consider a 50% reduction in daily dose.			
Paroxetine	Phenotype	Genetic Test	Results	Source/Evidence
Brisdelle Paxil Pexeva  TreatGx ReviewGx	Normal metabolizer Implication:	CYP2D6	*1/*41	CPIC A ⁴ ; FDA 3 ³⁵
	Normal metabolism of paroxetine to less active compounds. Paroxetine-associated phenoconversion of normal metabolizers to intermediate or poor metabolizers due to CYP2D6 autoinhibition may occur and is dose-dependent and greater at steady state concentrations.			
	Initiate therapy with recommended starting dose (per CPIC strong recommendation).			
Perphenazine	Phenotype	Genetic Test	Results	Source/Evidence
 TreatGx ReviewGx	Normal metabolizer Implication:	CYP2D6	*1/*41	FDA 2 ³⁵
	CYP2D6 alleles do not indicate changes from recommended dose			
Phenytoin	Phenotype	Genetic Test	Results	Source/Evidence
Dilantin Tremytoine Phenytek  ReviewGx	Intermediate metabolizer Implication:	CYP2C9	*1/*2	CPIC A ¹⁸ ; FDA 1 ³⁵
	CYP2C9 intermediate metabolizer with an activity score of 1.5: slightly reduced metabolism of Phenytoin to less active compounds; however, this does not appear to translate into increased side effects			
	CYP2C9 alleles do not indicate changes from recommended dose			
Pimozide	Phenotype	Genetic Test	Results	Source/Evidence
Orap TreatGx ReviewGx	Normal metabolizer Implication:	CYP2D6	*1/*41	FDA 1 ³⁵
	CYP2D6 alleles do not indicate changes from recommended dose			
Piroxicam	Phenotype	Genetic Test	Results	Source/Evidence
Feldene TreatGx ReviewGx	Intermediate metabolizer (AS 1.5) Implication:	CYP2C9 (Star Alleles)	*1/*2	CPIC A ³² ; FDA 1 ³⁵
	CYP2C9 alleles do not indicate changes from recommended dose			

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Pitavastatin	Phenotype	Genetic Test	Results	Source/Evidence
Livalo Zypitamag  TreatGx ReviewGx	Normal function Implication:	SLCO1B1	*1/*1	CPIC A ⁶
SLCO1B1 alleles indicate typical exposure to Pitavastatin Consider prescribing desired starting dose and adjust based on disease-specific guidelines				


Pravastatin	Phenotype	Genetic Test	Results	Source/Evidence
Pravachol  TreatGx ReviewGx	Normal function Implication:	SLCO1B1	*1/*1	CPIC A ⁶
SLCO1B1 alleles indicate typical exposure to Pravastatin Consider prescribing desired starting dose and adjust based on disease-specific guidelines				

Propafenone	Phenotype	Genetic Test	Results	Source/Evidence
Rythmol TreatGx ReviewGx	Normal metabolizer Implication:	CYP2D6	*1/*41	DPWG ⁹ ; FDA 1 ³⁵
CYP2D6 alleles do not indicate changes from recommended dose				

Propranolol	Phenotype	Genetic Test	Results	Source/Evidence
Inderal Innopran TreatGx ReviewGx	Normal metabolizer Implication:	CYP2D6	*1/*41	FDA 3 ³⁵
CYP2D6 alleles do not indicate changes from recommended dose				

Protriptyline	Phenotype	Genetic Test	Results	Source/Evidence
Vivactil ReviewGx	Normal metabolizer Implication:	CYP2D6	*1/*41	FDA 3 ³⁵
CYP2D6 alleles do not indicate changes from recommended dose				

Risperidone	Phenotype	Genetic Test	Results	Source/Evidence
Perseris Risperdal  TreatGx ReviewGx	Normal metabolizer Implication:	CYP2D6	*1/*41	DPWG ⁹ ; FDA 3 ³⁵
CYP2D6 alleles do not indicate changes from recommended dose				

Rosuvastatin	Phenotype	Genetic Test	Results	Source/Evidence
Crestor Ezallor  TreatGx ReviewGx	Normal function Implication:	SLCO1B1	*1/*1	CPIC A ⁶ ; FDA 3 ³⁵
SLCO1B1 alleles indicate typical exposure to Rosuvastatin				

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Drug	Phenotype	Genetic Test	Results	Source/Evidence
Sertraline	Phenotype	Genetic Test	Results	Source/Evidence
Zoloft 	Normal metabolizer	CYP2B6	*1/*1	CPIC B ⁴
	Intermediate metabolizer	CYP2C19	*1/*2	CPIC A ⁴
TreatGx ReviewGx	<p>Implication: Normal CYP2B6 metabolism</p> <p>Reduced metabolism of sertraline to less active compounds when compared with CYP2C19 normal metabolizers.</p> <p> Initiate therapy with recommended starting dose. Consider a slower titration schedule and lower maintenance dose (per CPIC moderate recommendation).</p>			
Simvastatin	Phenotype	Genetic Test	Results	Source/Evidence
Zocor Flolipid  	Normal function	SLCO1B1	*1/*1	CPIC A ⁶ ; FDA 2 ³⁵
TreatGx ReviewGx	<p>Implication: SLCO1B1 alleles indicate typical exposure to Simvastatin</p> <p>Consider prescribing desired starting dose and adjust based on disease-specific guidelines</p>			
Siponimod	Phenotype	Genetic Test	Results	Source/Evidence
Mayzent 	Intermediate metabolizer	CYP2C9 (Star Alleles)	*1/*2	FDA 1 ³⁵
ReviewGx	<p>Implication: CYP2C9 alleles do not indicate changes from recommended dose</p>			
Tacrolimus	Phenotype	Genetic Test	Results	Source/Evidence
Advagraf Astagraf XL Envarsus XR Prograf Protopic	Poor metabolizer	CYP3A5	*3/*3	CPIC A ³ ; FDA 1 ³⁵
ReviewGx	Normal metabolizer	CYP3A4	*1A/*1A	PharmGKB 1B; PharmGKB 2A
	<p>Implication: CYP3A5 alleles do not indicate changes from recommended dose</p> <p>CYP3A4 alleles do not indicate changes from recommended dose</p> <p>Use therapeutic drug monitoring to guide dose adjustments</p>			
Tamoxifen	Phenotype	Genetic Test	Results	Source/Evidence
Nolvadex Soltamox ReviewGx	Normal metabolizer	CYP2D6 (Activity Score)	*1/*41	CPIC A ¹² ; FDA 3 ³⁵
<p>Implication: CYP2D6 normal metabolizer: typical metabolism of Tamoxifen to endoxifen</p> <p>Strong CPIC recommendation for breast cancer therapy: Initiate therapy with recommended standard of care dosing. Avoid moderate and strong CYP2D6 inhibitors.</p>				
Tamsulosin	Phenotype	Genetic Test	Results	Source/Evidence
Flomax ReviewGx	Normal metabolizer	CYP2D6	*1/*41	FDA 3 ³⁵
<p>Implication: CYP2D6 alleles do not indicate changes from recommended dose</p>				
Temazepam	Phenotype	Genetic Test	Results	Source/Evidence
Restoril TreatGx ReviewGx	Intermediate metabolizer	CYP2C9	*1/*2	Case-control studies ¹⁴
<p>Implication: CYP2C9 alleles indicate increased risk of Temazepam-related falls</p>				

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Tenoxicam	Phenotype	Genetic Test	Results	Source/Evidence
Mobiflex   ReviewGx	Intermediate metabolizer (AS 1.5) Implication: CYP2C9 alleles do not indicate changes from recommended dose	CYP2C9 (Star Alleles)	*1/*2	CPIC A ³²
Tetrabenazine	Phenotype	Genetic Test	Results	Source/Evidence
Austedo Nitoman Xenazine  ReviewGx	Normal metabolizer Implication: CYP2D6 alleles do not indicate changes from recommended dose	CYP2D6	*1/*41	FDA 1 ³⁵
Thioridazine	Phenotype	Genetic Test	Results	Source/Evidence
TreatGx ReviewGx	Normal metabolizer Implication: CYP2D6 alleles do not indicate changes from recommended dose	CYP2D6	*1/*41	FDA 1 ³⁵
Tolterodine	Phenotype	Genetic Test	Results	Source/Evidence
Detrol   TreatGx ReviewGx	Normal metabolizer Implication: CYP2D6 alleles do not indicate changes from recommended dose	CYP2D6	*1/*41	FDA 2 ³⁵
Tramadol	Phenotype	Genetic Test	Results	Source/Evidence
Conzip Durela Ralivia Ultram Zytram XL   TreatGx ReviewGx	Normal metabolizer Implication: CYP2D6 alleles do not indicate changes from recommended dose for Tramadol (per CPIC strong recommendation). Refer to TreatGx for alternatives and specific dosing recommendations.	CYP2D6	*1/*41	CPIC A ⁷ ; FDA 1 ³⁵ ; FDA 2 ³⁵
Triazolam	Phenotype	Genetic Test	Results	Source/Evidence
Halcion TreatGx ReviewGx	Intermediate metabolizer Implication: CYP2C9 alleles indicate increased risk of Triazolam-related falls	CYP2C9	*1/*2	Case-control studies ¹⁴
Trimipramine	Phenotype	Genetic Test	Results	Source/Evidence
Surmontil ReviewGx	Normal metabolizer Intermediate metabolizer Implication: CYP2D6 and CYP2C19 alleles do not indicate changes from recommended dose for Trimipramine (per CPIC optional recommendation). Refer to TreatGx for alternatives and specific dosing recommendations.	CYP2D6 CYP2C19	*1/*41 *1/*2	CPIC B ¹⁶ ; FDA 3 ³⁵ CPIC B ¹⁶

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Drug	Phenotype	Genetic Test	Results	Source/Evidence
Valbenazine Ingrezza  ReviewGx	Normal metabolizer Implication: CYP2D6 alleles do not indicate changes from recommended dose	CYP2D6	*1/*41	FDA 1 ³⁵
Venlafaxine Effexor XR  TreatGx ReviewGx	Normal metabolizer Implication: Normal CYP2D6 metabolism Initiate therapy with recommended starting dose (per CPIC strong recommendation).	CYP2D6	*1/*41	CPIC B ⁴ ; FDA 1 ³⁵
Voriconazole Vfend  ReviewGx	Intermediate metabolizer Implication: CYP2C19 alleles do not indicate changes from recommended dose	CYP2C19	*1/*2	CPIC A ²⁶ ; FDA 2 ³⁵
Vortioxetine Trintellix TreatGx ReviewGx	Normal metabolizer Implication: Normal CYP2D6 metabolism Initiate therapy with recommended starting dose (per CPIC strong recommendation).	CYP2D6	*1/*41	CPIC A ⁴ ; FDA 1 ³⁵
Warfarin Coumadin Jantoven TreatGx ReviewGx	Intermediate metabolizer Increased response Implication:  The algorithm in TreatGx includes pharmacogenetics and other clinical factors in calculating initial warfarin dose	CYP2C9 VKORC1	*1/*2 G/A	CPIC A ¹⁷ ; FDA 1 ³⁵ CPIC A ¹⁷ ; FDA 1 ³⁵
Zuclopenthixol Clopixol TreatGx ReviewGx	Normal metabolizer Implication: CYP2D6 alleles do not indicate changes from recommended dose	CYP2D6	*1/*41	DPWG ⁹

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Table of Available References

Drug	Genetic Test	Sources
Alprazolam	CYP2C9	Case-control studies ¹⁴
Amitriptyline	CYP2D6	CPIC ¹⁶ ; FDA ³⁵
Amitriptyline	CYP2C19	CPIC ¹⁶
Amoxapine	CYP2D6	FDA ³⁵
Amphetamine	CYP2D6	FDA ³⁵
Aripiprazole	CYP2D6	DPWG ⁹ ; FDA ³⁵
Aripiprazole lauroxil	CYP2D6	FDA ³⁵
Atomoxetine	CYP2D6 (Activity Score)	CPIC ⁵ ; FDA ³⁵
Atorvastatin	SLCO1B1	CPIC ⁶ ; FDA ³⁵
Avatrombopag	CYP2C9	FDA ³⁵
Brexpiprazole	CYP2D6	DPWG ⁹ ; FDA ³⁵
Brivaracetam	CYP2C19	FDA ³⁵
Bromazepam	CYP2C9	Case-control studies ¹⁴
Carisoprodol	CYP2C19	FDA ³⁵
Carvedilol	CYP2D6	FDA ³⁵
Celecoxib	CYP2C9 (Star Alleles)	CPIC ³² ; FDA ³⁵
Cevimeline	CYP2D6	FDA ³⁵
Chlordiazepoxide	CYP2C9	Case-control studies ¹⁴
Citalopram	CYP2C19	CPIC ⁴ ; FDA ³⁵
Clobazam	CYP2C19	FDA ³⁵
Clomipramine	CYP2D6	CPIC ¹⁶ ; FDA ³⁵
Clomipramine	CYP2C19	CPIC ¹⁶
Clonazepam	CYP2C9	Case-control studies ¹⁴
Clopidogrel	CYP2C19	CPIC ²⁰ ; FDA ³⁵
Clorazepate	CYP2C9	Case-control studies ¹⁴

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Drug	Genetic Test	Sources
Clozapine	CYP2D6	FDA ³⁵
Codeine	CYP2D6	CPIC ⁷ ; FDA ³⁵
Cyclosporine	CYP3A5	PharmGKB
Darifenacin	CYP2D6	FDA ³⁵
Desipramine	CYP2D6	CPIC ¹⁶ ; FDA ³⁵
Deutetrabenazine	CYP2D6	FDA ³⁵
Dexlansoprazole	CYP2C19	CPIC ²² ; FDA ³⁵
Diazepam	CYP2C19	FDA ³⁵
Diazepam	CYP2C9	Case-control studies ¹⁴
Donepezil	CYP2D6	FDA ³⁵
Doxepin	CYP2D6	CPIC ¹⁶ ; FDA ³⁵
Doxepin	CYP2C19	CPIC ¹⁶ ; FDA ³⁵
Dronabinol	CYP2C9	FDA ³⁵
Efavirenz	CYP2B6	CPIC ⁸ ; DPWG ⁹ ; FDA ³⁵
Elagolix	SLCO1B1	FDA ³⁵
Eliglustat	CYP2D6	DPWG ⁹ ; FDA ³⁵
Eltrombopag	Factor V rs6025	FDA ²⁸
Eltrombopag	Factor II rs1799963	PharmGKB
Erdafitinib	CYP2C9 (Star Alleles)	FDA ³⁵
Escitalopram	CYP2C19	CPIC ⁴ ; FDA ³⁵
Fesoterodine	CYP2D6	FDA ³⁵
Flecainide	CYP2D6	DPWG ⁹
Flibanserin	CYP2C19	FDA ³⁵
Flurazepam	CYP2C9	Case-control studies ¹⁴
Flurbiprofen	CYP2C9 (Star Alleles)	CPIC ³² ; FDA ³⁵

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Drug	Genetic Test	Sources
Fluvastatin	CYP2C9	CPIC ⁶
Fluvastatin	SLCO1B1	CPIC ⁶
Fluvoxamine	CYP2D6	CPIC ⁴ ; FDA ³⁵
Fosphenytoin	CYP2C9	CPIC ¹⁸ ; FDA ³⁵
Galantamine	CYP2D6	FDA ³⁵
Hydrocodone	CYP2D6	CPIC ⁷
Ibuprofen	CYP2C9 (Star Alleles)	CPIC ³² ; FDA ³⁵
Iloperidone	CYP2D6	FDA ³⁵
Imipramine	CYP2D6	CPIC ¹⁶ ; FDA ³⁵
Imipramine	CYP2C19	CPIC ¹⁶
Lansoprazole	CYP2C19	CPIC ²² ; FDA ³⁵
Lofexidine	CYP2D6	FDA ³⁵
Lorazepam	CYP2C9	Case-control studies ¹⁴
Lovastatin	SLCO1B1	CPIC ⁶
Meclizine	CYP2D6	FDA ³⁵
Meloxicam	CYP2C9 (Star Alleles)	CPIC ³² ; FDA ³⁵
Metoclopramide	CYP2D6	FDA ³⁵
Metoprolol	CYP2D6	DPWG ⁹ ; FDA ³⁵
Mirabegron	CYP2D6	FDA ³⁵
Nebivolol	CYP2D6	FDA ³⁵
Nitrazepam	CYP2C9	Case-control studies ¹⁴
Nortriptyline	CYP2D6	CPIC ¹⁶ ; FDA ³⁵
Omeprazole	CYP2C19	CPIC ²² ; FDA ³⁵
Ondansetron	CYP2D6	CPIC ²
Oral contraceptives	Factor V rs6025	PharmGKB

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Drug	Genetic Test	Sources
Oral contraceptives	Factor II rs1799963	PharmGKB
Oxazepam	CYP2C9	Case-control studies ¹⁴
Pantoprazole	CYP2C19	CPIC ²² ; FDA ³⁵
Paroxetine	CYP2D6	CPIC ⁴ ; FDA ³⁵
Perphenazine	CYP2D6	FDA ³⁵
Phenytoin	CYP2C9	CPIC ¹⁸ ; FDA ³⁵
Pimozide	CYP2D6	DPWG ⁹ ; FDA ³⁵
Piroxicam	CYP2C9 (Star Alleles)	CPIC ³² ; FDA ³⁵
Pitavastatin	SLCO1B1	CPIC ⁶
Pravastatin	SLCO1B1	CPIC ⁶
Propafenone	CYP2D6	DPWG ⁹ ; FDA ³⁵
Propranolol	CYP2D6	FDA ³⁵
Protriptyline	CYP2D6	FDA ³⁵
Risperidone	CYP2D6	DPWG ⁹ ; FDA ³⁵
Rosuvastatin	SLCO1B1	CPIC ⁶ ; FDA ³⁵
Sertraline	CYP2B6	CPIC ⁴
Sertraline	CYP2C19	CPIC ⁴
Simvastatin	SLCO1B1	CPIC ⁶ ; FDA ³⁵
Siponimod	CYP2C9 (Star Alleles)	FDA ³⁵
Tacrolimus	CYP3A5	CPIC ³ ; FDA ³⁵
Tacrolimus	CYP3A4	PharmGKB
Tamoxifen	CYP2D6 (Activity Score)	Clinical trial ¹⁵ ; CPIC ¹² ; FDA ³⁵
Tamsulosin	CYP2D6	FDA ³⁵
Temazepam	CYP2C9	Case-control studies ¹⁴
Tenoxicam	CYP2C9 (Star Alleles)	CPIC ³²

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Drug	Genetic Test	Sources
Tetrabenazine	CYP2D6	FDA ³⁵
Thioridazine	CYP2D6	FDA ³⁵
Tolterodine	CYP2D6	FDA ³⁵
Tramadol	CYP2D6	CPIC ⁷ ; FDA ³⁵
Triazolam	CYP2C9	Case-control studies ¹⁴
Trimipramine	CYP2D6	CPIC ¹⁶ ; FDA ³⁵
Trimipramine	CYP2C19	CPIC ¹⁶
Valbenazine	CYP2D6	FDA ³⁵
Venlafaxine	CYP2D6	CPIC ⁴ ; FDA ³⁵
Voriconazole	CYP2C19	CPIC ²⁶ ; FDA ³⁵
Vortioxetine	CYP2D6	CPIC ⁴ ; FDA ³⁵
Warfarin	CYP2C9	CPIC ¹⁷ ; FDA ³⁵
Warfarin	VKORC1	CPIC ¹⁷ ; FDA ³⁵
Zuclopenthixol	CYP2D6	DPWG ⁹

PATIENT INFORMATION

NAME: Test 1
DOB: 01/Jan/2022
SEX AT BIRTH: Female

SPECIMEN DETAILS

BARCODE: C7_042324_Optmzd_GenXys
SAMPLE ID: C7_042324_Optmzd_GenXys
TYPE: Buccal Swab
COLLECTED: 01/Jan/2024

ORDERED BY

Test Provider
GENERATED: 23/Apr/2024

References

<https://www.genxys.com/lab-references>

PATIENT INFORMATION

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Methods

A multiplex Real-Time Polymerase Chain Reaction (RT-PCR) is carried out under optimized conditions to generate amplicons for the targeted alleles at analytical sensitivity and specificity >95%. This includes common and rare variants with known clinical significance as well as copy number variation of CYP2D6 gene.

Limitations

This test will not detect all the known variations that result in an altered or inactive tested genes. Absence of a detectable gene variation or polymorphism does not rule out the possibility that a patient has intermediate or high sensitivity phenotypes due to the presence of an undetected polymorphism or due to drug-drug interactions. Only a physician, pharmacist or other healthcare professional should advise a patient on the use of information in this report. Warning: Pharmacogenomics Test Results should always be confirmed in a clinical setting before taking any medical action. Test information should not be used to start, stop, or change any course of treatment and does not test for all possible variants that may affect metabolism or protein function. The Pharmacogenomics test is not a substitute for visits to a healthcare professional. Making changes to your current regimen can lead to harmful side effects or reduced intended benefits of your medication, therefore consult with your healthcare professional before taking any medical action.

Disclaimer

This assay was developed and characterized by PlexusDx Inc (CLIA #: 11D2214021). This assay has not been cleared or approved by the U.S. Food and Drug Administration (FDA). The FDA has determined that such approval is not necessary, provided that the laboratory maintains its good standing as a clinical testing laboratory with all mandatory accrediting bodies, and continually demonstrates that its testing protocols and procedures achieve a high degree of analytical accuracy. Only a qualified healthcare professional should advise a person on the use of information in this report. All clinical decisions relative to the test results should be directed by your qualified healthcare provider. The laboratory makes no representations or recommendations regarding results.

Laboratory Director

23/Apr/2024

Tariq Adwan, Laboratory Director , Ph.D., HCLD (ABB), CLIA
#11D2214021

Date of Signature

PATIENT INFORMATION

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Laboratory Report

The **Laboratory Report** contains your genetic results.

Gene	rsID	HGVS	HGVS Reference	Result
APOE	rs429358	c.388T>C	NC_000019.10	T/T
APOE	rs7412	c.526C>T	NC_000019.10	C/C
COMT	rs4680	c.472G>A	NC_000022.11	G/G
CYP1A2	rs12720461	c.-10+113C>T	NC_000015.10	C/C
CYP1A2	rs2069514	g.74745879G>A	NC_000015.10	G/G
CYP1A2	rs2069526	c.-10+103T>G	NC_000015.10	T/T
CYP1A2	rs35694136	c.-1635T>-	NC_000015.10	T/T
CYP1A2	rs762551	c.-9-154A>C	NC_000015.10	C/A
CYP2B6	rs28399499	c.983T>C	NC_000019.10	T/T
CYP2B6	rs3211371	c.1459C>T	NC_000019.10	C/C
CYP2B6	rs34223104	g.-82T>C	NC_000019.10	T/T
CYP2C19	rs12248560	c.-806C>T	NM_000769.2	C/C
CYP2C19	rs28399504	c.1A>G	NM_000769.1	A/A
CYP2C19	rs41291556	c.358T>C	NM_000769.1	T/T
CYP2C19	rs4244285	c.681G>A	NM_000769.1	A/G
CYP2C19	rs4986893	c.636G>A	NM_000769.1	G/G
CYP2C19	rs72552267	c.395G>A	NM_000769.1	G/G
CYP2C19	rs17884712	c.431G>A	NM_000769.1	G/G
CYP2C19	rs56337013	c.1297C>T	NM_000769.1	C/C
CYP2C19	rs6413438	c.680C>T	NM_000769.1	C/C
CYP2C19	rs72558186	g.19294T>A	NM_000769.1	T/T
CYP2C9	rs1057910	c.1075A>C	NM_000771.3	A/A
CYP2C9	rs1799853	c.430C>T	NM_000771.3	C/T
CYP2C9	rs28371685	c.1003C>T	NM_000771.3	C/C
CYP2C9	rs28371686	c.1080C>G	NM_000771.3	C/C
CYP2C9	rs9332131	c.817delA	NM_000771.3	A/A
CYP2C9	rs56165452	c.1076T>C	NM_000771.3	T/T
CYP2D6	rs1065852	c.100C>T	NM_000106.5	G/G
CYP2D6	rs1135840	c.1457G>C	NM_000106.5	C/G
CYP2D6	rs16947	c.886C>T	NM_000106.5	A/G
CYP2D6	rs28371706	c.320C>A	NM_000106.5	G/G
CYP2D6	rs28371725	c.985+39G>A	NM_000106.5	C/T
CYP2D6	rs35742686	c.775delA	NM_000106.5	T/T
CYP2D6	rs3892097	c.506-1G>A	NM_000106.5	C/C
CYP2D6	rs5030655	c.454delT	NM_000106.5	A/A

PATIENT INFORMATION

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Gene	rsID	HGVS	HGVS Reference	Result
CYP2D6	rs5030656	c.841_843delAAG	NM_000106.5	CTT/CTT
CYP2D6	rs5030867	c.971A>C	NM_000106.5	T/T
CYP2D6	rs59421388	c.1012G>A	NM_000106.5	C/C
CYP2D6	rs5030862	g.124G>A	NM_000106.5	C/C
CYP2D6	rs5030865	g.1758G>T,G>A	NM_000106.5	C/C
CYP3A4	rs12721629	c.1117G>A	NC_000007.14	G/G
CYP3A4	rs2740574	c.-392T>C	NC_000007.14	A/A
CYP3A4	rs35599367	c.522-191G>A	NC_000007.14	G/G
CYP3A4	rs4986910	c.1334A>G	NC_000007.14	A/A
CYP3A4	rs4987161	c.566A>G	NC_000007.14	A/A
CYP3A4	rs55785340	c.664A>G	NC_000007.14	A/A
CYP3A5	rs10264272	c.624G>A	NM_000777.4	C/C
CYP3A5	rs41303343	c.1035_1036insT	NM_000777.4	A/A (-/-) ¹
CYP3A5	rs776746	c.219-237G>A	NM_000777.4	C/C
CYP3A5	rs28365083	g.27289C>A	NM_000777.4	G/G
CYP3A5	rs28383468	g.3705C>T	NM_000777.4	G/G
CYP3A5	rs28383479	g.19386G>A	NM_000777.4	C/C
CYP3A5	rs55817950	g.3699C>T	NM_000777.4	G/G
Factor II	rs1799963	c.*97G>A	NM_000506.4	G/G
Factor V	rs6025	c.1601G>A	NM_000130.4	C/C
MTHFR	rs1801131	c.665C>T	NM_005957.5	T/T
MTHFR	rs1801133	c.1286A>C	NM_005957.5	G/A
SLCO1B1	rs4149056	c.521T>C	NM_006446.4	T/T
VKORC1	rs9923231	c.-1639G>T	NM_001311311.1	G/A (C/T) ¹

1: Pharmacogenetic testing may occasionally lead to unusual genotypes. In these situations pharmacogenetic laboratories will sometimes report on alternative genotypes. If this is done then both genotypes appear in the result table; a genotype in () is the alternative genotype chosen by the lab.

Copy Number Variation

Gene	Reference	Result
CYP2D6	NG_008376.3 exon 9	2

Phenotype Table

Gene	Allele Result	Phenotype Result
CYP2D6	*1/*41	Normal Metabolizer
CYP2C9	*1/*2	Intermediate Metabolizer
CYP2C19	*1/*2	Intermediate Metabolizer
SLCO1B1	*1/*1	Normal Function
CYP2B6	*1/*1	Normal Metabolizer
CYP3A4	*1A/*1A	Normal Metabolizer
CYP3A5	*3/*3	Poor Metabolizer