

GeneDose Genetic Response Report



iGenomeDx
 2040 Babcock Rd, STE 201 • San Antonio, TX 78229
 Phone: (210) 257-6973
 Laboratory Director: Manoj Tyagi, Ph.D.
 CLIA ID Number: 45D2116443
<https://www.iGenomeDx.com/>

This report combines (i) an analysis of the patient's DNA by iGenomeDx, identifying relevant genetic variants that are informative for medication efficacy, safety, and dosing, with (ii) an interpretation of the identified DNA variants by Coriell Life Sciences to bring you immediately actionable clinical guidance regarding safer, more effective medications and dosages for the patient. The Medication Report section lists the type of PGx guidance present on FDA-approved drug labels. Medications with no established FDA PGx guidance are provided solely for educational purposes.

Patient: LName, FName
 Date of Birth: Jan 01, 1938
 Sex: Unknown

Physician: IGENOMEDX INC.
 Practice: iGenomeDx INC.

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Genetic Summary Information

† When multiple activities are listed, check information in Medication Report Details ([Pg. 11](#)) for specific medication of interest.
Uncertain = No known diplotype/result (name) or activity for this combination of genetic variants; Uninterpretable Genotype.

Genetic Summary

Gene	Result	Activity †
ANKK1	G A	Altered function
ApoE	ε3 ε3	See ApoE Genotype Info
COMT(Val158Met)	G G	Normal function
CYP1A2	*1A *1F	Rapid metabolizer

Gene	Result	Activity †
CYP2B6	*1A *9	Intermediate metabolizer
CYP2C19	*1 *2	Intermediate metabolizer
CYP2C9	*1 *1	Normal metabolizer
CYP2D6	*1Ax2 *1A	Ultrarapid metabolizer
CYP3A4	*1A *1A	Normal metabolizer
CYP3A5	*3 *3	Poor metabolizer
Factor V Leiden	Normal	See Thrombosis Profile
MTHFR	GT AG	Decreased function
MTHFR (A1298C)	Heterozygous	See Thrombosis Profile
MTHFR (C677T)	Heterozygous	See Thrombosis Profile
OPRM1(A118G)	A A	Normal function
Prothrombin (F2)	Normal	See Thrombosis Profile
SLCO1B1	*1 *1	Normal function
VKORC1	*2 *2	High sensitivity to warfarin

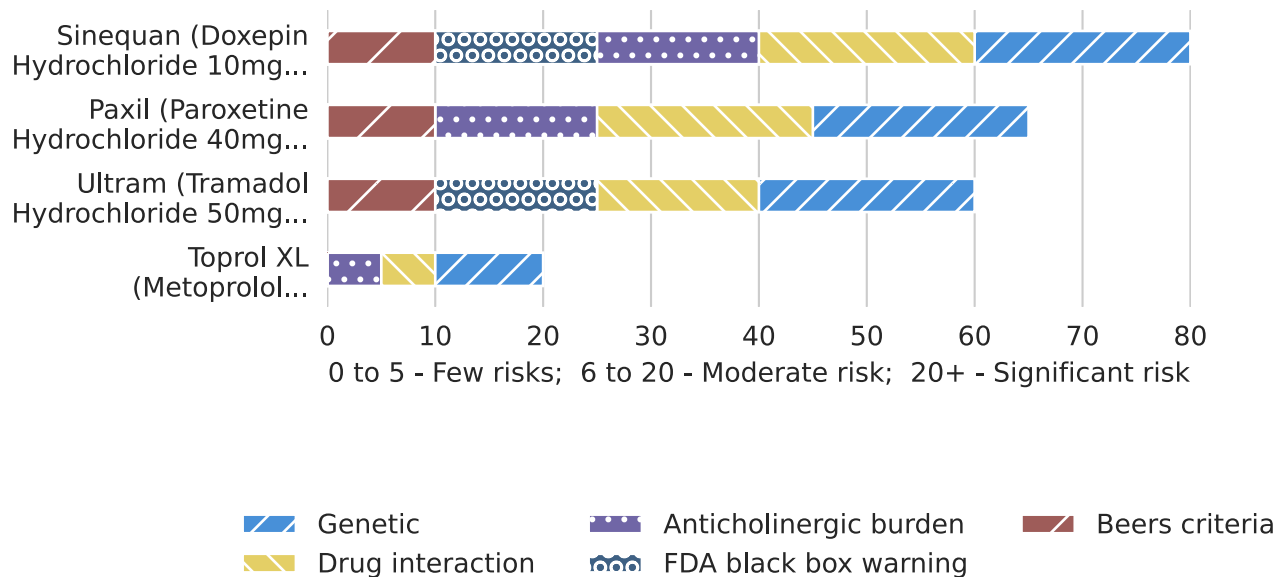
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Current Regimen Risk Chart

This chart summarizes the various risk factors associated with each medication entered into GeneDose™ Live for FName LName. The length of each colored segment represents the relative contribution of a risk category (detailed in the below legend) to the overall risk associated with the use of a medication. For further information, consult the [Current Regimen Risk Details Pg. 3](#) section.



Current Regimen Risk Detail

Severe Risks

Genetic warning for Sinequan 10mg Capsule (Doxepin (CYP2D6))

Ultrarapid metabolizers of this medication frequently present with notably lower plasma concentrations of the active medication, thus a significantly increased risk of pharmacotherapy failure. This medication should be avoided.

Genetic warning for Paxil 40mg Tablet (Paroxetine)

Ultrarapid metabolizers of this medication frequently present with notably lower plasma concentrations of the active medication, thus a significantly increased risk of pharmacotherapy failure. This medication should be avoided.

Genetic warning for Ultram 50mg Tablet (Tramadol)

Ultrarapid metabolizers of this medication frequently present with notably higher plasma concentrations of the active medication, thus a significantly increased risk of side effects. This medication should be avoided.

American Geriatric Society guidelines

The following products appear on the American Geriatric Society's Beers Criteria for Potentially Inappropriate Medication Use in Older Adults:

- Doxepin Hydrochloride 10mg Oral capsule
- Paroxetine Hydrochloride 40mg Oral tablet
- Tramadol Hydrochloride 50mg Oral tablet

Black box warning for Sinequan 10mg Capsule and suicidal ideation

Black box warning for Ultram 50mg Tablet and neonatal opioid withdrawal syndrome

Black box warning for Ultram 50mg Tablet and respiratory depression

Black box warning for Ultram 50mg Tablet and psychological dependence

Strong regimen anticholinergic burden

The cumulative effect of taking multiple medicines with anticholinergic properties termed as anticholinergic burden can adversely impact cognition, physical function and increase the risk of mortality.

Major Risks

Genetic warning for Toprol-XL 200mg Extended-Release Tablet (Metoprolol)

Ultrarapid metabolizers of this medication may present with notably lower plasma concentrations of the active medication, thus an increased risk of pharmacotherapy failure. Consider increasing the dose, or using an alternative medication.

Sinequan 10mg Capsule may cause synergistic or additive toxicity with Ultram 50mg Tablet

- decrease drug dosage
- warn against driving or operating machinery or performing other hazardous tasks until drug effects are known
- monitor for signs or symptoms of serotonin syndrome
- monitor for an increase in CNS/respiratory depression
- monitor for increased anticholinergic effects
- monitor for seizure activity

Concomitant use of tramadol with tricyclic antidepressants may cause excessive sedation, somnolence, and increased risk of seizures and serotonin syndrome. Use reduced dosages and the shortest durations possible.

Paxil 40mg Tablet causes synergistic or additive toxicity with Sinequan 10mg Capsule

- monitor for signs or symptoms of serotonin syndrome
- monitor for fast, irregular heartbeat
- Beers Criteria recommends avoiding combination in older adults
- monitor for increased anticholinergic effects

There is an increased risk of serotonin syndrome, QT prolongation, TdP, or anticholinergic effects during coadministration of paroxetine and doxepin.

Moderate Risks

Ultram 50mg Tablet may increase risk for additive serotonin-related side effects with Paxil 40mg Tablet

- monitor for signs of drug toxicity

- monitor for altered clinical response to drug therapy
- warn against driving or operating machinery or performing other hazardous tasks until drug effects are known
- monitor for signs or symptoms of serotonin syndrome

Coadministration of paroxetine and tramadol may increase the risk of serotonin syndrome and seizures. Also, paroxetine may decrease the analgesic effectiveness of tramadol but increase the risk of tramadol-related adverse effects.

Toprol-XL 200mg Extended-Release Tablet may have its serum concentration increased by Paxil 40mg Tablet

- monitor blood pressure
- monitor heart rate
- dosage reduction may be required

Paroxetine impairs metabolism of the hepatic CYP2D6 isoenzyme pathway at therapeutic doses, resulting in substantial increases in concentrations of other drugs metabolized via the same pathway, including metoprolol.

Thrombosis Profile

Tested Gene (Allele)	Genotype	Predicted Phenotype	Clinical Guidance
Prothrombin (F2)	Normal	Normal risk expected based on the patient's genotype.	The absence of these variant alleles of Prothrombin (Factor II) and Factor V Leiden suggests that the patient does not have the elevated risk of thrombosis associated with these genetic markers. MTHFR alleles without the Factor V Leiden 1691A allele do not predict a significant risk for venous thrombosis.
Factor V Leiden	Normal		
MTHFR (A1298C)	Heterozygous		
MTHFR (C677T)	Heterozygous		

General Description

Genetic analyses of three genes (four alleles) considered to increase the risk for venous thromboembolism were performed using molecular genetic techniques. The presence of the Prothrombin (Factor 2) gene allele c.*97G>A (previously designated as 20210G>A) and Factor V Leiden allele c.1601G>A (previously designated as 1691G>A) are risk factors for venous thromboembolism. This risk may be further increased by the use of estrogen therapy, oral contraceptives, pregnancy, and surgery.

Patients who are homozygous for MTHFR C677T or MTHFR A1298C may have a further increased risk for venous thromboembolism if they also possess the Factor V Leiden c.1601G>A allele. However, the MTHFR alleles alone do not predict a significant risk for venous thromboembolism.

References

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- Stevens SM, et al.; Guidance for the evaluation and treatment of hereditary and acquired thrombophilia. J Thromb Thrombolysis. 2016 Jan;41(1):154-64. doi: 10.1007/s11239-015-1316-1. PMID: 26780744; PMCID: PMC4715840.

ApoE Genotype Information†

Tested Genes (Alleles)	Genotype	Predicted Phenotype	Clinical Guidance
ApoE (ε2, ε3, ε4)	ε3 ε3	Often associated with normal lipid metabolism.	Typical cardiovascular disease risk expected.





General Description

Genetic analysis in the ApoE gene was performed using molecular genetic techniques. The genotype is based on genotyping results for this patient at SNPs rs429358 and rs7412.

ApoE ε3 is the most common allele—found in about 60% of people. The presence of ε2 or ε4 alleles may be a risk factor for multiple conditions including cardiovascular disease. ApoE ε2 carriers may be more likely to develop familial dysbetalipoproteinemia or type III hyperlipoproteinemia.

† Predicted phenotype, clinical significance, relative risk, and interpretations reported for each genotype are associated with cardiovascular risk only. The interpretations should not be used to determine the relative risk of other diseases. Other factors important to understanding total risk should be considered.



Medication Summary

Therapeutic Class	 Standard Precautions	  Caution / Info	 Change recommended
Alpha-1 Blockers		Tamsulosin	
Analgesics, Opioid		Methadone (CYP2B6)	
Anti-ADHD Agents	Amphetamine Dexmethylphenidate Dextroamphetamine Guanfacine Lisdexamfetamine Methylphenidate (COMT)	Atomoxetine	
Antiarrhythmics		Flecainide Propafenone	
Anticholinergic Agents		Fesoterodine Tolterodine	

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Therapeutic Class	Standard Precautions	Caution / Info	Change recommended
Anticoagulants	Acenocoumarol Warfarin		
Anticonvulsants	Phenytoin	Brivaracetam Clobazam	
Antidementia Agents		Donepezil	
Antidepressants	Mirtazapine Trazodone	Bupropion Duloxetine Moclobemide Venlafaxine Vortioxetine	Amitriptyline (CYP2D6) Clomipramine (CYP2D6) Desipramine Doxepin (CYP2D6) Imipramine (CYP2C19, CYP2D6) Nortriptyline Protriptyline
Antidiabetics	Gliclazide Glimepiride Glyburide Saxagliptin Tolbutamide		
Antiemetics			Ondansetron Tropisetron
Antifungals	Ketoconazole	Voriconazole	
Antineoplastic Agents			Methotrexate
Antiplatelet Agents	Prasugrel Ticagrelor		Clopidogrel
Antipsychotics	Aripiprazole Flupenthixol Olanzapine Quetiapine	Brexpiprazole Clozapine Haloperidol Iloperidone Perphenazine Pimozide Risperidone Thioridazine Zuclopenthixol	

Therapeutic Class	 Standard Precautions	  Caution / Info	 Change recommended
Anti-Retroviral Agents		Efavirenz Nevirapine	
Anxiolytics	Alprazolam Buspirone Clonazepam	Diazepam	
Beta-3 Adrenergic Agonists	Mirabegron		
Beta Blockers	Nebivolol Propranolol	Carvedilol Metoprolol Timolol	
Central Monoamine-Depleting Agents		Tetrabenazine	
Central Nervous System Agents		Dextromethorphan- Quinidine	
Cholinergic Agonists		Cevimeline	
Cholinesterase Inhibitors		Galantamine	
Contraceptives	Estrogen-containing oral contraceptives		
EGFR Inhibitors		Gefitinib	
Endocrine-Metabolic Agents			Eliglustat
Estrogen Agonists/Antagonists	Tamoxifen		
Hypnotics	Eszopiclone		
Immunosuppressants	Cyclosporine Sirolimus	Tacrolimus	
Muscle Relaxants		Carisoprodol	

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Therapeutic Class	 Standard Precautions	  Caution / Info	 Change recommended
Nonsteroidal Anti-Inflammatory Drugs (NSAIDs)	Celecoxib Diclofenac Flurbiprofen Ibuprofen Lornoxicam Meloxicam Piroxicam		
Opioids	Alfentanil Buprenorphine Fentanyl Fentanyl (OPRM1) Hydromorphone Morphine Oxycodone Sufentanil	Hydrocodone Oxycodone (CYP3A5)	Codeine Tramadol
Proton Pump Inhibitors (PPIs)		Dexlansoprazole Esomeprazole Lansoprazole Omeprazole Pantoprazole Rabeprazole	
Selective Serotonin Reuptake Inhibitors (SSRIs)	Fluoxetine	Citalopram Escitalopram Fluvoxamine Sertraline	Paroxetine
Statins	Atorvastatin Simvastatin		
Vesicular monoamine transporter 2 inhibitor		Deutetrabenazine	





Legend















-  Typical response is expected
-  Consider alternative therapy
-  Change recommended
-  Additional information available
-  Response is uncertain













Clinical Evidence Level









-  Strong
-  Moderate
-  Emerging













Medication Report Details (by therapeutic class)













Drug	Finding	Recommendation	Concern	Evidence
Alpha-1 Blockers				
Tamsulosin (Flomax) <i>FDA drug label: Actionable PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication may present with notably lower plasma concentrations of the active medication, thus an increased risk of pharmacotherapy failure. Be alert to lack of efficacy; monitor the patient's response to guide dosing.	Efficacy	
Analgesics, Opioid				
Methadone (CYP2B6) <i>FDA drug label: Not established for PGx</i>	 CYP2B6: Intermediate metabolizer. One normal function allele and one decreased function allele.	Intermediate metabolizers of this medication frequently present with higher plasma concentrations of the active medication, thus an increased risk of side effects. Be alert to adverse reactions, or consider alternative medication.	ADR	















Drug	Finding	Recommendation	Concern	Evidence
Anti-ADHD Agents				
Amphetamine (Adzenys, Evekeo) <i>FDA drug label: Not established for PGx</i>	 COMT(Val158Met): Normal function. Two normal function alleles.	Individuals with normal function of this gene are expected to show typical response. No additional therapeutic recommendations.		
Atomoxetine (Strattera) <i>FDA drug label: Actionable PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication may present with notably lower plasma concentrations of the active medication, thus an increased risk of pharmacotherapy failure. Be alert to lack of efficacy; monitor the patient's response to guide dosing.	Efficacy	
Dexmethylphenidate (Focalin) <i>FDA drug label: Not established for PGx</i>	 COMT(Val158Met): Normal function. Two normal function alleles.	Individuals with normal function of this gene are expected to show typical response. No additional therapeutic recommendations.		
Dextroamphetamine (Zenzedi, Dexedrine) <i>FDA drug label: Not established for PGx</i>	 COMT(Val158Met): Normal function. Two normal function alleles.	Individuals with normal function of this gene are expected to show typical response. No additional therapeutic recommendations.		
Guanfacine (Tenex, Intuniv) <i>FDA drug label: Not established for PGx</i>	 CYP3A4: Normal metabolizer. Two normal function alleles.	Normal metabolizers of this medication are expected to show typical response. No additional therapeutic recommendations.		
Lisdexamfetamine (Vyvanse) <i>FDA drug label: Not established for PGx</i>	 COMT(Val158Met): Normal function. Two normal function alleles.	Individuals with normal function of this gene are expected to show typical response. No additional therapeutic recommendations.		
Methylphenidate (COMT) (Concerta, Metadate, Ritalin, Ritalin LA, Quillivant, Daytrana, Methylin) <i>FDA drug label: Not established for PGx</i>	 COMT(Val158Met): Normal function. Two normal function alleles.	Individuals with normal function of this gene are expected to show typical response. No additional therapeutic recommendations.		











Drug	Finding	Recommendation	Concern	Evidence
Antiarrhythmics				
Flecainide (Tambocor) <i>FDA drug label: Not established for PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication may present with notably lower plasma concentrations of the active medication, thus a significantly increased risk of pharmacotherapy failure. Be alert to lack of efficacy; monitor the patient's response to guide dosing.	Efficacy	
Propafenone (Rythmol) <i>FDA drug label: Actionable PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication frequently present with notably lower plasma concentrations of the active medication, thus an increased risk of pharmacotherapy failure. Monitor the patient's response to guide dosing, or consider using an alternative medication.	Efficacy	
Anticholinergic Agents				
Fesoterodine (Toviaz) <i>FDA drug label: Actionable PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication may present with lower plasma concentrations of the active medication. Be alert to lack of efficacy; monitor the patient's response to guide dosing.	Efficacy	
Tolterodine (Detrol) <i>FDA drug label: Actionable PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication may present with notably lower plasma concentrations of the active medication, thus a significantly increased risk of pharmacotherapy failure. Be alert to lack of efficacy; monitor the patient's response to guide dosing.	Efficacy	
Anticoagulants				
Acenocoumarol (Sintrom, Acitrom) <i>FDA drug label: Not established for PGx</i>	 CYP2C9: Normal metabolizer. Two normal function alleles.	Normal metabolizers of this medication are expected to show typical response. No additional therapeutic recommendations.		
Warfarin (Coumadin) <i>FDA drug label: Actionable PGx</i>	 Multigenic: VKORC1, CYP2C9: Normal metabolizer. Two normal function alleles.	Individuals with this combination of alleles may benefit from the standard dose of Warfarin. The FDA table recommends a therapeutic dose of 3-4 mg/day.		







Drug	Finding	Recommendation	Concern	Evidence
Anticonvulsants				
Brivaracetam FDA drug label: Actionable PGx	 CYP2C19: Intermediate metabolizer. One normal function allele and one little or no function allele.	Intermediate metabolizers of this medication may present with higher plasma concentrations of the active medication, thus an increased risk of side effects. Consider reducing the dose.	ADR	
Clobazam (Onfi) FDA drug label: Actionable PGx	 CYP2C19: Intermediate metabolizer. One normal function allele and one little or no function allele.	Intermediate metabolizers of this medication may present with higher plasma concentrations of the active medication, thus an increased risk of side effects. Consider reducing the dose; monitor the patient's response to guide dosing.	ADR	
Phenytoin (Dilantin) FDA drug label: Actionable PGx	 CYP2C9: Normal metabolizer. Two normal function alleles.	Normal metabolizers of this medication are expected to show typical response. No additional therapeutic recommendations.		
Antidementia Agents				
Donepezil (Aricept) FDA drug label: Actionable PGx	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication may present with notably lower plasma concentrations of the active medication, thus an increased risk of pharmacotherapy failure. Be alert to lack of efficacy; monitor the patient's response to guide dosing.	Efficacy	















Drug	Finding	Recommendation	Concern	Evidence
Antidepressants				
Amitriptyline (CYP2D6) (Elavil) <i>FDA drug label: Actionable PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication frequently present with notably lower plasma concentrations of the active medication, thus a significantly increased risk of pharmacotherapy failure. This medication should be avoided.	Efficacy	
Bupropion (Wellbutrin) <i>FDA drug label: Not established for PGx</i>	 ANKK1: One wild type allele and one variant allele.	Individuals with altered function of this gene frequently present with increased risk of pharmacotherapy failure. Be alert to lack of efficacy; consider alternative medication.	Efficacy	
Clomipramine (CYP2D6) (Anafranil) <i>FDA drug label: Actionable PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication frequently present with notably lower plasma concentrations of the active medication, thus a significantly increased risk of pharmacotherapy failure. This medication should be avoided.	Efficacy	
Desipramine (Norpramin) <i>FDA drug label: Actionable PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication frequently present with notably lower plasma concentrations of the active medication, thus a significantly increased risk of pharmacotherapy failure. This medication should be avoided.	Efficacy	
Doxepin (CYP2D6) (Deptran) <i>FDA drug label: Actionable PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication frequently present with notably lower plasma concentrations of the active medication, thus a significantly increased risk of pharmacotherapy failure. This medication should be avoided.	Efficacy	
Duloxetine (Cymbalta) <i>FDA drug label: Actionable PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication may present with notably lower plasma concentrations of the active medication, thus a significantly increased risk of pharmacotherapy failure. Be alert to lack of efficacy; monitor the patient's response to guide dosing.	Efficacy	













Drug	Finding	Recommendation	Concern	Evidence
Imipramine (CYP2C19, CYP2D6) (Tofranil-PM, Tofranil) <i>FDA drug label: Actionable PGx</i>	 Multigenic: CYP2D6, CYP2C19: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.; Intermediate metabolizer. One normal function allele and one little or no function allele.	Individuals with this combination of alleles frequently present with significantly increased risk of pharmacotherapy failure. This medication should be avoided.	Efficacy	
Mirtazapine <i>FDA drug label: Not established for PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Typical response expected. No additional therapeutic recommendations.		
Moclobemide (Manerix, Aurorix, Amira, Clobemix, Depnil) <i>FDA drug label: Not established for PGx</i>	 CYP2C19: Intermediate metabolizer. One normal function allele and one little or no function allele.	Intermediate metabolizers of this medication may present with higher plasma concentrations of the active medication, thus an increased risk of side effects. Be alert to adverse reactions; monitor the patient's response to guide dosing.	ADR	
Nortriptyline (Pamelor) <i>FDA drug label: Actionable PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication frequently present with notably lower plasma concentrations of the active medication, thus a significantly increased risk of pharmacotherapy failure. This medication should be avoided.	Efficacy	
Protriptyline (Vivactil) <i>FDA drug label: Actionable PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication frequently present with notably lower plasma concentrations of the active medication, thus a significantly increased risk of pharmacotherapy failure. This medication should be avoided.	Efficacy	
Trazodone (Oleptro, Desyrel) <i>FDA drug label: Not established for PGx</i>	 CYP3A4: Normal metabolizer. Two normal function alleles.	Normal metabolizers of this medication are expected to show typical response. No additional therapeutic recommendations.		















Drug	Finding	Recommendation	Concern	Evidence
Venlafaxine (Effexor) <i>FDA drug label: Actionable PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication frequently present with notably lower plasma concentrations of the active medication, thus an increased risk of pharmacotherapy failure. Consider increasing the dose, or using an alternative medication.	Efficacy	
Vortioxetine (Brintellix) <i>FDA drug label: Actionable PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication may present with notably lower plasma concentrations of the active medication, thus an increased risk of pharmacotherapy failure. Consider adjusting the dose, or monitoring the patient's response to guide dosing.	Efficacy	
Antidiabetics				
Gliclazide <i>FDA drug label: Not established for PGx</i>	 CYP2C9: Normal metabolizer. Two normal function alleles.	Normal metabolizers of this medication are expected to show typical response. No additional therapeutic recommendations.		
Glimepiride <i>FDA drug label: Not established for PGx</i>	 CYP2C9: Normal metabolizer. Two normal function alleles.	Normal metabolizers of this medication are expected to show typical response. No additional therapeutic recommendations.		
Glyburide (Glibenclamide) <i>FDA drug label: Not established for PGx</i>	 CYP2C9: Normal metabolizer. Two normal function alleles.	Normal metabolizers of this medication are expected to show typical response. No additional therapeutic recommendations.		
Saxagliptin (Onglyza) <i>FDA drug label: Not established for PGx</i>	 CYP3A4: Normal metabolizer. Two normal function alleles.	Normal metabolizers of this medication are expected to show typical response. No additional therapeutic recommendations.		
Tolbutamide (Orinase) <i>FDA drug label: Not established for PGx</i>	 CYP2C9: Normal metabolizer. Two normal function alleles.	Normal metabolizers of this medication are expected to show typical response. No additional therapeutic recommendations.		













Drug	Finding	Recommendation	Concern	Evidence
Antiemetics				
Ondansetron (Zofran) <i>FDA drug label: Informative PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication frequently present with notably lower plasma concentrations of the active medication, thus a significantly increased risk of pharmacotherapy failure. This medication should be avoided.	Efficacy	
Tropisetron (Navoban, Setrovel) <i>FDA drug label: Not established for PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication frequently present with notably lower plasma concentrations of the active medication, thus a significantly increased risk of pharmacotherapy failure. This medication should be avoided.	Efficacy	
Antifungals				
Ketoconazole (Nizoral) <i>FDA drug label: Not established for PGx</i>	 CYP3A4: Normal metabolizer. Two normal function alleles.	Normal metabolizers of this medication are expected to show typical response. No additional therapeutic recommendations.		
Voriconazole (Vfend) <i>FDA drug label: Actionable PGx</i>	 CYP2C19: Intermediate metabolizer. One normal function allele and one little or no function allele.	Intermediate metabolizers of this medication may present with notably lower plasma concentrations of the active medication, thus an increased risk of pharmacotherapy failure. Monitor the patient's response to guide dosing, or consider using an alternative medication.	Efficacy	
Antineoplastic Agents				
Methotrexate (Rheumatrex, Trexall) <i>FDA drug label: Not established for PGx</i>	 MTHFR: Decreased function. Two decreased function alleles.	Individuals with decreased function of this gene frequently present with significantly increased risk of side effects. This medication should be avoided.	ADR	











Drug	Finding	Recommendation	Concern	Evidence
Antiplatelet Agents				
Clopidogrel FDA drug label: Actionable PGx	 CYP2C19: Intermediate metabolizer. One normal function allele and one little or no function allele.	Intermediate metabolizers of this medication frequently present with lower plasma concentrations of the active medication, thus a significantly increased risk of pharmacotherapy failure. This medication should be avoided.	Efficacy	
Prasugrel FDA drug label: Informative PGx	 CYP2C19: Intermediate metabolizer. One normal function allele and one little or no function allele.	Typical response expected. No additional therapeutic recommendations.		
Ticagrelor (Brilinta) FDA drug label: Not established for PGx	 CYP3A4: Normal metabolizer. Two normal function alleles.	Normal metabolizers of this medication are expected to show typical response. No additional therapeutic recommendations.		













Drug	Finding	Recommendation	Concern	Evidence
Antipsychotics				
Aripiprazole (Abilify) <i>FDA drug label: Actionable PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication are expected to show typical response. No additional therapeutic recommendations.		
Brexpiprazole (Rexulti) <i>FDA drug label: Actionable PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication may present with notably lower plasma concentrations of the active medication, thus an increased risk of pharmacotherapy failure. Be alert to lack of efficacy; monitor the patient's response to guide dosing.	Efficacy	
Clozapine <i>FDA drug label: Actionable PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication may present with lower plasma concentrations of the active medication, thus an increased risk of pharmacotherapy failure. Be alert to lack of efficacy; monitor the patient's response to guide dosing.	Efficacy	
Flupenthixol <i>FDA drug label: Not established for PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Typical response expected. No additional therapeutic recommendations.		
Haloperidol (Haldol) <i>FDA drug label: Not established for PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication may present with notably lower plasma concentrations of the active medication, thus an increased risk of pharmacotherapy failure. Be alert to lack of efficacy; monitor the patient's response to guide dosing.	Efficacy	
lloperidone <i>FDA drug label: Actionable PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication may present with notably lower plasma concentrations of the active medication, thus an increased risk of pharmacotherapy failure. Be alert to lack of efficacy; monitor the patient's response to guide dosing.	Efficacy	
Olanzapine (Zalasta, Zyprexa) <i>FDA drug label: Not established for PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Typical response expected. No additional therapeutic recommendations.		









Drug	Finding	Recommendation	Concern	Evidence
Perphenazine (Trilafon) <i>FDA drug label: Actionable PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication may present with notably lower plasma concentrations of the active medication, thus an increased risk of pharmacotherapy failure. Be alert to lack of efficacy; monitor the patient's response to guide dosing.	Efficacy	
Pimozide (Orap) <i>FDA drug label: Testing required</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication may present with notably lower plasma concentrations of the active medication, thus an increased risk of pharmacotherapy failure. Be alert to lack of efficacy; monitor the patient's response to guide dosing.	Efficacy	
Quetiapine (Seroquel) <i>FDA drug label: Not established for PGx</i>	 CYP3A4: Normal metabolizer. Two normal function alleles.	Normal metabolizers of this medication are expected to show typical response. No additional therapeutic recommendations.		
Risperidone (Risperdal) <i>FDA drug label: Informative PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication may present with notably lower plasma concentrations of the active medication, thus an increased risk of pharmacotherapy failure. Monitor the patient's response to guide dosing, or consider using an alternative medication.	Efficacy	
Thioridazine <i>FDA drug label: Actionable PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication may present with notably lower plasma concentrations of the active medication, thus an increased risk of pharmacotherapy failure. Consider increasing the dose, or using an alternative medication.	Efficacy	
Zuclopenthixol <i>FDA drug label: Not established for PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication may present with notably lower plasma concentrations of the active medication, thus a significantly increased risk of pharmacotherapy failure. Be alert to lack of efficacy; consider alternative medication.	Efficacy	















Drug	Finding	Recommendation	Concern	Evidence
Anti-Retroviral Agents				
Efavirenz FDA drug label: Actionable PGx	 CYP2B6: Intermediate metabolizer. One normal function allele and one decreased function allele.	Intermediate metabolizers of this medication frequently present with higher plasma concentrations of the active medication, thus an increased risk of side effects. Consider reducing the dose, or using an alternative medication.	ADR	
Nevirapine FDA drug label: Not established for PGx	 CYP2B6: Intermediate metabolizer. One normal function allele and one decreased function allele.	Intermediate metabolizers of this medication may present with higher plasma concentrations of the active medication, thus an increased risk of side effects. Be alert to adverse reactions; monitor the patient's response to guide dosing.	ADR	
Anxiolytics				
Alprazolam (Xanax, Niravam) FDA drug label: Not established for PGx	 CYP3A4: Normal metabolizer. Two normal function alleles.	Normal metabolizers of this medication are expected to show typical response. No additional therapeutic recommendations.		
Buspirone (Buspar) FDA drug label: Not established for PGx	 CYP3A4: Normal metabolizer. Two normal function alleles.	Normal metabolizers of this medication are expected to show typical response. No additional therapeutic recommendations.		
Clonazepam (Klonopin) FDA drug label: Not established for PGx	 CYP3A4: Normal metabolizer. Two normal function alleles.	Normal metabolizers of this medication are expected to show typical response. No additional therapeutic recommendations.		
Diazepam FDA drug label: Actionable PGx	 CYP2C19: Intermediate metabolizer. One normal function allele and one little or no function allele.	Intermediate metabolizers of this medication may present with higher plasma concentrations of the active medication, thus an increased risk of side effects. Be alert to adverse reactions; monitor the patient's response to guide dosing.	ADR	
Beta-3 Adrenergic Agonists				
Mirabegron (Myrbetriq) FDA drug label: Actionable PGx	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication may present with lower plasma concentrations of the active medication. No additional therapeutic recommendations.		




Drug	Finding	Recommendation	Concern	Evidence
Beta Blockers				
Carvedilol (Coreg) <i>FDA drug label: Actionable PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication may present with notably lower plasma concentrations of the active medication, thus an increased risk of pharmacotherapy failure. Consider increasing the dose, or using an alternative medication.	Efficacy	
Metoprolol (Lopressor) <i>FDA drug label: Informative PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication may present with notably lower plasma concentrations of the active medication, thus an increased risk of pharmacotherapy failure. Consider increasing the dose, or using an alternative medication.	Efficacy	
Nebivolol (Bystolic) <i>FDA drug label: Informative PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Typical response expected. No additional therapeutic recommendations.		
Propranolol (Inderal) <i>FDA drug label: Informative PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Typical response expected. No additional therapeutic recommendations.		
Timolol (Blocadren) <i>FDA drug label: Not established for PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication may present with notably lower plasma concentrations of the active medication, thus an increased risk of pharmacotherapy failure. Be alert to lack of efficacy.	Efficacy	
Central Monoamine-Depleting Agents				
Tetrabenazine (Xenazine) <i>FDA drug label: Testing required</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication may present with notably lower plasma concentrations of the active medication, thus an increased risk of pharmacotherapy failure. Be alert to lack of efficacy; monitor the patient's response to guide dosing.	Efficacy	









Drug	Finding	Recommendation	Concern	Evidence
Central Nervous System Agents				
Dextromethorphan-Quinidine (Nuedexta) <i>FDA drug label: Testing recommended</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication may present with notably lower plasma concentrations of the active medication, thus an increased risk of pharmacotherapy failure. Be alert to lack of efficacy; monitor the patient's response to guide dosing.	Efficacy	
Cholinergic Agonists				
Cevimeline (Evoxac) <i>FDA drug label: Actionable PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication may present with notably lower plasma concentrations of the active medication, thus an increased risk of pharmacotherapy failure. Be alert to lack of efficacy; monitor the patient's response to guide dosing.	Efficacy	
Cholinesterase Inhibitors				
Galantamine (Razadyne, Razadyne ER, Nivalin, Lycoremine, Reminyl) <i>FDA drug label: Informative PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication may present with notably lower plasma concentrations of the active medication, thus an increased risk of pharmacotherapy failure. Be alert to lack of efficacy; monitor the patient's response to guide dosing.	Efficacy	
Contraceptives				
Estrogen-containing oral contraceptives <i>FDA drug label: Not established for PGx</i>	 F5: Two wild-type alleles.	Individuals with wild type alleles are expected to show typical response. No additional therapeutic recommendations.		
EGFR Inhibitors				
Gefitinib (Iressa) <i>FDA drug label: Actionable PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication may present with notably lower plasma concentrations of the active medication, thus an increased risk of pharmacotherapy failure. Be alert to lack of efficacy; monitor the patient's response to guide dosing.	Efficacy	













Drug	Finding	Recommendation	Concern	Evidence
Endocrine-Metabolic Agents				
Eliglustat FDA drug label: Testing required	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication frequently present with notably lower plasma concentrations of the active medication, thus a significantly increased risk of pharmacotherapy failure. This medication should be avoided.	Efficacy	
Estrogen Agonists/Antagonists				
Tamoxifen (Soltamox, Nolvadex) FDA drug label: Actionable PGx	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication are expected to show typical response. No additional therapeutic recommendations.		
Hypnotics				
Eszopiclone (Lunesta) FDA drug label: Not established for PGx	 CYP3A4: Normal metabolizer. Two normal function alleles.	Normal metabolizers of this medication are expected to show typical response. No additional therapeutic recommendations.		
Immunosuppressants				
Cyclosporine (Gengraf, Neoral) FDA drug label: Not established for PGx	 CYP3A4: Normal metabolizer. Two normal function alleles.	Normal metabolizers of this medication are expected to show typical response. No additional therapeutic recommendations.		
Sirolimus (Rapamune) FDA drug label: Not established for PGx	 CYP3A4: Normal metabolizer. Two normal function alleles.	Normal metabolizers of this medication are expected to show typical response. No additional therapeutic recommendations.		
Tacrolimus (Prograf, Hecoria) FDA drug label: Not established for PGx	 CYP3A5: Poor metabolizer. Two little or no function alleles.	Poor metabolizers of this medication frequently present with higher plasma concentrations of the active medication, frequently present with increased medication efficacy. No additional therapeutic recommendations.	Efficacy	













Drug	Finding	Recommendation	Concern	Evidence
Muscle Relaxants				
Carisoprodol (Soma) <i>FDA drug label:</i> <i>Actionable PGx</i>	 CYP2C19: Intermediate metabolizer. One normal function allele and one little or no function allele.	Intermediate metabolizers of this medication may present with higher plasma concentrations of the active medication, thus an increased risk of side effects. Be alert to adverse reactions, or consider alternative medication.	ADR	
Non-drug				
ANKK1	 ANKK1: One wild type allele and one variant allele.	Altered function. Two alleles with altered activity.		
ApoE	 ApoE: Often associated with normal lipid metabolism.	Typical cardiovascular disease risk expected.		
COMT(Val158Met)	 COMT(Val158Met): Normal function. Two normal function alleles.	Typical response is expected; no additional therapeutic recommendations.		
CYP1A2	 CYP1A2: Rapid metabolizer status. One allele showing normal activity and one showing increased activity.	No additional therapeutic recommendations.		
CYP2B6	 CYP2B6: Intermediate metabolizer. One normal function allele and one decreased function allele.	No additional therapeutic recommendations.		
OPRM1(A118G)	 OPRM1(A118G): Normal function. Two alleles with normal activity.	Normal function. Two alleles with normal activity.		







Drug	Finding	Recommendation	Concern	Evidence
Nonsteroidal Anti-Inflammatory Drugs (NSAIDs)				
Celecoxib (Celebrex) <i>FDA drug label: Actionable PGx</i>	 CYP2C9: Normal metabolizer. Two normal function alleles.	Normal metabolizers of this medication are expected to show typical response. No additional therapeutic recommendations.		
Diclofenac (Cataflam) <i>FDA drug label: Not established for PGx</i>	 CYP2C9: Normal metabolizer. Two normal function alleles.	Normal metabolizers of this medication are expected to show typical response. No additional therapeutic recommendations.		
Flurbiprofen (Ocufen) <i>FDA drug label: Actionable PGx</i>	 CYP2C9: Normal metabolizer. Two normal function alleles.	Normal metabolizers of this medication are expected to show typical response. No additional therapeutic recommendations.		
Ibuprofen (Motrin, Advil) <i>FDA drug label: Not established for PGx</i>	 CYP2C9: Normal metabolizer. Two normal function alleles.	Normal metabolizers of this medication are expected to show typical response. No additional therapeutic recommendations.		
Lornoxicam (Xefo) <i>FDA drug label: Not established for PGx</i>	 CYP2C9: Normal metabolizer. Two normal function alleles.	Normal metabolizers of this medication are expected to show typical response. No additional therapeutic recommendations.		
Meloxicam (Mobic) <i>FDA drug label: Actionable PGx</i>	 CYP2C9: Normal metabolizer. Two normal function alleles.	Normal metabolizers of this medication are expected to show typical response. No additional therapeutic recommendations.		
Piroxicam (Feldene) <i>FDA drug label: Actionable PGx</i>	 CYP2C9: Normal metabolizer. Two normal function alleles.	Normal metabolizers of this medication are expected to show typical response. No additional therapeutic recommendations.		

Drug	Finding	Recommendation	Concern	Evidence
Opioids				
Alfentanil (Rapifen, Alfenta) <i>FDA drug label: Not established for PGx</i>	 OPRM1(A118G): Normal function. Two alleles with normal activity.	Individuals with normal function of this gene are expected to show typical response. No additional therapeutic recommendations.		
Buprenorphine (Butrans, Buprenex) <i>FDA drug label: Not established for PGx</i>	 CYP3A4: Normal metabolizer. Two normal function alleles.	Normal metabolizers of this medication are expected to show typical response. No additional therapeutic recommendations.		
Codeine <i>FDA drug label: Actionable PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication frequently present with notably higher plasma concentrations of the active medication, thus a significantly increased risk of side effects. This medication should be avoided.	ADR	
Fentanyl (Duragesic, Sublimaze) <i>FDA drug label: Not established for PGx</i>	 CYP3A4: Normal metabolizer. Two normal function alleles.	Normal metabolizers of this medication are expected to show typical response. No additional therapeutic recommendations.		
Fentanyl (OPRM1) (Duragesic, Sublimaze) <i>FDA drug label: Not established for PGx</i>	 OPRM1(A118G): Normal function. Two alleles with normal activity.	Individuals with normal function of this gene are expected to show typical response. No additional therapeutic recommendations.		
Hydrocodone <i>FDA drug label: Not established for PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication may present with notably higher plasma concentrations of the active medication, thus an increased risk of side effects. Be alert to adverse reactions; monitor the patient's response to guide dosing.	ADR	
Hydromorphone (Dilaudid) <i>FDA drug label: Not established for PGx</i>	 OPRM1(A118G): Normal function. Two alleles with normal activity.	Individuals with normal function of this gene are expected to show typical response. No additional therapeutic recommendations.		
Morphine (MS-IR) <i>FDA drug label: Not established for PGx</i>	 OPRM1(A118G): Normal function. Two alleles with normal activity.	Individuals with normal function of this gene are expected to show typical response. No additional therapeutic recommendations.		

Drug	Finding	Recommendation	Concern	Evidence
Oxycodone (Oxycontin) <i>FDA drug label: Not established for PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Typical response expected. No additional therapeutic recommendations.		
Oxycodone (CYP3A5) (Oxycontin) <i>FDA drug label: Not established for PGx</i>	 CYP3A5: Poor metabolizer. Two little or no function alleles.	Poor metabolizers of this medication may present with notably lower plasma concentrations of the active medication, thus an increased risk of pharmacotherapy failure. Be alert to lack of efficacy; monitor the patient's response to guide dosing.	Efficacy	
Sufentanil (Sufenta) <i>FDA drug label: Not established for PGx</i>	 OPRM1(A118G): Normal function. Two alleles with normal activity.	Individuals with normal function of this gene are expected to show typical response. No additional therapeutic recommendations.		
Tramadol (Ultracet, Ultram) <i>FDA drug label: Actionable PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication frequently present with notably higher plasma concentrations of the active medication, thus a significantly increased risk of side effects. This medication should be avoided.	ADR	

Drug	Finding	Recommendation	Concern	Evidence
Proton Pump Inhibitors (PPIs)				
Dexlansoprazole (Dexilant, Kapidex) <i>FDA drug label:</i> Actionable PGx	 CYP2C19: Intermediate metabolizer. One normal function allele and one little or no function allele.	Intermediate metabolizers of this medication frequently present with higher plasma concentrations of the active medication, thus an increased risk of side effects. Consider reducing the dose; monitor the patient's response to guide dosing.	ADR	
Esomeprazole (Nexium) <i>FDA drug label:</i> Actionable PGx	 CYP2C19: Intermediate metabolizer. One normal function allele and one little or no function allele.	Intermediate metabolizers of this medication may present with higher plasma concentrations of the active medication, thus an increased risk of side effects. Consider reducing the dose; monitor the patient's response to guide dosing.	ADR	
Lansoprazole (Prevacid) <i>FDA drug label:</i> Informative PGx	 CYP2C19: Intermediate metabolizer. One normal function allele and one little or no function allele.	Intermediate metabolizers of this medication frequently present with higher plasma concentrations of the active medication, thus an increased risk of side effects. Consider reducing the dose; monitor the patient's response to guide dosing.	ADR	
Omeprazole (Prilosec, Zegerid) <i>FDA drug label:</i> Actionable PGx	 CYP2C19: Intermediate metabolizer. One normal function allele and one little or no function allele.	Intermediate metabolizers of this medication frequently present with higher plasma concentrations of the active medication, thus an increased risk of side effects. Consider reducing the dose; monitor the patient's response to guide dosing.	ADR	
Pantoprazole (Protonix) <i>FDA drug label:</i> Actionable PGx	 CYP2C19: Intermediate metabolizer. One normal function allele and one little or no function allele.	Intermediate metabolizers of this medication frequently present with higher plasma concentrations of the active medication, thus an increased risk of side effects. Consider reducing the dose; monitor the patient's response to guide dosing.	ADR	
Rabeprazole (Aciphex) <i>FDA drug label:</i> Actionable PGx	 CYP2C19: Intermediate metabolizer. One normal function allele and one little or no function allele.	Intermediate metabolizers of this medication may present with higher plasma concentrations of the active medication, thus an increased risk of side effects. Consider reducing the dose; monitor the patient's response to guide dosing.	ADR	

Drug	Finding	Recommendation	Concern	Evidence
Selective Serotonin Reuptake Inhibitors (SSRIs)				
Citalopram (Celexa) <i>FDA drug label: Actionable PGx</i>	 CYP2C19: Intermediate metabolizer. One normal function allele and one little or no function allele.	Intermediate metabolizers of this medication may present with higher plasma concentrations of the active medication, thus an increased risk of side effects. Monitor the patient's response to guide dosing.	ADR	
Escitalopram (Lexapro) <i>FDA drug label: Actionable PGx</i>	 CYP2C19: Intermediate metabolizer. One normal function allele and one little or no function allele.	Intermediate metabolizers of this medication may present with higher plasma concentrations of the active medication, thus an increased risk of side effects. Monitor the patient's response to guide dosing.	ADR	
Fluoxetine (Prozac) <i>FDA drug label: Informative PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Typical response expected. No additional therapeutic recommendations.		
Fluvoxamine (Luvox) <i>FDA drug label: Actionable PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication may present with notably lower plasma concentrations of the active medication, thus a significantly increased risk of pharmacotherapy failure. Be alert to lack of efficacy; consider alternative medication.	Efficacy	
Paroxetine (Paxil) <i>FDA drug label: Informative PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication frequently present with notably lower plasma concentrations of the active medication, thus a significantly increased risk of pharmacotherapy failure. This medication should be avoided.	Efficacy	
Sertraline (Zoloft) <i>FDA drug label: Not established for PGx</i>	 CYP2C19: Intermediate metabolizer. One normal function allele and one little or no function allele.	Intermediate metabolizers of this medication frequently present with notably higher plasma concentrations of the active medication, thus an increased risk of side effects. Consider reducing the dose; monitor the patient's response to guide dosing.	ADR	

Drug	Finding	Recommendation	Concern	Evidence
Statins				
Atorvastatin (Lipitor, Caduet) <i>FDA drug label: Not established for PGx</i>	 CYP3A4: Normal metabolizer. Two normal function alleles.	Normal metabolizers of this medication are expected to show typical response. No additional therapeutic recommendations.		
Simvastatin (Zocor) <i>FDA drug label: Informative PGx</i>	 SLCO1B1: Normal function. Two normal function alleles.	Individuals with normal function of this gene are expected to show typical response. No additional therapeutic recommendations.		
Vesicular monoamine transporter 2 inhibitor				
Deutetrabenazine (Austedo) <i>FDA drug label: Actionable PGx</i>	 CYP2D6: Ultrarapid metabolizer. One normal function allele and one duplicated normal function allele.	Ultrarapid metabolizers of this medication may present with notably lower plasma concentrations of the active medication, thus an increased risk of pharmacotherapy failure. Be alert to lack of efficacy; monitor the patient's response to guide dosing.	Efficacy	

Clinical Evidence Levels

● Strong

- Includes gene-drug pairs approved by the Coriell Institute for Medical Research Pharmacogenomics Advisory Group.
- Includes gene-drug pairs supported by multiple studies documenting consistent effects of specific genetic variant(s) on clinical outcomes.
- Includes gene-drug pairs approved by the Dutch Pharmacogenetics Working Group (DPWG) and/or guidelines published in Clinical Pharmacology and Therapeutics by the Clinical Pharmacogenetics Implementation Consortium (CPIC).

◐ Moderate

- Includes gene-drug pairs supported by pharmacokinetic, pharmacodynamic, or molecular/cellular functional studies showing consistent effects of genetic variant(s).
- Includes Drug product information (e.g. This interpretation is based on guidance available in the FDA (Food and Drug Administration) drug label for ABILIFY® (10/2013).
- Includes gene-drug pairs for which potential clinical outcomes are inferred from similar gene-drug interactions approved by the Dutch Pharmacogenetics Working Group (DPWG), and/or guidelines published in Clinical Pharmacology and Therapeutics by the Clinical Pharmacogenetics Implementation Consortium (CPIC), and/or pharmacogenomic reports and submission from the Coriell Institute for Medical Research.

○ Emerging

- Includes gene-drug pairs supported by published studies of the drug, related drug, or a probing compound of interest involving limited data and/or inconsistent findings.

Patient Information Card

This card contains an abbreviated genetic summary.
It is not intended as a replacement for the complete GeneDose™ report.



iGenomeDx

<https://www.iGenomeDx.com/>

Patient: **LName, FName**

DOB: 1938-01-01

Sample ID: iGDx-PGx-Example

This card shows information about your genetics that relate to drug metabolism. Show to your doctors before being prescribed new medications.

Pharmacogenomic Summary

ANKK1	G A	Altered function
ApoE	ε3 ε3	See full GeneDose report
COMT(Val158Met)	G G	Normal function
CYP1A2	*1A *1F	Rapid metabolizer

↑ Cut on dotted lines.

CYP2B6	*1A *9	Intermediate metabolizer
CYP2C19	*1 *2	Intermediate metabolizer
CYP2C9	*1 *1	Normal metabolizer
CYP2D6	*1Ax2 *1A	Ultrarapid metabolizer
CYP3A4	*1A *1A	Normal metabolizer
CYP3A5	*3 *3	Poor metabolizer
Factor V Leiden	Normal	See full GeneDose report
MTHFR	GT AG	Decreased function
MTHFR (A1298C)	Heterozygous	See full GeneDose report
MTHFR (C677T)	Heterozygous	See full GeneDose report
OPRM1(A118G)	A A	Normal function
Prothrombin (F2)	Normal	See full GeneDose report
SLCO1B1	*1 *1	Normal function
VKORC1	*2 *2	Reduced (with respect to Warfarin)

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↑ Fold Here