

PATIENT INFORMATION

Name: Green, James
 DOB: November 17, 1949
 Age: 68
 Sex: Male
 Address: 285 Agnew Rd
 Winnsboro, SC 29180

SAMPLE

Date Collected: March 20, 2018
 Date Received: March 26, 2018
 Date of Report: April 2, 2018
 Case ID: PGPHL18-000645
 Source: Buccal Swabs

REFERRING PHYSICIAN

Name: Don Alexander, MD
 Institution: Columbia Heart
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 Columbia, SC 29203
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Comprehensive Drug Information for Green, James

ICD-10: K21.9 Gastro-esophageal reflux disease without esophagitis; E11.9 Type 2 diabetes mellitus without complications



✖ CONSIDER ALTERNATIVE		⬆️ DOSE RECOMMENDATION	
Drug Impacted	Recommendation	Drug Impacted	Recommendation

✔️ NORMAL RESPONSE EXPECTED		⚠️ PROCEED WITH CAUTION	
Drug Impacted	Recommendation	Drug Impacted	Recommendation

*Famotidine page 11
 Metformin page 10*



Table of Contents

I. ICD-10 Diagnosis Code Driven Result

II. Current Medication List

*Clinical interpretation for patient's current medications provided by physician
Includes pharmacogenomics and drug interactions (drug-drug, drug-food, drug-alcohol, drug-lab)*

III. Comprehensive Drug List

*Includes clinical interpretation for a 53-gene panel and over 300 drugs, arranged by therapeutic area
This section is designated to help optimize treatment options and manage patients with multiple conditions, effectively and efficiently*

Level of Evidence Legend

- | | |
|---|---------------------------------------|
| ● | FDA Actionable PGx – Package insert |
| ◐ | PharmGKB, CPIC, EMA, DPWG, PMDA, HCSC |
| ○ | Medical Literature |

I. ICD-10 Diagnosis Code Driven Result for **Green, James**



ICD-10: K21.9 Gastro-esophageal reflux disease without esophagitis;E11.9 Type 2 diabetes mellitus without complications

Action	Drug Impacted	Evidence Level	Clinical Interpretation	Gene/Genotype	Phenotype
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Disclaimer: The ICD-10 codes page may be left blank because ICD codes were not provided or not applicable.

II. Current Medication List for **Green, James**



Action	Drug Impacted	Evidence Level	Clinical Interpretation	Gene/Genotype	Phenotype
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Disclaimer: The Current Medication section may be left blank if no medication list provided. The Drug Interactions section may be left blank if no drug interactions were found for drugs on the current medication list or no medication list was provided.

III. Comprehensive Drug List for Green, James



Therapeutic	Drug Impacted	Evidence Level	Clinical Interpretation	Gene/Genotype	Phenotype
Anesthesiology	General Anesthetics:				
	Ketamine (Ketalar®) Propofol (Diprivan®)	◀	▼ DECREASE DOSE due to decreased drug clearance	CYP2B6 A785G/G516T	G516T Heterozygous/A785G Heterozygous
Anesthesiology	Local Anesthetics:				
	Lidocaine (Lidoderm®) Ropivacaine (Naropin®)	○	✓ NORMAL RESPONSE EXPECTED	CYP1A2 *1F/*1F	High Inducibility Metabolizer
Anesthesiology	Local Anesthetics:				
	Lidocaine/Prilocaine (Emla®)	●	✓ NORMAL RESPONSE EXPECTED	G6PD WT/WT	Normal G6PD Efficiency
Anesthesiology	Sedatives:				
	Dexmedetomidine (Precedex®)	◀	✓ NORMAL RESPONSE EXPECTED	ADRA2A c.-1252G>C/c.- 217G>A	rs1800544 GC genotype/rs1800545 GA genotype
Cardiology	ACE Inhibitors:				
	Captopril (Capoten®) Perindopril (Aceon®)	◀	⚠ USE CAUTION due to increased major cardiovascular events rate	AGTR1 WT/c.*86A>C	rs5186 AC genotype
Cardiology	ACE Inhibitors:				
	Quinapril (Accupril®)	◀	⚠ USE CAUTION due to reduced response	ACE WT/WT	ACE Deletion
Cardiology	ACE Inhibitors:				
	Benazepril (Lotensin®)	◀	✓ NORMAL RESPONSE EXPECTED	ACE WT/WT	ACE Deletion
Cardiology	Angiotensin II Receptor Blockers:				
	Candesartan (Atacand®)	◀	⚠ USE CAUTION due to reduced response	AGTR1 WT/c.*86A>C	rs5186 AC genotype

Therapeutic	Drug Impacted	Evidence Level	Clinical Interpretation	Gene/Genotype	Phenotype
Cardiology	Angiotensin II Receptor Blockers:				
	Irbesartan (Avapro®)	◀	⚠ USE CAUTION due to reduced response	ACE WT/WT	ACE Deletion
Cardiology	Angiotensin II Receptor Blockers:				
	Losartan (Cozaar®)	◀	✔ NORMAL RESPONSE EXPECTED	ABCB1 WT/WT	rs2032582 AA genotype/rs1045642 AA genotype
Cardiology	Angiotensin II Receptor Blockers:				
	Losartan (Cozaar®)	◀	✔ NORMAL RESPONSE EXPECTED	AGTR1 WT/c.*86A>C	rs5186 AC genotype
Cardiology	Antianginal Drugs:				
	Ranolazine (Ranexa®)	◀	✔ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer
Cardiology	Antiarrhythmic Drugs:				
	Digoxin (Lanoxin®)	◀	⚠ USE CAUTION due to decreased metabolism	ABCB1 WT/WT	rs2032582 AA genotype/rs1045642 AA genotype
Cardiology	Antiarrhythmic Drugs:				
	Amiodarone (Cordarone®)	◀	✔ NORMAL RESPONSE EXPECTED	NOS1AP WT/WT	rs10494366 GG genotype/rs10800397 C Allele Carrier/rs10919035 C Allele Carrier
Cardiology	Antiarrhythmic Drugs:				
	Dronedarone (Multaq®)	◀	✔ NORMAL RESPONSE EXPECTED	CYP3A4 *1A/*1A	Normal Metabolizer
Cardiology	Antiarrhythmic Drugs:				
	Flecainide (Tambocor®)	◀	✔ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer
Cardiology	Antiarrhythmic Drugs:				
	Propafenone (Rythmol®)	●	✔ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer

Therapeutic	Drug Impacted	Evidence Level	Clinical Interpretation	Gene/Genotype	Phenotype
Cardiology	Anticoagulants:				
	Warfarin (Coumadin®)	●	▼ DECREASE DOSE Warfarin daily dose 3-4mg	CYP2C9 *1/*3	Intermediate Metabolizer
Cardiology	Anticoagulants:				
	Warfarin (Coumadin®)	●	▼ DECREASE DOSE Warfarin daily dose 3-4mg	VKORC1 WT/-1639G>A	rs9923231 A Allele Carrier
Cardiology	Anticoagulants:				
	Phenprocoumon (Marcoumar®)	◄	✓ NORMAL RESPONSE EXPECTED	CYP4F2 *1/*1	Normal Metabolizer
Cardiology	Anticoagulants:				
	Rivaroxaban (Xarelto®)	○	✓ NORMAL RESPONSE EXPECTED	CYP3A4 *1A/*1A	Normal Metabolizer
Cardiology	Antilipemic Agents:				
	Fenofibrate (Tricor®)	○	⚠ USE CAUTION due to decreased response	APOB WT/WT	rs676210 GG Genotype
Cardiology	Antilipemic Agents (Statins):				
	Atorvastatin (Lipitor®)	◄	⚠ USE CAUTION due to higher risk of developing myalgia	ABCB1 WT/WT	rs2032582 AA genotype/rs1045642 AA genotype
Cardiology	Antilipemic Agents (Statins):				
	Lovastatin (Mevacor®)	○	⚠ USE CAUTION due to decreased response	LDLR WT/c.1773C>T	rs688 CT Genotype
Cardiology	Antilipemic Agents (Statins):				
	Rosuvastatin (Crestor®)	◄	✓ NORMAL RESPONSE EXPECTED	CYP3A5 *3A/*3A	Non Expresser
Cardiology	Antilipemic Agents (Statins):				
	Pitavastatin (Livalo®)	◄	✓ NORMAL RESPONSE EXPECTED	SLCO1B1 *1/*1	Normal Activity
	Pravastatin (Pravachol®)	◄			
	Rosuvastatin (Crestor®)	◄			
	◄				

Therapeutic	Drug Impacted	Evidence Level	Clinical Interpretation	Gene/Genotype	Phenotype
Cardiology	Antilipemic Agents (Statins):				
	Pravastatin (Pravachol®)	◀	✓ NORMAL RESPONSE EXPECTED	KIF6 WT/c.2155T>C	rs20455 non-AA genotype
Cardiology	Antilipemic Agents (Statins):				
	Fluvastatin (Lescol®)	◀	✓ NORMAL RESPONSE EXPECTED	ACE WT/WT	ACE Deletion
Cardiology	Antilipemic Agents (Statins):				
	Simvastatin (Zocor®)	◀	✓ NORMAL RESPONSE EXPECTED	ABCB1 WT/WT	rs2032582 AA genotype/rs1045642 AA genotype
Cardiology	Antilipemic Agents (Statins):				
	Simvastatin (Zocor®)	◀	✓ NORMAL RESPONSE EXPECTED	SLCO1B1 *1/*1	Normal Activity
Cardiology	Antiplatelets:				
	Clopidogrel (Plavix®)	●	✓ NORMAL RESPONSE EXPECTED	CYP2C19 *1/*1	Normal Metabolizer
Cardiology	Antiplatelets:				
	Ticagrelor (Brilinta®)	●	✓ NORMAL RESPONSE EXPECTED	CYP2C19 *1/*1	Normal Metabolizer
Cardiology	Beta Blockers:				
	Atenolol (Tenormin®)	◀	⚠ USE CAUTION due to decreased drug response	ADRA2A c.-1252G>C/c.-217G>A	rs1800544 GC genotype/rs1800545 GA genotype
Cardiology	Beta Blockers:				
	Carvedilol (Coreg®)	●	✓ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer
Cardiology	Beta Blockers:				
	Metoprolol (Lopressor®)	●	✓ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer

Therapeutic	Drug Impacted	Evidence Level	Clinical Interpretation	Gene/Genotype	Phenotype
Cardiology	Beta Blockers:				
	Nebivolol (Bystolic®) Propranolol (Inderal LA®)	● ●	✓ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer
Cardiology	Calcium Channel Blockers:				
	Amlodipine (Norvasc®) Nifedipine (Adalat®)	◐ ○	⚠ USE CAUTION due to increased risk for QTc prolongation	NOS1AP WT/WT	rs10494366 GG genotype/rs10800397 C Allele Carrier/rs10919035 C Allele Carrier
Cardiology	Calcium Channel Blockers:				
	Nitrendipine (Nitrepin®)	◐	⚠ USE CAUTION due to reduced response	AGTR1 WT/c.*86A>C	rs5186 AC genotype
Cardiology	Calcium Channel Blockers:				
	Verapamil (Calan®)	◐	⚠ USE CAUTION due to increased risk for QTc prolongation	NOS1AP WT/WT	rs10494366 GG genotype/rs10800397 C Allele Carrier/rs10919035 C Allele Carrier
Cardiology	Calcium Channel Blockers:				
	Diltiazem (Cardizem®) Felodipine (Plendil®) Lercanidipine (Zanidip®) Nisoldipine (Sular®)	○ ○ ○ ○	✓ NORMAL RESPONSE EXPECTED	CYP3A4 *1A/*1A	Normal Metabolizer
	Diuretics:				
	Bumetanide (Bumex®) Furosemide (Lasix®) Hydrochlorothiazide (Microzide®) Torsemide (Demadex®)	◐ ◐ ◐ ◐	✓ NORMAL RESPONSE EXPECTED	ACE WT/WT	ACE Deletion
	Hydrochlorothiazide (Microzide®)	◐	✓ NORMAL RESPONSE EXPECTED	AGTR1 WT/c.*86A>C	rs5186 AC genotype
Cardiology	Diuretics:				
	Spironolactone (Aldactone®)	◐	✓ NORMAL RESPONSE EXPECTED	ACE WT/WT	ACE Deletion
Cardiology	Miscellaneous Cardiovascular Agents:				
	Ivabradine (Corlanor®)	◐	✓ NORMAL RESPONSE EXPECTED	CYP3A4 *1A/*1A	Normal Metabolizer

Therapeutic	Drug Impacted	Evidence Level	Clinical Interpretation	Gene/Genotype	Phenotype
Cardiology	Phosphodiesterase Inhibitors:				
	Cilostazol (Pletal®)	◀	⚠ USE CAUTION due to decrease in drug clearance	CYP3A5 *3A/*3A	Non Expresser
Cardiology	Vasodilators:				
	Hydralazine	●	✔ NORMAL RESPONSE EXPECTED	NAT2 *5/*6/*12/*13	Slow Acetylator
Cardiology	Vasodilators:				
	Nitroprusside (Nitropress®)	◀	✔ NORMAL RESPONSE EXPECTED	ACE WT/WT	ACE Deletion
Dentistry	Cholinergic Agonists:				
	Cevimeline (Evoxac®)	●	✔ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer
Endocrinology	Biguanides:				
	Metformin (Glucophage®)	◀	⚠ USE CAUTION due to decreased drug response	ATM c.175-5285G>T/c.175-5285G>T	rs11212617 AA genotype
Endocrinology	Endocrine Enzyme Inhibitors:				
	Eliglustat (Cerdelga®)	●	✔ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer
Endocrinology	Sulfonylureas:				
	Chlorpropamide (Diabinese®)	●	✔ NORMAL RESPONSE EXPECTED	G6PD WT/WT	Normal G6PD Efficiency
	Glimepiride (Amaryl®)	●			
	Glipizide (Glucotrol®)	●			
	Glyburide (Glynase®)	●			
	Tolbutamide	○			
Endocrinology	Thiazolidinediones:				
	Pioglitazone (Actos®)	◀	✔ NORMAL RESPONSE EXPECTED	CYP2C8 *1/*1	Wild Type
Endocrinology	Thiazolidinediones:				
	Rosiglitazone (Avandia®)	◀	✔ NORMAL RESPONSE EXPECTED	CYP2C8 *1/*1	Wild Type

Jardance *Similar*

Therapeutic	Drug Impacted	Evidence Level	Clinical Interpretation	Gene/Genotype	Phenotype
Gastroenterology	Histamine H2 Antagonists:				
	Famotidine (Pepcid®)	○	✓ NORMAL RESPONSE EXPECTED	CYP2C19 *1/*1	Normal Metabolizer
Gastroenterology	Monoclonal Antibody:				
	Adalimumab (Humira®)	○	✓ NORMAL RESPONSE EXPECTED	HFE c.340+4T>C/c.340+4T>C	rs2071303 C Allele Carrier
Gastroenterology	Osmotic Laxatives:				
	Ascorbic Acid (MoviPrep®)	●	✓ NORMAL RESPONSE EXPECTED	G6PD WT/WT	Normal G6PD Efficiency
Gastroenterology	Proton Pump Inhibitors (PPIs):				
	Dexlansoprazole (Dexilant®) Esomeprazole (Nexium®) Lansoprazole (Prevacid®) Omeprazole (Prilosec®) Pantoprazole (Protonix®) Rabeprazole (Aciphex®)	● ● ● ● ● ●	✓ NORMAL RESPONSE EXPECTED	CYP2C19 *1/*1	Normal Metabolizer
Gynecology	Hormonal Contraceptives:				
	Ethinyl Estradiol/Norelgestromin (Ortho Evra®)	●	✓ NORMAL RESPONSE EXPECTED	F5 WT/WT	Non Factor V Leiden Carrier
Gynecology	Hormones:				
	Oral-Contraceptive	●	✓ NORMAL RESPONSE EXPECTED	F2 WT/WT	Wild Type
Gynecology	Mixed 5-HT1A Agonist/5-HT2A Antagonist:				
	Flibanserin (Addyi®)	●	✓ NORMAL RESPONSE EXPECTED	CYP2C19 *1/*1	Normal Metabolizer
Hematology	Colony Stimulating Factors:				
	Eltrombopag (Promacta®)	●	✓ NORMAL RESPONSE EXPECTED	F5 WT/WT	Non Factor V Leiden Carrier

Therapeutic	Drug Impacted	Evidence Level	Clinical Interpretation	Gene/Genotype	Phenotype
Immunology	5-Aminosalicylic Acid Derivatives:				
	Sulfasalazine (Azulfidine®)	●	✓ NORMAL RESPONSE EXPECTED	G6PD WT/WT	Normal G6PD Efficiency
Immunology	Antigout Agents:				
	Lesinurad (Zurampic®)	●	✓ NORMAL RESPONSE EXPECTED	CYP2C9 *1/*3	Intermediate Metabolizer
Immunology	Antirheumatic Immunosuppressants:				
	Methotrexate (Trexall®)	◀	✓ NORMAL RESPONSE EXPECTED	ITPA WT/WT	Non-protective Wild Type
Immunology	Immunosuppressant Agents:				
	Cyclosporine (Gengraf®) Sirolimus (Rapamune®)	◀ ◀	✓ NORMAL RESPONSE EXPECTED	CYP3A5 *3A/*3A	Non Expresser
Immunology	Immunosuppressant Agents:				
	Tacrolimus (Prograf®)	◀	✓ NORMAL RESPONSE EXPECTED	CYP3A4 *1A/*1A	Normal Metabolizer
Immunology	Immunosuppressant Agents:				
	Tacrolimus (Prograf®)	◀	✓ NORMAL RESPONSE EXPECTED	CYP3A5 *3A/*3A	Non Expresser
Immunology	Immunosuppressive Drugs:				
	Azathioprine (Imuran®)	●	✓ NORMAL RESPONSE EXPECTED	TPMT *1/*1	Normal Metabolizer
Immunology	Systemic Corticosteroids:				
	Methylprednisolone (Medrol®) Prednisolone (Orapred®) Prednisone (Deltasone®)	◀ ◀ ◀	✓ NORMAL RESPONSE EXPECTED	ABCB1 WT/WT	rs2032582 AA genotype/rs1045642 AA genotype
Immunology	Urate-Oxidase (Recombinant):				
	Pegloticase (Krystexxa®)	●	✓ NORMAL RESPONSE EXPECTED	G6PD WT/WT	Normal G6PD Efficiency

Therapeutic	Drug Impacted	Evidence Level	Clinical Interpretation	Gene/Genotype	Phenotype
Immunology	Uricosuric Agents:				
	Probenecid	●	✓ NORMAL RESPONSE EXPECTED	G6PD WT/WT	Normal G6PD Efficiency
Immunology	Xanthine Oxidase Inhibitors:				
	Allopurinol (Zyloprim®)	●	✓ NORMAL RESPONSE EXPECTED	HLA-B WT/WT	Wild Type
Infectious Diseases	Antifungal Drugs:				
	Voriconazole (Vfend®)	●	✓ NORMAL RESPONSE EXPECTED	CYP2C19 *1/*1	Normal Metabolizer
Infectious Diseases	Antihepaciviral Drugs:				
	Boceprevir (Victrelis®)	○	⚠ USE CAUTION due to increased risk of ribavirin-induced hemolytic anemia	ITPA WT/WT	Non-protective Wild Type
	Peginterferon alfa-2b (PegIntron®)	◄			
	Ribavirin (Copegus®)	◄			
Telaprevir (Incivo®)	○				
Infectious Diseases	Antihepaciviral Drugs:				
	Ledipasvir/Sofosbuvir (Harvoni®)	●	✓ NORMAL RESPONSE EXPECTED	IFNL3 WT/WT	Favorable Response Genotype
Infectious Diseases	Antimalarial Drugs:				
	Chloroquine (Aralen®)	●	✓ NORMAL RESPONSE EXPECTED	G6PD WT/WT	Normal G6PD Efficiency
	Primaquine Phosphate (Primaquine®)	●			
	Quinine (Qualaquin®)	●			
Infectious Diseases	Antiretroviral Drugs:				
	Abacavir (Ziagen®)	●	✓ NORMAL RESPONSE EXPECTED	HLA-B WT/WT	Wild Type
Infectious Diseases	Antiretroviral Drugs:				
	Atazanavir (Reyataz®)	◄	✓ NORMAL RESPONSE EXPECTED	UGT1A1 *1/*1	Non *28 Allele Carrier
Infectious Diseases	Antiretroviral Drugs:				
	Dolutegravir (Tivicay®)	●	✓ NORMAL RESPONSE EXPECTED	UGT1A1 *1/*1	Non *28 Allele Carrier

Therapeutic	Drug Impacted	Evidence Level	Clinical Interpretation	Gene/Genotype	Phenotype
Infectious Diseases	Antiretroviral Drugs:				
	Efavirenz (Sustiva®) Nevirapine (Viramune®)	● ●	✓ NORMAL RESPONSE EXPECTED	CYP2B6 A785G/G516T	G516T Heterozygous/A785G Heterozygous
Infectious Diseases	Antiretroviral Drugs:				
	Lamivudine (Epivir®) Lopinavir/Ritonavir (Kaletra®) Zidovudine (Retrovir®)	● ● ●	✓ NORMAL RESPONSE EXPECTED	ABCB1 WT/WT	rs2032582 AA genotype/rs1045642 AA genotype
Infectious Diseases	Antiretroviral Drugs:				
	Nelfinavir (Viracept®)	●	✓ NORMAL RESPONSE EXPECTED	CYP2C19 *1/*1	Normal Metabolizer
Infectious Diseases	Antiretroviral Drugs:				
	Nevirapine (Viramune®)	●	✓ NORMAL RESPONSE EXPECTED	ABCB1 WT/WT	rs2032582 AA genotype/rs1045642 AA genotype
Infectious Diseases	Antitubercular Agents:				
	Ethambutol (Myambutol®) Isoniazid Pyrazinamide (Rifater®) Rifampin (Rifadin®)	● ● ● ●	⚠ USE CAUTION due to increased risk of hepatotoxicity caused by decreased drug clearance	NAT2 *5/*6/*12/*13	Slow Acetylator
Infectious Diseases	Lipopeptides:				
	Daptomycin (Cubicin®)	●	✓ NORMAL RESPONSE EXPECTED	ABCB1 WT/WT	rs2032582 AA genotype/rs1045642 AA genotype
Infectious Diseases	Macrolides:				
	Erythromycin/Sulfisoxazole (Pediazole®)	●	✓ NORMAL RESPONSE EXPECTED	G6PD WT/WT	Normal G6PD Efficiency
Infectious Diseases	Miscellaneous Antibiotics:				
	Dapsone Sulfamethoxazole/Trimethoprim (Bactrim®)	● ●	✓ NORMAL RESPONSE EXPECTED	G6PD WT/WT	Normal G6PD Efficiency

Therapeutic	Drug Impacted	Evidence Level	Clinical Interpretation	Gene/Genotype	Phenotype
Infectious Diseases	Miscellaneous Antibiotics:				
	Nalidixic Acid (Neggram®) Nitrofurantoin (Macrobid®)	● ●	✓ NORMAL RESPONSE EXPECTED	G6PD WT/WT	Normal G6PD Efficiency
Infectious Diseases	Topical Antibiotics:				
	Mafenide (Sulfamylon®)	●	✓ NORMAL RESPONSE EXPECTED	G6PD WT/WT	Normal G6PD Efficiency
Neurology	Acetylcholinesterase Inhibitors:				
	Donepezil (Aricept®)	●	✓ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer
Neurology	Acetylcholinesterase Inhibitors:				
	Galantamine (Razadyne®)	●	✓ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer
Neurology	Alpha-2 Antagonist:				
	Mirtazapine (Remeron®)	◐	✓ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer
Neurology	Anticonvulsant Drugs:				
	Brivaracetam (Briviact®)	●	✓ NORMAL RESPONSE EXPECTED	CYP2C19 *1/*1	Normal Metabolizer
Neurology	Anticonvulsant Drugs:				
	Carbamazepine (Tegretol®)	◐	✓ NORMAL RESPONSE EXPECTED	SCN2A WT/WT	rs2304016 non-GG genotype
	Lamotrigine (Lamictal®)	◐			
	Oxcarbazepine (Trileptal®)	◐			
	Phenytoin (Dilantin®)	◐			
	Topiramate (Topamax®)	◐			
Neurology	Anticonvulsant Drugs:				
	Carbamazepine (Tegretol®) Phenytoin (Dilantin®)	● ●	✓ NORMAL RESPONSE EXPECTED	HLA-B WT/WT	Wild Type
Neurology	Anticonvulsant Drugs:				
	Clobazam (Onfi®)	●	✓ NORMAL RESPONSE EXPECTED	CYP2C19 *1/*1	Normal Metabolizer

Therapeutic	Drug Impacted	Evidence Level	Clinical Interpretation	Gene/Genotype	Phenotype
Neurology	Anticonvulsant Drugs:				
	Phenobarbital	◀	✓ NORMAL RESPONSE EXPECTED	ABCB1 WT/WT	rs2032582 AA genotype/rs1045642 AA genotype
Neurology	Antimigraine Agents:				
	Eletriptan (Relpax®)	○	✓ NORMAL RESPONSE EXPECTED	CYP3A4 *1A/*1A	Normal Metabolizer
Neurology	Antimigraine Agents:				
	Zolmitriptan (Zomig®)	○	✓ NORMAL RESPONSE EXPECTED	CYP1A2 *1F/*1F	High Inducibility Metabolizer
Neurology	Central Monoamine-Depleting Agents:				
	Tetrabenazine (Xenazine®)	●	✓ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer
Neurology	COMT Inhibitors:				
	Entacapone (Comtan®)	◀	✓ NORMAL RESPONSE EXPECTED	COMT WT/WT	Non MET Homozygous
Neurology	NMDA Receptor Antagonists:				
	Dextromethorphan/Quinidine (Nuedexta®)	●	✓ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer
Oncology	Alkylating Agents:				
	Cyclophosphamide (Cytoxan®)	◀	⚠ USE CAUTION due to poorer response and increased risk of toxicity	MTHFR WT/C677T	C677T Heterozygous Mutation
Oncology	Anthracyclines:				
	Doxorubicin (Doxil®)	◀	✓ NORMAL RESPONSE EXPECTED	ABCB1 WT/WT	rs2032582 AA genotype/rs1045642 AA genotype
Oncology	Anthracyclines:				
	Doxorubicin (Doxil®)	◀	✓ NORMAL RESPONSE EXPECTED	NQO1 WT/c.559C>T	rs1800566 non-AA genotype

Therapeutic	Drug Impacted	Evidence Level	Clinical Interpretation	Gene/Genotype	Phenotype
Oncology	Anthracyclines:				
	Epirubicin (Elice®)	◀	✓ NORMAL RESPONSE EXPECTED	GSTP1 WT/c.313A>G	rs1695 AG genotype
Oncology	Anthracyclines:				
	Epirubicin (Elice®)	◀	✓ NORMAL RESPONSE EXPECTED	NQO1 WT/c.559C>T	rs1800566 non-AA genotype
Oncology	Antiemetics:				
	Dronabinol (Marinol®)	●	⚠ USE CAUTION due to increased adverse reactions caused by reduced drug clearance	CYP2C9 *1/*3	Intermediate Metabolizer
Oncology	Antiemetics:				
	Dexamethasone (Decadron®)	◀	✓ NORMAL RESPONSE EXPECTED	ABCB1 WT/WT	rs2032582 AA genotype/rs1045642 AA genotype
Oncology	Antiemetics (Selective 5-HT3 Receptor Antagonist):				
	Dolasetron (Anzemet®) Granisetron (Sancuso®)	◀ ◀	✓ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer
Oncology	Antiemetics (Selective 5-HT3 Receptor Antagonist):				
	Dolasetron (Anzemet®) Granisetron (Sancuso®)	◀ ◀	✓ NORMAL RESPONSE EXPECTED	NOS1AP WT/WT	rs10494366 GG genotype/rs10800397 C Allele Carrier/rs10919035 C Allele Carrier
Oncology	Antiemetics (Selective 5-HT3 Receptor Antagonist):				
	Ondansetron (Zofran®)	◀	✓ NORMAL RESPONSE EXPECTED	ABCB1 WT/WT	rs2032582 AA genotype/rs1045642 AA genotype
Oncology	Antiemetics (Selective 5-HT3 Receptor Antagonist):				
	Ondansetron (Zofran®)	◀	✓ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer
Oncology	Antiemetics (Selective 5-HT3 Receptor Antagonist):				
	Palonosetron (Aloxi®)	●	✓ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer

Therapeutic	Drug Impacted	Evidence Level	Clinical Interpretation	Gene/Genotype	Phenotype
Oncology	Antimetabolites (Purine Analog):				
	Mercaptopurine (Purinethol®) Thioguanine (Tabloid®)	● ●	✓ NORMAL RESPONSE EXPECTED	TPMT *1/*1	Normal Metabolizer
Oncology	Antimetabolites (Pyrimidine Analog):				
	Fluorouracil (Carac®)	◐	⚠ USE CAUTION due to increased risk of diarrhea	ABCB1 WT/WT	rs2032582 AA genotype/rs1045642 AA genotype
Oncology	Antimetabolites (Pyrimidine Analog):				
	Fluorouracil (Carac®)	◐	⚠ USE CAUTION due to poorer response and increased risk of toxicity	MTHFR WT/C677T	C677T Heterozygous Mutation
Oncology	Antimetabolites (Pyrimidine Analog):				
	Fluorouracil (Carac®)	◐	⚠ USE CAUTION due to increased risk of severe neutropenia	XRCC1 c.1196A>G/c.1196A>G	rs25487 C Allele Carrier
Oncology	Antimetabolites (Pyrimidine Analog):				
	Capecitabine (Xeloda®) Pyrimidinedione (Tegafur-Uracil®)	● ◐	✓ NORMAL RESPONSE EXPECTED	DPYD *1/*1	Normal Metabolizer
Oncology	Antimetabolites (Pyrimidine Analog):				
	Cytarabine (Depocyt®)	◐	✓ NORMAL RESPONSE EXPECTED	CDA WT/WT	rs532545 C Allele
Oncology	BCR-ABL Tyrosine Kinase Inhibitors:				
	Nilotinib (Tasigna®) Pazopanib (Votrient®)	● ●	✓ NORMAL RESPONSE EXPECTED	UGT1A1 *1/*1	Non *28 Allele Carrier
Oncology	BRAF Kinase Inhibitors:				
	Dabrafenib (Tafinlar®)	●	✓ NORMAL RESPONSE EXPECTED	G6PD WT/WT	Normal G6PD Efficiency
Oncology	Chemotherapy Modulating Agents:				
	Leucovorin (Wellcovorin®)	◐	⚠ USE CAUTION due to poorer response and increased risk of toxicity	MTHFR WT/C677T	C677T Heterozygous Mutation

Therapeutic	Drug Impacted	Evidence Level	Clinical Interpretation	Gene/Genotype	Phenotype
Oncology	Chemotherapy Modulating Agents:				
	Leucovorin (Wellcovorin®)	○	⚠️ USE CAUTION due to increased risk of severe neutropenia	XRCC1 c.1196A>G/c.1196A>G	rs25487 C Allele Carrier
Oncology	EGFR Tyrosine Kinase Inhibitors:				
	Erlotinib (Tarceva®)	◀	✅ NORMAL RESPONSE EXPECTED	UGT1A1 *1/*1	Non *28 Allele Carrier
Oncology	EGFR Tyrosine Kinase Inhibitors:				
	Gefitinib (Iressa®)	◀	✅ NORMAL RESPONSE EXPECTED	CYP3A4 *1A/*1A	Normal Metabolizer
Oncology	EGFR Tyrosine Kinase Inhibitors:				
	Ruxolitinib (Jakavi®)	◀	✅ NORMAL RESPONSE EXPECTED	CYP3A4 *1A/*1A	Normal Metabolizer
Oncology	Folate Antimetabolites:				
	Methotrexate (Trexall®)	◀	⚠️ USE CAUTION due to increased risk of toxicity caused by increased drug concentration	ABCB1 WT/WT	rs2032582 AA genotype/rs1045642 AA genotype
Oncology	Folate Antimetabolites:				
	Methotrexate (Trexall®)	◀	⚠️ USE CAUTION due to poorer response and increased risk of toxicity	MTHFR WT/C677T	C677T Heterozygous Mutation
Oncology	Folate Antimetabolites:				
	Pemetrexed (Alimta®)	◀	⚠️ USE CAUTION due to poorer response and increased risk of toxicity	MTHFR WT/C677T	C677T Heterozygous Mutation
Oncology	Histone Deacetylase (HDAC) Inhibitors:				
	Belinostat (Beleodaq®)	●	✅ NORMAL RESPONSE EXPECTED	UGT1A1 *1/*1	Non *28 Allele Carrier
Oncology	Immunomodulators:				
	Thalidomide (Thalomid®)	◀	⚠️ USE CAUTION due to decreased overall survival	ERCC1 c.*197G>T/c.354T>C	rs3212986 C Allele Carrier/rs11615 non-AA genotype/rs735482 AA genotype

Therapeutic	Drug Impacted	Evidence Level	Clinical Interpretation	Gene/Genotype	Phenotype
Oncology	Platinum Analog:				
	Carboplatin (Paraplatin®) Cisplatin (Platinol®) Oxaliplatin (Eloxatin®)	◀ ◀ ◀	⚠ USE CAUTION due to increased risk of severe neutropenia	XRCC1 c.1196A>G/c.1196A>G	rs25487 C Allele Carrier
Oncology	Platinum Analog:				
	Carboplatin (Paraplatin®) Oxaliplatin (Eloxatin®)	◀ ◀	⚠ USE CAUTION due to poorer response and increased risk of toxicity	MTHFR WT/C677T	C677T Heterozygous Mutation
Oncology	Platinum Analog:				
	Cisplatin (Platinol®)	◀	⚠ USE CAUTION due to increased risk for nephrotoxicity	ERCC1 c.*197G>T/c.354T>C	rs3212986 C Allele Carrier/rs11615 non-AA genotype/rs735482 AA genotype
Oncology	Selective Estrogen Receptor Modulators (SERMs):				
	Tamoxifen (Soltamox®)	◀	✅ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer
Oncology	Selective Estrogen Receptor Modulators (SERMs):				
	Tamoxifen (Soltamox®)	●	✅ NORMAL RESPONSE EXPECTED	F2 WT/WT	Wild Type
Oncology	Taxane Derivatives:				
	Docetaxel (Taxotere®)	◀	⚠ USE CAUTION due to increased risk for nephrotoxicity	ERCC1 c.*197G>T/c.354T>C	rs3212986 C Allele Carrier/rs11615 non-AA genotype/rs735482 AA genotype
Oncology	Taxane Derivatives:				
	Paclitaxel (Abraxane®)	◀	⚠ USE CAUTION due to increased risk for nephrotoxicity	ERCC1 c.*197G>T/c.354T>C	rs3212986 C Allele Carrier/rs11615 non-AA genotype/rs735482 AA genotype
Oncology	Taxane Derivatives:				
	Cabazitaxel (Jevtana®)	◀	✅ NORMAL RESPONSE EXPECTED	CYP3A4 *1A/*1A	Normal Metabolizer
Oncology	Topoisomerase I Inhibitors:				
	Irinotecan (Camptosar®)	●	✅ NORMAL RESPONSE EXPECTED	UGT1A1 *1/*1	Non *28 Allele Carrier

Therapeutic	Drug Impacted	Evidence Level	Clinical Interpretation	Gene/Genotype	Phenotype
Oncology	Topoisomerase II Inhibitor:				
	Idarubicin (Idamycin®)	◀	✓ NORMAL RESPONSE EXPECTED	SLCO1B1 *1/*1	Normal Activity
Oncology	Urate-Oxidases (Recombinant):				
	Rasburicase (Elitek®)	●	✓ NORMAL RESPONSE EXPECTED	G6PD WT/WT	Normal G6PD Efficiency
Oncology	VEGF Tyrosine Kinase Inhibitors:				
	Sorafenib (NexAvar®)	◀	✓ NORMAL RESPONSE EXPECTED	UGT1A1 *1/*1	Non *28 Allele Carrier
Oncology	VEGF Tyrosine Kinase Inhibitors:				
	Sunitinib (Sutent®)	◀	✓ NORMAL RESPONSE EXPECTED	CYP3A4 *1A/*1A	Normal Metabolizer
Oncology	Vinca Alkaloids:				
	Vincristine (Marqibo®)	◀	✓ NORMAL RESPONSE EXPECTED	ABCB1 WT/WT	rs2032582 AA genotype/rs1045642 AA genotype
Osteoporosis	Selective Estrogen Receptor Modulators (SERMs):				
	Raloxifene (Evista®)	◀	⚠ USE CAUTION due to decreased hip bone mineral density	UGT1A1 *1/*1	Non *28 Allele Carrier
Pain Management	Alpha-2 Adrenergic Agonists:				
	Tizanidine (Zanaflex®)	○	✓ NORMAL RESPONSE EXPECTED	CYP1A2 *1F/*1F	High Inducibility Metabolizer
Pain Management	Nonsteroidal Antiinflammatory Drugs (NSAIDs):				
	Celecoxib (Celebrex®)	●	⚠ USE CAUTION due to increased exposure to the drug	CYP2C9 *1/*3	Intermediate Metabolizer
	Diclofenac (Voltaren®)	◀			
	Meloxicam (Mobic®)	◀			
Pain Management	Nonsteroidal Antiinflammatory Drugs (NSAIDs):				
	Ibuprofen (Advil®)	○	⚠ USE CAUTION due to the risk of increased exposure to the drug leading to adverse events	CYP2C9 *1/*3	Intermediate Metabolizer
Naproxen (Aleve®)	○				

Therapeutic	Drug Impacted	Evidence Level	Clinical Interpretation	Gene/Genotype	Phenotype
Pain Management	Nonsteroidal Antiinflammatory Drugs (NSAIDs):				
	Piroxicam (Feldene®)	●	✓ NORMAL RESPONSE EXPECTED	CYP2C9 *1/*3	Intermediate Metabolizer
Pain Management	Opioids:				
	Methadone (Methadose®)	◀	⚠ USE CAUTION due to increased severity of sleep disorders	OPRM1 WT/c.290+1050C >T	rs1799971 A Allele Carrier/rs510679 non-TT genotype
Pain Management	Opioids:				
	Alfentanil (Alfenta®) Fentanyl (Duragesic®) Hydromorphone (Dilaudid®) Morphine (MS Contin®)	◀ ◀ ○ ◀	✓ NORMAL RESPONSE EXPECTED	OPRM1 WT/c.290+1050C >T	rs1799971 A Allele Carrier/rs510679 non-TT genotype
Pain Management	Opioids:				
	Buprenorphine (Subutex®) Fentanyl (Duragesic®) Hydrocodone/Acetaminophen (Vicodin®) Oxycodone (Oxycontin®) Sufentanil (Sufenta®)	○ ○ ○ ○ ○	✓ NORMAL RESPONSE EXPECTED	CYP3A4 *1A/*1A	Normal Metabolizer
Pain Management	Opioids:				
	Codeine (Codeine®) Codeine/Acetaminophen (Tylenol #3 & #4®) Hydrocodone/Acetaminophen (Vicodin®) Oxycodone (Oxycontin®)	◀ ◀ ◀ ◀	✓ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer
Pain Management	Opioids:				
	Hydrocodone/Acetaminophen (Vicodin®)	◀	✓ NORMAL RESPONSE EXPECTED	OPRM1 WT/c.290+1050C >T	rs1799971 A Allele Carrier/rs510679 non-TT genotype
Pain Management	Opioids:				
	Tramadol Hydrochloride/Acetaminophen (Ultracet®) Tramadol (Ultram®)	● ●	✓ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer
Pain Management	Skeletal Muscle Relaxants:				
	Carisoprodol (Soma®)	◀	✓ NORMAL RESPONSE EXPECTED	CYP2C19 *1/*1	Normal Metabolizer

Therapeutic	Drug Impacted	Evidence Level	Clinical Interpretation	Gene/Genotype	Phenotype
Pain Management	Skeletal Muscle Relaxants:				
	Cyclobenzaprine (Flexeril®)	○	✓ NORMAL RESPONSE EXPECTED	CYP1A2 *1F/*1F	High Inducibility Metabolizer
Psychiatry	Aldehyde Dehydrogenase Inhibitors:				
	Disulfiram (Antabuse®)	◀	✓ NORMAL RESPONSE EXPECTED	ANKK1 WT/WT	Non A1 Carrier
Psychiatry	Anti-Anxiety Agents:				
	Buspirone (Buspar®)	○	✓ NORMAL RESPONSE EXPECTED	HTR1A WT/WT	rs6295 CC genotype/rs1800044 C Allele Carrier
Psychiatry	Antimanic Agents:				
	Lithium (Lithobid®)	◀	⚠ USE CAUTION due to possible less drug response	ABCB1 WT/WT	rs2032582 AA genotype/rs1045642 AA genotype
Psychiatry	Antipsychotics:				
	Olanzapine (Zyprexa®)	◀	⬆ INCREASE DOSE due to decreased response	CYP1A2 *1F/*1F	High Inducibility Metabolizer
Psychiatry	Antipsychotics:				
	Clozapine (Clozaril®)	◀	⚠ USE CAUTION due to an increased risk for seizures	CYP1A2 *1F/*1F	High Inducibility Metabolizer
Psychiatry	Antipsychotics:				
	Quetiapine (Seroquel®)	◀	⚠ USE CAUTION due to increased risk of side effects	SLC6A4 LA/LG	HTTLPR Long Form
Psychiatry	Antipsychotics:				
	Quetiapine (Seroquel®)	◀	⚠ USE CAUTION due to increased likelihood of higher percentage of weight gain	FAAH WT/c.385C>A	rs324420 CA genotype
Psychiatry	Antipsychotics:				
	Risperidone (Risperdal®)	◀	⚠ USE CAUTION due to increased risk of side effects	SLC6A4 LA/LG	HTTLPR Long Form

Therapeutic	Drug Impacted	Evidence Level	Clinical Interpretation	Gene/Genotype	Phenotype
Psychiatry	Antipsychotics:				
	Aripiprazole (Abilify®)	●	✓ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer
	Brexpiprazole (Rexulti®)	●			
	Iloperidone (Fanapt®)	●			
Pimozide (Orap®)	●				
Psychiatry	Antipsychotics:				
	Aripiprazole (Abilify®)	◀	✓ NORMAL RESPONSE EXPECTED	CYP3A4 *1A/*1A	Normal Metabolizer
Psychiatry	Antipsychotics:				
	Chlorpromazine	◀	✓ NORMAL RESPONSE EXPECTED	CYP1A2 *1F/*1F	High Inducibility Metabolizer
	Fluphenazine	◀			
Psychiatry	Antipsychotics:				
Psychiatry	Antipsychotics:				
	Haloperidol (Haldol®)	◀	✓ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer
Psychiatry	Antipsychotics:				
	Perphenazine	●	✓ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer
Psychiatry	Antipsychotics:				
	Thioridazine (Mellaril®)	●	✓ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer
Psychiatry	Antipsychotics:				
	Valproic Acid (Depakote®)	◀	✓ NORMAL RESPONSE EXPECTED	ANKK1 WT/WT	Non A1 Carrier
Psychiatry	Benzodiazepines:				
	Lorazepam (Ativan®)	◀	⚠ USE CAUTION	UGT2B15 *1/*1	rs1902023 AA genotype
	Oxazepam (Serax®)	◀	due to increased risk of side effects caused by decreased clearance of drug		
Psychiatry	Benzodiazepines:				
Psychiatry	Benzodiazepines:				
	Midazolam (Versed®)	◀	⚠ USE CAUTION due to increased risk of side effects caused by decreased clearance of drug	CYP3A5 *3A/*3A	Non Expresser

Therapeutic	Drug Impacted	Evidence Level	Clinical Interpretation	Gene/Genotype	Phenotype
Psychiatry	Benzodiazepines:				
	Alprazolam (Xanax®)	○	✓ NORMAL RESPONSE EXPECTED	CYP3A4 *1A/*1A	Normal Metabolizer
Psychiatry	Benzodiazepines:				
	Diazepam (Valium®)	●	✓ NORMAL RESPONSE EXPECTED	CYP2C19 *1/*1	Normal Metabolizer
Psychiatry	CNS Stimulants (ADHD):				
	Methamphetamine (Desoxyn®)	◀	⚠ USE CAUTION due to increased risk for drug dependence	FAAH WT/c.385C>A	rs324420 CA genotype
Psychiatry	CNS Stimulants (ADHD):				
	Amphetamine (Adderall®) Dexmethylphenidate (Focalin®) Dextroamphetamine (Adderall®) Lisdexamfetamine (Vyvanse®) Methylphenidate (Ritalin®)	◀ ◀ ◀ ○ ◀	✓ NORMAL RESPONSE EXPECTED	COMT WT/WT	Non MET Homozygous
Psychiatry	CNS Stimulants (ADHD):				
	Amphetamine (Adderall®)	◀	✓ NORMAL RESPONSE EXPECTED	OPRM1 WT/c.290+1050C >T	rs1799971 A Allele Carrier/rs510679 non-TT genotype
Psychiatry	CNS Stimulants (ADHD):				
	Dextroamphetamine (Adderall®) Methylphenidate (Ritalin®)	◀ ◀	✓ NORMAL RESPONSE EXPECTED	DRD1 c.-48G>A/c.- 48G>A	rs4532 non-CC genotype
Psychiatry	CNS Stimulants (ADHD):				
	Methylphenidate (Ritalin®)	◀	✓ NORMAL RESPONSE EXPECTED	CES1 WT/WT	rs71647871 C Allele
Psychiatry	Dopamine/Norepinephrine-Reuptake Inhibitors:				
	Bupropion (Wellbutrin®)	◀	⚠ USE CAUTION due to reduced response and increased risk of side effects	CYP2B6 A785G/G516T	G516T Heterozygous/A785G Heterozygous
Psychiatry	Opioids Antagonists:				
	Naloxone (Evzio®) Naltrexone (Revia®)	◀ ◀	✓ NORMAL RESPONSE EXPECTED	OPRM1 WT/c.290+1050C >T	rs1799971 A Allele Carrier/rs510679 non-TT genotype

Therapeutic	Drug Impacted	Evidence Level	Clinical Interpretation	Gene/Genotype	Phenotype
Psychiatry	Other Stimulants:				
	Cannabinoids	◀	⚠ USE CAUTION due to increased risk of tetrahydrocannabinol (THC) dependence	FAAH WT/c.385C>A	rs324420 CA genotype
Psychiatry	Other Stimulants:				
	Cocaine	◀	✅ NORMAL RESPONSE EXPECTED	CNR1 WT/c.*3475A>G	rs806368 non-TT genotype
Psychiatry	Selective Serotonin Reuptake Inhibitors (SSRIs):				
	Citalopram (Celexa®)	◀	⚠ USE CAUTION due to reduced response	GRIK4 WT/c.83-10039T>C	rs1954787 T Allele Carrier
Psychiatry	Selective Serotonin Reuptake Inhibitors (SSRIs):				
	Fluvoxamine (Luvox®) Paroxetine (Paxil®) Sertraline (Zoloft®)	◀ ◀ ◀	⚠ USE CAUTION due to reduced response	HTR1A WT/WT	rs6295 CC genotype/rs1800044 C Allele Carrier
Psychiatry	Selective Serotonin Reuptake Inhibitors (SSRIs):				
	Escitalopram (Lexapro®)	●	✅ NORMAL RESPONSE EXPECTED	CYP2C19 *1/*1	Normal Metabolizer
Psychiatry	Selective Serotonin Reuptake Inhibitors (SSRIs):				
	Escitalopram (Lexapro®)	◀	✅ NORMAL RESPONSE EXPECTED	SLC6A4 LA/LG	HTTLPR Long Form
Psychiatry	Selective Serotonin Reuptake Inhibitors (SSRIs):				
	Fluoxetine (Prozac®)	●	✅ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer
Psychiatry	Selective Serotonin Reuptake Inhibitors (SSRIs):				
	Vilazodone (Viibryd®)	○	✅ NORMAL RESPONSE EXPECTED	CYP3A4 *1A/*1A	Normal Metabolizer
Psychiatry	Selective Serotonin Reuptake Inhibitors (SSRIs):				
	Vortioxetine (Trintellix®)	●	✅ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer

Therapeutic	Drug Impacted	Evidence Level	Clinical Interpretation	Gene/Genotype	Phenotype
Psychiatry	Serotonin and Norepinephrine Reuptake Inhibitors (SNRIs):				
	Milnacipran (Savella®)	◄	⚠ USE CAUTION due to reduced response	HTR1A WT/WT	rs6295 CC genotype/rs1800044 C Allele Carrier
Psychiatry	Serotonin and Norepinephrine Reuptake Inhibitors (SNRIs):				
	Atomoxetine (Strattera®)	●	✔ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer
Psychiatry	Serotonin and Norepinephrine Reuptake Inhibitors (SNRIs):				
	Duloxetine (Cymbalta®)	○	✔ NORMAL RESPONSE EXPECTED	CYP1A2 *1F/*1F	High Inducibility Metabolizer
Psychiatry	Serotonin and Norepinephrine Reuptake Inhibitors (SNRIs):				
	Levomilnacipran (Fetzima®)	○	✔ NORMAL RESPONSE EXPECTED	CYP3A4 *1A/*1A	Normal Metabolizer
Psychiatry	Serotonin and Norepinephrine Reuptake Inhibitors (SNRIs):				
	Reboxetine (Edronax®) Trazodone (Desyrel®)	○ ○	✔ NORMAL RESPONSE EXPECTED	CYP3A4 *1A/*1A	Normal Metabolizer
Psychiatry	Serotonin and Norepinephrine Reuptake Inhibitors (SNRIs):				
	Venlafaxine (Effexor®)	●	✔ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer
Psychiatry	Tetracyclic Antidepressants:				
	Maprotiline	◄	✔ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer
Psychiatry	Tricyclic Antidepressants:				
	Amitriptyline (Elavil®)	◄	✔ NORMAL RESPONSE EXPECTED	CYP2C19 *1/*1	Normal Metabolizer
	Clomipramine (Anafranil®)	◄			
	Doxepin (Silenor®)	●			
	Imipramine (Tofranil®)	◄			
	Protriptyline (Vivactil®)	◄			
	Trimipramine (Surmontil®)	◄			

Therapeutic	Drug Impacted	Evidence Level	Clinical Interpretation	Gene/Genotype	Phenotype
Psychiatry	Tricyclic Antidepressants:				
	Amitriptyline (Elavil®)	●	✓ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer
	Clomipramine (Anafranil®)	●			
	Doxepin (Silenor®)	●			
	Imipramine (Tofranil®)	●			
	Protriptyline (Vivactil®)	●			
Trimipramine (Surmontil®)	●				
Psychiatry	Tricyclic Antidepressants:				
	Desipramine (Norpramin®)	●	✓ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer
Nortriptyline (Pamelor®)	●				
Rheumatology	Nonsteroidal Antiinflammatory Drugs (NSAIDs):				
	Flurbiprofen (Ansaid®)	●	✓ NORMAL RESPONSE EXPECTED	CYP2C9 *1/*3	Intermediate Metabolizer
Smoking Cessation	Smoking Cessation Aids:				
	Bupropion (Zyban®)	◐	✓ NORMAL RESPONSE EXPECTED	ANKK1 WT/WT	Non A1 Carrier
Smoking Cessation	Smoking Cessation Aids:				
	Nicotine (Nicoderm®)	◐	✓ NORMAL RESPONSE EXPECTED	COMT WT/WT	Non MET Homozygous
Supplements	Vitamins:				
	Folic Acid	◐	✗ CONSIDER ALTERNATIVES (e.g., supplements containing methylfolate) due to reduced folic acid conversion	MTHFR WT/C677T	C677T Heterozygous Mutation
Toxicology	Antidotes:				
	Ethanol	◐	✓ NORMAL RESPONSE EXPECTED	ANKK1 WT/WT	Non A1 Carrier
Toxicology	Antidotes:				
	Ethanol	◐	✓ NORMAL RESPONSE EXPECTED	OPRM1 WT/c.290+1050C >T	rs1799971 A Allele Carrier/rs510679 non-TT genotype

Therapeutic	Drug Impacted	Evidence Level	Clinical Interpretation	Gene/Genotype	Phenotype
Toxicology	Antidotes:				
	Methylene Blue (Provayblue®)	●	✓ NORMAL RESPONSE EXPECTED	G6PD WT/WT	Normal G6PD Efficiency
Toxicology	Antidotes:				
	Sodium Nitrite	●	✓ NORMAL RESPONSE EXPECTED	G6PD WT/WT	Normal G6PD Efficiency
Urology	Alpha 1 Blockers:				
	Dutasteride/Tamsulosin (Jalyn®) Tamsulosin (Flomax®)	● ●	✓ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer
Urology	Alpha 1 Blockers:				
	Sildenafil (Rapaflo®)	○	✓ NORMAL RESPONSE EXPECTED	CYP3A4 *1A/*1A	Normal Metabolizer
Urology	Anticholinergic Agents:				
	Darifenacin (Enablex®) Fesoterodine (Toviaz®)	● ●	✓ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer
Urology	Anticholinergic Agents:				
	Tolterodine (Detrol®)	●	✓ NORMAL RESPONSE EXPECTED	CYP2D6 *1/*2	Normal Metabolizer

Appendix I.
 Patient PGxOne™ Plus Genotype and Phenotype Results
 for Green, James



Gene	Genotype	Phenotype
ABCB1	WT/WT	rs2032582 AA genotype/rs1045642 AA genotype
ACE	WT/WT	ACE Deletion
ADRA2A	c.-1252G>C/c.-217G>A	rs1800544 GC genotype/rs1800545 GA genotype
AGTR1	WT/c.*86A>C	rs5186 AC genotype
ANKK1	WT/WT	Non A1 Carrier
APOB	WT/WT	rs676210 GG Genotype
APOE	WT/WT	Non E2 Carrier
ATM	c.175-5285G>T/c.175-5285G>T	rs11212617 AA genotype
CDA	WT/WT	rs532545 C Allele
CES1	WT/WT	rs71647871 C Allele
CNR1	WT/c.*3475A>G	rs806368 non-TT genotype
COMT	WT/WT	Non MET Homozygous
CYP1A2	*1F/*1F	High Inducibility Metabolizer
CYP2B6	A785G/G516T	G516T Heterozygous/A785G Heterozygous
CYP2C19	*1/*1	Normal Metabolizer
CYP2C8	*1/*1	Wild Type
CYP2C9	*1/*3	Intermediate Metabolizer
CYP2D6	*1/*2	Normal Metabolizer
CYP3A4	*1A/*1A	Normal Metabolizer
CYP3A5	*3A/*3A	Non Expresser
CYP4F2	*1/*1	Normal Metabolizer
DPYD	*1/*1	Normal Metabolizer
DRD1	c.-48G>A/c.-48G>A	rs4532 non-CC genotype
DRD2	WT/WT	rs1799978 TT genotype
ERCC1	c.*197G>T/c.354T>C	rs3212986 C Allele Carrier/rs11615 non-AA genotype/rs735482 AA genotype

Gene	Genotype	Phenotype
F2	WT/WT	Wild Type
F5	WT/WT	Non Factor V Leiden Carrier
FAAH	WT/c.385C>A	rs324420 CA genotype
G6PD	WT/WT	Normal G6PD Efficiency
GRIK4	WT/c.83-10039T>C	rs1954787 T Allele Carrier
GSTP1	WT/c.313A>G	rs1695 AG genotype
HFE	c.340+4T>C/c.340+4T>C	rs2071303 C Allele Carrier
HLA-B	WT/WT	Wild Type
HTR1A	WT/WT	rs6295 CC genotype/rs1800044 C Allele Carrier
HTR2A	WT/c.614-2211T>C	rs7997012 non-GG genotype
HTR2C	c.551-3008C>G/c.551-3008C>G	rs1414334 G Allele Carrier
IFNL3	WT/WT	Favorable Response Genotype
ITPA	WT/WT	Non-protective Wild Type
KIF6	WT/c.2155T>C	rs20455 non-AA genotype
LDLR	WT/c.1773C>T	rs688 CT Genotype
MTHFR	WT/C677T	C677T Heterozygous Mutation
NAT2	*5/*6/*12/*13	Slow Acetylator
NOS1AP	WT/WT	rs10494366 GG genotype/rs10800397 C Allele Carrier/rs10919035 C Allele Carrier
NQO1	WT/c.559C>T	rs1800566 non-AA genotype
OPRM1	WT/c.290+1050C>T	rs1799971 A Allele Carrier/rs510679 non-TT genotype
SCN2A	WT/WT	rs2304016 non-GG genotype
SLC6A4	LA/LG	HTTLPR Long Form
SLCO1B1	*1/*1	Normal Activity
TPMT	*1/*1	Normal Metabolizer
UGT1A1	*1/*1	Non *28 Allele Carrier
UGT2B15	*1/*1	rs1902023 AA genotype
VKORC1	WT/-1639G>A	rs9923231 A Allele Carrier

Gene	Genotype	Phenotype
XRCC1	c.1196A>G/c.1196A>G	rs25487 C Allele Carrier

Assay Methodology and Limitations for PGxOne™ Plus Panel:

Pharmacogenomics testing to assess how a patient may respond to prescribed drugs was performed by massively parallel Next Generation Sequencing (NGS). PGxOne™ Plus was developed, and assessed for accuracy and precision by Admera Health, South Plainfield NJ. The sensitivity and specificity of this test is 100% and 100% respectively. PGxOne™ Plus has not been cleared or approved by the U.S. Food and Drug Administration (FDA) but the FDA has determined that such clearance or approval is not necessary. The PGxOne™ Plus test is used for clinical purposes. It should not be regarded as investigational or for research. Drug interaction information is based upon data available in scientific literature and prescribing information for the most commonly prescribed drugs. This laboratory is certified under the Clinical Laboratory Improvement Amendments (CLIA) as qualified to perform high complexity clinical laboratory testing. The DNA testing is not a substitute for clinical monitoring.

The panel includes 53 genes and 214 variants based on the recommendations of the Clinical Pharmacogenetics Implementation Consortium (CPIC) and Dutch Pharmacogenetics Working Group (DPWG) and the FDA's work group guidance. The following genetic variants may be detected in the assay: ABCB1 c.3435T>C, c.2677T>A(G); ACE ACE Insertion; ADRA2A c.1252G>C, c.-217G>A; AGTR1 c.*86A>C; ANKK1 A1; APOB c.8216C>T; APOE Apoε2; ATM c.175-5285G>T; CDA c.-451C>T; CES1 c.428G>A; CNR1 c.*3475A>G; COMT c.472G>A; CYP1A2 *1A, *1C, *1F, *1K, *3, *4, *6, *7; CYP2B6 A785G, G516T, T983C; CYP2C19 *1, *2, *3, *4, *5, *6, *7, *8, *9, *10, *12, *17; CYP2C8 *3; CYP2C9 *1, *2, *3, *4, *5, *6, *8, *9, *11, *12, *13, *14, *15, *16; CYP2D6 *1, *2, *3, *4, *5, *6, *7, *8, *9, *10, *11, *12, *14, *17, *19, *20, *21, *29, *35, *38, *40, *41, *44, *1XN, *2XN, *4XN, *10XN, *17XN, *29xN, *35xN, *41XN; CYP3A4 *1A, *1B, *2, *3, *12, *17; CYP3A5 *1A, *2, *3A, *3B, *6, *7, *8, *9; CYP4F2 *1, *3; DPYD *1, *2A, *3, *4, *5, *6, *7, *8, *9A, *9B, *10, *11, *12, *13, c.496A>G, IVS10-15T>C, c.1845G>T, c.2846A>T; DRD1 c.-48G>A; DRD2 c.-585A>G; ERCC1 c.*197G>T, c.354T>C, c.*931T>G; F2 G20210A; F5 c.1601G>A; FAAH c.385C>A; G6PD A, A-202A_376G, A-376G_968C, Alhambra, Andalus, Beverly Hills, Canton, Cassano, Chatham, Chinese-3, Chinese-4, Coimbra, Cosenza, Fushan, Guadalajara, Ilesha, Iowa, Kaiping, Kalyan, Lagosanto, Mahidol, Mediterranean, Metaponto, Minnesota, Mt. Sinai, Nara, Nashville, Olomouc, Pawnee, Plymouth, Praba, Puerto Limon, Santamaria, Santiago, Santiago de Cuba, Sao Boria, Shinshu, Sibari, Telti, Tomah, Ube, Union, Viangchan, West Virginia; GRIK4 c.83-10039T>C; GSTP1 c.313A>G; HFE c.340+4T>C; HLA-B *1502, *5701, *5801; HTR1A c.-1019G>C, c.659G>T; HTR2A c.614-2211T>C; HTR2C c.-759C>T, c.551-3008C>G; IFNL3 g.39738787C>T, g.39743165T>G; ITPA c.94C>A, c.124+21A>C; KIF6 c.2155T>C; LDLR c.1773C>T; MTHFR C677T, A1298C; NAT2 *4, *5, *6, *7, *12, *13; NOS1AP c.106-38510G>T, c.178-20044C>T, c.178-13122C>T; NQO1 c.559C>T; OPRM1 c.118A>G, c.290+1050C>T; SCN2A c.971-32A>G; SLC6A4 5-HTTLPR LA, 5-HTTLPR LG, 5-HTTLPR S; SLC01B1 *5; TPMT *1, *2, *3A, *3B, *3C, *4; UGT1A1 *28; UGT2B15 *2; VKORC1 c.-1639G>A; XRCC1 c.1196A>G. A normal (wild type) genotype signifies the absence of the targeted alleles and does not indicate the absence of other mutations not covered by the assay. The possibility cannot be ruled out that the indicated genotypes may be present but below the limits of detection for this assay.

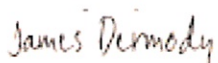
General Pharmacogenomics References:

1. Drug labels with pharmacogenomics information:
<https://www.pharmgkb.org/view/drug-labels.do>
2. Pharmacogenomics drug dosing guidelines:
<https://www.pharmgkb.org/view/dosing-guidelines.do>
3. Clinical Pharmacogenetics Implementation Consortium (CPIC) drug dosing guidelines:
<https://cpicpgx.org/guidelines>
4. FDA drug labels
5. Warfarin dosing guideline:
CPIC Guidelines for CYP2C9 and VKORC1 Genotypes and Warfarin Dosing

Disclaimer of Liability:

The information contained in this report is provided as a service and does not constitute medical advice. At the time of report generation this information is believed to be current and is based upon published research; however, research data evolves and amendments to the prescribing information of the drugs listed will change over time. While this report is believed to be accurate and complete as of the date issued, THE DATA IS PROVIDED "AS IS", WITHOUT WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. As medical advice must be tailored to the specific circumstances of each case, the treating health care professional has ultimate responsibility for all treatment decisions made with regard to a patient including any made on the basis of a patient's genotype.

Electronic Signature



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