

PATIENT INFORMATION

NAME: firstnameNGS_Demo
PracticeNGS_Demo
DOB: 03/Jan/1992
SEX AT BIRTH: Female

SPECIMEN DETAILS

BARCODE: NGS_Demo
SAMPLE ID: NGS_Demo
TYPE: Swab
COLLECTED: 11/May/2023

ORDERED BY

Test Provider
GENERATED: 31/Jul/2026

Demo Report

This pharmacogenetic information is based on best evidence compiled from guidelines and databases including the FDA Table of Pharmacogenetic Associations and the Clinical Pharmacogenetics Implementation Consortium (CPIC). In some cases, PharmGKB and the Dutch Pharmacogenetics Working Group (DPWG) may also be referenced. Please refer to the Methods, Limitations, and Liability Disclaimer at the end of this report.

Current Medications

The medications listed below indicate the patient's **Current Medications**.

-  1 Mild/no drug-gene or Minor drug-drug interaction
-  2 Moderate drug-gene or drug-drug interaction
-  3 Serious drug-gene or Major drug-drug interaction

Rasburicase	Phenotype	Genetic Test	Results	Source/Evidence Level
Elitek Fasturtec	Deficient phenotype	G6PD	A- 202A_376G/A- 202A_376G	CPIC A ¹⁹

Drug-Gene Interactions:**Serious drug-gene interaction: avoid/select alternative**

-  3 CPIC – Implication: High risk of acute hemolytic anemia, or high risk of acute exacerbation of chronic hemolysis for those with chronic nonspherocytic hemolytic anemia (CNSHA).
-  3 CPIC – Strong Recommendation: Avoid use. Although there are no published data in individuals with the G6PD Deficient with CNSHA phenotype, there is a strong rationale to avoid these drugs based on evidence in G6PD Deficient individuals.

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



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Quetiapine	Phenotype	Genetic Test	Results	Source/Evidence Level
Seroquel	Normal metabolizer	CYP3A4	*1/*1	DPWG ¹⁶



Drug-Gene Interactions:

Mild or no drug-gene interaction: no PGx-based action; standard precautions apply

1 DPWG: no recommendation for this CYP3A4 phenotype.



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Medications Being Considered

Amitriptyline	Phenotype	Genetic Test	Results	Source/Evidence Level
Elavil	Poor metabolizer	CYP2D6	*11/*11	CPIC A ²³ ; FDA 3 ⁴⁶
Levate	Poor metabolizer	CYP2C19	*2/*10	CPIC A ²³

Drug-Gene Interactions:

Serious drug-gene interaction: avoid/select alternative

-  CPIC – CYP2D6 Implication: Reduced metabolism of TCAs to less active compounds compared to normal metabolizers. Higher plasma concentrations of active drug will increase the probability of side effects.
-  CPIC – CYP2C19 Implication: Greatly reduced metabolism of tertiary amines compared to normal metabolizers. Decreased conversion of tertiary amines to secondary amines may affect response or side effects.
-  CPIC – Optional Recommendation: Avoid Amitriptyline use. If use is warranted, utilize therapeutic drug monitoring to guide dose adjustment (strongly recommended for a patient with CYP2D6 ultrarapid, intermediate, or poor metabolism in combination with CYP2C19 ultrarapid, intermediate, or poor metabolism). Recommendations above only apply to higher initial doses of TCAs for treatment of conditions such as depression. Lower dosages are often used for neuropathic pain compared to depressive disorders. Although there is sparse information on how to adjust initial TCA doses based on combined CYP2D6 and CYP2C19 genetic results when treating neuropathic pain, caution should be used when patients have a combination of poor or ultrarapid phenotypes (e.g., a CYP2D6 poor metabolizer also having CYP2C19 ultrarapid or poor metabolism). Because of the lower dosage, it is less likely that CYP2C19 or CYP2D6 poor metabolizers will experience adverse effects due to supratherapeutic plasma concentrations. Therefore, CPIC recommends no dose modifications for poor metabolizers when prescribed a lower dose for treatment of neuropathic pain, but these patients should be monitored closely for side effects. If larger doses are warranted, CPIC recommends following the gene-based guidelines presented above.

Brexiprazole	Phenotype	Genetic Test	Results	Source/Evidence Level
Rexulti	Poor metabolizer	CYP2D6	*11/*11	FDA 1 ⁴⁶ ; Product monograph (actionable) ³

Drug-Gene Interactions:

Moderate drug-gene interaction: may require a reduced dose

-  FDA PGx Table Section 1 – CYP2D6 Therapeutic Management Recommendations: Results in higher systemic concentrations. Dosage adjustment is recommended. Refer to FDA Product Monograph for specific dosing recommendations.
-  FDA Product Monograph – CYP2D6 Actionable PGx: For known CYP2D6 Poor Metabolizers, administer half of usual dose of brexiprazole oral tablet. For known CYP2D6 Poor Metabolizers taking concomitant strong CYP3A4 inhibitors, administer a quarter of the usual dose.

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Medication Summary Table

The Medication Summary Table lists medications with pharmacogenetic associations, organized by therapeutic area and drug-gene interaction severity. Some medications appear in multiple columns within moderate drug-gene interactions due to various possible effects or associations with multiple genes. The highest severity is prioritized (moderate/severe) from all relevant sources and genes for a medication. Warfarin appears in multiple columns because its dosing cannot be predicted based on PGx alone and other factors may increase or reduce dose requirement. See Medication Report for full details.

🕒 Indicates current medications

	1 Mild or no drug-gene interaction: no PGx-based action; standard precautions apply	2 Moderate drug-gene interaction					3 Serious drug-gene interaction: avoid/select alternative
		Consider alternative medications	May require an increased dose	May require a reduced dose	May reduce efficacy	May increase adverse events	
Addiction	Bupropion Methadone		Buprenorphine Morphine	Lofexidine	Buprenorphine Morphine Nicotine replacement therapy	Lofexidine	
Analgesia (Pain)/ Anesthesiology/ Anti-inflammatory	Carisoprodol Celecoxib Elagolix Flurbiprofen Hydrocodone Ibuprofen Meloxicam Methadone Oxycodone Piroxicam Tenoxicam	Venlafaxine	Alfentanil Buprenorphine Morphine	Fentanyl Oliceridine	Alfentanil Buprenorphine Morphine	Oliceridine Venlafaxine	Amitriptyline Codeine Desflurane Desipramine Imipramine Isoflurane Methoxyflurane Nortriptyline Sevoflurane Succinylcholine Tramadol
Cardiovascular Disease	Fluvastatin	Metoprolol	Hydralazine	Flecainide	Atorvastatin	Carvedilol	

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	Lovastatin Nebivolol Pitavastatin Pravastatin Procainamide Propranolol Rosuvastatin Simvastatin			Metoprolol Propafenone	Hydralazine	Flecainide Mavacamten Metoprolol Propafenone	
Dermatology	Deuruxolitinib Fluorouracil		Cyclosporine Tacrolimus	Abrocitinib	Tacrolimus	Abrocitinib Methotrexate	Dapsone Doxepin
Endocrinology/ Metabolism/ Bone	Liraglutide Nateglinide	Glimepiride Glipizide Glyburide		Ascorbic acid (Vitamin C)	Exenatide	Ascorbic acid (Vitamin C) Glimepiride Glipizide Glyburide	Eliglustat
Gastroenterology	Azathioprine Dronabinol Esomeprazole Mercaptopurine Ondansetron Rabeprazole Seladelpar			Dexlansoprazole Lansoprazole Meclizine Metoclopramide Omeprazole Pantoprazole		Dexlansoprazole Lansoprazole Meclizine Methotrexate Metoclopramide Omeprazole Pantoprazole Perphenazine Sulfasalazine	

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Gynecology	Elagolix			Flibanserin	Flibanserin	Flibanserin Oral contraceptives	
Hematology/ Coagulation			Warfarin	Warfarin	Warfarin	Avatrombopag Eltrombopag Lusutrombopag Warfarin	Clopidogrel Methylene blue
Immunomodulators	Amifampridine Azathioprine Deuruxolitinib Mercaptopurine Thioguanine		Cyclosporine Tacrolimus	Abrocitinib	Tacrolimus	Abrocitinib Hydroxychloroquine Methotrexate Sulfasalazine	
Infectious Disease (non viral)	Isoniazid Sulfamethoxazole/ Trimethoprim					Chloroquine Hydroxychloroquine Quinine	Dapsone Nitrofurantoin Primaquine Tafenoquine Voriconazole
Infectious Disease (viral)	Atazanavir Dolutegravir Efavirenz Nevirapine						
Neurology							

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		Consider alternative medications	May require an increased dose	May require a reduced dose	May reduce efficacy	May increase adverse events	
	Aducanumab Diazepam Donanemab Donepezil Fosphenytoin Galantamine Lecanemab Lorazepam Phenytoin Propranolol Siponimod	Dextromethorphan/ Quinidine Metoprolol Venlafaxine		Brivaracetam Clobazam Deutetrabenazine Metoprolol Pitolisant Tetrabenazine Valbenazine	Brivaracetam	Brivaracetam Clobazam Deutetrabenazine Dextromethorphan/ Quinidine Metoprolol Tetrabenazine Valbenazine Venlafaxine	Amitriptyline
Oncology	Allopurinol Capecitabine Daunorubicin Doxorubicin Erdafitinib Fluorouracil Irinotecan Mercaptopurine Thioguanine					Dabrafenib Flutamide Gefitinib Methotrexate	Rasburicase Tamoxifen
Psychiatry	Amoxapine Bupropion Diazepam	Citalopram Escitalopram Fluvoxamine		Amphetamine Aripiprazole Aripiprazole lauroxil		Amphetamine Aripiprazole Atomoxetine	Amitriptyline Clomipramine Desipramine

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		Consider alternative medications	May require an increased dose	May require a reduced dose	May reduce efficacy	May increase adverse events	
	Lorazepam Methylphenidate Mirtazapine Olanzapine Protriptyline ✓ Quetiapine Viloxazine	Sertraline Venlafaxine Vortioxetine		Atomoxetine Brexpiprazole Citalopram Clozapine Dextromethorphan/ Bupropion Escitalopram Fluvoxamine Haloperidol Iloperidone Paroxetine Pimozide Risperidone Sertraline Vortioxetine Zuclopenthixol		Citalopram Clozapine Escitalopram Fluoxetine Fluvoxamine Haloperidol Iloperidone Paroxetine Perphenazine Risperidone Sertraline Venlafaxine Vortioxetine Zuclopenthixol	Doxepin Imipramine Nortriptyline Thioridazine Trimipramine
Pulmonary	Salmeterol				Sildenafil		
Rheumatology	Allopurinol Azathioprine Celecoxib Flurbiprofen Ibuprofen Meloxicam Piroxicam Tenoxicam		Cyclosporine			Cevimeline Hydroxychloroquine Methotrexate	Pegloticase

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Urologic

1

Mild or no drug-gene interaction: no PGx-based action; standard precautions apply

Darifenacin
Fesoterodine
Mirabegron
Tamsulosin

2

Moderate drug-gene interaction



Consider alternative medications



May require an increased dose



May require a reduced dose



May reduce efficacy

Sildenafil
Tolterodine



May increase adverse events

Tolterodine

3

Serious drug-gene interaction: avoid/select alternative



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Summary of Genetic and Phenotype Data

Gene	Genotype Result	Activity Score	Phenotype Result OR Genotype Explanation
ABCG2 (rs2231142)	G/G	N/A	Normal Function
APOE	E3/E3	N/A	E3 Homozygous
CACNA1S	c.520C>T/c.520C>T	N/A	Malignant Hyperthermia Susceptibility with Potent Volatile Anesthetic Agents and Succinylcholine
CYP2B6	*1/*1	N/A	Normal Metabolizer
CYP2C (rs12777823)	G/G	N/A	Typical response to warfarin (no change in PGx-related dose requirement)
CYP2C19	*2/*10	N/A	Poor Metabolizer
CYP2C9	*1/*1	2	Normal Metabolizer
CYP2D6	*11/*11	0	Poor Metabolizer
CYP3A4	*1/*1	N/A	Normal Metabolizer
CYP3A5	*1/*1	N/A	Normal Metabolizer
CYP4F2 (rs2108622)	C/C	N/A	Typical response to warfarin (no change in PGx-related dose requirement)
DPYD	*1/*1	2	Normal Metabolizer
G6PD	A- 202A_376G/A- 202A_376G	N/A	Deficient
NAT2	*1/*1	N/A	Rapid Metabolizer
NUDT15	*1/*1	N/A	Normal Metabolizer
RYR1	Reference/Reference	N/A	Uncertain Malignant Hyperthermia Susceptibility with Potent Volatile Anesthetic Agents and Succinylcholine
SLCO1B1	*1/*1	N/A	Normal Function
TPMT	*1/*1	N/A	Normal Metabolizer
UGT1A1	*1/*1	N/A	Normal Metabolizer
VKORC1 (rs9923231)	G/G	N/A	Low warfarin sensitivity (no change in PGx-related dose requirement)

This is a short summary of the full medication report. The patient’s results are now accessible within the clinical decision support software, TreatGx and ReviewGx, and can be used with other clinical information to enable precision prescribing and medication management. The final genotype/phenotype call is at the discretion of the laboratory director. Medication changes should only be initiated at the discretion of the patient’s healthcare provider after a full assessment.



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Methods

Lab METHODS

Limitations

Lab LIMITATIONS

Liability Disclaimer

This is a sample report based on overall genes tested and not representative of actual SNPs tested by US Biosciences.

Lab Director Name, MD, FRCP(C), FRSC, ABIM, Laboratory Director,
CAP #123456, CLIA #12345

31/Jul/2026

Date of Signature