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

Current Medications Impacted In This Report

The medications listed below indicate the patient's **Current Medications** impacted in this report.

No current medications impacted in this report.

Summary of Genetic Lab Data & Phenotypes

Attention

Clinically significant alleles were detected in the HLA-B gene which are associated with increased risk for drug-induced severe cutaneous adverse reactions (SCAR), including Stevens-Johnson syndrome (SJS) and toxic epidermal necrolysis (TEN), for the following drugs:

Allopurinol: See FDA product monograph and CPIC guideline(doi:10.1038/clpt.2012.209)
Carbamazepine: See FDA product monograph and CPIC guideline(Tegretol Product Monograph, 2018)
Fosphenytoin: See FDA product monograph and CPIC guideline(Cerebyx Product Monograph, 2020)
Oxcarbazepine: See FDA product monograph and CPIC guideline(Trileptal Product Monograph, 2015)
Phenytoin: See FDA product monograph and CPIC guideline(Dilantin Product Monograph, 2018)

PATIENT INFORMATION
NAME: Custom_NA20509 Panel_NA20509
DOB: 18/Jul/1994
SEX AT BIRTH: Female

SPECIMEN DETAILS
BARCODE: NA20509
SAMPLE ID: NA20509
TYPE: Swab
COLLECTED: 11/May/2023

ORDERED BY
Test Provider
GENERATED: 23/Mar/2024

Gene	Allele Result	Phenotype Result
CYP2B6	*1/*7	Intermediate Metabolizer
CYP2D6	*4.024/*35.001	Intermediate Metabolizer
CYP2C9	*1/*1	Normal Metabolizer
CYP2C19	*2/*2	Poor Metabolizer
CYP3A4	*1/*1	Normal Metabolizer
CYP3A5	*3/*3	Poor Metabolizer
DPYD	*1/c.85T>C (*9A)	Normal Metabolizer
G6PD	B (reference)	Normal
NUDT15	*9/*9	Poor Metabolizer
SLCO1B1	*1/*15	Decreased Function
TPMT	*1/*1	Normal Metabolizer

Gene	Allele	Result
HLA-A	*31:01	Negative
HLA-B	*15:02	Positive
HLA-B	*58:01	Positive
HLA-B	*57:01	Negative

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.

DNALYSIS Biotechnology

PATIENT INFORMATION
NAME: Custom_NA20509 Panel_NA20509
DOB: 18/Jul/1994
SEX AT BIRTH: Female

SPECIMEN DETAILS
BARCODE: NA20509
SAMPLE ID: NA20509
TYPE: Swab
COLLECTED: 11/May/2023

ORDERED BY
Test Provider
GENERATED: 23/Mar/2024

	1 Mild or no known interaction	2 Moderate gene-drug interaction: Consider alternative medications	2 Moderate gene-drug interaction: May require an increased dose	2 Moderate gene-drug interaction: May require a reduced dose	2 Moderate gene-drug interaction: May reduce efficacy	2 Moderate gene-drug interaction: May increase adverse events	3 Serious drug-gene interaction: evaluate and consider alternative medications
Analgesia	Alfentanil Carisoprodol Celecoxib Codeine Fentanyl Flurbiprofen Hydrocodone Ibuprofen Meloxicam Morphine Piroxicam Tenoxicam Tramadol			Desipramine Nortriptyline		Desipramine Lamotrigine Nortriptyline	Amitriptyline Carbamazepine Imipramine Oxcarbazepine Venlafaxine
Anesthesia	Desflurane Isoflurane Methoxyflurane Sevoflurane Succinylcholine						
Autoimmune	Cyclosporine Siponimod Tacrolimus						Azathioprine Mercaptopurine Thioguanine
Cancer							

DNALYSIS Biotechnology

PATIENT INFORMATION
NAME: Custom_NA20509 Panel_NA20509
DOB: 18/Jul/1994
SEX AT BIRTH: Female

SPECIMEN DETAILS
BARCODE: NA20509
SAMPLE ID: NA20509
TYPE: Swab
COLLECTED: 11/May/2023

ORDERED BY
Test Provider
GENERATED: 23/Mar/2024

	1 Mild or no known interaction	2 Moderate gene-drug interaction: Consider alternative medications	2 Moderate gene-drug interaction: May require an increased dose	2 Moderate gene-drug interaction: May require a reduced dose	2 Moderate gene-drug interaction: May reduce efficacy	2 Moderate gene-drug interaction: May increase adverse events	3 Serious drug-gene interaction: evaluate and consider alternative medications
	Capecitabine Erdafitinib Fluorouracil	Tamoxifen	Tamoxifen		Tamoxifen		Mercaptopurine Thioguanine
Cardiovascular	Carvedilol Fluvastatin Nebivolol Pravastatin Propranolol Rosuvastatin	Lovastatin Simvastatin	Warfarin	Atorvastatin Flecainide Pitavastatin Warfarin	Flecainide Metoprolol Propafenone Warfarin	Atorvastatin Flecainide Metoprolol Pitavastatin Propafenone Warfarin	Clopidogrel
Gastroenterology	Dronabinol Metoclopramide Ondansetron			Dexlansoprazole Lansoprazole Meclizine Omeprazole Pantoprazole	Dexlansoprazole Lansoprazole Meclizine Omeprazole Pantoprazole	Dexlansoprazole Lansoprazole Meclizine Omeprazole Pantoprazole	
Infection	Abacavir Dapsone Nitrofurantoin Primaquine Tafenoquine	Voriconazole		Efavirenz	PEG-interferon alpha Voriconazole	Efavirenz Voriconazole	
Mental Health	Alprazolam Amoxapine			Citalopram Clobazam	Citalopram Clobazam	Aripiprazole Asenapine	Amitriptyline Carbamazepine

DNALYSIS Biotechnology

PATIENT INFORMATION
NAME: Custom_NA20509 Panel_NA20509
DOB: 18/Jul/1994
SEX AT BIRTH: Female

SPECIMEN DETAILS
BARCODE: NA20509
SAMPLE ID: NA20509
TYPE: Swab
COLLECTED: 11/May/2023

ORDERED BY
Test Provider
GENERATED: 23/Mar/2024

1	2					3
Mild or no known interaction	Moderate gene-drug interaction					Serious drug-gene interaction: evaluate and consider alternative medications
	Consider alternative medications	May require an increased dose	May require a reduced dose	May reduce efficacy	May increase adverse events	
Amphetamine			Desipramine	Escitalopram	Brexpiprazole	Clomipramine
Aripiprazole lauroxil			Escitalopram	Sertraline	Cariprazine	Doxepin
Atomoxetine			Nortriptyline		Chlorpromazine	Imipramine
Bromazepam			Sertraline		Citalopram	Oxcarbazepine
Chlordiazepoxide					Clobazam	Trimipramine
Clonazepam					Clozapine	Venlafaxine
Clorazepate					Desipramine	Zuclopenthixol
Diazepam					Escitalopram	
Flurazepam					Flupentixol	
Fluvoxamine					Fluphenazine	
Lofexidine					Haloperidol	
Lorazepam					Iloperidone	
Nitrazepam					Lamotrigine	
Oxazepam					Loxapine	
Paroxetine					Lurasidone	
Protriptyline					Methotrimeprazine	
Risperidone					Molindone	
Temazepam					Nortriptyline	
Triazolam					Olanzapine	
Vortioxetine					Paliperidone	
					Perphenazine	
					Pimozide	
					Prochlorperazine	
					Promethazine	
					Quetiapine	
					Sertraline	
					Thioridazine	

DNALYSIS Biotechnology

PATIENT INFORMATION
NAME: Custom_NA20509 Panel_NA20509
DOB: 18/Jul/1994
SEX AT BIRTH: Female

SPECIMEN DETAILS
BARCODE: NA20509
SAMPLE ID: NA20509
TYPE: Swab
COLLECTED: 11/May/2023

ORDERED BY
Test Provider
GENERATED: 23/Mar/2024

	1 Mild or no known interaction	2 Moderate gene-drug interaction: Consider alternative medications	2 Moderate gene-drug interaction: May require an increased dose	2 Moderate gene-drug interaction: May require a reduced dose	2 Moderate gene-drug interaction: May reduce efficacy	2 Moderate gene-drug interaction: May increase adverse events	3 Serious drug-gene interaction: evaluate and consider alternative medications
						Trifluoperazine Ziprasidone	
Neurology	Clonazepam Deutetrabenazine Diazepam Donepezil Galantamine Propranolol Tetrabenazine Valbenazine			Brivaracetam Clobazam Desipramine Nortriptyline	Brivaracetam Clobazam Metoprolol	Brivaracetam Clobazam Desipramine Lamotrigine Metoprolol Nortriptyline	Amitriptyline Carbamazepine Fosphenytoin Oxcarbazepine Phenytoin Venlafaxine
Other	Avatrombopag Cevimeline Elagolix Eltrombopag Methylene blue Oral contraceptives			Flibanserin	Flibanserin	Flibanserin	Eliglustat
Rheumatology	Celecoxib Flurbiprofen Ibuprofen Meloxicam Pegloticase Piroxicam Rasburicase						Allopurinol Azathioprine

DNALYSIS Biotechnology

PATIENT INFORMATION
NAME: Custom_NA20509 Panel_NA20509
DOB: 18/Jul/1994
SEX AT BIRTH: Female

SPECIMEN DETAILS
BARCODE: NA20509
SAMPLE ID: NA20509
TYPE: Swab
COLLECTED: 11/May/2023

ORDERED BY
Test Provider
GENERATED: 23/Mar/2024

	1 Mild or no known interaction	2 Moderate gene-drug interaction: Consider alternative medications	2 May require an increased dose	2 May require a reduced dose	2 May reduce efficacy	2 May increase adverse events	3 Serious drug-gene interaction: evaluate and consider alternative medications
	Tenoxicam						
Urology	Darifenacin Fesoterodine Mirabegron Tamsulosin Tolterodine						

Limitations
The annotations and interpretations provided in this report are based on scientific literature and do not take into account drug-drug interactions, medical conditions or other clinical factors that may affect medication response. Gene-drug interactions are ranked according to guidelines, level of evidence and clinical utility. GenXys reports and TreatGx Clinical Decision Support are regularly updated. Current predicted phenotype and allele functionality may change in the future depending on new evidence. Phenotype annotations for CYP2C9 are based on total activity scores as defined by CPIC[79]. Genetic test results and interpretation may be inaccurate for individuals who have undergone or are receiving non-autologous blood transfusion, tissue, or organ transplant therapies.
The report includes alleles of proteins involved in the metabolism of many medications. In rare cases, a variant that is not covered may be typed as *1 or other variants. In the case of pseudogenes and mutations in the untranslated regions of genes, incorrect allele typing may occur despite proper SNP detection. Preferential amplification of one allele over another present in the sample may also lead to incorrect genotyping.

Liability Disclaimer
This test was developed and its performance characteristics determined by GenXys Health Care Systems. It has not been cleared or approved by the US Food and Drug Administration. The report is not a diagnostic test, and TreatGx is not a prescribing system. You should discuss your pharmacogenetic information with a physician or other health care provider before you act upon the pharmacogenetic information resulting from this report. The medication brand names are not an exhaustive list and do not include combination therapies. Not all medications in this report are included in the TreatGx or ReviewGx software or other GenXys derivative works.

Dr Danny Meyersfeld, Laboratory Director, PhD

23/Mar/2024
Date of Signature