

Pharmacogenetic Test

Patient

Name:	Sample ID:	Accession ID:	Ordering Clinician:
Nora Syke	P000034875	255836	August Edwards
Date of Birth:	Report Date:		
7/12/1977	7/21/2026 2:20 PM		

Purpose of This Test

Thank you for ordering the Pharmacogenetic Test. Our laboratory has looked at your DNA to help you and your prescriber think about medication response.

Test Limitations

These gene results might tell us the following:

- ✓ How your body breaks down some medications. With this information, your prescriber might personalize your dose.
- ✓ If you are more likely to get side effects with some medications.
- ✓ Why you might have had a bad response to prior medications.

These gene results will NOT tell us:

- ✗ About any diagnoses you have or may have in the future.
- ✗ About other factors that can affect medication response.
- ✗ If a medication matches your condition or diagnosis. Only your prescriber can do that after a full medical history.

It is very important that you do NOT start, stop or change any medication without speaking to your prescriber.

We have looked at the following genes: ABCB1; ABCG2; ADRA2A; ANK3; BDNF; CACNA1C; COMT; CYP1A2; CYP2B6; CYP2C19; CYP2C9; CYP2D6; CYP3A4; CYP3A5; DRD2; GRIK1; HLA-B*15:02; HLA-A*31:01; HTR2A; HTR2C; MC4R; MTHFR; OPRM1; SLC6A4; SLCO1B1; UGT2B15; and UGT1A4.

Other genes can affect medication response but are not included in this report.

An Introduction to Pharmacogenetics (PGx)

Welcome to your genetic test report. Our lab has received the DNA swab you sent us. Although you have 1000's of genes, we have looked at only 26 of them. Each gene can come in different types, known as gene variants. Our test looks at different variants that can affect drug response. These variants are usually inherited from your parents.



For example, there is a gene that helps people break down caffeine (CYP1A2). Most of us have the normal type of this gene (It's called *1A). But some of us have a gene type that causes us to break down caffeine more slowly (Called *1K). For those of us with the *1K, we might have more caffeine in our body when we drink coffee or tea. This is because we break it down more slowly than average.

We take the same approach to look at your medications.

By looking at your different gene types, we might be able to tell if you break down a drug too quickly or too slowly. We might also be able to tell if you are more likely to have side effects with some drugs. You and your prescriber can use this information to better think through your medication plan. We have color coded the report so you can focus on the most significant genes or drugs. **Sections highlighted in RED should be an area of focus.**

Understanding Drug Metabolism

Many of the genes we look at affect drug metabolism (the speed that we break down drugs). These gene types usually come in 5 different varieties: Normal Metabolizer (NM), Intermediate Metabolizer (IM), Poor Metabolizer (PM), Rapid Metabolizer (RM), and Ultra-rapid Metabolizer (UM). You can think of these gene types like a speedometer, with each of us being normal, slow or fast metabolizers of some drugs.



Poor Metabolizer



Intermediate Metabolizer



Normal Metabolizer



Rapid Metabolizer



Ultra-rapid Metabolizer

Understanding Drug Absorption

Some genes affect how quickly drugs get into our body (usually through our intestines). The same speedometer symbol can be used for these gene types. The different types are Normal Function (NF), Decreased Function (DF), or Poor Function (PF). Usually, decreased and poor function increases the amount of some drugs in the body.



Poor Function



Decreased Function



Normal Function

How to Read Your Report

SECTION 1 is organized by gene.
It is divided into 3 parts:

1A. Genes with Important Effect: Gene types that you should discuss with your prescriber. These genes can affect some drugs and have specific guidelines. If you are taking any of the drugs listed, you should let your prescriber know.

1B. Genes with Moderate Effect: Gene types that are informative for certain drugs. These might help explain prior drug response or guide new treatments.

1C. Genes with Normal Effect: Gene types that are normal. They are unlikely to affect medications.

SECTION 2 is organized by medications.

2. Medications Affected by Your Genes: Medications that should be discussed with your prescriber because of your gene type. Medications are sorted by drug class (for example: heart medications, pain medications)

Disclaimer

It is very important that you do NOT start, stop or change any medication without speaking to your prescriber.

This report is made to help you and your prescriber make decisions regarding the use, dosing and safety of drugs based on your DNA. However, this is not the only information needed to make decisions about your medications.

You and your prescriber must consider these gene results along with all of your other medical background.

Our laboratory results have been shown to have an accuracy rate up to 99.9%, but it is still possible that results can be wrong.

It is possible that these gene results reveal non-paternity.

Many factors can affect drug response, including but not limited to age, weight, health status and history, medications, and food.

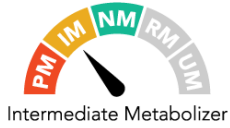
Genes with Important Effect

Section 1A shows your gene results that **may have an important effect on some medications** and are **associated with specific recommendations** with strong evidence.

SECTION 1A

Gene	Your Version of the Gene	How This Could Affect Medications
ABCG2 This gene controls how some medications get into your liver and are broken down.	ABCG2 PF (Poor Function)  Poor Function 	Your ABCG2 PF gene type can lead to MORE medication in your body. For some medications, it can lead to less effectiveness. There is specific guidance for the following medications: Crestor (rosuvastatin) Zyloprim (allopurinol) Do not change, start or stop medications without talking to your prescriber. If you are taking or considering these medications, let your prescriber know about these gene results. Click here for a list of other medications that may also be affected by this gene.
CYP2C19 This gene controls the break down of some medications.	CYP2C19 PM (Poor Metabolizer)  Poor Metabolizer 	This CYP2C19 PM gene type can CHANGE the amount of medication in your body. There is specific guidance for the following medications: SSRIs: Celexa (citalopram) Lexapro (escitalopram) Zoloft (sertraline) Proton pump inhibitors (PPIs): Dexilant (dexlansoprazole) Prevacid (lansoprazole) Prilosec (omeprazole) Protonix (pantoprazole) Tricyclic antidepressants (TCAs): Anafranil (clomipramine) Elavil (amitriptyline) Silenor (doxepin) Surmontil (trimipramine) Tofranil (imipramine) Other: Addyi (flibanserin) Briviact (brivaracetam) Camzyos (mavacamten) Cibinqo (abrocitinib) Onfi (clobazam) Plavix (clopidogrel) Vfend (voriconazole) Do not change, start or stop medications without talking to your prescriber. If you are taking or considering these medications, let your prescriber know about these gene results. Click here for a list of other medications that may also be affected by this gene.

SECTION 1A

Gene	Your Version of the Gene	How This Could Affect Medications
CYP2C9 This gene controls the break down of some medications.	CYP2C9 IM (Intermediate Metabolizer)  	Your CYP2C9 IM gene type can lead to MORE medication in your body. There is specific guidance for the following medications: Non-steroidal anti-inflammatory drugs (NSAIDs): Ansaïd (flurbiprofen) Celebrex (celecoxib) Feldene (piroxicam) Mobic (meloxicam) Motrin (ibuprofen) Other: Cerebyx (fosphenytoin) Coumadin (warfarin) Dilantin (phenytoin) Lescol (fluvastatin) Mayzent (siponimod) Do not change, start or stop medications without talking to your prescriber. If you are taking or considering these medications, let your prescriber know about these gene results. Click here for a list of other medications that may also be affected by this gene.
HLA-A *31:01 This gene can tell us about risk of serious skin rashes with some medications used for seizures or bipolar disorder.	HLA-A *31:01 Positive  	Your HLA-A *31:01 Positive gene type is linked to a HIGHER risk for a serious rash with the following medication: Tegretol (carbamazepine) It could be dangerous for you to take this medication. If you are taking this medication and have been taking it for less than 3 months, you may need to consider stopping it. Do not change, start or stop this medication without talking to your prescriber. Contact your prescriber immediately if you are taking this medication and you develop a rash.

Genes with Moderate Effect

Section 1B shows your gene results that **could have an effect on some medications**, however these gene results are **not associated with specific recommendations** and are meant to be informational in nature.

SECTION 1B

Gene	Your Version of the Gene	How This Could Affect Medications
ADRA2A This gene can tell us about response to methylphenidate. Methylphenidate is used for ADHD.	ADRA2A C/C See How Common Your Gene Type Is	Your ADRA2A C/C gene type is linked to a LOWER response to methylphenidate for poor attention. Do not change, start or stop medications without talking to your prescriber. These results may prompt your prescriber to consider other medications for ADHD/poor attention. Some people with your gene type still respond well to methylphenidate.
BDNF This gene is linked to response to some antidepressants and response to exercise.	BDNF Val/Met See How Common Your Gene Type Is	Your BDNF Val/Met gene type has been linked to improvements in mood and working memory with exercise.
MC4R This gene can tell us about weight gain with medications known as second generation antipsychotics. These medications are often used for depression, bipolar, schizophrenia or aggression.	MC4R A/A See How Common Your Gene Type Is	Your MC4R A/A gene type is linked to MORE weight gain with medications like: Antipsychotics: Abilify (aripiprazole) Clozaril (clozapine) Fanapt (iloperidone) Invega (paliperidone) Rexulti (brexpiprazole) Risperdal (risperidone) Seroquel (quetiapine) Zyprexa (olanzapine) These results may prompt your prescriber to consider medications with a lower risk of weight gain like: Caplyta (lumateperone), Geodon (ziprasidone), Latuda (lurasidone), and Vraylar (cariprazine). They may also prompt your prescriber to consider other medications to offset weight gain. Do not change, start or stop medications without talking to your prescriber.
MTHFR This gene controls your ability to change folic acid into an active form (methylfolate).	MTHFR 677 C/T; 1298 A/C See How Common Your Gene Type Is	For some people with depression, adding methylfolate has been shown to improve symptoms. Talk to your prescriber if you have depression symptoms that are not well controlled. Do not change, start or stop medications without talking to your prescriber.

SECTION 1B

Gene	Your Version of the Gene	How This Could Affect Medications
SLC6A4 This gene can tell us about side effects or response to some antidepressants.	SLC6A4 L(A)/S 	Your SLC6A4 L(A)/S gene type is linked to a HIGHER chance of having stomach-related side effects with some antidepressants in Caucasian people. This includes: SSRIs: Celexa (citalopram) Lexapro (escitalopram) Luvox (fluvoxamine) Paxil (paroxetine) Prozac (fluoxetine) Zoloft (sertraline) Do not change, start or stop medications without talking to your prescriber. Some people with your gene type do not experience stomach-related side effects with SSRIs.
UGT1A4 This gene controls the break down of some medications.	UGT1A4 UM (Ultrarapid Metabolizer)  	Your UGT1A4 UM gene type can lead to LESS medication in your body. Click here for a list of medications that are affected by this gene. There is currently no specific dosing guidance for this gene type. Do not change, start or stop medications without talking to your prescriber. Please talk to your prescriber if you are having side effects with your medications.

SECTION 1C

Genes with Normal Effect

Section 1C includes gene results that are considered normal. These do **NOT** have an important effect on medications.

ABCB1, ABCB1 C3435T, ANK3, CACNA1C, COMT, CYP1A2, CYP2B6, CYP2D6, CYP3A4/5, DRD2, GRIK1, HLA-B *15:02, HTR2A, HTR2C, OPRM1, SLCO1B1, UGT2B15

Medications Affected by Your Genes

Section 2 contains **medications** that have **specific recommendations based on your genes**.

SECTION 2

Medication	How Your Genes Can Affect this Medication	Guidance for your prescriber – Click or Scan code
Medications for Depression or Anxiety		
Celexa (Citalopram)	Your CYP2C19 PM gene type can increase the amount of this medication in your body. This could increase the risk of side effects. If you are taking more than 20 mg, speak with your prescriber about gene guided dosing, other medication options, or if you are having side effects. Your doctor may need to do a test to check your heart rhythm.	
Lexapro (Escitalopram)	Your CYP2C19 PM gene type can increase the amount of this medication in your body. This could increase the risk of side effects. If you are taking more than 10 mg, speak with your prescriber about gene guided dosing or about other medication options. Your doctor may need to do a test to check your heart rhythm.	
Tricyclic antidepressants (TCAs): Elavil (Amitriptyline), Anafranil (Clomipramine), Sinequan (Doxepin), Tofranil (Imipramine), Surmontil (Trimipramine)	Your CYP2C19 PM and CYP2D6 NM gene types can increase the amount of this medication in your body. Speak with your prescriber about other medication options, gene guided dosing, or if you are having problems with response or side effects with this medication.	
Zoloft (Sertraline)	Your CYP2C19 PM and CYP2B6 NM gene types can increase the amount of this medication in your body. This could increase the risk of side effects. Speak with your prescriber about gene guided dosing, other medication options, or if you are having side effects with this medication.	
Medications for Your Heart		
Coumadin (Warfarin)	Your CYP2C9 IM gene type can increase the amount of this medication in your body. This could increase the risk of side effects. Speak with your prescriber about gene guided dosing or if you are having side effects with this medication.	
Plavix (Clopidogrel)	Your CYP2C19 PM gene type can make this medication less effective. This could lead to increased risk for heart attacks or stroke. Speak to your prescriber about other medication options.	

SECTION 2

Medication	How Your Genes Can Affect this Medication	Guidance for your prescriber – Click or Scan code
Medications for Pain		
Feldene (Piroxicam)	Your CYP2C9 IM gene type can increase the amount of this medication in your body. This could increase the risk of side effects, such as blood pressure or kidney function changes. Speak with your prescriber about other medication options or if you are having side effects with this medication.	
Mobic (Meloxicam)	Your CYP2C9 IM gene type can increase the amount of this medication in your body. This could increase the risk of side effects, such as blood pressure or kidney function changes. Speak with your prescriber about gene guided dosing, other medication options, or if you are having side effects with this medication.	
NSAIDs: Ansaïd (Flurbiprofen), Advil (Ibuprofen), Celebrex (Celecoxib)	Your CYP2C9 IM gene type can increase the amount of this medication in your body. This could increase the risk of side effects, such as blood pressure or kidney function changes. Speak with your prescriber about gene guided dosing or if you are having side effects with this medication.	
Soma (Carisoprodol)	Your CYP2C19 PM gene type can increase the amount of this medication in your body. Speak with your prescriber if you are having side effects with this medication.	
Medications for Cholesterol		
Crestor (Rosuvastatin)	Your SLCO1B1 NF and ABCG2 PF gene types can increase the amount of this medication in your body. This could increase the risk of side effects, such as muscle pain and weakness. If you are taking more than 20 mg and having side effects, speak with your prescriber about gene guided dosing or other medication options.	
Lescol (Fluvastatin)	Your SLCO1B1 NF and CYP2C9 IM gene types can increase the amount of this medication in your body. This could increase the risk of side effects, such as muscle pain and weakness. If you are taking more than 40 mg and having side effects, speak with your prescriber about gene guided dosing or other medication options.	
Medications for Stomach/Digestion		
Proton pump inhibitors (PPIs): Dexilant (Dexlansoprazole), Prevacid (Lansoprazole), Prilosec (Omeprazole), Protonix (Pantoprazole)	Your CYP2C19 PM gene type can increase the amount of this medication in your body. This could increase the risk of side effects. Speak with your prescriber about gene guided dosing if you need treatment for longer than 12 weeks or if you are having side effects with this medication.	

SECTION 2

Medication	How Your Genes Can Affect this Medication	Guidance for your prescriber – Click or Scan code
Medications for Seizure Disorders		
Briviact (Brivaracetam)	Your CYP2C19 PM gene type can increase the amount of this medication in your body. This could increase the risk of side effects. Speak with your prescriber about gene guided dosing or if you are having side effects with this medication.	
Cerebyx (Fosphenytoin)	Your CYP2C9 IM gene type can increase the amount of this medication in your body. This could increase the risk of side effects. Speak with your prescriber about gene guided dosing or if you are having side effects with this medication.	
Dilantin (Phenytoin)	Your CYP2C9 IM gene type can increase the amount of this medication in your body. This could increase the risk of side effects. Speak with your prescriber about gene guided dosing or if you are having side effects with this medication.	
Onfi (Clobazam)	Your CYP2C19 PM gene type can increase the amount of this medication in your body. This could increase the risk of side effects. The FDA drug label includes gene guided and weight based dosing. Speak with your prescriber about gene guided dosing or if you are having side effects.	
Medications for Bipolar Disorder or Seizure Disorders		
Tegretol (Carbamazepine)	Your HLA-A*31:01 positive gene type can increase your risk for a serious rash with this medication. ⚠ This medication should not be used for you , especially if other medication options are available. Speak with your prescriber before changing or stopping your medication. If you used this medication for over 3 months and did not have a rash with it, you may be able to continue using it. Contact your prescriber right away if you are taking this medication and you get a rash.	
Anti-Virals/Anti-Infectives		
Vfend (Voriconazole)	Your CYP2C19 PM gene type can increase the amount of this medication in your body. This could increase the risk of side effects. Speak with your prescriber about other medication options or if you are having side effects with this medication.	

SECTION 2

Medication	How Your Genes Can Affect this Medication	Guidance for your prescriber – Click or Scan code
Miscellaneous		
Addyi (Flibanserin)	Your CYP2C19 PM gene type can increase the amount of this medication in your body. This could increase the risk of side effects. Speak with your prescriber if you are having side effects with this medication.	
Cibinqo (Abrocitinib)	Your CYP2C19 PM gene type can increase the amount of this medication in your body. This could increase the risk of side effects. If you are taking more than 50 mg and having side effects, speak with your prescriber about gene guided dosing.	
Mayzent (Siponimod)	Your CYP2C9 IM gene type can increase the amount of this medication in your body. This could increase the risk of side effects. Speak with your prescriber about gene guided dosing or if you are having side effects with this medication.	
Zyloprim (Allopurinol)	Your ABCG2 PF gene type may make this medication less effective, and a higher dose may be required. Speak with your prescriber about gene guided dosing.	

Test Methodology

This test was developed and performance characteristics were validated in the Vanta Diagnostics clinical laboratory. This test has not been cleared or approved by the U.S. Food and Drug Administration (FDA). This test is used for clinical purposes and should not be regarded as investigational or for research use. Vanta Diagnostics' laboratory is certified under the Clinical Laboratory Improvement Amendments (CLIA), as qualified to perform high complexity clinical laboratory testing. Vanta Diagnostics performed the testing using standard and custom TaqMan reagents for all variants. The test results are intended to be used as prognostic and not diagnostic and are not intended as the sole means for patient management decisions.

Test Methodology Limitations: Factors influencing the amount and quality of DNA extracted include but are not limited to the amount of buccal cells extracted, patient oral hygiene, collection technique, and the presence of dietary or microbial sources of nucleic acids and nucleases. DNA quality and quantity are subject to matrix dependent influences. PCR inhibitors, extraneous DNA and nucleic acid degrading enzymes are all factors which may affect the evaluation of assay results. Some single nucleotide polymorphism (SNP) assays are problematic due to multiple base repeats and other sequence aberrations, which may hinder proper amplification and analysis. DNA purity can influence the assay. SLC6A4 contains many polymorphisms, and the assay was developed and validated according to the current available scientific information. For pharmacogenetic tests, undetected genetic and/or non-genetic factors such as drug-drug interactions may impact the phenotype. In liver transplant recipients, certain genotypes of the donor liver may not be the same as those of the recipient. In these cases, it may be necessary to account for both the donor and recipient genotypes when evaluating drug metabolism genes. However, studies to date have been inconclusive as to the relative influence of the donor and recipient genotypes. This pharmacogenetic report is based on a current understanding of the clinical relevance of the variant identified, penetrance, phenotype predictions, and recurrence risks.

Variants tested include ABCB1 C3435T rs1045642; ABCB1 rs2032583; ABCG2 rs2231142, ADRA2A rs1800544; ANK3 rs10994336; BDNF rs6265; CACNA1C rs1006737; COMT rs4680; CYP1A2 *1B, *1C, *1D, *1E, *1F, *1K and *11; CYP2B6 *4, *5, *6 and *9; CYP2C19 *2, *3, *4, *5, *6, *7, *8, *9, *10, *17, and *35; CYP2C9 *2, *3, *4, *5, *6, *8, *11, *13, and *27; CYP2D6 *2, *3, *4, gene deletion (*5), gene duplication, *6, *7, *8, *9, *10, *11, *12, *14, *15, *17, *29 and *41; CYP3A4 *22; CYP3A5 *3, *6, *7; DRD2 rs1799732; GRIK1 rs2832407; HLA-B*15:02 presence and HLA-A*31:01 presence detected by qPCR; HTR2A rs7997012; HTR2C rs3813929; MC4R rs489693; MTHFR rs1801131 and rs1801133; OPRM1 rs1799971; SLC6A4 rs25531 and rs63749047; SLCO1B1*5, UGT2B15 rs1902023; and UGT1A4 rs2011425. Other known variants that are not listed are not detected and will not be included in the test report.

Important Notice

This report is based on pharmacogenomic (PGx) analysis performed by Vanta Diagnostics, a CLIA certified laboratory. The laboratory is responsible for the accuracy, validity, and interpretation of the test results. This report has been generated, formatted, or transmitted using a third party reporting and informatics platform ("Reporting Vendor"). The Reporting Vendor does not perform laboratory testing and does not independently verify, modify, or interpret raw laboratory data. Validation and interpretation of laboratory data are the sole responsibility of the testing laboratory director. The director has reviewed and approved this report.

Version 3.2 [8/24/2025]

Electronically Signed By Juel Meya, Quality Assurance

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