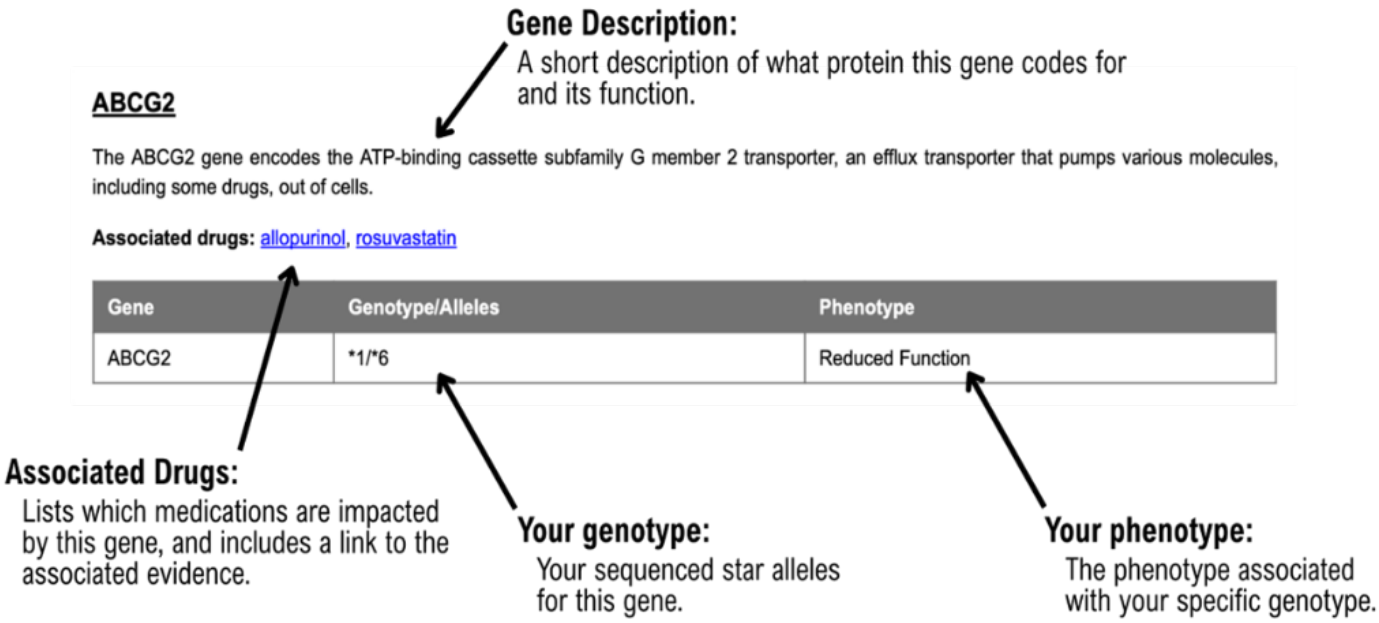
UGENOME

Pharmacogenomic Report

Report Date: **04/07/2026**
Patient ID: TEST2 Sample ID: TEST1

Report Overview and Guide



What does this report show?

This report summarizes your pharmacogenomic profile and identifies genetic factors, or alleles, that may influence how your body processes certain medications. The information in this report should not be used to diagnose, treat, cure, or prevent any disease, nor should it be considered a medical recommendation. Please consult a licensed healthcare provider for any decisions regarding health or medical treatments.

How to interpret your results

Gene
A gene is a segment of DNA that provides instructions for making proteins, which carry out essential functions in the body. In pharmacogenetics, certain genes affect drug-metabolizing enzymes, transporters, and drug targets, shaping an individual's response to medications.

Genotype/Alleles
Genotype refers to an individual's specific combination of alleles at a given gene locus. An allele is one of two or more alternative versions of a gene, with one allele typically inherited from each parent. Alleles encode proteins that play key roles in biological processes, including drug metabolism. Variations in alleles can alter gene function and, in turn, influence how medications are absorbed, metabolized, or utilized by the body.

Phenotype
Phenotype refers to how a person's genetic makeup (genotype) influences their observable characteristics or measurable response to a medication.

Star Alleles - Example: *1, *2, *3, etc

Star (*) allele notation is used to designate specific allelic variants of a gene. Each star allele is defined by a unique combination of genetic variants that determine the gene's functional activity. Depending on the gene, star alleles may be associated with normal, reduced, absent, or increased enzyme function. Importantly, the *1 allele does not universally indicate normal function; its activity designation depends on how the gene was characterized and may vary across genes and populations. Therefore, the functional interpretation of star alleles is gene-specific.

Reference

A "reference" allele is the version of a gene that acts as the standard for a database. The activity of other alleles is compared to the reference to determine whether it has the same, more, or less function. Since the reference can vary depending on the gene and how experts categorize it, "reference" doesn't always mean "normal function."

rsID - Example: rs4244285

An "rsID" is a unique ID number given to a specific tiny change in your DNA, usually a single-letter change, also known as a single-nucleotide polymorphism (SNP). It allows the same genetic change to be consistently referenced across studies and laboratories. An rsID indicates that a particular DNA change is present, but by itself does not describe its full genomic context or location within the entire genome.

Indeterminate

An "indeterminate" result in the phenotype column indicates that the genotype (alleles) could not accurately predict a phenotype. This differs from genotypes that classify individuals as poor, normal, or ultra-rapid metabolizers, as an indeterminate phenotype cannot reliably predict the functional level of the genotype.

ABCB1

The ABCB1 gene encodes a protein called P-glycoprotein, which acts as a pump to move a wide variety of substances, including toxins and many drugs, out of cells. This function is important for protecting the body, but it can also lead to multidrug resistance in cancer cells by pumping chemotherapy drugs out before they can work effectively.

Associated drugs: N/A

Gene	Genotype/Alleles	Phenotype
ABCB1	*2/*2	Indeterminate

ADRA2A

The ADRA2A gene encodes the alpha-2A adrenergic receptor, a protein that mediates norepinephrine signaling and regulates key functions such as blood pressure, insulin secretion, and neurotransmitter release. Variants in ADRA2A have been linked to differences in the blood-pressure-lowering response in certain treatments.

Associated drugs: N/A

Gene	Genotype/Alleles	Phenotype
ADRA2A	rs1800544/rs1800544	Indeterminate

ANKK1

The ANKK1 gene encodes a protein that acts as a kinase, influencing cell signaling pathways. It's located near and interacts with the gene for the dopamine D2 receptor, and variations in this gene may linked to an individual's response to antipsychotics medications.

Associated drugs: N/A

Gene	Genotype/Alleles	Phenotype
ANKK1	Reference/Reference	Indeterminate

APOE

The APOE gene encodes apolipoprotein E, a protein that transports lipids and cholesterol in the bloodstream. The three main variants of this gene (e2, e3, and e4) are a major risk factor for developing late-onset Alzheimer's disease and variation in response to lipid lowering medications.

Associated drugs: N/A

Gene	Genotype/Alleles	Phenotype
APOE	Reference/Reference	Indeterminate

BDNF

The BDNF gene encodes a protein called brain-derived neurotrophic factor, which is essential for the growth, survival, and maintenance of nerve cells. The common Val66Met variant has a potential to influence some antidepressants and neuropsychiatric treatments response.

Associated drugs: N/A

Gene	Genotype/Alleles	Phenotype
BDNF	Reference/Reference	Indeterminate

COMT

This gene encodes catechol-O-methyltransferase (COMT), an enzyme that degrades catecholamines such as dopamine, norepinephrine, and epinephrine.

Associated drugs: morphine, amphetamine, dexmethylphenidate, dextroamphetamine, lisdexamphetamine, methylphenidate

Gene	Genotype/Alleles	Phenotype
COMT	rs174675/rs174675	Indeterminate

CYP1A2

The CYP1A2 gene encodes a liver enzyme that is a major player in drug metabolism, especially for certain antipsychotics. Its activity can be influenced by diet and smoking, affecting how a person processes these substances.

Associated drugs: N/A

Gene	Genotype/Alleles	Phenotype
CYP1A2	*1F/*1F	Indeterminate

CYP2B6

This gene encodes a liver enzyme called cytochrome P450 2B6 (CYP2B6) that metabolizes various drugs. Genetic variations in CYP2B6 enzymes directly impact how quickly or slowly these drugs are processed by the body, which can affect their effectiveness and/or the risk of side effects.

Associated drugs: efavirenz, sertraline, methadone, nevirapine

Gene	Genotype/Alleles	Phenotype
CYP2B6	*2/*29	Intermediate Metabolizer

CYP2C19

This gene encodes a liver enzyme called cytochrome P450 2C19 (CYP2C19) that metabolizes various drugs. Genetic variations in CYP2C19 enzymes directly impact how quickly or slowly these drugs are processed by the body, which can affect their effectiveness and/or the risk of side effects.

Associated drugs: amitriptyline, citalopram, clomipramine, clopidogrel, dexlansoprazole, doxepin, escitalopram, imipramine, lansoprazole, omeprazole, pantoprazole, sertraline, trimipramine, voriconazole, mavacamten, esomeprazole, rabeprazole, carisoprodol, amitriptyline, brivaracetam, clobazam, diazepam, flibanserin, phenobarbital, primidone, trimipramine, zonisamide, leflunomide, brivaracetam, carisoprodol, clobazam

Gene	Genotype/Alleles	Phenotype
CYP2C19	*1/*1	Normal Metabolizer

CYP2C9

This gene encodes a liver enzyme called cytochrome P450 2C9 (CYP2C9) that metabolizes various drugs. Genetic variations in CYP2C9 enzymes directly impact how quickly or slowly these drugs are processed by the body, which can affect their effectiveness and/or the risk of side effects.

Associated drugs: celecoxib, flurbiprofen, fluvastatin, fosphenytoin, ibuprofen, lornoxicam, meloxicam, phenytoin, piroxicam, siponimod, tenoxicam, warfarin, dronabilol, erdatifinib, avatrombopag

Gene	Genotype/Alleles	Phenotype
CYP2C9	*1/*1	Normal Metabolizer

CYP2D6

This gene encodes a liver enzyme called cytochrome P450 2D6 (CYP2D6) that metabolizes various drugs. Genetic variations in CYP2D6 enzymes directly impact how quickly or slowly these drugs are processed by the body, which can affect their effectiveness and/or the risk of side effects.

Associated drugs: amitriptyline, amoxapine, aripiprazole, atomoxetine, brexpiprazole, clomipramine, codeine, desipramine, doxepin, eliglustat, flecainide, fluvoxamine, haloperidol, hydrocodone, imipramine, meclizine, metoprolol, nortriptyline, ondansetron, paroxetine, pimozide, propafenone, risperidone, tamoxifen, tetrabenazine, thioridazine, tramadol, trimipramine, tropisetron, venlafaxine, vortioxetine, zuclopenthixol, gefitinib, carvedilol, mexiletine, nebivolol, propafenone, propanolol, ranolazine, timolol, dolasetron, esomeprazole, Fosnetupitant / Palonosetron, metoclopramide, Benzhydrocodone, palonosetron, eliglustat, dihydrocodein, hydrocodone, oliceridine, oxycodone, tramadol, amphetamine, chlorpromazine, clozapine, desvenlafaxine, deutetrabenazine, dextroamphetamine, donepezil, doxepin, fluoxetine, galantamine, iloperidone, lisdexamphetamine, lofexidine, maprotiline, nefazodone, nortriptyline, paliperidone, perphenazine, protriptyline, trimipramine, valbenazine, viloxazine, cevimeline, pitolisant, darifenacin, fesoterodine, mirabefron, tamsulosin, tolterodine, desipramine, eliglustat, iliperidone, mirabegron, mirtazapine, perphenzaine, pitolisant, valbenazine

Gene	Genotype/Alleles	Phenotype
CYP2D6	*5/*5	Poor Metabolizer

CYP3A4

This gene encodes a liver enzyme called cytochrome P450 3A4 (CYP3A4) that metabolizes various drugs. Genetic variations in CYP3A4 enzymes directly impact how quickly or slowly these drugs are processed by the body, which can affect their effectiveness and/or the risk of side effects.

Associated drugs: quetiapine, tacrolimus

Gene	Genotype/Alleles	Phenotype
CYP3A4	*2/*2	Indeterminate

CYP3A5

This gene encodes a liver enzyme called cytochrome P450 3A5 (CYP3A5) that metabolizes various drugs. Genetic variations in CYP3A5 enzymes directly impact how quickly or slowly these drugs are processed by the body, which can affect their effectiveness and/or the risk of side effects.

Associated drugs: tacrolimus, cyclosporin

Gene	Genotype/Alleles	Phenotype
CYP3A5	*3/*3	Poor Metabolizer

DBH

The DBH gene encodes the enzyme dopamine beta-hydroxylase, which converts the neurotransmitter dopamine into norepinephrine. This enzyme is crucial for regulating blood pressure, stress responses, and overall nervous system function.

Associated drugs: N/A

Gene	Genotype/Alleles	Phenotype
DBH	Reference/Reference	Indeterminate

DRD2

The DRD2 gene encodes the dopamine D2 receptor, a protein that binds to the neurotransmitter dopamine and is a key player in the brain's reward system. This receptor is a target for many psychiatric medications, and its activity is linked to conditions like schizophrenia, addiction, and Parkinson's disease.

Associated drugs: N/A

Gene	Genotype/Alleles	Phenotype
DRD2	Reference/Reference	Indeterminate

GRIK1

The GRIK1 gene encodes a subunit of a type of glutamate receptor called a kainate receptor. This receptor is found in the central nervous system and is important for cell-to-cell signaling and nerve function.

Associated drugs: N/A

Gene	Genotype/Alleles	Phenotype
GRIK1	rs2832407/rs2832407	Indeterminate

GRIK4

The GRIK4 gene encodes a different subunit of the kainate glutamate receptor, specifically a high-affinity one. This receptor is involved in synaptic transmission and has been linked to various neurological and psychiatric disorders.

Associated drugs: N/A

Gene	Genotype/Alleles	Phenotype
GRIK4	Reference/Reference	Indeterminate

GRIN2B

The GRIN2B gene encodes a subunit of the NMDA receptor, a type of glutamate receptor that is vital for synaptic plasticity, which is a process essential for learning and memory. Mutations in this gene can lead to a variety of neurological disorders, including intellectual disability and autism spectrum disorder.

Associated drugs: N/A

Gene	Genotype/Alleles	Phenotype
GRIN2B	Reference/Reference	Indeterminate

HTR1A

The HTR1A gene encodes a serotonin receptor that is involved in regulating mood, anxiety, and sleep. Its activity is a key target for antidepressant and antipsychotic medications.

Associated drugs: N/A

Gene	Genotype/Alleles	Phenotype
HTR1A	rs6295/rs6295	Indeterminate

HTR2A

This gene encodes the 5-hydroxytryptamine receptor 2A (HTR2A) involved in various neurological and psychiatric functions. Genetic variations in HTR2A are associated with various psychiatric conditions.

Associated drugs: citlopram

Gene	Genotype/Alleles	Phenotype
HTR2A	Reference/Reference	Indeterminate

MTHFR

The MTHFR gene encodes the enzyme methylenetetrahydrofolate reductase, which is essential for processing the amino acid folate (vitamin B9). Common variants of this gene can reduce the enzyme's activity, affecting an individual's ability to metabolize folic acid.

Associated drugs: N/A

Gene	Genotype/Alleles	Phenotype
MTHFR	rs1801131/rs4846051	Indeterminate

SLC6A4

The SLC6A4 gene encodes the serotonin transporter (SERT), a protein that regulates serotonin levels in the brain. Genetic variations in SLC6A4 may affect serotonin transporter expression and function.

Associated drugs: No actionable drugs

Gene	Genotype/Alleles	Phenotype
SLC6A4	Reference/Reference	Indeterminate

UGT1A4

The UGT1A4 gene encodes an enzyme that plays a key role in the metabolism of drugs and hormones, particularly by adding glucuronide to them to make them more water-soluble for excretion. This enzyme is important for the breakdown of certain psychiatric medications.

Associated drugs: N/A

Gene	Genotype/Alleles	Phenotype
UGT1A4	*1/*1	Indeterminate

UGT2B15

The UGT2B15 gene encodes an enzyme that helps to metabolize and inactivate a variety of compounds, including steroid hormones and certain drugs. Variations in UGT2B15 can influence the breakdown of testosterone and affect the efficacy of some cancer medications.

Associated drugs: N/A

Gene	Genotype/Alleles	Phenotype
UGT2B15	*1/*1	Indeterminate

Summary Table

Gene	Genotype	Phenotype
ABCB1	*2/*2	Indeterminate
ADRA2A	rs1800544/rs1800544	Indeterminate
ANKK1	Reference/Reference	Indeterminate
APOE	Reference/Reference	Indeterminate
BDNF	Reference/Reference	Indeterminate
COMT	rs174675/rs174675	Indeterminate
CYP1A2	*1F/*1F	Indeterminate
CYP2B6	*2/*29	Intermediate Metabolizer
CYP2C19	*1/*1	Normal Metabolizer
CYP2C9	*1/*1	Normal Metabolizer
CYP2D6	*5/*5	Poor Metabolizer
CYP3A4	*2/*2	Indeterminate
CYP3A5	*3/*3	Poor Metabolizer
DBH	Reference/Reference	Indeterminate
DRD2	Reference/Reference	Indeterminate
GRIK1	rs2832407/rs2832407	Indeterminate
GRIK4	Reference/Reference	Indeterminate
GRIN2B	Reference/Reference	Indeterminate
HTR1A	rs6295/rs6295	Indeterminate
HTR2A	Reference/Reference	Indeterminate
MTHFR	rs1801131/rs4846051	Indeterminate
SLC6A4	Reference/Reference	Indeterminate
UGT1A4	*1/*1	Indeterminate
UGT2B15	*1/*1	Indeterminate

Limitations

The report was developed by UGenome AI, with performance characteristics established using next-generation sequencing (NGS; whole-exome or whole-genome sequencing) data from the 1000 Genomes Project. Results are reported only for the genes and genomic regions included within the defined reportable range of the ordered test(s). Genetic variants that extend beyond this range, including copy number variants spanning multiple genes, are evaluated and reported only with respect to their impact on regions within the reportable range; effects outside these regions are generally not assessed. Variant interpretations are based on the scientific and clinical evidence available at the time of reporting and may change as new information becomes available.

Due to the complexity of genetic testing and analysis, errors, although uncommon, may occur, including sample mix-ups, laboratory or operational issues, equipment or reagent failures, or errors introduced by upstream suppliers. UGenome makes no guarantees regarding the accuracy or completeness of the sequencing analysis, and is not responsible for errors or omissions arising from the analysis or from processes occurring prior to receipt of sequencing data.

Disclaimers

The report is provided for informational purposes only and is not intended to diagnose disease or guide treatment decisions, including changes to medications. It does not constitute medical advice. This test has not been cleared or approved by the U.S. Food and Drug Administration, and such clearance or approval is not required at this time. Healthcare decisions should be made in consultation with a licensed healthcare provider.

The result does not evaluate the patient's complete medication regimen and does not assess all potential drug-drug or drug-gene interactions. Results should be interpreted by a qualified healthcare professional in the context of the patient's full clinical history, current therapies, and other relevant clinical information.