

Client: Example Client ABC123  
123 Test Drive  
Salt Lake City, UT 84108  
UNITED STATES

Physician: Doctor, Example

**Patient: Patient, Example**

**DOB:** Unknown  
**Gender:** Unknown  
**Patient Identifiers:** 01234567890ABCD, 012345  
**Visit Number (FIN):** 01234567890ABCD  
**Collection Date:** 00/00/0000 00:00

**CYP2C8, CYP2C9, and CYP2C cluster**

ARUP test code 3001501

2C8/2C9 Specimen whole Blood

CYP2C8 Genotype \*1/\*1

CYP2C8 Phenotype Normal

CYP2C9 Genotype \*1/\*1

CYP2C9 Phenotype Normal

CYP2C Cluster Geno Negative

CYP2C Cluster Pheno Normal

2C8/2C9 Interpretation See Note

H=High, L=Low, \*=Abnormal, C=Critical

Unless otherwise indicated, testing performed at:

The following CYP2C8 alleles were detected: \*1/\*1  
The metabolizer phenotype is drug-dependent.

The following CYP2C9 allele(s) were detected: \*1/\*1. This result predicts the normal metabolizer phenotype, with an activity score of 2 of 2.

Recommendation: Guidelines for genotype-based dosing are published by the Clinical Pharmacogenetics Implementation Consortium (CPIC) and can be found at: <https://cpicpgx.org/> and <https://www.pharmgkb.org/>.

The 2C cluster variant (rs12777823) was not detected. This result predicts a normal phenotype and is not expected to contribute to warfarin dosing estimates.

This result has been reviewed and approved by [REDACTED]

H=High, L=Low, \*=Abnormal, C=Critical

**BACKGROUND INFORMATION: CYP2C8, CYP2C9, and CYP2C cluster**

**Characteristics:** The cytochrome P450 (CYP) isozymes 2C8 and 2C9 are involved in the metabolism of many drugs. Variants in the genes that code for CYP2C8 and CYP2C9 may influence pharmacokinetics of substrates, and may predict or explain non-standard dose requirements, therapeutic failure or adverse reactions. The CYP2C cluster variant (rs12777823) is associated with a decreased warfarin dose requirement in some people of African descent.

**Inheritance:** Autosomal codominant.

**Cause:** CYP2C8 and CYP2C9 gene variants and the CYP2C cluster variant affect enzyme function.

**Variants Tested:**

(Variants are numbered according to the following transcripts: CYP2C8 NM\_000770, CYP2C9 NM\_000771, and 2C cluster rs12777823).

\*1: Indicative of no detected targeted variants and an assumption of functional allele.

CYP2C8\*2: rs11572103, c.805A>T  
CYP2C8\*3: rs10509681, c.1196A>G  
CYP2C8\*4: rs1058930, c.792C>G

CYP2C rs12777823, g.96405502 G>A

CYP2C9\*2: rs1799853, c.430C>T  
CYP2C9\*3: rs1057910, c.1075A>C  
CYP2C9\*4: rs56165452, c.1076T>C  
CYP2C9\*5: rs28371686, c.1080C>G  
CYP2C9\*6: rs9332131, c.818del  
CYP2C9\*8: rs7900194, c.449G>A  
CYP2C9\*11: rs28371685, c.1003C>T  
CYP2C9\*12: rs9332239, c.1465C>T

**Clinical Sensitivity:** Drug-dependent.

**Methodology:** Polymerase chain reaction (PCR) and fluorescence monitoring.

**Analytical Sensitivity and Specificity:** Greater than 99 percent. **Limitations:** Only the targeted CYP2C8, CYP2C9 and CYP2C cluster variants will be detected by this panel, and assumptions about phase and content are made to assign alleles. Publicly available sources such as the [www.pharmvar.org](http://www.pharmvar.org) or [www.pharmgkb.org](http://www.pharmgkb.org) provide guidance on phenotype predictions and allele frequencies.

**Diagnostic errors** can occur due to rare sequence variations. Risk of therapeutic failure or adverse reactions with CYP2C8 or CYP2C9 substrates may be affected by genetic and non-genetic factors that are not detected by this test. This result does not replace the need for therapeutic drug or clinical monitoring.

Please note the information contained in this report does not contain medication recommendations, and should not be interpreted as recommending any specific medications. Any dosage adjustments or other changes to medications should be evaluated in consultation with a medical provider.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Counseling and informed consent are recommended for genetic testing. Consent forms are available online.

EER CYP2C8 CYP2C9 CYP2C Cluster

See Note

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Authorized individuals can access the ARUP  
Enhanced Report using the following link:

[Redacted Link]

VERIFIED/REPORTED DATES

Procedure	Accession	Collected	Received	Verified/Reported
2C8/2C9 Specimen	23-324-111369	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
CYP2C8 Genotype	23-324-111369	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
CYP2C8 Phenotype	23-324-111369	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
CYP2C9 Genotype	23-324-111369	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
CYP2C9 Phenotype	23-324-111369	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
CYP2C Cluster Geno	23-324-111369	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
CYP2C Cluster Pheno	23-324-111369	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
2C8/2C9 Interpretation	23-324-111369	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
EER CYP2C8 CYP2C9 CYP2C Cluster	23-324-111369	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00

END OF CHART

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