

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

**Opioid Receptor, mu OPRM1, 1 Variant**

ARUP test code 2008767

OPRM1, Specimen whole Blood

OPRM1 Genotype, Interpretation **AG \***

OPRM1 Phenotype, Interpretation See Note

OPRM1, Interpretation See Note

Indication for testing: predict opioid sensitivity.

Interpretation: One copy of the OPRM1 A allele and one copy of the G allele (rs1799971) were detected in this sample. Further studies are needed to determine the clinical significance of this genotype; however, it is possible this patient may require higher or more frequent doses of opioid receptor agonists (e.g., morphine) to achieve adequate pain control. He/she may also be more likely to respond to opioid antagonists (e.g., naltrexone) in the treatment of alcohol and/or opioid dependency. This association of OPRM1 and drug sensitivity is not definitive and may be different for individual opioids.

Recommendation: Annotations for clinical application of this OPRM1 allele are available through the Pharmacogenomics Knowledge Base at: <https://www.pharmgkb.org/gene/PA31945>

This result has been reviewed and approved by [REDACTED]

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

**BACKGROUND INFORMATION:** Opioid Receptor, Mu OPRM1, 1 Variant

**CHARACTERISTICS:** The mu opioid receptor is involved in mediating the clinical response to opioids (agonists and antagonists). OPRM1 c.118A>G has been associated with lower sensitivity to opioid receptor agonists prescribed for pain control (e.g., morphine) and higher sensitivity to opioid receptor antagonists used in the treatment of alcohol and drug dependency (e.g., naltrexone). Risk of side effects to opioids is also associated with this genetic variant.

**INHERITANCE:** Autosomal codominant.

**CAUSE:** SNP rs1799971; OPRM1 c.118A>G (p.Asn40Asp), also known as G allele, alters response to opioids.

**CLINICAL SENSITIVITY:** Drug dependent.

**METHODOLOGY:** Polymerase Chain Reaction (PCR) and Fluorescence Monitoring

**ANALYTICAL SENSITIVITY and SPECIFICITY:** Greater than 99 percent.

**LIMITATIONS:** Only the targeted OPRM1 mutation, c.118A>G, will be detected. Diagnostic errors can occur due to rare sequence variations. Risk of therapeutic failure or adverse reactions with opioids may be affected by genetic and nongenetic factors that are not detected by this test. This result does not replace the need for therapeutic 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 Opioid Receptor, mu OPRM1

See Note

[REDACTED]

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

VERIFIED/REPORTED DATES

Procedure	Accession	Collected	Received	Verified/Reported
OPRM1, Specimen	23-324-117191	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
OPRM1 Genotype, Interpretation	23-324-117191	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
OPRM1 Phenotype, Interpretation	23-324-117191	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
OPRM1, Interpretation	23-324-117191	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
EER Opioid Receptor, mu OPRM1	23-324-117191	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00

END OF CHART

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

Unless otherwise indicated, testing performed at:

ARUP LABORATORIES | 800-522-2787 | aruplab.com  
500 Chipeta Way, Salt Lake City, UT 84108-1221  
Jonathan R. Genzen, MD, PhD, Laboratory Director

Patient: Patient, Example  
ARUP Accession: 23-324-117191  
Patient Identifiers: 01234567890ABCD, 012345  
Visit Number (FIN): 01234567890ABCD  
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