

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

Physician: Doctor, Example

**Patient: Patient, Example**

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

**TPMT and NUDT15**

ARUP test code 3001535

TPMT2 Specimen whole Blood

TPMT Genotype Neg/Neg

NUDT15 Genotype \*2 or \*3/Neg

**TPMT2 Interpretation**

**See Note**

One decreased function allele was identified, suggesting susceptibility to dose-related toxicity from standard doses of thiopurine drugs. Dose reduction of thiopurine drugs may be required. See drug labeling and clinical consensus guidelines for more details about dosing.

This result has been reviewed and approved by [REDACTED], Ph.D.

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

**BACKGROUND INFORMATION: TPMT and NUDT15**

**CHARACTERISTICS:** Thiopurine drug therapy is used for autoimmune diseases, inflammatory bowel disease, acute lymphoblastic leukemia, and to prevent rejection after solid organ transplant. The inactivation of thiopurine drugs is catalyzed in part by thiopurine methyltransferase (TPMT) and nudix hydrolase 15 (NUDT15). Variants in the TPMT and/or NUDT15 genes are associated with an accumulation of cytotoxic metabolites leading to increased risk of drug-related toxicity with standard doses of thiopurine drugs. These effects on thiopurine catabolism can be additive.

**INHERITANCE:** Autosomal codominant.

**CAUSE:** TPMT and NUDT15 variants affect enzyme expression or activity.

**VARIANTS TESTED:**

(Variants are numbered according to NM\_000367 transcript for TPMT and the NM\_018283 transcript for NUDT15)

**Negative:** No variants detected is predictive of \*1 functional alleles (TPMT or NUDT15).

TPMT\*2: rs1800462, c.238G>C

TPMT\*3A: rs1800460, c.460G>A; rs1142345, c.719A>G

TPMT\*3B: rs1800460, c.460G>A

TPMT\*3C: rs1142345, c.719A>G

TPMT\*4: rs1800584, c.626-1G>A

NUDT15 \*2 or \*3: rs116855232, c.415C>T

NUDT15\*4: rs147390019, c.416G>A

**CLINICAL SENSITIVITY:** 95 percent.

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

**ANALYTICAL SENSITIVITY AND SPECIFICITY:** 99 percent.

**LIMITATIONS:** Only the targeted TPMT and NUDT15 variants will be detected by this test. Because the complex TPMT\*3A allele contains the variants found in the \*3B and \*3C alleles, this test cannot distinguish the 3A/Negative genotype (intermediate enzyme activity) from the rare \*3B/\*3C genotype (no or low enzyme activity). Genotyping may reflect donor status in patients who have received allogeneic stem cell or bone marrow transplants within 2 weeks of specimen collection. Actual enzyme activity and expression and risk for adverse reactions to thiopurines may be affected by additional genetic and non-genetic factors not evaluated by this test. Diagnostic errors can occur due to rare sequence variations. Genotyping does not replace the need for therapeutic drug monitoring and clinical observation.

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.

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

VERIFIED/REPORTED DATES				
Procedure	Accession	Collected	Received	Verified/Reported
TPMT2 Specimen	21-244-406111	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
TPMT Genotype	21-244-406111	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
NUDT15 Genotype	21-244-406111	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
TPMT2 Interpretation	21-244-406111	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  
Tracy I. George, MD, Laboratory Director

Patient: Patient, Example  
ARUP Accession: 21-244-406111  
Patient Identifiers: 01234567890ABCD, 012345  
Visit Number (FIN): 01234567890ABCD  
Page 3 of 3 | Printed: 9/8/2021 2:35:00 PM  
4848