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

Physician: Doctor, Example

Patient: Patient, Example

DOB	Unknown
Gender:	Female
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	*1/*2
TPMT Predicted Phenotype	**Intermediate** *
NUDT15 Genotype	*1/*2or*3
NUDT15 Phenotype	Intermediate
TPMT2 Interpretation	See Note One no function allele was identified in the TPMT gene, suggesting an intermediate metabolizer phenotype and 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. One no function allele was identified in the NUDT15 gene, suggesting an intermediate metabolizer phenotype and 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. 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/.

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 methyltrasferase (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)

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

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 allogenic 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.

EER TPMT and NUDT15	See Note

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

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

[redacted]

VERIFIED/REPORTED DATES

Procedure	Accession	Collected	Received	Verified/Reported
TPMT2 Specimen	23-316-101182	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
TPMT Genotype	23-316-101182	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
TPMT Predicted Phenotype	23-316-101182	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
NUDT15 Genotype	23-316-101182	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
NUDT15 Phenotype	23-316-101182	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
TPMT2 Interpretation	23-316-101182	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
EER TPMT and NUDT15	23-316-101182	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