ARUP LABORATORIES
800-522-2787 | aruplab.com
500 Chipeta Way, Salt Lake City, UT 84108-1221
Tracy I. George, MD, Chief Medical Officer

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

Physician: Doctor, Example

Patient: Patient, Example

DOB	10/11/1999
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	Neg/Neg
NUDT15 Genotype	Neg/Neg
TPMT2 Interpretation	See Note No decreased function alleles were identified for TPMT or NUDT15, suggesting standard doses of thiopurine drugs are appropriate. See drug labeling and clinical consensus guidelines for more details about dosing. This result has been reviewed and approved by [redacted]

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 co-dominant.
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 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.

Test developed and characteristics determined by ARUP Laboratories. See Compliance Statement C: aruplab.com/CS

VERIFIED/REPORTED DATES

Procedure	Accession	Collected	Received	Verified/Reported
TPMT2 Specimen	19-172-403022	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
TPMT Genotype	19-172-403022	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
NUDT15 Genotype	19-172-403022	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
TPMT2 Interpretation	19-172-403022	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