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

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

Dihydropyrimidine Dehydrogenase (DPYD), 3 Variants

ARUP test code 2012166

DPYD Specimen	DNA
DPYD Genotype	**Homozygous** *
DPYD Phenotype	Deficient

Interpretation: This patient is homozygous for the c.1905+1G>A (*2A) variant in the DPYD gene. This result predicts dihydropyrimidine dehydrogenase (DPD) deficiency. Because 80 percent of administered 5-fluorouracil (5-FU) is normally inactivated by DPD, the significant reduction of DPD activity may markedly increase concentrations of 5-FU, placing the patient at substantially increased risk for grade III-IV toxicity.

Recommendation: Fluoropyrimidine therapy is not recommended for this patient; select an alternative drug. The Clinical Pharmacogenetics Implementation Consortium (CPIC) dosing guidelines for fluoropyrimidines can be found at: https://www.pharmgkb.org/gene/PA145.

This result has been reviewed and approved by [redacted]

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BACKGROUND INFORMATION: Dihydropyrimidine Dehydrogenase (DPYD), 3 Variants

Background information for Dihydropyrimidine Dehydrogenase (DPYD), 3 Variants:

Characteristics: 5-Fluorouracil (5-FU) is the most frequently used chemotherapeutic drug for the treatment of many types of cancer, particularly colorectal adenocarcinoma. Grade III-IV drug toxicity attributed to 5-FU occurs in approximately 16 percent of patients, and may include hematologic, gastrointestinal, and dermatologic complications. In some cases, this toxicity can cause death. When 5-FU is metabolized in the body, approximately 80 percent is catabolized by the dihydropyrimidine dehydrogenase (DPD) enzyme. Variants in the DPYD gene can lead to reduced 5-FU catabolism, resulting in the aforementioned toxicity complications.

Inheritance: Autosomal codominant.

Cause: DPYD gene mutations.

DPYD Variants Tested:

Non-functional alleles and toxicity risk:

*13 (rs55886062, c.1679T>G) - Increased risk

*2A (rs3918290, c.1905+1G>A) - Greatly increased risk

c.2846A>T (rs67376798) - Increased risk

A result of negative indicates no variants detected and is predictive of *1 functional alleles and normal enzymatic activity.

Allele Frequency by Population:

*13: Caucasian - 0.1 percent; Asian - absent; African American - absent

*2A: Caucasian - 0.47-2.2 percent; Asian - absent; African American - absent

c.2846A>T: Caucasians - 1.1 percent; Asian - absent; African American - absent

Clinical Sensitivity: Estimated at 31 percent for the DPYD variants analyzed.

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

Analytical Sensitivity and Specificity: 99 percent.

Limitations: Only the targeted DPYD variants will be detected by this panel. Diagnostic errors can occur due to rare sequence variations. 5-FU drug metabolism, efficacy and risk for toxicity may be affected by genetic and non-genetic factors that are not evaluated by this test. Genotyping does not replace the need for therapeutic drug monitoring or 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
DPYD Specimen	18-113-104020	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
DPYD Genotype	18-113-104020	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
DPYD Phenotype	18-113-104020	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