

UBA1 Mutation Quantitative Detection, VEXAS syndrome, Droplet Digital PCR, Varies

Test ID: UBA1Q

Useful for:

Identification of pathogenic variant(s) in the UBA1 gene in patients presenting with symptoms concerning for or consistent with VEXAS syndrome

Genetic Information:

A highly sensitive quantitative assay for the detection of 7 UBA1 mutations (c.122T>C, p.Met41Thr; c.121A>G, p.Met41Val; c.121A>C, p.Met41Leu; c.118-1G>C, p.?; c.118-2A>C, p.?; c.118-9_118-2del, p.?; and c.167C>T, p.Ser56Phe).

Methods:

This test is performed using a droplet digital polymerase chain reaction (ddPCR) system. DNA extracted from patient samples is PCR-amplified using mutant- and wildtype-specific primers and fluorescently labeled probes. Results are analyzed using dedicated software and Poisson statistics to provide absolute quantification of mutant target and wild type copies. Calculated results are reported as mutant fractional abundance (variant allele fraction %).(Unpublished Mayo method)

Interpretation:

The assay is reported as positive or negative. In positive cases, the mutation type and its variant allele fraction (VAF) are reported.

$VAF\% = (\text{mutant copy number}) / (\text{mutant copy number} + \text{wild-type number})$

The precision of this quantitative assay is very high but inter-assay variability may occur such that quantitative changes should not be considered significant if 2 single measurements differ by less than 0.5 log (3.16-fold).

Specimen Requirements:

Submit only 1 of the following specimens:

Specimen Type: Whole blood

Container/Tube:

Preferred: Lavender top (EDTA)

Acceptable: Yellow top (ACD-B) or green top (heparin)

Specimen Volume: 4 mL

Collection Instructions:

1. Invert several times to mix blood.
2. Send whole blood specimen in original tube. **Do not aliquot.**
3. Label specimen as blood.

Specimen Stability: Refrigerated 7 days/Ambient 7 days

Minimum Volume: 4 ml

Specimen Type: Bone marrow aspirate

Container/Tube:

Preferred: Lavender top (EDTA)

Acceptable: Yellow top (ACD-B) or green top (heparin)

Specimen Volume: 2 mL

Collection Instructions:

1. Invert several times to mix bone marrow.
2. Send bone marrow specimen in original tube. Do not aliquot.
3. Label specimen as bone marrow.

Specimen Stability: Refrigerated 7 days/Ambient 7 days

Minimum Volume: 2 ml

Specimen Type: Extracted DNA from blood or bone marrow

Container/Tube: 1.5- to 2-mL tube with indication of volume and concentration of DNA

Specimen Volume: Entire specimen

Collection Instructions:

1. Label specimen as extracted DNA and source of specimen
2. Indicate volume and concentration of DNA on label. The required volume of DNA is at least 50 mcL at a concentration of 50 ng/mcL

Specimen Stability: Frozen (preferred)/Refrigerated

Minimum Volume: 50 mcL at 50 ng/mcL

Specimen Stability Information:

Specimen Type	Temperature	Time	Special Container
Varies	Refrigerated (preferred)	7 days	
	Ambient	7 days	

Cautions:

Other potential UBA1 variants outside the 7 assay targets are not detected by this assay. The absence of UBA1 mutation does not exclude other causes of inflammatory disorders or clonal myeloid processes. Although most patients with VEXAS syndrome have high UBA1 mutation variant fractions, this assay may not identify very low mutation burden cases below the limit of detection.

CPT Code:

81479

Day(s) Performed: Monday through Saturday

Report Available: 4 to 8 days

Questions

Contact Connie Penz, Laboratory Resource Coordinator at 800-533-1710.