

BRAF and KIT Mutation Analysis, Next-Generation Sequencing, Tumor

Patient ID SA00174966	Patient Name TESTINGRNV, NORMAL	Birth Date 1985-01-04	Sex M	Age 40
Order Number SA00174966	Client Order Number SA00174966	Ordering Physician CLIENT,CLIENT	Report Notes	
Account Information C7028846 DLMP Rochester		Collected 28 Mar 2025 00:00		

BRAF/KIT Mutation Analysis, Tumor

Result

MCR

Provided diagnosis: melanoma

No reportable sequence variants were detected within the analyzed regions of the tested genes listed in the method description.

Interpretation

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Current data suggest that the efficacy of BRAF-targeted therapy, anti-MEK therapy, and tyrosine kinase inhibitors in melanoma is limited to patients whose tumors harbor a BRAF V600E, BRAF V600K, or KIT exon 11 mutation [PMID: 20630094, PMID: 22608338, PMID: 22356324, PMID: 25399551.

PMID: 25265492, PMID: 24508103, PMID: 23775962, PMID:

21690468, PMID: 21642685, PMID 2261812]. Thus, the absence of a BRAF or KIT mutation in this tumor specimen suggests that such therapies may have limited therapeutic value for this patient.

Additional Information

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CLINICAL TRIALS

Possible clinical trials of benefit for this patient can be found at the following sites:

- 1) ClinicalTrials.gov: www.clinicaltrials.gov/ct2/search/advanced
- 2) Mayo Clinic: www.mayo.edu/research/clinical-trials/
- 3) National Cancer Institute: www.cancer.gov/clinicaltrials/search

Specimen

MCR

Tissue, Tumor

Tissue ID

MCR

12345

Method

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Microscopic examination is performed by a pathologist to identify areas of tumor for enrichment by macrodissection. DNA is extracted from FFPE or cytology slides, and next generation sequencing is performed to evaluate the presence of a mutation in all coding regions and exon/intron boundaries of the BRAF and KIT genes.

Variant nomenclature is based on build GRCh37 (hg19). For details about gene transcripts (RefSeq accession numbers), specific targeted regions of each gene, and additional information on this test, see www.mayocliniclabs.com (Test ID BRFKT).

Disclaimer

1 MCR

This test cannot differentiate between somatic and germline alterations. Additional testing may be necessary to clarify the significance of results if there is a potential hereditary risk.

DNA variants of uncertain significance may be identified.

A negative result does not rule out the presence of a variant that may be present but below the limits of detection of this assay. The analytical sensitivity of this assay for sequence reportable alterations is 5% mutant allele frequency with a minimum coverage of 500X in a sample with at least 20% tumor content.

Point mutations and small insertion/deletion mutations will be detected in the BRAF and KIT genes only. This test may detect single exon deletions but does not detect multi-exon deletions, duplications, larger-scale genomic copy number variants, copy neutral loss of heterozygosity (LOH), or epigenetic modifications such as promoter methylation. DELINS of 1,000 bp or less are detectable with at least 50 or more supporting reads.

Variant allele frequency (VAF) is the percentage of sequencing reads supporting a specific variant divided by the total sequencing reads at that position. In somatic testing, VAF should be interpreted in the context of several factors including, but not limited to: tumor purity/heterogeneity/copy number status (ploidy, gains/losses, loss of heterozygosity) and sequencing artifact/

Performing Site Legend

Code	Laboratory	Address	Lab Director	CLIA Certificate
MCR	Mayo Clinic Laboratories - Rochester Main Campus	200 First Street SW, Rochester, MN 55905	Nikola Baumann Ph.D.	24D0404292



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misalignment [PMID: 27144058, PMID: 29769535]. Rare polymorphisms may be present that could lead to false-negative or false-positive results. The presence or absence of a variant may not be predictive of response to therapy in all patients. Test results should be interpreted in the context of clinical, tumor sampling, histopathological, and other laboratory data. If results obtained do not match other clinical or laboratory findings, contact the laboratory for discussion. Misinterpretation of results may occur if the information provided is inaccurate and/or	incomplete. Reliable results are dependent on adequate specimen collection and processing. This test has been validated on cytology slides and formalin-fixed, paraffin-embedded tissues; other types of fixatives are discouraged. Improper treatment of tissues, such as decalcification, may cause PCR failure. Released By MCR Sounak Gupta, M.B.B.S., Ph.D. Received: 29 Mar 2025 09:55 Reported: 06 Apr 2025 11:28
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Laboratory Notes

1 This test was developed and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. This test has not been cleared or approved by the U.S. Food and Drug Administration.

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