Clinical Info: NORMAL

Total Volume: Not Provided

Fasting: No

NRAS Extended Analysis

Results: NEGATIVE

No NRAS mutation was detected in the provided specimen. Results should be interpreted in conjunction with clinical and other laboratory findings for the most accurate interpretation. Samples with results reported as "no mutation detected" may harbor NRAS mutations that are not detected by this assay. Recent NCCN guidelines have recommended that anti-EGFR monoclonal antibodies cetuximab and panitumumab for the first-line treatment be given only to colorectal cancer patients who are negative for both KRAS and NRAS mutations. NRAS mutations are found in approximately 1-6% of colorectal cancer.

Indications: COLON, ADENOCARCINOMA

Specimen Location: RECTAL MASS

Specimen Type: Formalin-fixed, paraffin-embedded tissue block

Background: NRAS is a guanosine triphosphate (GTP) binding protein involved in downstream receptor signaling which is critical for cell proliferation, survival and differentiation. Mutations in the NRAS oncogene are frequently found in human cancers. They are common in melanomas, colorectal cancer, and thyroid cancer. This assay will detect NRAS mutations in exons 2, 3 and 4 (see mutation list), allowing the determination of drug response.

Methodology:

Genomic DNA was isolated from the provided tumor specimen. Exons 2, 3 and 4 of the NRAS gene were subjected to SNaPshot multiplex PCR and primer extension for mutation detection. This assay is able to detect 5% mutation in a background of wild-type DNA.

This test was developed and its performance characteristics determined by LabCorp. It has not been cleared or approved by the Food and Drug Administration.

Table: This Test Can Detect the Following NRAS Mutations
<table>
<thead>
<tr>
<th>TESTS</th>
<th>RESULT</th>
<th>FLAG</th>
<th>UNITS</th>
<th>REFERENCE INTERVAL</th>
<th>LAB</th>
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<tr>
<td>NRAS Exon</td>
<td>Mutation</td>
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Exon 2

Exon 3
- A59D, A59E, A59G, A59P, A59S, A59T, A59V, G60A, G60E, G60R, G60V, G60X, Q61E, Q61H, Q61K, Q61L, Q61P, Q61R, Q61X

Exon 4
- K117E, K117N, K117Q, K117X, A146P, A146S, A146T

References:

Director Review:
Testing, Director, PhD, FACMG
Director, Testing Purposes
LabCorp EDI Testing
Burlington, NC
336-222-7566
Microdissection Performed
Completed
**NRAS Extended Analysis**

Results: **POSITIVE**

- NRAS mutation was detected in the provided specimen.
- NRAS mutations may predict lack of response to anti-EGFR monoclonal antibody therapies (cetuximab and panitumumab) in the first-line treatment of patients with metastatic colorectal cancer. Recent NCCN guidelines have recommended this treatment be given only to patients who are negative for both KRAS and NRAS mutations. Thus, these drugs are not recommended for the treatment in patients who harbor NRAS mutations. NRAS mutations are found in approximately 1-6% of colorectal cancer.

Results should be interpreted in conjunction with clinical and other laboratory findings for the most accurate interpretation.

**Indications:**
- COLON, ADENOCARCINOMA

**Specimen Location:**
- COLON

**Specimen Type:**
- Formalin-fixed, paraffin-embedded tissue block

**Nucleotide Change:**
- Exon 4, c.436G>A

**Amino Acid Change:**
- Exon 4, p.A146T

**Background:**
- NRAS is a guanosine triphosphate (GTP) binding protein involved in downstream receptor signaling which is critical for cell proliferation, survival and differentiation. Mutations in the NRAS oncogene are frequently found in human cancers. They are common in melanomas, colorectal cancer, and thyroid cancer. This assay will detect NRAS mutations in exons 2, 3 and 4 (see mutation list), allowing the determination of drug response.

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<th>Exon</th>
<th>NRAS Mutation</th>
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<td>4</td>
<td>K117E, K117N, K117Q, K117X, A146P, A146S, A146T</td>
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References:

Director Review:
Testing, Director, PhD, FACMG
LabCorp EDI Testing
Burlington, NC
336-222-7566
Microdissection Performed
Completed
Patient: SAMPLE REPORT, 481120  
DOB: 09/28/1959  
Specimen ID: 052-445-9002-0  
Date collected: 02/20/2019 0800 Local  
Date Issued: 03/01/19 1242 ET  

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<th>Control ID</th>
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<th>LabCorp RTP</th>
<th>Dir: Arundhati Chatterjee, MD</th>
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<td>1912 TW Alexander Drive, RTP, NC 27709-0150</td>
<td>For inquiries, the physician may contact Branch: 800-222-7566 Lab: 336-555-0001</td>
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