NEO GENOMICS

866.776.5907, option 3

Molecular Genetics

NTRK Expression and NGS Fusion Profile

Client 1234
Sample Hematopathology/Oncology Facility
1000 Sample Avenue 2nd Floor
Sample, FL 33913
Phone: (111) 111-1111
Fax: (222) 222-2222

CC

Patient Name: **Sample**, **Sample**
Patient DOB / Sex: **01/01/1901 / M**
Specimen Type: **Paraffin Tissue**
Specimen ID: **12345**
MRN:

Ordering Physician(s): **Sample Doctor**
Accession / CaseNo: **123456 / NTP20-000001**
Collection Date: **04/01/2020**
Received Date: **04/01/2020 12:24:00 PM PDT**
Report Date:

Results Summary / Diagnostic & Prognostic Implications

ETV6-NTRK3:
The ETV6-NTRK3 fusion results in ligand-independent dimerization and activation of the fused protein. Solid tumors harboring NTRK gene fusions are sensitive to Trk-targeted therapies, which are FDA-approved for adult and pediatric patients.

NTRK3 G623R:
NTRK3 G623R, a missense mutation located in the kinase domain of the Ntrk3 protein, has been shown to result in secondary resistance to TrkC inhibition in the context of ETV6-NTRK3 fusion positive tumors.

Detected Abnormalities

Pan-TRK	NTRK3 Fusion
Expressed	Detected

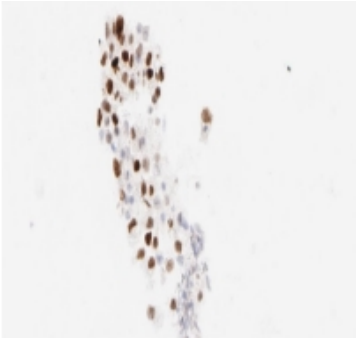
Profile Results Detail

Biomarker/Assay	Results	Biomarker/Assay	Results
NTRK1 Fusion		NTRK3 Fusion Fusion Partner Fusion Read (%) Point Mutations	Detected ETV6-NTRK3 89.2 G623R
NTRK2 Fusion			

Histology Testing Detail

Test	Result
Pan-TRK	Expressed

Pan-TRK



HSG20-000434

Test Description & Methodology

Clinical Significance

Rearrangements of the genes tested and fusions with partner genes, leading to gene activation and overexpression, have been observed in a variety of cancers. Such fusions and other mutations may be targetable with selective kinase inhibitors. Point mutations associated with acquired resistance have been reported and their detection may suggest appropriate second- or third-generation inhibitor therapies.

Methodology

If there is adequate specimen, both next generation sequencing for NTRK fusions and immunohistochemistry for Pan-TRK overexpression will be performed. To detect fusions, nucleic acid is extracted from formalin-fixed, paraffin-embedded tissue (FFPE). The NTRK NGS Fusion Profile uses target anchored massively parallel RNA sequencing for the detection of fusions and single nucleotide variants involving select exons of NTRK1, NTRK2, and NTRK3 genes. Translocation partners of fusions in these genes will be identified. Possible translocations and mutations outside the ranges analyzed by this test will not be detected. The limit of detection in this assay is approximately 5% abnormal mRNA in a background of total RNA. To detect TRK overexpression, Ventana clone EPR17341 is used to detect Pan-TRK in formalin-fixed paraffin-embedded tissue sections. A multimer technology based system is used for detection. The antibody is directed against the C-terminal region of TRK (tropomyosin receptor kinase) A, B, and C proteins, which are encoded by NTRK1, NTRK2, and NTRK3 genes respectively.

Biomarkers Evaluated (by molecular analysis unless otherwise noted)

NTRK1, NTRK2, NTRK3, Pan-TRK IHC

Electronic Signature

(Report is not signed)

The Technical Component Processing, Analysis and Professional Component of this test was completed at NeoGenomics California, 31 Columbia, Aliso Viejo, CA / 92656 / CLIA #05D1021650 / Medical Director(s): Dr. Lawrence Weiss.
The performance characteristics of this test have been determined by the performing laboratory. This test has not been approved by the FDA. The FDA has determined such clearance or approval is not necessary. This laboratory is CLIA certified to perform high complexity clinical testing.
Images that may be included within this report are representative of the patient but not all testing in its entirety and should not be used to render a result.