EGFR NGS

London Health Sciences Centre | St. Joseph's Health Care London

Pathology and Laboratory Medicine

Orderable - EGFR NGS

Turnaround Time: 15 days

Laboratory:
Molecular Diagnostics Lab

Requisition:
MOLECULAR DIAGNOSTIC REQUISITION

Method of Analysis:
Mutation screening was performed by next generation sequencing (NGS) on the Ion Torrent technology using the Ion PGM™ System (ThermoFisher). Library preparation was performed as per manufacturers instructions using the Ion AmpliSeq™ Cancer Hotspot Panel v2 (ThermoFisher), which screens approximately 2800 COSMIC mutations of 50 oncogenes and tumor suppressor genes, including COSMIC mutations in KRAS (63), NRAS (35) and BRAF (76) and EGFR (123). Only findings in the clinically indicated genes are reported; currently BRAF for melanoma, EGFR for lung cancer, and KRAS,

Specimen:

FFPE

Collection Information:

Send blocks to pathology lab for cutting

Reference Ranges:

See report

Interpretive Comments:

The National Comprehensive Cancer Network (NCCN) recommends testing for EGFR mutations and ALK rearrangements in all patients with recurrent or metastatic lung adenocarcinomas in order to guide therapy (PMID: 22138009). The College of American Pathologists (CAP), International Association for the Study of Lung Cancer (IASLC), and Association for Molecular Pathology (AMP) have prepared a joint guideline that provides a detailed description of the patient and specimen requirements and acceptable testing designs and strategies for the detection of these alterations (PMID: 23551194). Approximately 20% to 30% of lung adenocarcinomas contain an EGFR activating mutation that predicts response to therapy with EGFR tyrosine kinase inhibitors such as erlotinib (PMID: 22282308). Up to 90% of EGFR mutations occur in 2 hot spots within the kinase domain, as small deletions in the LREA motif of exon 19 or as a leucine to arginine substitution at amino acid 858 (exon 21).

Comments:

Patient must meet CCO criteria for funded testing

Storage and Shipment:

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Deliver to lab at room temperature.

NRAS and BRAF for colon cancer. This assay has been internally validated to meet >99% sensitivity and specificity for mutations that are at 5% mutant allele frequency in the assessed DNA sample. Rarely, mutations are detected at <5% mutant allele frequency and these are confirmed using alternate methodology, including real-time quantitative PCR.

Test Schedule:
As required,
Monday to Friday 0800-1600 hours