

EGFR Gene Amplification by FISH

FOR THE DETECTION OF EGFR AMPLIFICATION IN CARCINOMAS

Test Highlights

EGFR FISH analysis is a sensitive and specific method used to detect EGFR gene amplification, which is useful as a prognostic and therapeutic indicator in several carcinomas.

Disease Overview

- EGFR amplification has been shown to occur in a variety of solid tumors, including glioblastoma, non-small cell lung carcinoma, head and neck carcinomas, and carcinomas of the colon, breast, prostate, stomach, and ovary.
- Studies have shown that amplification of the EGFR gene is correlated with a poor prognosis in some types of tumors, including glioblastomas.

Genetics

EGFR is located on the short arm of chromosome 7 (7p12). Amplification of this gene may result in overexpression of EGFR, leading to progression of malignancies through increased angiogenesis, metastasis, and inhibition of apoptosis.

Indication for Ordering

Patients diagnosed with a neoplasm in which EGFR amplification has been shown to be a prognostic or therapeutic indicator.

Contraindication

This test is not recommended for detection of minimal residual disease.

Additional Ordering Note

The biopsy site and fixative used should be provided. The submitted sample should contain sufficient viable tumor.

Interpretation

Presence of EGFR gene amplification is predictive of a poor prognosis.

Limitation

Tissues fixed in alcohol-based or non-formalin fixatives have not been tested using this method.

Methodology

- This test uses a commercially available DNA FISH probe.
- This test is conducted by counting the number of probe signals within 40 cells and calculating the average probe number per cell. Neoplasms containing an EGFR/CEP7 ratio greater than or equal to two are considered amplified.

References

1. Vysis® LSI EGFR SpectrumOrange/ CEP 7 SpectrumGreen Probe (package insert). Des Plaines, IL: Abbott Molecular, Inc.; 2001.
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4. Rosell R, et al. Screening for epidermal growth factor receptor mutations in lung cancer. *N Engl J Med* 2009; 361(10):958–67.
5. Chua W, et al. Predictive biomarkers of clinical response to targeted antibodies in colorectal cancer. *Curr Opin Mol Ther* 2009; 11(6):611–22.
6. Markman B, Rodriguez-Freixinos V, Tabernero J. Biomarkers in colorectal cancer. *Clin Transl Oncol* 2010;12(4):261–70.
7. Jansen M, Yip S, Louis DN. Molecular pathology in adult gliomas: diagnostic, prognostic, and predictive markers. *Lancet Neurol* 2010; 9(7):717–26.
8. Chang SS, Califano J. Current status of biomarkers in head and neck cancer. *J Surg Oncol* 2008; 97(8):640–3.

Test Information

0049234

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For specific collection, transport, and testing information, refer to the ARUP website at www.aruplab.com.

For information on test selection, ordering, and interpretation, refer to ARUP Consult® at www.arupconsult.com.

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