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ALK 1

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What is the ALK 1?

ALK 1 is a gene in our body that makes the protein ALK receptor tyrosine kinase, which is a cell surface protein required for proliferation and differentiation of the cell.

How does this cause cancer?

Our DNA consists of an gene which is responsible for preparation of the ALK 1 protein. Some changes (mutations) in this gene causes improper production of this protein. When the ALK 1 protein is over expressed in the cell, it continuously tells the cell to divide and grow. This leads to excess cell growth that further leads to cancer.

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Why is the test necessary?

As these mutations lead to over expression of the EGFR protein which further leads to rapid division of cells causing cancer, detection of these mutations is necessary to trace a treatment.

Type of Sample required?

A Tissue sample is required for sequencing.

Who should get tested?

The one diagnosed with non-small cell lung cancer should be further tested for ALK 1 mutations. Also the one with lung adenocarcinoma should also be tested.

How is it tested?

The test is carried out by detailed sequencing of the targeted gene by advanced molecular techniques to find out the changes (mutations) in the gene leading to improper functioning of EGFR protein.

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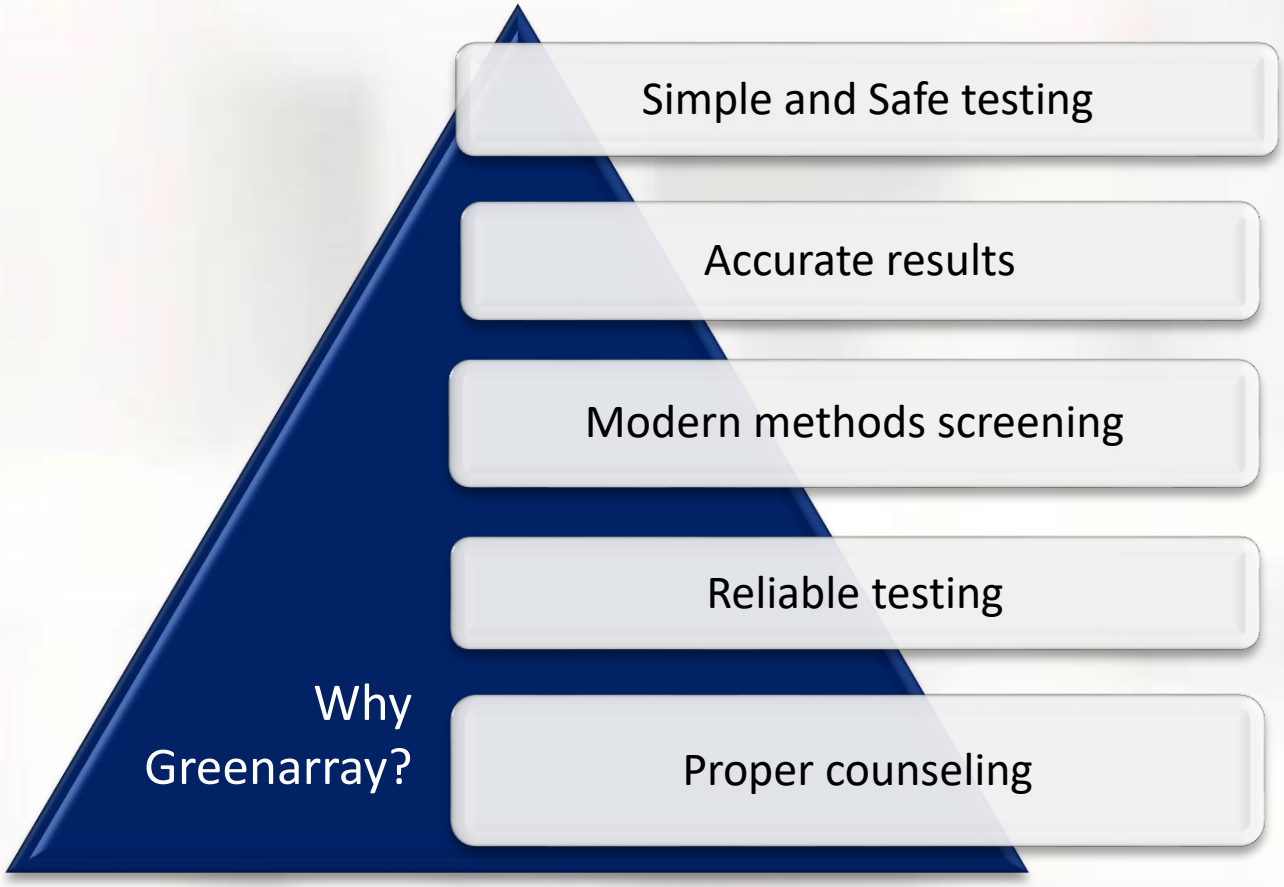

About Green Array

Green Array is a molecular diagnostic company. We offers diagnosis of infectious diseases, genetic testing and healthcare information to improve health and wellness. Our goal is to provide high quality affordable and accessible services.

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EGFR Mutation Test

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EGFR Mutation :

- EGFR is a growth factor receptor which results in activation of RAS/MAPK pathway
- Activation of this pathway leads to cell proliferation
- Mutation in EGFR gene causes uncontrolled growth of cells leading to cancer
- EGFR activating mutations are found in exons 18 to 21 of the EGFR gene, which is part of the gene coding for the tyrosine kinase domain of the EGFR protein

EGFR in Lung Cancer:

- Lung cancer is the most frequent form of cancer identified
- Non-Small Cell Lung Cancer represents 70% to 85% of all lung cancers
- Targeted therapies for NSCLC are directed to tumors harboring activating mutations within the *EGFR* tyrosine kinase domain

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Why is the test necessary?

- Testing for EGFR mutations at primary diagnosis of advanced NSCLC is recommended to guide treatment decisions
- To detect *EGFR* gene mutations in non-small cell lung cancer tumor cells; knowing whether a mutation is present in the cells can help determine if EGFR-targeted therapies may be beneficial for treating the tumor

About 1 in 7 patients with metastatic NSCLC have EGFR-positive tumors

Who should get tested?

- Patients diagnosed with non-small cell lung cancer should be further tested for EGFR mutations
- EGFR mutation analysis is also recommended for patients undergoing therapy for EGFR targeted therapies

Tissue Biopsy sample is required!!

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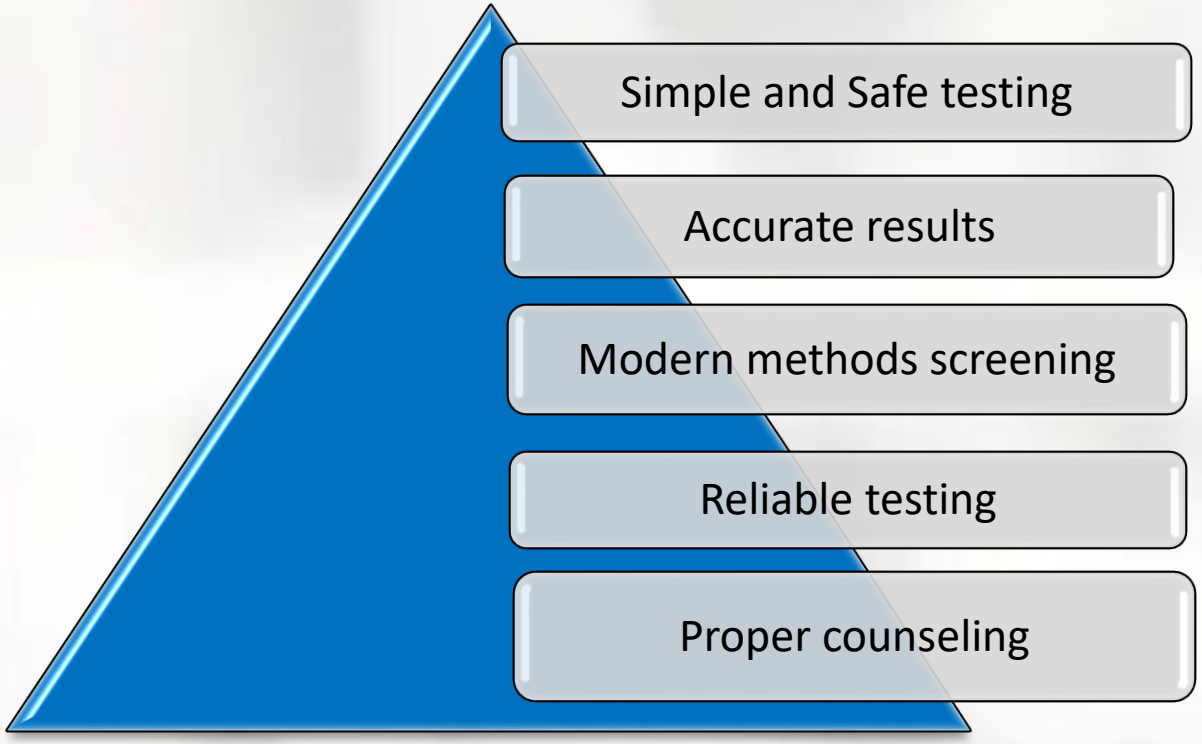
How is the test done?

Tissue sample obtained are analysed using Real Time PCR technique to detect the presence and absence of EGFR mutation



How are the test results interpreted?

Positive: Indicates the response to targeted anti-EGFR TKI therapy

Negative: Indicates that anti-EGFR TKI targeted therapy has shows no response.

References:

1.Sharma SV, Bell DW, Settleman J, Haber DA: Epidermal growth factor receptor mutations in lung cancer. Nat Rev Cancer 2007;7(3):169-181

2.Gao G,et al: Epidermal growth factor receptor-tyrosine kinase inhibitor therapy is effective as first-line treatment of advanced non-small-cell lung cancer with mutated EGFR: a meta-analysis from six phase III randomized controlled trials. Int J Cancer 2011;131(5):E822-829

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