

Metropolis Healthcare unveils Key Findings from Molecular Genomics Study in honour of Lung Cancer Awareness Month

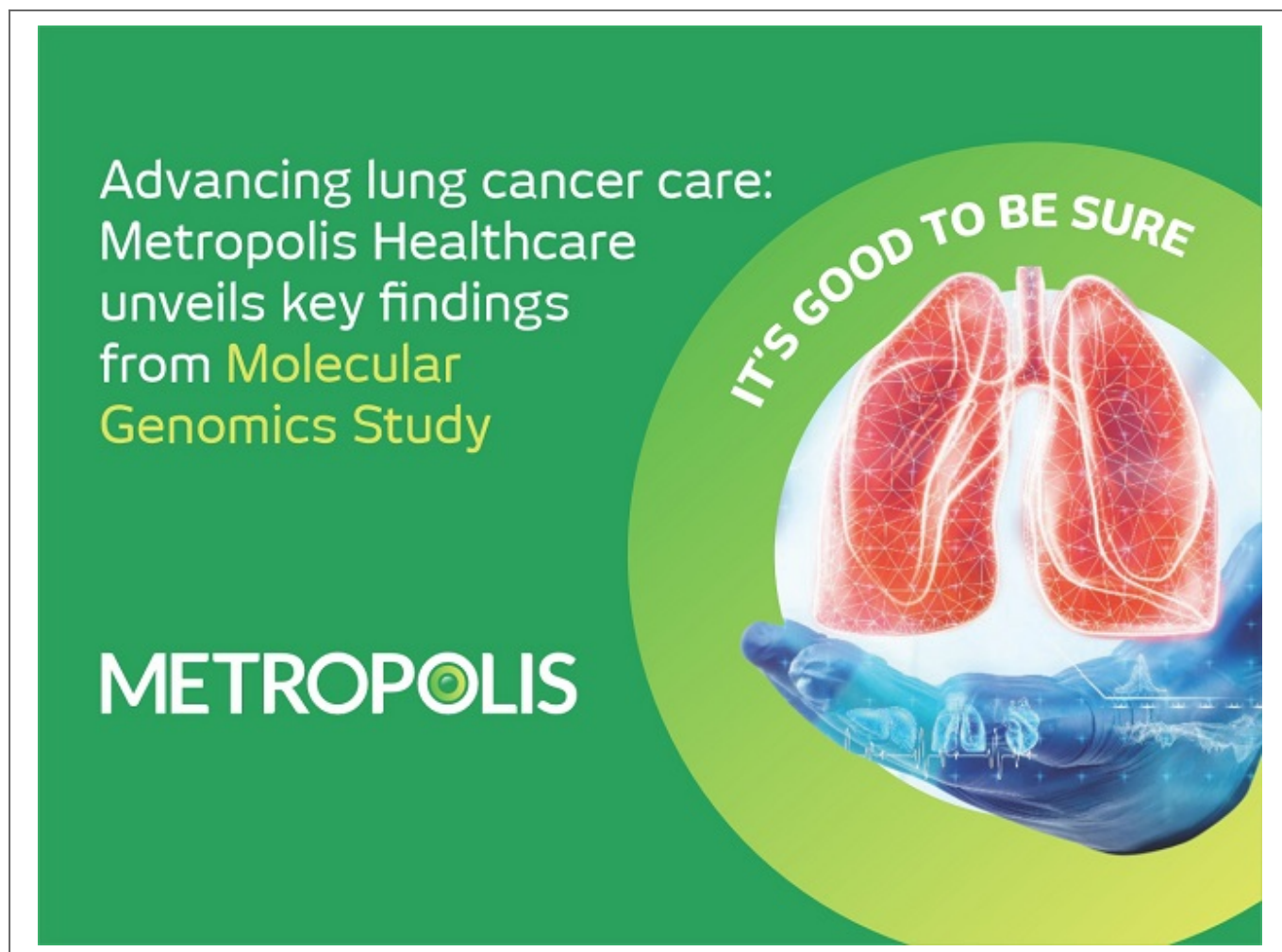
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Lung cancer remains one of the most prevalent and deadly cancers globally, with approximately 2.2 million new cases diagnosed annually, contributing to 18% of all cancer-related deaths, according to the International Agency for Research on Cancer. In India, it continues to be a leading cause of cancer-related mortality. However, advancements in early detection and new treatment options, particularly genetic profiling, are improving survival rates. These [innovations](#) are

part of precision oncology, a rapidly growing field that customizes treatments based on a patient's unique genetic makeup, enabling personalized care.



Molecular Genomics Study highlights the role of Next-Generation Sequencing (NGS) in lung [cancer treatment](#)

In observance of Lung Cancer Awareness Month this November, Metropolis Healthcare, one of [India's](#) leading and most reputed diagnostic chains, conducted a landmark seven-year research study (2015-2021) to examine the clinicopathological features and molecular changes in lung cancer patients. The study analyzed data from over 3,200 individuals diagnosed with lung cancer, focusing on genetic alterations in [key genes such as Epidermal Growth Factor Receptor \(EGFR\), Anaplastic Lymphoma Kinase \(ALK\), and c-ros oncogene 1 \(ROS1\)](#). These genes play a pivotal [role in the development](#) of non-small cell lung cancer (NSCLC). Molecular markers like these are essential for guiding targeted therapies, which are revolutionizing lung

[cancer care](#) by tailoring treatment to each patient's genetic profile.

Key Findings of the Study:

- More than 3,200 lung cancer tissue samples were analyzed, with 83% diagnosed as adenocarcinoma (a common type of NSCLC) and 17% as squamous cell carcinoma (a subtype affecting the lung's airways). Both types were most common in [patients over 60 years](#).
- **Genomic Alterations:** The most common genetic alterations found were:
 - **EGFR mutations** (29.1%) – Mutations in the **Epidermal Growth Factor Receptor (EGFR)** gene, which are common in lung cancer and make the patient a candidate for targeted treatment.
 - **ALK rearrangements** (7.8%) – Changes in the **Anaplastic Lymphoma Kinase (ALK)** gene are also a target for treatment.
 - **ROS1 rearrangements** (3.5%) – Alterations in the **ROS1** gene, which, like ALK, can also fuel cancer progression & are amenable to targeted therapy.
- **EGFR Mutation Locations:** EGFR mutations were most commonly found in **exon 19** (65.6%) and **exon 21** (32.1%). These are specific regions of the EGFR gene where changes can affect its function, often leading to uncontrolled cell growth.
- **Higher rates of EGFR mutations were observed in younger patients, and they were more frequent in female patients.**
- **ALK positivity** was more frequently [detected](#) in younger patients, with a balanced gender distribution.

Impact:

- Molecular markers like EGFR mutations, ALK, and ROS1 rearrangements are key targets for treatment in NSCLC, with approved drugs available for these alterations.
- **Next-generation sequencing (NGS) helps identify more lung cancer cases and uncover additional molecular targets, leading to more treatment options.**

Commenting on the study, **Dr. Kirti Chadha, Chief Scientific and [Innovation](#) Officer & Senior Oncopathologist, Metropolis Healthcare**, said, *"Studying genetic mutations and alterations in cancer-related genes is essential for guiding clinicians in selecting the most suitable treatment-whether it involves surgery, medications, or chemotherapy. This detailed molecular analysis forms the foundation of personalized and precision medicine, allowing [doctors](#) to adjust therapies based on a patient's unique genetic profile and likely response. By tailoring treatments in this way, clinicians can significantly improve the effectiveness of NSCLC [cancer care](#), offering patients treatment approaches best aligned with their individual needs."*

The study underscores the **importance of molecular profiling in NSCLC**, as identifying these genetic alterations can guide targeted therapy, potentially improving [patient outcomes](#). Advances in molecular diagnostics, particularly **[Next Generation Sequencing \(NGS\)](#)**, have revolutionized the field of oncology. NGS allows for the simultaneous sequencing of multiple genes, [providing comprehensive](#) insights into the genetic makeup of tumors. This [technology](#) enables the identification of actionable mutations, helping oncologists tailor treatments to individual patients.

The 2017 NCCN guidelines highlighted the importance of genetic profiling in NSCLC, focusing on key mutations in ALK, ROS1, and EGFR. Building on this, the 2023 ESMO guidelines for

metastatic NSCLC emphasized a broader set of biomarkers, including BRAF, RET, MET, NTRK, HER2, and KRAS G12C, using advanced DNA and RNA panels. This underscores the critical role of molecular diagnostics in decoding lung [cancers genetic landscape to enable personalized treatment strategies](#). Metropolis Healthcare remains committed to advancing this [research](#) by expanding mutation detection capabilities through comprehensive 50-gene panels in alignment with evolving global standards.

About [Metropolis Healthcare](#) Limited

Established in 1981, Metropolis Healthcare Limited is the leading diagnostics company in [India](#), with a widespread presence in 22 states, 3 Union Territories and over 700 towns. Metropolis touches millions of lives each year by providing actionable [health](#) insights to patients and doctors. Metropolis [offers a comprehensive](#) range of more than 4,000 plus tests and profiles, including advanced tests for the diagnosis of cancer, neurological disorders, infectious diseases, and various genetic abnormalities. The company is empowered with a robust network of 202 labs, 4,336 [service](#) centers and over 10,000 touch points. Metropolis' commitment to quality and accuracy in each test is reinforced by its consistent CAP proficiency score of more than 98% over the past decade, placing it [among the top 1% laboratories worldwide](#) for quality assurance. The Metropolis philosophy rests on the pillars of [technological](#) superiority, a warm, patient centric approach and reliable diagnostic reports.

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