

SOME TP53 AND EGFR DRIVER MUTATIONS IN NSCLC PATIENTS FROM THE REPUBLIC OF MOLDOVA

**Stratan Valentina, Tutuianu Valeri*, Sitnic Victor, Popa Cristina,
Bilba Valeriu, Brenister Sergiu**

*Scientific Laboratory of Cancer Biology, Institute of Oncology,
Chisinau, Republic of Moldova*

E-mail: valeritututiuianu@gmail.com

Lung cancer is the leading cause of cancer death worldwide, non-small cell lung cancer (NSCLC) being the main type. NSCLC also has two main histological subtypes - lung adenocarcinoma (LUAD) and lung squamous cell carcinoma (LUSC). In the Republic of Moldova, in 2022, 424 people were diagnosed with lung cancer, of which 327 were men and 97 were women. Out of 320 histologically classified cases, 226 (70.63%) were NSCLC.

In all types and subtypes TP53 mutations occur with a high frequency while EGFR driver mutations are important for establishing the treatment strategy.

In this study, we aimed to detect some TP53 and EGFR driver mutations in NSCLC histological subtypes at patients from the Republic of Moldova.

In the study, were included 67 people with NSCLC: 39 cases (39/67, 58.21%) of LUSC, 25 cases (25/67, 37.31%) of LUAD and one case each of pleomorphic carcinoma (LUPC), adenosquamous carcinoma (LUAS) and lung adenocarcinoma with large cell neuroendocrine carcinoma (LUAD with LUNE).

Fresh tumor tissue and FFPE (Formalin-fixed, paraffin-embedded) samples were tested by the castPCR method for driver mutations c.524G>A, c.818G>A and c.817C>T in the TP53 gene and driver mutations ex19Dels, c.2572_2573CT>AG and c.2369C >T in the EGFR gene.

From the total number of samples tested 13 had non-functional DNA for TP53 mutations and 19 for EGFR mutations. There were detected 14 positive samples for TP53 mutations: 4 cases with c.524G>A (3 LUSC, 1 LUAD), 9 cases with c.818G>A (LUSC) and one case with c.817C>T (LUSC). Regarding the tested EGFR mutations, there were identified 5 positive cases, of which 3 cases with ex19Dels mutations (LUAD) and 2 cases with the c.2572_2573CT>AG mutation (LUAD).

In the analyzed samples, the TP53 tested mutations occur mainly in LUSC while EGFR tested mutations occur exclusively in LUAD.

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