

ULOGA MOLEKULARNIH BIOMARKERA U ADENOKARCINOMIMA: DIJAGNOSTIČKE, PROGNOСТИČKE I TERAPIJSKE IMPLIKACIJE

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Sažetak. Adenokarcinomi, koji se razvijaju iz žljezdanih epitelnih ćelija, predstavljaju najčešći histološki tip karcinoma koji se javlja u mnogim organima poput pluća, dojke, kolona, želuca i pankreasa. U savremenoj onkologiji, molekularni biomarkeri predstavljaju ključnu komponentu precizne (personalizovane) medicine, jer omogućavaju individualizovan pristup dijagnostici i terapiji karcinoma. Razvojem visokoosjetljivih molekularnih tehnologija, poput sekvenciranja nove generacije (NGS), značajno je unaprijeđena identifikacija somatskih i germinativnih mutacija koje imaju klinički značaj. Danas se molekularno profilisanje tumora sve češće koristi kako bi se odredila prisutnost specifičnih biomarkera koji sve više postaju alat ne samo za dijagnozu, već i za odluke o terapiji, praćenje efekta i otkrivanje recidiva. Ovaj pregledni rad prikazuje najčešće korištene molekularne biomarkere u kliničkoj praksi kod različitih adenokarcinoma, uključujući EGFR, KRAS, BRAF, HER2, BRCA, MSI i druge. Poseban fokus stavljen je na njihovu ulogu u dijagnostici, terapiji i procjeni prognoze, kao i na savremene terapijske pristupe zasnovane na prisustvu određenih biomarkera. Cilj rada je da prikaže značaj molekularnih biomarkera u personalizovanom pristupu liječenju adenokarcinoma i da doprinese boljem razumijevanju njihove kliničke primjene. Dostupna literatura procijenjena je iz baza podataka: PubMed, ScienceDirect i Google Scholar.

Ključne riječi: adenokarcinom, biomarker, targetirana terapija, genska mutacija, EGFR, ROS, HER2

ROLE OF MOLECULAR BIOMARKERS IN ADENOCARCINOMAS: DIAGNOSTIC, PROGNOSTIC AND THERAPEUTIC IMPLICATIONS

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Abstract. Adenocarcinomas, which arise from glandular epithelial cells, represent the most common histological type of carcinoma that can be found in many organs such as the lungs, breast, colon, stomach, and pancreas. In modern oncology, molecular biomarkers are key component of precision (personalized) medicine, enabling an individualized approach to cancer diagnosis and treatment. The development of highly sensitive molecular technologies, such as next-generation sequencing (NGS), has significantly improved the identification of somatic and germline mutations of clinical importance. Today, tumor molecular profiling is increasingly used to detect specific biomarkers that serve not only as diagnostic tools, but also support therapy decision-making, monitoring of treatment response, and recurrence detection. This review summarizes the most commonly used molecular biomarkers in clinical practice for various adenocarcinomas, including EGFR, KRAS, BRAF, HER2, BRCA, MSI, and others. Special emphasis is placed on their role in diagnosis, treatment, and prognosis assessment, as well as on modern therapy strategies based on the presence of specific biomarkers. The aim of this paper is to highlight the significance of molecular biomarkers in personalized treatment approaches for adenocarcinomas and to contribute a better understanding of their clinical application. The available literature was reviewed using databases such as PubMed, ScienceDirect, and Google Scholar.

Key words: adenocarcinoma, biomarker, targeted therapy, gene mutation, EGFR, ROS, HER2