

**Ўзбекистон Республикаси
Олий ва ўрта махсус таълим вазирлиги
Мирзо Улуғбек номидаги
Ўзбекистон Миллий университети
Биофизика ва биокимё институти
Биология факультети**



**БИОФИЗИКА ВА БИОКИМЁ МУАММОЛАРИ - 2021
ИЛМИЙ КОНФЕРЕНЦИЯ МАТЕРИАЛЛАРИ
21 май 2021 йил**

**МАТЕРИАЛЫ НАУЧНОЙ КОНФЕРЕНЦИИ
ПРОБЛЕМЫ БИОФИЗИКИ И БИОХИМИИ - 2021
21 мая 2021 года**

Ташкент 2021

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БИОФИЗИКА ВА БИОКИМЁ ИНСТИТУТИ
БИОЛОГИЯ ФАКУЛЬТЕТИ

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Биофизика и биохимия являются теоретической основой биологии всех уровней – от вирусов и микроорганизмов, до растений, животных и человека. Эти науки служат теоретической базой для **физиологии и медицины** в понимании механизмов жизненных процессов в норме и при возникновении болезней, а также путей их лечения. Развитие **фармакологии**, в особенности её экспортного потенциала, невозможно без понимания биофизических и биохимических механизмов действия лекарственных средств на уровне молекул, клеток и целого организма. Методы биофизики и биохимии широко применяются в мировой практике для первичного скрининга потенциальных лекарственных средств и отбора перспективных молекул-кандидатов.

В сборнике конференции «Проблемы биофизики и биохимии - 2021», организованной Институтом биофизики и биохимии при Национальном университете Узбекистана им. Мирзо Улугбека и Биологическим факультетом Национального университета Узбекистана им. Мирзо Улугбека, представлены материалы, отражающие современные направления научных исследований в области биофизики, биохимии, физиологии человека и животных, молекулярной биологии и генетики, фармакологии и биомедицины. Редакционная коллегия благодарит всех авторов, представивших свои работы. Конференция предполагает обмен научным и практическим опытом, идеями, мнениями открывает перспективы продуктивной работы научной молодежи, реализации ее творческого потенциала, расширения научных горизонтов, ознакомления с последними достижениями в различных областях молекулярной биологии, медицины, фармакологии, а также установления новых контактов и возможностей.

low doses of the seed germination stimulator (0.2 l/t). The combined effect of these inductors to an even greater extent reduced the dose of Raxil (up to 0.1 l/ton).

Thus, electromagnetic stimulation of seeds and adding Rostbisol preparation to the Raxil contributed to decrease by 2 times of application rate of the latter one. The mixture of Rostbisol and Raxill had the maximum effect, when the level of applied doses of Raxill was reduced almost to the minimum values, which significantly decreased basic cost of wheat seed dressing and chemical pressure on the environment.

HOT SPOT MUTATIONS IDENTIFIED IN NON-SMALL CELL LUNG CANCER PATIENT IN UZBEKISTAN

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Lung cancer is a malignant neoplasm occurring as a result of a number of exogenous and endogenous factors and the most common cause of death among patients with tumor diseases. In 2020, according to Globocan, 2.2 million new cases of lung tumor were detected, while death from this disease was established in 1.7 million patients, which is 18% of all deaths from cancer.

One of the most studied reasons for the development of lung cancer are molecular aberrations, that determine the development, malignancy, and also the organisms sensitivity to medicinal compounds.

The aim of this study was the targeted sequencing of lung tumor samples to identify molecular aberrations associated with the development of non-small cell lung cancer.

For targeted sequencing of Hot spot genome regions of patients with NSCLC, DNA was isolated from tumor samples using the ReliaPrep™ FFPE gDNA Miniprep System reagent kit according to the manufacturer's protocol. Amplification of targets, library preparation and sequencing was carried out using the AmpliSeq for Illumina Cancer HotSpot Panel v2.

As a result of targeted sequencing, the following variants were established in tumor samples

Table 1. Single-Nucleotide Polymorphisms in AmpliSeq Cancer Hotspot Panel with MAF greater than or equal to 0.05%.

Gene	rs number	cDNA change	Aminoacid change	Ref Number	MAF %*
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APC	rs41115	c.4479G>A	T1493T	NM_000038	0.66
EGFR	rs1050171	c.2361G>A	Q787Q	NM_005228	0.43
FGFR3	rs7688609	c.1953A>G	T653T	NM_000142	0.95
HRAS	rs12628	c.81T>C	H27H	NM_005343	0.29
KDR	rs1870377	c.1416A>T	Q472H	NM_002253	0.21
KIT	rs3822214	c.1621A>C	M541L	NM_000222	0.06
PDGFRA	rs1873778	c.1701A>C	P567P	NM_006206	0.95
RET	rs1800861	c.2307T>G	L769L	NM_020975	0.71
TP53	rs1042522	c.215C>G	P72R	NM_000546	0.54

*Minor allele frequency (MAF) according to the 1000 Genomes database

A literature review of the identified variants showed that the synonymous variant Q787Q of the EGFR gene identified in the studied patients can affect malignancy and negatively affect the overall survival of NSCLC patients, especially in squamous cell lung cancer cases¹. And the T653T mutation of the FGFR3 gene plays an important role in the sensitivity to chemotherapy². Accordingly, the data obtained indicate the presence in patients with NSCLC, mutations that can be considered as potential markers of tumor malignancy, as well as sensitivity to therapy and the need to develop less costly methods for early diagnosis of these options.

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PROTECTIVE EFFECT OF 1-O-BENZOYLNAPELLINE ON THE MITOCHONDRIAL PERMEABILITY TRANSITION PORE OF THE RAT HEART

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Mitochondria play a central role in the energy metabolism of the cell. The mitochondrial megapore (also known as PTP) is actively involved in the regulation of the functions of mitochondria and animal cells, likewise in the development of

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