

EFFECT OF LOW-INTENSITY MICROWAVE OF 1 GHz FREQUENCY ON THE LEVEL  
OF MONONECLEARAL CELL BRCA1 ANTI-ONCOGEN AND DNA REPARATION  
FACTORS IN PRACTICALLY HEALTHY PERSONS

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**Abstract.** The effect of low-intensity microwave radiation with a frequency of 1 GHz and an energy flux density of  $100 \text{ nW} / \text{cm}^2$  on the level in mononuclear leukocytes (MNC`s) of whole blood of practically healthy individuals of DNA repair factors, as well as the components of MAPK / SAPK and PI3K / AKT1 signaling pathways, was studied.

A single irradiation of whole blood cells 24 hours after exposure was shown to be accompanied by a change in the nature of the relationship between the MAPK / SAPK components and PI3K / AKT1 signaling pathway and DNA repair factors (RAD50, EP300, BRCA1). At the same time, the most significant relationship exists between BRCA1, RAD50, PTEN and JNK proteins. The stimulating effect of radiation on the level of factors regulating DNA repair during the enhancement of opposing interactions between the considered signaling pathways has been established, which determines the decrease in reactivity of MNCs in relation to mitogens, cytokines, and growth factors. The analysis showed that an increase in the level of BRCA1 in irradiated MNCs is associated with an increase in the content of factors such as protein kinase JNK and the transcription factor ELK4, with a constant level of protein kinase AKT1. Thus, low-intensity 1 GHz microwaves are an important factor capable of modulating the processes of maintaining genome stability by influencing the stress-activated signaling pathway.

Keywords: microwaves, RAD50, BRCA1, JNK, PTEN, DNA repair.

