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THE REGULATION OF p53 PROTEIN FUNCTIONS IN RESPONSE TO HEAT SHOCK

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In the process of the human tumors suppression p53 protein encoded by *TP53* gene performs one of the most important functions. Mutations in the DNA-binding domain of p53 lead to a change in its conformation which con-

tributes to the formation of aberrant intracellular protein complexes including heat shock proteins (Hsp70). It can promote an occurrence of the aggressive types of tumors including breast cancer. Thereby, the study of the regulative mechanisms of mutant p53 in the composition of such stable complexes seems extremely relevant. The aim of this work was to study the regulation of mutant R175H protein p53 (mutr53-R175H) under heat stress in MDA-MB-231 breast cancer cells in vitro. In the course of this work, it was found that heat shock causes a sharp decrease in the level of wtp53 proteins (wild-type p53) and mutp53-R175H, which is gradually restore after stress has been relieved. We also have found that mutp53-R175H increases the intracellular level of Hsp70 in normal conditions and reduces one after heat shock. At the same time, mutp53-R175H protein changes its intracellular localization, both in normal conditions and in response to heat shock being in the composition of Hsp70-containing protein complexes.
Thus, the behaviors of wtp53 and mutp53-R175H in response to heat shock differ from each other apparently due to different interactions with protein complexes that regulate their stability and intracellular localization.

***Keywords*:** p53 R175H, mutant p53, heat shock protein, Hsp70, Hsp90, Mdm2