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Effect of cellphone radiowaves on rabbits: A cytobiochemical assay for respiration and glycolysis in blood lymphocytes gently adhered to a glass surface and difference in individuals with different behavioral patterns

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The study was carried out using an original cytobiochemical method designed by the authors. The method combines advantages of histochemical, cytochemical and biochemical techniques to preserve the subtle biophysical structural organization of tissues. It was applied to measure respiration and glycolysis in blood lymphocytes. The following activities were measured by nitro blue tetrazolium reduction: Succinate dehydrogenase (SDH), α-ketoglutarate dehydrogenase (KDH) and lactate dehydrogenase (LDH). The ratio of LDH/SDH was used as an indicator of the Warburg effect (WE). Experiments were performed on rabbits with different behavioral patterns: Excited and calm. Animals were exposed to cellphone radiowaves 1 hour per day for 11 days. In the course of the experiments, activities of all the enzymes grew, with SDH and LDH growth being larger in excited animals and KDH growth being larger in the calm ones. Within 3 days of course completion activities declined, but remained elevated as compared to the initial level. WE fell dramatically to the level of 3.5-5.5. We consider rise of respiration together with fall of glycolysis as loss of the quiescent state of mitochondria, which is a marker of prepathology coupled with inhibition of restorative processes. It was also found that lymphocytes changed their shape upon addition of respiratory substrates. Cells from intact animals were more "relaxed", but even after the first radiowave exposure they transformed into a more "contracted" form in the presence succinate. Remarkably, α-ketoglutarate kept the intact shape of cells during the whole course of radiation.

Biography

Kondrashova M N is a distinguished Scientist of Russian Federation with more than 100 fundamental papers. Her main line of research was to investigate how Bioenergetic Processes in mitochondria underlie physiological states of tissues. In order to approach the state of mitochondria *in vivo*, Cytobiochemical Method was designed. This assay sensitively reveals difference in responses of mitochondria not only under stress and diseases but at different levels of health in norm. She received her Master's degree from Pushchino State University and has completed her Post-graduate program from ITEB-RAS. She is member of the team developing the Cytobiochemical Method.

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