

## Physical Investigation, Theoretical Analysis And Successful Biophysical Application Of Activated Water

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The results of investigation of the effect of water, activated by nonionizing Molecular Resonance Effect Technology (MRET) [1], on metabolic activity and growth of pathogenic microbiological cultures and on prophylaxis and treatment of oncology diseases of mice are presented. Investigated activator is the source of low-frequency ( $\omega \approx 8$  Hz) magnetic field with very weak amplitude (less 1 Oersted).

It was discovered in our detailed physical experiments [1] that under the action of this irradiation there are very essential modifications of the basic physical-molecular properties of distilled water:

- decrease of viscosity of activated water by 100 or more times at low velocity of water motion in relation to the same but nonactivated distilled water;
- change of electrical conductivity and permittivity of activated water by 10 or more times in the spectral range of low and very low frequencies (less 1000 Hz);
- sharp increasing and time-dependent oscillations of pH exponent etc.

It was discovered also that duration of storage of these abnormal characteristics of activated water (in fact - duration of water memory) equals several hours (at  $T \approx 40^\circ\text{C}$ ), days (at  $T \approx 10^\circ\text{C}$ ) or weeks (at  $T \approx 4^\circ\text{C}$ ).

The effectiveness of action on water depends on time of irradiation.

The strong influence of activated water on the process of cloning of microorganisms, their division, the size of microorganisms' colony and the form of cell-like division has been discovered. It was observed for the first time that the water activated during 0.5 hour and 1 hour have suppressed culture growth of *Escherichia coli* in 27 and 303 times.

The results of detailed investigation of influence of activated water *in vivo* on antineoplastic action in the cases of laboratory models of Ehrlich's ascites tumor and Sarcoma ascites form in the regimes of prophylaxis and therapy are presented also.

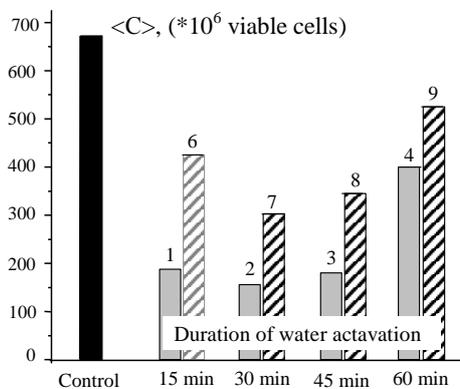
The effectiveness of antitumor action of water depends on time of irradiation. Potent effect of activated water on total tumor cell content has been observed. In particular, the total tumor cell content in mice of "prophylactic treatment" group which received water activated in the most optimal regime ( $t_{\text{act}}=30$  min) in 7 days after tumor implantation was 4.2-fold decreased in comparison with control mice (see Fig.)!

It has been shown that average survival time of mice which received optimal activated water ( $t_{\text{act}}=30$  min) in "prophylactic treatment" regime increased to 60-65% in relation to control groups. Very marked increase in life span (about 45%) was observed when mice were treated with activated water ( $t_{\text{act}}=15$  min and 45 min) in "prophylactic treatment" regime. *Effectiveness of action of such activated distilled water approximately equal action of chemotherapy!*

In order to understand the possible mechanism of antitumor effects of activated water, the studies of changes in the cytotoxic activity of lymphocytes of mice treated with different fractions of activated water were carried. The very essential positive influence (increase by 20%) of optimal fractions of activated water ( $t_{\text{act}}=30$  min) on the Index of Cytotoxic activity of mouse lymphocytes *in vitro* at prophylaxis action was observed also.

Theoretical model of water memory [1] and comparison with conducted experiments are discussed also.

<sup>1</sup>Vysotskii V.I., Kornilova A.A., Smirnov I.V. Applied Biophysics of Activated Water: the physical properties, biological effects and medical applications of MRET activated water, World Scientific Publishing, 2009.



**Fig.** Effect of prophylactic (1–4) and therapeutic (6–9) application of MRET activated water on average number of viable cells in an ascitic tumor, obtained from mice inoculated intraperitoneally with tumor cells of Ehrlich carcinoma.