
BIOPHOTONS: RESEARCH ON THE MORPHOGENETIC MODEL OF PLANARIA.

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Abstract

The asexual race of planaria *Jirardia tigrina* is a classic model for the study of morphogenesis because of their unique ability to regenerate after cutting, and physiological processes, for example, digestion by phagocytosis. We studied the relationship between induced morphogenetic processes in planarians with lucigenin-dependent ultra-weak photon emission (LD-UWPE), one of the forms of "biophotons", on a group of 30 planaria in 10 ml of water. LD-UWPE was increased 12 hours after feeding and returned to the control level after 72 hours. After cutting planaria into two or three parts, LD-UWPE significantly increased, then within 40 minutes - 1 hour its intensity returned to its original values. After 6-8 hours, a noticeable UWPE wave was observed. The waves of LD-UWPE from the regenerating planaria were also observed few days after their cutting. Dynamics of regeneration of planaria after their cutting or feeding were determined by the method of intravital computer morphometry. A correlation was found between changes in the dynamics of LD-UWPE, which reflects the rate of formation of the superoxide anion radical in the system, with characteristic morphogenetic changes in the planarians. Our data indicate that the intensification of production (and self-elimination) of active forms of oxygen in the planaria, which ensures the "pumping" of the biological system by the energy of electronic excitation (E) closely correlate with the processes of morphogenesis. We assume that the E can be used to realize the processes of morphogenesis in planarians.

Keywords: planarians, ultra, weak photon emission, morphogenesis, regeneration, reactive oxygen species, energy of electronic excitation

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