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A New Explanation of Nature of Cancer and Question of the Origin of Chordates

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ABSTRACT

Annotation What is presented in the article is based on the assumption that the evolutionary predecessor of a malignant tumor was the early somatic embryo of the first Metazoa on Earth, preparing for diapause. From this assumption it follows that the evolutionary precursor to the regression of a malignant tumor was the resorption of this embryo. Its resorption in the first Metazoa on Earth was an adaptation to environmental instability. This means that the presence of a malignant tumor regression function in humans is evidence that Chordata arose in an unstable environment.

Keywords: Evolution of Functions; Colonial (Modular) Sessile Invertebrates; Cancer

In men, one channel is used to remove sperm and urine from the body. Why these two functions are carried out this way was explained to us, students of Leningrad University in the 50s of the last century, by Professor Yu. I. Polyansky. He said that these functions arose from the function of our distant ancestors. They removed sexual products and waste from the body into sea water through one channel. Their fertilization was external. The fact that men have only one channel for the excretion of sperm and urine is their heritage. From this heritage one can judge the environment in which they lived. A person has a function of regression of a malignant tumor. Her regression is self-healing from cancer. Is it possible to judge by the presence of this function in a person what environment our ancestors lived in? The purpose of the article is to discuss this issue. What is cancer? There is no generally accepted opinion. What is presented in the article is based on the assumption that cancer is an atavistic function inherited from the first Metazoa on Earth. With its help, they remained viable in a dormant state during the unfavorable season for life. This assumption is based on the following. Cancer has been described in representatives of all groups of Metazoa except the most primitive (Krieg, [1]).

The most primitive Metazoa were the first Metazoa on Earth. The evolutionary predecessor of cancer was probably located in their ontogenesis. G. Jägersten [2] and other researchers believed that the first Metazoa on Earth were colonial sessile species. Modern colonial sessile species are Spongia, Cnidaria, Bryozoa, Pterobranchia and colonial Ascidiacea. Some of them enter diapause before the seasonal deterioration of the environment. Preparation for diapause in these invertebrates is that all actively functioning zooids of the colony die. Before dying, zones are formed in them, the cells of which dedifferentiate and begin to reproduce, forming diapausing embryos (Ivanova-Kazas, [3]). In Spongia they are called gemmules, in Cnidaria - podocysts, in Bryozoa - statoblasts, in Pterobranchia and colonial Ascidiacea - resting buds. If the first Metazoa on Earth were sessile and colonial, then they probably also used early embryos formed from somatic cells to survive the unfavorable season for life, and all actively functioning zooids of the colony died. Therefore, how the first Metazoa on Earth transitioned into diapause can presumably be judged from the results of studying this process in modern sessile colonial species. Let's compare cancer with the preparation for diapause of the listed invertebrates. A comparison shows that these processes have similarities.

It is as follows.

1. Cancer begins with the appearance in the body of a zone whose cells become malignant, that is, dedifferentiate. The formation of diausing embryos in the listed invertebrates also begins with their dedifferentiation.
2. In case of cancer, cells, having become malignant, begin to reproduce. When diapausing embryos form in the listed invertebrates, the cells, having dedifferentiated, also begin to reproduce.
3. Cancer ends with the death of the patient. The transition to diapause of the listed invertebrates will end with the death of the colony.

This similarity suggests that cancer is an atavistic function of preparation for embryonic diapause, inherited from the first Metazoa on Earth, and a malignant tumor is an atavistic early somatic embryo preparing for diapause (Makrushin [4]). From the above it follows that the regression of a malignant tumor is an atavistic function inherited from the first Metazoa on Earth. With its help, they interrupted the preparation for diapause by resorption of the embryos preparing for diapause. The presence of the malignant regression function in humans indicates that embryos preparing for diapause in the first Metazoa on Earth sometimes dissolved. Let's discuss why they dissolved. Metazoa originated in the ocean. Living conditions in water areas that were partially separated from it (bays, estuaries) and completely separated (inland seas) were less stable than in the open ocean.

The populations living here, in preparation for experiencing an unfavorable period for life, had to be prepared not only for the upcoming severe deterioration of the environment, but also for the fact that the deterioration of the environment would be insignificant. Staying in diapause with a slight deterioration of the environment, that is, under relatively favorable or completely favorable conditions for life, can have detrimental consequences for the population. It threatens it with the fact that other populations that do not diapause will take advantage of the resources on which it exists and spend them. This will lead to the displacement of the population from the ecosystem. To prevent this from happening, some individuals in the population, having begun preparation for diapause, stop it. To do this, they resorb the embryos that have begun to prepare for diapause. This process has been described in the colonial sea squirt Bothrylloides leachi (Burighel et al. [5]).

In the first Metazoa on Earth, the ability to resorb embryos preparing for diapause provided adaptation to environmental instability, that is, to the fact that populations needed to be prepared not only for the upcoming severe deterioration of the environment, but also for the fact that the deterioration of the environment would be insignificant and should be survived in an active state. Let us summarize the above. The evolutionary precursor to the regression of a malignant tumor was the resorption of the somatic embryo of the first Metazoa on Earth, which was preparing for diapause. The presence of a malignant tumor regression function in humans indicates that embryos preparing for diapause in the first Metazoa on Earth sometimes dissolved. Resorption of embryos preparing for diapause is an adaptation to environmental instability. The presence of a malignant tumor regression function in humans indicates that Chordata arose in an unstable environment. The author is not aware of information about the presence of a tumor regression function in representatives of other classes of Metazoa. Therefore, he cannot say anything under what conditions, stable or unstable, their colonial sessile marine invertebrate ancestors lived.

References

1. Krieg K (1973) Invertebraten in der Geschwustelsforschung. Beiträge Krebsforschung. Bd. Dresden. Verlag T Steinkopf 12: 215.
2. Jägersten G (1972) Evolution of the metazoan life cycle. A comprehensive theory. L N Y A Cad Press, pp. 282.
3. Ivanova Kazas OM (1977) Asexual reproduction in animals. Leningrad State University Publishing House, pp. 239.
4. Makrushin AV (2011) Senescence and carcinogenesis as atavistic processes inherited from modular ancestors: A hypothesis. Advances in Gerontology (1): 45-49.
5. Burighel P, Brunetti R, Zaniolo G (1976) Hibernation of the colonial ascidian, Bothrylloides leachi (Savogni) Boll. Zool 43: 239-301.

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