

عنوان مقاله:

The Role of Microgravity in Cancer: A Dual-edge Sword

محل انتشار:

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خلاصه مقاله:

Since human beings could travel beyond the earth atmosphere, scientists started to investigate the effect of microgravity on human cells. Microgravity has different effects on normal and cancer cells, but the related mechanisms are not well-known till now. The aim of the present review is to focus on the consequences of exposing the cancer cells to reduced gravity. Some cancer cells organize three-dimensional structures under microgravity. Obviously, microgravity is an external stress, which can affect cell proliferation, apoptosis, cytoskeleton and signaling pathways. In addition, it touches immune-related components, regulates immune responses, and implicates immune cell activation. Low mutation aggregation and cancer rate in astronauts may lead to use microgravity as a therapeutic approach. However, it reduces the invasion and migration in some types of cancer cells, triggers the oncogenic signaling pathways including KRAS, and inhibits proliferation in normal lymphocytes. In conclusion, using microgravity as a therapeutic method in cancer treatment needs to be more investigated on both cancer and normal cells, and might not become true in the near future.

کلمات کلیدی:

Weightlessness, Spheroids, Immune Responses

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