ФИНАНСИРОВАНИЕ РАБОТЫ

Работа выполнена за счет бюджетных средств Института цитологии РАН (Санкт-Петербург).

СОБЛЮДЕНИЕ ЭТИЧЕСКИХ СТАНДАРТОВ

В работе не участвовали животные или люди в качестве объектов исследования.

КОНФЛИКТ ИНТЕРЕСОВ

Авторы заявляют об отсутствии конфликта интересов.

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INCREASED EXPRESSION OF ROS-RESPONSIVE GENES IN TUMOR AND NORMAL CELLS DURING IRRADIATION-INDUCED SENESCENCE

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Objective: A high level of reactive oxygen species in a cell can be both a consequence and a cause of cellular senescence. The response of tumor and normal cells to irradiation-induced senescence is similar, but differs in detail. Exploring these differences may provide a key to improving the effectiveness and safety of radiation therapy. **Methods:** We induced senescence in A549 adenocarcinoma cells and normal mesenchymal stem cells with irradiation and evaluated changes in morphology, lipofuscin accumulation, and gene expression. **Results:** The expression of *DUOX1*, *GPX1*, *PRDX2* and *SIRT2* is more strongly increased in A549 tumor cells, while the expression of *FAS*, *PRDX1*, *PRDX5*, *SOD1* and *NOS2* is stronger in normal cells. **Conclusion:** Tumor and normal cells react to the development of the senescent phenotype in different ways — they produce different SASP and activate ROS response systems in cell type-specific manner.

Keywords: cellular senescence, reactive oxygen species, induced irradiation