



Senescent Cells and Cancer Therapy

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Message from the Guest Editor

Senescence is a natural stress response mechanism characterized by stable cell cycle arrest and secretion of pro-inflammatory factors, stromal components, and other molecules, known as senescence-associated secretory phenotype (SASP). Many types of cancer treatments, including radiation, chemotherapy, and targeted therapies, can leave behind senescent tumor cells. Paradoxically, therapy-induced senescence (TIS) and SASP can have both tumor-promoting and tumor-suppressing properties depending on the cellular context and inducing stimuli. For instance, TIS halts tumor cell proliferation. However, senescent cells can sometimes escape growth arrest leading to post-therapy tumor recurrence. Similarly, inflammatory mediators secreted by senescent cells can facilitate tumor immuno-surveillance. On the other hand, SASP can facilitate tumor infiltration with immune cell subsets that promote tumor growth and metastasis. Moreover, TIS and SASP have been linked with therapy side effects. Therefore, while induction of senescence may benefit patients in the short term, prompt removal of senescent cells may present a path toward improved treatment outcome.





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Message from the Editor-in-Chief

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