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Individual Aging and Cancer Risk: How are They Related?

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Abstract

When individuals get older, the risk of many chronic diseases increases. This increase is in agreement with common theories of aging, such as mutation accumulation, wear and tear, antagonistic pleiotropy, etc. Surprisingly, however, the risk of some chronic conditions (e.g. asthma, arterial hypertension) declines in the old. The cancer incidence rate also declines at old ages after a steep increase during adult life. It contrasts with the continuing increase in total mortality that is often referred to as the aging process. Which forces contribute to a decline in cancer risk in the old? In this paper we review evidence from experimental biology, illustrating the ambivalent role of individual aging in cancer risk, in particular in forming non-monotonic age-patterns of cancer incidence rate. We show that age-associated changes in the organism may contribute not only to the rise, but also to the deceleration and the decline in cancer risk at old ages.

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