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Cancers and the concept of cell senescence

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Abstract

In general it has been accepted that aging favors the development of cancers. The data, however, show that the incidence of cancers declines with senescence. Moreover it was proposed that the post-mitotic cells reached by normal cell populations after serial divisions, called senescent cells, are a mechanism of protection against malignant transformation; the data is against this hypothesis. It has also been suggested that senescent cells promote malignant transformation. The so called senescent cells, which were thought to accumulate in the tissues with aging, accumulate only during pathological conditions unrelated to cancers. There are contradictions and paradoxes between the concepts and the data, which will be described. There are also contradictions between data from different laboratories that attempted to identify the mechanisms leading to cell senescence. The contradictions are bypassed with the claim that there are different pathways to cell senescence. The contradictions and the differences between the data should be explained before these phenomena can be understood.

Biography

Dr. Alvaro Macieira-Coelho is a Research Director at the French National Institute of Health. He received an MD from the University of Lisbon, Portugal, and a PhD from the University of Uppsala Sweden. He made an internship at the University Hospital in Lisbon and was a research associate at the Wistar Institute in Philadelphia (USA) and at the Department of Cell Biology of the University of Uppsala (Sweden). He became Head of the Department of Cell Pathology at the Cancer Institute in Villejuif (France) and was a visiting Professor at the University of Linkoping (Sweden). He published 150 papers in professional Journals and 9 books on cancer and aging. He received the following awards: Fritz Verzar Prize (University of Vienna, Austria), “Seeds of Science”, Career Prize (Lisbon, Portugal), Dr. Honoris Causa (University of Linkoping, Sweden), Johananof International Visiting Professor (Institute Mario Negri, Milano, Italy).