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The natural history of breast cancers

Breast cancers have been extensively studied, which renders them quite representative of the nature of neoplastic disease. While describing the pathogenesis, one has to consider the organism as a whole, the tumor microenvironment, and the tumor cells proper. The permanent evolution of the organism from the embryonic stage up to senescence can create variable vulnerability factors for the growth of breast cancers, influenced by environmental factors. We have found that a population of fibroblasts in connective tissue has abnormal growth characteristics, which shows that the whole organism participates in the neoplastic process. This population of fibroblasts is present long before the cancer becomes apparent. Micro-environmental factors such as genes expressed and factors secreted by stromal cells also influence tumor growth. Gene expression by tumor cells shows that breast cancers are not a single disease and constitute a group of molecularly distinct neoplastic disorders. Finally, during senescence the incidence of breast cancers declines due to tissue, cellular and molecular modifications occurring in the organism during the last developmental stage of the human life span.

Biography

Alvaro Macieira-Coelho is a Research Director at the French National Institute of Health. He received a MD from the University of Lisbon, Portugal, and a PhD from the University of Uppsala Sweden. He did 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 the Head of the Department of Cell Pathology at the Cancer Institute in Villejuif (France) and was a Visiting Professor at the University of Linköping (Sweden). He has published 150 papers in professional journals and 9 books on Cancer and Aging. He has received the following awards: Fritz Verzar Prize (University of Vienna, Austria), "Seeds of Science", Career Prize (Lisbon, Portugal), Dr. Honoris Causa (University of Linköping, Sweden), Johananof International Visiting Professor (Institute Mario Negri, Milano, Italy).

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