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Cerebral cordocytes: From anti-microtumor growth role of fibrous capsules to histogenesis of fibrous meningiomas named cordocytomas for modern understanding and classification

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The purpose of this cytohistopathologic study is to identify and compare cytological features of cordocytic phenotypes encountered in fibrous capsules and fibrous meningiomas in order to provide additional data to support the current concept of cerebral cordocytes as representing the general supervisor in the brain, but which can undergo malignant transformation arising leptomeningeal tumours classified in present as fibrous/psammomatous meningiomas. Using light microscopy and transmission electron microscopy we demonstrate cordocytic nature of cells in fibrous capsules and fibrous meningiomas revealing the difference between reactive cordocytic phenotype and tumoral phenotype, with multilineage differentiation potential of the tumoral cordocytes. Successive stages of cordocyte proliferation within the capsule, with signs of leaving the main fibrous structure arising satellite nodules was described which could lead to developing so called fibrous tumours. These presumable satellite tumoral micronodules can be firmly surrounded by normal cordocytes, multilayered arranged, demonstrating their anti-tumoral role in early tumor development, possibly by combined mechanisms such as, starvation/asphyxiation and motion retardation. The term of "Cordocytoma" for classification of the fibrous meningeal tumours derived from cordocytes was proposed. For cell science, the new concept of cordocytic phenotype merit now much more debate in this era of the interstitial cells of Cajal.

Biography

Viorel Pais has completed his PhD at the age of 34 years, from Bucharest University. He got his PhD in Cell Biology and he received in 2008 the "Gheorghe Marinescu" Award of the Romanian Academy. Since 2008, he is a Visiting Scientist at the Brain Research Institute at UCLA School of Medicine in Los Angeles, USA. Currently, his research focus is on both the functional characterization of the special interstitial cells, "cordocytes" named by him, and on the ultrastructural patterns of programmed cell death pathways in the human brain. He has published more than 20 books and 70 papers in different journals, and serving as an editorial board member.

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