

Nestin and vimentin intermediate filaments expression in cutaneous melanoma

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Nestin, a class VI intermediate filament (IF) protein of rapidly proliferating progenitor cells and regenerating tissue, is considered as cancer stem cell marker of malignancies of neuroectodermal origin. It may play a role in connecting the components of the cytoskeleton and coordinate changes in cell dynamics. It is well known nestin copolymerizes with class III IF-proteins into heteromeric filaments, mostly vimentin, an intermediate filament overexpressed in various type of cancer. Moreover, nestin contributes to the disassembly of vimentin during mitosis. Vimentin is considered to be an ectodermal, neural and pancreatic progenitor cells marker, and its presence was detected in pancreatic cancer stem-like cells.

The cancer stem cell hypothesis suggests that mutated melanocyte stem cells are present in skin as precursors of melanoma cells. Several investigations have provided evidence that the genetic and/or epigenetic alterations occurring in the multipotent tissue-specific adult stem cells and/or their early progenies may lead to their malignant transformation into cancer progenitor cells.

Melanomagenesis and tumor progression are commonly described as 'de-differentiation' processes of transformed, mature melanocytes; recently, it has also been demonstrated that metastatic melanoma cell lines exhibit morphological, phenotypic and functional features of stem cell population. Our recent study suggests that nestin expression in both tumoral and endothelial cells may be considered as an important early prognostic marker in melanoma; on the other hand vimentin overexpression in cancer well correlates with accelerated tumor growth, invasion, and poor prognosis.

Based on these considerations, the aim of our study was to investigate the colocalization of nestin and vimentin in primary melanoma by immunofluorescence, and its association with clinico-pathological features and patients survival.

Keywords: nestin, vimentin, melanoma, colocalization