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Proposed roles of the immune response regulator-ThPOK in human colorectal cancer progression

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Solid tumours are commonly infiltrated by several immune cells [1-3]. In cancer, immune cells play conflicting roles with both the potentials to eliminate or to promote malignancy. In contrast to infiltration of cells responsible for chronic inflammation, the presence of high numbers of lymphocytes, especially T cells, has been reported to be important as indicator of good prognosis in many types of cancer [4-7]. The thorough knowledge of both manners and pathways with which tumors are able to evade immune-mediated attack, once established, is therefore of crucial importance. The strategies to escape anti-tumor immune responses include the limited priming or differentiation of antitumor T cells and the role of tumor microenvironment in order to prevent infiltration or activation of effector phase functions. We proposed to evaluate the role of Th inducing POZ-Kruppel Factor (ThPOK), a transcriptional regulator of T cell fate, in tumour-induced immune system plasticity during colorectal carcinogenesis. Data were collected on the amounts of CD4+, CD8+ and CD56+ as well as on ThPOK+ cells infiltrated in normal colorectal mucosa (NM), in dysplastic aberrant crypt foci (microadenomas, MA, the earliest detectable lesions in colorectal carcinogenesis) and in colorectal carcinomas (CRC); moreover, the colocalization of ThPOK with the above-mentioned markers of immune cells was evaluated using confocal microscopy. Interestingly, ThPOK showed a prominent increase since MA. A strong colocalization of ThPOK with CD4 both in NM and in MA was observed, weaker in carcinomas. Surprisingly, there was a peak in the colocalization levels of ThPOK with CD8 in MA, which was evident, although to a lesser extent, also in carcinomas. In conclusion, according to the data of the present study, ThPOK may be considered a central regulator of the earliest events in the immune system during colorectal cancer development. The novelty of the present study is the proposed role of ThPOK in influencing the immune response against cancer cells.

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