EBV COLONIC CELL INFECTION PROMOTES INFLAMMATION AND PREDISPOSES TO COLON CARCINOGENESIS

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Colon cancer represents a leading cause of death in industrialized countries, due to its high incidence and mortality [1]. Genetic and environmental factors represent major risks. Among the latter, a possible role of microrganisms, such as CMV and EBV, has long been debated in the pathogenesis of this cancer [2]. Moreover, a predisposing role is undoubtedly played by chronic inflammation, as indeed inflammatory bowel diseases (IBD) represent one of the main risk factors for colon carcinogenesis [3]. Interestingly, EBV has been shown to be involved in the pathogenesis of IBD [4]. Inflammation and cancer share common mechanisms, such as the activation of STAT3 and NFkB, also interconnected with the increase of ROS, the leading cause of DNA damage. Of note, the activation of DNA damage response (DDR) is frequently impaired by oncoviruses, including EBV [5], and this effect may strongly contribute to viral carcinogenesis. Autophagy has been also shown to play a role in tumorigenesis at multiple level [6] and its dysregulation can occur after viral infection [7]. Finally, a key role in cancer onset, survival and progression is played by the tumor microenvironment, in which the most represented cells are immune cells, such macrophages, and fibroblasts.

Based on these premises, we are investigating whether EBV could affect mechanisms possibly involved in epithelial cell carcinogenesis. At this aim, we infected primary human colonic epithelial cells (HCoEpC) and assessed that EBV replicated in these cells, releasing viral particles able to infect primary B lymphocytes. Moreover, HCoEpC-EBV-infected cells released inflammatory cytokines/chemokines, that recruited both primary B lymphocytes and monocytes. We are currently assessing the impact of the infection also on processes such as autophagy and DNA damage/repair and the cross-talk between HCoEpC-EBV-infected cells and primary monocytes/macrophages and fibroblasts as possible mechanisms predisposing to colon carcinogenesis.

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Our preference is for poster presentation.
Topic: EBV Associated Epithelial Cancers.