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The critical role of mast cell-derived hypoxia-inducible factor-1α in colon cancer infiltrated with mast cell

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With the development of colorectal tumor, it gradually formed the hypoxic tumor microenvironment, and infiltration of a large number of inflammatory cells. The mast cell is a kind of immune cells which can secrete a variety of effector molecules, and plays an important role in the angiogenesis of tumor. But whether MC in colorectal cancer is to promote tumor growth or inhibition of tumor growth is not clear, the role of mast cell-derived HIF-1α in the regulation of mast cell function itself in the lack source of oxygen conditions remains to be elucidated. Here, we analysis of the clinical samples of colorectal cancer, immunohistochemical detection observed that carcinoma tissues and tissues adjacent to colorectal carcinoma were infiltrated with large numbers of mast cells, and the mast cell infiltration quantity increased with the Duke's stage. The survival time of mast cell deficient mice which bearing colorectal carcinoma was remarkably longer than wild type C57BL/6 mice bearing colorectal carcinoma, the growth of tumor was the same. And this weakens recovered in mast cell reconstruction mice. Further *in vitro* experiments show that when inhibit the expression of HIF-1α through HIF-1α siRNA in mast cells, the release of inflammatory factors in mast cells reduced and also the degranulation degree of mast cells. This suggested that mast-cell derived hypoxia-inducible 1α(HIF-1α) play an important role in regulating the function of mast cells. According to phenomenon observed, we think that the mast cells promote the development of colorectal cancer, and mast-cell derived hypoxia-inducible 1α (HIF-1α) play an important role in regulating the function of mast cells. Therefore, our study revealed a novel role for mast cell-derived HIF-1α in the colorectal carcinoma microenvironment and has important implications for the design of therapeutic strategies.

Biography

Xin Liang received her PhD degree in Biochemical Engineering from East China University of Science and Technology in 2012, studying antineoplastic agents and pharmacology. Did her postdoctoral research in Renhao Li Lab in Department of Pediatrics, Emory University, USA in 2015; she became a lecturer in School of Pharmacy, East China University of Science and Technology.

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