

12

Name of journal: *World Journal of Gastrointestinal Pathophysiology*

ESPS Manuscript NO: 20371

Manuscript Type: Editorial

17

Role of cancer stem cells in age-related rise in colorectal cancer

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Abstract

Colorectal cancer (CRC) that comprises about 50% of estimated GI cancers remains a high mortality malignancy. It is estimated that CRC will result in 9% of all cancer related deaths. CRC is the third leading malignancy affecting both males and females equally; with 9% of the estimated new cancer cases and 9% cancer related deaths. Sporadic colorectal cancer (CRC), whose incidence increases markedly with advancing age, occurs in 80-90% patients diagnosed with colorectal cancer. Little is known about the precise biochemical mechanisms responsible for the rise in colorectal cancer with aging. However, many probable reasons for this increase have been suggested; among others they include altered carcinogen metabolism and the cumulative effects of long-term exposure to cancer-causing agents. Herein, we propose a role for self-renewing, cancer stem cells (CSCs) in regulating these cellular events. In this editorial, we have briefly described the recent work on the evolution of CSCs in gastro-intestinal track especially in the colon, and how they are involved in the age-related rise in colorectal cancer. Focus of this editorial is to provide a description of (a) CSC, (b) epigenetic and genetic mechanisms giving rise to CSCs, (c) markers of CSC, (d) characteristics, and (e) age-related increase in CSC in the colonic crypt.

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