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Epithelial-mesenchymal transition: New hallmarks in metastasis formation linking circulating tumor cells and cancer stem cells

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Abstract

Distant metastasis development is the main cause of death in cancer. Metastatic lesions are hardly manageable in clinical practice as they are often too widespread or too large to be removed by surgery and frequently exhibit increased resistance to chemotherapy. Thus the understanding of the metastasis process is of key significance for treatment improvement and decreasing the death rate of cancer patients. The formation of local or distant metastases is an indicator of a poor prognosis for patients with cancer. The mechanism of their formation has not yet been fully understod, which limits the possibility of developing new therapeutic strategies. Nevertheless, the discovery of circulating tumor cells (CTCs), which are responsible for tumor dissemination, and cancer stem cells (CSCs), required for tumor growth maintenance, shed light on the metastatic cascade.Epithelial-Mesenchymal Transition (EMT) is charactraized by loss in cell polarity, downregulation of epithelial markers such as E-cadherin, upregulation of mesechymal proteins such as N-cadherin and these molecular chracteristics are observed in migrating tumor cells. The role of these factors in the mechanisms of CTC and CSC formation and characterizes their molecular hallmarks. Moreover, we present different types of EMT occurring in physiological and pathological conditions, and demonstrated its crucial role in providing CTCs with a CSC phenotype.Understanding of those processes is of fundamental importance for the development of new strategies of early cancer detection and effective cancer treatment approaches that will be translated into clinical practice.

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Biography

Hani alsaadoni done his graduation at Islamic University and Currently he is working at University of Health Sciences-Gaza and masters in Islamic University of Gaza. He completed his Ph.D in Istanbul University/ Aziz Sancar Research Institute of Experimental Medicine / Department of Molecular Medicine. International Faculty of Medicine in Department of Medical Biology at Turkey