Biophysical Properties and Motility of Human Dendritic Cells Deteriorated by Suppressive Cytokines Through Cytoskeleton Remodeling

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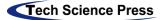
Abstract: Dendritic cells (DCs) play a crucial role in initiating and amplifying both the innate and adaptive immune responses [1]. Clinically, the DCs-based immunotherapy against cancer is considered one of the most promising therapies to overcome cancers, but there are still many challenges need to be overcome [2]. The motility of DCs is especially crucial for migration of immature DCs into peripheral tissue and dynamic physical interaction between mature DCs and naive T cells in the secondary lymph node. This study focuses on the investigations of DCs at different differentiation stages and under various suppressive cytokines (VEGF, TGF- β 1 and IL-10) conditioned microenvironments from the interdisciplinary viewpoints. The biophysical characteristics of cells can reflect their relationship between structures and functions [3-5]. The results showed that the DCs at different differentiation of DCs through derangement of biophysical characteristics and reorganization of F-actin cytoskeleton, moreover, these changes are closely correlated with the expression levels of some cytoskeleton-binding proteins [6-9]. It is significant for further understanding of the biological behaviors of DCs and how to enhance the clinical effectiveness of DCs-based immunotherapy against cancers.

Keywords: Dendritic cells; motility; immune function; suppressive cytokines; biophysics

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