中央大學物理學系

Department of Physics, National Central University

Colloquium

Decoding the role of leukemia inhibitor factor in tuning the immune microenvironment of oral squamous cell carcinoma

解析白血病抑制因子於調控口腔癌腫瘤免疫微環境的作用

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Abstract

An immunosuppressive tumor microenvironment is closely associated with the high recurrence rate of oral squamous cell carcinoma (OSCC). Our data bring evidence for the role of leukemia inhibitory factor (LIF) as a potential suppressor of anti-tumor immunity. Specifically, single-cell RNA sequencing analyses on LIF-stimulated cells isolated from oral tumors demonstrated that LIF enhanced stemness signatures in tumor cells, and induced a suppressive immune profile in macrophages, T cells, and mast cells. Results of immunohistochemical analysis on clinical samples and in vitro functional assays showed that the LIF-mediated reconstruction of immune tumor microenvironment was associated with the development of regulatory T cells (Tregs) and tumor-associated macrophages (TAMs). Given the important role of LIF in conditioning tumor microenvironment of OSCC, it may be a promising target for optimizing therapeutic strategy by converting the immunosuppressive microenvironment for selected patients.

Key words: oral squamous cell carcinoma, OSCC, leukemia inhibitory factor, LIF, single cell sequencing, macrophage, T cell