CKb11

The immunosuppressive tumor microenvironment (TME) of cancer strongly hinders the anti-tumor immune responses, thereby resulting in disappointing responses to immunotherapy. Chemoattractive and promotive traits of chemokines exerted on leukocytes have garnered interest in improving the efficiency of immunotherapy by increasing the infiltration of immune cells in the TME. In a study, a folic acid (FA) -modified gene delivery system based on the self-assembly of DOTAP, MPEG-PCL-MPEG, and FA-PEG-PCL-PEG-FA, namely F-PPPD, was developed to deliver plasmids encoding the immunostimulating chemokine CKb11. The delivery of plasmid CKb11 (pCKb11) by F-PPPD nanoparticles resulted in the high secretion of CKb11 from tumor cells, which successfully activated T cells, suppressed the M2 polarization of macrophages, promoted the maturation of dendritic cells (DCs), facilitated the infiltration of natural killer cells and inhibited the infiltration of immunosuppressive cells in tumor tissues. Administration of F-PPPD/pCKb11 also significantly suppressed the cancer progression. The study demonstrated a nanotechnology-enabled delivery of pCKb11, that remodeled the immunosuppressive TME, for cancer treatment [1].

1)
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