

Exploring Nanoformulations for Therapeutic Induction of Necroptosis

Authors : Tianjiao Chu, Carla Rios Luci, Christy Maksoudian, Ara Sargsian, Bella B. Manshian, Stefaan J. Soenen

Abstract : Nanomaterials have gained high interest in their use as potent anticancer agents. Apart from delivering chemotherapeutic agents in order to reduce off-target effects, molecular agents have also been widely explored. The advances in our understanding of cell biology and cell death mechanisms¹ has generated a broad library of potential therapeutic targets by siRNA, mRNA, or pDNA complexes. In the present study, we explore the ability of pDNA-polyplexes to induce tumor-specific necroptosis. This results in a cascade of effects, where immunogenic cell death potentiates anti-tumor immune responses and results in an influx of dendritic cells and cytotoxic T cells, rendering the tumor more amenable to immune checkpoint inhibition. This study aims to explore whether the induction of necroptosis in a subpopulation of tumor cells can be used to potentiate immune checkpoint inhibition studies.

Keywords : nanoparticle, MLKL, necroptosis, immunotherapy

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