mRNA Cancer Vaccine

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Cancer vaccine has emerged as a promising immunotherapeutic approach, capable of eliciting humoral and cellular immune responses to combat tumor progression. Compared with traditional vaccines that rely on synthetic proteins or peptides, mRNA-based therapeutics are engineered to encode specific tumor-associated antigens (TAAs) or neoantigens in their natural form, enabling a more personalized and potent immune response. Additionally, as the mRNA instructs cells to produce the antigen in cytoplasm, it minimizes the risk of genomic integration or insertional mutagenesis. Despite these advantages, several challenges remain, including the identification of tumor-specific antigens and the optimization of delivery systems to ensure effective and targeted expression. This talk will focus on designing both polymer and lipid-based nanoformulas for tissue and cell specific delivery of various forms of mRNA as both preventive and therapeutic vaccines.

References:

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