

Nucleic Acid Delivery for Tailoring Vaccine Immunity and Immune therapy

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New approaches for immunization and immunotherapy through the development of advanced nucleic Acid tools has never been more timely or important. Advances in this area may impact both infectious disease as well as cancer therapeutic approaches. We have focused on delivery of self assembling designed nucleic Acid (DNA) based strategies as an improved approach for delivery of more potent and targeting immunogens as well as for invivo delivered biologics. These approaches have been studied for both infectious disease, as well targeting cancer for immune clearance. Nucleic Acid have advantages as they are simple to produce, well tolerated, can have inherent temperature stability, and can incorporate large genetic stretches without immune interference providing flexibility for repeat administrations. We will present data on more complex antigen designs and enhancement by genetically encoded vaccine adjuvants. We also build on this approach describing first approaches for the design and expression of invivo launched biologics. Combined these tools may allow for an enhanced degree for tailoring the immune response against specific targeting infectious agents or pathogenic cells.