ENHANCED NUCLEIC ACID DELIVERY TO CELLS

Tech ID: 33519 / UC Case 2024-116-1

PATENT STATUS

Patent Pending

BRIEF DESCRIPTION

mRNA-based cancer therapies include vaccination via mRNA delivery of tumor neoantigens, delivery of mRNA encoding for immune checkpoint and other protein therapeutics, and induced expression of anticancer surface proteins such as CAR expression in T cells. Success requires transfection of a critical number of immune cells together with appropriate immune-stimulation to effectively drive anti-tumor responses.

UC Berkeley researchers have developed an adjuvant-assisted mRNA LNP delivery method that uses mRNA LNP and adjuvant to enhance delivery of nucleic acids to immune cells in vivo and stimulate immune cells. They demonstrated the use of this system to reduce mRNA reporter protein expression in the liver and enhance protein expression in the spleen in mice and also demonstrated this system can be used to genetically engineer T cells by delivering a Cre-recombinase mRNA construct- transfection and editing of approximately 4% of T cells is achieved in vivo. The immune response is superior in our system compared to current, commercial lipid nanoparticle delivery technologies.

SUGGESTED USES

» nucleic acid delivery to immune cell targets

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INVENTORS

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OTHER INFORMATION

CATEGORIZED AS

» **Biotechnology**
» Genomics
» **Medical**
» Delivery Systems
» Research Tools
» **Nanotechnology**
» NanoBio
» **Research Tools**
» Nucleic Acids/DNA/RNA

RELATED CASES

2024-116-1

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

▶ Cell Expansion Platform
▶ Cell Culture System With Altered Cellular Microgravity And Shear Stress