NANOSTRUCTURES FOR GENE DELIVERY

Tech ID: 34091 / UC Case 2025-157-0

PATENT STATUS

Patent Pending

BRIEF DESCRIPTION

Nucleic acid therapies hold vast therapeutic potential. FDA approved therapies include mRNA vaccines against SARS-COV2 and CRISPR/CAS9 treatment to treat sickle cell. Both therapies use non-viral methods to deliver designer nucleic acid therapies to cells. However, a limitation of these approaches is the lack of organ and cell-specific delivery.

Controlling gene delivery and expression in various cell subsets is challenging. UC Berkeley researchers have shown that the nanoscale topology of CpG oligodeoxynucleotide (CpG-ODN) motifs can be used to stimulate various immune cell subsets and alter gene expression from exogenously delivered mRNA in distinct immune cell subsets. CpG-ODNs of different classes are known to induce different inflammatory profiles in immune cells based on the structure and nanoscale topology of the short DNA strand. The researchers have found novel nanostructures which can be used to present or deliver CpGs to various cell subsets and regulate gene expression in these subsets.

SUGGESTED USES

» gene delivery

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INVENTORS

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OTHER INFORMATION

CATEGORIZED AS

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» Genomics
» Health
» **Medical**
» Delivery Systems
» Research Tools
» **Veterinary**
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