Dendronized Polymer Vectors For siRNA Delivery

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BRIEF DESCRIPTION

Researchers at the University of California, Irvine have developed a new medium for delivery of siRNA genetic materials into cells. This medium is a vector, and its architecture allows for optimal siRNA binding. RNAi has tremendous potential for therapeutic treatment, and this vector allows for safe and efficient intracellular delivery of siRNA.

FULL DESCRIPTION

RNAi has tremendous potential for therapeutic treatment. However, the lack of safe and efficient intracellular delivery vectors has significantly hampered the potential of siRNA technology. The new invention involves a polymer platform for siRNA delivery. This novel architecture allows for successful intracellular delivery and optimal siRNA binding. The versatile structure could be tuned to select optimal vectors, and several structures have been identified to effectively deliver siRNA to cells in vitro and exhibit minimal toxicity. The combination of high delivery efficiency in serum and low cytotoxicity suggests the system as a promising new carrier for siRNA delivery.

SUGGESTED USES

This technology can be used to safely and effectively delivery siRNA into cells.

ADVANTAGES

RNAi has tremendous potential for therapeutic treatment. However, the lack of safe and efficient intracellular delivery vectors has significantly hampered the potential of siRNA technology. Current viral-based vectors have serious concerns of immunogenicity and infection. Current synthetic vectors are often toxic to cells and generally of low efficiency in gene knockdown. The invented carriers have lower cytotoxicity and higher efficiency for siRNA delivery, making this system a promising new carrier for siRNA delivery.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,179,837	01/15/2019	2013-650
United States Of America	Issued Patent	9,745,421	08/29/2017	2013-650

STATE OF DEVELOPMENT

The invention has been experimentally demonstrated for in vitro cell culture studies. Future plans include further optimization of the delivery system design, and both in vitro gene knockdown to various other cell lines

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OTHER INFORMATION

KEYWORDS

siRNA delivery, Dendronized polymer, Polypeptide, Dendrimer, Drug delivery, Gene delivery, Synthetic vectors

CATEGORIZED AS

- **Materials & Chemicals**
  - Biological
  - Polymers
- **Medical**
  - Gene Therapy
  - Therapeutics

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