Therapeutics & Vaccines


# TARGETED LIPID NANOPARTICLES FOR TREATING CENTRAL NERVOUS SYSTEM INJURIES

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## The Invention

UW-Madison researchers have developed lipid nanoparticles (LNPs) specifically designed to deliver gene therapies to injured CNS tissue. The LNPs can be administered intravenously, entering the CNS injury through the disrupted vasculature and specifically targeting astrocytes, the most abundant glial cell in the CNS. The LNPs are surface functionalized with astrocyte binding peptides to enhance endocytosis along with anti-inflammatory peptides to reduce toxicity in the cell after endocytosis. In addition, a modified mRNA repressor complex (miRNA 143 and miRNA 449a incorporated into 3' UTR and 5' UTR of L7Ae) is included to inhibit transfection in off target cells. Together, these LNPs provide a non-viral, systemic delivery platform that targets CNS tissue for delivery of therapeutically relevant mRNA.

## Additional Information

**For More Information About the Inventors**

- William Murphy

**Tech Fields**

- Drug Delivery : Small molecules
- Therapeutics & Vaccines : CNS

For current licensing status, please contact Rafael Diaz at rdiaz@warf.org or 608-960-9847