# COMPOSITIONS AND METHODS FOR IDENTIFYING FUNCTIONAL NUCLEIC ACID DELIVERY VEHICLES

Tech ID: 33839 / UC Case 2025-061-0

## PATENT STATUS

Patent Pending

## BRIEF DESCRIPTION

Lipid Nanoparticles (LNPs) are a leading platform for nucleic acid delivery, widely used in therapeutics and vaccine development. However, the process of optimizing new LNP formulations has been significantly hindered by labor-intensive and costly screening methods, which require individual injections into animal models. Given the vast array of potential lipid compositions and formulation variables, these constraints severely impede the efficiency of research and development.

To overcome these challenges, UC Berkeley researchers have developed a novel approach for identifying and characterizing functional nucleic acid delivery vehicles. This innovative method leverages circular RNA barcoding technology, enabling a more efficient screening process. Instead of relying on conventional cell sorting techniques, which restrict screening to specific organs and host species, this breakthrough allows direct detection of barcoded nucleic acids within circular RNAs in treated cells. By analyzing the barcodes detected, researchers can accurately determine which lipid compositions and formulations successfully delivered RNA molecules.  This technology represents a significant advancement in LNP research, offering a scalable, cost-effective solution that enhances the precision and scope of nucleic acid delivery screening.

## SUGGESTED USES

- gene editing
- gene delivery for therapeutic applications

## CONTACT

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## INVENTORS

- Murthy, Niren

## OTHER INFORMATION

### CATEGORIZED AS

- **Biotechnology**
  - Genomics
- **Medical**
  - Delivery Systems
  - Research Tools
  - Therapeutics
- **Research Tools**
  - Nucleic Acids/DNA/RNA

### RELATED CASES

2025-061-0

### ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Small Molecule Endosomal Disruptor for Biotherapeutic Delivery
- Aromatic 2-nitrosulfonyl fluoride antibiotics
- New Acid Degradable Lipids Based On Self Assembling Peptides
- Lipid Nanopartices with non-immunogenic Poly (ethylene glycol)
- Acid Degradable Solid Lipid Nanoparticles
- Synthesis Of New Cationic And Ionizable Lipid Nanoparticles (LNPs) via Solid Phase Peptide Synthesis