**Team Name: “NanoCure Innovators”**

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**Prototype Name: Smart Liposomal Drug Carrier for Targeted Cancer Therapy**

**Summary:**

Conventional cancer treatments suffer from poor drug targeting, severe side effects, and low bioavailability, leading to ineffective therapy and patient distress. Our Smart Liposomal Drug Carrier is a groundbreaking nano-pharmaceutical drug delivery system designed to overcome these challenges by ensuring precise, site-specific drug delivery with minimal toxicity. This advanced system encapsulates anti-cancer drugs within liposome-based nanoparticles coated with targeting ligands, ensuring they directly reach tumor cells while bypassing healthy tissues. This innovative approach enhances therapeutic efficacy, reduces side effects, and improves drug stability.

**Problem Statement:**

1. Traditional cancer treatments face major challenges such as:
2. Non-specific drug delivery, leading to severe side effects
3. Low drug bioavailability, reducing treatment efficacy
4. Inability to cross biological barriers like the Blood-Brain Barrier

**Our Solution:**

We introduce the Smart Liposomal Drug Carrier, an AI-powered nanotechnology that ensures targeted, site-specific cancer drug delivery with minimal toxicity and enhanced bioavailability. Using liposome-based nano-formulations, our system encapsulates anti-cancer drugs and directs them only to tumor cells using ligand-based targeting. The AI-driven optimization ensures precise drug release, reducing side effects and maximizing therapeutic benefits. CRISPR-based nano-delivery further enhances gene-targeted cancer therapy, making it a revolutionary advancement.

* AI-Powered Drug Release Control – Ensures personalized treatment
* Tumor-Targeting Liposomes – Reduces toxicity & side effects
* CRISPR-Based Gene Therapy – Opens new doors for cancer mutation targeting
* Sustained Drug Release – Enhances treatment efficacy
* Crosses Blood-Brain Barrier – Expands treatment possibilities for brain tumors
* Scalable & Cost-Effective – Designed for real-world healthcare applications

**Impact**

By integrating nanotechnology, AI, and CRISPR, our prototype offers a safer, smarter, and more effective alternative to traditional chemotherapy. This cutting-edge innovation can transform cancer treatment globally, improving patient survival rates and quality of life.