

# Pharmaceutical Drug Delivery using Lipid Prodrugs

## Challenge

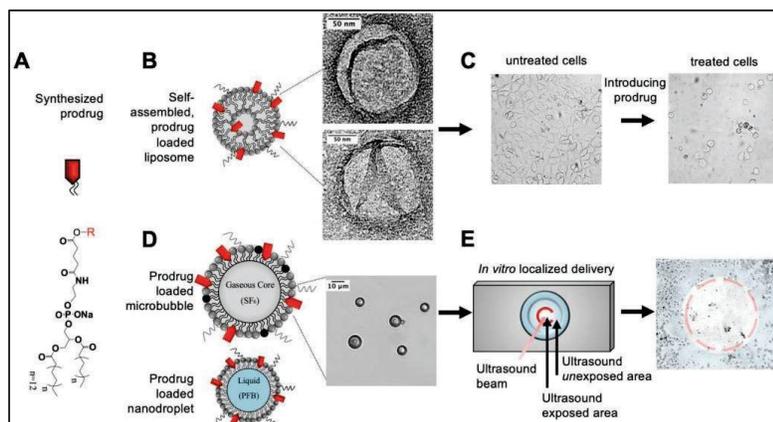
The ability of a drug to be absorbed and used by a body (bioavailability) is affected by factors such as poor aqueous solubility, instability, insufficient site specificity, general toxicity, or formulation issues. Natural and synthetic chemotherapy agents often fail laboratory and clinical trials due to these factors.

## Solution

The bioavailability and site specificity of drugs can be improved with liposome-mediated drug delivery in natural and synthetic chemotherapy agents during laboratory and clinical trials. The invention focuses on the use of lipid-based carriers such as liposomes, nano droplets, or microbubbles as vehicles for administering nutrients and pharmaceutical drugs.

## Benefits and Features

- Increased drug payload
- Minimized purification and solubility issues with vehicle self-assembly
- Prevents premature drug release from the vehicle
- Maintains drug potency once rapidly cleaved intracellularly
- Remaining drug activated with ultrasound imaging and therapeutic techniques that put the drug in proximity to target cells



## Market Potential / Applications

- Utilizes lipid-based drug carriers, targeted delivery strategies, and ultrasound-mediated techniques for better performance; and
- Methods described can be used to target, treat, prevent and diagnose natural and synthetic tumors and cancers such as unresectable pancreatic cancer, liver cancer, and brain tumors.

## Developments and Licensing Status

*Status:* Available

*Commercial sponsor sought?* Yes

## Patent Status

US patent pending

PCT/US2019/026902

Japan patent pending

China patent pending

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