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Liposome Formulation with High Drug Capacity

A novel method enables significantly higher efficiency drug loading into liposomes, offering enhanced stability and sustained release for developing pharmaceutical formulations, such as cancer treatments.

Researchers at Purdue University have developed a method for encapsulating drugs in liposomes with higher efficiency than competing methods. Liposomal encapsulation of chemotherapeutic agents is widely used to reduce nonspecific side effects, because liposomes will preferentially target the tumor's leaky vasculature. Liposomes are typically loaded with drugs using pH gradients. However, some drugs, such as gemcitabine, a first-line treatment for pancreatic cancer, have proven difficult to load into liposomes with reasonable efficiency. In a proof-of-concept study using this new method, gemcitabine had a loading efficiency of 9.4 - 10.3 wt% compared to 0.14 - 3.8 wt% by conventional methods. Applications for this technology include in the development of novel drug formulations for the treatment of cancer.

Advantages:

-Higher drug loading efficiency

-Good stability and sustained release of drug

Potential Applications:

-Pharmaceutical formulations

Publications:

Development of Liposomal Gemcitabine with High Drug Loading Capacity

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