LIPOSOME DRUG DELIVERY SYSTEMS

Structure
- A spherical vesicle of phospholipid bilayers with aqueous core encapsulates active drugs
- Increase circulation time and bioavailability, reduce toxicity, target to specific organ/tissue

Surface Modification
- Stealth liposome: PEG on the surface reducing the protein binding, increase circulation time, and reducing toxicity
- Targeting: peptides, antibodies and small molecules on the surface guides the liposome to the specific site of action
- Trigger release: the encapsulated drug can be release by external triggers, such as Ultrasound, light, pH, or glucose, etc.

Application
- Commercial drugs: Such as Anti-cancer drug Doxil; Anti-fungal drug Ambisome; and Antiviral vaccine Epaxal, etc.
- Can encapsulate small molecules, peptides, protein, siRNA, RNA, etc for different indications

Case Study 1 - Preparation of Insulin-Encapsulated Liposome

- Lipid solution in organic phase; insulin solution in aqueous phase
- Mix, liposome form, extrusion to reduce size, dialysis or
- Diafiltration to eliminate the organics and free insulin
- Concentrate if necessary

Lipid, Cholesterol, DSPE-PEG
0.3 mg/ml insulin, size 300nm

For More Information, Please Visit www.drugdeliveryexperts.com
Case Study 2 - Preparation of Insulin-Encapsulated Functionalized Liposome

- Synthesized DSPE-PEG-functional group compounds in high yields
- Prepared surface functionalized liposome with encapsulated insulin, encapsulation efficiency >90%, insulin concentration 1 mg/ml

Case Study 3 - AVT preparation for the treatment of diabetes

- Agglomerate Vesicle (AVT) was formed by two types of liposomes with functional groups (boronate and diols) on the surface that form covalent chemical bonds
- Insulin concentration 1mg/ml
- Size <100um
- Glucose cleaves AVT
- Proprietary technology of Sensulin LLC

AVT as smart insulin delivery system. High glucose concentration will disassemble the AVT and release more insulin.

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