

# Design and Feature of Automated Multi-functional Liposome Manufacturing Equipment

## Automated Multi-functional Liposome Manufacturing Equipment



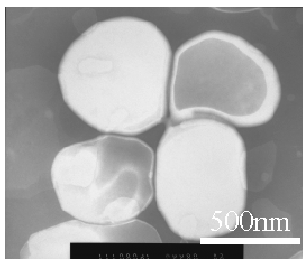
### ■ Specification

- **Components** Syringe pumps: 6 units, Syringe: 1, 5, 10 ml-selectable (High-precision liquid transfer)  
Vortex-mixer: 2500rpm (regular and reverse rotation) (Automatic vortex-mixing with a touch panel system)  
Evaporator: warmable, (High-efficient evaporation of organic solvent)  
Continuous ultrasonic homogenizer: 250W output (Automatic ultrasonic homogenization with a touch panel system)  
Water-cooled continuous ultrasonic homogenization adaptor (Continuous and batch-processing ultrasonic homogenization)
- **Air removal** Complete air removal by means of nitrogen gas replacement
- **Cleaning** Automatic cleaning with alcohol and pure water
- **Size** 758W × 492D × 690H mm (no projection)
- **Weight** About 85 kg
- **Power supply** AC100V 50/60Hz 15A

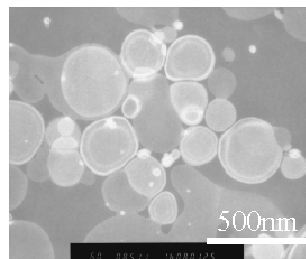
# Functional Liposomes that can be produced with Automated Multi-functional Liposome Manufacturing Equipment

## 1. Liposomes

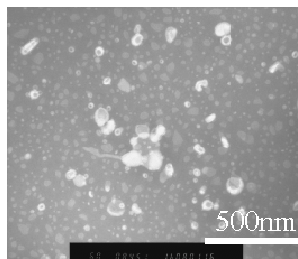
- Multilamellar vesicles (MLV)
- Small unilamellar vesicles (SUV)
- Large unilamellar vesicles (LUV)
- Giant unilamellar vesicles (GUV)



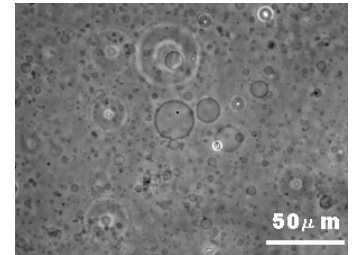
MLV



LUV

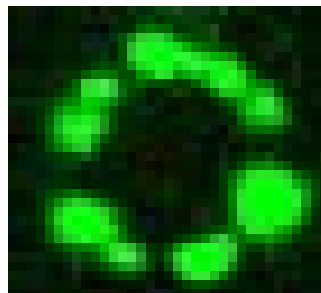
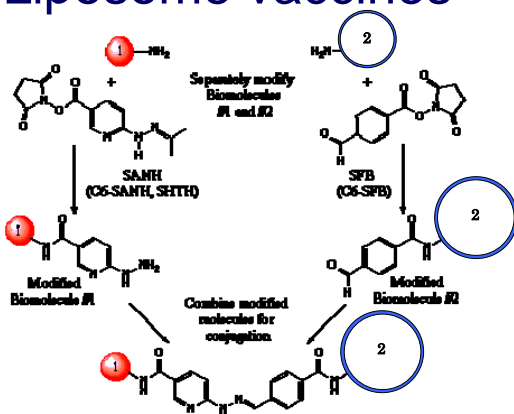


SUV

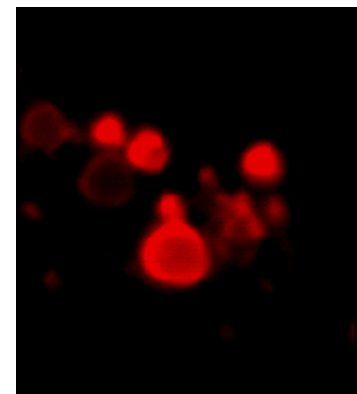


GUV

- Liposomes encapsulating pharmaceuticals, genes, nucleic acids, antibodies and enzymes
- Liposomes sensitive to temperature, pH, magnetism, and ultrasound
- Liposomes coated with PEG and saccharide chain
- Liposomes with bound ligands, such as proteins, peptides, and nucleic acids
- Reconstituted liposomes (proteoliposomes, virosomes and fusogenic liposomes)
- Liposome vaccines



Protein-bound liposome



Proteoliposomes

Liposome vaccines