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Bachelor4 倉田 知憲

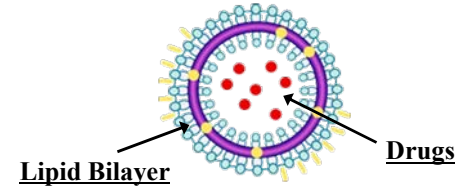
Background

Major advances in the use of carrier vehicles delivering pharmacologic agents to the sites of Cancer diseases have occurred over the past 10 years.
We also focused on **Nanoparticle-sized Liposomes** as a Drug Carrier.

★ What is Liposome??

Liposomes are microscopic vesicles composed of a phospholipid bilayer that are capable of encapsulating the drug. The **theoretical advantages** of carrier-mediated drugs are...

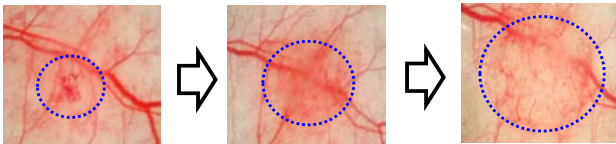
★ **Greater Solubility** ★ **Longer duration of exposure** (Pegylated) ★ **Selective delivery** etc.



Tumor Targeting

The **Drug Distribution changes** depending on ...

★ The conditions of tumor tissues



Tumor Angiogenesis

Alteration in the distribution of blood vessels, blood flow, permeability, interstitial pressure etc.

★ The physiochemical characteristics of Liposomes

- ✓ **Size**($\Phi 100 \sim 400\text{nm}$) ✓ **Steric stabilization**
- ✓ **Surface Charge** ✓ **Membrane Lipid Packing**

To optimize treatment methods (DDS)
We need to know **Liposomal Transportations** to tumor tissues in vivo.

Animal models

- ✓ C3H mice
- ✓ Tumor implantation : MCaIV (Mammary Carcinoma)
- ✓ Chamber methods : Dorsal Skinfold Chamber & Mammary Window

★ DSC (Ectopic)

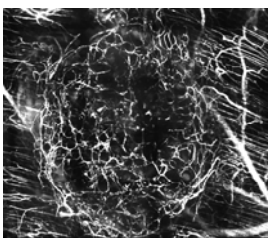


★ MW (Orthotopic)

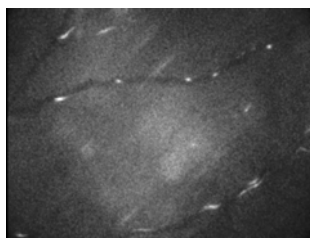


Fluorescence Intravital Microscopy

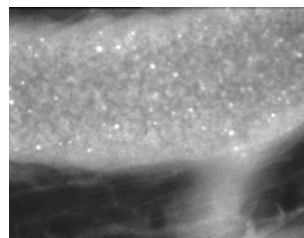
★ Tumor Angiography



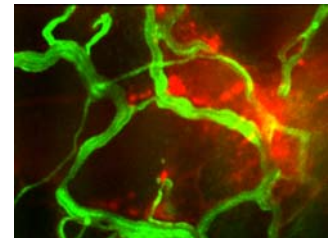
★ Flowing RBCs



★ Flowing Liposomes

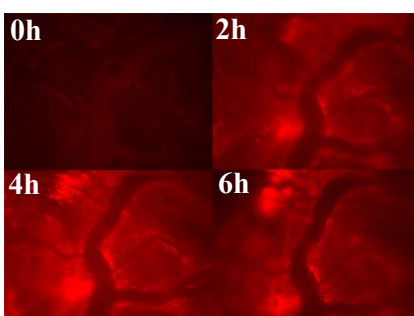


★ Liposomes in Tumor Networks



(Green:tumor vessels Red :liposomes)

★ Extravasation of Liposomes



Collaborative Research Institutes



National Institute of Public Health (Wako)



Institute of Industrial Science
the University of Tokyo (Meguro)