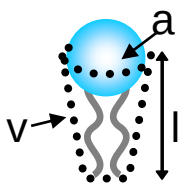
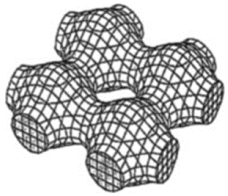
Suppl. Figure 1

**(a)**




SP = v/al



tetragonal mesh phase

**(b)** Lα

SP = 1

**(c)** $Mesh_1$

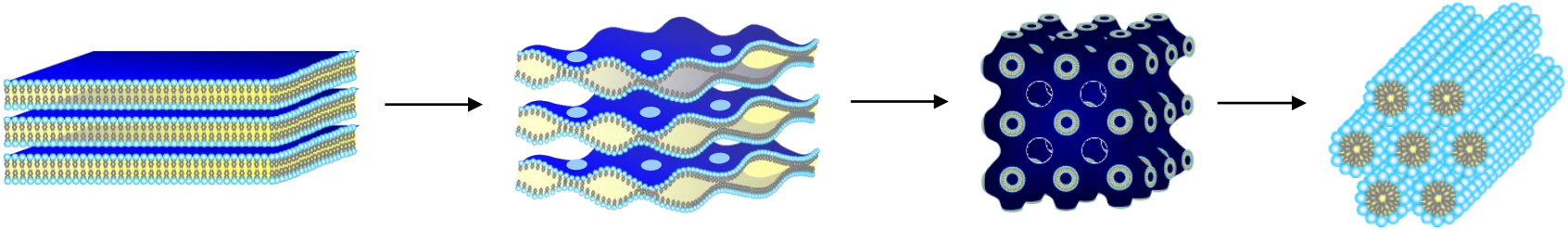
1/2 < SP < 2/3

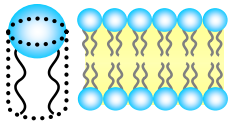
**(d)** $V_1$

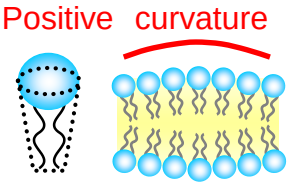
1/2 < SP < 2/3

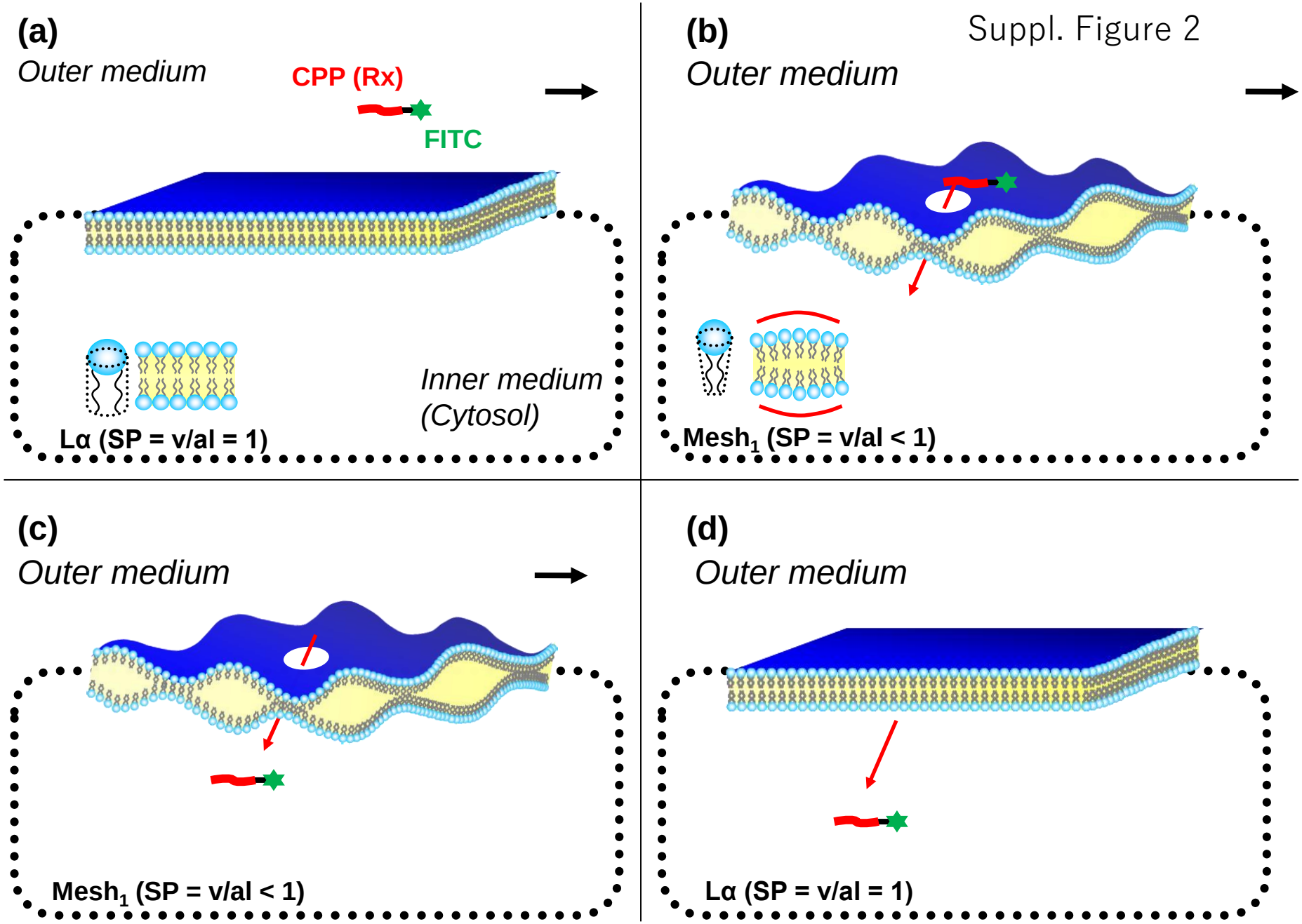
**(e)** $H_1$

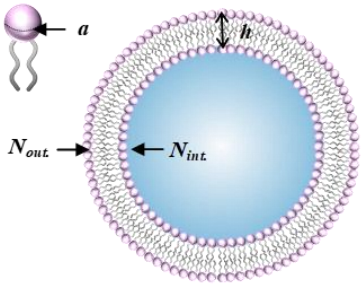
SP = 1/2








(a)
Outer medium
CPP (Rx)
FITC
Inner medium
(Cytosol)
Lα (SP = v/al = 1)
(b)
Outer medium
Mesh1 (SP = v/al < 1)
(c)
Outer medium
Mesh1 (SP = v/al < 1)
(d)
Outer medium
Lα (SP = v/al = 1)




Suppl. Figure 3

The number of phospholipid molecules of the outer surface of the vesicles ($N_{out}$) is represented by the formula (3).

$$N_{out} = \frac{4\pi\left(\frac{d}{2}\right)^2}{a} \quad (3)$$

The number of phospholipid molecules of the internal surface of the vesicles ($N_{int}$) is represented by the formula (4).

$$N_{int} = \frac{4\pi\left(\frac{d}{2} - h\right)^2}{a} \quad (4)$$

Since the molecular occupation area a of E-PC is 0.71nm$^2$ and the thickness the bi-layer formed by the phospholipid is about 5nm, the number of phospholipid molecules consisting GUV of E-PC is represented by the following formula (5).

$$N_{tot} = \frac{\left[4\pi\left(\frac{d}{2}\right)^2 + 4\pi\left(\frac{d}{2} - 5\right)^2\right]}{a} \quad (5)$$

Since the diameter of GUV is about 14μm, $N_{tot}$=1.7 X 10$^9$ by formulae (5), $N_{out}$=8.8 X 10$^8$ from formulae (4) and $N_{int}$=8.8 X 10$^8$ are obtained.

The number of the vesicles $N_{vesic}$ in 1mL vesicle suspension is represented by the following formula (6).

$$N_{vesic} = \frac{M_{lipid} \times N_A}{N_{tot} \times 1000} \quad (6)$$

Wherein $M_{lipid}$ and $N_A$ represent molar concentration (mol/L) of the phospholipid and the Avogadro number (6.0 X 10$^{23}$(mol$^{-1}$)), respectively.

Since the molar concentration of the phospholipid is 1.7mM, $N_{vesi}$ is obtained by the above formula (6) as follows.

$N_{vesi}$ =5.82 X 10$^8$ (unit/mL).

Suppl. Scheme1