

# Microchannel device using artificial cell membrane

- A new technique to grow artificial cell membrane on a solid surface -

## Motivation

An artificial cell membrane has dynamic properties such as spontaneous growth on hydrophilic surface and fluidity based on lateral diffusion. We are developing devices to detect intermolecular interaction or to manipulate molecules by using the membranes.

## Originality

We have established the technique to control the growth position and direction of the artificial membrane using surface patterns. We have proposed a microchannel device using the membranes as molecule carrying media and demonstrated its operation.

## Impact

The device is expected to be applied to biomolecules such as trans-membrane proteins, because the membrane is compatible with them. To study the growth mechanism of the 5-nm thick membrane within patterns opens a new research field such as nano fluidics.

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