Manipulation of phospholiposome in microfluidic channel using lorentz force

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Abstract: Manipulation of biomolecules in microfluidic channel is very important in biochip technology. Here, we report a label-free handling method of biomolecules using magneto-hydrodynamic (MHD) force. Phospholiposome was used in our experiments as it contains charged phospholipids and is spherical. Its mobility in microfluidic channel was analyzed by CFD (Fluent 6.2) and experiments were performed thereafter. The trajectory of the liposome was changed by the influence of external magnetic field. The factors affecting the flow of the liposome are thought to be charge density on the surface of the liposome and the Lorentz force. Results of our work are expected to be applied to manipulate various biomolecules containing electrostatic charges in microfluidic channel. © 2007 IEEE.
Author Keywords: CFD; Electrostatic charge; Liposomes; Magneto-hydro-dynamics (MHD)

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