

Influences of high electric field on cells in a aqueous droplet in silicone oil

노지훈, 강인석*

POSTECH

(Inseokkang@postech.ac.kr*)

The phenomenon that electrically charged aqueous droplet is moved under electric field in a dielectric fluid without flow of medium (Jung et al. J. Colloid Interface Sci. 2008). By using this phenomenon, we can transport a single or plural nanoliter droplets in a micro-channel. Thoretically, because an aqueous droplet is much conductive than the silicone oil, there is no effective electric field in droplet. So cells are protected from electricity. However when droplet contacted with electrodes directly, electric currents flowed between droplet and electricle. Also, there is possiblity of that 1 kV/cm of electric field can hurt cells in droplet. Because of these problems, we chould confirm that influences of high electric field on cells. Therefor we examine these expected problems.