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Investigation on Large Molecule Permeation through Liposome Lipid Bilayer Induced by Microplasma Irradiation[1] HIDENORI NAGAIWA, DAIJIRO AIBARA, YOSHIHISA IKEDA, HIDEKI MOTOMURA, Department of Electrical and Electronic Engineering,Ehime University, YUGO KIDO, Pearl Kogyo Co.Ltd, SUSUMU SATOH, Y's Corporation, KUNIHIDE TACHIBANA, Department of Electrical and Electronic Engineering,Osaka Electro-Communication University, MASAHUMI JINNO, Department of Electrical and Electronic Engineering,Ehime University — The authors have been developing a novel gene transfection method using microplasma irradiation. In order to clarify the mechanism of large molecule permeation process through the lipid bilayer, plasma induced outflow of hydrophilic fluorescent dye molecules, which were encapsulated in the liposome, was observed. By microplasma irradiation on the liposome suspension, the dyes flowed out from the inside of the liposomes. The outflow of the dyes was enhanced by longer plasma irradiation time. Investigation of the outflow mechanism, i.e. permeation enhancement of the lipid bilayer or burst of the liposome, is under progress.

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