

Propofol is an effective anesthetic drug having some desirable properties such as rapid onset and recovery, even after a prolonged infusion, and the absence of emetic sequelae. In this study, solubilization of propofol by means of nonionic surfactant systems has been investigated. Pseudo-ternary phase diagrams have been constructed for systems comprising of propofol-water-nonionic surfactant-cosurfactant.

Monophasic, isotropic areas were seen to occur along the water-surfactant axis in most systems studied, and propofol-water-PEG 660 12-hydroxystearate-ethylalcohol system showed larger region than any other compositions. Optimum ratio of surfactant/cosurfactant was 5/1.

The droplet sizes in all prepared system, determined by light scattering techniques, were below than 150nm. No significant difference in droplet size and concentration was observed for 8 weeks at 40°C, when 1%(w/w) of drug was solubilized with 8%(w/w) of surfactant/cosurfactant. The results obtained show that it is possible to solubilize suitable amount of propofol with nonionic surfactant systems.

[PE1-4] [10/19/2001 (Fri) 09:00 - 12:00 / Hall D]

Characterization of hydrophobized pullulan with various hydrophobicity

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Pullulan is a bacterial polysaccharide consisting essentially of α -1,6 linked D-glucopyranose residues with a few percent of α -1,2, α -1,3, or α -1,4-linked side chains. Pullulan is widely under investigation as a polymeric carrier in drug delivery systems. Because of its good biocompatibility, pullulan is also a suitable polymer to be used for the preparation of hydrogels, which are becoming increasingly important in the biomedical, pharmaceutical, and biotechnological fields. Pullulan acetate was synthesized by pullulan suspended in formamide and dissolved by vigorous stirred. Then, pyridine and acetic anhydride were added, and the mixture was stirred and precipitant was obtained and then purified by reprecipitation with distilled water and methanol. The resultant precipitant was vacuum-dried and characterized by FT-IR, XRD and DSC measurement. Core-shell type nanoparticles of hydrophobized pullulan could be self-assembled in water as nanospherical aggregates, and their physico-chemical properties were significantly differentiated against various hydrophobicity. In this study, we synthesized pullulan acetate with various hydrophobicity, and evaluation of self-assembling pullulan nanospheres against various hydrophobicity.

[PE1-5] [10/19/2001 (Fri) 09:00 - 12:00 / Hall D]

Pluronic grafted poly-(L)-lysine as a new synthetic gene transfer

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Genes are attractive candidates as therapeutic agents, and the development of gene carriers is essential for human gene therapy. In order to investigate the delivery of DNA into cells, poly-L-lysine-g-pluronic copolymer was synthesized by conjugating free amino group of poly-L-lysine and pluronic which was partially functionalized with 4-nitrophenyl carbonate groups. Physicochemical properties the new graft copolymers were characterized by ¹H-NMR, gel retardation assay, z potential, and size measurement. ¹H-NMR spectrum of copolymer shows peaks at δ 1.13ppm, 1.37~1.6ppm, 3.0ppm, 3.5ppm, 3.66ppm which can be assigned to the reaction between poly-L-lysine and pluronic. Gel retardation assay, z potential and size measurement confirmed that the new gene carriers make a compact complex with plasmid DNA. DNA size was decreased from 900nm to 290nm and z potential was increased from δ 0mV to +40mV by adding poly-L-lysine-g-pluronic. pCMV- β gal was used as a reporter gene, and in vitro gene transfection efficiency was measured in HeLa cells by using ONPG assay. The highest transfection efficiency was achieved at a 1:1 weight ratio of polymer:DNA and 3-fold increase in transfection