

varied between 0.2 and 2 $\mu$ m by means of adjusting the system pressure and/or temperature. The proposed method is attractive as the basis of a new process for the preparation of drug delivery system.

[PE1-18] [ 04/19/2001 (Thr) 15:30 – 16:30 / Hall 4 ]

### Formulation of microemulsion-based hydrogel containing prostaglandin E1 ethyl ester

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Prostaglandin E1 analogues, especially prostaglandin E1 ethyl ester(PGE1-EE), have been focused as a therapeutic agent for erectile dysfunction due to its higher skin penetration property than that of PGE1. A microemulsion-based hydrogel(MHG) containing PGE1-EE was formulated through phase diagram with polyoxyl castor oils, EtOH and medium chain triglycerides(MCTs). *In vitro* drug penetration characteristics of MHG was investigated using Franz diffusion cell and receptor solution (pH 7.4 PBS : EtOH = 90 : 10) containing PGE1 was assayed by validated HPLC method. PGE1-EE was stable in receptor solution for 6hrs but PGE1-EE was cleaved to PGE1 by skin esterase during penetration. Microemulsion promoted penetration of PGE1-EE, showing the result of 2~3 times higher penetration than that of control hydrogels, e.g. sodium alginate gel. Finally, *in vivo* pharmacodynamic effects of MHG, such as ICP(Intra Cavernosal Pressure), duration of erection, increment of penile length were investigated with wild male cats.

[PE1-19] [ 04/19/2001 (Thr) 15:30 – 16:30 / Hall 4 ]

### Formation of peptide adduct during *in vitro* release of GHRP-6 containing poly(DL-lactide-co-glycolide) microspheres

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GHRP-6 is a synthetic growth hormone-releasing hexapeptide (His-DTrp-Ala-Trp-DPhe-Lys-NH<sub>2</sub>) which elicits a dosage-related release of growth hormone *in vitro* and *in vivo*. GHRP-6 was encapsulated into 50:50 poly(D,L-lactide-co-glycolide) (PLGA) microspheres using oil in water solvent extraction/evaporation method. Spherical microspheres with smooth surface structures were obtained with high encapsulation efficiency. *In vitro* release test was carried out in 33 mM phosphate buffer, pH 7.0 at 37°C. During *in vitro* release test, several degradation and/or adduct peaks were detected and some of them were identified by LC/MS/MS. Glycolic acid and lactic acid attributed to the erosion of PLGA during the incubation seemed to be conjugated to the free amino group of N-terminal His and epsilon amino group of Lys5 of GHRP-6. These results indicate that peptide adduct formation should be considered when planning to develop a sustained release peptide formulation using PLGA polymers.

[PE1-20] [ 04/19/2001 (Thr) 15:30 – 16:30 / Hall 4 ]

### Increased Stability of Recombinant Human Epidermal Growth Factor by Poly(Ethylene Glycol) Conjugation