[PE1-31] [10/19/2001 (Fri) 09:00 ~ 12:00 / Hall D]

Direct Determination of Salmon Calcitonin Incorporated into PLGA Microsphere by MALDI-TOF Mass Spectrometry

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Matrix-assisted laser desorption-ionization time-of-flight mass spectrometry (MALDI-TOF MS) has been evaluated as a reliable and efficient method for the determination of salmon calcitonin (sCT) incorporated into microspheres. Biodegradable poly(lactic-co-glycolic acid) (PLGA, 50/50) microsphere containing sCT was prepared by a solvent extraction/evaporation method. The PLGA microsphere containing sCT was dissolved by acetonitrile containing 0.1% TFA, and then content of sCT in the microsphere was directly determined by MALDI-TOF MS with the precision in the range of 2.3 to 5.4% relative standard deviation. Human parathyroid hormone (1-34) was used as an internal standard. The in vitro release profile of sCT by MALDI-TOF MS corresponded well to the data determined by capillary electrophoresis and HPLC with sample extracted using organic solvent. This new approach was found to be convenient and reliable. It is expected to be applied to quantitate other peptides or proteins from microsphere. It provides the merits of speed, high resolution, small sample requirements, ease of determination, and simple data manipulations over other analytical tools.

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Application of PEG-coated liposomes for oral delivery of peptide: Effect of liposome composition on the gastrointestinal absorption of rhEGF

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The purpose of the present study was investigated possibility of oral delivery of a peptide drug, recombinant human epidermal growth factor (rhEGF) as a model drug. PEG-coated liposome with rhEGF was prepared and evaluated for improving gastrointestinal stability and absorption. Encapsulation of rhEGF into liposomes suppressed the degradation of rhEGF in the Caco-2 cell homogenats compared with rhEGF solution. The flux of DPPC liposome across Caco-2 cell monolayer from the apical to basolateral side was 3 times greater than that PC liposome and solution, whereas the flux of PC liposome and soution were without significant differences. After oral administration liposomes and rhEGF solution in rats, the AUC, C_{max} and T_{max} of DPPC and PC liposome were increased compared with rhEGF solution. These results indicated that PEG-coated liposomes could be developed as a oral delivery system for rhEGF with improved encapsulation efficiency. Moreover, it is suggested that the DPPC liposome coated with PEG might have a potential as oral delivery systems for other protein and peptide drugs.

[PE1-33] [10/19/2001 (Fri) 09:00 ~ 12:00 / Hall D]

The effect of NPE, hormone distrupter, on the barrier function of epithelial membranes

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