size of 44㎛ and 48㎛ with high drug incorporation efficiency. Each formulation showed quite different in vitro release patterns in 50mM phosphate buffer (pH 7.4) containing 10mM NaCl, 0.02% Tween 20, and 0.02% sodium azide at 37°C. The formulation I microspheres showed a higher initial burst(~73%) at day 1 followed by additional 17% for next a week and no further release until day 56. Whereas, the formulation II microspheres showed a typical triphasic release pattern, 23% initial release followed by a very slow release until day 21 and then a gradual release to 78% for up to 100 days. A single subcutaneous administration of each formulation induced elevated serum hGH levels in rats. The duration of in vivo rhGH release was maintained for up to 8 days and 14 days for formulation I and II, respectively. The discrepancy between in vitro and in vivo hGH release patterns might be due to the difference of rhGH release environment.
These results suggest that formulation I and II would be efficacious for sustained delivery of rhGH over 1 week and 2 weeks, respectively.

[PE1-29] [10/19/2001 (Fri) 09:00 - 12:00 / Hall D]

Investigation of PEG Modification Effects on Drug Release from PLGA Microspheres

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The effect of PEG modification of peptide on the drug release from poly (d,l-lactic-co-glycolic acid) (PLGA) microspheres was investigated. Biodegradable PLGA microspheres were prepared by solvent evaporation/extraction technique. As a model peptide, growth hormone releasing peptide-6 (GHRP-6) was conjugated with succinimidyl propionate monomethoxy-polyethylene glycol. The PEGylated GHRP-6 species were separated by size-exclusion chromatography and characterized by matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF MS). The adsorption property of PEGylated GHRP-6 to microspheres was investigated at room temperature for 24 hours and compared with native GHRP-6. The adsorption to microspheres was significantly reduced depending upon PEG attachment. The adsorption efficiency of native GHRP-6 to microspheres was 71.5 %, whereas that of mono-PEG-GHRP-6 was 30.6 % and di-PEG-GHRP-6 was not adsorbed to microspheres even after incubation of 19 hours. The microspheres containing the PEGylated GHRP-6s showed very sustained release properties, while that of native peptide had initial burst and fast release. These results implicate that PEGylation affects the drug release profile of microspheres as well as increase drug stability.

[PE1-30] [10/19/2001 (Fri) 09:00 - 12:00 / Hall D]

Buccal mucosal ulcer healing effect of rhEGF

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The aim of this study was to test feasibility of buccal delivery of recombinant human epidermal growth factor(rhEGF). First of all the enzymatic degradation of rhEGF in various mucosal homogenates of albino rabbit was investigated and the inhibitory effect of various protease inhibitors was tested. Buccal membrane permeability study was carried out by using buccal pouch of golden hamster. As a bioadhesive polymer, Eudispert hv was chosen to prepare rhEGF hydrogel. Also, the healing effect of acetic acid induced buccal mucosal ulcer was estimated with Eudispert hv hydrogel containing rhEGF. After incubation with the buccal mucosal homogenates of rabbit, rhEGF was rapidly degraded. The degradation of rhEGF was significantly inhibited by addition of sodium lauryl sulfate (SLS). At 24hrs after administration of rhEGF using Eudispert hv hydrogel, ulcer healing effect was increased 3.8 times compared to no treatment group and curative ratio was 54.77±6.74. Their mechanism of action is probably a combination of protecting the drug from protease in mucosa and prolonging the duration time in action sites.