VOLUME 10, NUMBER 10

OCTOBER 1993 (Supplement)

PHREEB 10 (10) S1-S454 (1993)

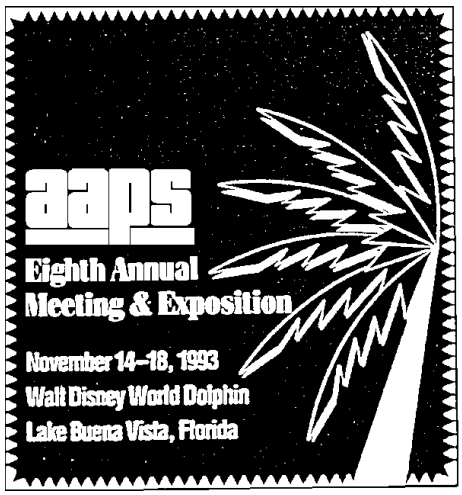
ISSN 0724-8741

PHARMACEUTICAL RESEARCH

Official Journal of the American Association of Pharmaceutical Scientists

PLENUM PRESS • NEW YORK AND LONDON

Contributed Papers Abstracts



The Preliminary Program Outline which appears on the following pages has been included to assist you in your advance planning for the AAPS Eighth Annual Meeting and Exposition which will be held November 14-18 in Lake Buena Vista (Orlando), Florida.

Times and events are subject to change. Please refer to the official AAPS Annual Meeting Program Schedule which will be distributed in Florida for a complete listing of all events.

PLEASE BRING THIS ABSTRACT BOOK TO THE ANNUAL MEETING.

PDD7411

EFFECT OF MATRIX CHARACTERISTICS ON THE IN VITRO RELEASE OF CALCITONIN FROM PLGA MICROSPHERES.

S.Calis, R.Jeyanthi, R.C.Mehta, P.P.DeLuca. College of Pharmacy, University of Kentucky. Lexington KY 40536-0082

Matrix characteristics play a critical rule in tne in vitro and in vivo release of drugs from polymeric microspheres. Size, surface area and internal structure are some of the matrix characteristics which can be altered by manipulating the microsphere preparation process. Salmon Calcitonin (sCT). a bioactive peptide, has been found to exhibit strong interaction with poly(D,L-lactide-co-glycolide) (PLGA) polymer and micro-spheres, which can also play a vital role in its release properties. This paper discusses the effect of matrix characteristics on the in vitro release behavior of sCT from PLGA microspheres pre-pared by an aqueous emulsification-solvent removal technique. The effects of release medium, temperature and replacement of medium on sCT release from PLGA microspheres were evaluated, it was observed that the released sCT was re-adsorbed onto the microsphere matrix in 0.01M phosphate butter, pH 7.4 within 24 hours at 25 ± 1 °C. However, the initial percentage of release (20-60% in 20 min.) and the time of readsorption (3-8 hours) depended on the internal structure of microspheres. Release was also found to be rapid and complete with no readsorption in the presence of a surfactant. To simulate in vivo conditions, sCT release was studied in rabbit serum at 37 ± 1 °C. Direct assay of sCT released in serum was not practical due to degradation and binding to serum proteins. Residual anaysis of sCT, in microspheres of different matrix structures, upon exposure to serum showed that the initial release up to 72 hours varied between 25-90%. It was also found that ^{60}Co-irradiated PLGA microspheres showed a dose-dependent increase in release of sCT (50-70% in 72 hours) in serum. In both cases, the aftered extractability of sCT could be either due to the altered matrix characteristics or due to the change in peptide-polymer interaction.