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Skin permeation studies of Pioglitazone from different dosage forms

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Pioglitazone (PGZ) is an agonist of peroxisome proliferator-activated receptors (PPARs) from the nuclear receptor superfamily that regulate lipid, glucose and amino acid metabolism. More recently, PPARs and corresponding ligands have been shown in skin and other organs to regulate important cellular functions, including cell proliferation and differentiation, as well as inflammatory responses. The main goal of this work was the association of PGZ to poly (D, L-lactide-co-glycolide) polyethylene glycol (PLGA-PEG) nanospheres (NSs), for the treatment of skin disorders. NSs of PGZ were prepared by the solvent displacement technique using Tween-80 as surfactant, a matrix of PLGA-PEG and acetone as organic solvent. In order to determine the influence of several factors such as: The pH of the aqueous phase, the initial concentration of the stabilizer and polymer concentration on the physicochemical properties (particle size, polydispersity index (PI), zeta potential (ZP)) of NSs a factorial design has been carried out. *Ex vivo* permeation experiments were realized in Franz diffusion cells using human skin. PGZ-NSs and free drug with different promoters (to potentiate or accelerate the absorption through biological barriers) have been assayed. Samples of 300 μ l was withdrawn at selected time intervals for 31 hours and replaced with the same volume of fresh receptor medium (Transcutol and PBS solution). At the end of the study, the skin was used to determine the amount of drug retained. Further studies concerning new pharmacological indications of this drug could be developed in order to possible application for the treatment of various skin diseases.

Biography

Marcelle Silva de Abreu is currently a PhD student at the University of Barcelona, Faculty of Pharmacy. She has a Master's degree in Research, Development and Control of the Drugs. Her research is centered in the field of Nanoscience and Nanotechnology in the area of nanostructured drug delivery systems.

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