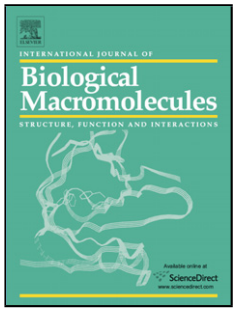

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Evaluation of nanoparticles as oral vehicles for immunotherapy against experimental peanut allergy

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Abstract

The aim of this work was to evaluate the potential application of an original oral immunotherapy, based on the use of nanoparticles, against an experimentally induced peanut allergy. In this context, a roasted peanut extract, containing the main allergenic proteins, were encapsulated into poly(anhydride) nanoparticles. The resulting devices (PE-NP) displayed a mean size of about 150 nm and a significantly lower surface hydrophobicity than empty nanoparticles (NP). This low hydrophobicity correlated well with a higher in vitro diffusion in pig intestinal mucus than NP and an important in vivo capability to reach the intestinal epithelium and Peyer's patches.

The immunotherapeutic capability of PE-NP was evaluated in a model of pre-sensitized CD1 mice to peanut. After completing therapy of three doses of peanut extract, either free or encapsulated into nanoparticles, mice underwent an intraperitoneal challenge.