The adaptation of lipid nanocapsule formulations for blood administration in animals

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Résumé en anglais	In many cell-culture and animal models, the therapeutic effects of the entrapped drugs in lipid nanocapsules (LNCs) were preserved with low toxicity. These results allow foreseeing further preclinical efficiency and toxicity studies in animals. In this article, preliminary studies were performed to check the genetically modified organism (GMO) status of the LNCs components and to determine the effects of the acidity of the LNCs dispersions in acid–base balance in rats. Then, several freezing protocols to store paclitaxel-loaded LNCs dispersions for a 6-month period were compared. Results indicate that the Lipoïd® S75-3 could not be certified GMO-free. The same soya bean lecithin certified to be GMO-free permitted to produce LNCs with expected characteristics. The blood administration of blank LNCs dispersions in rats induced no modifications of blood acidity, but a significant decrease of the base excess was observed. Injections of LNCs dispersions in animals might induce iatrogenic acidosis. We finally demonstrated that the best protocol to store LNCs dispersion for a 6-month period is by freezing in liquid nitrogen. This protocol minimized the characteristics modifications and interrupted the drug-release phenomenon. These original data are expected to prepare of LNCs dispersions well adapted for i.v. administration in animals.
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