In vivo evaluation of lipid nanocapsules as a promising colloidal carrier for paclitaxel

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Résumé en anglais	Paclitaxel-loaded lipid nanocapsules (PX-LNC) exhibit interesting in vitro characteristics with improved antitumoral activity compared with free PX formulation. Biodistribution studies were realized with the use of 14C-trimyristin (14C-TM) or 14C-phosphatidylcholine (14C-PC) whereas antitumoral activity of PX-LNC formulations was based on the animal survival in a chemically induced hepatocellular carcinoma (HCC) model in Wistar rats. Blood concentration–time profiles for both labeled 14C-TM-LNC and 14C-PC-LNC were similar; the t1/2 and MRT values (over 2 h and close to 3 h, respectively, for both formulations) indicated the long circulating properties of the LNC carrier with a slow distribution and elimination phase. Survival curves of paclitaxel treated groups showed a statistical significant difference compared to the control survival curve (P = 0.0036 and 0.0408). Animals treated with 4× 70 mg/m2 of PX-LNC showed the most significant increase in mean survival times compared to the controls (ISTmean 72%) and cases of long-term survivors were preferentially observed in the PX-LNC treated group (37.5%; 3/8). These results demonstrate the great interest to use LNC as drug delivery system for paclitaxel, permitting with an equivalent therapeutic efficiency to avoid the use of excipients such as polyoxyethylated castor oil for its formulation.
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