

Remote loading of voacamine in cationic liposomes

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The inclusion of an active principle in liposome formulations can increase its potential applications by i) rendering it soluble in water, ii) controlling its pharmacokinetics and biodistribution, iii) increasing its accumulation in target tissues and iv) avoiding or reducing its accumulation in healthy tissues, thus reducing toxic effects. Compounds with basic/acidic properties can be concentrated into the liposome aqueous compartment in response to specific pH transmembrane gradients ($pH_{in} < pH_{ext}$ / $pH_{in} > pH_{ext}$). This method exploits the different permeability of the lipid bilayer to the charged and the neutral form of small lipophilic compounds containing titratable groups, in fact neutral molecules permeate the lipid bilayer of liposomes many orders of magnitude faster than their charged forms [1,2].

This methodology was applied to the inclusion of voacamine (Figure 1), a bisindolic alkaloid that displays several pharmacological properties [3,4], into cationic liposomes by a remote loading technique.

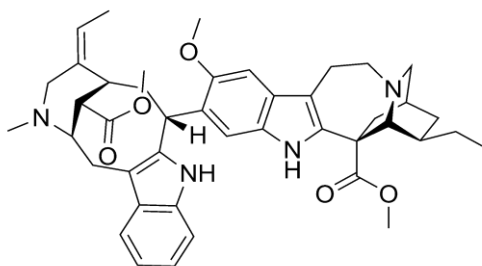


Figure 1 Voacamine structure.

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