



Self-assembled hyaluronan nanocapsules for the intracellular delivery of anticancer drugs

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Titre Self-assembled hyaluronan nanocapsules for the intracellular delivery of anticancer drugs

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Preparation of sophisticated delivery systems for nanomedicine applications generally involve multi-step procedures using organic solvents. In this study, we have developed a simple self-assembling process to prepare docetaxel-loaded hyaluronic acid (HA) nanocapsules by using a self-emulsification process without the need of organic solvents, heat or high shear forces. These nanocapsules, which comprise an oily core and a shell consisting of an assembly of surfactants and hydrophobically modified HA, have a mean size of 130 nm, a zeta potential of -20 mV, and exhibit high docetaxel encapsulation efficiency. The nanocapsules exhibited an adequate stability in plasma. Furthermore, *in vitro* studies performed using A549 lung cancer cells, showed effective intracellular delivery of docetaxel. On the other hand, blank nanocapsules showed very low cytotoxicity. Overall, these results highlight the potential of self-emulsifying HA nanocapsules for intracellular drug delivery.

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