Reverse micelle-loaded lipid nanocarriers: A novel drug delivery system for the sustained release of doxorubicin hydrochloride

Titre	Reverse micelle-loaded lipid nanocarriers: A novel drug delivery system for the sustained release of doxorubicin hydrochloride
Type de publication	Article de revue
Auteur	Vrignaud, Sandy [1], Anton, Nicolas [2], Gayet, Pascal [3], Benoît, Jean-Pierre [4], Saulnier, Patrick [5]
Editeur	Elsevier
Type	Article scientifique dans une revue à comité de lecture
Année	2011
Langue	Anglais
Date	09/2011
Numéro	1
Pagination	197-204
Volume	79
Titre de la revue	European Journal of Pharmaceutics and Biopharmaceutics
ISSN	1873-3441
Résumé en anglais	In this study, we are pioneering new nanotechnology for the encapsulation of anticancer drugs (doxorubicin (DOX) and/or docetaxel (DOCE)), whatever their solubility and water affinity. The purpose of this study is to highlight the potential of this recently patented technology, by carrying out a thorough physicochemical characterisation of these multiscaled nanocarriers, followed by the study of an encapsulation and release model of hydrophilic anticancer drug. The formulation process is based on a low-energy nano-emulsification method and allows the generation of a structure composed of oil-based nanocarriers loaded with reverse micelles. Thanks to this, hydrophilic contents can be solubilised in the oily core of this kind of nano-emulsion along with lipophilic content. The results emphasise some original structure particularities due to the multistep formulation process, and the diffusion-based behaviour revealed for the DOX release profile that is shown to be intimately linked to the morphology of the particles.
URL de la notice	http://okina.univ-angers.fr/publications/ua3667 [6]
DOI	10.1016/j.ejpb.2011.02.015 [7]

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