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Poster abstract

WP n°: 2

Title: Synthesis of core cross-linked micelles for the development of new drug delivery systems.

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Summary:

Nowadays, polymer micelles attract an increasing interest in drug pharmaceutical research because they could be used as efficient drug delivery systems[1,2].

Micelles core usually consists in biodegradable hydrophobic polymers such as aliphatic polyesters, e.g. poly(ε-caprolactone) (PCL), which serves as a reservoir for the incorporation of lipophilic drugs. Water soluble poly(ethylene oxide) (PEO) is frequently used to build micelle corona because it is very efficient in preventing protein adsorption at surfaces and in stabilizing the micelles in the blood compartment, giving rise to particles invisible to the body defence system[3].

Even if micelles get a high stability in aqueous media, the dissociation of micelles is not always preserved when they are injected in the blood compartment. The reversible cross-linking of the micelles by disulfide bridges will provide the stability of micelles after the administration and will release the drugs intracellularly by enzymatic breaking of disulfide bridges.

The synthesis of cross-linkable PEO-b-PCL based copolymers, their micellization and cross-linking in aqueous media and their biological will be presented in this work.

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[3] C. Jérôme, P. Lecomte, *Adv. Drug Delivery Rev*., **2008**, 60 (9), 1056-1076.