IAP FS2 6/27 Annual Network Meeting, K.U.Leuven, Leuven

Poster abstract

WP n°: 2

Title: Design of reversibly disulfide core cross-linked polymer micelles

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Summary (max 200 words):

Over the last decade, polymer micelles attracted an increasing interest in drug pharmaceutical research because they could be used as efficient drug delivery systems. Micelles of amphiphilic block copolymers are supramolecular core-shell type assemblies of tens of nanometers in diameter. An accumulation of polymer nanocarriers to solid tumours is possible due to the EPR effect. 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. This work aims at reporting on the design of reversibly cross-linked micelles based on PEO-*b*-PCL copolymers by introducing disulfide bridges in the micelle core to provide higher stability. Different kinds of macromolecular architectures are employed to study their impact on the micelles and their biological behavior. These new functional copolymers were all successfully micellized, reversibly cross-linked and are stealthy, which show the efficiency of the developed cross-linking process and offer a set of nanocarriers to be tested further, as shown on the first biological tests[1].

[1] S. Cajot, N. Lautram, C. Passirani, C. Jérôme., *J. Control. Release*, **2011**, 152, 30-36.

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Poster abstract

WP n°: 2

Title: DFT insight into the polymerization mechanism of conjugated electroluminescent polymer PPV

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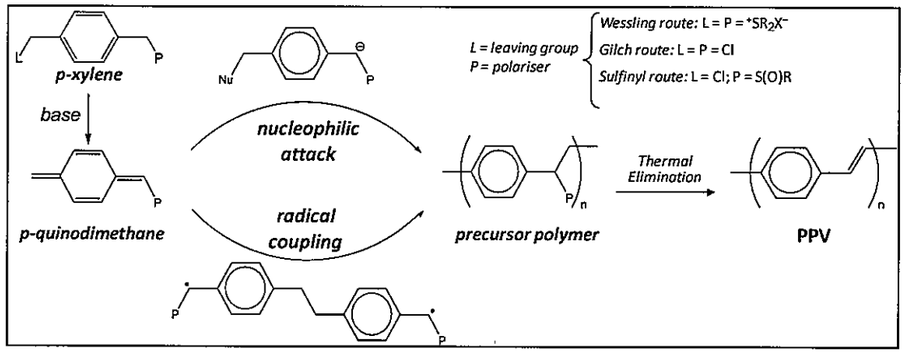
Summary (max 200 words):

Despite various studies on the polymerization of PPV through different precursor routes, detailed mechanistic insight on the level of the individual reactions and intermediates is still incomplete. The objective of this study is to obtain mechanistic insight into the polymerization of PPV *via* the Gilch route –known to exclusively occur through a radical mechanism– and identify reactions that lead to side products, such as the p-cyclophane system.



Furthermore, the effect of the identity of the p-quinodimethane system on PPV polymerization will be assessed with respect to the size of the aromatic core as well as heteroatoms in the conjugated system. The nature of the aromatic core and the specific substituents may alter the electronic structure of the p-quinodimethane monomers; hence effect the mechanism of polymerization. More specifically, it has been suggested that the driving force for radical formation, is the re-aromatization of the p-quinodimethane systems.