SL 12

POLYMER COLLOIDS AS DRUG CARRIERS: DESIGN STRATEGIES FOR INTRAVENOUS ADMINISTRATION

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The insufficient concentrations of drug reaching the diseased tissues and the short residence time at the cellular level are among the major factors contributing to the failure of treatments of severe diseases and to the development of multi-drug resistance phenomena in cancer therapy and in the treatment of infections. The introduction of polymer colloids in pharmacology has permitted challenging innovations rationalizing drug delivery in diseased cells [1,2]. They have shown remarkable ability to bypass anatomic and physiologic barriers after intravenous administration delivering the therapeutic agents more efficiently at the site of the systemic diseases**.**

The success of the technique implies that the nanoparticles are properly designed to carry the drug precisely down to its target site. This is the most challenging goal in drug targeting [1-3]. Results from 30 years of research have identified different parameters of the nanoparticle composition and structure that are relevant to control the in vivo fate of the drug carrier after intravenous administration. One of the key parameter is the nanoparticle surface which governs the interactions of nanoparticles with blood proteins highly involved in the host defence mechanisms [4, 5]. This lecture will summarize the different strategies that were identified to be considered designing polymer colloid particles as drug carriers to be administered in vivo by the intravenous route.

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