



pharmaceutics



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Albumin-Based Drug Delivery Systems

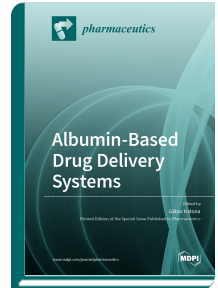
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Albumin is playing an increasing role as a versatile, biodegradable drug carrier in clinical theranostics. By applying different techniques, smart drug-delivery systems can be developed from albumin in order to improve drug delivery of different active pharmaceutical ingredients, even small-molecule drugs, peptides or enzymes. Principally, three drug delivery technologies can be distinguished for binding small-molecule or peptide drugs through the charged amino acids, carboxyl, and amino groups of albumin: physical or covalent binding of the drug to albumin through a ligand- or protein-binding group, the fusion of drug with albumin or the encapsulation of drugs into albumin nanoparticles. The accumulation of albumin in inflamed tissues and solid tumours forms the rationale for developing albumin-based drug delivery systems for targeted drug delivery. Besides tumour therapy, albumin-based drug delivery systems can be successfully applied as anti-inflammatory and anti-thrombotic coating for medical devices. The development and optimization of albumin nanoparticles may also be a rational and promising tool for conventional or alternative administration routes in order to improve therapy. This collection provides an overview of the significant scientific research works in this field, which may inspire researchers towards further development and utilization of these smart drug delivery systems.



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