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Chapter Twelve - Smart polymer composites in drug delivery

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Abstract

Smart polymers have attracted increasing attention over the years importantly for designing novel, smarter, and accurate drug delivery vehicles. The smart polymers are important in the sense that they can undergo simultaneous swelling-deswelling changes in response to external stimuli such as pH, temperature, light, magnetic field, ultrasound, etc. As such smart polymers show promising applications such as smart drug delivery vehicles and gene therapy. A composite of smart polymers is favored due to enhancement in the various properties of the smart polymers. There are numerous reports of using smart polymer nanocomposites or blends for achieving different goals such as (1) fabrication of new polymer/polymer blends with enhanced mechanical properties, (2) to tune temperature responsiveness, and (3) to tune the pH responsiveness of smart polymers for drug delivery options.

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