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## Star polymers: Advances in biomedical applications

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### Abstract:

Over the past decade, star polymers have been widely used in biomedical applications such as drug delivery, gene delivery, tissue engineering, diagnosis, medical devices, and antibacterial/antifouling biomaterials. The intensified interest in star polymers is attributed to their unique topological structures and attractive physical/chemical properties, including low viscosity in dilute solutions, encapsulation capability, internal and peripheral functionality, and enhanced stimuli-responsiveness. In addition, they can be designed with well-defined architecture in the form of symmetric or asymmetric (miktoarm) star shapes bearing polymeric or peptide arms for biomedical purposes. This review outlines the advances in the use-of star polymers in biomedical applications during the past decade, especially highlighting the general design requirements in relation to biomedical performance. The developing trends and challenges of star polymers in biomedical applications are also discussed.

**Keywords:** Star polymers, Biomedical applications, Structure-function relationship, Biocompatibility, Biomaterials

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