



## Nanoparticles for Tumor Imaging and Therapy

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### Message from the Guest Editor

In this century, nanoparticles (NPs) have been given a great amount of attention by biomedical researchers. NPs can disperse hydrophobic drugs stably in aqueous conditions without aggregation. Importantly, their physicochemical properties, including size and surface charge, can easily be modified by adjusting the component molecules or fabrication method. NPs can delay the early release of drugs in order to allow sufficient time for therapeutic action.

In terms of tumor-targeting, NPs utilize two basic strategies comprising either passive or active targeting. Passive targeting is based on physicochemical properties. Specifically, when NPs are injected intravenously, they generally circulate longer in the blood stream compared to free drugs. In angiogenic tissues such as tumors, NPs penetrate the fenestrated structure of blood vessels more at the disease site, which in turn leads to significant accumulation of the drug, which is aided in part by slow lymphatic drainage. On the other hand, active targeting relies on a biological interaction between ligands on the surface of NPs and the cell target, which further increase specificity.





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