GUEST EDITOR’S PREFACE

Nanomedicine has opened new avenues for cancer diagnosis and therapy

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A crucial feature of nanoparticles, such as liposomes, magnetic nanoparticles, quantum dots, metallic nanoparticles, silica nanoparticles, polymersomes and dendrimers etc., is their higher accumulation in the tumor than in normal tissues\(^1\)-\(^3\). Various nanoparticles have been intensively used as vehicles to deliver chemotherapeutic drugs, genes, photodynamic and photothermal agents for the improvement of their therapeutic efficacy, or as molecular imaging agents to detect and monitor cancer progression because of their excellent electronic, magnetic, optical and structural characteristics\(^4\),\(^5\).

Nanomedicine can provide powerful tools to assess in vivo drug biodistribution, to non-invasively visualize the drug release from a given nanoparticle, and to predict and monitor therapeutic outcome in real-time\(^6\). Therefore, cancer nanomedicine has attracted wide attention from both public and private research institutes and entrepreneurs.

Nowadays, efficacious cancer therapy is still problematic. Nanomedicine is developing very fast with remarkable achievements, fostering a new avenue for cancer diagnosis and therapy\(^7\). Before translating these nanomedicines into clinical trials, we should optimize them by starting with small-animal models and scaling up to nonhuman primate models, which has a pressing need for a solid foundation for the long-term advancement.

This special issue includes four review articles and one original research article. The review articles survey the recent advances and basic principles of nanomedicine with a particular emphasis on the design and construction of various multifunctional nanoparticles for cancer imaging (diagnosis), therapy and theranostics. The research article reports the near-infrared dye-loaded magnetic nanoparticles as photoacoustic contrast agent for enhanced tumor imaging.

It is hoped that this special issue on “Cancer Nanomedicine” will be interesting for readers who want to increase their familiarity with the exciting new development in nanomedicine. Each paper was written by well-recognized experts in the field of nanomedicine. I would like to appreciate the authors for their wonderful contributions and brilliant efforts which have conduced to this superb special issue. I would also like to express my thanks to Professor Ning Zhang at Tianjin Medical University and Professor Xi-Shan Hao who is Editor-in-Chief of Cancer Biology & Medicine for their support and giving me a wonderful opportunity to organize this special issue.
Conflict of interest statement

No potential conflicts of interest are disclosed.

References


