Cancer Biol Med 2016. doi: 10.20892/j.issn.2095-3941.2016.0069

GUEST EDITOR´S PREFACE

Nanomedicine has opened new avenues for cancer diagnosis and therapy

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Professor Zhi-Fei Dai obtained his Ph.D. degree at Chinese Academy of Sciences in Beijing. He is now a professor at Biomedical Engineering Department, Peking University. His research is focused on contrast agent, nanomedicine and molecular imaging. He is a chief scientist for National Key Research and Development Program of China. He works as a member of editorial board for several international and national journals such as *Bioconjugate Chemistry, Theranostics*, *Journal of Interdisciplinary Nanomedicine*, *IET Nanobiotechnology*, *Chinese Journal of Nuclear Medicine* and *Molecular Imaging* and so on. He is now serving as a vice chairman in Chinese Society of Biomedical Engineering in Photonics, a standing committee member in Ultrasound Molecular Imaging, Chinese Association of Ultrasound in Medicine and Engineering, an executive member of the council in Chinese Society for Functional Materials, and a committee member in the Biomedical Engineering in Ultrasonics, the Acoustic Society of China. He received honors and awards including National Natural Science Foundation for Outstanding Young Researcher, New Century Talents by Chinese Ministry of Education, Longjiang Scholarship Distinguished Professor, and the First Prize for Natural Sciences in Heilongjiang Province.

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 enterpreneurs.

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.

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Received September 6, 2016; accepted September 9, 2016.
Available at www.cancerbiomed.org

Conflict of interest statement

No potential conflicts of interest are disclosed.

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Cite this article as: Dai ZF. Nanomedicine has opened new avenues for cancer diagnosis and therapy. Cancer Biol Med. 2016; 13: 297-8. doi: 10.20892/j.issn.2095-3941.2016.0069