Proposal for a Thematic Issue
Current nanoparticle delivery systems for cancer and brain diseases

Aims and scope
Nowadays it is beyond doubt that nanoparticle (NP) delivery systems are promising therapeutics for both cancer and neurogenic diseases, where conventional clinical procedures are less effective. These systems could not only improve the pharmacokinetics and targeting of traditional drugs, but also inhibit or circumvent the mechanisms of ATP-binding cassette transporters (ABC) transporter-mediated drug resistance, which is considered to be the main barriers for therapies against cancer and brain diseases. However, few NP-based medicines have been approved for clinical use, since this type of treatment is usually expensive and there is a lack of safe and efficient delivery in vivo. What’s more, the growing applications increased the likelihood of workplace and environmental exposures to NPs, which might accumulate in cells and tissues, and induce harmful side effects. Interestingly, such toxicity was also found to be related to the expression of ABC transporters.

The objective of this mini-thematic issue is to report recent studies about the application of NPs in the cure of tumor and brain diseases, the pharmacokinetics of different NPs in vivo, the injury caused by NPs in vitro and in vivo, the toxicity mechanisms and prevention strategies for typical NPs, the interactions of ABC transporters and NPs and their implications on the development of nanomedicines. In this way, this special issue will help in-depth understanding of trends in the further development of NP delivery systems and clinical aspects for better progress towards management strategies.

Key words: Cancer, Neurogenic disease, Drug delivery systems, Nanoparticle, Toxicity, Metabolism, Pharmacokinetics, Protein interactions, ABC transporters

Subtopic:
2. Pharmacokinetics of typical NPs in vivo, bio-fates and protein interactions
3. Toxicity mechanisms and prevention strategies for typical NPs
4. Interactions of NPs with ABC transporters, and their implications on the development of nanomedicines

Schedule:
Manuscript submission deadline: January 2017
Peer review due: March 2017
Revisions due: April 2017
Notification of acceptance: June 2017
Publication: July 2017