Journal of Drug Delivery

Special Issue on
Targeted Delivery of Anticancer Drugs Using Nanoparticles

CALL FOR PAPERS

Delivery of many anticancer drugs to the target tissues has been a challenge to the researchers largely because of their sequestration and clearance through the reticuloendothelial system (RET), uptake and detoxification by immune cells, and poor distribution and penetration into tumor tissues specifically.

Extensive research for the past two decades on delivery vectors specifically nanoparticles (NP) has shown promise to overcome the preexisting barriers in target-specific small molecule delivery. NP formulation of anticancer drugs has the ability to overcome the limitations of conventional drug delivery systems such as nonspecific biodistribution and targeting, poor water solubility, and low therapeutic indices. NP can be designed to achieve improved biodistribution and increased plasma half-life of the anticancer drug without the need to chemically modify the active drug molecule. Using passive targeting, untargeted nanoparticles can still selectivity carry the active drug to cancer cells by exploiting the unique pathophysiology of tumours (leaky vasculature) through their enhanced permeability and retention (EPR) effect.

Development of novel synthetic routes to chemically modify NP surface has also opened up possibilities to actively target tumour cells. Interestingly, NPs also provide a way to overcome drug resistance, a major drawback of most conventional anticancer agents, by exploiting alternative entry routes (e.g., pinocytosis or clathrin/caveolin-mediated endocytosis). Notably, paclitaxel-albumin nanoparticles remain as one of a few FDA-approved nanoplatform for treatment of pancreatic cancer, lung cancer, and breast cancer in clinics. Also under clinical trials is Aurimune, a tumour-targeted nanomedicine utilizing gold nanoparticles. However, simultaneously, optimization of size, shape, stiffness (material composition), and surface properties of NPs in designing cost-effective nanoplatforms to achieve desired tumour-targeting and pharmacokinetics of anticancer drugs is challenging and an area of immense interest. Hence a major effort is required to design and synthesize novel lipid-based, metal-based, and protein-based nanoplatforms to achieve this feat of targeting tumours for clinical translation.

In this special issue, we invite high-quality original research contributions and review articles from researchers working on various experimental and theoretical aspects of delivery of anticancer agents based on nonmetal or metal-based nanoparticles.

Potential topics include, but are not limited to:

- Nanoparticle and endocytosis
- Self-assembled nanoparticles for target-specific and controlled anticancer drug delivery
- Modulating nanoparticle pharmacokinetics to achieve target-specific drug delivery
- Novel tumor-targeting organelle-specific nanoplatforms for drug delivery
- Aspects of toxicity of nanoparticles

Authors can submit their manuscripts via the Manuscript Tracking System at http://mts.hindawi.com/submit/journals/jdd/tdad/.

Lead Guest Editor
Akhtar Hussain, Handique Girls' College, Guwahati, India
akhtariisc@gmail.com

Guest Editors
Sounik Saha, OUHSC, Oklahoma City, USA
sounik@gmail.com

Pijus K. Sasmal, Jawaharlal Nehru University, New Delhi, India
pijus@mail.jnu.ac.in

Bhabatosh Banik, University of Georgia, Athens, USA
bbanik@uga.edu

Manuscript Due
Friday, 27 May 2016

First Round of Reviews
Friday, 19 August 2016

Publication Date
Friday, 14 October 2016