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PEGylated Lipid-Based Nanoparticles for Drug Delivery: Pros and Cons of a Frontline Technology in Modern Pharmacotherapy

Guest Editor:

Prof. Dr. Janos Szebeni
Nanomedicine Research and Education Center, Institute of Translational Medicine, Semmelweis University, 1089 Budapest, Hungary

Deadline for manuscript submissions:
closed (30 September 2022)

Message from the Guest Editor

Dear Colleagues,

Polyethylene glycol (PEG), a synthetic polymer with varying chain lengths and degrees of branching, has been widely used in medicine as active ingredient or excipient. Its chemical attachment to various nanoparticles provides a hydrophilic layer around them, enhancing the in vitro stability, and hence supports the preservation of lipid-based nanoparticulate drugs, gene delivery systems, vaccines, and many other nanocarriers. However, recently, another less-laudable feature of PEGylation has surfaced: the induction of and reaction with anti-PEG antibodies, which can entail complement activation. Complement activation can trigger hypersensitivity (pseudo-allergic) reactions, as well as rapid uptake by phagocytic cells, that is, loss of stealthiness. There are a few nanodrugs whose clinical success was cut short by the rise of efficacy loss and/or hypersensitivity reactions mediated by anti-PEG antibodies.

The papers and reviews collected in the present themed volume of Pharmaceutics aim to discuss the details and new insights into this frontline technology of modern pharmacotherapy. We look forward to receiving your contributions.

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Editor-in-Chief

Prof. Dr. Patrick J. Sinko
Department of Pharmaceutics, Ernest Mario School of Pharmacy, Rutgers University, Piscataway, NJ 08854, USA

Message from the Editor-in-Chief

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Pharmaceutics Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

Tel: +41 61 683 77 34
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