Advanced Drug Delivery Reviews 151–152 (2019) 1

Contents lists available at ScienceDirect

Advanced Drug Delivery Reviews

journal homepage: www.elsevier.com/locate/addr

Preface

ADDR Editor's Collection 2019

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The 2019 Editors' Collection issue of Advanced Drug Delivery Reviews features a series of review articles on cancer vaccination, nanotechnology-based drug delivery, artificial intelligence, thiolated polymers, intrapericardial drug delivery, adenosine and lipids, chronopharmacology of glucocorticoids, and fluorescence anisotropy imaging in drug discovery.

In the first article of this theme issue In-San Kim and coworkers review intrinsic cancer vaccination that "awakens" the immune system and activates tumor-specific T cells [1]. The authors argue that this strategy avoids using known tumor-specific antigens, ex vivo manipulation or adoptive cell therapy and enable presentation of cancer cell neoantigens to the immune system. This strategy, the authors postulate, addresses the need for patients with immunologically cold tumors with limited response to current immunotherapy treatments.

In a series of articles in this issue various aspects of nanotechnology-based drug delivery systems are reviewed. These range from regulatory and safety assessment of nanotechnology-based drug delivery (Wacker and co-workers) [2], pharmacokinetics of nanotechnology-based formulations in pediatric populations (Yellepeddi and Nance) [3], product design strategies for liposome-based parenteral drug development (Wang and Grainger) [4], lymphatic targeting of nanoparticles (Hai-Quan Mao and coworkers) [5], carbohydrate nanocarriers for delivery of antimicrobial agents in treatment of infectious diseases (Houston and coworkers) [6], cathepsin-sensitive systems for nanoscale drug delivery (Nicolas and coworkers) [7], and use of zebra fish for in vivo screening of nanoscale drug delivery systems (Witzigmann and coauthors) [8].

An emerging area of interest is the application of artificial intelligence in drug discovery and delivery. Hassanzadeh and coworkers review the significance of artificial intelligence and target fishing in the development of drugs and drug delivery systems [9]. Thiolated polymers, i.e., polymeric systems containing thiol in the polymeric structure, are extensively used in drug delivery where they have shown to form disulfide bonds with mucus glycoproteins, and membrane associated proteins, and function as permeation enhancers, inhibition of efflux pumps, and prolonging residence time. Bernkop Schnürch and coworkers review these thiomer technologies and their potential applications in drug delivery [10].

A unique route of delivery is intrapericardial delivery of agents. Filgueira and Grattoni review sustained and localized approaches for site specific delivery to the heart and coronary arteries for increasing myocardial retention of drugs and decreasing systemic effects [11]. In another article by Couvreur and coworkers, the authors review structures that have resulted from conjugation of adenosine and lipids, particularly liposomal preparations [12]. The review discusses the "exciting supramolecular structures" made with adenosine-lipid and points to the limited translation of these technologies to the clinic.

The final articles of this theme issue focus on chronopharmacology of glucocorticoids by Androulakis and coauthors [13], and the use of fluorescence anisotropy imaging in drug discovery by Vinegoni and coworkers [14]. I hope you enjoy the 2019 collection of ADDR's single review articles!

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https://doi.org/10.1016/j.addr.2019.11.008
0169-409X/