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## **Editorial**

This Journal of Controlled Release Special Issue focusses on advances in microneedle technology; miniaturised needles whose dimensions permit either the painless and targeted delivery of materials into skin for therapeutic purposes or the extraction of biological fluids for sensing purposes. A dedicated International Conference on Microneedles was founded in 2010 to provide a forum for the academic and industrial community to share research progress, network and educate the next generation of scientists working in the field. Following that first meeting, held in Atlanta, U.S.A., the meeting has grown through subsequent conferences in 2012 (Cork, Ireland) and 2014 (Baltimore, U.S.A.). This Special Issue of the Journal of Controlled Release captures some of the research outputs arising from delegates attending the Fourth International Conference on Microneedles, which was co-hosted by Cardiff University and GSK at GSK House, London, U.K., from May 23-25<sup>th</sup>, 2016. More than 250 delegates from 24 countries attended this meeting, which brought together academic, industrial and regulatory opinion leaders to consider the principal challenges that currently face the microneedle community.

A series of Presentations, in sessions entitled (i) Vaccine delivery, (ii) Assorted Innovations, (iii) Microneedles in the Clinic, (iv) Commercialisation and Regulatory Adoption, (v) Sensors: Devices and Diagnostics and (vi) Therapeutic Delivery, provided delegates with a broad understanding of the current research landscape. All sessions were concluded with panel sessions, which facilitated robust discussion and debate. One clear message was that microneedle technology has reached a critical stage in its development, with numerous examples of devices that are transitioning from R&D laboratories to the clinical arena. Microneedles are new dosage forms/delivery devices, and so numerous small and major pharmaceutical/medical device corporations (47 companies attended the meeting) are currently facing common challenges in anticipating and satisfying the regulatory, manufacturing and other development hurdles that accompany clinical progress. At the next meeting in 2018 we hope to see progress along the clinical pathway and new innovations in microneedle based technology!

The editors wish to extend their sincere thanks for the generous support of the sponsors of the event: Platinum sponsors – Fujifilm (Japan), LTS (Germany) and Endoderma (Republic of Korea); Gold sponsors – Raphas (Republic of Korea), 3M (U.S.A) and Nemauro Pharma (U.K.); Silver sponsors – B&L Biotech (U.S.A), Scienion AG (Germany), Corium (U.S.A.), Inovio Pharmaceuticals Inc (U.S.A.), Elsevier (The Netherlands) and ON Drug Delivery (U.K.) The editors also extend their appreciation to the Steering Committee of the International Conference on Microneedles and colleagues who supported the preparation and management of the conference, in particular Andrew Fiorini and Dr Xin Zhao.

Finally, we thank all of the scientific and social contributions of friends and colleagues that made the Fourth International Conference on Microneedles such a success, and look forward to meeting you again, alongside some new colleagues I am sure, at the Fifth International Conference on Microneedles in Vancouver in 2018.

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