

## **Editorial EJPB – Biobarriers 2018**

This special issue features manuscripts and concepts presented at the 12<sup>th</sup> International Conference on Biological Barriers which was held again at Saarbrücken, Germany from 27-29 August 2018. This time, we made it a round dozen of “Biobarriers” conferences with a focus on modelling of biological barriers and nanomedicine. For the first time, the conference was taking place in summer, in contrast to previous symposia held in early Spring. This new timing was well received with 220 participants and a new record number of 124 abstracts submitted, 50 of these for oral presentations. Not only that, the meeting also saw a jazzy opening featuring the band “Niklas Müller Trio” and some spontaneous drum solo by conference chair Claus-Michael Lehr.

Diving into the scientific session, there was a broad assemblage of topics ranging from new modelling avenues to nanotoxicology and new delivery systems. In the area of models, the skin and lung barriers were discussed in depth. Researchers are asking increasingly for simpler approaches to reflect the yet complex physiological systems of these barriers. Decellularised models and bioprinted microchips appear to be a promising avenue in this field. In the area of nanodelivery, stimuli-responsive and bioinspired systems could be of bigger interest. Both approaches take advantage of (patho)physiological constitutions of target tissue and aim for recapitulating natural entities.

For the first time, Biobarriers held a session dedicated to extracellular vesicles which was organised together with the German Society for Extracellular Vesicles ([gsev.org](http://gsev.org)). Extracellular vesicles are a group of cell-derived, phospholipid-bound nanoparticles which have been isolated from almost all types of cells and tissues so far. These vesicles are involved in cell-cell communication which has sparked substantial scientific interest in the past years. First examples of EVs have already reached clinical testing, mainly in the field of regenerative medicine as it was presented at Biobarriers. Nevertheless, the EV-field is also facing a few challenges including upscale production and loading and a better understanding of their fate upon systemic administration. Some of these questions were addressed in the 2018s meeting. We foresee the fruitful cooperation with GSEV also for the next Biobarriers.

In addition to the scientific sessions, an open-air, moonlight dinner with live music and cocktails was organised to allow social interaction of participants and the establishment of new collaborations. Moreover, this 12<sup>th</sup> Edition also saw the first Biobarriers Audience Award – a price for the best presentation selected by all Participants. These went to Prof Dave Carter (Oxford Brooks University) for his talk about the role of extracellular vesicles in stress response and Thorben Fischer (Saarland University) for his contribution on specific targeting of human macrophages using aspherical microparticles as gene delivery system.

The manuscripts in this special issue range from advanced in vitro models to protein engineered and stimuli-responsive delivery systems and extracellular vesicles. We hope that they nicely reflect the broad scientific range of topics discussed at the 2018s meeting. Thanks to all contributors who put in extensive effort into making this special issue a success. All articles underwent a rigorous peer-review process to retain scientific quality and suitability for EJPB. After the meeting is before the meeting, so please save the date for 2021: the 13<sup>th</sup> Edition of the Biobarriers Symposia will take place from 6 until 9 September (<http://biobarriers.hips-wordpress.helmholtz-hzi.de/>) and we look very much forward to welcome everybody in Saarbrücken again!

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