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In vitro dissolution-absorption evaluation of electrospun nanofibers using µFlux™

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As most of the newly discovered active pharmaceutical ingredients (APIs) have poor water solubility, dissolution enhancement of the Biopharmaceutical Classification System (BCS) II type (poorly water-soluble, but highly permeable) drugs is one of the most pressing pharmaceutical challenges. For the evaluation of dissolution enhancement, dissolution tests are used in the industrial protocol. However, the results of these tests do not always correlate with the bioavailability. One common reason for the lack of correlation is that studying dissolution without permeability can be deceptive, since both of them have an impact on *in vivo* bioavailability. In addition, the solubility-permeability interplay cannot be overlooked in cases where the API is formulated to enhance its dissolution, because additives such as surfactants, polymers and cyclodextrins, can have an effect on the permeation of the drug molecules through the biological membranes. Our aim was to study electrospun formulation with µFlux, which is a novel technique that (by simultaneously measuring dissolution and permeability) has the potential to improve IVIVC (*in vivo-in vivo* correlation) and to reduce the number of experiments needed on animals. In the case of formulation screening, it could be a reproducible and cost-effective way of testing compared to cell-based or animal tests. Dosage forms produced by various formulation strategies could be investigated with this new analytical method.

Biography

Enikő Borbás has completed her BSc from Budapest University of Technology and Economics. She has been awarded the Dennis Gabor award for young researchers in 2014. Her field of research is bioavailability enhancement of poorly water soluble drugs with electrospinning.

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