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BIOMIMETIC HPLC PROPERTY MEASUREMENTS TO ESTIMATE HUMAN *IN VIVO* DISTRIBUTION AND TISSUE BINDING OF DRUG DISCOVERY COMPOUNDS

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Biomimetic HPLC stationary phases such as immobilized artificial membrane (IAM), human serum albumin (Chiral-HSA) and α-1-glycoprotein (Chiral-AgP) are able to mimic the *in vivo* interactions of the drug molecules to lipids and proteins. The calibrated retention times obtained on the biomimetic HPLC stationary phases can be used to build models for *in vivo* tissue-plasma partition, unbound volume of distribution, drug efficiency, and cellular concentration without using animal experiments. The measurements can be fully automated and large number of compounds can be ranked for further studies for the fraction of the cost of *in vivo* experiments. The methodology can be applied for new modalities in drug discovery such as peptides that would be difficult to characterize by traditional methods such as equilibrium dialysis to estimate their tissue binding and volume of distribution. Comparison of IAM partition and membrane disruption of antibiotic peptides has been investigated in order to predict their interactions with lipids. The chromatographic retention of potential drug molecules on biomimetic stationary phases can mimic their *in vivo* binding to lipids and proteins that was validated using human clinical data of over 150 known drug molecules.

Biography

Klara Valko has completed his PhD from Semmelweis University and Postdoctoral studies from Yale University, CT, USA. After working at GSK for 22 years, currenty, she is the Director of Bio-Mimetic Chromatography Ltd, providing consultations and measurement services for biotech companies involved in drug discovery. She is also an Honorary Professor at UCL School of Pharmacy where she teaches the Physchem/ADME module for Drug Discovery and Pharma Management master course. She has published more than 100 papers in reputed journals and has been serving as an Editorial Board Member of ADMET & DMPK journal. She is a Fellow of the Royal Society of Chemistry.

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