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## **In vitro - In vivo correlation (IVIVC) study for evaluation of a test system for measuring transdermal delivery of model drugs.**

*Dr. Franciska ERDŐ, Dr. Ágnes Bajza, Fanni Farner, Dr. Gellért Karvaly, Dr. István Antal*

*Head of laboratory*

Pázmány Péter Catholic University, Budapest

Hungary

### ***Abstract***

Besides the traditional applications, caffeine has new fields of therapeutic indications in dermatological disorders. Being a strongly hydrophilic molecule the entrance of caffeine through different physiological barriers is limited. Besides the transcellular and paracellular pathways, the transappendageal penetration pathways play also an important role in the absorption of this molecule into the skin. To test the reliability of artificial membrane studies and rat skin preparations for evaluation of skin penetration of caffeine, Franz diffusion cell technique was used. To make in vitro in vivo correlation calculation, transdermal microdialysis experiments were also conducted in anesthetized rats. All studies were performed with two concentrations (2 and 4%) of caffeine creams and also with erythromycin, a P-glycoprotein substrate model drug. The future direction of our study is the comparative evaluation of different formulations of caffeine and erythromycin concerning the drug delivery across the dermal barrier into the subcutis, and to study the role of transporter proteins in the skin uptake.

### ***Biography***

Dr Franciska Erdő is a senior research scientist and head of Laboratory of Microdialysis at Pázmány Péter Catholic University (PCU). She got her MSc degree of pharmacy and PhD degree of pharmacology at Semmelweis University of Medicine, Budapest. She has worked for research institutes (Budapest, Cologne, Berlin, Veszprém), pharmaceutical companies (Budapest), a biotechnological contract research organization (SOLVO) and at the academy both in Hungary and in Germany. She has been awarded five times as a junior scientist at the Institute for Drug Research and by the first prize of Hungarian Pharmacological Society. Current foci of her research interest are the membrane transporter proteins (P-gp, BCRP) at the blood –brain barrier and the cutaneous barrier, and the process of physiological and pathological aging. She is the author of several high impact papers, one book and more book chapters. She is the supervisor of PhD, MSc and BSc students and teaching Drug Research and Development and Quality Assurance at the Faculty of Information Technology and Bionics at PCU.