PETRA PARTY



University of Szeged Faculty of Pharmacy Institute of Pharmaceutical Technology and Regulatory Affairs

Cím: Eötvös u. 6., H-6720 Szeged, Hungary

RESEARCH AREA

My research field includes the application of innovative pharmaceutical technology and nanotechnology solutions for developing dry powder inhalers with reduced drug content for targeted drug delivery. Our work aims to develop and optimize modern formulation methods and develop investigation protocols for pulmonary delivery. This alternative route may be used to induce local or systemic effects. From a therapeutic point of view, the development of symptomatic treatment of chronic lung diseases such as asthma, chronic obstructive pulmonary disease, lung carcinoma, and pneumonia caused by infections is of particular importance. In addition, inhalation therapy can be beneficial for systemic effects, for example in the treatment of schizophrenia.

TECHNIQUES AVAILABLE IN THE LAB

Our research group has expertise in modern nanotechnology processes, such as dry and wet grinding, high-pressure homogenization, ultrasonic particle size reduction; micro- and nano spray drying and nanoprecipitation. Opportunities will be provided to learn and develop innovative technological protocols and test procedures for preparation and preformulation. Physicochemical characterization can be performed by structural analysis (XRPD, FTIR), thermoanalytical methods (DSC, TG) and micrometric analysis methods (dynamic light scattering, nanoparticle tracking analysis, laser diffraction-based particle size analysis, scanning electron microscopy, powder rheology). Drug release and diffusion in artificial release media can be studied using a rotary dissolution device and a horizontal diffusion cell. Special test methods (Andersen cascade impactor, Spraytec device with inhalation cell) can be used to predict the aerodynamic behavior of formulations.

SELECTED PUBLICATIONS

Chvatal, A., Ambrus, R., **Party, P.**, Katona, G., Jójárt-Lachkovich, O., Révész-Szabó, P., Fattal, E., Tsapis, N. (2019) Formulation and comparison of spray dried nonporousand large porous particles containing meloxicam for pulmonary drug delivery. **Int J Pharm 559:** 68-75.

Party, P., Bartos, C., Farkas, Á., Szabó-Révész, P., Ambrus, R. (2021) Formulation and In Vitro and In Silico Characterization of "Nano-in-Micro" Dry Powder Inhalers Containing Meloxicam. **Pharmaceutics 13(2):** 211.

Party, P., Kókai, D., Burián, K., Nagy, A., Hopp, B., Ambrus, R. (2022) Development of extra-fine particles containing nanosized meloxicam for deep pulmonary delivery: in vitro aerodynamic and cell line measurements. Eur J Pharm Sci **176:** 106247.

Party, P., Klement, M. L., Szabó-Révész, P., Ambrus, R. (2023) Preparation and Characterization of Ibuprofen Containing Nano-Embedded-Microparticles for Pulmonary Delivery. **Pharmaceutics 15(2):** 545.