

**Title of the project:** In vitro skin penetration - optimization of test methods.

**Grant Agency:** Czech Republic

**Project Number:** TH03010279

**Principal Investigator:** P. Plodíková

**Co-investigators:** L. Kotingová, Z. Nývltová, Z. Rösslerová

**Starting date:** 01.04.2018

**Duration (years):** 4

**Total funds allocated for project - Kč (thousands):** 18165

**Summary of 2019 results**

**Title of the presentation:** In vitro skin penetration - optimization of test methods - tasks solved in 2019.

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The aim of the project No TH03010279 supported by the Technology Agency of the Czech Republic is a development of two certified in vitro skin penetration methods revealing substances able to penetrate the body via the transdermal route. Both methods differ in the used test substances (radiolabeled and unlabelled) and in the way they are detected in the receptor fluid (detection of radioactive substances or by chromatography). The main investigator of the project is VUOS Rybitví (total fund 15 480 000 Kč), Charles University is a co-investigator (total fund 2 684 500 Kč).

In 2019, a selection of a suitable model was carried out in laboratories of all workplaces of the investigators - different types of diffusion cells were tested, a suitable model of the absorption membrane was chosen (artificial membranes vs. animal or human skin, influence of its thickness, storage conditions and time), various types of absorption membrane integrity verification were tested, the composition of a suitable receptor fluid was optimized depending on used test substances (with different chemical properties). Furthermore, suitable chromatographic methods have been developed to evaluate the content of test substances (of different types) in the receptor fluid.

Based on the tests carried out, a model of transdermal penetration testing of chemicals was proposed, which will be subjected to further investigation and interlaboratory comparison of the results obtained at various research institutes next year.

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