PermeaPad® GIT Plate

The PermeaPad® GIT Plate is a multiwell plate system based on the innovative biomimetic PermeaPad® GIT Barrier for efficient investigation of passive permeability of drugs.

The ready-to-use 96-well microtiter plate system, the PermeaPad® Plate, is a breakthrough in high-throughput permeability screening. The innovative design with the plate-integrated, biomimetic barriers (PermeaPad® Barrier) enables fast and reproducible *in vitro* permeability assays*. The PermeaPad® Barrier simulates biological barriers such as the intestinal barrier.

Due to its unique and innovative composition the barrier is very robust, resistant and has a long shelf-life. Because of these properties, experiments are possible within a wide pH range. Appropriate experimental conditions can be selected according to the substance or respective formulation to be studied, and according to the physiological conditions to be mimicked.

* For research use only.
Not for use in diagnostic procedures.

With the innovative PermeaPad® GIT Plate, high-throughput screening provides fast, easy and reproducible data of the permeability of drugs through passive mass transfer.

Technical Data

General technical data PermeaPad® GIT Plate [1, 2]

Wells	96
Material (Plate)	Polystyrene
Operation temperature	e.g. 25 °C; 37°C
Storage	Do not expose the product to sun and UV radiation and store at 25 °C.
pH range	1 – 10 pH
Permeation Barrier	PermeaPad® GIT Barrier (Integrated in the product)
Permeation area	0,15 cm²
MWCO	8-10 kDa
Drug concentration	e.g. 0.1 - 5 mM
Sampling intervals	Freely selectable
Test duration	Up to 24 h
Analysis method	e.g. UV/VIS spectroscopy, fluorescence spectroscopy, HPLC, LC-MS/MS, etc.
Data	Permeation, Flux, apparent permeation coefficient P_{app} *drug recovery*
Selected drug substances (tested in detail up to now)	Acyclovir, Antipyrine, Atenolol, Calcein (marker), Caffeine, Carbamazepine, Donepezil HCl, Enalapril, Hydrocortisone, Lucifer Yellow (marker), Ibuprofen, Metoprolol, Nadolol, Naproxen, Norfloxacin, Paracetamol, Sulpiride, Theobromine, Theophylline, Terbutaline, Verapamil HCl
Warranty	Expiry date on label

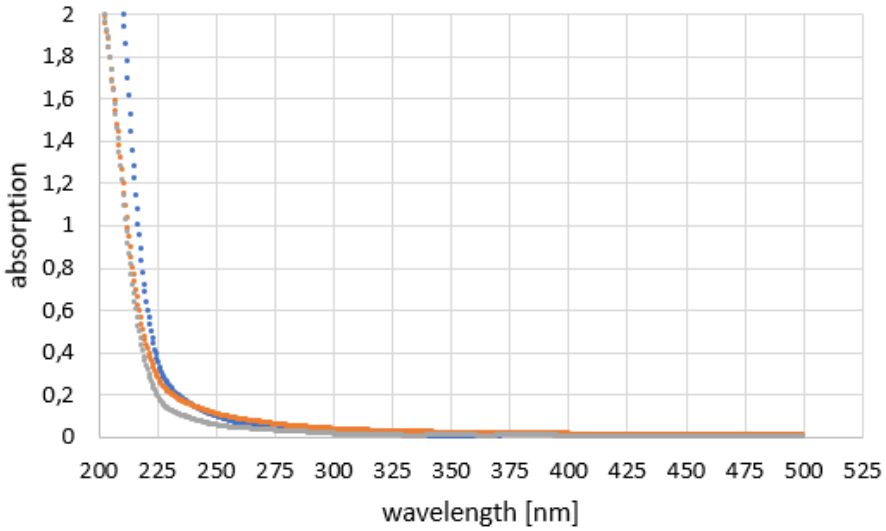

Figure 1: Absorbance spectrum (200 - 500 nm) after inkubating the PermeaPad® GIT Plate 2 h (gray), 4 h (orange) and 24 hours (blue) in aqua dest. You will have a background noise of 0,2 absorption at a wavelength of 225 nm after 2 h, 230 nm after 4 h and 235 nm after 24 h.

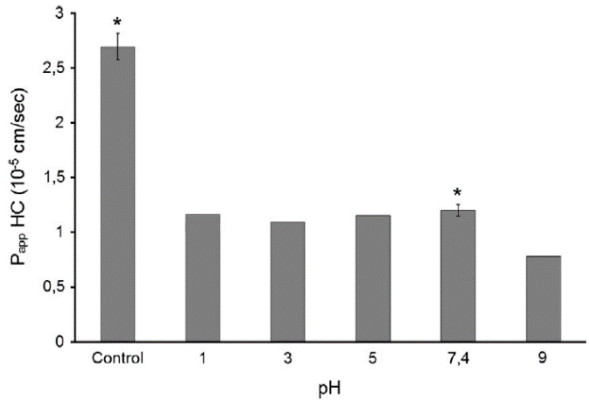

Figure 2: Functional stability PermeaPad® GIT Barrier expressed by the permeability coefficient (P_{app}) of hydrocortisone at different pH values in a Franz-Cell. Control is represented by the permeability of hydrocortisone measured through support layer (cellulose membrane)[1].

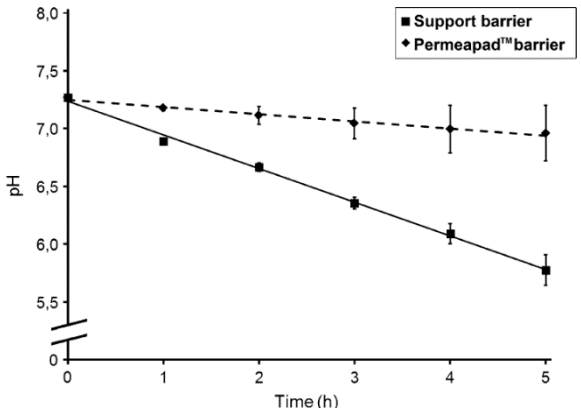

Figure 3: Resistance of the PermeaPad® GIT Barrier and support barrier (cellulose-membrane) against a pH gradient (pH 7.4 / pH 1). The pH of the acceptor chamber (Franz-Cell) is plotted versus the time[1].

Version 5: Changes, including technical, reserved. 01.11.2025

References:
[1] M. di Cagno et al. (2015) European Journal of Pharmaceutical Sciences 73 29-34
[2] H. A. Bibi et al. (2016) European Journal of Pharmaceutical Sciences 93 399-404