PermeaPad® GIT Barrier

Measure the passive mass transfer/permeability of drugs through a biomimetic barrier

This developed biomimetic barrier enables an innovative approach for *in vitro* permeability assays*. The investigation with the barrier is easy, fast and reproducible to perform. The simulation of the passive mass transport can be performed by applying the PermeaPad® Barrier in a conventional Franz-Cell, side-by-side diffusion cell or other set-up. Thereby it is possible to measure the permeability of a drug.

Due to its unique and innovative composition the barrier is very robust, resistant and has a long shelf-life. As a consequence of these properties measurements are possible within a large pH range. The specific experimental conditions can be selected according to the substance studied.

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

Technical Data

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

Membrane components	Cellulose membrane + Lecithine (S-100)
MWCO	8-10 kDa
Disk Diameter	1. 14,0 + 0,2 mm 2. 17,0 + 0,2 mm 3. 25,0 + 0,2 mm 4. 35,0 + 0,2 mm
Storage	Do not expose the product to sun and UV radiation and store at 25 °C.
Operation temperature	e.g. 25 °C; 37 °C
Measuring range	pH 1-10; pH gradient can be maintained for hours
Drug concentration	e.g. 5 mM
Sampling intervals	Freely selectable
Test duration	Up to 24 h
Analysis method	e.g. HPLC, LC-MS/MS, etc.
Data	Permeation, Flux, apparent permeation coefficient P_{app} *drug recovery*
Tested drug substances	Acyclovir, Atenolol, Calcein, Caffeine, Donepezil HCl, Hydrocortisone, Ibuprofen, Nadolol, Metoprolol, Paracetamol, Theobromine, Theophylline, Verapamil HCl
Warranty	Expiry date on label

With the innovative PermeaPad® GIT Barrier it is possible to determine/generate fast, easy and reproducible data about the permeability of drugs by the passive mass transport.

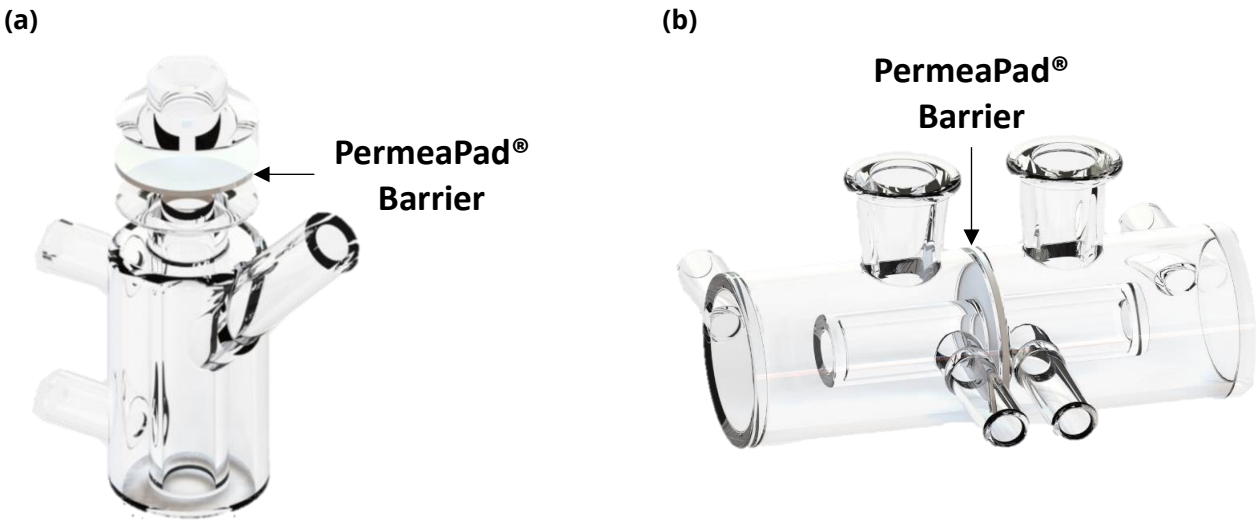

Figure 1: Figure of (a) Franz diffusion cell and (b) side-by-side diffusion cell and PermeaPad® Barrier.

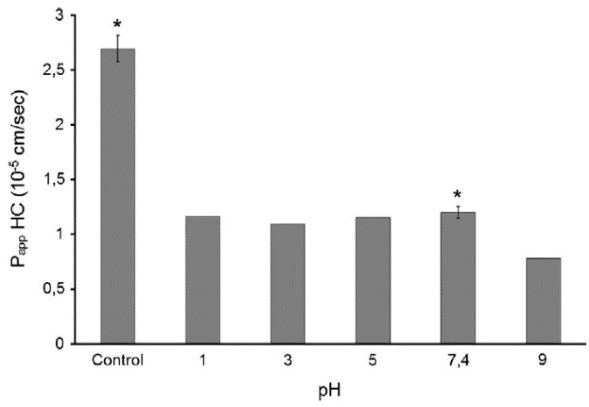

Figure 1: Functional stability PermeaPad® GIT Barrier expressed by the permeability coefficient (P_{app}) of hydrocortisone at different pH values in a Franz-Cell. Control is represented by the permeability of hydrocortisone measured through support layer (cellulose membrane)[1].

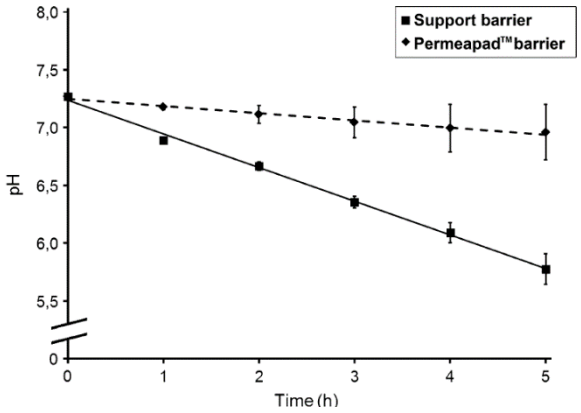

Figure 2: Resistance of the PermeaPad® GIT Barrier and support barrier (cellulose-membrane) against a pH gradient (pH 7.4 / pH 1). The pH of the acceptor chamber (Franz-Cell) is plotted versus the time[1].

Version 4: Changes, including technical, reserved. 01.01.2023

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