



CASE STUDY

Enhancing IVPT Performance with MedFlux-HT®

Improving permeability assessment,
sensitivity, and data reliability through
automated flow-through systems

The Challenge

Traditional IVPT methods, such as static Franz diffusion cells, can limit data quality and sensitivity. These systems often struggle to maintain optimal sink conditions, particularly for lipophilic compounds, resulting in low or undetectable drug permeation.

This lack of sensitivity can make it difficult to differentiate between formulations, assess dose response, and generate meaningful data to support development decisions.

Approach

MedPharm applied its MedFlux-HT® automated flow-through diffusion system to improve in vitro permeation testing:

- Utilized MedFlux-HT® to maintain continuous flow and optimal sink conditions
- Designed studies to better mimic physiological environments
- Evaluated dose-ranging performance across multiple formulation concentrations
- Compared MedFlux-HT® performance to traditional static/Franz cell systems
- Assessed both hydrophilic and lipophilic compounds to evaluate system sensitivity

Outcome

- Generated more consistent and reproducible permeation data
- Improved sensitivity for detecting drug permeation across formulations
- Enabled clear differentiation between dose levels and formulations

For hydrophilic compounds, MedFlux-HT® produced more consistent cumulative permeation profiles compared to static systems.

For lipophilic compounds, MedFlux-HT® enabled measurable drug permeation, while static/Franz cells showed limited or no detectable drug (BLOQ).

- Supported more confident formulation screening and selection
- Reduced risk of misleading or non-informative data

Why This Matters

Accurate permeation data is critical for formulation development and regulatory success. By maintaining optimal testing conditions and improving sensitivity, MedFlux-HT® enables more predictive IVPT studies, supporting better decision-making and reducing development risk.