Permeability and Flux
Advanced Training Course Agenda

When: June 5–6, 2019

Where: **NEW Training Facility @ Pion**,
10 Cook Street, Billerica, MA 01821 USA

Contact: sales@pion-inc.com for registration and logistics

Wednesday, June 5th

9:00 – 12:00 ***(includes coffee breaks)***

Principles and Practical Aspects of Permeability Measurements

- General background of membrane permeability: partitioning, diffusion, and permeability equations.
- Practical aspects of permeability determination in cell-based and artificial membranes. Why we do not measure membrane permeability in most cases.
- Differences between PAMPA membranes. Using Double-Sink™ PAMPA results in simple models and for prediction of passive-transport *in vivo*.

12:00 – 1:00 ***Lunch (provided)***

1:00 – 3:00 ***(includes coffee break)***

Physicochemical Properties and Planning of the Permeability Experiments

- Proper planning of permeability experiment: from one condition to everything, including choosing the best conditions prior to the experiments and when planning ahead helps in obtaining best quality data.
- Examples provided.
- Interactive practice.

3:00 – 3:10 ***Break***

3:10 – 3:45 **Skin PAMPA Model**

- Development of skin PAMPA for fast prediction of skin penetration.
- Practical aspects of using the model for solutions, creams, and patches.

3:50 – 4:50 **Lab Practice**

- Lab demonstration of PAMPA assay: robotic versus manual (if requested).
- Lab demonstration of skin PAMPA applications.

5:00 – 5:30 **BBB PAMPA**

- Blood brain barrier penetration prediction with BBB PAMPA.

6:00 – 7:30 **Social hour**

Thursday, June 6th

9:00 – 10:00 **Flux measurements – from 96-well plates to biorelevant volumes**

- Effect of excipients on permeability and flux
- Comparative flux measurements in 96-well format
- Studying excipient effect on flux using PAMPA or FLUX apparatus

10:00 – 10:15 ***Break***

10:15 – 11:00 **Troubleshooting the data and utilizing software features**

- Recognizing and troubleshooting challenging data.
- Role of background correction in processing of UV data.
- Understanding thresholds of the permeability measurements.
- Highlighting the software features (saving blanks, updating Excel files based on individual refinement, saving averaged results in Excel, etc.).

10:00 – 10:15 ***Break***

11:15 – 12:15 **Demonstration of the flux experiments**

- PAMPA (96-well) based formulation screening
- µFLUX setup
- BioFLUX setup

12:15 – 1:30 ***Lunch (provided)***

1:30 – 3:00 ***(includes breaks)*** **Interactive analysis of the data sets.**

- Strategy discussion on how to get best results.
- Calculation of intrinsic permeability data.
- Calculation of membrane permeability in the pH regions overshadowed by unstirred water layer.
- Calculation of Flux for formulation assays.

3:00 – 4:00 **Q&A and roundtable discussions. Additional lab practice can be requested as needed**

Closing the Training Course