In vitro tools for evaluating the intraluminal and absorption behavior of advanced drug formulations

*Joint UNGAP & NordicPOP hybrid/hands‐on training school,   
27th - 30th of June 2021 (new date!)*

*Location University of Southern Denmark, Department of Physics, Chemistry & Pharmacy, SDU Campus; Campusvej 5230 Odense, Denmark*

Co-organised by

* University of Southern Denmark, Denmark
* National and Kapodistrian University of Athens, Greece
* University of Greifswald, Germany
* University of Oslo, Norway
* UIT The Arctic University of Norway, Norway
* Uppsala University, Sweden

Last updated May 4th

This training school provides a state-of-the-art overview on in vitro techniques applied in the field of oral biopharmaceutics along with an opportunity to get hands-on training on laboratory tools for studying the intraluminal and absorptive behavior of candidate-enabling drug formulations. For this purpose, leading scientists, active in the design and evaluation of novel in-vitro tools for the oral bioavailability toolbox,will provide detailed and critical insights into the application of a variety of in-vitro technologies such as dissolution and permeation models. The primary aim of this workshop is to initiate and stimulate collaboration between the different UNGAP and NordicPOP partners with corresponding or complementary experiences and needs. For this reason, the program leaves ample time for panel discussions and face-to-face exchange of experiences. A table-top exhibition of commercially available tools will run alongside with the training course.

Maximum number of participants 100 (on-site & online)

Hands-on training: Maximum number of participants 50 (whereof 25 each from UNGAP and NordicPOP)

Pre-registration open since 15th of April 2021. Admission will be granted according to COST criteria for the UNGAP audience and on a first submit-first serve basis for the NordicPOP audience.

UNGAP participants, pls register here:

NordicPOP participants, pls register here:

For each of the audiences (UNGAP / NordicPOP), every hands-on training will be run at least once. Free seats for a 2nd hands-on training will be allocated on-site, depending on availability of free seats.

# Sunday 27th Plenary Lecture & Welcome

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| --- | --- | --- |
| time | person | activity |
| All day | - | Covid-19 rapid-test station open |
| Welcome lecture | | |
| 18:30 - 19:10 | Stephen Buckley | “Oral ingestible devices for biologics delivery│In vitro/ex vivo experimental toolbox” |
| 19.15 | - | Welcome drink (details to be announced) |

# Monday 28th Plenary Lectures & Training Sessions

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| --- | --- | --- |
| time | person | activity |
| 7.00 | - | Covid-19 rapid-test station open |
| 7.30 | - | Registration open, coffee |
| 8:00 – 8:15 | NN | Welcome & Housekeeping |
| Dissolution & Release | | |
| 8:15 - 8:50 | Paul Stein | “Diffusion – the basis of drug transport” |
| 8:50 – 9:25 | Christos Reppas | “Gastrointestinal transfer in the fasted state” |
| 9:25 – 10:00 | Werner Weitschiess | “Physiological considerations in drug release testing – the role of gastric emptying and motility” |
| 10:00 – 10:15 | - | Coffee break |
| 10:15 – 10:50 | Karl Box | “Novel dissolution methodologies; usefulness, challenges and potential” |
| 10:50 – 11:25 | Rene Holm | “In vitro lipolysis / lipid DDS” (via Zoom) |
| 11:25 – 11:45 | Speakers of morning  session | Panel discussion |
| 11:45 – 12:30 |  | Lunch break |
| 12.30 -16.00 | Trainers | Parallel hands-on training sessions in labs 5,6,7 & 10 |
| 12.30 -14.00  14.00 – 16.00 |  | Video / zoom training sessions FKF video-conference room  Opportunity to meet supplier representatives |

# Tuesday 29th Plenary Lectures & Training Sessions

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| --- | --- | --- |
| time | person | activity |
| 7.00 | - | Covid-19 rapid-test station open |
| 7.30 | - | Coffee |
| 8:00 – 8:05 | NN | Housekeeping |
| Permeation Across Biological & Biomimetic Barriers | | |
| 8:05 - 8:40 | Carsten Uhd-Nielsen | “Transport, Transporters and Solute Carriers” |
| 8:40 – 9:15 | Massimiliano di Cagno | “Permeability studies using artificial biomimetic barriers” (via Zoom) |
| 9:15 – 9:50 | Gøril Eide Flaten | “The importance of mucus as an absorption barrier and the use of the Mucus-PVPA” (via Zoom) |
| 9:50 – 10:10 | - | Coffee break |
| Combination of Dissolution & Permeation | | |
| 10:10 – 10:45 | Christel Bergström | “In vitro tools applicable to simultaneous determination of formulation digestion, drug release and drug permeation” (via Zoom) |
| 10:45 – 11:20 | Annette Bauer- Brandl | “High throughput formulation screening in 96-well plates” |
| 11:20 – 11:55 | Martin Brandl | “Dynamic dissolution-/permeation testing” |
| 11:55 – 12:20 | Speakers of morning session | Panel discussion of session |
| 12:20 -13:00 |  | Lunch break |
| 13:00 -16.30 | Trainers | Parallel hands-on training sessions in labs 5,6, 7 & 10 |
| 13.00 -14.30  14.30 – 16.30 |  | Video / zoom training sessions FKF video-conference room  Opportunity to meet supplier representatives |

# Wednesday 30th Morning training Sessions

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| --- | --- | --- |
| time | person | activity |
| 7.00 | - | Covid-19 rapid-test station open |
| 7.30 | - | Coffee |
| 8:00 -11.30 | Trainers | Parallel hands-on training sessions in labs 5,6, 7 & 10 |
| 8.00 – 9.30  9.30 – 11.30 |  | Video / zoom training sessions FKF video-conference room  Opportunity to meet supplier representatives |
| 11.30 12.00 | All trainers | Closing the training event  Q&A session |
| 12.00 | - | Grab & leave lunch |
| 12.30 – open end |  | Opportunity for individual meetings with the trainers  (upon personal agreement) |

# Hands‐on training Topics:

1. Carsten Uhd Nielsen (SDU): Drug transporter / cell culture studies (confirmed)
2. Annette Bauer‐Brand (SDU): High throughput formulation screening (96‐well plate format, confirmed)
3. Martin Brandl: Dynamic dissolution/permeation assay (PermeaLoop®, confirmed)
4. Paul Stein: NMR-based tools for drug transport (confirmed)
5. Ann-Christin Jacobsen (Uppsala): “In vitro lipolysis / lipid DDS” (to be confirmed)
6. Philipp Schick: (Greifswald Univ, UNGAP & NordicPOP): A biorelevant dissolution test devices for the simulation of gastric emptying and motility (GastroDuo) (confirmed)
7. Maria Vertzoni (Univ. Athens, UNGAP): “An in vitro biorelevant gastrointestinal transfer (BioGIT) system” (confirmed)
8. Karl Box (pIon): topic to be announced (confirmed)

# Video-/zoom training Topics:

1. Massimiliano di Cagno (University of Oslo, NordicPOP): “Permeability studies using Permeapad®” (side‐ by‐side cell, Franz cell, confirmed)
2. Caroline Alvebratt (Uppsala University, NordicPOP) & Enphasys AB: video/zoom-webinar Simultaneous determination of formulation digestion, drug release and drug permeation” (confirmed)
3. Gøril Eide Flaten (Arctic University Tromsø, NordicPOP) video/zoom-webinar: Mucus-PVPA model (confirmed)
4. Stephen Buckley (Novo Nordisk): video/zoom-webinar Ex vivo / tissue permeation testing (to be confirmed)

# Practical information

# According to the official announcement of the Danish Government (status 4th of May):

# - entry to Denmark with an EU Covid-Passport or equivalent documentation on full vaccination or recent negative test if coming from EU or Schengen country (except red-alert countries, currently, no European country is classified as red alert); in case of air-travel additional test at arrival airport

# - conferences are allowed with recent negative test

# - Hotels, Restaurants and bars will be open

# - testing facilities for gratis Covid-19 tests are available with sufficient capacity