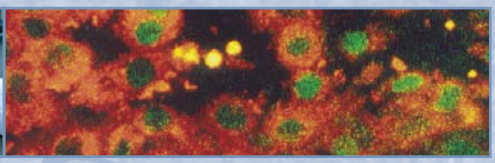
8th International Conference and Workshop on

Biological Barriers – *in vitro* Tools, Nanotoxicology, and Nanomedicine



21 March – 1 April 2010

Saarland University
Saarbrücken, Germany

Programme Chairs and Organisers:
Prof. Dr. Claus-Michael Lehr, Dr. Ulrich F. Schäfer,
Jun. Prof. Dr. Marc Schneider, Dr. Nicole Daum

www.uni-saarland.de/biological-barriers2010

GalenosNetwork Advanced Drug Delivery
SAARLAND UNIVERSITY
MEDITRANS
CRS Germany Local Chapter
ISAM
europrofession

Targeting & Imaging

(incorporating the MEDITRANS Training Course)

8.30 **Targeted nanomedicines: Is small always beautiful?**
Gert Storm (Utrecht, NL)

9:00 **A chemical approach to cell type specific targeting of nanoparticles**
Paul Wentworth (Oxford, UK)

9:30 **Elucidating the dynamics of particle-cell interaction**
Franz Gabor (Vienna, A)

10:00 Coffee break

10:30 **Imaging based on mass spectroscopy**
Ron Heeren (Amsterdam, NL)

11:00 **Magnetic resonance imaging of inflammatory diseases**
Prashant Agrawal (Eindhoven, NL)

11:30 **Magnetic resonance imaging of metabolic processes**
Sebastían Cerdán (Barcelona, E)

12:00 Lunch

Pulmonary Drug Delivery

(in cooperation with ISAM)

14:00 **Particle-lung-interactions: challenges and opportunities to pulmonary drug delivery**
Peter Gehr (Bern, CH)

14:30 **siRNA-mediated gene targeting and DNA/siRNA delivery in the human lung**
Achim Aigner (Marburg, D)

15:00 **Targeted gene delivery for lung cancer treatment**
Carsten Rudolph (Munich, D)

15:30 Coffee break

16:00 **Surface modified liposomes for targeted aerosol delivery to lung tumours**
Carsten Ehrhardt (Dublin; IRE)

16:30 **Nanoparticles for pulmonary drug delivery**
Raimar Löbenberg (Alberta, CAN)

17:00 **Pulmonary vaccine delivery**
Gerrit Borchard (Geneva, CH)

Mechanisms, Characterization and Modelling of Biological Barriers

8:30 **Nanoparticle uptake in the GI tract**
Jonathan Powell (Cambridge, UK)

9:00 **Nanoparticle clearance from the respiratory tract**
Marianne Geiser-Kamber (Bern, CH)

9:30 **Particle-protein interactions**
Kenneth Dawson (Dublin, IRE)

10:00 **Cell and tissue based *in vitro* models**
Heike Mertsching (Stuttgart, D)

10:30 Coffee break

11:00 **Nanoparticulate iron: A quick-to-clinic strategy to address iron deficiency anaemia?**
Dora Pereira (Cambridge, UK)

11:20 **Biophysics of pulmonary surfactant: modulation of structure and dynamics by lipid-protein interactions**
Jesus Perez-Gil (Madrid, Spain)

11:40 **Structure and function of surfactant protein A and its role in host defense at the air-liquid interface of the lung**
Cristina Casals (Madrid, Spain)

12:00 Lunch

Nanotoxicology

14:00 **Nanoparticles: the good, the bad and the ugly**
Paul Borm (Bilthoven, NL)

14:30 **Physico-chemical differences between nanoparticle- and molecule-derived toxicity**
Ludwig Limbach (Zurich, CH)

15:00 **Nanotechnology and food - opportunities and challenges**
Doris Marko (Vienna, A)

15:30 Coffee break

16:00 **Comparative toxicokinetics of nanoparticles: lung versus GI**
Wolfgang Kreyling (Munich, D)

16:30 **Nanotoxicology – Biological principles and methodological flaws**
Harald Krug (St. Gallen, CH)

17:00 **Toxicology for the twenty-first century**
Thomas Hartung (Baltimore, USA)

Wednesday, 24 March

Polymer and Particles for Advanced Drug Delivery

(in cooperation with CRS Local Chapter Germany)

8:30 **New polymers for bioavailability and solubility enhancement**
Ijeoma Uchegbu (London, UK)

9:00 **3 contributed podium presentations**

10:00 Coffee break

10:30 **Nanostructured particulate drug carriers for advanced drug delivery**
Tejal A. Desai (San Francisco, USA)

11:00 **3 contributed podium presentations**

12:00 Lunch

13:30 **Novel ultrasound active liposomal formulations in diagnostics and therapeutics**
Udo Bakowsky (Marburg, D)

14:00 **3 contributed podium presentations**

15:00 Coffee break

15:30 **Engineering nanoconstructs for drug delivery: Importance of definition at the nanoscale**
Hamid Ghandehari (Salt Lake City, USA)

16:00 **3 contributed podium presentations**

17:00 **Poster walks**

Thursday, 25 March and Friday, 26 March

LabCourse I : Preparation and characterisation of nanoparticles and their interaction with biological barriers *in vitro*

Saturday, 27 March

Complementary workshop on scientific writing and publishing
(in cooperation with ELSEVIER B.V., The Netherlands)

9:00 **Impact factor, H-index, etc. - Introduction to literature databases and bibliometrics**
Irene Kanter-Schlifke (Elsevier, Amsterdam, NL)

10:00 **Composing and submitting a research paper**
Jaap van Harten (Elsevier, Amsterdam, NL)

11:00 **Peer review of scientific manuscripts**
Douwe D. Breimer (Leiden, NL)

Sunday, 28 March

Social activities and excursion

Skin Barrier and Drug Delivery

8:30 **Skin: A unique barrier**
Jonathan Hadgraft (London, UK)

9:00 **Topical bioavailability and formulation optimisation**
Richard Guy (Bath, UK)

9:30 **Skin metabolism**
Hans Friedrich Merk (Aachen, D)

10:00 Coffee break

10:30 **Studies on silver nanoparticle penetration and toxicity in skin**
Nancy Monteiro-Riviere (Raleigh, USA)

11:00 **Nanopatches: targeting the skin's immune system for improved vaccines**
Mark Kendall (Brisbane, AUS)

11:30 **High throughput screening of chemical enhancers for transdermal drug delivery**
Samir S Mitragotri (St. Barbara, USA)

12:00 Lunch

Analytical Visualization tools

14:00 ***in vitro – in vivo* correlation**
Thomas J. Franz (Happy Valley, USA)

14:30 **Fluorescence Lifetime Imaging (FLIM) and its application on skin**
Michael S. Roberts (Queensland, AUS)

15:00 **Multiphoton microscopy**
Frank Stracke (St. Ingbert, D)

15:30 Coffee break

16:00 **Raman-microscopy on skin**
Michel Manfait (Reims, F)

16:30 **Cryo-electron microscopy and tomography of human skin**
Lars Norlén (Stockholm, S)

17:00 **Thermogravimetric analysis to determine diffusion of volatile substances into skin**
Matias Rauma (Stockholm, S)

17:30 **Poster session/ presentations**

Tuesday, 30 March

in silico modelling

8:30 **Random walk model of skin permeation**
Frederik H. Frasch (Morgantown, USA)

9:00 **Prediction and simulation of skin penetration after finite dosing**
Arne Naegel (Heidelberg, D)

9:30 **Prediction of dermal absorption from complex chemicalmixtures**
Jim Riviere (Raleigh, USA)

10:00 Coffee break

10:30 **A numerical model for predicting drug concentration-depth profiles in human stratum corneum**
Dirk Neumann (Saarbrucken, D)

11:00 **Molecular simulation of lipid membranes**
Jamshed Anwar (Bradford, UK)

11:30 **Contributed podium presentations**

12:00 Lunch

LabCourse II

14:00 – 18:00 **LabCourse II**

in vitro models of human skin and application of modern visualisation tools

Wednesday, 31 March

8:30 – 18:00 **LabCourse II**

in vitro models of human skin and application of modern visualisation tools

Thursday, 1 April

8:30 – 13:00 **LabCourse II**

in vitro models of human skin and application of modern visualisation tools

13:00 Lunch and farewell

LabCourse I / Date: 25 – 26 March 2010 / 4 modules:

1. **Synthesis of nanoscaled materials**
   This module will focus on the preparation of different nanoscaled materials such as inorganic metal particles as relevant model system and biodegradable polyester particles as promising drug delivery systems.

2. **Optical characterisation of nanoparticles**
   The optical characterization module introduces two different approaches for particle size measurement. One is based on the diffusion of many particles well suited for monodisperse samples. The other one is based on single particle diffusion allowing also for the flexible analysis of polydisperse samples (in cooperation with NanoSight).

3. **Visualization techniques in the nano-regime**
   As a key parameter visualization of small particles can be considered; most prominent and relevant due to the in situ applicability are scanning probe techniques. A new designed table-top electron microscope allows for fast and convenient screening of samples and materials. Sample preparation and imaging will be accessible (in cooperation with Phenom).

4. **Transport studies across mucosal epithelial cells**
   Transport studies can be considered as a basic technology 'to investigate drug and particle interaction at biological barriers. Integrity and different permeation behaviour at intact and damaged barriers will be demonstrated.

LabCourse II / 30 March – 1 April 2010 / 4 modules

1. **Skin preparation and permeation experiments**
   Hands on preparation of different skin layers based on excised human skin for Franz diffusion-cell experiments. Classical, standardized procedures will be demonstrated.

2. **Skin segmentation and penetration experiments**
   Hands on preparation of excised full thickness skin for drug depth profiling. Based on the Saarbrücken penetration-model and segmentation techniques (tape stripping, cryo-sectioning) the distribution of relevant substances in dependence of the skin layer will be demonstrated.

3. **Visualization of skin samples by different microscopic settings**
   This module is organized in two parts and will focus on *in vitro* imaging with multiphoton excitation as well as the confocal reflection technique already applied *in vivo* (in cooperation with MAVIG).

4. **Application of Raman microscopy for skin research**
   The capabilities of chemical identification and distribution of drugs of semi-solid formulations will be demonstrated (in cooperation with WiTec GmbH).

Rates and Course Booking

Fax ++49(681) 302-4270 for _____ (name)_____ (affiliation)

For the course booking, please mark with a cross the seminars and labcourses that you want to attend. Please also register for the optional events if you are interested to join. We can not guarantee that you can participate if you have not registered for these events in advance.

		☐ Students/ Academic		☐ Industry	
		before 15 Jan	**after 15 Jan**	**before 15 Jan**	**after 15 Jan**
☐ **Meditrans Training Course**	**22 March**	Free for all Meditrans members			
☐ **CRS Day**	**24 March**	30 €		30 €	
☐ **Seminar 1**	**22-24 March**	300 €	400 €	500 €	600 €
☐ **Seminar 1 and LabCourse 1**	**22-26 March**	600 €	800 €	1000 €	1200 €
☐ **Elsevier complementary workshop**	**27 March**	Free for all participants			
☐ **Excursion**	**28 March**	Free for all participants			
☐ **Conference Dinner**	**29 March**	Free for all participants			
☐ **Seminar 2**	**29-30 March**	250 €	350 €	400 €	500 €
☐ **Seminar 2 and LabCourse 2**	**29 March - 1 April**	550 €	750 €	900 €	1100 €
☐ **„all-in“ price**	**22 March - 1 April**	900 €	1200 €	1500 €	1900 €

Early registration fees apply when registration is submitted and fee paid **before** 15 January 2010

Registration fee for Seminar 1 includes: Meditrans Training Course, CRS Day, Conference Dinner

The second participant from the same Galenos institution gets a 50% discount

Upgrade registration for Meditrans and CRS students and 1st year PostDocs.

Upgrade registration no later than 15 January 2010

☐ **Upgrade to full Seminar 1**	100 €
☐ **Upgrade to full Seminar 1 and LabCourse 1**	400 €
☐ **Upgrade „all-in“ price**	700 €

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