

Crossing Biological Barriers – Advances in Nanocarrier Design for Targeted Drug Delivery

PROGRAMME



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9 – 11 November 2015 · The Westin Bellevue Dresden

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Monday, 09 November 2015

09:00 **Registration** Foyer Bellevue
Room Bellevue

10:00 **Conference opening**
A. Förster, DECHEMA e.V., Frankfurt am Main/D

10:10 **Welcome address**
H. Frima, European Commission, Brussels/B

PROJECT PRESENTATION

Chair: A. Förster, DECHEMA e.V., Frankfurt am Main/D

10:30 **TRANS-INT – An FP7 consortium designing oral peptide nanoparticle constructs**
M. Alonso¹, ¹ CIMUS, Universidad de Santiago de Compostela/E

10:50 **ALEXANDER – An FP7 project on Mucus Permeating Nanoparticulate Drug Delivery Systems**
S. Grimm¹, ¹ Evonik Nutrition & Care GmbH, Darmstadt/D

11:10 **COMPACT – A public-private partnership to develop novel delivery systems for biopharmaceuticals**
E. Leberer¹, ¹ Sanofi-Aventis Deutschland GmbH, Frankfurt am Main/D

11:30 **Coffee Break**

ORAL DELIVERY

Chair: M. Alonso, CIMUS, Universidad de Santiago de Compostela, Santiago de Compostela/E

11:45 **PLENARY TALK**
Nucleic acid delivery systems for RNA therapy and gene editing
D. Anderson¹, ¹ Massachusetts Institute of Technology, Cambridge/USA

12:30 **Hyaluronate-based polyelectrolyte nano complexes as a potential oral peptide delivery formulation**
S. Sladek¹; M. Eskander²; L. Tajber²; D. Brayden¹, ¹ University College Dublin/IRL; ² Trinity College Dublin/IRL

12:50 **On the synthesis of polyelectrolyte/insulin ionic complexes**
V. Bourganis¹; K. Karidi²; O. Kammona²; C. Kiparissides¹, ¹ Aristotle University of Thessaloniki/GR; ² Chemical Process & Energy Resources Institute, Thessaloniki/GR

13:10 **Effect of polymer architecture on the diffusion of PEGylated nanoparticles in mucus**
M. García-Díaz¹; M. Boegh¹; E. Zagato²; N. Bovet¹; A. Müllertz¹; K. Braeckmans²; H. Nielsen¹, ¹ University of Copenhagen/DK; ² Ghent University, Ghent/B

13:30 **Lunch Break**

Monday, 09 November 2015

Room Bellevue

SCALE-UP, TRANSLATIONAL AND REGULATORY ISSUES OF DRUG DELIVERY SYSTEMS – THE INDUSTRY PERSPECTIVE

Chair: J. Irache, University of Navarra, Pamplona/E

14:30 **PLENARY TALK**
Excipients to overcome biological barriers
F. Guth¹, ¹ BASF SE, Ludwigshafen/D

15:15 **Nanomedicine Translation: the next Challenge**
P. Boisseau¹, ¹ CEA-Leti, Grenoble/F

15:45 **Translational approach for development of drug delivery-based products**
H. R. Lakkireddy¹, ¹ Sanofi Research and Development, Vitry-sur-Seine/F

16:15 **Coffee Break**

UNDERSTANDING BIOLOGICAL BARRIERS

Chair: D. Bazile, Sanofi Recherche & Développement, Vitry-sur-Seine/F

16:30 **Crossing biological barriers**
M. Schmolz¹, ¹ Hot Screen GmbH, Reutlingen/D

16:50 **In order to cross a biological barrier, one must first understand its structure**
P. Griffiths¹; B. Cattoz¹, ¹ University of Greenwich, Chatham Maritime/UK

17:10 **Nanomedicines for overcoming epithelial and microbial barriers**
– C. Lehr¹; C. de Souza Carvalho-Wodarz²; S. Gordon²; B. Loretz²; N. Schneider-Daum², ¹ Saarland University, Saarbrücken/D; ² Helmholtz-Institute for Pharmaceutical Research Saarland, Saarbrücken/D

18:30 **Walk to the Conference Dinner (15min)**

19:00 **Conference Dinner at the Sophienkeller Dresden (19:00 – 22:00)**
Address:
Sophienkeller im Taschenbergpalais
Taschenberg 3
01067 Dresden

Tuesday, 10 November 2015

Room Bellevue

EVALUATION OF MICRODIFFUSION THROUGH MUCUS

Chair: C. Kiparissides, Aristotle University of Thessaloniki/GR

- 09:00 **PLENARY TALK**
Understanding exotoxin transcytosis for the application of oral protein delivery
R. Mrsny¹, ¹ University of Bath/UK
- 09:45 **Nanocarrier permeation through the bilayer of small intestinal mucus**
M. Wilcox¹; P. Chater¹; L. Samaridou²; I. Pereira-De-Sousa³; J. Pearson², ¹ Newcastle University, Newcastle upon Tyne/UK; ² Aristotle University of Thessaloniki/GR; ³ University of Innsbruck/A
- 10:05 **Assessment of the diffusion coefficient of nanocarriers with the fluorescence recovery technique in the gastrointestinal mucus**
D. Alison¹; M. Hélène¹; S. Carl¹; R. Jérémie¹; P. Rodolphe²; R. Emilie¹; L. Frederic¹; G. Jean-Christophe¹, ¹ INSERM UMR-S 1066, Université d'Angers/F; ² SCIAM, Université d'Angers/F
- 10:25 **A microfluidics assay to rank nanoparticles on their capacity to cross porcine jejunal mucus**
S. Bhattacharjee¹; E. Mahon¹; S. Carrington¹; D. Brayden¹, ¹ University College Dublin/IRL
- 10:45 Coffee Break

PULMONARY AND OCULAR DELIVERY

Chair: C. Kiparissides, Aristotle University of Thessaloniki/GR

- 11:00 **Knocking on cystic fibrosis lung's door: microformulations of antibiotic loaded muco-Inert nanoparticles**
N. Günday Türel¹; A. Torge²; A. Türel¹; M. Schneider², ¹ MJR PharmJet GmbH, Homburg/D; ² Saarland University, Saarbrücken/D
- 11:20 **Biodegradable nanocarriers for nucleic acid delivery**
B. Loretz¹; H. Yamada¹; C. Thiele¹; B. Mostaghaci²; E. Malaeksefat¹; N. Kunschke¹; C. Lehr², ¹ Helmholtz-Institute for Pharmaceutical Research Saarland, Saarbrücken/D; ² Saarland University, Saarbrücken/D
- 11:40 **In silico prediction of intravitreal pharmacokinetics: tool for ocular drug development**
E. del Amo¹; A. Urtti²; K. Vellonen¹; H. Kidron³, ¹ University of Eastern Finland, Kuopio/FIN; ² University of Helsinki and University of Eastern Finland, Helsinki and Kuopio/FIN; ³ University of Helsinki/FIN

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TARGETED DRUG DELIVERY SYSTEMS IN NANOMEDICINE

Chair: C. Kiparissides, Aristotle University of Thessaloniki/GR

- 12:00 **Targeted delivery of siRNA with DARP in nanocomplexes**
A. Winkler¹; H. Mertens²; U. Zangemeister-Wittke²; A. Plückthun²; J. Winkler¹, ¹ University of Vienna/A; ² University of Zurich/CH
- 12:20 **Cytotoxic T cells as transport vehicles for tumor-targeted delivery of nanomedicines**
L. Wayteck¹; H. Dewitte²; K. Breckpot²; J. Demeester¹; S. De Smedt¹; K. Raemdonck², ¹ Ghent University, Gent/B; ² Vrije Universiteit Brussel/B
- 12:40 **Surface charge tunability as a powerful strategy to control electrostatic interaction for high efficiency silencing, using tailored oligopeptide-modified poly(beta-amino ester)s**
P. Dosta¹; N. Segovia¹; V. Ramos²; S. Borrós², ¹ Grup d'Enginyeria de Materials, Institut Químic de Sarrià, Universitat Ramon Llull, Barcelona/E; ² Universitat Ramon Llull, Barcelona/E
- 13:00 Lunch Break

BIODISTRIBUTION AND IN VIVO IMAGING OF NANOPARTICLES

Chair: D. Brayden, University College Dublin/IRL

- 14:00 **PLENARY TALK**
Nanomedicines and Theranostics
T. Lammers¹, ¹ RWTH Aachen, Aachen/D
- 14:45 **In vivo study of the mucus-permeating properties of PEG-coated nanoparticles following oral administration**
L. Inchurraga¹, ¹ University of Navarra, Pamplona/E
- 15:05 **Is the unintended accumulation of nanocarriers in ovaries and adrenals an artifact or a neglected reality?**
K. Mäder¹, ¹ Martin-Luther-University Halle-Wittenberg, Halle (Saale)/D
- 15:25 **Radiolabelling of polymeric and protein nanoparticles for in vivo imaging of their biodistribution**
G. Quincoces¹; R. Ramos-Membrive¹; L. Inchurraga²; I. Luis de Redín²; N. Martín-Arbella²; E. Larrañeta²; A. Calvo³; J. Irache²; I. Peñuelas¹, ¹ University Clinic of Navarra, Pamplona/E; ² University of Navarra, Pamplona/E; ³ Centre for Applied Medical Research (CIMA), Pamplona/E

ORAL DELIVERY II

Chair: D. Brayden, University College Dublin/IRL

- 15:45 **Development and in vitro evaluation of zeta potential changing nanoparticles as a CFTR gene delivery system**
F. Prüfert¹; S. Bonengel¹; M. Wilcox²; A. Bernkop-Schnürch¹, ¹ University of Innsbruck/A; ² Newcastle University, Newcastle upon Tyne/UK
- 16:05 **Self-nanoemulsifying Drug Delivery Systems (SNEDDS) for the oral administration of therapeutic peptides**
T. Karamanidou¹; K. Karidi²; O. Kammona²; C. Kiparissides¹, ¹ AUTH, Thessaloniki/GR; ² Chemical Process & Energy Resources Institute, Thessaloniki/GR

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16:25 **Dimethyl palmitoyl ammonio propanesulfonate is an intestinal permeation enhancer: Ussing chamber evidence**
 F. McCartney¹; J. Heade¹; D. Brayden¹, ¹ University College Dublin, Dublin/IRL

16:45 **Coffee Break**

BLOOD BRAIN BARRIER CROSSING SYSTEMS

Chair: E. Mastrobattista, Utrecht University/NL

17:00 **A novel BBB-penetrating peptide improves pBAEs-mediated gene delivery into brain endothelial cells**
 P. Brugada¹; I. Porcar¹; P. Dosta²; G. Molins²; V. Ramos³; A. Cascante¹; S. Borrós³, ¹ Sagetis-Biotech, Barcelona/E; ² Grup d'Enginyeria de Materials, Institut Químic de Sarrià, Universitat Ramon Llull, Barcelona/E; ³ Universitat Ramon Llull, Barcelona/E

17:20 **Drug delivery to the CNS by colloidal carrier systems**
 G. Fricker¹, ¹ Ruprecht-Karls University, Heidelberg/D

17:40 **Biological actions of glycodendrimers in Alzheimer's disease**
 D. Appelhans¹; O. Klementieva²; E. Aso³; J. Cladera⁴; I. Ferrer³; B. Voit¹, ¹ Leibniz-Institut für Polymerforschung Dresden e.V., Dresden/D; ² Lund University, Lund/S; ³ IDIBELL-University Hospital Bellvitge, L'Hospitalet de Llobregat/E; ⁴ Universitat Autònoma de Barcelona, Bellaterra/E

INTRACELLULAR AND TRANSCELLULAR DELIVERY

Chair: E. Mastrobattista, Utrecht University/NL

18:00 **Chemically optimized polymeric nanoparticles as delivery platform for therapeutic siRNA and DNA**
 A. Aigner¹; A. Ewe²; S. Höbel²; A. Kietz²; J. Schulze², ¹ University of Leipzig/D; ² Rudolf-Boehm-Institute for Pharmacology and Toxicology, Clinical Pharmacology, Leipzig/D

18:20 **Intracellular fate and immunological activity of photoluminescent gold nanoclusters**
 X. Le Guevel¹; M. Perrez Perrino²; T. Fernández³; F. Pomares³; M. Torres⁴; M. Blanca⁴; J. Rojo²; C. Mayorga³, ¹ Bionand, Campanillas/E; ² Glycosystems Laboratory, Instituto de Investigaciones Químicas (IIQ), CSIC – University of Seville/E; ³ Research Laboratory and Allergy Service, IBIMA, Málaga Regional University Hospital, UMA, Malaga/E; ⁴ Allergy Service, IBIMA, Regional University Málaga Hospital, UMA, Malaga/E

18:40 **Passage of SPIONs through cell layers**
 C. Gräfe¹; I. Slabu²; F. Wiekhorst²; R. Müller³; A. Hochhaus¹; F. von Eggeling¹; L. Trahms²; J. Clement¹, ¹ Jena University Hospital, Jena/D; ² Physikalisch-Technische Bundesanstalt, Berlin/D; ³ Institut für Photonische Technologien, Jena/D

19:00 **Poster Party (19:00 – 21:00)**

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SKIN DELIVERY

Chair: E. Leberer, Sanofi-Aventis Deutschland GmbH, Frankfurt/D

09:00 **PLENARY TALK**
Biophysical methods of drug delivery
 M. Prausnitz¹, ¹ Georgia Institute of Technology, Atlanta/USA

09:45 **Hyaluronan-based IgG-loaded dissolving microneedles for intradermal protein delivery**
 J. Mönkäre¹; M. Nejadnik¹; K. Baccouche¹; W. Jiskoot¹; J. Bouwstra¹, ¹ Leiden University, Leiden/NL

10:05 **Vancomycin-loaded dextran sulfate-shelled/perfluoropentane-cored nanobubbles for antibiotic transdermal delivery**
 M. Argenziano¹; M. Soster¹; M. Prato¹; G. Banche¹; N. Finesso¹; V. Allizond¹; A. Luganini¹; A. Khadjavi¹; G. Giribaldi¹; A. Cuffini¹; C. Guiot¹; R. Cavalli¹, ¹ University of Torino, Torino/I

10:25 **Skin adapted agar diffusion antibiogram as in-vitro pharmacodynamics equivalence model**
 M. Sacha¹; E. Haltner¹; A. Fargier¹, ¹ Across Barriers GmbH, Saarbrücken/D

10:45 **Coffee Break**

BIOLOGICAL BARRIER MODELS

Chair: E. Leberer, Sanofi-Aventis Deutschland GmbH, Frankfurt/D

11:00 **Development of nanocarriers for effective mucus permeation**
 E. Samaridou¹; V. Bourganis¹; T. Karamanidou¹; K. Karidi²; O. Kammona²; C. Kiparissides¹, ¹ Aristotle University of Thessaloniki, Thessaloniki/GR; ² Chemical Process & Energy Resources Institute, Thessaloniki/GR

11:20 **Engineering of complex 3D tissue models to simulate biological barriers**
 H. Walles¹; F. Groeber²; F. Schmidt²; A. Rossi¹; M. Schweinlin³; A. Appelt-Menzel¹; S. Schoenwalder³; M. Metzger²; J. Hansmann²; T. Schwarz²; M. Steinke², ¹ University Hospital Würzburg, Würzburg/D; ² Translational Center Würzburg ´Regenerative Therapies for Oncology and Musculoskeletal Diseases´ Branch of Fraunhofer IGB, Würzburg/D; ³ University Hospital Würzburg, Chair Tissue Engineering & Regenerative Medicine, Würzburg/D

11:40 **Development of a system to model nanocarrier permeation and uptake in the small intestine**
 P. Chater¹; B. Verdon¹; M. Wilcox¹; J. Pearson¹, ¹ Newcastle University, Newcastle Upon Tyne/UK

12:00 **Design of Nanoparticle-peptide conjugates as a model system for in vitro bioapplications**
 L. Gamrad¹; C. Rehbock¹; J. Krawinkel²; B. Tumursukh²; A. Heisterkamp³; S. Barcikowski¹, ¹ University of Duisburg-Essen, Essen/D; ² Friedrich-Schiller-University Jena, Jena/D; ³ Leibniz University Hannover, Hannover/D

12:20 **Delivery of interferon-gamma to PDGF-β receptor-expressing myofibroblasts alleviates liver fibrosis**
 L. Beljaars¹; F. van Dijk¹; K. Luoto²; E. Post¹; H. Steen²; K. Poelstra¹, ¹ University of Groningen, Groningen/NL; ² BiOrion Technologies, Groningen/NL

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ORAL DELIVERY III

Chair: A. Bernkop-Schnürch, Thiomatrix GmbH, Innsbruck/A

- 12:40 **Oral immunotherapy against peanut allergy using a nanoparticle-based vaccine**
A. Brotons¹, ¹ University of Navarra, Pamplona/E
- 13:00 **Peptide-loaded aqueous core nanocapsules for oral administration: characterization of the interaction with living matter**
H. Malhaire¹; A. Beloqui²; A. Mabondzo³; C. Tétaud⁴; F. Lacoëuille⁴; F. Hindré⁴; J. Benoît¹; F. Lagarce¹,
¹ INSERM UMRS-U1066 MINT „Micro et nanomédecines biomimétiques“, Angers/F; ² Université Catholique de Louvain, Louvain-la-Neuve/B; ³ Laboratoire d'Etudes du Métabolisme des Médicaments – Service de Pharmacologie et Immunoanalyse - DSV - Centre d'Energie Atomique, Saclay/F; ⁴ Plateforme de Radiobiologie et d'IMagerie Expérimentale, Angers/F
- 13:20 **Improved primary 3D in vitro model of the human small intestine**
M. Schweinlin¹; S. Wilhelm¹; H. Walles¹; M. Metzge¹, ¹ University Hospital Würzburg, Würzburg/D; ² University Hospital of Würzburg, Department for Tissue Engineering & Regenerative Medicine, Würzburg/D
- 13:40 **Conference Closing**

Monday – Wednesday, 9 – 11 November 2015

Room Bellevue

POSTER EXHIBITION

- P 1 **New Oral Nanomedicines: Transporting Therapeutic Macromolecules across the Intestinal Barrier (TRANS-INT) (FP7-NMP-2011-LARGE-5-281035)**
M. Alonso¹, ¹ CIMUS, Universidad de Santiago de Compostela/E
- P 2 **ALEXANDER – mucus permeating nanoparticulate drug delivery systems**
N. Heine¹; S. Megelski¹, ¹ DECHEMA e.V., Frankfurt am Main/D
- P 3 **COMPACT: a public-private partnership to develop novel delivery systems for biopharmaceuticals**
E. Leberer¹, ¹ Sanofi-Aventis Deutschland GmbH, Frankfurt/D
- P 4 **Size- and ligand-dependent interactions of gold nanoparticles with artificial lipid bilayers and cell membranes**
J. Broda¹; J. Setzler²; A. Leifert¹; R. Benz³; J. Steitz¹; U. Simon¹; W. Wenzel², ¹ RWTH Aachen University, Aachen/D; ² Karlsruhe Institute of Technology, Karlsruhe/D; ³ University of Würzburg and Jacobs University Bremen, Würzburg and Bremen/D
- P 5 **NPs diffusion through the pig intestinal mucus barrier: Study of the effect of surface charge and particle size**
M. Abdulkarim¹; N. Agulló²; B. Cattoz³; S. Gómez Borros²; P. Griffiths³; A. Bernkop-Schnürch⁴; M. Gumbleton¹, ¹ Cardiff School of Pharmacy & Pharmaceutical Sciences/Cariff University, Cardiff/UK; ² Institut Quimic de Sarrià, Universitat Ramon Llull, Barcelona/E; ³ University of Greenwich, Chatham Maritime/UK; ⁴ University of Innsbruck/A
- P 6 **In vitro optimization of siRNA delivery: the disregarded effect of undiluted biological fluids**
G. Dakwar¹; K. Braeckmans¹; S. De Smedt¹; K. Remaut¹, ¹ Ghent University, Ghent/B
- P 7 **PEGylated liposomes improve the delivery of nucleic acid mimics through native gastric mucus for treatment of Helicobacter pylori infections**
R. S. Santos¹, ¹ Ghent University, Ghent/B
- P 8 **Surface sensitive flow cell techniques to study immune responses to nanostructures**
O. Kari¹; T. Viitala¹; H. Jarva²; S. Meri²; A. Urtti³, ¹ Centre for Drug Research, Faculty of Pharmacy, University of Helsinki/FIN; ² Faculty of Medicine, University of Helsinki/FIN; ³ University of Helsinki and University of Eastern Finland, Helsinki and Kuopio/FIN
- P 9 **Modeling the air-blood barrier in healthy and disease state to evaluate safety and efficacy of pulmonary (nano)medicines**
R. Hendrix¹; S. Kletting¹; C. Carvalho-Wodarz¹; N. Schneider-Daum¹; C. Lehr², ¹ Helmholtz-Institute for Pharmaceutical Research Saarland, Saarbrücken/D; ² Saarland University, Saarbrücken/D
- P 10 **Trafficking pathway and endosomal escape of non-viral gene carriers**
L. Vermeulen¹; S. Samal¹; J. Demeester¹; S. De Smedt¹; K. Remaut¹; K. Braeckmans¹, ¹ Ghent University, Ghent/B
- P 11 **A novel polymeric formulation for efficacious and safe siRNA delivery**
X. Zeng¹; S. Justesen¹; E. Driessche¹; K. Thanki¹; H. Franzyk¹; H. Nielsen¹; C. Foged¹, ¹ University of Copenhagen/DK

- P 12 **Dextran nanogels for triggered intracellular release of proteins and peptides**
N. Kordalivand¹; D. Li¹; W. Hennink¹; T. Vermonden¹; R. van Nostrum¹, ¹ Utrecht University, Utrecht/NL
- P 13 **Targeted drug delivery system based on monoclonal antibody functionalized mesoporous silica nanoparticles**
M. Beck¹; T. Mandal²; C. Buske²; M. Lindén³, ¹ Institute for Inorganic Chemistry II, Ulm University, Ulm/D; ² Institute for Experimental Cancer Research, University Hospital Ulm/D; ³ Ulm University, Ulm/D
- P 14 **Injectable hybrid hydrogel – a combination of RADA16-I and mesoporous silica nanoparticles as a new material for tissue engineering**
B. Baumann¹; R. Wittig²; M. Lindén³, ¹ Ulm University, Institute for Inorganic Chemistry II, Ulm/D; ² Ulm University, Institute for Laser Technology in Medicine and Measurement Technique, Ulm/D; ³ Ulm University, Ulm/D
- P 15 **Design of aptamer based niosomal drug delivery**
D. Ag Selec¹; M. Selec¹; F. Stahl¹; T. Scheper¹, ¹ University of Hannover, Hannover/D
- P 16 **Multifunctional theranostic quantum dot-liposome hybrids for drug delivery and imaging**
M. Selec¹; D. Ag Selec¹; F. Stahl¹; T. Scheper¹, ¹ University Hannover, Hannover/D
- P 17 **Aptamer-modified multifunctional nanoparticles for targeted manipulation of cancer cells**
R. Bongartz¹; F. Stahl¹; T. Scheper¹, ¹ University Hannover, Hannover/D
- P 18 **Nanostructured lipid carriers (NLCs) for peptides oral delivery**
B. Illel¹, ¹ Sanofi, Montpellier/F
- P 19 **Nanostructured lipid carriers (NLC) for Skin Delivery.**
B. Illel¹, ¹ Sanofi, Montpellier/F
- P 20 **Targeting of tumor and stromal cells by lipidated cathepsin B inhibitor-based nanocarrier-system**
B. Turk¹, ¹ „Jozef Stefan“ Institute, Ljubljana/SLO
- P 21 **Preparation and characterization of papain-coated poly(anhydride) nanoparticles for oral delivery purposes**
N. Martín-Arbella¹; J. Irache¹, ¹ University of Navarra, Pamplona/E
- P 22 **In vivo pharmacodynamic response of GCSF delivered by polyelectrolyte nanoparticles**
M. Cegnar¹; S. Skrajnar¹; J. Kerč¹, ¹ Lek Pharmaceuticals d.d, Sandoz Development Center Slovenia, Ljubljana/SLO
- P 23 **Formation and characterisation of nano-assemblies containing a model peptide and modified cyclodextrins**
E. Presas¹; M. Cronin¹; J. Guo¹; C. O. Driscoll¹, ¹ University College Cork/IRL
- P 24 **Functional hydrophobic prodrugs: Novel approach for improving oral bioavailability of amphoteric drugs and implications on suitability for nanocarriers**
K. Thanki¹; S. Jain¹, ¹ Centre for Pharmaceutical Nanotechnology, Department of Pharmaceutics, National Institute of Pharmaceutical Education and Research, India, Mohali, Punjab./IND
- P 25 **Evaluation of the cytotoxicity, capability to cross a mucus layer and genotoxicity of polymeric nanoparticles designed to cross biological barriers.**
T. Iglesias Alonso¹; A. Azqueta Oscoz¹; A. Lopez de Cerain Salsamendi¹, ¹ University of Navarra, Pamplona/E

- P 26 **Reversible tight junction modulation using an enterotoxin-derived peptide as enhancer for delivery of biopharmaceuticals across biobarriers**
M. Kristensen¹; H. Mørck Nielsen¹, ¹ University of Copenhagen/DK
- P 27 **Influence of the ligand and payload on the muco-penetrating properties of nanocarriers**
L. Inchurraga¹, ¹ University of Navarra, Pamplona/E
- P 28 **Self-emulsifying oral peptide delivery systems: identification of surfactants with trypsin inhibiting properties**
N. Lupo¹, ¹ Innsbruck University, Innsbruck/A
- P 29 **Developing of nanoparticulate mucoadhesive drug delivery systems by using thiolated amphiphilic polymers**
G. Hetényi¹; A. Bernkop-Schnürch¹, ¹ Thiomatrix GmbH, Innsbruck/A
- P 30 **Nanoparticles as carriers of suramin in the treatment of corneal neovascularization**
I. Luis de Redín¹; M. Agüeros¹; J. Llabot²; C. Boiero²; J. Irache¹, ¹ University of Navarra, Pamplona/E; ² CONICET-Universidad de Córdoba/RA
- P 31 **Small animal micro SPECT/CT imaging in ocular drug research**
M. Schmitt¹; M. Ravina¹; S. Nurmi¹; E. Hippeläinen²; A. Airaksinen¹; M. Antopolsky¹; A. Urtti³, ¹ University of Helsinki, Helsinki/FIN; ² Helsinki University of Hospital, Helsinki/FIN; ³ University of Helsinki and University of Eastern Finland, Helsinki and Kuopio/FIN
- P 32 **Understanding the fate of distensible lipid nanocapsules in the lung using a multidimensional mucus diffusion model**
H. Chen¹; E. Mansfield²; V. Khutoryanskiy²; B. Forbes¹; S. Jones¹, ¹ King's College London/UK; ² University of Reading/UK
- P 33 **Ultrasound-activated chitosan-shelled/decafluoropentane-cored nanodroplets for oxygen transdermal delivery**
M. Prato¹; C. Magonetto²; M. Argenziano¹; A. Khadjavi¹; G. Gulino¹; G. Giribaldi¹; A. Troia¹; R. Cavalli¹; C. Guiot¹, ¹ University of Torino/I; ² National Institute of Metrological Research, Torino/I
- P 34 **Adsorption of antimicrobial peptides on mesoporous silica nanoparticles**
K. Braun¹, ¹ Universität Ulm/D
- P 35 **Liposomes to promote the pharmacological effect of nimodipine in the central nervous system**
L. Moreno¹; J. Irache¹; R. Freitas²; N. Santos-Magalhães³, ¹ University of Navarra, Pamplona/E; ² Federal University of Piauí, Teresina/BR; ³ Federal University of Pernambuco, Recife/BR
- P 36 **Proteomics study to identify blood-brain barrier selective cell surface proteins**
J. Li¹, ¹ University of Oxford, oxford/UK
- P 37 **Differentiation of human multipotent and pluripotent stem cells to develop a human 3D in vitro blood brain barrier model**
A. Appelt-Menzel¹; H. Walles¹; M. Metzger¹, ¹ University Hospital Würzburg/D

- P 38 **Novel lysosomal therapeutic based on nanotechnology for Parkinson disease**
 F. Novio¹; D. Martínez-Pérez²; J. García-Pardo³; J. Lorenzo³; M. Martínez-Vicente⁴; D. Ruiz-Molina²
¹ Institut Català de Nanociència i Nanotecnologia/Consejo Superior de Investigaciones Científicas (ICN2-CSIC), Cerdanyola del Vallés/E; ² Institut Català de Nanociència i Nanotecnologia/Consejo Superior de Investigaciones Científicas (ICN2-CSIC), Bellaterra, Barcelona/E; ³ Institut de Biotecnologia i Biomedicina (IBB) / Universitat Autònoma de Barcelona, Bellaterra, Barcelona/E; ⁴ Vall d'Hebron Institut of Research, Hospital Universitari Vall d'Hebron, Barcelona/E
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- P 39 **Method development for the quantification and safety evaluation of Nanoparticles for cerebral drug delivery in a microfluidic Blood Barrier System**
 E. Haltner¹; T. Schotten²; K. Werner²; R. Hauser¹; D. Becher¹; Y. Meiser¹; M. Sacha¹, ¹ Across Barriers GmbH, Saarbrücken/D; ² CAN GmbH, Hamburg/D
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- P 40 **Multifunctional nanoparticles for medical diagnostics**
 S. Dembski¹; R. Mladenow²; T. Thepen²; H. Meine³; S. Kurdyn⁴; H. Walles⁵, ¹ Fraunhofer Institute for Silicate Research ISC, Würzburg/D; ² Fraunhofer Institute for Molecular Biology and Applied Ecology IME, Aachen/D; ³ Fraunhofer Institute for Medical Image Computing MEVIS, Bremen/D; ⁴ Department Tissue Engineering and Regenerative Medicine (TERM), University Hospital Würzburg/D; ⁵ University Hospital Würzburg/D
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- P 41 **Silica-based nanomaterials for biomedical imaging: synthesis, characterization and in vivo biodistribution**
L. Kramer¹; G. Winter²; B. Baur²; B. Witulla²; C. Solbach²; A. Beer²; M. Lindén¹, ¹ Ulm University, Ulm/D; ² University Hospital Ulm/D
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- P 42 **SPECT/CT radiolabeling of compounds and in vivo sStudies**
M. Antopolsky¹, ¹ University of Helsinki/FIN
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K. Mäder¹, ¹ Martin-Luther-University Halle-Wittenberg, Halle (Saale)/D
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- P 44 **Intestinal in vitro model for oral vaccination testing**
 C. Lotz¹; M. Schweinlin¹; H. Walles¹; M. Metzger², ¹ University Hospital of Würzburg, Department for Tissue Engineering & Regenerative Medicine, Würzburg/D; ² University Hospital Würzburg/D
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- P 45 **Outer membrane vesicles from enterotoxigenic Escherichia coli containing polymer nanoparticles activate splenocytes in a Th1 bias**
 J. Matías¹, J.M. Irache¹, P. Sabaeifard¹, S. Cenoz¹, I. Pérez-Guzmán¹, C. Gamazo¹, ¹ Departments of Pharmacy and Pharmaceutical Technology and Microbiology, IdiSNA, University of Navarra, Pamplona/E; Blue Agro Bioscience and Agropecuario Obanos/E
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- P 46 **A lipid based system for the oral delivery of macromolecules**
G. Fricker¹; J. Parmentier¹; S. Pantze¹, ¹ Ruprecht-Karls University, Heidelberg/D

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