



GAZETTE

13th PBP World Meeting

Abstract submissions

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Info day 17th May

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Info day 31st May

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Hot Topic Day 29th November

(see page 13)

13th World Meeting on Pharmaceuticals, Biopharmaceutics and Pharmaceutical Technologies

**In person meeting Rotterdam
28-31 March 2022**

Abstract submissions (posters) until **14th March**



- ♦ **Information Day « TiO₂ in 2022: Challenges and opportunities » - 17th May, Paris**
- ♦ **Information Day « Parenteral drug delivery: Excipients, Manufacturing and Innovative Formulations » - 31st May, Paris**
- ♦ **Hot Topic Day « Local Controlled Drug Delivery »
29th November, Lille**



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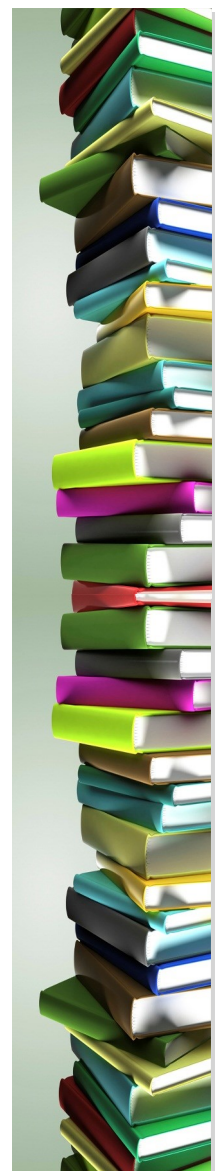
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Editorial



Dear Colleagues,

We are very happy to confirm that the upcoming 13th World Meeting on Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology will be held as an “in-person” event in Rotterdam (as foreseen) from 28th-31st March 2022.

This will be the largest onsite conference in our field in Europe since 2 years. Together with our German and Italian friends (the APV and ADRITELF), we decided not to postpone the congress, nor to organize it as an online event. This is because we are convinced that interactions are much more intense and fruitful during an onsite event: We are all humans.

In the same spirit, we are very much looking forward to our other in-person events this year, namely:

The APGI Information Day “TiO₂ in 2022: Challenges and opportunities”, jointly organized with COLORCON and LONZA in Paris on 17th May

The APGI Information Day “Parenteral Drug Delivery: Excipients, Manufacturing and Innovative Formulations”, jointly organized with EVONIK in Paris on 31st May

The Hot Topic Day “Local Controlled Drug Delivery” jointly organized with the Interreg Site Drug project in Lille on 29th November

Let’s cross fingers that 2022 will be the beginning of the transition to an again “normal” life.

We are very much looking forward to meeting you again in person in Rotterdam, Paris or Lille!

Prof. Juergen Siepmann
President of APGI

A handwritten signature in blue ink, which appears to read 'Juergen Siepmann'.

International Conference

13th World Meeting on Pharmaceuticals, Biopharmaceutics and Pharmaceutical Technologies In person in Rotterdam, 28-31 March 2022



We are very happy to announce that the 13th World Meeting on Pharmaceuticals, Biopharmaceutics and Pharmaceutical Technology will again be held **in person**: Right in the heart of Europe in Rotterdam, The Netherlands.

Together with our German and Italian friends (the APV and ADRITELF) we took the decision not to postpone the congress, and not to organize it as an online event (as we were forced to in the case of the 12th World Meeting on Pharmaceuticals, Biopharmaceutics and Pharmaceutical Technology last year). This decision was not easy to take, but we are confident that the conference will be a success, allowing us to meet again face-to-face.

All requirements related to the Covid pandemic (including those of The Netherlands, the city of Rotterdam and the conference center) will be respected and fully implemented. A hygienic concept according to the applicable legislation will be in operation. The conference center is also well experienced with the organization of major events even under pandemic conditions, for example the European Song Contest was held at the Ahoy Conference Center in 2021 in person.

Please have a look at the Meeting's website (<https://www.worldmeeting.org>) for relevant links to official websites explaining the current regulations. As we all learned in the past 2 years, they are susceptible to change.

International Conferences

Given the fact that the deadline for abstract submission was during a period with raising Covid infection numbers all over Europe, we also decided to **re-open the abstract submission website**:

<https://www.worldmeeting.org/home/abstract-submission>.

You are welcome to submit new abstracts on latest research findings in our field **until 14th March**. Please note that all short talks have already been identified, so new abstracts will only be considered for poster presentations. Also, for technical reasons, the newly submitted abstracts will not be included in the abstract book (which must be finalized well in advance of the meeting). You will receive rapid feedback on your submission, at the very latest on 21st March (for abstracts submitted close to the deadline).

We have an exciting scientific programme over 3.5 days:

Monday, 28 March 2022		
13:00 – 13:45	Opening Ceremony	Exhibition
13:45 – 14:45	Key note lecture	
14:45 – 15:30	Coffee break	
15:30 – 17:30	Hot topic lectures	
17:30 – 19:00	Welcome Reception	

Tuesday, 29 March 2022		
09:00 – 11:00	Invited talks	Exhibition
11:00 – 11:30	Short talks	
11:30 – 12:00	Coffee break	
12:00 – 13:00	Award session	
13:00 – 15:00	Plenary lecture	
15:00 – 17:00	Lunch break	
17:00 – 18:00	Invited talks	

Wednesday, 30 March 2022		
09:00 – 11:00	Invited talks	Exhibition
11:00 – 11:30	Short talks	
11:30 – 12:00	Coffee break	
12:00 – 13:00	Award session	
13:00 – 15:00	Plenary lecture	
15:00 – 17:00	Lunch break	
17:00 – 18:00	Invited talks	

Thursday, 31 March 2022		
09:00 – 11:00	Invited talks	Exhibition
11:00 – 11:30	Short talks	
11:30 – 12:00	Coffee break	
12:00 – 13:00	Award session	
13:00 – 15:00	Plenary lecture	
15:00 – 17:00	Lunch	
17:00 – 18:00	Invited talks	

The meeting starts on Monday 28th March at 13:00 with the opening ceremony. Prof. Jean-Christophe Leroux (ETH Zuerich) will give the opening lecture entitled “From drug delivery to drug discovery – Going backward on 25 years of pharmaceutical research”.

International Conferences

In the afternoon, 3 invited plenary lectures will be given by:

Roel Schaapveld, CEO at InterNA, Nijmegen, The Netherlands: Small RNA delivery at clinical stage
 Andreas Zimmer, University of Graz, Austria: Formulation approaches of RNA drugs
 Abdul Basit, University College London, London, UK: Digital health and 3D printing of medicines

From Tuesday to Thursday, 4 parallel oral sessions will be offered:

- 2 sessions with invited talks (40 min), giving comprehensive overviews on the current states in the art in various fields of research, and
- 2 sessions with short talks (20 min), selected from submitted abstracts, on latest research findings.

In addition, all day long, an industrial exhibition will be held and hundreds of posters will be presented. During the lunch breaks, the presenting authors will be available for personal discussions.



13th World Meeting on Pharmaceuticals, Biopharmaceutics and Pharmaceutical Technology

Rotterdam

The Netherlands, 28 - 31 March 2022

ResearchPharm[®]
 International Exhibition for R&D

reserved
 booked

Furthermore, a plenary lecture will be given every day.

International Conferences

Invited lectures of the conference include:

- Carmen Arigita, Janssen Pharmaceuticals, Leiden, The Netherlands: Covid vaccines: strategies for acceleration of drug product development
- Paolo Arosio, ETH Zurich, Switzerland: Microfluidic technology and machine learning approaches for the development of biopharmaceutical products
- David Brayden, University College Dublin, Ireland: Oral delivery of peptides: from permeation enhancers to devices
- St  phanie Brian  on, University of Lyon, France: Nanoformulations for oral delivery: Process point of view
- Patrick Courtney, leader EU Working Group on Analytical Laboratory Robotics, Switzerland: Lab Automation & Robotics
- Elias Fattal, University of Paris-Saclay, France: Lipid and dendrimer-based nanomedicine for nucleic acid delivery
- Ren   Holm, University of Southern Denmark, Odense, Denmark: In vitro dissolution conditions
- Elisabeth Kersten, Bayer, Wuppertal, Germany: New development strategies for oral application of nano-milled drugs
- Karsten Lindhardt, Biograin, Hedehusene, Denmark: BIONDDtm: Capsule for Oral Delivery of Biologics
- Francesca Mastrotto, University of Padova, Italy: Formulation aspects: polymers
- Olivia Merkel, Ludwig Maximilians University, Munich, Germany: title tbd
- Randall Mrsny, University of Bath, United Kingdom: Receptor-mediated transport for oral delivery of Biologics
- Derek O'Hagan, GlaxoSmithKline, United States: Designing and building the next generation of vaccine adjuvants
- Christoph Peter, BioNTech, Mainz, Germany: Quality assurance in vaccine manufacturing
- Jo  l Richard, MedinCell, Jacou, France: Challenges for the Delivery of Fragile Molecules: Focus on Injectable Formulations From An industrial Perspective
- Raymond M. Schiffelers, University Medical Center, Utrecht, The Netherlands: Natural vs synthetic lipid nanoparticles for the delivery of RNA
- Rok Sibanc, Bayer, Wuppertal, Germany: Digitalisation of pharmaceutical processes
- Florence and Juergen Siepmann, University of Lille, France: Drug delivery to the inner ear and periodontal pocket
- Jaap Wieling, Biosana Pharma, Leiden, The Netherlands: Accelerated and cost-effective biosimilar introduction with an innovative manufacturing process and lean non-clinical and clinical development
- Robert O. (Bill) Williams III, University of Texas at Austin, USA: Formulating poorly water soluble drugs - are we there yet?



International Conferences

It is our great pleasure to announce our next



"Skin and Formulation, 6th Symposium"

Current challenges in skin formulation

Save the date, 2-3 October 2023

Nantes, France



*La Cité Nantes
Congress Centre*

With more than 100 national and international destinations with direct flights, Nantes is the perfect city to live astonishing meetings between medieval sites, industrial heritage and imaginary worlds.

The 6th Symposium programme will treat advances in topical formulations for improved skin delivery and will focus on solutions to today's economic, social and environmental challenges. Programme includes the following main topics:



- **Skin pathologies and product needs.** Skin diseases and their complications are a significant burden worldwide, both in terms of acute and chronic morbidities and their related expenditures for care. Orphan skin pathologies or neglected tropical diseases of the skin require the development of new products which will be discussed during this symposium.

- **Preservation.** The drastic limitation of permitted preservatives over the years imposes to develop innovative strategies in terms of formulation, administration devices and/or packaging. One goal of the congress is to share solutions against this critical problem.



- **New directions in skin formulation.** Formulation of skin products is a constantly evolving field, particularly in response to regulatory changes. Besides the conventional aspects of stability or efficient delivery of active ingredients, controversial substances, microplastics or volatile compounds significantly change the formulation habits and the evaluation methods. This will be the common thread of the "Skin and Formulation 6th Symposium".

There will be a mixture of plenary invited lectures and short communications selected from the abstracts received from young researchers in order to have more than 25 podium presentations.

Suppliers will again be invited to display their latest technologies.

Please check www.apgi.org for up-dated information: programme, abstract submission and sponsorship/exhibition package. We are all looking forward to meeting you in the beautiful city of Nantes.

Contact:

APGI (International Society of Drug Delivery and Pharmaceutical Technology)
Faculté de Pharmacie, 3 rue du Professeur Laguesse, 59000 Lille
Tel. +33 (0)6 14 27 45 01
E-mail : apgi@apgi.org, www.apgi.org

Information Day

Info Day APGI/Colorcon/Lonza “TiO₂: Challenges and opportunities” 17th May 2022, Paris



Info day

Save the Date



In Paris, France
May 17, 2022

TiO₂: Challenges and opportunities

You are working in industries or academia and you are wondering **how to react to a withdrawal of titanium dioxide from pharmaceutical products?**



This one day-event...

- Will clarify the current situation with pharmaceutical regulations
- Will be an excellent opportunity to find answers and to exchange with participants from private and public institutions
- Will allow you to learn about novel excipients, new formulations and manufacturing approaches
- Will gather international experts from industry and academia who will illustrate the latest developments in the pharmaceutical drug delivery space



Lonza

Please check www.apgi.org for up-dated information: programme, registration...

Contact: APGI (International Society of Drug Delivery and Pharmaceutical Technology)
Faculté de Pharmacie, 3 rue du Professeur Laguesse, 59000 Lille
Tel. +33 (0)6 14 27 45 01
Email: apgi@apgi.org, www.apgi.org

Information Day



Info day

Save the Date



Lonza

TiO₂: Challenges and opportunities

8:30–9:00	Welcome coffee
9:00–9:20	Information on partners and day
9:20–10:00	Background of TiO₂ ban in food in Europe and current situation elsewhere Kevin Hughes, Colorcon (Regulatory Manager EMEA) Bram Baert, Lonza
10:00–10:40	Challenges of formulation without TiO₂ and learning from the 3 past years Frederick Mahieu, Colorcon (Area Technical Manager–France, Benelux, Holland & Switzerland)
10:40–11:00	Coffee break
11:00–11:50	Capsules R&D Process (tbc) Ljiljana Palangetic, Lonza
11:50–12:30	Capsules – Solutions (tbc) Julien Lamps, Lonza (Associate Director, Global Product Manager)
12:30–13:40	Lunch
13:40–14:20	TiO₂ free film coating of tablets: an example of ongoing development at Sanofi (tbc) Marléne Villani, Sanofi Rachel Vogel, Sanofi
14:20–15:00	From Calcium Carbonate to Mineral free coatings: Innovation in TiO₂ free coatings Jason Teckoe, Colorcon (Technical Director EMEA)
15:00–15:30	Coffee break
15:30–16:10	Learnings from the nutraceutical market, tbc
16:10–16:50	TBC
16:50–17:00	Closing remarks

Registration fees

Free of charge for APGI members

For non-members, fees are: Industrial 195€, Academic 80€, Students 25€ (+ 20% French VAT), and with this you become APGI member for 2022 (and you can assist free of charge to other info days and have reduction to the PBP World meeting)

Registration is open

Venue

Pan Piper, 2-4 Impasse Lamier,
75011 Paris

Hotels

Please contact apgi@apgi.org
for special rates

Please check www.apgi.org for up-dated
information: programme, registration...

Contact: APGI (International Society
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Information Day

Info day - APCI/EVONIK

“Parenteral Drug Delivery—Excipients, Manufacturing and Innovative Formulations”

31st May , Paris

Save the date : INFORMATION DAY

Parenteral drug delivery:

Excipients,
Manufacturing &
Innovative
Formulations

May 31, 2022 – Paris, France



www.apci.org

A new APCI-Evonik Information Day will take place on 31 May 2022 in Paris! This year we will focus on parenteral drug delivery including excipients, manufacturing, and innovative formulations. You will learn about novel excipients – both polymers and lipids – that can be used for the delivery of nucleic acids. We will also discuss the design of drug delivery systems such as for in situ ocular implants or intravenously injected nanoparticles. We will end the day with presentations about new manufacturing technologies for liposomes and polymeric nanoparticles. With a mix of speakers from academia and industry, we look forward to highlighting and discussing the latest developments in the field of parenteral drug delivery.

This workshop follows last year’s successful online Information Day on functional solid oral dosage forms.



This event will be an excellent opportunity for lab managers and scientists from formulation development, process optimization, scale-up and production from private and public institutions to learn about enabling formulation approaches and advantageous manufacturing setups.

During this day, you will have a chance to learn particularly about:

- novel excipients, both polymers and lipids, that can be used for the delivery of nucleic acids
- design considerations for drug delivery systems, such as in situ ocular implants or intravenously injected nanoparticles, among others
- new manufacturing technologies for liposomes and polymeric nanoparticles.



Information Day

International experts and guest speakers from industry and academia will present relevant topics and industrial case studies and give insights into novel technologies. Attendees will be able to directly apply their learnings from this online seminar to their daily work.

- ◆ **08.30: Registration and Welcome Coffee**
- ◆ **09.00: Welcome & Introduction**, Dr. Susanne Muschert (Associate Professor) APGI, France, Marie-Laure Prost-Schaffner (Regional Manager France), Evonik Health Care, France
- ◆ **09.30: CARTs— a new vehicle for nucleic acid delivery with a unique controllable release mechanism**, Philipp Heller (Project Manager Innovation Management) Evonik Health Care, Germany
- ◆ **10.05: Innovative lipids and polymers for non viral delivery**, Dr. Malik Hellal (Senior Scientist Chemistry) Polyplus-transfection S.A., France
- ◆ 11.40: Coffee break
- ◆ **11.10: Collagen-based mRNA-containing biomaterials for tissue regeneration**, Prof. Dr. Roland Brock (Professor for Biochemistry) Radboud University Medical Center, Nijmegen, Netherlands
- ◆ **11.45: Physical chemistry of liposomes and their cousins - a journey to the large family of multicompartmental lipid nanoassemblies**, Dr. Vincent Faivre (Associate Professor of Pharmaceutical Technology) University of Paris-Saclay, France
- ◆ **12.20: Design considerations or polymeric drug delivery systems**, Dr. Andrea Engel (Head of Drug Delivery) Evonik Health Care, USA
- ◆ 12.55: Lunch break
- ◆ **14.25: In-situ forming implants for intraocular dexamethasone drug delivery**, Dr. Corinna Bode (Head of Dissolution Testing Laboratory) Bayer, Germany
- ◆ **15.00: Lipid nanoparticles for RNA delivery**, Prof. Dr. Elias Fattal (Professor in Drug Delivery Science) University of Paris-Saclay, France
- ◆ 15.35: Coffee break
- ◆ **16.10: Industrial scale manufacturing of PLGA-based nanomedicines suitable for continuous operation**, Camilla Operti (Project Manager Innovation Management) Evonik Health Care, Germany
- ◆ **16.45: LIPEX®Flow – next generation liposomal extruders**, David Jung (Senior Manager RD&I) Evonik Health Care, Canada

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Academic 80€

Students 25€

(+20% French VAT), and with this you become APGI member for 2022 and you can assist free of charge to other Info Days and have reduction for the PBP World Meeting

Registration is open

<https://www.apgi.org/agenda/info-day-parenteral-drug-delivery-excipients-manufacturing-and-innovative-formulations/>

Venue

Pan Piper, 2-4 Impasse Lamier,
75011 Paris

Hôtels

Please contact apgi@apgi.org for special rates

Hot Topic Day

Hot Topic Day “Local Controlled Drug Delivery” 29th November 2022, Lille



The APGI and the Interreg 2 Seas project “Site Drug: Site-Specific Drug delivery” (www.site-drug.org) are jointly organizing a “Hot Topic Day” dedicated to a highly challenging field of research and development: Local Controlled Drug Delivery.

The large majority of drug products available on the market deliver the drug in a non-targeted manner into the human body: The drug is circulated via the blood throughout the entire organism. Parts of it reach the target site (e.g., a specific organ). However, the large majority of the administered drug dose is distributed within the rest of the body. Importantly, this drug is not only “lost” for the treatment, it is often harmful for the patient, causing potentially severe side effects. The latter have 3 major consequences, they:

- 1) constitute a major health burden for the patient (e.g. causing nausea, headache, cardiovascular complications)
- 2) can limit the drug dose that can be given to the patient, leading to non-optimal therapeutic effects (the drug amount reaching the target site cannot be further increased)
- 3) cause considerable costs for the health care systems (e.g., due to the treatment of side effects, prolonged hospitalisation times and sub-optimal treatments).

The aim of the “Site Drug” project is to develop innovative drug products, which are able to control the resulting drug distribution in the patient’s body: The drug amount at the site of action is optimized, and the amount that is “lost” into the rest of the human body is minimized. This is achieved by “site-specific delivery systems”, which release the drug at a controlled rate at the site of action. Thus, the therapeutic efficacy are improved & undesired side effects reduced. This will help reducing the current cost burden on our healthcare systems due to adverse drug effects. In addition, a novel in vitro characterization method facilitating the development of “colon targeting systems” is developed: An improved in vitro test method for more realistic drug release measurements in the gastro intestinal tract. In particular the conditions encountered in the stomach, small intestine and colon in healthy subjects as well as patients is simulated. This new in vitro drug release method is also highly valuable for adequate quality control during production of advanced colon targeting systems.

Hot Topic Day

A highly interdisciplinary and complementary consortium of 10 academic and industrial partners in France, Belgium, The Netherlands and the UK is jointly working on this project: Delft University of Technology (Prof. Zadpoor); Ghent University (Prof. Vervaet); Lattice Medical (Dr. Payen); Leiden University (Prof. Bussmann); Lille University Hospital (Mrs. Leal); Prodigest (Dr. Marzorati); Technological Transfer Office North of France (M. Beitone); University College London (Prof. Basit); University of Cambridge (Prof. Zeitler); University of Lille (Prof. Siepmann). In addition, observer partners follow the outcome of the project and interact with the project partners: Addenbrooke's Hospital, Covestro, Dr. Reddy's, Eurasanté, FabRx, Intract Pharma, Janssen Pharmaceuticals, Medtronic, Oticon Medical, Pfizer, PKMed, the Queen Elizabeth The Queen Mother Hospital, and Vesale Pharma. The project started on 1st January 2020 and will end on 31st March 2023. For more detailed information, please visit the project's website at: www.site-drug.org.



A large variety of theoretical and experimental techniques are applied for the preparation and in-depth characterization of the novel pharmaceutical dosage forms *in silico*, *in vitro* and *in vivo*. This includes compression, film coating (fluid bed and drum), hot melt extrusion, 3D printing, injection molding, extrusion & spheronization, spray drying, *in vitro* drug release measurements under conditions simulating the environment encountered *in vivo* (e.g. in the inner ear, stomach, small intestine, colon of patients suffering from Crohn's disease, peritoneal cavity, tissue surrounding breast), terahertz and magnetic resonance techniques, scanning electron microscopy, X-ray diffraction, dielectric spectroscopy, differential scanning calorimetry, Raman spectroscopy, *in vivo* tests in gerbils (inner ear), rats (Crohn's disease) and zebra fish as well as mathematical modeling using mechanistically realistic theories, considering for example water diffusion, drug dissolution, polymer swelling and degradation, drug diffusion, crack formation in film coatings and polymer dissolution.

Hot Topic Day

9:00-9:10: Welcome

Parenteral Local Controlled Drug Delivery

9:10-9:45 **A new understanding of drug release from PLGA based drug delivery systems**

Prof. Juergen Siepmann, University of Lille, France

9:45-10:20 **Local periodontitis treatments formulation strategies and clinical aspects**

Prof. Florence Siepmann and Dr. Kevimy Agossa, University of Lille, France

10:20-10:50: Coffee break

Oral Local Controlled Drug Delivery

10:50-11:25 **Colon targeting: Opportunities and pitfalls**

Prof. Abdul Basit, University College London, United Kingdom

11:25-12:00 **Advanced in vitro release testing along the gastrointestinal tract**

Dr. Frédéric Moens, ProDigest, Belgium

12:00-13:30: Lunch break

Advanced Characterization Methods in vitro and in vivo

13:30-14:05 **Cutting edge characterization techniques for local drug delivery systems**

Prof. Axel Zeitler, University of Cambridge, United Kingdom

14:05-14:40 **Zebra fish: An interesting in vivo model for drug product development**

Prof. Jeroen Bussman, University of Leiden, The Netherlands

14:40-15:10 Coffee break

Manufacturing of Local Drug Delivery Systems

15:10-15:45 **The potential of 3D Printing for local controlled drug delivery**

Dr. Alvaro Goyanes, FabRx, London, United Kingdom

15:45-16:20 **An Engineering perspective of 3D printing of local drug delivery systems**

Dr. Julian Apachitei, University of Delft, The Netherlands

16:20-16:55 **Towards continuous manufacturing local drug delivery systems**

Prof. Chris Vervaet, University of Ghent, Belgium

16:55-17:00 Closing

Interreg 
2 Seas Mers Zeeën
SITE DRUG

European Regional Development Fund

Please note that for technical reasons, the number of participants is limited to 170: The event will be held downtown, close to the railway stations "Gare Lille Europe" and "Gare Lille Flandres".

Lille can be easily reached by train (TGV and Eurostar: 30 min from Brussels, 50 min from Paris, 1.30 h from London), by plane (Lille Lesquin Airport, or Paris Charles de Gaulle Airport & 50 min by train, or Brussels International Airport & 2 x 30 min by train), as well as by car.

For registration and updates on the event, please have a look at:

<https://www.apgi.org/agenda/hot-topic-day-local-controlled-drug-delivery/>

We are very much looking forward to welcoming you in Lille!

APGI Awards

APGI Young Investigator Award 2022

The “Young Investigator Award” recognizes the most outstanding doctoral thesis in the field of Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology every year.

It is our great pleasure to announce the laureate of the APGI Young Investigator Award 2022:

Céline Jaudouin, University Paris-Saclay, France



The composition of the jury was as follows:

Prof. Géraldine Piel, University of Liege (President)

Dr. Frédéric Checot, Skyepharm

Dr. Simona Mura, University Paris-Saclay

Dr. Anne-Marie Pensé Lhéritier, EBI (Ecole de Biologie Industrielle) Cergy





APGI Awards

Abstract PhD thesis

Title: Characterization and evaluation of hybrid systems composed of hyaluronic acid and liposomes for the transtympanic administration of an antioxidant for cochlear implantation

Supervisors: Prof. Florence Agnely and Prof. Amélie Bochot (University Paris-Saclay)

Keywords: hyaluronic acid, liposomes, microstructure, N-acetyl-L-cysteine, otology, release studies

Abstract: Nowadays, patients suffering from deafness with residual hearing could benefit from cochlear implantation. However, the insertion of this device can damage cochlear structures and induce an oxidative stress harmful for sensory cells. To protect the inner ear from this trauma, this thesis describes the encapsulation of an antioxidant, N-acetyl-L-cysteine (NAC), in a formulation adapted for transtympanic injection. For this purpose, we developed hybrid systems composed of liposomes dispersed in a hyaluronic acid network. A physicochemical study of these systems by small-angle neutron scattering and of liposome release by Transwell® diffusion cell was performed. It showed the impact of liposome surface and size on the microstructure of these hybrid systems and on release mechanisms. Then, NAC encapsulation in liposomes was optimized to avoid its degradation in N,N'-diacetyl-L-cystine (DiNAC) and comply with transtympanic injection criteria. In guinea pigs, the liposomal gel allowed NAC release in the inner ear fluids for 15 days. Nevertheless, an unexpected ototoxicity was observed in both implanted and non-implanted animals. DiNAC was quantified in the inner ear in higher proportion than NAC. The production of glutathione and its oxidized form was not stimulated.

Award Ceremony

The laureate will be recognized during the APGI Award Ceremony at the 13th World Meeting on Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology, in Rotterdam on the 31st of March 2022

List of former awardees

2014: Amrit Paudel, University of Leuven
2015: Anne-Laure Laine, University of Angers
2016: Alice Gaudin, University Paris-Sud
2017: Stephan Stremersch, Ghent University
2018: Ranhua Xiong, Ghent University
2019: Karen Peynshaert, Ghent University
2020: Eline Teirlinck, Ghent University
2021: Luis Diaz Salmeron, University Paris-Saclay

Sponsor

The "APGI Young Investigator Award" is kindly sponsored by



APGI Awards

Maurice-Marie Janot Award 2022

Professor Jean-Christophe LEROUX at ETH Zurich receives the “**2022 Maurice-Marie Janot Award**”. This price recognizes an individual researcher, whose pioneering work has a groundbreaking impact in the fields of Pharmaceuticals, Biopharmaceutics and Pharmaceutical Technology.



Professor Jean-Christophe Leroux is a full professor of Drug Formulation and Delivery and head of the Institute of Pharmaceutical Sciences at the ETH Zurich, Switzerland. He has made important fundamental and applied contributions to the fields of biomaterials and drug delivery, and has been involved in the development of innovative bio-detoxification systems for the treatment of metabolite disorders. He is a fellow of the AAPS, EURASC and the CRS, and the co-founder of the start-up pharmaceutical companies Versantis AG and Inositec AG.

APGI Awards

Jury and selection procedure

The Jury is composed of 70 scientists from all over the world, who are known for their relevant contributions to the Pharmaceutical Sciences. Prof. Elias Fattal serves as president of the jury.

In a first round, each jury member nominates three individuals. This allows establishing a short list of five highest ranked candidates. In the second round, the laureate is selected by all jury members from this short list.

The Jury members base their nominations on the researchers' publications and other contributions available in literature, in particular considering their originality, creativity and impact in the field. The laureate's work can cover aspects from the basic sciences to applied pharmaceutical research, devoted to Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology. This includes for instance new drug delivery systems, dosage form manufacturing, strategies for bioavailability enhancement, process optimization & validation, process analytical technologies, new excipients, packaging and various other aspects.

No restrictions are made with respect to nationality, origin (industry, academia or regulatory) or specialization (pharmacy, chemical engineering or other fields) of the nominee.

Award Ceremony

The laureate will be recognized during the APGI Award Ceremony at the 13th World Meeting on Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology, in Rotterdam, on the 31st of March 2022.

List of the former Awardees:

1986 Stanley S. (Bob) Davis (UK)
1989 Joe. Robinson (USA)
1992 H. Sezaki (Japan)
1995 Dan J.A. Crommelin (The Netherlands)
1998 Francis Puisieux (France)
2000 Hans Junginger (The Netherlands)
2002 Thomas Kissel (Germany) 2004 Paolo Colombo (Italy)
2006 Alexander (Sandy) Florence (UK)
2008 Patrick Couvreur (France)
2010 Nicholas A. Peppas (USA)
2012 Robert Gurny (CH)
2014 Maria-José Alonso (Spain)
2016 Richard Guy (UK)
2018 Elias Fattal (France)
2020 Robert Langer (USA)

Sponsor

The Maurice-Marie Janot award is kindly sponsored by



Retrospective

12th World Meeting on Pharmaceuticals, Biopharmaceutics and Pharmaceutical Technology Exceptionally held online in May 2021

Due to the Covid pandemic and related restrictions, the 12th World Meeting on Pharmaceuticals, Biopharmaceutics and Pharmaceutical Technology and its accompanying exhibition ResearchPharm® had to be exceptionally held online on 11-14th May 2021.

The event platform Lounjee was used for this purpose (pbp.app.lounjee.com):



About **1000 participants** from **more than 50 countries** participated. As initially foreseen, the conference was held on 3.5 days. More than **140 oral presentations** (plenary lectures, invited talks, short talks selected from submitted abstracts and partner/exhibitor talks) were given and about **600 posters** presented.

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Five parallel oral sessions were offered during 3 days:

- **2 Live sessions with invited talks:** 30 min + 10 min discussion (right after the talk), giving comprehensive overviews on the current state of the art in large variety of fields, such as *3D Printing*, *What's new in nanotechnology?*, *Advanced therapeutic products*, *Solid dosage forms*, *Formulation issues for biotech drugs*, *Localized drug delivery*, *Amorphous drug delivery systems*.
- **2 Pre-recorded sessions with short talks:** 15 min each, on most recent research findings. These presentations were selected by the Programme Committee from the submitted abstracts. After two short talks, a combined 10 min **live question & answer session** allowed participants to interact with the speakers.
- **1 Session with pre-recorded talks from partners/exhibitors:** 20 min each, directly followed by 10 min **live discussion**. Please note that these talks did not undergo a review process. This extra session (which is usually not offered) was an attempt to compensate for the missing personal, face-to-face interactions during our onsite exhibition ResearchPharm®.

Retrospective

The overall programme structure was as follows:

Tuesday		Wednesday, Thursday, Friday				
		Session 1	Session 2	Session 3	Session 4	Partner session
Opening ceremony	LIVE	Invited talk	Invited talk	Short talk	Short talk	Exhibitor talk
Plenary lecture	LIVE	Invited talk	Invited talk	Short talk	Short talk	Exhibitor talk
Coffee break/poster view/exhibition		Invited talk	Invited talk	Short talk	Short talk	Exhibitor talk
Plenary lecture	LIVE	Invited talk	Invited talk	Short talk	Short talk	Exhibitor talk
Plenary lecture	LIVE					
Plenary lecture	LIVE					
		Coffee break/poster view/exhibition				
		Award session				
		Plenary lecture				
		Lunch break/poster view/exhibition				
		Invited talk	Invited talk	Short talk	Short talk	Exhibitor talk
		Invited talk	Invited talk	Short talk	Short talk	Exhibitor talk
		Invited talk	Invited talk	Short talk	Short talk	Exhibitor talk
		Invited talk	Invited talk	Short talk	Short talk	Exhibitor talk
		Invited talk	Invited talk	Short talk	Short talk	Exhibitor talk
		Invited talk	Invited talk	Short talk	Short talk	Exhibitor talk

Posters were presented on dedicated days and could be downloaded as pdf files, in many cases supplemented with a 2 min video prepared by the authors. Participants also had the possibility to “chat” live with the poster presenters.

The **virtual industrial exhibition** provided the chance to learn more about the latest developments, trends and products in the fields of pharmaceutical ingredients, processing equipment, analytical technologies, medicinal products, medical devices and contract manufacturing.

Particular highlights of the conference included the plenary lectures given by:

- David J. Mooney (Harvard School of Engineering and Applied Sciences) on *Engineering cancer immunotherapy*
- Patrick Couvreur (University of Paris-Saclay) on *Advances in nanotechnology*
- Christine Moissl-Eichinger (Medical University of Graz) on *Pharmacomicrobiomics: Drugs meet the human microbiome*
- Andrea Gazzaniga (University of Milano) on *Oral drug delivery systems: From irrelevance to top-selling products and ongoing challenges*.

All contributions (oral and poster presentations, “Question & Answer” sessions as well as virtual booths) remained accessible for the participants of the conference via the Lounjee platform until 30th June 2021. This also included all live sessions, which have been recorded during the meeting and made available in the online event platform.

Retrospective

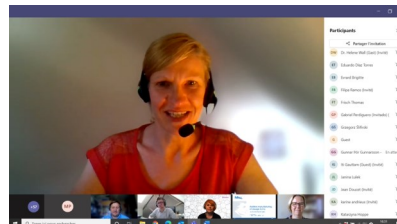
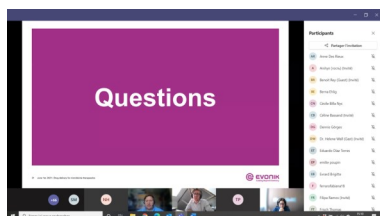
Info day - APCI/EVONIK

“Functional solid oral dosage forms” 1st June 2021

Highlights from last year's Information Day

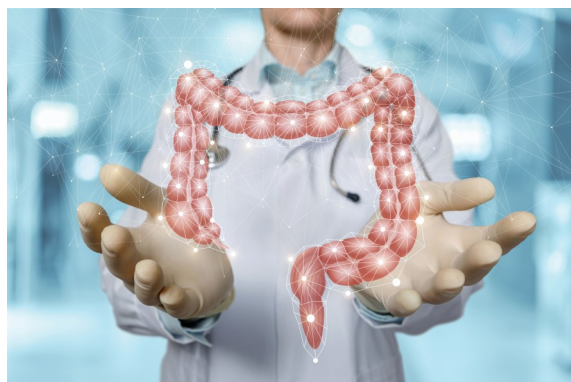


Drug products continue to become more specialized and personalized. However, APIs can be poorly soluble and exhibit poor permeability, short half-lives, or narrow therapeutic windows. Last June an **online Information Day** brought together **expert speakers from APCI and Evonik** as well as other industry leaders including Dober, GEA and academics from the Universities of Greifswald and Duesseldorf. More than **100 attendees** discussed **drug delivery challenges associated with oral solid dosage forms**. These included cutting-edge topics like drug delivery systems for solubility enhancement, microbiome therapeutics, and the 3D printing of dosage forms. The **feedback** from participants was overwhelmingly **positive**.



Retrospective

Hot Topic Day “Colon Targeting” 30th November 2021



The second “Hot Topic Day” of the APGI was held as an in-person meeting in Lille on 30th November 2021. Close to 100 participants joined the meeting.

The 1 day event gave an overview on the current state of the art in the field of colon targeting, including the latest clinical trials and novel delivery strategies with promising in vitro results and data obtained in animal studies.

The scientific programme was as follows:

- Dr. Frédéric Moens, ProDigest, Belgium
Advanced in vitro release testing for colon targeting
- Dr. Giustino di Pretoro, Janssen, Beerse, Belgium
Is the Dog a Suitable Model for Testing Oral Colonic Drug Delivery Systems?
- Dr. Laurent Dubuquoy, University of Lille, School of Medicine, France
Animal models for Inflammatory Bowel Diseases
- Dr. Vipul Yadav, Intract Pharma, London, UK
Oral Gut-Targeted Delivery of Antibodies and Fusion Proteins
- Prof. Abdul Basit, University College London, UK
To Hell and Back: Translating a Colon-targeted Drug Product from Academia to Clinical Practice
- Prof. Andrea Gazzaniga, University of Milano, Italy
Time-Controlled Formulation Strategies for Colon Targeting
- Prof. Juergen Siepmann, University of Lille, France
Colon Targeting: General Principles
- Prof. Werner Weitschies, University of Greifswald, Germany
Drug Delivery to the Colon: Insights from Imaging

The aim of “colon targeting” is to minimize drug release in the upper part of the gastro intestinal tract (stomach and small intestine), and to deliver the drug specifically to the colon. This type of formulations can be very helpful to:

- Improve the efficacy of local drug treatments of the colon, such as chronic inflammatory bowel diseases (e.g. Crohn’s disease and ulcerative colitis)
- Pave the way for a holy grail in our field: The oral delivery of biopharmaceuticals for systemic action.

Retrospective

A variety of strategies has been proposed to allow for colon targeting, including:

- Dosage forms with polymeric coatings exhibiting pH dependent solubility
- Formulations which are preferentially degraded by enzymes secreted by bacteria present in the colon
- “Time-controlled” devices, which release the drug after a pre-programmed lag-time (e.g., due to the rupturing of an outer film coating).

A large spectrum of excipients and manufacturing techniques has been suggested with more or less promising results in vitro and in vivo. Yet, the variability of drug release at the target site remains high, and numerous technical and biological challenges remain to be addressed and overcome. The role of the human microbiome is still not fully understood and premature drug release in the upper gastro intestinal tract is often not sufficiently controlled.





Agenda



APGI events

- **13th Word Meeting on Pharmaceuticals, Biopharmaceutics, and Pharmaceutical Technology**
28-31 March 2022, Rotterdam, The Netherlands
- **Information Day “TiO₂: Challenges and opportunities” jointly organized with COLORCON and LONZA**
17 May 2022, Paris, France
- **Information Day “Parenteral drug delivery: Excipients, Manufacturing and Innovative Formulations” jointly organized with EVONIK**
31 May 2022, Paris, France
- **Hot Topic Day “Local controlled drug delivery”**
29 November 2022, Lille, France
- **Skin & Formulation, 6th Symposium - Current challenges in skin formulation**
2- 3 October 2023, Nantes, France

Miscellaneous

Become member!



Start your membership today and benefit from free Information Days, significant discounts on scientific congresses and symposia, and networking with individuals sharing the same passion about Pharmaceutical Technologies.

The indicated prices are for one civil year (from 1st January till 31st December)

- student: 25 € + VAT 20% = 30 €
- academic: 80 € + VAT 20% = 96 €
- industrial: 195 € + VAT 20% = 234 €
- retirees: 25€ + VAT20% = 30 €



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