GAZETTE

APGI PROGRAMME FOR 2025

- **5th European Conference on Pharmaceutics « Ready for the future: innovative dosage forms and advanced technologies for modern therapeutics »**
  24-25 March 2025, Porto

- **Info Day « Pharmaceutical Industry and Nitrosamines: from Risk Assessments to Control Strategies »**
  15 May 2025, Paris

- **5th Conference on Innovation in Drug Delivery « Multidisciplinary approaches for precision medicine »**
  1-3 October 2025, Turin

February 2025
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Editorial

Dear Colleagues,

With the *14th World Meeting on Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology*, which was held in Vienna last year, and the upcoming ***5th European Conference on Pharmaceutics*** to be held in Porto next month (24-25 March 2025), we are back to pre-Covid participation levels: About 1,300 participants joined the World Meeting in Vienna and more than 600 scientists from all over the world are expected in Porto at the European Conference.

This is very important, because video conferences cannot replace **in-person** meetings, which are much richer.

We intentionally keep the *physical* poster presentations at our conferences, because they allow for very convenient and highly efficient face-to-face exchanges with the authors.

Please note that, to increase the chances of success to give a short talk at the 5th European Conference on Pharmaceutics, the duration of the presentation will (again) be limited to 7 min (+2 min discussion). This concept was introduced during our last meeting of this series in Marseille (2023) and was overall very much appreciated.

Together with our Italian friends (the Sitelf, former Adritelf), we will be happy to organize the **5th Conference on Innovation in Drug Delivery** on 1-3 October 2025 in Turin. Specific emphasis will be placed on "Multidisciplinary approaches for precision medicine". This conference has a very particular, pleasant atmosphere.

In 2025, we will also organize an **Information Day** on a particularly hot topic: ***"Pharmaceutical Industry and Nitrosamines: From Risk Assessments to Control Strategies"*** on 15th May 2025 in Paris.

We are very much looking forward to meeting you again in person at these events!

Prof. Juergen Siepmann
President of APGI

5th European Conference on Pharmaceutics
Ready for the future: innovative dosage forms and advanced technologies for modern therapeutics
24-25 March 2025, Porto - Portugal

The 5th European Conference on Pharmaceutics will be organized in Porto, on 24-25 March 2025, with a specific emphasis on "Innovative dosage forms and advanced technologies for modern therapeutics". However, as in the past all fields in Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology will be covered.

With a new record in terms of numbers of submitted abstracts (465), also a new record number of participants is expected (more than 600 participants). As in the past, one third of them will likely come from industry, one third from academia, and one third will be young scientists (e.g., PhD students and post-docs).

The aim of the conference is to help bridging the gap between fundamental academic research and industrial applications, offering the opportunity to initiate fruitful exchange and cooperation between university and industry. Worldwide leading experts in the field will give plenary lectures and invited talks on hot topics. In addition, new research findings will be presented in the form of short talks, selected from submitted abstracts. Please note that the presentation time (7min + 2 minutes discussion) will be intentionally short, to allow for a maximum number of presentations (the majority of requests for oral short talks must be declined, due to the limited number of available slots). Furthermore, poster presentations will give the opportunity to get an update on the most recent discoveries in pharmaceutics and to personally exchange with the authors.

An industrial exhibition will accompany the conference and allow learning about the current trends and newest products in the areas of pharmaceutical ingredients, analytical technologies, equipment, medicinal products, medical devices, contract manufacturing and many other fields.

This conference is organized by :

apgi

APV MAKING SCIENCE WORK

SITELF Società Italiana di Tecnologia e Legislazione Farmaceutiche

International Conferences

PROGRAMME

Programme

Monday, 24 March 2025

09:00 – 09:30	opening session		exhibition
09:30 – 10:30	plenary lecture		
10:30 – 11:00	coffee break		
11:00 – 13:00	short talks	invited talks	
13:00 – 15:00	lunch		
15:00 – 17:00	short talks	invited talks	
17:00 – 19:00	welcome reception		

09:00 Opening ceremony

Plenary lecture

09:30 **A drug product in the GUT: an uncertain journey?**
Werner Weitschies, University of Greifswald, Germany

10:30 Coffee/exhibition/posters

Invited talks: Challenges and innovation in oral drug delivery

11:00 **Harnessing the potential of Room Temperature Ionic Liquids (RTILs) for oral solid dosage forms of poorly soluble drugs**
Anne Marie Healy, Trinity College Dublin, Ireland

11:40 **New insights into the disintegration mechanism in uncoated and coated immediate release tablets**
Axel Zeitler, University of Cambridge, United Kingdom

12:20 **Selecting the correct grade of excipients for use in pharmaceutical drug products**
Kevin Hughes, Colorcon and IPEC Europe, United Kingdom

Short talks: Nanoparticles; siRNA delivery; Mucosal drug delivery

11:00 **Lipid Nanoparticles Decorated With A CD13 Ligand As A Novel Approach To Selectively Target The Tumor Vasculature**
Giulia Anderluzzi, University of Milan, Italy

11:10 **Comparative Analysis Of Soft And Hard Nanoparticles: A Multi-technique Approach To Explore Physicochemical Characteristics And In Vitro Behavior**
Eleonora D'Intino, Sapienza, University of Rome, Italy

11:20 **Highly Biocompatible Polyphosphoester-stabilized Cubosomes As A Strategy To Deliver A Novelly Synthesized Ru(II) Complex For The Photodynamic Therapy Of Lung Adenocarcinoma**
Luca Casula, University of Cagliari, Italy

11:30 **Targeted Nanodrugs For Inhaled Therapy Of Inflammatory Lung Diseases**
Eleonora Maretti, University of Modena and Reggio Emilia, Italy

11:40 **A DC-targeted Nano-vaccine To Overcome Immune Suppression And Enhance The SoC Efficacy For PDAC**
Ron Kleiner, Tel Aviv Univeristy, Israel

11:50 **Intranasal Self-Microemulsifying Drug Delivery System Improves Nestorone® Brain Delivery And Confers Neuroprotection**
Adriana O. Santos, University of Beira Interior, Portugal

12:00 **Peptide-directed Nanoemulsions**
Natasa Holler, University of Graz, Austria

12:10 **Pulmonary Delivery of siRNA Anti-TNFα-loaded Lipid Nanoparticles For Rapid Recovery In Murine Acute Lung Injury**
Elias Fattal, University Paris Saclay, France

12:20 **Modulating The Architecture Of Oligocationic Polymers Enables Efficient siRNA Delivery**
Joachim Arikibe, University of Padova, Italy

12:30 **Targeted Inulin-based Polycations For siRNA Delivery In Colon Cancer**
Carmela Mazzacano, University of Salerno, Italy

12:40 **Mucoadhesive Polymer-coated Liposomes As A Potential Strategy For The Treatment Of Aerobic Vaginitis**
Sara Lugli, University of Bologna, Italy

12:50 **Propranolol HCL-loaded Electrospun Mucoadhesive Films For Intranasal Delivery**
Konstantina Chachlioutaki, Aristotle University of Thessaloniki, Greece

13:00 Lunch/exhibition/posters

Invited talks: Delivery of biologics: From ATMP to oligonucleotides

15:00 **Formulation-driven DNA or mRNA delivery**
Nathalie Mignet, University of Paris-Descartes, France

15:40 **Next-generation delivery systems for mRNA accines**
Camilla Foged, University of Copenhagen, Denmark

16:20 **Antibody–drug conjugates: Next generation magic bullets**
Carl Deutsch, NBE Therapeutic, Germany

Short talks: Advanced drug delivery systems, Bioavailability enhancement

15:00 **Developing Innovative Cannabidiol Drug Delivery Systems For Therapeutical Use**
E. Socrates Tabosa do Egito, Federal University of Rio Grande do Norte - UFRN, Brazil

15:10 **3D-printed Polyurethane Vascular Stent-graft With Enhanced Antithrombotic Properties**
Kim Vanden Broeck, University of Lille, France

15:20 **Mechanochemical Induced Swelling-activation Of A Gastric-deployable 4D Printed Polypill Inspired By Natural Hygromorphic Actuators**
Christina Karavasili, Aristotle University of Thessaloniki, Greece

15:30 **Design And Evaluation Of Thermo-responsive Lipid-needle Patches For Enhanced Transdermal Delivery Of Lipophilic Drugs**
Matteo Tollemeto, Technical University of Denmark, Denmark

15:40 **A Multifunctional Mucoadhesive Patch For Enhanced Delivery Of Peptides**
Margarida Sacramento, University of Aveiro, Portugal

15:50 **The Application Of Therapeutic Deep Eutectic Systems (THEDES) Technology In The Manufacture Of Antibiotic-eluting Sutures For Enhanced Wound Recovery**
Shu Li, Queen's University Belfast, United Kingdom

16:00 **Patient-derived Melanoma Tumoroids For Cutaneous Melanoma Modelling And Screening Of Therapies**
Juliana Viegas, Institute for Research and Innovation in Health - i3s, Portugal

16:10 **Enhancing Lipid Formulations With Zwitterionic Surfactants: A Step Towards Superior Drug Delivery**
Antonio Lopalco, University of Bari Aldo Moro, Italy

16:20 **Bridging The Gap Between In Vitro And In Vivo Solubility-permeability Interplay**
Kohsaku Kawakami, National Institute for Materials Science, Japan

16:30 **Peptide Release From Minitablets In Biorelevant Media: Impact Of Permeation Enhancers**
Andrew Fagan, University College Cork, Ireland

16:40 **In Vitro-in Vivo Correlation Of Amorphous Solid Dispersion Enabled Itraconazole Tablets**
James Polli, University of Maryland, United States

16:50 **Preparation Of Indomethacin Nanoparticles By Wet Milling**
Stephane Scheele, Invite GmbH, Germany

17:00 Welcome reception

International Conferences

PROGRAMME

Tuesday, 25 March 2025

09:00 – 11:00	short talks	invited talks	exhibition
11:00 – 11:45	coffee break		
11:45 – 12:45	plenary lecture		
12:45 – 15:00	lunch		
15:00 – 17:00	short talks	invited talks	

Invited talks: Special administration routes – bio-pharmaceutical aspects and regulatory challenges

09:00 **Dry powders for lung delivery of biopharmaceuticals**
Ruggero Bettini, University of Parma, IT

09:40 **Long acting injectables**
Aldofo Lopez Noriega, MedinCell, FR

10:20 **Regulatory strategies for the development of inhaled, cutaneous and gastrointestinal locally acting generic products**
Alfredo García Arieta, Consultant for the WHO Prequalification Programme of Medicines, ES

Short talks: Pharmaceutical manufacturing; Physical pharmacy

09:00 **Optimizing Processes And Improving Quality In Tablet Compression And Encapsulation -- A New Way Of Supervised Machine Learning?**
Thomas Brinz, Syntegon Technology GmbH, Germany

09:10 **Elucidating Batch Heterogeneity During Freeze-Drying Using Infrared Thermography And Mechanistic Modeling**
Leif-Thore Deck, University of Cambridge, United Kingdom

09:20 **Combination Of A Pre-Emulsification Microsystem With A Premix Membrane Emulsification**
Daniel Jupke, Technical University Braunschweig, Germany

09:30 **Influence Of Filter Cleaning Frequency On The Residence Time Of Granules In Continuous Wet Granulation**
Alana Delvos, University of Düsseldorf, Germany

09:40 **Evaluation Of Different Fluid Bed Settings For Powder Coating Of Pellets With Ethylcellulose**
Matteo Cerea, Univeristy of Milan, Italy

09:50 **How To Configure The Performance In A Single Stage Continuous Melt Granulation With Planetary Roller Systems**
Jens Bartsch, Technical University Dortmund, Germany

10:00 **Fish Oil Alginate Microspheres Produced Via Novel Jetting Electrospray: Improving Stability, Antioxidant, Anti-cancer And Palatability**
Hazem Choukaife, University Sultan Zainal Abidin, Malaysia

10:10 **3D Printed Gastroretentive Dosage Forms For Timed Multidrug Release**
Jonas Adriaenssens, KU Leuven, Belgium

10:20 **Cyclodextrin-based Formulations For Delivering Broad-spectrum Nerve Agent Antidote To The BBB: Physicochemical Characterization, Application In A Human BBB Model And In Vivo Toxicity Study**
Léa Thiberville, University Paris Saclay, France

10:30 **Towards Amorphous Engineering: Can PolyAmorphs Be Stabilized By A Co-former Molecule?**
Inês C. B. Martins, University of Copenhagen, Denmark

10:40 **Physical Stability Of Ibuprofen-HPMCAS Solid Dispersion As Function Of Solvent Type**
Elzbieta Maria Gniazdowska, Riga Stradins University, Latvia

10:50 **Paving the way towards sustainable pharmaceuticals**
Mike Kleinert, University of Bergen, Norway

11:00 Coffee/exhibition/posters

Plenary lecture

11:45 **From Data to Drugs: Predictive and Generative AI in Pharma**
Finn Bauer, Croda Europe, UK

12:45 Lunch/exhibition/posters

Invited talks: Innovation in process development and manufacturing

15:00 **What's new in PAT?**
Johannes Khinast, Technical University Graz, AT

15:40 **Benefits of modeling and continuous manufacturing for drug product development, clinical supply and industrial transfer**
Sophie Martin, Sanofi, FR

16:20 **Electrospinning process in the biomedical and pharmaceutical fields**
Bice Conti, University of Pavia, IT

Short talks: Miscellaneous

15:00 **Novel pullulan/hyaluronic acid based hydrogel formulations for microneedle development**
Boyan Wang, Queen's University Belfast, United Kingdom

15:10 **Physicochemical Characterization And Pre-formulation Hydrogel Based On Sericin At Different Molecular Weights**
Maria Rosa Gigliobianco, University of G. d'Annunzio of Chieti and Pescara, Italy

15:20 **Bi-Gel: Revolutionizing Topical Experience With A Unique Structural Design**
Elise Dauphin-Chanard, Gattefosse SAS, France

15:30 **Development Of Extended-release Lipid Matrix Tablets Tailored For Paediatric Use**
Stefanie Broocks, University of Greifswald, Germany

15:40 **Lipid Nanocarriers For Therapy During Pregnancy**
Karine Andrieux, University Paris Cité, France

15:50 **Activity Evaluation Of A Memantine Prodrug Microemulsion In A Rat Model Of Tendinopathy**
Giulia Vanti, University of Florence, Italy

16:00 **Establishing And Characterizing A Physiologically Relevant 3D Gut-on-a-chip Model Based On Centrifugal Microfluidics**
Juliane F Christfort, Technical University of Denmark, Denmark

16:10 **A Simplified Method To Interpret Drug Release From Thin Polymeric Films By Drug Diffusivity Measurements**
Karin Korlec, University of Oslo, Norway

16:20 **Key Parameters For Nasal Dry Powders Performance Characterization**
Cláudia Costa, Hovione FarmaCiência, Portugal

16:30 **Optical Coherence Tomography In Thin Film Analysis: A Novel Approach To Characterizing Drug Delivery Systems**
Eleftheria Pantazoglou, Technical University of Denmark, Denmark

16:40 **Quantitative Nuclear Magnetic Resonance Spectroscopy For Excipient Profiling And Deformulation**
Isha Saraf, Research Centre for Pharmaceutical Engineering, Austria

16:50 **Automated In Silico Phase Diagram Prediction For Solid Dispersions**
Martin Hofsäss, BASF SE, Germany

17:00 End of the conference

Poster presentations
Posters will be presented during one specific day with special times for poster presentation during coffee and lunch breaks.

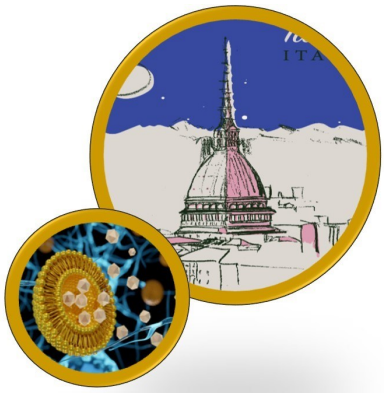
Join us and don't miss this chance to bridge the gap between academia and industry, share ideas, and build valuable connections!

Why should you attend?

- Network with 600+ participants from academia, industry, and research
- Discover cutting-edge advancements in pharmaceutics
- Engage with world-leading experts during plenary lectures and talks
- Explore exciting research findings through selected abstracts (as short talks and poster presentations)
- Learn about the latest trends at the industrial exhibition

Register: https://lnkd.in/e4jCYPQC

5th Conference on Innovation in Drug Delivery
Multidisciplinary approaches for precision medicine
1-3 October 2025, Turin - Italy



The Conference on Innovation in Drug Delivery, a collaborative effort with our esteemed Italian colleagues from SITELF, takes place every three to four years in alternating locations between France and Italy. This event serves as a platform to explore and review the various scientific interfaces involved in drug delivery, encompassing fields such as chemistry, physical chemistry, immunology, and pathophysiology. The conference features renowned scientists from around the globe, offering a unique opportunity for attendees to engage with leading experts in the field. In addition to keynote speeches and panel discussions, the event provides a platform for junior scientists to showcase their research through short talks, oral presentations, and poster sessions. This encourages the exchange of ideas and fosters networking among researchers. Moreover, the conference includes an industrial exhibition, highlighting the latest advancements and innovations from the pharmaceutical industry. This aspect not only enhances the learning experience for participants but also promotes collaboration between academia and industry, paving the way for future developments in drug delivery systems.

After a break of a few years (notably because of COVID), we are pleased to announce that the 5th edition will take place this year in the historic city of Turin, from October 1st to 3rd.

Invited speakers

Speakers	Titles
Prof. Maria-José Blanco-Prieto University of Navarra, Spain	Advanced therapies for cancer treatment and tissue generation
Prof. João Conde Nova University Lisbon, Portugal	Why going NANO on cancer healthcare and drug delivery?
Prof. Elena Del Favero University of Milan, Italy	Structural characterization of drug carriers at the nanoscale
Prof. Ryan Donnelly Queens'University Belfast	Polymeric microneedle systems for long-acting drug delivery
Dr Michael J. Mitchell University of Pennsylvania, USA	Lipid nanoparticles for overcoming biological barriers to mRNA delivery
Dr Mostafa Nakach Sanofi, France	Scaling up of manufacturing process for nano drug delivery systems
Dr Ling Peng CNRS, France	Modular and adaptive dendrimer nanosystems for precision medicine
Prof. Enzo Terreno University of Turin, Italy	Innovative approaches for in vivo imaging of drug delivery and release
Dr Nicolas Tsapis CNRS, France	Nanomedicines and microparticles for the treatment of pulmonary diseases
Dr Assaf Y.Zinger Technion—Israël Institute of Technology, Israël	Targeted Therapeutics: Harnesing Disease Biology for Precision Medicine

Exhibition and Sponsoring

Suppliers will have the opportunity to showcase their latest technologies at the upcoming event. Enging with current and potential customers through a live exhibition is an excellent way to connect. Reserved spaces in the posters and coffee/lunch breaks area will be allocated for « equipped stand », ensuring great visibility for participants.

Current floor plan with booths is available on the conference website.

Additionally, various sponsorship opportunities are available. All sponsoring options include:

- Your logo and company description placed in the conference booklet and on conference website
- Company logo in newsletters

Abstracts submission

Online submission is open until 14th April. Authors will be notified of acceptance of their abstract and the type of presentation (oral or poster) on 16th June.

There will be 8 slots for short talks (10 minutes including Q&A) and 18 slots for oral presentations (20 minutes including Q&A).

Posters will be presented during the 3 days.

Venue, Transport, Accommodation

Venue

The upcoming congress will take place at the « Museo dell'Automobile ». This venue, renowned for its extensive collection of historic and contemporary automobiles, offers a unique and inspiring setting for both the congress and the subsequent gala dinner. A visit of the Museum is included in registration.

Transport

Turin has an international airport, known as Turin Airport (Aeroporto di Torino), which serves as a vital gateway for both domestic and international travelers. The airport is conveniently located about 16 kilometers north of the city center and is well-connected to major European cities. Airlines operating at Turin Airport offer routes to prominent cities such as Paris, London, Frankfurt, and Madrid, among others. . Additionally, the city's efficient public transportation and road networks ensure seamless travel to and from the airport, enhancing its appeal as a travel hub.

Accomodation

A platform is dedicated to hotel booking offering competitive rates for attendees, and allows them to focus on their event experiences rather than logistics.

Transport facilities in Turin will be proposed by the city, as well as cultural activities with special rates.

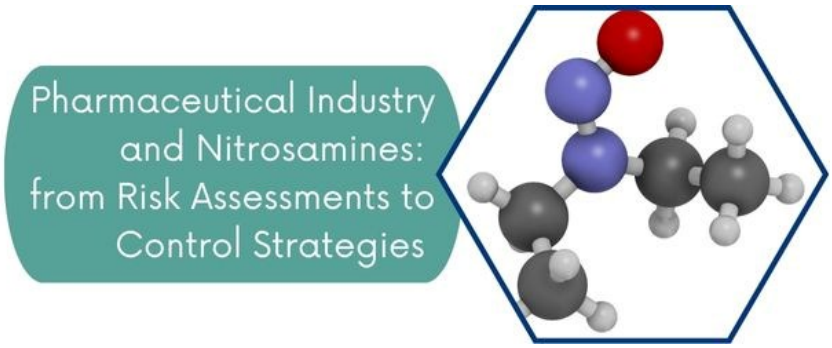
VISIT THE CONFERENCE WEBSITE

This conference is jointly organized with

SITELF
Società Italiana di Tecnologia e Legislazione Farmaceutiche

Info Day

Info Day 15 may 2025, Paris - France



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The following points will be presented.

- The Introduction will open the day by addressing the context and regulatory environment.
- We will discuss the approach to excipient-related aspects, particularly in relation to starch.
- Quality management approach.
- Challenges in the analytical dosing of nitrosamines in excipients.
- A presentation on risk analysis and strategies they use to avoid the need to dose nitrosamines in their products (with concrete examples on active ingredients and finished products).
- Practical case studies with feedback on their respective processes.

Registration is open.

All details on our website: https://apgi.org/

APGI Awards

APGI Young Investigator Award 2025

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

The price will be officially awarded at the 5th European Conference on Pharmaceutics, 24-25 March 2025 in Porto during the opening ceremony.

The jury is composed of :

- Prof. Géraldine Piel, University of Liège (president)
- Dr Catherine Herry, Nextpharma
- Dr Samar Issa, EBI
- Dr Anne-Marie Pensé Lhéritier, FRM Galesens

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14th PBP World Meeting
18-21 March 2024
Vienna - Austria

The 14th World Meeting on Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology was a great success: About 1,300 participants from all over the world joined the conference, which was organized in the beautiful city of Vienna in Austria.

This event nicely demonstrated the importance of **in person** conferences and that our meetings have again reached the "pre-Covid level" in terms of participation. We are very happy about this, because real personal contacts are critically important to allow for fruitful discussions and exchanges. Online meetings cannot replace this: Direct human contacts are much richer and new ideas & opportunities are often generated by coincidence, they are not well planned in advance. Spontaneous discussions can effectively initiate new collaborations. Not rarely, new professional contacts are made because someone introduces you to a colleague: not by intention, but by coincidence.

The meeting in Vienna had already been planned for March 20**20**: as the **12**th World Meeting on Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology. However, the spreading of the Covid virus all over Europe forced us to postpone the event in the "very last minute". The APGI, APV and SITELF took the decision to maintain the exceptional venue. We are very pleased that we could finally hold the meeting in Vienna this year, and that the event attracted scientists from all over the world.

Participants from about 50 countries joined the conference. Roughly one third came from industry, one third from academia (holding permanent positions) and one third were PhD students & post-docs: the next generation of pharmaceutical scientists. With over 700 poster presentations the conference offered them a unique opportunity to present their latest research findings and discuss with colleagues and experts from all over the world. We intentionally maintain physical poster presentations, because they allow for real exchanges and very much facilitate the presentation of scientific results. Also, participants do not have to wait until a figure is shown on a screen: They can autonomously walk through the exhibition area and have a look at the numerous poster presentations at any time.

Also the accompanying industrial exhibition ("ResearchPharm") was a great success, counting around 70 exhibitors. The conference center in Vienna enabled a very nice arrangement of the booths, which were intimately mixed with poster presentations, catering for coffee breaks and the Welcome Reception on Monday late afternoon. This was the ideal place to get an update on the newest findings in the fields of pre-formulation, formulation development, up-scaling, production, quality control, excipients, enabling formulations, medical devices, the underlying basic sciences (e.g., physico-chemical principles), cutting-edge characterization techniques of dosage forms in vitro and in vivo and many other topics.

Retrospective

The conference was held during 3.5 days and included 4 parallel oral sessions, 4 plenary lectures, 40 invited talks as well as 78 short talks from submitted abstracts. A large panel of hot topics was addressed, namely:

- Excipients: innovation, regulation, sustainability
- What's new in nanotechnology and drug targeting?
- Innovative manufacturing procedures
- Continuous manufacturing & PAT
- Delivery of proteins and peptides
- Modelling and simulation
- Innovations in oral drug delivery
- Parenteral controlled drug delivery
- Pediatric drug delivery
- Cell therapies
- Nucleic acid based drugs and vaccines
- Local drug delivery
- Patient-focused drug delivery
- Bio-barriers and alternative routes of administration

Special highlights of the conference included the plenary lectures of:

- Prof. Robert O. "Bill" Williams III, University of Texas at Austin, USA
  From graduate student to research scientist moving a technology to commercialization: KinetiSol Dispersing
- Prof. Ronit Satchi-Fainaro, Cancer Biology Research Center, Tel Aviv University, Israel
  3D-Bioprinted cancer models for target discovery, drug development, and personalized therapy
- Prof. Stefaan de Smedt, University of Ghent, Belgium
  Observations which might inspire drug delivery scientists for guiding bio-therapeutics over biological barriers
- Prof. Dan Peer, Laboratory of Precision NanoMedicine, Tel Aviv University, Israel
  Targeted lipid nanoparticles with RNAs are going beyond the liver: from vaccines to therapeutic genome editing

The traditional gala diner was held on Wednesday evening at an exceptional location: the "Wiener Hofburg" - the former principal imperial palace of the Habsburg dynasty. This is a marvelous place, which will likely remain in the memory of many participants. It was also a perfect occasion to get to know new people and/or to meet again friends & colleagues, whom you did not see for a while.

APGI is very grateful to the participants, speakers, poster presenters, exhibitors, chair persons and sponsors for their contributions to this conference, which nicely demonstrated that we are "post-Covid" in terms of scientific **in person** meetings.

Retrospective

APGI Young Investigator Award 2024

In 2024, Dr Helena Breat—Ghent University, received the Award during the 14th PBP World Meeting in Vienna

Dean: Prof. Dr. Jan Van Bocxlaer
Promoter:Prof. Dr. Katrien Remaut
Co-promoter: Prof. Dr. Stefaan De Smedt

Thesis: High pressure nebulization of smart hydrogels: driving intraperitoneal drug delivery forward

Peritoneal metastasis (PM) can be recognized by the presence of numerous small tumor lesions spread across the peritoneal membrane, which lines the abdominal cavity and organs. It most often arises as a consequence of the spread of tumor cells from primary tumors such as ovarian cancer. Currently, non-resectable PM is treated with a combination of intravenous (IV) chemotherapy and pressurized intraperitoneal aersosol chemotherapy (PIPAC), a drug delivery method that nebulizes therapeutics under elevated pressure locally in the peritoneal cavity. However, in clinical practice, the efficacy of PIPAC is currently limited by the off-label use of IV chemotherapeutics, which are rapidly cleared from the peritoneal cavity following administration. The aim of this thesis was to develop a controlled release drug delivery system, which can be evenly applied in the entire peritoneal cavity by high pressure nebulization (PIPAC), to treat ovarian PM and to prevent post-surgical peritoneal adhesions, a prevalent complication of intraperitoneal (IP) surgeries.

First, the potential of the heat-sensitive hydrogel Pluronic F127 was verified as a controlled release formulation applied by high pressure nebulization. A delicate balance was found between the capacity of the gel to control the release of model nanoparticles (NPs) and the aerosolization potential. As such, more concentrated gels could prolong the release a enclosed NPs up to 30 hours, but these formulations could not effectively be nebulized, and vice versa. Next, three different in situ forming hydrogel types were screened in vitro and in vivo for their efficacy in preventing peritoneal adhesions after IP administration by high pressure nebulization. The most promising formulation, a pH-sensitive UPy-PEG hydrogel, did not cause severe local or systemic toxic effects in rats and could significantly reduce the formation of peritoneal adhesions, even outperforming the commercially available Hyalobarrier® formulation. This hydrogel was then further evaluated as a drug depot for various types of chemotherapeutic NPs. After loading the UPy-PEG hydrogel with paclitaxel nanocrystals (PNC), this material led to a successful delay of the tumor progression and a significant increase of the survival time after administration in a rat model of PM. Moreover, we could demonstrate that acidification of the nebulized UPy-PEG solution by carbon dioxide, used to inflate the IP cavity during a PIPAC surgery, stimulated the gelation process, which prolonged the IP hydrogel retention. Finally, compared to the state-of-the-art Capnopen® spray nozzle, a more even three dimensional hydrogel distribution was noted following aerosolization with our newly developed Medspray® nozzle, which is why this device seems promising for the homogeneous IP delivery of viscous materials such as hydrogels.

To conclude, the PNC-loaded UPy-PEG hydrogel showcases an unequivocal potential as a controlled drug delivery platform with a dual application: the local treatment of ovarian PM and the prevention of post-operative peritoneal adhesions.

Retrospective

Maurice - Marie Janot Award 2024

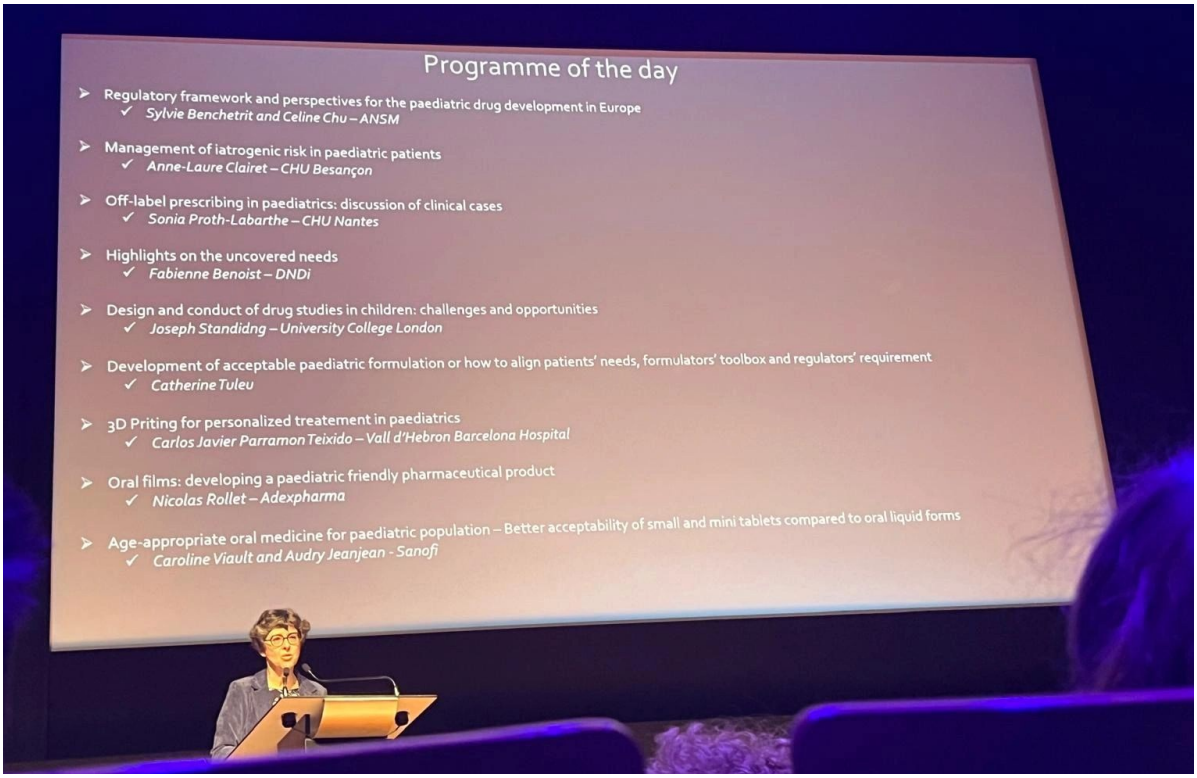
In 2024, Prof. Peter Cullis received the Award during the 14th PBP World Meeting in Vienna

Pieter R. Cullis, PhD, FRSC, FRS, OBC, OC, Director, Nanomedicines Research Group, Professor, Department of Biochemistry and Molecular Biology, University of British Columbia. Dr. Cullis and co-workers have been responsible for fundamental advances in the development of nanomedicines employing lipid nanoparticle (LNP) technology for cancer therapies, gene therapies and vaccines. This work has contributed to five drugs that have received clinical approval by the FDA, the European EMA and Health Canada. Dr. Cullis has also co-founded eleven biotechnology companies that now employ over 400 people, has published over 400 scientific articles (h index 138) and is an inventor on over 100 patents. He has also co-founded and been Founding Scientific Director of two National Centre of Excellence networks, the Centre for Drug Research and Development (now AdMare) in 2004 and the NanoMedicines Innovation Network in 2019. These not-for-profit networks are aimed at translating basic research in the life sciences into commercially viable products and have given rise to numerous start-up companies. Dr. Cullis has received many awards including the Order of Canada in 2021 and the VinFuture Prize (Vietnam), the Prince Mahidol Award (Thailand), the Gairdner International Award (Canada) and the Tang Prize (Taiwan) in 2022. Two recently approved drugs that are enabled by LNP delivery systems devised by Dr. Cullis, members of his UBC laboratory and colleagues in the companies he has co-founded deserve special emphasis. The first is Onpattro which was approved by the US FDA in August 2018 to treat the previously fatal hereditary condition transthyretin-induced amyloidosis (hATTR). Onpattro is the first RNAi drug to receive regulatory approval. The second is Comirnaty, the COVID-19 mRNA vaccine developed by Pfizer/BioNTech that has received regulatory approval in many jurisdictions including Canada, the USA, the UK and Europe. Comirnaty has played a major role in containing the global Covid-19 pandemic with approximately 6B doses administered worldwide in 2021 and 2022.

Retrospective

Hot Topic Day in 2024
"Pediatric medications in 2024: availability and perspectives"

On November 7, the Hot Topic Day on paediatric drug development brought together experts from academia, industry, regulatory agencies, and healthcare institutions to discuss the challenges and advancements in the field. Held in Paris, the event showcased a diverse lineup of speakers and sessions, emphasizing the importance of collaboration to address unmet medical needs in paediatrics.



- The conference opened with a focus on the **regulatory framework for paediatric drug development in Europe**, presented by Sylvie Benchetrit, the Paediatric Referent at ANSM and Vice-Chair of the Paediatric Committee (PDCO). Céline Chu, Paediatric Coordinator at ANSM, joined the session to provide additional insights into current European policies and future perspectives.

- Dr. Anne-Laure Clairet from CHU Besançon addressed **iatrogenic risks in paediatric patients**, highlighting strategies to minimize medication-related harm in this vulnerable population. Following a brief coffee break, Prof. Sonia Prot-Labarthe of CHU Nantes engaged attendees in a lively discussion on **off-label prescribing in paediatrics**, using real-world clinical cases to underline the complexities and ethical considerations involved.

- A session led by Fabienne Benoist from DNDi shed light on **unmet needs in paediatric medicine**, drawing attention to areas where innovation is urgently required.

Retrospective

- The afternoon sessions explored innovative approaches to paediatric drug development. Prof. Joseph F. Standing from University College London delved into the **challenges and opportunities in designing and conducting drug studies in children**, emphasizing the need for tailored methodologies. Prof. Catherine Tuleu, also from University College London, followed with a compelling presentation on **developing acceptable paediatric formulations**, illustrating how to balance patient needs, technical feasibility, and regulatory requirements.
- The role of **3D printing in personalized paediatric treatments** was another highlight, presented by Carlos Javier Parramon Teixido from Vall d'Hebron Barcelona Hospital Campus. His talk showcased cutting-edge applications of this technology, offering new possibilities for customized medication.

- The day concluded with insights from industry leaders on their experiences in paediatric drug development. Dr. Nicolas Rollet of Adexpharma detailed the process of creating **paediatric-friendly pharmaceutical products**, using oral films as a case study. Caroline Viault and Audrey Jeanjean from Sanofi discussed their work on **age-appropriate oral medicines**, demonstrating the superior acceptability of small and mini-tablets compared to traditional liquid formulations.

The conference provided a platform for meaningful dialogue among participants, fostering an exchange of ideas and experiences across sectors. Attendees, including [exact numbers of students, industrial representatives, healthcare practitioners, and others], expressed their appreciation for the diverse perspectives and practical insights offered throughout the day. The event underscored the critical need for continued collaboration to advance paediatric healthcare.

In summary, this conference was a valuable opportunity for the 70 attendees coming from academia and industry and from France and Europe to explore the latest developments in paediatric drug research and formulation. Its success reflects the collective commitment of all stakeholders to improving health outcomes for children.

Retrospective

Info Day in 2025
“Powder to patient: Revolutionizing Pharmaceutical Development Through Advanced Characterization & AI”

On January 30, APGI hold in Paris the Info Day organized with

The programme of the day covered several key topics related to advancements in manufacturing and pharmaceutical processes.

First, Christoph Portier (CESPE) discussed of the importance of understanding powder properties to enhance manufacturing processes. Then, Filip Francqui (Granutools) presented state-of-the-art methods for assessing the powder properties which are crucial for various manufacturing applications.

A focus on the development of dosage forms which prioritize patient needs and improve therapeutic outcomes. Focus done by Stephen Flynn (Roquette) and Aurelien Neveu (Granutools).

Johny Bertels (Johnson & Johnson) shared insights from a specific client case study, highlighting practical applications and challenges faced in the industry.

An other presentation done by Sebastien Croquet (Roquette) and Stephane Caubergh (Granutools) explored the benefits and techniques of continuous manufacturing, emphasizing its efficiency and effectiveness compared to traditional methods.

Granutools and Roquette addresses the challenges posed by electrostatics in continuous manufacturing and possible solutions to mitigate these issues.

Last talk from Roquette (Arnaud Verhaeghe and Nicolas Descamps) presented the shift from traditional methods to a virtual formulation assistant, emphasizing the rôle of the data transforming pharmaceutical processes.

Miscellaneous

Erasmus Mundus Joint Masters (EMJM): Nanomedicine for Drug Delivery - NANOMED

The NANOMED Master's program is a consortium composed of four European Universities :

Université Paris Cité, France (Coordinator)

Université d'Angers, France

Università degli Studi di Pavia, Italy

Panepistimio Patron, Greece

NANOMED EMJM is a 24-month, 120 ECTS master's course in English offering a high- quality and multidisciplinary education in the emerging field of nanomedicine.

The NANOMED consortium has brought together the expertise of four Universities, Paris (Fr, coordinator), Patras (Gr), Pavia (It) and Angers (Fr), in their respective domains of Nanomedicine. The final goal is to achieve the qualification of young scientists (Bachelor's degree in Pharmacy, or other scientifically adequate discipline) with appropriate credentials to lead the related field, either in Industry or in Academia. Upon graduation, each student will receive four Master's degree diplomas corresponding to the National diplomas of the founding Universities.

Regarding the course content :

S1 : The first semester taking place in Paris, is dedicated to the "Introduction to Pharmaceutical Formulation." This first level provides the essential knowledge necessary to work in pharmaceutical domains and to introduce innovative drug delivery systems. Specific courses on chemistry or biology will be proposed to students who are non-pharmacists.

S2 : The second semester taking place in Patras will be dedicated to "Basic Nanomedicine, Innovations in Pharmaceutical Technology, and Biomolecules." A 3- month traineeship will be carried out in selected laboratories.

S3 : The Advanced Nanomedicine part of the curriculum (Semsester 3) corresponds to the specialization of students by choosing a training option according to their professional project: "Specialized Applications of Nanoparticles" in Pavia and "Strategy of Pharmaceutical and Non-Clinical Developments of Nanomedicines" in Angers.

S4 : During the final traineeship period (Semester 4, 6 months), students apply this new knowledge to the successful achievement of research and development projects on nanomedicine carried out in academic or industrial laboratories.

The NANOMED participants will also participate in a summer school and two dedicated workshops.

For more information regarding the NANOMED EMJM please click on link right here : https://nanomed.u-paris.fr/

Intereg FWVL Project: “Healthy Teeth”

A new Interreg FWVL (France – Wallonia – Flanders) project (https://www.interreg-fwvl.eu/fr) started in October 2024: “Technological Innovations for Healthy Teeth” (Healthy Teeth). It is dedicated to the development of novel technologies to better treat periodontitis: a disease, which is estimated to affect 1 billion people world-wide (severe cases, WHO) and to cause > 440 billion $ cost burden every year.

Periodontitis is the first cause for tooth loss in adults and has important consequences for the quality of life of the patients. A person without teeth is disabled and excluded from normal life, leading to loneliness, depression and reduced life time expectancy. Periodontitis is caused by pathogenic bacteria, which start forming a biofilm at the interface of tooth–gingiva. This film is difficult to eliminate by tooth brushing. The pathogenic bacteria secrete substances, which are aggressing the gingiva. The body reacts with a local inflammation, and the attachment “tooth-gingiva” gets partially lost. Consequently, a pocket is formed, allowing the pathogenic bacteria to further proliferate, the inflammation worsens and the periodontal pockets become deeper. At advanced stages, also the bone is attacked, into which the teeth are anchored.

To effectively treat periodontitis, this Interreg project addresses all 3 targets, the:

- Pathogenic bacteria
- inflamed gingiva
- bone loss.

To be able to do so, highly complementary skills and know-how are required. Importantly, “Healthy Teeth” joins the forces of: clinicians, who are experts in periodontitis; chemists, specialized in the development of novel biomaterials; pharmacists and material scientists, providing the knowledge to develop new medical devices/drug products; and engineers, able to develop simplified in vitro tests for the identification of the best drugs.

The current standard treatment of periodontitis is the mechanical removal of the bacterial biofilms, using pointed, metal instruments. However, it is impossible to remove 100% of the bacteria and the remaining ones colonize the periodontal pockets again. Thus, the disease persists. This is unfortunate, because drugs are known, with promising potential to eradicate the pathogenic bacteria, act against the inflammation and help repairing the bone tissue. But the delivery of these drugs is a yet unmet challenge: If administered orally, or injected into the blood, the drug concentrations in the rest of the body can be high and cause undesired toxic side effects. However, the drug does not reach its target site to a sufficient extent, because it hardly partitions from the blood into the periodontal pocket. In addition, the low amounts arriving at the target site are rapidly eliminated by the flow of gingival fluid. To overcome this problem, systems with time-controlled drug release in the pocket have been proposed. However, currently available products suffer from “accidental premature expulsion” from the site of action, because the materials they are made of, are not sufficiently sticky and the size & geometry of the products do not fit the patient’s pocket (each pocket is unique).

Miscellaneous

This Interreg project aims at overcoming these shortages by the development of:

- Innovative materials, which are liquid and can easily be injected into a dental pocket: The liquid spreads throughout the cavity and solidifies upon exposure to light. The formed solid is highly sticky.
- Novel *in-situ* forming implants based on these liquids: The drug is incorporated into the new biomaterials and gets entrapped in the device upon hardening in the pocket. The biomaterial subsequently controls drug release during about 2 weeks. Accidental expulsion from the pocket is avoided due to the perfect implant fitting into the pocket and stickiness of the new material.
- New products repairing small/moderate bone defects: Such products are commercialized, but free of drugs. Healthy Teeth will improve the efficacy of these systems, adding drugs favoring tissue regeneration and acting against inflammation.
- Innovative "bioinks" for the 3D printing of customized implants: The company Bio Inx (project partner) is specialized in the manufacturing and commercialization of inks, which can be 3D printed.
- Novel 3D printed implants for the treatment of large bone defects in patients suffering from severe periodontitis: Importantly, they will be designed to match the specific needs of each patient. Customized, mechanically strong implants are required in these cases.
- New in vitro tests to identify the best drug and release kinetics to treat the patient ("lab on a chip").

The project started on 1st October 2024 and will last 4 years (until 30th September 2028, total budget: 1,918,795.09€, FEDER: 1,151,277.04€).

Project partners are:

BioInx
Eurasanté
Junia (Engineering School)
University of Ghent
University of Lille
University of Mons

In case of interest, please contact Prof. Florence Siepmann (florence.siepmann@univ-lille.fr).

Interreg
Cofinancé par l'Union Européenne
Medegefinancierd door de Europese Unie
France - Wallonie - Vlaanderen
Healthy Teeth

Miscellaneous

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

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- industrial: 220 € + VAT 20% = 264 €
- retiree: 25€ + VAT20% = 30 €

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