CLINAM
European Foundation for Clinical Nanomedicine
Switzerland

13/2022

13th European and Global Summit for Nanomedicine

From Hope to Product - The Brilliant Prospect in Nanomedicine and Related Fields

What was Achieved? What are the Future Horizons for Nanomedicine?

Live Stream from May 2 - 4, 2022

THE PROGRAMME OF THE VIRTUAL SUMMIT 2022

The 35 NPO Idealistic CLINAM Supporters

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Contents of the CLINAM 2022 Summit

	PAGE
Contents	2
Overview on the Summit schedule Contents	3
Scientific Committee	4
Introduction	
1. Opening of the Summit	5
2. Scientific Introduction of the Summit 2022	
3. Unlocking Immunotherapy's Full Potential with Nanomedicine	
4. Nanovaccines – from Packaging to Targeting and Controlled Degradation	6
5. Small Speeches of Poster Presenters	7
6. Achieving Global Vaccine Equity	
7. Ethical Matters 2022 at CLINAM	8
8. Status 2022 – Worldwide Developments in the Field of Non-Biological Complex Drug Products (NBCDs) and their Follow-on Versions; are we closer to Regulatory Alignment?	
9. The History and Future of Lipids – the Building Blocks of the Structure and Function of Living Cells and their Role in Drug Delivery	9
10. Nanomedicine Applications and Platforms in Delivery and Precision Medicine	
11. Physical Approaches to help bringing Nanomedicines to the Clinic	10
12. Success Stories: From Hope to Research to Findings, Products and Therapy	11
13. From Novel Material to Improved Therapies	
14. Dendrimers and Polymers as Nanocarriers	12
15. Fighting the Tumor from the Inside	13
16. The Bacteriophage Therapy	14
17. Going against Antibiotic Resistance with Nanomedicine and the Voices of Worldwide Initiatives	
18. Immunological Complications of COVID Vaccinations	15
19. Miscellaneous Topics: (A) Publishing, (B) Brain Therapy, (C) Innovative Nanoformulations	16
20. Interdisciplinary Regenerative Nanomedicine	17
21. Late Breaking Trials in Various Disease Fields	18
22. Regulatory Matters: An International Overview	
23. Nanomedicine, Small Molecule Medicine and Pharmacokinetics in Infection and Inflammation	
24. Beyond LNPs RNA Formulation & Drug Delivery and Diagnosis during COVID: Ongoing Developments	19
25. Nanomedicine in Neglected Diseases	20
26. The Bacteriophage Therapy	
27. Carbon Nanomaterials and their Journey in Medicine	21
28. Overcoming Barriers – Pharmaceutical Development and Manufacturing (APV)	
29. Nano Interacting with Life	22
30. Nanomedicine in Cancer	23
31. Future Applications for Treatment of Infectious Diseases, Rare Inherited Diseases and Chronic Disorder	
32. The Application of Nanotechnology for the Study and Treatment of Rare Genetic Diseases	24
Participants in the CLINAM 12 / 2022 Virtual Exhibition	
Online Poster Presentations	25
General Information	26
Submission Procedure for Posters	
Decision for Acceptance	27
Presentation of Posters online	
Poster Prize	
About the Small Speeches for Poster Presenters	
Registration for the Summit (Fees)	
Organizer's Office, Registration Office and Streaming Office	
The Sponsors of the CLINAM Summit and the Donators of the CLINAM-Foundation	28

Overview of the 13th European and Global Summit for Nanomedicine

*** = Verbal Questions and Debate in Zoom at the end of the session**

Monday, May 2 2022			
TIME	STREAM 1	STREAM 2	
08:10	1. Welcome on behalf of the CLINAM-Foundation		
08:30	2. Scientific Introduction of the Summit 2022 by Prof. Dr. med Patrick Hunziker		
09:00	3. Unlocking Immunotherapy's Full Potential with Nanomedicine *		
11:30	BREAK		
11:45	4. Nanovaccines – from Packaging to Targeting and Controlled Degradation *	5. Small Speeches on Submitted Posters (11:30)	
14:05	BREAK		
14:15	6. Achieving Global Vaccine Equity (Prof. Dr. Gerrit Borchard)		
15:15	7. Ethical Matters at CLINAM 2022 (Nobel Laureate Prof. Dr. Aaron Ciechanover) *		
16:30	BREAK		
17:00	8. Worldwide Developments in the Field of Non-Biological Complex Drug Products (NBCDs) and their Follow-on Versions; are we closer to Regulatory Alignment? (Dr Sarah Ibrahim, Global Generic Drug Affairs at FDA) *		
19.15	END OF DAY 1		
Tuesday, May 3 2022			
TIME	STREAM 1	STREAM 2	STREAM 3
08:00	9. The History and Future of Lipids – The Building Blocks of the Structure and Function of Living Cells and their Role in Drug Delivery *	10. Nanomedicine and Applications and Platforms in Delivery and Precision Medicine *	11. Physical Approaches to help bringing Nanomedicines to the Clinic*
10:00	BREAK		
10:20	12. Success Stories: From Hope to Research to Finding, Products and Therapy *	13. From Novel Material to Improves Therapies *	14. Dendrimers and Polymers as Nanocarriers *
12:30	BREAK		
13:00	15. Fighting the Tumor from the Inside (Dr. rer. nat. Andreas Georg Jordan) *		
14:00	16. The Bacteriophage Therapy (Dr. med. Carl R. Merril) *		
15:00	BREAK		
15:30	17. Going Against Antibiotic Resistance with Nanomedicine and the Voices of Worldwide Initiatives (Chair: Prof. Dr. Yechezkel Barenholz) (Nobel Laureate Prof Dr. Ana Yonath) *		
20:10	END OF DAY 2		
Wednesday, May 4 2022			
TIME	STREAM 1	STREAM 2	STREAM 3
08:15	18. Immunological Complications of COVID Vaccination *	19. Miscellaneous Topics: (A) Publishing, (B) Brain Therapy, (C) Innovative Nanoformulations *	20. Interdisciplinary Regenerative Nanomedicine *
10:30	BREAK		
10:50	21. Late Breaking Trials in Various Disease Fields *	22. Regulatory Matters: An International Overview *	23. Nanomedicine, Small Molecule Medicine and Pharmacokinetics in Infection and Inflammation *
12:30	BREAK		
12:45	24. Beyond LNPs RNA Formulation & Drug Delivery and Diagnosis during	25. Nanomedicine in Neglected Diseases *	27. Carbon Nanomaterials and their Journey in Medicine *
13:45	COVID: Ongoing Developments *	26. The Bacteriophage Therapy *	
15:00	BREAK		
15:30	28. Overcoming Barriers – Pharmaceutical Development and Manufacturing (APV) *	29. Nano Interacting with Life *	30. Nanomedicine in Cancer *
17:40	BREAK		
18:00	31. Future Applications for Treatment of Infectious Diseases, Rare Inherited Diseases and Chronic Disorder (Prof. Dr. Pieter Cullis) *		
18:40	32. The Application of Nanotechnology for the Study and Treatment of Rare Genetic Diseases (Prof. Dr. Ehud Gazit) *		
19:40	End of the CLINAM-Summit 2022		

Scientific Committee

• **Prof. Dr. med. Patrick Hunziker**, University Hospital Basel (CH) (chairman) • **Prof. Dr. med. Christoph Alexiou,** University Hospital Erlangen (DE) • **Prof. Dr. Lajos (Lou) Balogh, Ph.D.,** Editor-in-Chief, Precision Nanomedicine (CLINAM Journal PRNANO), Boston (USA) • **Prof. Dr. Yechezkel Barenholz,** Professor Emeritus, Head of Membrane and Liposome Research Lab, Hebrew University Hadassah Medical School, Jerusalem (IL) • **Prof. Dr. med. Omid Farokhzad,** Director, Center for Nanomedicine, Harvard Medical School and Brigham and Women's Hospital, Boston (USA) • **Prof. Dr. Dr. Twan Lammers,** Institute for Experimental Molecular Imaging, RWTH Aachen, Aachen (DE) • **Prof. Dr. med. Dong Soo Lee, Ph.D**. Chairman, Department of Nuclear Medicine Seoul National University, Seoul (KOR) • **Dr. med. h.c. Beat Löffler, MA,** CEO, CLINAM-Foundation, Basel (CH) (Programme & Realization) • **Prof. Dr. med. Marisa Papaluca Amati**, Regulatory Science and Innovation Visiting Professor, Imperial College London, Department of Primary Care & Public Health School of Public Health Faculty of Medicine, London (UK) • **Prof. Dr. André Nel, M.B. Ch.B., Ph.D.,** Professor of Medicine, Director California NanoSystems Institute, Chief of Nanomedicine and Director, Center for Environmental Implications of Nanotechnology, UCLA, Los Angeles (USA) • **Prof. Dr. Gert Storm,** Institute for Pharmaceutical Sciences, Utrecht University, Utrecht (NL) • **Prof. Dr. Dr. h.c. Viola Vogel,** Head of the Laboratory of Applied Mechanobiology, Department for Health Sciences and Technology (D-HEST), ETH, Zürich (CH)

Introduction

How Many Hopes and Predictions of Development Came True?

The CLINAM Summit, a globally unique clinical event with members from over 35 countries, has brought together all stakeholders in nanomedicine, targeted medicine, and precision medicine since 2008. Out of the over 2000 interventions from 2008 to date, there are many predictions of near and far-terms of projects, diagnoses, therapy, research, and development of materials and devices. What has been achieved? At CLINAM 2022, shall show how bright the future in nanomedicine is. Often "nanomedicine" was said to be just hype. Today, we know that nanotechnology in medicine is the indispensable discipline and ground for further change in health care for all.

How to Improve a Virtual Meeting?

The summit builds on the principle that fundamental and applied scientists, developers, clinicians, regulators, and professionals from various related fields can mutually learn to find better solutions for the medicine of the future. This leads to new collaboration and consortia of experts that can accelerate the development and strengthen the efforts towards medicine that delivers more benefits to patients and society. The CLINAM Summit has the tradition of hosting experts from over 30 countries. In May 2022, traveling is still obscured with major hurdles. Quarantine requirements might change a three-day event to a two-to-four-week trip. Since the pandemic has begun, CLINAM has already proved, in October 2020 and in our debate sessions in July, that a virtual event is scientifically seen as a good possibility for an exchange of excellence. Of course, it is less jovially and physically we miss each other. We look forward to the next Summit, hoping for a real-life meeting. CLINAM will presents today a new concept to make oral debate available online next to the live stream. During this summit, separate debate rooms are be realized after each session.

What are the hot topics in Nanomedicine?

The meeting will highlight recent groundbreaking achievements in the past years. The rapid development of vaccines for COVID-19 has opened novel cooperation between researchers, developers, and usually competing companies with the regulatory framework authorities. The unseen and revolutionary protective wall against COVID -19 by novel vaccines gives outlook and hope for a profound acceleration of novel drug development to the benefit of patients. There are many ethical aspects in this context, and therefore CLINAM has an ethics intervention in the programme. Novel technologies are investigated for applicability to enable and improve health care in countries where therapy until today is unaffordable. Personalized Nanomedicine is the core competence for this. A highlight session will be the plenary session 17 on the topic of going against Antibiotic Resistance with Nanomedicine including worldwide Initiatives. This year also Bacteriophage Therapy shall be discussed.

Target Audience

The faculty includes pioneers and opinion leaders in medicine, nanoscience, and targeted medicine, who share experience in an interdisciplinary and interactive manner that widens mutual understanding for both sides. The summit and the exhibition are aimed at physicians and scientists with a background in pharmacology, biology, physics, chemistry, biophysics, medicine, materials science, and engineering. Industry members find contacts for cooperation, get insight into the novel concepts, and meet keen investigating startups, interested in working together. Developers from the pharmaceutical industry present their recent findings and research. Experts in artificial intelligence, digitalization, and high-performance computing show implications of their work and research for the healthcare sector. The meeting is a particularly useful source of knowledge for the targeted medicine and delivery community. The conference is also of interest for members of the regulatory authorities as well as policymakers, all experts from industry in the field of life sciences, developers of new tools and materials for nanomedicine, and all those investigating the potential of emerging technologies in the field of healthcare and their combinations. Experts from venture companies can acquire knowledge on existing and upcoming developments and novel products in the establishing field of nanomedicine and knowledge-based medicine. Government authorities can profit from

the regulator's international sessions. CLINAM is the worldwide melting pot for experts and a high-level communication platform where you meet those striving for nanomedical goals.

This programme will be held in a virtual live stream and will enable verbal discussion in zoom rooms. Programs, speaker's abstracts as well as posters will be available online. The virtual conference is realized in the interest of achieving the continuation of the CLINAM network.

Monday, May 2, 2022

(1) **Stream 1 (Plenary)**
Monday, May 2, 08.00 – 08.30

1. Opening of the Summit 2022

08.10 Welcome on behalf of the CLINAM-Foundation
Dr. med. h.c. Beat Löffler, MA, CEO, European Foundation for Clinical Nanomedicine, and L & A Concept Engineering GmbH, Basel (CH)

(1) **Stream 1 (Plenary)**
Monday, May 2, 08.30 – 08.50

2. Scientific Introduction of the Summit 2022

Chair **Prof. Dr. Dr. h.c. Viola Vogel**, Head of the Laboratory of Applied Mechanobiology, Department for Health Sciences and Technology (D-HEST), ETH, Zürich (CH)

About Theophrastus Bombastus von Hohenheim (Paracelsus) wrote: "All substances are poisons, and there is none which is not poison; only the dose permits something not to be poisonous" Nanomedicine allows precise doses in personalized medicine.

08.30 The Landscape of Precision Medicine - from Target to Dose to Complex Patient Scenarios
Prof. Dr. med. Patrick Hunziker, President of the International Society for Nanomedicine; CSO of the CLINAM-Foundation; Deputy Head of the Intensive Care Clinic of the University Hospital Basel; Head of the CLINAM-Lab, Basel (CH)

08.50 Questions from Stream

(1) **Stream 1 (Plenary)**
Monday, May 2, 09.00 – 11.30

3. Unlocking Immunotherapy's Full Potential with Nanomedicine

Chair **Prof. Dr. Dr. Twan Lammers,** Institute for Experimental Molecular Imaging, RWTH Aachen, Aachen (DE)
and **Prof. Dr. Willem Mulder, -** Professor of Precision Medicine, Radboud University Medical Center, Eindhoven University of Technology, CSO, Trained Therapeutix Discovery, - CTO, BIOTRIP.nl, Eindhoven (NL)

About The past decade has seen multiple immunotherapies moving into the clinic and impacting patients' lives. Prominent examples of this are checkpoint blocking antibodies for the treatment of cancer and (nanoparticle-based) vaccines for COVID-19. In this session, we will discuss different aspects of immunotherapy, including the discovery of key molecules, the identification of biomarkers, novel ways forward in the clinic, and progress towards nano-immunotherapy

09.00 Trained Immunity in Cancer Rmmunotherapy
Prof. Dr. med. Triantafyllos Chavakis, Director, Institute for Clinical Chemistry and Laboratory Medicine, University Hospital Dresden at the TU Dresden (DE)

09.30 Questions from Stream

09.45 The Next Immunotherapy Revolution: Lessons from Melanoma; From Advanced to (NEO) Adjuvant
Prof. Dr. med. Alexander M.M. Eggermont, MD, PhD. CSO, Board of Directors, Professor Clinical & Translational Immunotherapy, UMCU, Utrecht University, Princess Máxima Center for pediatric oncology, Utrecht (NL)

10.00 COVID-19: The First Paradigm of Personalized Anti-IL-1 Therapy
Prof. Dr. med. Evangelos Giamarellos, Professor of Internal Medicine and Infectious Diseases at the Medical School of the National and Kapodistrian University of Athens, Athens (GRC)

10.15 Managing Brain Malignancies in 3 Dimensions
Prof. Dr. med Ronit Satchi-Fainaro, Chair of the Department of Physiology and Pharmacology, Professor for Physiology & Pharmacology, Sackler Faculty of Medicine, Tel Aviv University, Tel Aviv (IL)

10.30 Redefining Cancer with Integrative Tumor Immunology
Prof. Dr. Jérôme Galon, Director of Research at INSERM (French NIH), and Head of the laboratory of Integrative Cancer Immunology, Co-founder and Chairman of HalioDx, Paris (FR)

10.45 Bioresponsive Drug Delivery
Prof. Dr. Zhen Gu, Chair Professor and Dean of the Zhejiang University College of Pharmaceutical Sciences, Hangzhou (CN)

11.00 **Entering Zoom Room for Verbal Questions and Debate with Participants**

11.30 **Break**

(1) **Stream 1 (Plenary)**
Monday, May 2, 11.45 – 14.05

4. Nanovaccines - from Packaging to Targeting and Controlled Degradation

A Session in Collaboration with the German Research Foundation (DFG) established "Collaborative Research Center on Nanodimensional Polymer Therapeutics for Tumor Therapy" organized by the CRC/SFB, Johannes Gutenberg University, Mainz (DE)

Chair **Prof. Dr. med. Volker Mailänder,** Center for Translational Nanomedicine, University Medicine of the Johannes Gutenberg University Mainz (DE) and **Prof. Dr. med. Stephan Grabbe,** Director of the Department of Dermatology, Medical Center and Polyclinic, Speaker of the Research Center for Immunotherapy, Mainz (DE)

About With the breakthrough of nano vaccines in the fight against COVID19, we have an outstanding example of how vital packaging of delicate cargoes like mRNA-based vaccines is for their clinical success. We will explore in this session how packaging affects the clinical and immunological outcome. Degradation of the nanocarrier and the cargo (mRNA and/or adjuvants) as well as degradation of the product – the mRNA-encoded protein – is of utmost importance for the success of nanovaccines. While all the hitherto applicable nanocarriers are untargeted, we will further dwell on opportunities and obstacles of targeting nanovaccines.

11.45 RNA Delivery Going Beyond the Liver: from Gene Silencing to Gene Editing
Prof. Dr. Dan Peer, Vice President for Research and Development, Tel Aviv University, David Furman Chair in Cancer Immunobiology, Director, Laboratory of Precision Nanomedicine, Managing Director, SPARK Tel Aviv, Center for Translational Medicine, Tel Aviv University, Tel Aviv (IL)

12.00 Questions from Stream

12.05 The Role of the Steric Stabilization in Vaccine Performance
Prof. Dr. Moein Moghimi, Professor of Pharmaceutics and Nanomedicine, School of Pharmacy, Newcastle University, Institute of Cellular Medicine, School of Medicine, Newcastle University (U.K.) and Adjoint Professor, University of Colorado Medical Center, Boulder, CO (USA)

12.20 Questions from Stream

12.25 The Role of Preclinical Characterization in Nanoparticle-Based Vaccine Development
Dr. Marina A. Dobrovolskaia Ph.D., MBA, PMP, Director of Operations Head of Immunology Section, Nanotechnology Characterization Laboratory, Frederick (USA)

12.40 Questions from Stream

12.45 Nanocarriers for Combatting and Preventing Infectious Diseases
Prof. Dr. Claus-Michael Lehr, Professor at Saarland University, cofounder, and Head of the department Drug Delivery at the Helmholtz Institute for Pharmaceutical Research Saarland (HIPS), cofounder of Across Barriers GmbH, CEO, PharmBioTec GmbH, not-for-profit contract research subsidiary of Saarland University
Saarbrücken (DE)

13.00 Questions from Stream

13.05 Liposome-Display of Antigens: A Versatile Approach for Vaccine Development
Prof. Dr. Jonathan F. Lovell, Associate Professor, Biomedical Engineering Department, University at Buffalo, Buffalo, NY (USA)

13.20 Questions from Stream

13.25 Guiding mRNA-LNP Drug Products from Early R&D Programs to the Market – how Polymun Contributes to Production of mRNA Vaccines
Dr. Andreas Wagner, PPA. Head Liposome Technology, Polymun Scientific Immunbiologische Forschung GmbH, Klosterneuburg (AT)

13.40 Questions from Stream

13.45 **Entering Zoom Room for Verbal Questions and Debate with Participants**

14.05 **Break**

(2) **Stream 2**
Monday, May 2, 11.30. – 13.50

5. Small Speeches of Poster Presenters

Chair **Dr. Sc. nat. Ruth Schmid,** Vice President Marketing, SINTEF Industry, Biotechnology and Nanomedicine, Polymer Particles and Surface Chemistry, Trondheim (NO)

11.30 Poster submitters can apply for a small speech of 4 minutes, serving to highlight their poster work and activity of their premises. The speeches comprise a maximum of three slides. One of them should contain proof, how the work at the university/institute fits into the area of nanomedicine and targeted delivery, including showing the outlook on the translation of the work.

14.00 **Break**

(1) **Stream 1 (Plenary)**
Monday, May 2, 14.15. – 15-00

6. Achieving Global Vaccine Equity

Chair **Prof. Dr. Dr. h.c. Stefan Mühlebach,** Professor em., Hospital Pharmacist FPH, Division of Clinical Pharmacy & Epidemiology / Hospital Pharmacy, Basel (CH)

About Keen researchers and pharmaceutical companies have developed in practically no time multiple vaccines against the coronavirus. How do we share on international level?

14 15 Enabling Vaccine Supply through International Cooperation: Lessons learned
Prof. Dr. Gerrit Borchard, President of the Swiss Academy of Pharmaceutical Sciences (Sips), Professor in Biopharmaceutics at the University of Geneva, Geneva (CH)

14.45 Questions from Stream

15.00 **Break**

(1) **Stream 1 (Plenary)**
Monday, May 2, 15.15 h – 16.30

7. Ethical matters 2022 at CLINAM

Chair **Prof. Dr. med Patrick Hunziker,** President of the International Society for Nanomedicine, Basel (CH)

About Based on the COVID-19 pandemic, Prof. Aaron Ciechanover will elucidate the bioethical bumps between patients and Curative medical Technologies, giving answers to many Bioethical Bumps in concern with patients

15.15 **The Road between Patients and Curative Medical Technologies is strewn with Bioethical Bumps: The Base of the COVID-19 Pandemic**
Prof. Dr. med Aaron Ciechanover, Nobel Laureate, The Rappaport Family Technion Integrated Cancer Center Galim, Haifa (IL)

16.00 Questions from Stream

16.10 **Entering Zoom Room for Verbal Questions and Debate with Participants**

16.30 **Break**

(1) **Stream 1 (Plenary)**
Monday May 2 17.00 – 19.15

8. Status 2022 – Worldwide Developments in the Field of Non-Biological Complex Drug Products (NBCDs) and their Follow-on Versions; are we Closer to Regulatory Alignment?

Chair **Dr. Jon de Vlieger**, Coordinator NBCD Working group, Lygature, Utrecht (NL) and **Dr. med. Frank F. Weichold, Ph.D.**, Senior Science Advisor, Office of Regulatory Science & Innovation (ORSI) and Office of the Chief Scientist/Office of the Commissioner Food and Drug Administration (FDA), Silver Spring, MD (USA)

About Non-biological complex drug products (NBCDs) and their follow-on versions are used to treat many patients in different therapeutic areas. Nanomedicines are part of the NBCD family, and an increasing number of complex, innovative products are entering the market. At the same time, regulatory agencies across the globe have approved follow-on versions of the first generation of NBCDs, leading to NBCD follow-ons, nanosimilars, and/or complex generics. The complexity of these products has led to different decisions on marketing approval around the world. This session will update the state of affairs in the NBCD field and discuss the worldwide advances in regulatory science. The FDA and the European Medicines Agency (EMA) have launched a pilot program to provide parallel scientific advice to applicants seeking marketing authorization from the EMA for hybrid products and those filing abbreviated new drug applications (ANDAs) with the FDA for complex generic drugs. This pilot will be presented by its leaders and will lead to a lively discussion in the zoom room after the session.

17.00 **Why Harmonization is Needed: Glatiramer Acetate, a Case from Reality**
Dr. Paolo Rocco, Department of Pharmaceutical Sciences, University of Milan, Milan, (IT)

17.20 **Generic Drug Development and Bridging Global Regulations**
Dr. Sarah Ibrahim, Associate Director for Global Generic Drug Affairs at FDA, Office of Generic Drugs, US Food and Drug Administration, Maryland, FDA (USA)

17.45 **EMA's Approaches for Nanomedicines and Nanosimilars**
Dr. med. Kevin Blake PhD, Scientific Officer Clinical Pharmacology, Scientific Evidence Generation Department European Medicines Agency (EMA), Amsterdam (NL)

18.05 **Australia's TGA approach to Non-biological Complex Drugs and their Similars**
Dr. Anne Field, Principal Toxicologist (A/g), Toxicology Section, Medicines Regulation Division, Health Products Regulation Group, Scientific Evaluation Branch, Australian Government Department of Health, Woden (AUS)

18.25 **Complex Generics Containing Nanomaterials; developments in 2021 and 2022**
Dr. Wenlei Jiang, Senior Science Advisor, U.S. Food and Drug Administration, Maryland, FDA (USA)

18.45 Entering Zoom Room for Verbal Questions and Debate with Participants

19.15 End of Day 1

Tuesday, May 3, 2022

(1) Stream 1
Tuesday, May 3, 08.00 – 10.00

9. The History and Future of Lipids — the Building Blocks of the Structure and Function of Living Cells and their Role in Drug Delivery

Chair **PD Dr. Peter van Hoogevest,** Consultant at PHARMANOVATION and Member of the Scientific Advisory Council, Phospholipid Research Center, and Heidelberg (DE)

About Lipid nanoparticles (LNPs) and liposomes are the most advanced drug delivery system. Regulatory authorities have approved numerous LNP and liposomal drugs over the past decades, and we now have a wide variety of lipid-based nanoparticle formulations for multiple applications. In nanomedicine, LNPs and liposomes are probably the best choices for cargo transport because they fulfill many of the necessary aspects of a drug delivery vehicle. Frankly, without lipids, there would be no light-speed and efficient COVID-19 vaccine. This session will elucidate the evolution of phospholipids and discuss the future potential for lipid-based drug delivery in therapy.

08.00 The Phospholipid Research Center — Current Research in Phospholipids and their Use in Drug Delivery
PD Dr. habil. Simon Drescher, Managing Director, Phospholipid Research Center, Heidelberg (DE)

08.20 Why did Father Universe and Mother Nature beget Lipids?
Prof. em. Dr. Alfred Fahr, Institute of Pharmacy, Friedrich-Schiller-University Jena, (DE)

08.40 Liposomes and LNPs: the Best Nanotechnology?
PD Dr. Peter van Hoogevest, Consultant at PHARMANOVATION and Member of the Scientific Advisory Council, Phospholipid Research Center, Heidelberg (DE)

09.00 Drug Co-encapsulation in Lipid Nanoparticles for a Multimodality Approach to Cancer Therapy
Prof. Dr. med. Alberto A. Gabizon, Hebrew University - School of Medicine - Shaare Zedek MC Oncology Institute, Jerusalem (IL)

09.20 Questions form Stream

09.30 Entering Zoom Room for Verbal Questions and Debate with Participants

10.00 Break

(2) Stream 2
Tuesday, May 3, 08.00 – 10.00

10. Nanomedicine Applications and Platforms in Delivery and Precision Medicine

Chair **Prof Dr. Scott McNeil,** Professor of Nanopharmaceutical and Regulatory Sciences at the Faculty of Science, Department of Pharmaceutical Sciences, University Basel (CH)

08.00 Beyond Herd Immunity: Utilizing Precisely Organized Nanoimmunogen to Create a Personalized Vaccine for Immunocompromised Individuals
Dr. med Karen Zagorski, MS, Department of Pharmaceutical Sciences, University of Nebraska Medical Center, Omaha (USA)

08.15 Designing Personalized Polymer-based Combination Nanomedicines for Advanced Stage Breast Cancer Patients.
Dr. María J. Vicent, Head of Polymer Therapeutics Lab. and Coordinator of Advanced Therapies Area at Centro de Investigación príncipe Felipe, Valencia (ESP)

08.30 A Flexible Polymeric micromesh for the Intracranial Delivery of Small Molecules, Antibodies and Nanomedicines against Gliomas
Prof. Dr. Paolo Decuzzi, Ph.D. Senior Researcher and Professor, Director, Laboratory of Nanotechnology for Precision Medicine, Italian Institute of Technology, Genova (IT)

08.45 Synthesis, formulation and Characterization of cGAMP/ Glucuronic - Polyamidoamine Complexes for CD206 Targeted Delivery to M2 Macrophages
Marija Petrovic, MSc, PhD Candidate, Institute of Pharmaceutical Sciences of Western Switzerland, Geneva (CH)

09.00 Perspectives of Nano-carrier Drug Delivery Systems to Overcome Cancer Drug Resistance in the Clinics
Prof. Dr. Simó Schwartz Jr, M.D. Ph.D., Director Molecular Biology and Biochemistry Research Center for Nanomedicine(Cibbim-Nanomedicine), Hospital Universitari Vall d'Hebron, Vall d'Hebron Institut de Recerca (VHIR), Barcelona, (ESP)

09.15 Tailoring Lipid Nanoparticle Systems for Delivering Nucleic Acids to a Variety of Tissues
Dr. Dominik Witzigmann, CEO & Co-Founder, NanoVation Therapeutics, Vancouver (CND)

09.30 Entering Zoom Room for Verbal Questions and Debate with Participants

10.00 Break

(3) Stream 3
Tuesday, May 3, 08.00 – 10.00

11. Physical Approaches to help bringing Nanomedicines to the Clinic

Chair **Dr. Marieluise Wippermann**, CEO, TecoMedical Ltd, Sissach (CH)

About Nanophysics forms the basis of many phenomena and solutions in medicine and life sciences and represents an important interface to these various fields. For industrial pharmaceutical companies, novel developments allow the Integration of experimental and computational pharmacology to predict the effects of drug candidates. This session showcases novel developments in physics, nanomedicine, and chemistry.

08.00 Realistic In Vitro Models as Way to Real Individualized Medicine
Dr. Silke Krol, Laboratory for personalized medicine, IRCCS Ospedale Specializzato in Gastroenterologia "Saverio de Bellis", Castellano Grotte, BA (IT)

08.15 Appreciating and Exploiting the Mechanical Design of Proteins
Prof. Dr. Dr. h.c. Viola Vogel, Head of the Laboratory of Applied Mechanobiology, Department for Health Sciences and Technology (D-HEST), ETH, Zürich (CH)

08.30 Biomedical Nanoparticle Biotransformation: Analysis of the Early Dynamic Events in Situ
Dr. Peter Wick, Head of the Laboratory for Particles-Biology Interactions, Empa, St. Gallen (CH)

08.45 Role of Cell Receptors and Proteoglycans in Nanoparticle Uptake by Cells
Dr. Roberta Bartucci, Faculty of Science and Engineering Groningen Research Institute of Pharmacy (GRIP) Division of Nanomedicine & Drug Targeting, University of Groningen, Groningen (NL)

09.00 Nanomedicine Ex Machina: Design Strategies based on Clinical Relevance
Prof. Dr. Matthias Wacker, Associate Professor, Department of Pharmacy, Faculty of Science, National University of Singapore (SGP)

09.15 Identification of Corona Proteins Mediating Nanoparticle Uptake and Characterization of the Mechanism of Endocytosis
Prof. Dr. Anna Salvati, Associate Professor, Faculty of Science and Engineering, Department of Nanomedicine & Drug Targeting, Groningen Research Institute of Pharmacy (GRIP), University of Groningen, Groningen (NL)

09.30 Optimizations of Stable Nucleic Acid Lipid Nanoparticles Formulations for *in vitro* and *in vivo* Delivery of Plasmid DNA and siRNA to Cancer Using Design of Experiments
Yue Qin MSc, PhD student, King's College London, London (UK)

09.35 Entering Zoom room for Verbal Questions and Debate with Participants

10.05 Break

(1) Stream 1
Tuesday, May 3, 10.20 –12.30

12. Success Stories: From Hope to Research to Findings, Products, and Therapy

Chair **Dr. Cristianne J. F. Rijcken,** PharmD, PhD, Founder and CSO, Cristal Therapeutics, Maastricht (NL)

About The opinion regarding Nanomedicine as an overrated and hyped technology is still widespread. Often the argument is, that although nanomedicines have existed for 45 years, the development is slow and not a relevant topic for the top management of big pharma companies. It will take time until the leader-top managers will care about nanomedicine. The middle class of keen scientists and investigators will bring nanotechnology forward in the pharmaceutical industry by addressing specific development, regulation, and manufacturing challenges. In addition, at the clinic, nanomedicine is not a separate issue, and patients do not know whether their drugs are nanomedicine based. In 12 summits of CLINAM, we have seen many hurdles in the clinical translation of nanomedicines but also a wealth of progress in understanding the nature of these complex products. Presently nanotechnology in health is moving faster than ever towards development and success. Small and middle-size successful startup companies and spin-offs from research institutions assist more than 400 nanomedicines in clinical trials. Today, we use more than 50 nanomedicines. The successful COVID-19 vaccinations are typical nanodrugs, using lipid shells to deliver mRNA, saving the lives of millions of people. This session will elucidate some excellent accomplishments in nanomedicine in the last ten years and will show how former developments assist to cope with today's urgent needs in medicine.

10.20 BNT211: A Phase I/II Trial to Evaluate Safety and Efficacy of CLDN6 CAR-T and CARVac -based in Vivo Expansion to Improve Treatment of Patients with CLDN6-positive Advanced Solid Tumors
Dr. med. Benjamin Rengstl, Ph.D., Director Immunoreceptor Therapy, Medical Expert, BioNTech Cell & Gene Therapies, BioNTech SE, Mainz (DE)

10.35 Conception till Clinical Translation of Core-Crosslinked (CriPec®) Polymeric Micelles and future Diversification – results up to and including phase 2
Dr. Cristianne J. F. Rijcken, PharmD, PhD, Founder and CSO, Cristal Therapeutics, Maastricht (NL)

10.50 Next-Gen Liposomal Doxorubicin (Talidox): From Biophysics to Clinics
Dr. Stefan Halbherr, PhD, CSO, Research and Development, InnoMedica Holding AG, Bern (CH)

11.05 Liposomes, Lipid Nanoparticles and Artificial Intelligence in the Translation from the Bench to the Clinic
Prof. Dr. Avi Schroeder, Associate Professor of Chemical Engineering Laboratory for Targeted Drug Delivery and Personalized Medicine Technologies, Technion - Israel, Institute of Technology, Haifa (IL)

11.20 A Broad-Spectrum Antiviral Peptide for Combating Emerging Viral Pathogens
Prof. Dr. Nam-Joon Cho, School of Materials Science and Engineering Chair Professor, Principle Investigator, Engineering in Translational Science Professor, Nanyang Technological University, Singapore (SGP)

11.35 Nano diamond Magnetometry a Novel Tool for High-precision Detection of Free Radical Production in Single Cells
Dr. Alina Sigaeva, MSc, Postdoctoral researcher at Bioimaging & Bioanalysis group, Department of Biomedical Engineering, University Medical Center Groningen, Groningen (NL)

11.50 Entering Zoom room for Verbal Questions and Debate with Participants

12.30 Break

(2) Stream 2

Tuesday, May 3, 10.20 – 12.30 (13' including 2 for stream Questions)

13. From Novel Materials to Improved Therapies

A Session in Collaboration with the German Research Foundation (DFG) established "Collaborative Research Center on Nanodimensional Polymer Therapeutics for Tumor Therapy" organized by the CRC/SFB, Johannes Gutenberg University, Mainz (DE)

Chair **Prof. Dr. Matthias Barz,** Professor for Bio pharmacy, Leiden Academic Center for Drug Research (LACDR), Leiden University, (NL) and **Prof. Dr. Lutz Nuhn,** Chair of Macromolecular Chemistry, Faculty of Chemistry and Pharmacy, Julius Maximilian University Würzburg (DE)

About Beside the establishment of novel nanoparticle based therapeutic interventions also the molecular building blocks themselves have seen major improvement, which in some cases even enables completely new therapies. In this session we aim to present some recent developments and aim to provide a perspective on the impact of novel materials on nanomedicine and in particular immune therapies.

10.20 Beyond Polyester Nanoparticles for Targeted Anti-inflammatory Strategies
Prof. Dr. Ulrich S. Schubert, Institute Chair holder of Organic Chemistry and Macromolecular Chemistry (IOMC) Friedrich Schiller University Jena (DE)

10.35 Ultra-high Drug Nanoformulations: How are they Possible and Why does it Matter?
Prof. Dr. Robert Luxenhofer, Professor for Soft Matter Chemistry, Department of Chemistry, University of Helsinki, Helsinki (FI)

10.50 Macromolecular Based Strategies for Enhancing Immunotherapy Responses by Macrophage Repolarization
Prof. Dr. Lutz Nuhn, Chair of Macromolecular Chemistry, Faculty of Chemistry and Pharmacy, Julius Maximilian University Würzburg (DE)

11.05 Precision Polymer Nanoparticles
Prof. Dr. Rachel O'Reilly PhD FRSC CChem CSci MA MSci, Head of School of Chemistry Professor of Polymer Chemistry, University of Birmingham (UK)

Artificial Antigen Presenting Cells with Topological Control
11.20 **Prof. Dr. Jan C. M. van Hest,** Full Professor, Chemical Engineering and Chemistry, Bio-Organic Chemistry. Full Professor, Institute for Complex Molecular Systems, (ICMS) Eindhoven University of Technology (NL)

11.35 Biomimetic and Biofunctional Polypeptide-Based Self-assemblies
Prof. Dr. Sebastien Lecommandoux, FRSC, Full professor, Director Laboratory of Organic Polymers Chemistry, CNRS, University of Bordeaux. (FR)

11.50 PeptoMicelles in Immune Therapies
Prof. Dr. Matthias Barz, Full Professor for Biopharmacy, Leiden Academic Center for Drug Research (LACDR), Leiden University, Leiden (NL)

12.05 **Entering Zoom room for Verbal Questions and Debate with Participants**

12.30 **Break**

(3) Stream 3

Tuesday, May 3, 10.20 – 12.30

14. Dendrimers and Polymers as Nanocarriers

Chair **Prof. Dr. Lajos (Lou) Balogh, Ph.D.,** Editor-in-Chief, Precision Nanomedicine (CLINAM Journal PRNANO), Boston (USA)

About Properties of nanoscale objects are transitional between molecular and bulk regimes. Nanoscale properties exist for all materials, regardless of whether they are found in nature or are synthetic. Nano sized objects – either soft or hard – behave differently from both small molecules and micron-sized ones. Depending on their size, shape, and composition, they can bind and carry small molecules, e.g., drugs or imaging agents, on either surface or in the interior. Their distribution in the body may significantly differ from those of small molecules. Nanocarriers that carry

drugs or imaging agents may be targeted to specific receptors and reduce systemic toxicity due to their more beneficial biodistribution. Various nanocarriers have different properties that make them optimal for different tasks. These classes of nanomaterials and their use will be overviewed in this session.

10.20 Introduction to Nano-drug Delivery
Prof. Dr. Lajos (Lou) Balogh, Ph.D., Editor-in-Chief, Precision Nanomedicine, the official journal of CLINAM, Boston (USA)

10.35 Reflections on the Emergence of Dendrimers in Nanomedicine
Prof. Dr. Donald Tomalia CEO/Founder NanoSynthons LLC.National Dendrimer & Nanotechnology Center Mt. Pleasant, MI (USA)

10.50 Dendrimers: from Innate Immunity to Cardiology, Cardiovascular Medicine and beyond – the ASSA Phenomenon
Dr. med. Panagiotis (Panos) N. Trohopoulos, Cardiologist; Founder and Scientific / Exploitation / Strategic Coordinator of the Large-Scale EU FP7 NMP CosmoPHOS-nano Project; Founder / Owner / Managing Director of CosmoPHOS Ltd, Thessaloniki, (GRC)

11.05 Design and Development of a Dendrimer Conjugated Bcl-2/Bcl-xL Inhibitor with Improved Therapeutic Index
Prof. Dr. Marianne Ashford, Senior Principal Scientist, Advanced Drug Delivery, Pharmaceutical Sciences, R&D, AstraZeneca (UK)

11. 20 Cell-derived Vesicles as Novel Carriers for Antibiotics
Prof. Dr. Gregor Fuhrmann, Junior Research Group Leader, Helmholtz-Centre for Infection Research, Saarbrücken (DE)

11.35 Self-assembled PEGylated Amphiphilic Polypeptides for Gene Transfection
Dr. Stephanie Schubert, Jena Center for Soft Matter (JCSM), Laboratory of Organic and Macromolecular Chemistry, Friedrich Schiller University Jena, Jena (DE)

11.50 Exploiting Design of Experiment for Development of Polymeric Nanoparticles for Intranasal Delivery of Therapeutic Peptides to treat Neurological Disorders
Naveed Ahmad, Pharm.D, MPhil, PhD student, Institute of Pharmaceutical Science, Faculty of Life Sciences & Medicine, King's College London, London (UK)

12.05 **Entering Zoom room for Verbal Questions and Debate with Participants**

12.35 **Break**

(1) **Stream 1 (Plenary)**
Tuesday, May 3, 13.00 – 14.00

15. Fighting the Tumor from the Inside

Chair **Dr. med. h.c. Beat Löffler, MA,** CEO of the European Foundation for Clinical Nanomedicine, Basel (CH)

About At the discretion of a medical specialist, the magnetic nanoparticles are image-guided, interstitially applied into the tumor tissue, or immobilized onto the resection cavity wall after open surgery tumor resection (NanoPaste). The particles, which contain iron oxide, are activated contactless to the patient, using the NanoActivator® by an externally applied alternating magnetic field, which generates heat from within the tumor. This destroys tumor tissue directly by thermoablation, sensitizes them to combined radiotherapy and/or chemotherapy (hyperthermia), and triggers an immunogenic antitumor response within the brain. The method is regulatory approved in Europe for the treatment of brain tumors (Glioblastoma multiforme, GBM) and thus is applied routinely to eligible patients independent of clinical studies. Nevertheless, further joint randomized European clinical studies were initiated to confirm the safety and efficacy of the method and quality of life of the treated patients compared to the standard of care in each contributing country. The therapy system is also used in an FDA-approved clinical study for the focal ablation of intermediate-risk prostate carcinoma in the U.S.

13.00 The MagForce Story
Dr. rer. nat. Andreas Georg Jordan, Executive Vice President, and Managing Director Europe, Chief Scientific Officer, and Founder of MagForce Ltd., Berlin (DE)

13.35 Entering Zoom Room for Verbal Questions and Debate with Participants

13.50 Short Break

(1) **Stream 1 (Plenary)**
Tuesday, May 3, 14.00 – 15-00

16. The Bacteriophage Therapy

Chair **Prof. Dr. Dr. h.c. Viola Vogel,** Head of the Laboratory of Applied Mechanobiology, Department for Health Sciences and Technology (D-HEST), ETH, Zürich (CH)

About The bacteriophage therapy uses viruses to treat bacterial infections. Bacteriophages only attack bacteria; phages are harmless to people, animals, and plants. Bacteriophages are the natural enemies of bacteria.

14.00 A Need for Bacteriophage Therapy for AMR Infections and the Complex Challenges Associated with this Endeavor
Dr. med. Carl R. Merril, NIH Emeritus Scientist and Capt. USPHS (ret), Chief Scientific Officer, Board Director, Adaptive Phage Therapeutics, Gaithersburg, MD (USA)

14.30 Entering Zoom Room for Verbal Questions and Debate with Participants

15.00 Break

(1) **Stream 1 (Plenary)**
Tuesday, May 3, 15.30 – 20.10

17. Going against Antibiotic Resistance with Nanomedicine and the Voices of Worldwide Initiatives

Chair **Prof. Dr. Yechezkel Barenholz, Professor Emeritus, Head of Membrane and Liposome Research Lab, Hebrew University Hadassah Medical School, Jerusalem (IL)**

About When harmful bacteria become resistant to medicine, the cost is high to both, human health and society. Microbial resistance kills people and impedes control of infectious diseases, damages trade and economies. What possibilities exist to address the challenges? There are many approaches and initiatives, including nanomedicine for novel drugs for the treatment of infections caused by resistant bacteria. Also, there are novel approaches to explore improved diagnostics. Renowned experts in this field will present new knowledge and initiatives to support and incentivize antibiotic R&D. Nanomedicine has a huge potential to assist this goal.

15.30 Next Generation of Eco Friendly Antibiotics - How to Prevent Resistance
Prof. Dr. Ada Yonath, Nobel Laureate, Weizmann Institute of Science - Structural Biology Department Rehovot (IL)

16.00 Questions from stream

16.10 From Data to Action - Catalyzing the Transition from Evidence to Global AMR Policy Decisions
Dr. Ralf Sudbrak, Senior Scientific Programme Officer Global AMR R&D Hub, Berlin (DE)

16.25 Confronting AMR beyond the COVID-19 Pandemic
Dr. Valeria Gigante, Team Lead One Health Research Priority-setting and Synergy (OPS), Impact Initiatives and Research Coordination (IRC), Global Coordination Partnership (GCP) AMR Division, WHO, Geneva (CH)

16.40 Estimating the Appropriate Size of Global Pull Incentives for Antimicrobial Medicines
Prof. Dr. Kevin Outterson, Executive Director at CARB-X & Professor of Law, Boston University, Boston, Massachusetts (USA)

16.55 Questions from stream for 3 interventions

17.10 The Next Generation of Leaders in the Work against AMR.
Ms. Anna Govett, Project Lead, Future Leaders against AMR / First Class Graduate from Cambridge University (UK)

17.25 Antibacterial Drug R&D in the resistance era
Dr. Ursula Theuretzbacher, Owner, Center for Anti-Infective Agents, Vienna (AT)

17.40 Development, Procurement and Responsible Management of New Antimicrobials – the European Pull Incentive
Dr. Christine Årdal, Senior Researcher at Norwegian Institute of Public Health, University of Oslo, Oslo (NO)

18.00 Questions from stream for 3 interventions

18.15 Novel Drugs for Quality of Life in Bacterial Infections
Dr. Riccardo Nisato, Ph.D., Executive MBA, Manager & Entrepreneur in Life Sciences, Licensing and Grants Associate Manager at Debiopharm, Lausanne (CH)

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18.30 Nano-technology Based Drugs for the Treatment of Resistant Bacteria
Dr. Ahuva Cern, Researcher, Hebrew University of Jerusalem **and Prof. Dr. Yechezkel Barenholz**, Professor Emeritus Head of Membrane and Liposome Research Lab, Hebrew University Hadassah Medical School, Jerusalem (IL)

18.45 Questions from stream for 2 interventions

18.55 From Bench to Bedside: D-PLEX Limits AMR Occurrence in Randomized Double-blind Phase 2 trial in Colorectal Surgery Patients
Dr. Noam Emanuel, Chief Scientific Officer - Polypoid Ltd. Petach Tikva (IL)

19.15 Inorganic Antimicrobials - Nanozymes Combat Bacteria Hiding within Human Macrophages
Prof. Dr. Inge Herrmann, Department of Mechanical and Processing Engineering, Nanoparticle Systems Engineering Lab, ETH Zurich (CH)

19.30 Questions from stream for 2 interventions

19.40 **Entering Zoom Room for Verbal Questions and Debate with Participants**

20.10 **End of Day 2**

Wednesday, May 4, 2022

(1) **Stream 1**
Wednesday, May 4, 2022, 08.15 – 10.30

18. Immunological Complications of COVID Vaccination

Chair **Prof. Dr. Gert Storm,** Institute for Pharmaceutical Sciences, Utrecht University (N.L.), and Department of Surgery, National University Hospital NUS, Singapore (SGP)

About A tiny fraction of people immunized with COVID-19 vaccines develop an allergic reaction that can culminate in anaphylaxis. This session addresses the immune effects of nucleic acid/LNP therapeutics in general and some features of mRNA-LNP vaccine-induced allergic reactions.

08.15 Allergic Reactions to COVID Vaccines
Prof. Dr. med. János Szebeni, Head of the Nanomedicine Research and Education Center, Semmelweis University, Budapest (HU)

08.30 Immunological Properties of Therapeutic Nucleic Acids and Lipid-based Nanoparticles
Dr. Marina A. Dobrovolskaia Ph.D., MBA, PMP, Director of Operations Head of Immunology Section, Nanotechnology Characterization Laboratory, Frederick (USA)

08.45 A Porcine Model of Rare Allergic Reactions to LNP-mRNA-based COVID-19 Vaccines
Dr. habil. László Dézsi PhD, Research Associate Professor, Semmelweis University, Institute of Translational Medicine, Nanomedicine Research and Education Center, Budapest (HU)

09.00 Assessment of Allergic and Anaphylactic Reactions to mRNA COVID-19 Vaccines
Prof. Dr. med. Kari Christine Nadeau, Foundation Endowed Professor of Medicine and Pediatrics, Director of the Sean N. Parker Center for Allergy and Asthma Research, Stanford University, Stanford, California (USA)

09.15 COVID Vaccines and Allergic Reactions: Facts and Myths
Prof. Dr. Moein Moghimi, Professor of Pharmaceutics and Nanomedicine, School of Pharmacy, Newcastle University, Institute of Cellular Medicine, School of Medicine, Newcastle University (U.K.) and Adjoint Professor, University of Colorado Medical Center, Boulder, CO (USA)

09.30 Dithranol as Novel Co-adjuvant for Non-invasive Dermal Vaccination: Implications for Future Vaccine designs
Dr. rer. nat. Ann-Kathrin Hartmann, Department of Medicine - Hematology, Oncology, Pneumology, University Medical Center of the Johannes Gutenberg-University, Mainz (DE)

09.45 **Entering Zoom Room for Verbal Questions and Debate with Participants**

10.30 **Break**

(2) **Stream 2**
Wednesday, May 4, 08.15 –10.30

19. Miscellaneous Topics: (a) Publishing, (b) Brain Therapy, (c) Innovative Nanoformulations

Chair **Dr. Silke Krol,** Laboratory for personalized medicine, IRCCS Ospedale Specializzato in Gastroenterologia "Saverio de Bellis", Castellano Grotte, BA (IT)

08.15 –08.45

19 A: Information in Nanomedicine

About Moving up the professional ladder is an existential issue for every scientist. Thus, demonstrating the "impact" of their work is a must and nowadays is done by increasing the number of publications. Unfortunately, chasing (journal) impact factors and favoring the number of publications instead of their quality is a real problem. In addition, for some, the "publish or perish" attitude means "whatever it takes." The ease of online publishing gave rise to predatory publishing, paper mills, and outright disinformation. The selection of articles to trust and detect potential problems requires understanding how values can be identified in this virtual world. The speaker in this session has worked for more than 30 years in the publishing field and will speak about his criteria for selecting useful information.

08.15 Litter–ature and Fake Science - What to Watch Reading Publications?
Prof. Dr. Lajos (Lou) Balogh, Ph.D., Editor-in-Chief, Precision Nanomedicine, (PRNANO), the official Journal of CLINAM, Boston (USA)

08.35 Questions form Stream

08.45 - 09.30

19 B: Nanomedicine for Brain Therapy

About Brain diseases including neurodegenerative disorders and tumors are serious health hurdles, lowering massively the quality of life. Nanoparticles that load and deliver drugs and genes and have been intensively studied for the treatment and therapy of brain injuries. Also the developments of targets in Diagnosis are issue of novel developments.

08.45 Molecular K-edge Nanoprobes for Multiplexed Photon Counting Imaging of Subdural Hematoma in Human Brain Tissues
Nivetha Gunaseelan, M.Eng, Research Fellow University of Maryland, Baltimore (UMB) Baltimore, Maryland (USA)

09.00 Microvascular Clots as a New Target for Nano-Scale drug-Delivery into Injured Brain
Dr. Igor Khalin Institute for Stroke and Dementia Research (ISD), University of Munich Medical Center, Munich (DE)

09.15 Exploiting the Blood-brain Barrier Impermeability to Generate Artificial Brain Targets for Nanoparticle Delivery
Dr. Daniel Gonzalez Carter, Ph.D. 'La Caixa' Junior Leader Research Fellow Molecular Bionics Laboratory, Institute for Bioengineering of Catalonia (IBEC), Barcelona (SP)

09.30-10.00

19 C: Innovative Nanoformulations for Future Medicine

About One of the goals of nanomedicine is to improve the ability of a drug to reach and accumulate in sufficient quantities in its cell or tissue target. But before obtaining this, a fastidious work of research and development bringing together different fields of expertise is deployed. In the following presentations you will see some examples of squalene-based nanomedicines developed for cardiovascular applications.

09.30 A Novel Multidrug Nanoparticle Formulation Assessment in a Cardiac Ischemia Reperfusion Model
Natalie Lan Linh Tran, MSc, PhD Candidate, Registered Pharmacist, Université Paris-Saclay Paris, Île-de-France (FR)

09. 45 New Nanoparticle Formulation for Cyclosporin A: In Vitro Assessment
Prof. Mariana Varna-Pannerec, PhD, HDR, (MCU), UFR de Pharmacie, Université Paris-Saclay, UMR CNRS 8612, Institut Galien Paris-Saclay, Châtenay-Malabry (FR)

10.00 **All Speakers of Session 19: Entering Zoom Room for Verbal Questions and Debate with Participants**

10.30 **Break**

(3) Stream 3
Wednesday, May 4, 08.15 –10.30

20. Interdisciplinary Regenerative Nanomedicine

Chair **Prof. Dr. Bert Müller** Thomas Straumann-Professor for Material Science in Medicine, University of Basel, Allschwil (CH)

About An increasing gap between organ donation and transplantation has inspired researchers to search for alternatives. Regenerative medicine aims at creating living, functional tissues to repair or replace tissue or organ function lost. Nanotechnology has considerably accelerated the advancement in regenerative medicine often based on smart biomaterials. This session will elucidate various facets of this development.

08.15 Generating Personalized Tissue Implants: from 3D Printing to Bionic Organs
Prof. Dr. Tal Dvir, Director, center for Nanoscience and Nanotechnology, Director, Sagol Center for Regenerative Biotechnology, Tel Aviv University (IL)

08.30 Imaging and Image Analysis for Stem Cell-Mediated Distraction Osteogenesis
Prof. Dr. Bert Müller, Thomas Straumann-Professor for Material Science in Medicine, University of Basel, Allschwil (CH)

08.45 Microtissue Platform to Study Crucial Events in Tissue Growth
Dr. med. vet., Dr. sc. ETH Mario Christian Benn, Laboratory of Applied Mechanobiology, Institute of Translational Medicine, Department of Health Sciences and Technology, ETH Zurich (CH)

09.00 Virtual 3D Surgery Planning and 3D Printing of Patient-specific "Smart Implants" at the Point-of-care
PD Dr. med. Dr. med. dent. Florian M. Thieringer, MHBA CMF Surgeon, Head of Swiss MAM & MIRACLE II Co-PI, Innovator, Medical 3D Expert, University Hospital Basel, Basel (CH)

09.15 Novel microRNA-releasing Lipoplexes Encapsulated in Injectable Hydrogel for Cardiac Regenerative Medicine
Letizia Nicoletti, MSc, PhD student in Bioengineering and Medical-Surgical Sciences, Department of Mechanical and Aerospace Engineering (DIMEAS), Politecnico di Torino, Torino (IT)

09.30 3D-(Bio-) Printing for Advanced in Vitro Systems to Investigate Nano-Antibiotics against Bacterial Infections
Samy Aliyazdi, PhD student, Helmholtz Institute for Pharmaceutical Research Saarland (HIPS) , Department of Drug Delivery (DDEL) (DE)

09.45 **Entering Zoom Room for Verbal Questions and Debate with Participants**

10.30 **Break**

(1) **Stream 1**

Wednesday, May 4, 10.50 – 12.30

21. Late Breaking Trials in Various Disease Fields

Chair **Prof. Dr. med. Christoph Alexiou**, Else Kröner Fresenius-Foundation-Professorship for Nanomedicine, Head Division Experimental Oncology/Nanomedicine, University Hospital Erlangen (DE)

About Researchers, Entrepreneurs and Clinicians provide at CLINAM every year results of their latest data from clinical trials and showcase the value and the impact of their findings for the development of nanodrugs at the clinic.

10.50 Talineuren: World´s Smallest Glycolipid-Based Nano Drug Against Neurodegenerative Diseases: A Journey to Clinics and Beyond
Dr. Camille Peitsch, Head of Research & Development, InnoMedica Holding AG, Bern (CH)

11.15 Radioligand Therapy in Prostate Cancer Results from a Recent Phase 3 Study
Dr. Andrew Cavey, Global Program Head, Prostate Cancer, Novartis, Basel (CH)

11.40 The Via Dela Rosa of Ayana Pharma Generic Doxil Approval by the FDA
Prof. Dr. Yechezkel Barenholz, Professor Emeritus, Head of Membrane and Liposome Research Lab, Hebrew University Hadassah Medical School, Jerusalem (IL)

12.05 Entering Zoom Room for Verbal Questions and Debate with Participants

12.30 Break

(2) **Stream 2**

Wednesday, May 4, 10.50 – 12.25

22. Regulatory Matters: An international Overview

Chair **Prof. Dr. med. Marisa Papaluca Amati,** Regulatory Science and Innovation Visiting Professor, Imperial College London, Department of Primary Care & Public Health School of Public Health Faculty of Medicine, London (UK)

About International regulatory collaboration with stakeholders in the fight against the pandemic acted as catalyst for un-precedented changes in innovative products development and deployment. What are the lessons for the future?

10.50 Introduction on the Situation in International Regulatory Management in Nanomedicine
Prof. Dr. med. Marisa Papaluca Amati, Regulatory Science and Innovation Visiting Professor, Imperial College London, Department of Primary Care & Public Health School of Public Health Faculty of Medicine, London (UK)

11.05 Nanomedicines – Ensuring Patient Safety through Regulatory Clarity
Dr. Mike Isles, Executive Director, European Alliance for Access to Safe Medicines (EAASM), Essex (UK)

11.20 Progress in Research, Regulation and Policy at U.S. FDA
Dr. Anil Patri, Chair, Nanotechnology Task Force, Director, NCTR-ORA Nanotechnology Core Facility, U.S. Food and Drug Administration (FDA), National Center for Toxicological Research (NCTR), Jefferson, AR (USA)

11.35 Advancing Regulatory Science by Knowledge Exchange across Regulatory Domains
Robert E. Geertsma, M.Sc., Centre for Health Protection, National Institute for Public Health and the Environment (RIVM), Bilthoven (NL)

11.50 Entering Zoom Room for Verbal Questions and Debate with Participants

12.25 Break

(3) **Stream 3**

Wednesday, May 4, 10.50 – 12.25

23. Nanomedicine, Small Molecule Medicine and Pharmacokinetics in Infection and Inflammation

Chair **Prof. Dr. med. Raymond Schiffelers,** Professor of Nanomedicine; Division LAB CDL Research; UMC Utrecht; chairman of the ETP Nanomedicine Executive Board, Utrecht (NL)

About Recent efforts in nanomedicine research have provided scientists with nanocarriers designed to match the specific requirements for the treatment of different inflammatory and infectious disease conditions. The optimization of pharmacokinetics and biodistribution is of utmost importance for the success of nanomedicines

10.50 Novel Neuro-Immunomodulatory Therapy for Dementia Model Mouse Interpreted by Spatial Transcriptomics
Prof. Dr. med. Dong Soo Lee, Professor of Nuclear Medicine, Seoul National University, Seoul (KOR)

11.05 Inhalation of Antibiotics in Cystic Fibrosis; Developments, Facts and Fiction.
Prof. Dr. Daan J. Touw, PharmD, PhD, Hospital Pharmacist - Clinical Pharmacologist/Toxicologist ERT; Head clinical pharmaceutical and toxicological laboratory, University Medical Center Groningen; Department of Clinical Pharmacy and Pharmacology, Groningen (NL)

10.20 Development and Validation of 3.3' -Diindolylmethane Nanoformulation for the Treatment of Inflammatory Diseases
Dr. Bumjun Kim, Postdoctoral scholar, Chemical and Biological Engineering Department, Princeton University, Princeton NJ (USA)

10.35 Translational Models to Evaluate Pharmacokinetic Properties of Nanomedicines
Prof. Dr. Jörg Huwyler, Professor of Pharmaceutical Technology, University of Basel, Basel (CH)

11.50 **Entering Zoom Room for Verbal Questions and Debate with Participants**

12.25 **Break**

(1) **Stream 1**

Wednesday, May 4, 12.45 –15.00

24. Beyond LNPs RNA Formulation & Drug Delivery and Diagnosis during COVID: Ongoing Developments

Chair: **Dr. Heinrich Haas**, Vice President Formulation & Drug Delivery, BioNTech SE, Mainz (DE)

About: mRNA vaccines have the potential to solve many multiple challenges in vaccine development for infectious diseases and cancer. Since the COVID-19 pandemic, the mRNA-vaccine field has been growing rapidly. Many preclinical data are being accumulated for several years, and multiple human clinical trials have been initiated. In this session, we will elucidate besides mRNA vaccine on lipid shells other approaches and Disease fields and discuss the latest findings

12.45 RNA Formulation & Drug Delivery during COVID: Ongoing Developments Beyond LNPs
Dr. Heinrich Haas, Vice President Formulation & Drug Delivery, BioNTech SE, Mainz (DE)

13.00 RNA Therapeutics in Ophthalmology - Translation to Clinical Trials
Dr. Cynthia Yu-Wai-Man MBBS FRCOphth Ph.D. - King's College, London (UK)

13.15 A Nanofluidic Device for Reliable and Quantifiable Diagnostics for Covid-19
Dr. Yasin Ekinci, Head of the Laboratory of X-ray Nanoscience and Technologies, Paul Scherrer Institute (CH)

13.30 Immuno-Modulation & mRNA-based Protein Replacement Therapy Programs for Treatment of Pulmonary Disease
PD Dr. Carsten Rudolph, Ph.D., co-founder of Ethris, lead inventor of its SNIM® RNA Technology, Ethris GmbH, Planegg (DE)

13.45 The CMC Perspective of mRNA Based Medicines - How Stable are mRNAs In and Outside their Delivery Vehicle?"
Dr. Michael Keller, PhD, Expert Scientist, F. Hoffmann-La Roche Ltd. pCMC Drug Delivery & Preformulation Sciences, Basel (CH)

14.00 Addressing the Cold Reality of mRNA Vaccine Stability
Prof. Daan Crommelin, Emeritus Professor at the Department of Pharmaceutics, Utrecht University (N.L.), Adjunct Professor at the Department of Pharmaceutics and Pharmaceutical Chemistry at the University of Utah (USA), Cofounder of Octoplus, Leiden (NL)

14-15 mRNA/siRNA Combinatory Delivery to Unblock Immune Checkpoint Inhibition in Solid Tumours Using Stable Nucleic Acids Nanoparticles
Prof. Dr. Khuloud T. Al-Jamal FRSC, MRPharmS, FHEA, Chair of Drug Delivery & Nanomedicine
Head of Medicines Development, Institute of Pharmaceutical Science, School of Cancer & Pharmaceutical Sciences, King's College London, London (UK)

14.30 **Entering Zoom Room for Verbal Questions and Debate with Participants**

15.00 **Break**

(2) **Stream 2**
Wednesday, May 4, 12.45 – 13.30

25. Nanomedicine in Neglected Diseases

Chair **Prof. Dr. Pascal Mäser,** Leader of the Parasite Chemotherapy Unit of the Swiss TPH, Associate Professor of the University of Basel, Basel (CH)

Parasites are the causative agents of a plethora of human diseases. In the absence of effective vaccines, their sustainable control largely depends on chemotherapy; but is jeopardized by the evolution of drug resistance. This affects many parasitoses and vectors. Nanoparticles offer to hope to circumvent drug resistance.

12.45 Emulsomes Improve Antileishmanial Activity of Bisnaphthalimidopropyl (BNIP) Derivatives against Leishmania Infantum Parasites
Dr. Mehmet Hikmet Ucisik, Department of Genetics and Bioengineering, Faculty of Engineering, Yeditepe University, Istanbul (TUR)

12.55 The Multiple Challenges in the Implementation of Schistosomiasis and Soil-transmitted Helminths' Control Interventions in the Ituri Province, DRC
Dr. Maurice Nigo Mutro, Director, Institut Supérieur des Techniques Médicales (ISTM), Bunia (DRC)

13.05 Fighting Vector-borne Diseases in Iberoamerican Regions with Nanoformulations
Prof. Dr. Fabio Rocha Formiga, Research Scientist and Professor, Aggeu Magalhães Institute, Oswaldo Cruz Foundation (FIOCRUZ), and Faculty of Medical Sciences (FCM), University of Pernambuco (UPE), Recife, Brazil.

13.15 Entering Zoom Room for Verbal Questions and Debate with Participants

13.35 **Break**

(2) **Stream 2** (continuation)
Wednesday, May 4, 13.45 – 15.00

26. Phages in Nanomedicine

Chair **Prof. Dr. Dr. h.c. Viola Vogel,** Head of the Laboratory of Applied Mechanobiology, Department for Health Sciences and Technology (D-HEST), ETH, Zürich (CH)

About Natural abilities to bind to and kill bacteria were a starting point for utilizing phages in phage therapies (i.e., medical treatments that use phages to fight bacterial infections) and for bacteria detection.

13.45 Fighting Chronic Bacterial Infections with Nature's Finest Nanomachines
Dr. Alexander Harms, Project Leader, Biozentrum, University Basel, Basel (CH)

14.00 Can AI Assist in the Rapid Identification of Bacteriophage Strains for Infections in Individual Patients?
Dr. Carl R. Merril, NIH Emeritus Scientist and CAPT USPHS (ret), Chief Scientific Officer, Adaptive Phage Therapeutics, Gaithersburg, MD (USA)

14.15 Phage Therapy: Hope or Hype?
Prof. Dr. Yok-Ai Que, Associate Professor & Senior Physician at Department of Intensive Care Medicine, Inselspital, Bern University Hospital, Bern (CH)

14.30 **Entering Zoom Room for Verbal Questions and Debate with Participants**

15.00 **Break**

(3) **Stream 3**
Wednesday, May 4, 12.45 –15.00

27. Carbon Nanomaterials and their Journey in Medicine

Chair **Prof. Dr. Kostas Kostarelos**, Professor and Chair of Nanomedicine, Faculty of Biology, Medicine & Health, University of Manchester, Manchester (UK) and Severo Ochoa Distinguished Professor, Catalan Institute of Nanoscience and Nanotechnology (ICN2), Barcelona (ESP).

About Carbon nanomaterials have attracted the interest of many different scientific and technological fields since the inception of nanotechnology as a discipline. Hundreds of thousands of studies later, two Nobel prizes awarded and dozens of awards later, carbon nanomaterials offer a rich toolbox of opportunities for translation in various application areas. A perspective of the unique properties and their combination that carbon nanomaterials offer for application in medicine will be offered, with an emphasis on the most contemporary efforts in utilizing those for interfacing, understanding and modulating brain functions

12.45 From Fullerenes to Carbon Nanotubes to Graphene: Biomedical Applications of Carbon Nanotechnology
Prof. Dr. Kostas Kostarelos, Professor and Chair of Nanomedicine, Faculty of Biology, Medicine & Health, University of Manchester, Manchester (UK) and Severo Ochoa Distinguished Professor, Catalan Institute of Nanoscience and Nanotechnology (ICN2), Barcelona (ESP)

13.00 Carbon Nanomaterials to Manipulate Neuronal Networks and Synapses at the Nanoscale
Prof. Dr. Laura Ballerini, Neurobiology Group, Scuola Internazionale Superiore di Studi Avanzati di Trieste SISSA, Trieste, (IT)

13.25 Graphene Materials for Visual Prostheses Aiming at Restoring Vision
Prof. Dr. Serge Picaud, Directeur de l'Institut de la Vision, Sorbonne Université/ INSERM UMR_S968/ CNRS UMR 7210, Paris (FR)

13.50 Graphene Transistors Recording and Monitoring Epilepsy
Dr Rob Wykes, Pewterers Senior Research Fellow, Dept Clinical & Experimental Epilepsy, UCL Queen Square Institute of Neurology, London (UK)

14.15 Questions from stream

14.30 **Entering Zoom Room for Verbal Questions and Debate with Participants**

15.00 **Break**

(1) **Stream 1**
Wednesday, May 4, 15.30 – 17.55

28. Overcoming Barriers - Pharmaceutical Development and Manufacturing (APV)

A Session in collaboration with the International Association of Pharmaceutical Technology (APV)

Chair **Dr. Bernd Riebesehl,** Executive Director TPPM, Project Head TRD & PHAD Innovation Committee Novartis Leading Scientist, Novartis Campus, Basel (CH)

About The pharmaceutical choices for achieving specific drug delivery objectives and therapeutic breakthroughs underwent surprising changes upon the evolving product space for small molecules, new and mixed modalities, and drug delivery concepts. This session shall feature on learnings and perspectives regarding pharmaceutical development and manufacturing of nanomedicines for breakthroughs on unmet medical needs.

15.30 Perspective of the International Association of Pharmaceutical Technology (APV)
Prof. Dr. Jörg Breitkreutz, President of the International Association for Pharmaceutical Technology (APV); Institute of Pharmaceutics and Biopharmaceutics, Heinrich-Heine-University Düsseldorf, Düsseldorf (DE)

15.45 What can Nanomedicine Research Learn from the Evolution of the Global Pipeline & Market Insights?
Dr. Kurt Sedo, Vice President Operations, PharmaCircle, Encinitas, California (USA)

16.00 Novel Human Single Domain Antibody Drug Conjugates for Oncology
Prof. Dr. Mark Chiu, President at Tavotek Biotherapeutics, Malvern, Pennsylvania, (USA)

16.15 Accelerated Development and Clinical Readiness of Genomic Medicines
Dr. Lloyd Jeffs, Senior Director of Biopharmaceutical Development, Precision NanoSystems, Inc., Vancouver (CAN)

16.30 T-Charge™, Next-Generation CAR-T Platform with First-in-Human Data
Dr. Boris Engels Associate Director at Novartis Institutes for BioMedical Research (NIBR), Arlington (USA)

16.45 High-throughput In-vivo Screening to Enable Extra-hepatic Delivery of LNPs
Dr. Luis Brito. Vice President, Delivery Platform at Beam Therapeutics, Northeastern University, Concord, Massachusetts, (USA)

17.00 Questions form stream

17.15 **Entering Zoom Room for Verbal Questions and Debate with Participants**

17.45 **Break**

(2) **Stream 2**
Wednesday, May 4. 15.30 – 17.40

29. Nano Interacting With Life

Chair **Prof. Dr. Barbara Rothen-Rutishauser,** Co-Chair BioNanomaterials, Adolphe Merkle Institute, University of Fribourg (CH)

Nanomaterial interactions with living systems and the environment across the entire life cycle of nanomaterials. What are the mechanisms and how do nanoparticles behave in different biological environments? Presentations include cell interaction, the importance of degradation and excretion and new methods for evaluation and screening of Nanoparticles for therapeutic applications. In addition, an intervention will elucidate the question: Is life possible in extreme conditions?

15.30 What Macrophages can do with Internalized Nanoparticles?
Prof. Dr. Barbara Rothen-Rutishauser, Co-Chair BioNanomaterials, Adolphe Merkle Institute University of Fribourg (CH)

15.45 A Lesson from Nature towards Life in Extreme Conditions – from Nano Scale to Complex Systems
Dr. Mira Marcus-Kalish, Ph.D Director, international research affairs, Tel Aviv University Ramat Aviv, (IL).

16.00 Entry of Nanoparticles into Cells: Small Variations in Structure Dictate the Cellular Response
Prof. Dr. Kirsten Sandvig, Professor, Institute for Cancer Research, the Norwegian Radium Hospital, Oslo University Hospital, Montebello, Oslo (NO)

16.15 Development of Nanoparticles for Clinical Use: Evaluation of Biodistribution Studies and Importance of Degradation and Excretion
Dr. Tore Skotland, Institute for Cancer Research, the Norwegian Radium Hospital, Oslo University Hospital, Montebello, Oslo (NO)

16.30 Bioinspired Hyaluronic Acid-coated Gold Nanoparticles to Target Lung Cancer Cells
Dr. Beda Begum Karakoçak, Senior Scientist, Adolphe Merkle Institute, University of Fribourg (CH)

16.45 Towards Nanomedicine in Pregnancy: Establishing a Physiologically Relevant in Vitro Platform to Assess Placental Transfer and Systemic Effects at the Maternal-fetal Interface
Dr. sc. nat. Tina Buerki-Thurnherr, Scientific Group Leader, Empa, Swiss Federal Laboratories for Materials Science and Technology, St. Gallen (CH)

17.00 Questions form stream

17.15 **Entering Zoom Room for Verbal Questions and Debate with Participant**

17.45 **Break**

(3) Stream 3
Wednesday, May 4. 15.30 – 17.45

30. Nanomedicine in Cancer

Chair **Dr. José M Carballido**, Executive Director, Translational Medicine / Preclinical Safety, Novartis Institutes for Biomedical Research, Basel (CH)

About The development of new methodologies for cancer therapy and diagnosis is one of the big goals of current nanomedicine. Immunotherapy employing nanomaterials and imaging tools offer effective ways to stimulate the immune system and assess the outcome of the treatment.

15.30 Inhibiting Intracellular Targets with Nanomedicine
Dr. Diana Fernandes de Sousa Rafael, PharmD, PhD Research Cientistas, CIBBIM-Nanomedicine Institut de Recerca, Hospital Universitari Vall d'Hebron, Barcelona (ESP)

15.45 Systemic mRNA-LNP Vaccines for Antitumor Immunity by Engaging Splenic Immune Cells
Prof. Dr. med. Raymond Schiffelers, Professor of Nanomedicine; Division LAB CDL Research; UMC Utrecht; chairman of the ETP Nanomedicine Executive Board, Utrecht (NL)

16.00 Spleen Targeting of Liposomal Antigens in Cancer Immunotherapy
Prof. Dr. Gert Storm, Institute for Pharmaceutical Sciences, Utrecht University (N.L.), and Department of Surgery, National University Hospital NUS, Singapore (SGP)

16.15 Cancer-immunotherapy Using Iron Oxide Nanoparticles
Prof. Dr. med. Christoph Alexiou, Else Kröner Fresenius-Foundation-Professorship for Nanomedicine, Head Division Experimental Oncology/Nanomedicine, University Hospital Erlangen (DE)

16.30 Nanomaterial Reprogramming of Immune Cells in Cancer Stroma to Unlock the Efficacy of Systemic Immunotherapy
Dr. Tom Kisby, Senior Scientist and Leader of the NanoTherapeutics Team, Nanomedicine Lab, University of Manchester, Manchester (UK)

16.45 Novel Sterically Stabilized Nanoliposomes Based on Cisplatin-carboxylate Conjugate for Colon Cancer Therapy
Prof. Dr. Seyedeh Hoda Alavizadeh, (Pharm. D., Ph.D), Assistant professor, Department of Pharmaceutical Nanotechnology, Vice Dean of Postgraduate and Complementary Education Affairs, School of Pharmacy, Mashhad University of Medical Sciences, Mashhad,(IRN)

17.00 Engineering "Tail-Flipping" Liposomes to Target and Re-program Tumor-associated Macrophages in Pre-clinical Animal Models
Prof. Dr. Jai Prakash, Professor & Chair, Engineered Therapeutics, Department of Advanced Organ Bioengineering and Therapeutics, University of Twente, Enschede (NL)

17.15 **Entering Zoom Room for Verbal Questions and Debate with Participants**

17.45 **Break**

(1) **Stream 1** (Plenary)
Wednesday, May 4, 18.00– 18.40

31. Future Applications for Treatment of Infectious Diseases, Inherited Diseases and Chronic Disorder

Chair **Dr. Stefan Halbherr, Ph.D.** CSO, Research and Development, InnoMedica Holding AG, Bern (CH)

t This presentation will cover the history of developing Onpattro and the Pfizer/BioNTech Covid-19 vaccine. It will point out the many future applications for treating infectious diseases, rare inherited diseases, and chronic disorders.

18.00 Lipid Nanoparticles, Gene Therapy and the Pfizer/BioNTech Covid-19 Vaccine
Prof. Dr. Pieter Cullis. Professor of Biochemistry, University of B.C. (UBC) Vancouver, Cofounder of Acuitas Therapeutics, lipid nanoparticle technology, Vancouver (CAN)

18.35 Questions from Stream

(1) **Stream 1 (Plenary)**
Wednesday, May 4, 18.40 – 19.40

32. The Application of Nanotechnology for the Study and Treatment of Rare Genetic Diseases

Chair **Dr. Mira Marcus-Kalish, Ph.D** Director, international research affairs, Tel Aviv University Ramat Aviv (IL)

About Various genetic errors of metabolism disorders, such as phenylketonuria, tyrosinemia, maple syrup disease and homocystinuria, are characterized by the accumulation of various metabolites in blood, tissues, and organs. It was recently established that this accumulation could lead to the formation of amyloid-like structures by the process of self-assembly.

18.40 Self- assembly in Inborn Error of Metabolism Disorders: New Therapeutic Path for Rare Disease
Prof. Ehud Gazit, Ph.D. FRSC FNASc OSSI, Founding Director, BLAVATNIK CENTER for Drug Discovery Incumbent, Chair for Biotechnology of Neurodegenerative Diseases, Tel Aviv (IL)

19.15 Questions from Stream

19.20 **Entering Zoom Room for Verbal Questions and Debate with Participants** *for both plenary sessions*

19.40 End of the CLINAM-Summit 2022

Participants in the CLINAM 13 / 2022 Virtual Exhibition

Virtual live streaming is a challenge and a solution

Online we will discuss best science and technologies in the speeches. CLINAM proposes to all exhibitors to set up their own virtual booth on their website. Also they have the possibility to showcase video presentations of their premises during the breaks of the programme and during for advertisement available live streams. They show here feature videos and live streams on their work, research and an outlook to the future. In the CLINAM-VIRTUAL LOUNGE 2022 by Clicking on the logo viewers will reach exhibitor's website.

The following companies and institutions present in the virtual exhibition and video presentations

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Poster Presentations

Name	Institution	Abstract Title
Agbo, Chinazom	University of Nigeria	Chitosan-based Quinine Thermosensitive Gels for the Intranasal Treatment of Cerebral Malaria in rural areas in Sub-Saharan Africa
Angelov, Borislav	Czech Academy of Sciences	Soft Biomimetic Lipid Membrane-based Nanoparticle Carriers of Neuroprotective Compounds
Arabi, Leila	School of Pharmacy Iran	Liposomal Celecoxib Combined with Dendritic Cell Therapy in B16F10 Mouse Model for Melanoma
Bahlool, Ahmad	Royal College of Surgeons	Development of Inhalable Retinoic acid-loaded Polymeric Nanoparticles as Targeted Host Directed Immunotherapy for Mycobacterium Tuberculosis
Baker, Rafal	King's College London	Nose-to-brain Delivery of Riluzole-loaded Polymeric Nanoparticles for The Treatment of Amyotrophic Lateral Sclerosis
Brain, Danielle	University of Liverpool	Assessment of Cell Phenotype Following Repeat Exposure to NRTIs: FTC and 3TC
Deuker, Mareike	Max Planck Institute for Polymer Research, Mainz	Interaction of Nanocarriers with Anti-PEG Antibodies
Di Francesco, Martina	Istituto Italiano di Tecnologia	Polymeric Squared MicroPlates as a New Tool for the Local Treatment of Post-Traumatic Osteoarthritis
Fichter, Michael	Johannes Gutenberg University, Mainz	Achieving Dendritic Cell Subset-specific Targeting in Vivo by Site-directed Conjugation of Targeting Antibodies to Nanocarriers
Fragassi, Agnese	Istituto Italiano di Tecnologia	Co-delivering of Docetaxel and Curcumin using Polymeric Nanoconstructs for the Treatment of Neuroblastoma
Francia, Valentina	University of Basel	Development of a Liposomal Nanoformulation for the Treatment of Lysosomal Storage Diseases
Gaikwad, Hanmant	University of Colorado	Lipid Nanoparticle Formulation of Niclosamide (nano NCM) effectively inhibits SARS-CoV-2 replication in vitro
Gardey, Elena	Jena University Hospital	Selective Uptake into Inflamed Human Intestinal Tissue & Immune Cell Targeting by Wormlike Polymer Micelles
Gaspar, Manuela	Universidade de Lisboa	Liposomes - a Highly Efficient Drug Delivery System for Different Clinical Applications
Gatin, Eduard	University of Bucharest	Raman Spectroscopy: In Vivo Application for Bone Evaluation in Oral Surgery
Han, Shunping	King's College London	Comparative Analyses of Gold Nanorod Uptake in Mice Brain after Intranasal Administration
Heiss, Bettina	Klinikum, University München	Enhancing Drug Efficacy with a Heat-Activated Drug-Delivery Platform based on Phosphatidyl-(oligo)-Glycerol Nanocarrier
Kaur, Satinderdeep	Nottingham Trent University	Mechanism Behind Selective Infiltration of Lipid Nanoparticles in the Spleen Following Ischemic Stroke
Krehan, Joshua	Johannes Gutenberg-University, Mainz	Nanocarrier Systems Targeting the Tumor Microenvironment: From pH-modulating Nanocapsules to the Choice of Antibody Attachment
Kumar, Lekshmi	Amrita Vishwa Vidyapeetham University	Phycocyanin Sorafenib Nanoformulation with Enhanced Oral Bioavailability and Anti-tumor Efficacy Against FLT3-ITD Acute Myeloid Leukemia
Laprévotte, Emilie	Perseo Pharma AG, Muttenz	Gut-homing Stable Enzyme Activities to Develop Efficient Digestive Therapies
Liam-Or, Revadee	King's College London	Culturing Conditions of Mesenchymal Stem Cells Derived Exosomes Alter their Protein Corona Formation, Cellular Uptake and in Vivo Organ Biodistribution
Medina-Montano, Carolina	Johannes Gutenberg University, Mainz	Biological Effects of Systemically Administered TLR7/8 Agonist and Antigen-conjugated Nanogels on Immune Cell Populations in the Liver and in the Spleen

Mzyk, Aldona	University Medical Center Groningen	Nanodiamond Magnetometry for Real-time Monitoring of Drug Efficiency in Arthritis Treatment
Oberländer, Jennifer	Max Planck Institute for Polymer Research, Mainz	Temperature, Concentration, and Surface Modification Influence the Protein Corona
Pinto, Soraia	University of Porto	FcRn-targeted Nanomedicines for Intestinal Delivery of an Antidiabetic Peptide
Ramachandra Kurup Sasikala, Arathyram	School of Pharmacy, University of Birmingham	Development of Self-Powered Multifunctional Piezomagnetic Nanoparticles for non-invasive BBB modulation and glioblastoma treatment
Rouatbi, Nadia	King's College London	In Vivo Application of CRISPR/Cas9 Gene Editing Using Lipid Nanocarriers for Therapeutic Immune Target Identification in Glioblastoma
Schunke, Jenny	University Medical Center Mainz	Multicomponent Adjuvantation of Antigen-based Nanocapsules Using Site-directed Click Chemistry Crosslinking for the Treatment of Melanoma
Settanni, Giovanni	Johannes Gutenberg University	pH-Dependent Behavior of Ionizable Cationic Lipids in mRNA-Carrying Lipoplexes Investigated by Molecular Dynamics Simulations
Sidorenko, Valeria	University of Tartu	Tumor-penetrating Utorubicin Polymersomes for Cancer Therapy
Spadea, Alice	NW-Centre of Advanced Drug Delivery	Novel Insights on Endosomal Escape of Lipid Nanoparticles using Reflectometry Techniques
Spyridopoulou, Katerina	Democritus University of Thrace	Diverse Bbioactivities of Biogenic SeNps Spur Cancer Cell-based Vaccine Potential
Tarach, Piotr	University of Lodz	Application of lysine-based peptide dendrimers D3K2, D3R2, and D3H2 for gene delivery: A functional transfection study in vitro
Telefont, Martin	EBRAINS	Central Hub of a Distributed Research Infrastructure
Vogel, Theresa	University Clinic Würzburg	Engineering Nanogels for Drug Delivery to Pathogenic Aspergillus Fumigatue
Wang, Shiqi	University of Helsinki	A Polyoxometalate Incorporating, Injectable Hydrogel with pH- and NIR-responsiveness for Chemo-photothermal Therapy
Zeyn, Yanira	University Medical Center Mainz	Comparative Analysis of Nucleic Acid-based Adjuvants for the Activation of Dendritic Cells to Improve Nano-vaccines

General Information

Submission Procedure for Posters

ALL MAIL RELATED TO SUBMISSIONS FOR SPEECH OR POSTERS GO TO submiss22@clinam.org

1. Deadlines for Submissions of Poster Abstracts

Posters sent after March 11, 2022 will not be included into the proceedings, however listed online. Poster submissions of Excellence shall be considered for oral presentation in the session "Small speeches" The letters that all poster submitters get, will contain all instructions, how to prepare the poster as original to include it online.

2. Submission Procedures for Posters

Abstract Send us your poster-abstract (Microsoft Word, RTF, or Open document file format, using Calibri, font size 11, single spacing, NO PDF). The submission must not be longer than 3 pages, including metadata and figures (one figure is obligatory). All illustrations, figures, and tables must be placed within the text at the appropriate points. Index your file as follows: Last name.First name.abstract22.docx (or RTF etc.)

Biography Please add in your mail as a separate document your NARRATIVE CV, max one page. (This is a Bio as story and not tabular, e.g., was born…, received…, went to…) No more than 5 titles of recent publications can be included. Index your file as follows: Last name. First name.CV22.docx (or RTF etc.)

Portrait Photo Send us a head picture in gif or jpg, minimum 300 dpi. DO NOT COPY-PASTE THE PICTURE. Index your file as follows: Last name.First.Name.Picture20.jpg (or gif)

3. Decision for Acceptance

The decision to accept or decline your work will be given as soon as possible but at the latest within 6 weeks after submission. You will receive a Decision-E-Mail, stating the acceptance or declination. Decisions of the Committee cannot be discussed.

4. Presentation of Posters online

Posters are to be presented in the following way: After accepting the abstract, an original in **A4 PDF** will have to be sent for insertion into the website.

5. Poster Prize

All posters are eligible to win a prize. A first second and third prize, awarded three times in the Categories **a)** Basic Nanomedicine **b)** Translational Nanomedicine **c)** Nanotoxicology and Nanobiocharacterization. In this year's Virtual Summit the poster prizes are selected by the jury **before** the summit and are published online on the first day of the Summit. 2 Submitters will also win a Voucher for Books from the publishing house Wiley.

6. About Small Speeches

Poster submitters can apply for a small speech of 4 minutes, serving to highlight their poster work and activity of their premises. I. The speeches comprise a maximum of three slides. One of them should contain proof how the work at the university/institute fits into the area of nanomedicine and targeted delivery, including showing the outlook on the translation of the work. Applications are sent to clinam@clinam.org

7. Registration for the Summit

ONLINE REGISTRATION ONLY. Payment by credit card (MasterCard or VISA)
Bill upon request in exceptional cases possible.

Currency is Euro in all Categories	3 Days Early Bird until 10. 2. 2022	3 Days Regular As from 11.2. 2022	One Day no Early Bird
Academy, NPO	180.00	230.00	90.00
Submitting Speakers	150.00	230.00	----------
Invited Speakers	As agreed in your official speaker's letter		----------
Poster Presenters Academy	150.00	230.00	----------
Poster Presenters Student	100.00	100.00	----------
Industry, Government Exhibitors	350.00	550.00	300.00
Students	100.00	140.00	70.00
Exhibition virtual Booth / Break-Videos	1'000.00	1'200.00	
Verified ESNAM members have a reduction of 20.00 € (except for one-day registrations)			

Organizer's Office, Registration Office and Streamline Office

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