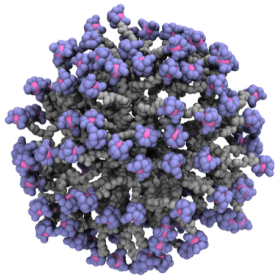

COST ACTION CA 17140

NANO2CLINIC

CANCER NANOMEDICINE - FROM THE BENCH TO THE BEDSIDE

cost

EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY

Update from Working Group 2: Physico-chemical characterization of nanodrugs

WG2 Leader – Dr. Ivana Vinković Vrček (HR)

WG2 Vice-leader – Dr. Evgeny Apartsin (RU)

4th MC Meeting online - 31/01/2022

Funded by the European Union

WG2 scientific goals:

- Establishment of protocols for physico-chemical characterization and evaluation of stability, transformation and fate of nano-enabled anticancer systems in range of different biological media
- Implementation of effective quality controls for characterization protocols
- Selection of promising nano-enabled systems based on physico-chemical characterization, stability and biotransformation for in vitro and in vivo studies on efficacy against cancer and safety for use as nanomedicines.

WG2 Deliverables

- D2.1. CONSENSUS PROTOCOLS FOR FULL PHYSICO-CHEMICAL CHARACTERIZATION OF NEW/EXISTING CHEMICAL ENTITIES AND/OR NANOMATERIALS
- D2.2. ROADMAP AND CONSENSUS PROTOCOLS FOR CONTROLLING OF SELECTED NEW/EXISTING CHEMICAL ENTITIES AND/OR NANOMATERIALS
- Published at the https://www.nano2clinic.eu/wg2-deliverables

WG2 Online Conference

"Characterisation of nanomaterials towards safe and efficient nanodrugs"

Location: online

Organizer: Dr. Ivana Vinković Vrček (WG2 leader) and Evgeny Apartsin (WG2 vice-leader)

Date: from June 22-23, 2021 (2 days)

Two topics:

1 –Current techniques and recent advances in physicochemical characterization of nanodrugs (multi method approach, pros/cons for each technique, interferences)

2 - Quality control of nanopharmaceuticals and nano-drug delivery systems throughout the production.

WG2 Online Conference

"Characterisation of nanomaterials towards safe and efficient nanodrugs"

Scientific Committee: Dr Ivana Vinković Vrček, Dr Evgeny Apartsin, Prof Barbara Klajnert-Maculewicz, Prof Sabrina Pricl, Prof Rana Sanyal, Prof Carlo Catapano, Dr Maria Eugenia Riveiro, Prof Maria Francesca Ottaviani
Organising Committee: Joanna Korczynska, Prof Barbara Klajnert-Maculewicz, Prof Sabrina Pricl, Dr Evgeny Apartsin, Dr Ivana Vinković Vrček
Conference website: https://www.nano2clinic.eu/wg2-online-conference

Contributions: 2 plenary lectures (Dietmar Applehans, Jesús M de la Fuente), 17 short oral presentations, 22 poster presentations, 211 participants

Funded by the European Union

WG2 Online Conference

“Characterisation of nanomaterials towards safe and efficient nanodrugs“

Action goals achieved:

- Discussion that lead to the definition of the set of characterization methods of nanomedicines by active participation and nurturing discussion among conference attendees
- Disseminatation of all Action's non-confidential results to the wide audience and further development of a platform for on-line networking activity by preparing and publishing the Book of Abstract that gained also DOI number
- Fostering young scientists involvement in the Action by organizing short oral presentation and virtual poster presentation of young scientist and by made available all their contribution on the Action website and the YouTube channel
- Creation of an interdisciplinary research cooperation opportunities for researchers by fostering active dialogue and discussion during conference.

Funded by the European Union

Dissemination planning/outreach activity

Book from WG2 Conference:

- Planned in collaboration with the Horizon 2020 project Phoenix “Open Innovation Test Bed for Enabling Nano-pharmaceutical Innovative Products”
- To be applied to the Books Editorial of the Royal Society of Chemistry, for the Nanoscience & Nanotechnology Series (edited by Prof Nguyễn T K Thanh, University College London, UK)
- Title: Handbook for physicochemical characterisation of nanopharmaceuticals; Subtitle: Fundamentals, protocols, tips and tricks for facilitating quality, efficacy and safety evaluation of nano-enabled medical products
- Editors: Ivana Vinković Vrček & Evgeny Apartsin

Book from WG2 Conference:

- **Content and scope:** Minimum physicochemical characterization requirements for quality, efficacy and safety evaluation of nanopharmaceuticals, describing different characterization techniques and highlighting the Reliability of methods and data for regulatory acceptance of nanopharmaceuticals
- Unique selling points: chapters should have the same design covering the minimum characterization requirements and relevant techniques
- Each chapter should describe
  - Physico-chemical fundamentals of a technique
  - Concise overview of its applications in nanomedicine
  - Description of equipment used (including high-throughput models, if exist)
  - Structure of readouts (in which form raw data are acquired and how they are treated)
  - What information is obtained and what does it mean
  - Troubleshooting
  - Perspectives