EuroCD 2023

# SCIENTIFIC PROGRAM

## EUROCD 2023

### 7th European Cyclodextrin Conference

September 5-8, 2023, Budapest

**Orgazized by: Cyclolab Ltd.**

EuroCD 2023

7th European Conference on Cyclodextrins
5-8 September 2023 | Budapest, Hungary

## Welcome to the 7th European Cyclodextrin Conference!

The cyclodextrin market continues to expand year by year. Nowadays, more than 100 active ingredients are marketed in the form of various cyclodextrin-enabled formulations. Also, the publication dynamics shows an ever-increasing trend. The objective of EuroCD2023 is to give the chance for the participants for sharing developments, exchange ideas and initiate future collaboration.

At the forefront of the EuroCD2023 will be the various pharmaceutical applications including the latest results in drug delivery, nanotechnology, gene/RNA delivery and pipelines in cyclodextrin-enabled drug formulations. Demonstration of innovative cyclodextrin-based drug delivery systems such as pre-filled syringes, microneedle vaccines, nasal sprays and others are expected. Other key areas will be the biological effects of cyclodextrins in close connection to cyclodextrins as active pharmaceuticals. Novelties in cyclodextrin production, food, cosmetic and environmental applications are also significant aspects of the conference. The new developments in the synthesis of bio-based and bioinspired cyclodextrin derivatives will be also highlighted. Both theoretical works and applied research have their importance in the programme.

The two-and-a-half-day agenda offers networking with academic researchers and industrial stakeholders. We plan to continue the traditions of this conference series (2009 Aalborg, Denmark; 2011 Asti, Italy; 2013 Antalya, Turkey; 2015 Lille, France; 2017 Lisbon, Portugal; 2019 Santiago de Compostela, Spain) with a special focus on young researchers and students. The aim of the meeting series is to provide a European platform for the enhancement of the scientific knowledge on cyclodextrins and to promote exploitation of their unique properties in various applications.

We sincerely hope you will enjoy these three days of discussion, and you will also find networking opportunities. Thank you very much for your participation.

## Chairs of conference

- Éva Fenyvesi
- Lajos Szente
- Levente Szőcs

## 6TH SEPTEMBER, WEDNESDAY

**8:30 – Opening**

**8:40 – József Szejtli 90: A tribute to Pioneer**
*Lajos Szente*

**9:00 – 10:30 Session 1: Cyclodextrin production, enzymology + Short presentations #1**
Chairs: James D. (J.D.) Pipkin, Carmen Popescu

**9:00-9:30** KN-01 **Templated enzymatic synthesis of δ-cyclodextrin** (25+5')
*Sophie R. Beeren*

**9:30-9:45** O-01 **Modified cyclodextrins can be accessed from enzyme-mediated dynamic combinatorial libraries** (10+5')
*Dennis Larsen, Juliane Sørensen, Sophie R. Beeren*

**9:45-9:51** S-01 **Effective and simple di-functionalisation of β-cyclodextrin** (6')
*Christopher J. Hobbs, Michal Řezanka*

**9:51-9:57** S-02 **Freestanding composites material films obtained by cross-linking of polyethylene glycol polyrotaxane and polyisoprene/semi-rotaxane with 2-hydroxypropyl-β-cyclodextrins** (6')
*Ana-Maria Resmerita, Aurica Farcas*

**9:57-10:03** S-03 **Anticancer drug: cyclodextrin inclusion complex loaded PCL filament; preparation and characterization for 3D printed intrauterine device** (6')
*Cem Varan, Davut Aksüt, Murat Şen, Erem Bilensoy*

**10:03-10:09** S-04 **In vitro characterization of paclitaxel-loaded cyclodextrin nanoparticles: first steps in the evaluation of Abraxane® nanosimilar product development** (6')
*Ece Çobanoğlu, Cem Varan, Erem Bilensoy*

**10:09-10:15** S-05 **Multifunctional polymers based on β-cyclodextrin for encapsulation and controlled release of antiviral drugs** (6')
*Ibrahim Hussein, Francesco Trotta, Fabrizio Caldera, Azam Rezayat, Zeinab Zohreband, Marco Cristofalo*

**10:15-10:21** S-06 **Polymeric cyclodextrins for intra-articular therapy: novel nanoassemblies fighting localized inflammation in osteoarthritis** (6')
*Nina Burduja, Angela Scala, Milo Malanga, Anna Piperno, Antonino Mazzaglia*

**10:21-10:27** S-07 **γ-cyclodextrin·phloroglucinol inclusion complex – preparation, characterisation and in vitro antioxidant action in media that mimic the digestive tract** (6')
*Marcelo D. Catarino, Beatriz S. Baía Costa, Ana Rita Circuncisão, Artur M. S. Silva, Susana M. Cardoso, Susana S. Braga*

**10:30 – 11:00 Cofee break**

## 11:00 – 13:00 Session 2: Synthesis of cyclodextrin derivatives

Chairs: Eric Monflier, Juan Manuel Benito

**11:00-11:30** KN-02 **Positively charged cyclodextrins – from selectors to anchors** (25+5')
*Jindřich Jindřich*

**11:30-11:45** O-02 **Confinement of transition metals with cis-chelating cyclodextrin-based ligands opening the way to new perspectives in ethylene oligomerization and photoluminescence** (10+5')
*Dominique Armspach, Tuan-Anh Phan, Yang Li*

**11:45-12:00** O-03 **Per-thiolation of cyclodextrins: synthesis and applications** (10+5')
*Gergely Kali, Soheil Haddadzadegan, Andreas Bernkop-Schnürch*

**12:00-12:15** O-04 **Manufacturing dimerized cyclodextrins for reversal of cardiovascular disease** (10+5')
*Keivan Sadrerafi, Milo Malanga, Amelia M. Anderson, Daniel M. Clemens, Matthew S. O'Connor*

**12:15-12:30** O-05 **The good, the bad, and the ugly: mechanochemical derivatization of cyclodextrins** (10+5')
*László Jicsinszky, Fabio Bucciol, Giancarlo Cravotto*

**12:30-12:45** O-06 **Cyclodextrin-based polynitroxides for in vivo imaging** (10+5')
*Lucio Melone*

**12:45-13:00** O-07 **Cyclodexrins in the world of continuous-flow chemistry and capsaicinoids** (10+5')
*Erika Bálint, János Máté Orosz, Dóra Ujj, Bettina Rávai, Petr Kasal, Gábor Benkovics, Béla Mátravölgyi*

## 13:00 – 14:00 Lunch break

## 14:00 – 15:00 Poster session 01

## 15:00-16:30 Session 3: Cyclodextrin complexes, self-assembly

Chairs: Véronique Bonnet, Zoltán Fülöp

**15:00-15:30** KN-03 **Cyclodextrins, surfactants and self-assembly** (25+5')
*Gustavo González-Gaitano*

**15:30-15:45** O-08 **Use of machine learning for determination of association constant between a cyclodextrin and a guest** (10+5')
*Gökhan Tahıl, Fabien Delorme, Daniel Le Berre, Eric Monflier, Adlane Sayede, Sébastien Tilloy*

**15:45-16:00** O-09 **Cyclodextrins: effective building blocks for supramolecular solvents** (10+5')
*Miriana Kfoury, Sophie Fourmentin*

**16:00-16:15** O-10 **4D study of structure and inclusion properties of solid cyclodextrins** (10+5')
*Askar K. Gatiatulin, Marat A. Ziganshin, Valery V. Gorbatchuk*

**16:15-16:30** O-11 **Supramolecular organization of poly (3,4-ethylenedioxythiophene)/ permodified cyclodextrins polyrotaxanes on the 2D materials** (10+5')
*Aurica Farcas, Ana-Maria Resmerita*

## 16:30 – 17:00 Coffee break

## 17:00-18:30 Session 4.1: Cyclodextrins in drug delivery

Chairs: Bernard Martel, Francesco Trotta

**17:00-17:30** KN-04.1 **3D Printing of cyclodextrins for biomedical applications** (25+5')
*Carmen Alvarez-Lorenzo*

**17:30-17:45** O-12 **Cationic cyclodextrin nanoparticles for targeted therapy of diseases of the gastrointestinal tract** (10+5')
*Erem Bilensoy*

**17:45-18:00** O-13 **Promise and limits of cyclodextrins as drug delivery systems for MEDS433** (10+5')
*Anna Piperno, Antonino Mazzaglia, Angela Scala, Roberto Oliva, Antonio Rescifina, Giuseppe Floresta, Maria Teresa Sciortino, Giorgio Gribaudo, Marco Lucio Lolli*

**18:00-18:15** O-14 **Beta-cyclodextrin complex interaction with membrane bilayer by molecular dynamics simulations** (10+5')
*Baptiste Boit, Julien Parcq, Damien Truffin, Dumouilla Vincent, Carmen Popescu*

**18:15-18:30** O-15 **High-speed electrospinning of cyclodextrin-based formulations for stabilizing biopharmaceuticals** (10+5')
*Edit Hirsch, Júlia Domján, Fanni A. Geyer, György J. Marosi*

## 7TH SEPTEMBER, THURSDAY

### 8:30-10:30 Session 4.2: Cyclodextrins in drug delivery

Chairs: Erem Bilensoy, Carmen Alvarez Lorenzo

**8:30-9:00** KN-04.2 **Thiolated cyclodextrins: mimicking the workhorses of our body** (25+5')
*Andreas Bernkop-Schnürch*

**9:00-9:15** O-16 **Cyclodextrin polymers as versatile tools for innovation in the combination of chemo- and phototherapy under hypoxia** (10+5')
*Ilse Manet, Marco Agnes, Arianna Mazza, Eszter Kalydi, Szabolcs Béni, Milo Malanga*

**9:15-9:30** O-17 **Cyclodextrin formulation to target low solubility and cytotoxicity of antimicrobial lipopeptides** (10+5')
*Chiara Bellini, Unai Atxabal, Szilvia Bősze, Orsolya Dobay, Andrea Horváth, Jesús Jiménez-Barbero, István Puskás, Kata Horváti*

**9:30-9:45** O-18 **Comparison of β-cyclodextrin and liposomal formulation of selective calpain-2 inhibitors and their use for TBI treatment** (10+5')
*Michel Baudry, Xiaoning Bi*

**9:45-10:00** O-19 **Features of remdesivir / sulfobutylether beta cyclodextrin compositions after space travel: first results** (10+5')
*György Dormán, Balázs Buchholcz, István Puskás, Pál Szabó, Erzsébet Varga, Lajos Szente, György M. Keserű, Ferenc Darvas*

**10:00-10:15** O-20 **Development of actively targeted and dual drug loaded cyclodextrin nanoparticles in pancreatic cancer** (10+5')
*Gamze Varan, Nurbanu Demirtürk, Juan M. Benito, Milo Malanga, Erem Bilensoy*

**10:15-10:30** O-21 **New doxorubicin delivery systems based on cyclodextrin dimers functionalized with biotin** (10+5')
*Noemi Bognanni, Chiara Scuderi, Vincenza Barresi, Graziella Vecchio*

### 10:30 – 11:00 Coffee break

### 11:00 – 13:00 Session 5: Biological effects of cyclodextrins

Chairs: Lajos Szente, Antonino Mazzaglia

**11:00-11:30** KN-05 **Cyclodextrin derivatives induce autophagy in animal models. Studying neuroprotective and anti-aging effects** (25+5')
*Tibor Kovács, Janka Szinyákovics, Levente Szőcs, Tibor Vellai*

**11:30-11:45** O-22 **A clathrate of HP-alpha-cyclodextrin (HPαCD) as a drug against neurodegenerative and lysosomal storage diseases** (10+5')
*Knut M. Wittkowski*

**11:45-12:00** O-23 **Cyclodextrin monomers and polymers as a possible gout treatment** (10+5')
*Adrián Matencio, Yousef Khazaei Monfared, Mohammad Mahmoudian, Fabrizio Caldera, José Manuel López-Nicolás, Roberta Cavalli, Parvin Zakeri-Milani, Francesco Trotta*

**12:00-12:15** O-24 **Endocytosis of fluorescent cyclodextrin derivatives in cancer cell lines** (10+5')
*Ferenc Fenyvesi, Csenge Urgyán, Katalin Réti-Nagy, Ágnes Rusznyák, Judit Váradi, István Hajdu, György Trencsényi*

**12:15-12:30** O-25 **Nanophotosensitisers based on cyclodextrin with antimicrobial photodynamic action** (10+5')
*Roberto Zagami, Domenico Franco, Nina Burduja, Mariachiara Trapani, Francesco Trotta, Antonino Mazzaglia*

**12:30-12:45** O-26 **Cyclodextrin conjugates as multivalent inhibitors for a-glucosidase and a-amylase for type 2 diabetes mellitus treatment** (10+5')
*Takwa Khanchouch, Aurélie Vallin, Rym Abidi, Véronique Bonnet*

**12:45-13:00** O-27 **Cyclodextrins as potential antidotes to xenobiotic-induced toxicity: Importance of complex stability, and the comparison of in vitro and in vivo results** (10+5')
*Miklós Poór*

## 13:00 – 14:00 Lunch break

## 14:00 – 15:00 Poster session 02

## 15:00-16:30 Session 6: Cyclodextrins in gene delivery + Short presentations #2
Chairs: Caitriona O'Driscoll, Roberta Cavalli

**15:00-15:30** KN-06 **Advancing synthetic viruses via hierarchical cyclodextrin self-assembling** (25+5')
*Juan M. Benito, Gonzalo Rivero-Barbarroja, José López-Fernández, José M. García Fernández, C. Ortiz Mellet*

**15:30-15:45** O-28 **Positively charged cyclodextrin polymers for gene delivery** (10+5')
*Francesco Trotta, Claudio Cecone, Adrian Matencio, Roberta Cavalli, Fabrizio Caldera, Yousef Monfared*

**15:45-15:51** S-08 **Complex equilibrium processes in cyclodextrin-liposome-protein formulations** (6')
*Daniel Ondo, Miguel Costas, A. Jessica Díaz-Salazarb Patricia Islas-García*

**15:51-15:57** S-09 **Encapsulation of the olive oil phenolic component hydroxytyrosol in cyclodextrin-based nanosponges: future perspective on the development of polymeric nanoparticles for blood brain barrier model** (6')
*Gjylije Hoti, Fabrizio Caldera, Ibrahim Hussein, Sara Er-Rahmani, Francesco Trotta*

**15:57-16:03** S-10 **Development and in vitro-in vivo evaluation of active targeted multidrug loaded nanoparticles to overcome drug resistance in the treatment of Non-Hodgkin lymphoma** (6')
*Nurbanu Demirtürk, Gamze Varan, Sadık Kağa, Milo Malanga, Erem Bilensoy*

**16:03-16:09** S-11 **Formulations of miltefosine using cyclodextrins and polymeric surfactants: structural characterization and application against leishmaniasis** (6')
*Zeinab Dirany, Rima El-Dirany, Carlos Aydillo, Gregory N. Smith, Paul Nguewa, Gustavo González-Gaitano*

**16:09-16:15** S-12 **A smart strategy to improve trans-resveratrol production in plant cell cultures by using cyclodextrins coated with magnetic nanoparticles** (6')
*Lorena Almagro, Ana Belén Sabater-Jara, José Antonio Gabaldón, Purificación Corchete, Maria Ángeles Pedreño*

**16:15-16:21** S-13 **Formulation and investigation of cyclodextrin polymer-based siRNA delivery systems** (6')
*Ágnes Rusznyák, Milo Malanga, Ildikó Bácskay, Ferenc Fenyvesi*

**16:21-16:27** S-14 **Triclosan (TCS) capturing from wastewater by a β-cyclodextrin/ poly (ethylene glycol) modified multi walled carbon nanotube** (6')
*Maryam Foroughi, Mohammad Hossein Ahmadi Azqhandi*

## 16:30 – 17:00 Coffee break

## 17:00 – 18:30 Session 7: Environmental applications

Chairs: Gustavo González-Gaitano, Eva Fenyvesi

**17:00-11:30** KN-07 **Cyclodextrin-based materials for water treatment** (25+5')
*Stanisław Wacławek, Michal Řezanka*

**17:30-17:45** O-29 **From cyclodextrin to molecularly imprinted polymers for chemical detoxification of organophosphorus nerve agents** (10+5')
*Capucine Chaar, Cyril Antheaume, Hava Aksoy, Louise Hespel, Laurent Lebrun, Rachid Baati, François Estour*

**17:45-18:00** O-30 **Carboxymethyl-β-cyclodextrin assistance for the 4-nitrophenol reduction using cobalt-based layered double hydroxides** (10+5')
*Sébastien Noël, Alexia Demeester, Fatima Douma, Renaud Cousin, Stéphane Siffert, Gwladys Pourceau, Anne Wadouachi, Eric Monflier, Anne Ponchel*

**18:00-18:15** O-31 **Cyclodextrin polymers as passive sampling materials for marine toxins in the Mediterranean area** (10+5')
*Alex Fragoso, Mabel Torréns, Mònica Campàs*

**18:15-18:30** O-32 **Cyclodextrin-assisted hydrogenation of fatty acid methyl esters using ion-exchange resin-supported ruthenium nanoparticles** (10+5')
*Antonio Madureira, Nicolas Kania, Bastien Léger, Michel Ferreira, Anne Ponchel, Eric Monflier, Sébastien Noël*

## 8TH SEPTEMBER, FRIDAY

### 8:30-10:30 Session 8: Analysis of cyclodextrins and their analytical application

Chairs: Sophie Fourmentin, Ilse Manet

**8:30-9:00** KN-08 **The Real DIMEB! The truth behind CAS number 51166-71-3** (25+5')
*Levente Szőcs, Róbert Iványi, Kata Tuza, Erzsébet Varga, Éva Fenyvesi, Lajos Szente*

**9:00-9:15** O-33 **Supramolecular cyclodextrin complex sensors for ion and molecule recognition in water** (10+5')
*Takashi Hayashita*

**9:15-9:30** O-34 **PEG-ylated network nanostructured by gold nanoparticles for electrochemical sensing of aromatic redox and nonredox analytes** (10+5')
*Olga Swiech, Maciej Majdecki, Renata Bilewicz*

**9:30-9:45** O-35 **Multifunctional amino-citrate-βCD coated iron oxide nanoparticles: synthesis and application for Magnetic Resonance Imaging** (10+5')
*Katia Martina, Federica Calsolaro, Giancarlo Cravotto*

**9:45-10:00** O-36 **α-Cyclodextrin-based chelator for lanthanide detection using 19F-paramagnetic guest exchange saturation transfer magnetic resonance fingerprinting (19F-ParaGEST MRF)** (10+5')
*Elad Goren, Liat Avram, Balamurugan Subramani, Or Perlman, Amnon Bar-Shir*

**10:00-10:15** O-37 **Discrimination of cyclodextrins isomers and probing of their self-assemblies topology using ion mobility-mass spectrometry** (10+5')
*Véronique Bonnet, Gilles Clodic, Christian Sonnendecker, Wolfgang Zimmermann, Cédric Przybylski*

**10:15-10:30** O-38 **Exploring enantiomer migration order alterations in capillary electrophoretic studies with cyclodextrin chiral selectors** (10+5')
*Gergő Tóth, Levente Szőcs, Zoltán-István Szabó*

### 10:30 – 11:00 Coffee break

### 11:00 – 13:00 Session 9: Agri-food applications + Short presentations #3

Chairs: István Puskás

**11:00-11:30** KN-09 **Cyclodextrins in food applications – an industrial perspective** (25+5')
*Oliver Minge*

**11:30-11:45** O-39 **A clathrate of alpha-cyclodextrin (αCD) and capric acid as a food ingredient or supplement to improve health in aging** (10+5')
*Knut M. Wittkowski*

**11:45-12:00** O-40 **Piceid bioconjugates as guests for novel cyclodextrin complexes** (10+5')
*Daniel I. Hădărugă, Sonia Phon-Lacroix, Mattéo Lotiquet, Cornelia Muntean, Valentin Badea, Nicoleta G. Hădărugă*

**12:00-12:06** S-15 **New hybrid membranes based on cyclodextrin nanosponges for gas separation** (6')
*Fabrizio Caldera, Salvatore Francesco Cannone, Matteo Righetti, Sadaqat Ali, Francesco Trotta*

**12:06-12:12** S-16 **Synthesis of acrylic based b-cyclodextrin polymer: a potential adsorbent system for pharmaceutical residuals removal from water** (6')
*Mohamed M. Ahmed, Anna Skwierawska, Michal Řezanka*

**12:12-12:18** S-17 **Electrochemical study of curcumin inclusion using cyclodextrin-based ultra small nanogels** (6')
*Ruyu Yan, Maria A Casulli, Takeshi Hashimoto, Takashi Hayashita*

**12:18-12:24** S-18 **S18 Unlocking the mysteries of 2-hydroxypropyl-beta-cyclodextrin: an NMR spectroscopy approach to deciphering substitution patterns** (6')
*Eszter Kalydi, Szabolcs Béni, Milo Malanga*

## 12:25 – Closing

## 13:00 – 14:00 Lunch

# POSTER SECTION

EuroCD 2023

**P-01** **3D Printed Scaffolds of Hydroxypropyl-ß-Cyclodextrin Using Digital Light Processing**
*Alejandro Seijo-Rabina, Alvaro Goyanes, Carmen Alvarez-Lorenzo, Angel Concheiro*

**P-02** **Lysozyme thermal stability in presence of native cyclodextrins**
*Daniel Ondo, Miguel Costas, A. Jessica Díaz-Salazar, Patricia Islas-García*

**P-03** **Effect of cyclodextrin modification on complexation with cetyltrimethylammonium cation with emphasis on surfactant micellization**
*Daniel Ondo*

**P-04** **Challenging synthesis of a cyclodextrin-based API (Sugammadex) impurities**
*István Kese, Róbert Iványi, Levente Szilárd Szőcs*

**P-05** **Cyclodextrin organosilane nanofibrous**
*Marek Soukeník, Johana Kulhánková, Michal Řezankaa*

**P-06** **New conjugates of γ-cyclodextrins-grafted hyaluronic acid for release of drugs in cancer cells**
*Noemi Bognanni, Maurizio Viale, Graziella Vecchio*

**P-07** **Nanomaterials made of cyclodextrin-citric acid polymers**
*Petra Karmazínová, Michal Řezanka, Martin Stuchlík*

**P-08** **Supramolecular Modular Self-healing, Shear-thinning, and UV-Curable Dextran Hydrogels**
*Ruiqi Jing, Thorbjørn T. Nielsen, Johan F. S. Christensen, Lars A. Lindbjerg, Nicolai T. Jørgensen, Sebastian Gustafson, Kim L. Larsen*

**P-09** **Implementation of a PAT-controlled semi-industrial reactor to the production of cyclodextrin derivatives**
*Zsolt Ürögi, Kata Tuza, Róbert Iványi*

**P-10** **NMR Studies of exchange dynamics in metal-caped cyclodextrins uncover two co-existing populations of host-guest complexes in water**
*Elad Goren, Liat Avram, Mark Iron, Amnon Bar-Shir*

**P-11** **Investigating the effect of cyclodextrins and cyclodextrins based hydrophylic polymers on the chemical-pharmaceutical and toxycological profile of new Al (III) and Ga (III) complexes with 5-hydroxyflavone**
*Claudiu Radua, Andreea-Alexandra Olteanub, Valentina Uivaroșia, Corina-Cristina Aramăb*

**P-12** **Molecular dynamics studies to estimate the free energy of binding for cyclodextrin-anilinonaphthalene sulfonic acid (1,8-ANS and 2,6-ANS) complexes**
*Parisa Fereidounpour, Lars W. Städe, Casper Steinmann, Kim L. Larsen*

**P-13** **Why is it so difficult to converge MM/GBSA free energies of binding for cyclodextrin inclusion complexes?**
*Casper Steinmann*

**P-14** **Development of buccal films containing curcumin complexes of γCD derivatives**
*Ágnes Rusznyák, Maria Khalvati, Ádám Haimhoffer, Gábor Vasvári, Attila Bényei, Eleftheria Dossi, Ferenc Fenyvesi*

**P-15** **Ginkgo biloba EGb 761® extract in vitro permeability study**
*Dóra Erdős, András D. Marton, György T. Balogh*

**P-16** **Investigation of the nasal applicability of different charged cyclodextrin-based meloxicam potassium containing particles**
*Anett Németh, Patrícia Varga, Ildikó Csóka, Rita Ambrus*

**P-17** **In vitro and ex vivo test systems in the development of cyclodextrin-enabled eye drops**
*Anna Vincze, György T. Balogh*

**P-18** **Inclusion complexation of the novel antipsoriatic drug apremilast with cyclodextrins**
*Beáta M. Benkő, Gergő Tóth, Bence Tóth, Zoltán I. Szabó, Lajos Szente, Edina Szabó, Romána Zelkó, István Sebe*

**P-19** **Antimicrobial Electrospun Fibers Loaded with Carvacrol, Citronellol and Cinnamic Acid for Wound Healing**
*Iago Gonzalez-Prada, Anabela Borges, Beatriz Santos-Torres, Beatriz Magariños, Manuel Simões, Angel Concheiro, Carmen Alvarez-Lorenzo*

**P-20** **Hydroxypropyl beta-cyclodextrins (HPβCD) as a recombinant protein stabilizer for parenteral delivery**
*Robynn Schillace, Roberto Meza-Romero, Carmen Popescu, Jeff King, Renee L. Shirley, Arthur Vandenbark*

**P-21** **Orally disintegrating films of Nebivolol and SulfobutylEther-β-cyclodextrin: formulation, development, and characterization**
*Marzia Cirri, Caterina Luciani, Francesca Maestrelli, Silvia Fiani, Natascia Mennini, Paola Mura*

**P-22** **Development of antifungal eyedrops for the treatment of fungal keratitis**
*Victoria Díaz-Tomé, Anxo Fernández-Ferreiro, Miguel González-Barcia, Pablo Aguiar-Fernández, Francisco J. Otero-Espinar*

**P-23** **Hydroxypropyl beta cyclodextrin-tacrolimus eye drops for the treatment of ocular pathologies**
*Xurxo García-Otero, Anxo Fernández-Ferreiro, Miguel González-Barcia, Pablo Aguiar-Fernández, Francisco J. Otero-Espinar*

**P-24** **Improvin drug penetration into nails using CicloTech technology for the treatment of nail psoriasis**
*Francisco J. Otero-Espinar, Soledad Anguiano-Igea, Elena Cutrin-Gómez*

**P-25** **Development of intranasal thermoresponsive in-situ gelling systems based on Sangelose and cyclodextrins to prevent respiratory tract viral infections**
*Gaia Zucca, Barbara Vigani, Caterina Valentino, Marco Ruggeri, Giuseppina Sandri, Silvia Rossi*

**P-26** **Cholesterol-functionalized ß-CD Nanosponges for Drug Delivery**
*Ilona Krabicová, Yousef Khazaei Monfared, Christopher J. Hobbs, Fabrizio Caldera, Adrián Matencio Durán, Michal Řezanka, Francesco Trotta*

**P-27** **Effect of cyclodextrin derivatives on encapsulation efficiency of hydrophilic drugs into lipid structures**
*Olga Swiech, Weronika Piotrowska*

**P-28** **Stability testing of cyclodextrin-based meloxicam-potassium containing nasal powders**
*Patrícia Varga, Csilla Balla-Bartos, Rita Ambrus*

**P-29** **Celecoxib/cyclodextrin eye drop microsuspensions: Evaluation on in vitro cytotoxicity and anti-VEGF efficacy for retinal diseases**
*Phatsawee Jansooka, Hay M.S.H. Soea, Rathapon Asasutjaritb, Phyo D. Mawa, Tanapong Watchararota, Thorsteinn Loftssonc*

**P-30** **Enhanced oral bioavailability of apomorphine exploiting different cyclodextrin nanosponge formulations**
*Monica Argenziano, Gjylije Hoti, Fabrizio Caldera, Anna Scomparin, Lorenzo Priano, Alessandro Mauro, Francesco Trotta, Roberta Cavalli*

**P-31** **Carbohydrate-based nanocarriers for oxygen delivery in Cardioplegic Solution**
*Maria Tannous, Gjylije Hoti, Pasquale Pagliaro, Claudia Penna, Takanobu Higashiyama, Francesco Trotta, Roberta Cavalli*

**P-32** **Amphiphilic cationic β-cyclodextrin-based polymers to improve siRNA delivery**
*Domitilla Meloni, Claudio Cecone, Anna Scomparin, Chiara Dianzani, Stefania Pizzimenti, Monica Argenziano, Francesco Trotta, Roberta Cavalli*

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