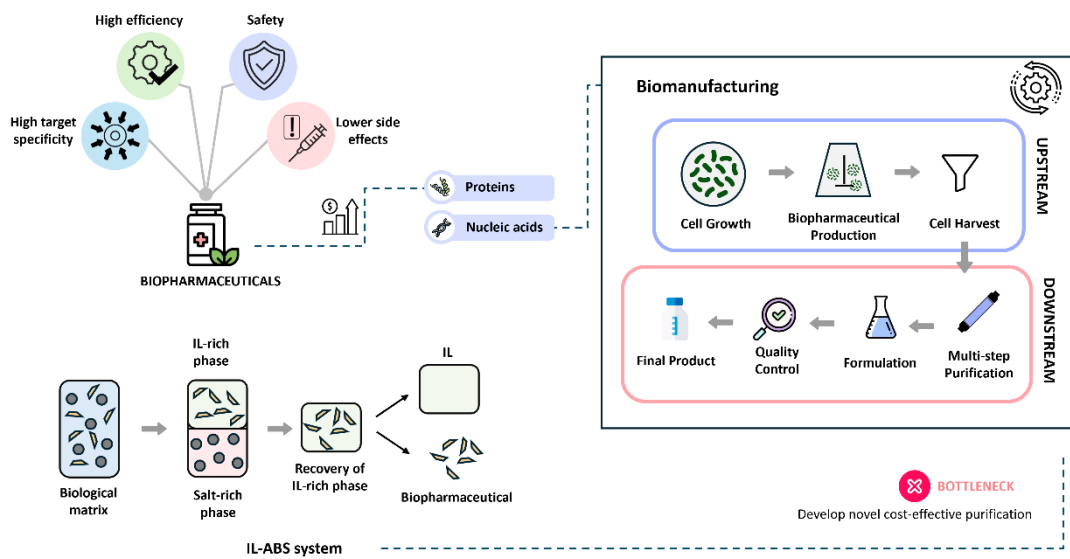


PATH/IL2BioPro/mVACCIL Workshop

Leading strategies in biopharmaceuticals manufacturing

The PATH/IL2BioPro/mVACCIL aims to provide a forum for discussion on recent and cutting-edge technologies for biopharmaceuticals manufacturing including therapeutic proteins, and nucleic acids. The areas covered are bioproduction, downstream processing with particular emphasis to technologies related to ionic liquid-based aqueous biphasic systems (IL-ABS), and the encapsulation/formulation stage.

June 2nd 2022



Organizing Committee:

Ana Paula Tavares

Augusto Pedro

Francisca Silva

Mara Freire

Rita Teles

Invited lectures:

Prof. Ana C. Dias-Cabral, Biopharmaceuticals preparative chromatography – Biophysical online and *in situ* characterization of the adsorption process (CICS-UBI, UBI, Portugal)

Prof. Carlota Rangel-Yagui, Pegylation as a strategy to improve biological drugs (Nanobio, University of São Paulo, Brazil)

Prof. Chantal Pichon, Messenger RNA-based vaccines (CBM, CNRS, France)

Prof. Fani Sousa, Amino acids as a powerful tool for DNA and RNA purification (CICS-UBI, UBI, Portugal)

Prof. Luís Passarinha, Microbial Cell Factories for High Quality Biopharmaceuticals Production (UCIBIO, Universidade Nova de Lisboa, Portugal)

Dr. Mariana Oliveira, Shape-versatile biomaterials prepared at all-aqueous interfaces (CICECO, UA, Portugal)

Pro. Valéria Ebinuma, *Aliivibrio fischeri* L-Asparaginase production in *Bacillus subtilis*: from orbital shaker to stirred tank bioreactor (UNESP, Brazil)

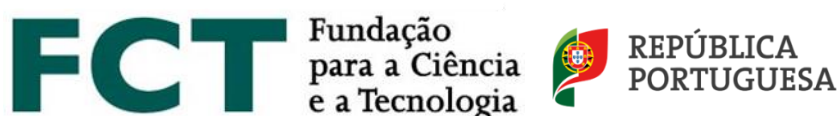
Acknowledgements:

Workshop held within the framework of R&D Projects:

IL2BioPro (PTDC/BII-BBF/30840/2017, Towards the improvements of recombinant proteins bioprocessing) funded by FEDER, through COMPETE2020 - Programa Operacional Competitividade e Internacionalização (POCI), and by national funds (OE), through FCT/MCTES.



mVACCIL (EXPL/BII-BTI/0731/2021, Improving the manufacturing of mRNA vaccines applying ionic liquids and integrated production-clarification processes), financially supported by national funds (OE), through FCT/MCTES.



Program:

The workshop will be held at Sala de Atos Académicos (UA Rectory) and virtually via Zoom platform:

<https://videoconcolibri.zoom.us/j/81525727437?pwd=NVZJNHZYc3h3NXdvdHdLczh6OVZuQT09>.

9:15 (PT) (5:15 - BR) – Opening session (Augusto Pedro and Francisca Silva)

Emerging and unconventional biomanufacturing technologies (*Chair Prof. João Coutinho*)

9:30 (PT) (5:30 – BR) – Invited Lecture I – Messenger RNA-based vaccines

Prof. Chantal Pichon, Center Molecular Biophysics, CNRS, Orléans, France

10:00 (PT) (6:00 – BR) – Discussion

10:10 (PT) (6:10 – BR) – Invited Lecture II – Shape-versatile biomaterials prepared at all-aqueous interfaces

Dr. Mariana Oliveira, Department of Chemistry, CICECO – Aveiro Institute of Materials, University of Aveiro, Aveiro, Portugal

10:30 (PT) (6:30 – BR) – Flash presentations

1 – Dr. Matheus Pereira (CICECO-UA) – Computer-aided identification of potential antiviral peptides from *Hancornia speciosa* Gomes leaf protein

2 – MSc Leonor Castro (CICECO-UA) – Application of ionic liquids as adjuvants in polymer-based aqueous biphasic systems to improve their purification performance

3 – MSc Bojan Kopilovic (CICECO-UA) – Gellable aqueous biphasic systems as a platform for biopharmaceuticals encapsulation

4 – MSc Sónia Pedro (CICECO-UA) – The successful partnership between deep eutectic solvent formulations and biopolymers in the transdermal delivery of NSAIDs

10:50 (PT) (6:50 – BR) – Discussion

11:00 – 11:30 (PT) (7:00 – 7:30; BR) – Coffee-break (Sala de Senado)

Bioprocessing strategies Part I – Downstream processing (*Chair Dr. Márcia Neves*)

11:30 (PT) (7:30 – BR) – Invited Lecture III – Amino acids as a powerful tool for DNA and RNA purification

Prof. Fani Sousa, CICS-UBI, Health Sciences research Centre, CICS-UBI, Covilhã, Portugal

12:00 (PT) (8:00 – BR) – Discussion

12:10 (PT) (8:10 – BR) – Invited Lecture IV – Biopharmaceuticals preparative chromatography – Biophysical online and in situ characterization of the adsorption process

Prof. Ana C. Dias-Cabral, CICS-UBI, Health Sciences research Centre, University of Beira Interior, Covilhã, Portugal

12:30 (PT) (8:30 – BR) – Flash Presentations

1 – MSc Catarina Almeida (CICECO-UA) – Bio-based excipients to enhance the stability of Avian immunoglobulin Y (IgY) antibodies

2 – MSc Rita Carapito (CICS-UBI) – Ionic liquid-based chromatographic supports for RNA purification

3 – MSc João Nunes (CICECO-UA) – Enzyme purification using silica-based supported ionic liquid-like phase materials

4 – Dr. Sandra Bernardo (CICS-UBI) – Novel purification platforms for pre-miRNAs by customized oligo-affinity chromatography

12:50 (PT) (8:50 – BR) – Discussion

13:00 – 14:45 (PT) (9:00 – 10:45; BR) – Lunch Break (Restaurante Universitário)

Enabling technologies for biopharmaceuticals manufacturing (*Chair Prof. Pedro Carvalho*)

14:45 (PT) (10:45 – BR) – Invited Lecture V – Pegylation as a strategy to improve biological drugs - Online

Prof. Carlota Rangel-Yagui, Laboratory of Nanobiotechnology – nanobio, School of Pharmaceutical Sciences, University of São Paulo

15:15 (PT) (11:15 – BR) – Discussion

15:25 (PT) (11:25 – BR) – Flash Presentations

1 – Dr. Ana Maria Ferreira (CICECO-UA) – Extraction of recombinant membrane proteins using alternative solvents - Online

2 – MSc Ana Rufino (CICECO-UA) – Recovery and purification of antibodies using three-phase partitioning systems based on aqueous biphasic systems

3 – MSc Ana Isabel Valente (CICECO-UA) – Three-phase partitioning systems for the separation of DNA and DNase I

4 – MSc Marguerita Rosa (CICECO-UA) – Can egg yolk antibodies (IgY) be used to avoid or fight bacterial infections in aquaculture systems?

15:45 (PT) (11:45 – BR) – Discussion

15:55 – 16:25 (PT) (11:55 – 12:25; BR) – Coffee-Break (Sala de Senado)

Bioprocessing strategies Part II - Bioproduction (*Chair Dr. Pedro Madeira*)

16:25 (PT) (12:25 – BR) – Invited Lecture VI – Microbial Cell Factories for High Quality Biopharmaceuticals Production - Online

Prof. Luís Passarinha, UCIBIO – Applied Molecular Biosciences Unit, Department of Chemistry, Nova School of Science and Technology, Universidade Nova de Lisboa, Caparica, Lisboa (i4HB – Institute for Health and Bioeconomy/CICS-UBI – Health Sciences Research Centre/Laboratório de Fármaco-Toxicologia – UBIMEDICAL)

16:45 (PT) (12:45 – BR) – Invited Lecture VII – *Aliivibrio fischeri* L-Asparaginase production in *Bacillus subtilis*: from orbital shaker to stirred tank bioreactor - Online

Prof. Valéria Ebinuma, Department Bioprocess Engineering and Biotechnology, School of Pharmaceutical Sciences, São Paulo State University (UNESP)

17:05 (PT) (13:05 – BR) – Discussion

17:15 (PT) (13:20 – BR) – Flash Presentations

1 – MSc Gabriela Paiva (UNESP) – Development of L-asparaginase protein releasing systems for recombinant *Bacillus subtilis* - Online

2 – MSc Diana Gomes (CICS-UBI/UCIBIO/i4HB) – Recombinant E6 protein biosynthesis and purification from *Escherichia coli* cells: a target for cervical cancer

3 – MSc Flávia Magalhães (CICECO-UA) – Recombinant laccase production by *Komagataella pastoris*

4 – Ana Andrade (CICECO-UA) – Bioprocess integration of interferon alfa 2b using Pluronics®

17:35 (PT) (13:35 – BR) – Discussion

17:45 (PT) (13:50 – BR) – Final Remarks/Closing Session (Ana P. Tavares, Augusto Pedro, and Francisca Silva)