

5th International EUROMBR Training Course on Medical Applications in Microfluidics

Monday 9th September 2024

8:30 - 9:00 **Registration (AUDITORIUM)**

9:00 - 9:15 **Opening (AUDITORIUM)**

G. Perozziello, University of Catanzaro, Italy

9:15 - 10:00 **Introduction to micro/nano fluidics (AUDITORIUM)**

A. Dietzel, TU Braunschweig, Germany

10:00 - 10:30 **Coffee break (AUDITORIUM)**

10:30 - 11:15 **Cell Microenvironments and microfluidics (AUDITORIUM)**

G. Perozziello, University of Catanzaro, Italy

11:15 - 12:00 **Microfluidic single-cell cultivation: Introduction and application (AUDITORIUM)**

J. Schmitz, University of Bielefeld, Germany

12:00 - 13:00 **Lunch (CANTEEN)**

13:00 - 13:45 **Microfabrication (AUDITORIUM)**

P. Candeloro, University Magna Graecia of Catanzaro, Italy

13:45 - 14:30 **Cell sorting by DEP array (AUDITORIUM)**

Donatella Malanga, University of Catanzaro, Italy

14:30 - 15:00 **Coffee break (AUDITORIUM)**

15:00 - 18:00 **(LABORATORY OF PHARMACY)**

Lab I: Microfluidic single cell cultivation (group B1)

Lab II: Flow Biocatalysis (group B2)

Lab III: Diffusion in Y-shaped microchannel (group B3)

Hands on CFD: Lecture 1

18:30 **Welcome party (GARDEN OR AUDITORIUM)**

Tuesday 10th September 2024

9:30 - 10:15 **Biosensors: from principles to practical applications (SALVATORE VENUTA)**

C. Heuer, University of Augsburg, Germany

10:15 - 11:00 **Optical Chemicals Sensors - Basics and Applications (SALVATORE VENUTA)**

T. Mayr, Graz University of Technology, Austria

11:00 - 11:45 **Cell analysis by Raman Spectroscopy (SALVATORE VENUTA)**

P. Candeloro, University of Catanzaro, Italy

12:00 - 13:00 **Lunch (CANTEEN)**

13:00 - 13:45 **Microfluidic systems for pharmaceutical production: from cell transfection to product purification (SALVATORE VENUTA)**

J. Bahnmann, University of Augsburg, Germany

13:45 - 14:30 **Cell-surface interactions (SALVATORE VENUTA)**

Francesco Gentile, University of Catanzaro

14:30 - 17:30 **(LABORATORY OF PHARMACY)**

Lab I: Microfluidic single cell cultivation (group B2)

Lab II: Flow Biocatalysis (group B3)

Lab III: Diffusion in Y-shaped microchannel (group B1)

Hands on CFD: Lecture 2

17:30 - 18:30 **Poster session I & Coffee break (AUDITORIUM)**

Wednesday 11th September 2024

9:30 - 12:30 **(LABORATORY OF PHARMACY)**

Lab I: Microfluidic single cell cultivation (group B3)

Lab II: Flow Biocatalysis (group B1)

Lab III: Diffusion in Y-shaped microchannel (group B2)

Hands on CFD: Lecture 3

12:30 - 13:45 **Lunch (CANTEEN)**

14:00 **Excursion**

Thursday 12th September 2024

9:00 - 12:00 **(LABORATORY OF PHARMACY)**

Lab IV: Cell cultivation in a miniaturized reactor (Group B1)

Lab V: Cell sorting by DEP array (Group B2)

Lab VI: Microfabrication (Group B3)

Hands on CFD: Lecture 4

12:00 - 13:00 **Lunch (CANTEEN)**

13:00 - 13:45 **Organs on chip (MAGNA A)**

I. Constantinou, TU Braunschweig, Germany

13:45 - 14:30 **Microfluidics for Cell Therapies and Beyond (MAGNA A)**

N. Szita, University College London, UK

14:30 - 17:30 **(LABORATORY OF PHARMACY)**

Lab IV: Cell cultivation in a miniaturized reactor (group B2)

Lab V: Cell sorting by DEP array (Group B3)

Lab VI: Microfabrication (Group B1)

Hands on CFD: Lecture 5

17:30 - 18:30 **Poster session II & Coffee break (AUDITORIUM)**

Friday 13th September 2024

9:00 - 12:00 **(LABORATORY OF PHARMACY)**

Lab IV: Cell cultivation in a miniaturized reactor (group B3)

Lab V: Cell sorting by DEP array (group B1)

Lab VI: Microfabrication (group B2)

Hands on CFD: Lecture 6

12:00 - 12:30 **Closing remarks (MAGNA C)**

G. Perozziello, University of Catanzaro, Italy

5th International EUROMBR Training Course on Bioprocess Development in Microfluidics

Monday 9th September 2024

8:30 - 9:00 **Registration (AUDITORIUM)**

9:00 - 9:15 **Opening (AUDITORIUM)**

G. Perozziello, University of Catanzaro, Italy

9:15 - 10:00 **Introduction to micro/nano fluidics (AUDITORIUM)**

A. Dietzel, TU Braunschweig, Germany

10:00 - 10:30 **Coffee break (AUDITORIUM)**

10:30 - 11:15 **Introduction to innovative microbioreactor application in bioprocesses (MAGNA C)**

P. Žnidaršič Plazl, University of Ljubljana, Slovenia

11:15 - 12:00 **Whole cell cultivation in microbioreactors (MAGNA C)**

R. Krull, TU Braunschweig, Germany

12:00 - 13:00 **Lunch (CANTEEN)**

13:00 - 13:45 **Microfabrication (AUDITORIUM)**

P. Candeloro, University Magna Graecia of Catanzaro, Italy

13:45 - 14:30 **Modelling-based design of bioprocesses at the micro scale (MAGNA C)**

I. Plazl, University of Ljubljana, Slovenia

14:30 - 15:00 **Coffee break (AUDITORIUM)**

15:00 - 18:00 **(LABORATORY OF PHARMACY)**

Lab IV: Cell cultivation in a miniaturized reactor (Group A1)

Lab V: Cell sorting by DEP array (Group A2)

Lab VI: Microfabrication (Group A3)

Hands on CFD: Lecture 1

18:30 **Welcome party (GARDEN OR AUDITORIUM)**

Tuesday 10th September 2024

9:30 - 10:15 **Biosensors: from principles to practical applications (SALVATORE VENUTA)**

C. Heuer, University of Augsburg, Germany

10:15 - 11:00 **Optical Chemicals Sensors - Basics and Applications (SALVATORE VENUTA)**

T. Mayr, Graz University of Technology, Austria

11:00 - 11:45 **An appetizer for CFD in chemical and biochemical engineering (GIOVANNI PAOLO II)**

U. Krühne, Technical University of Denmark, Denmark

12:00 - 13:00 **Lunch (CANTEEN)**

13:00 - 13:45 **Immobilized enzymes as heterogeneous biocatalysts: Application in microreactors (GIOVANNI PAOLO II)**

J. Bolivar, Complutense University of Madrid,

13:45 - 14:30 **Biocatalysis in flow: Challenges and opportunities (GIOVANNI PAOLO II)**

M. Marques, University College London, United Kingdom

14:30 - 17:30 **(LABORATORY OF PHARMACY)**

Lab IV: Cell cultivation in a miniaturized reactor (group A2)

Lab V: Cell sorting by DEP array (Group A3)

Lab VI: Microfabrication (Group A1)

Hands on CFD: Lecture 2

17:30 - 18:30 **Poster session I & Coffee break (AUDITORIUM)**

Wednesday 11th September 2024

9:30 - 12:30 **(LABORATORY OF PHARMACY)**

Lab IV: Cell cultivation in a miniaturized reactor (group A3)

Lab V: Cell sorting by DEP array (group A1)

Lab VI: Microfabrication (group A2)

Hands on CFD: Lecture 3

12:30 - 13:45 **Lunch (CANTEEN)**

14:00 **Excursion**

Thursday 12th September 2024

9:00 - 12:00 **(LABORATORY OF PHARMACY)**

Lab I: Microfluidic single cell cultivation (group A1)

Lab II: Flow Biocatalysis (group A2)

Lab III: Diffusion in Y-shaped microchannel (group A3)

Hands on CFD: Lecture 4

12:00 - 13:00 **Lunch (CANTEEN)**

13:00 - 13:45 **Nano and micromaterials for microbioreactors (MAGNA B)**

J. Fernández-Sánchez, University of Granada, Spain

13:45 - 14:30 **Microfluidics for Cell Therapies and Beyond (MAGNA A)**

N. Szita, University College London, UK

14:30 - 17:30 **(LABORATORY OF PHARMACY)**

Lab I: Microfluidic single cell cultivation (group A2)

Lab II: Flow Biocatalysis (group A3)

Lab III: Diffusion in Y-shaped microchannel (group A1)

Hands on CFD: Lecture 5

17:30 - 18:30 **Poster session II & Coffee break (AUDITORIUM)**

Friday 13th September 2024

9:00 - 12:00 **(LABORATORY OF PHARMACY)**

Lab I: Microfluidic single cell cultivation (group A3)

Lab II: Flow Biocatalysis (group A1)

Lab III: Diffusion in Y-shaped microchannel (group A2)

Hands on CFD: Lecture 6

12:00 - 12:30 **Closing remarks (MAGNA C)**

G. Perozziello, University of Catanzaro, Italy