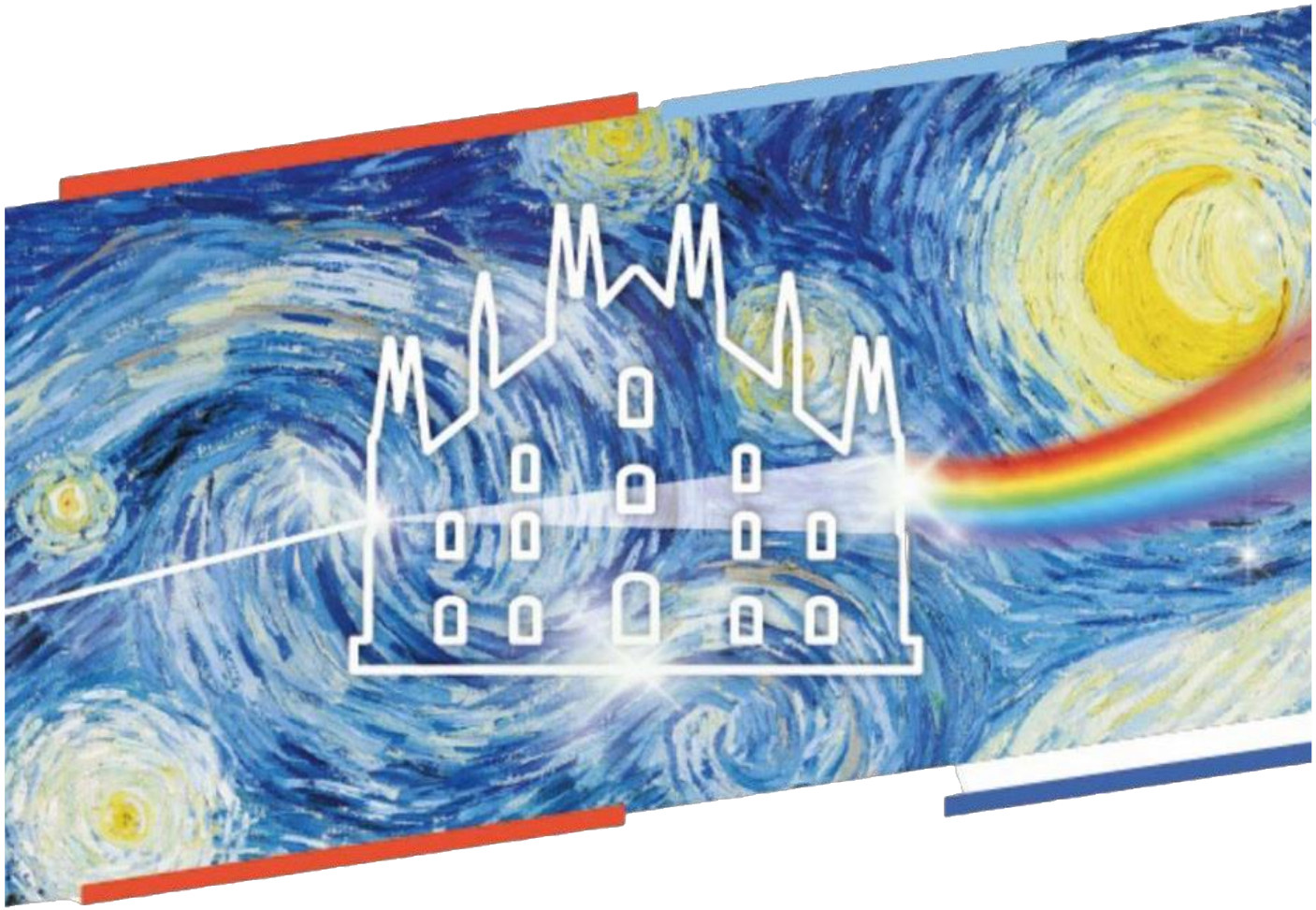


FLOW CYTOMETRY ACADEMY –UNIMI (https://flowcytometryacademy.com)

BIOMETRA

Department of Medical Biotechnology and Translational Medicine

UniMiFlow

Materia Prima srl

info@flowcytometryacademy.com in

Privacy Policy

MATERIA PRIMA

UNIVERSITÀ DEGLI STUDI DI MILANO

The fast implementation of new instruments and reagents of high-dimensional flow cytometry is associated with an increasing need of training and "on hand" classes for the users of this technology at single cell level.

UniMiFlow

BIOMETRA
Department of Medical Biotechnology and Translational Medicine

UNIVERSITÀ DEGLI STUDI DI MILANO

The fast implementation of new instruments and reagents of high-dimensional flow cytometry is associated with an increasing need of training and "on hand" classes for the users of this technology at single cell level.

This includes the organization of educational courses to teach experiment planning and execution together with the modern computational methods to proper reading the "big data" generated from high-dimensional flow cytometry experiments.

UniMiFlow

BIOMETRA
Department of Medical Biotechnology and Translational Medicine

UNIVERSITÀ DEGLI STUDI DI MILANO

The fast implementation of new instruments and reagents of high-dimensional flow cytometry is associated with an increasing need of training and "on hand" classes for the users of this technology ***at single cell level.***

This includes the organization of educational courses to teach experiment planning and execution together with the modern computational methods ***to proper reading the "big data" generated from high-dimensional flow cytometry experiments.***

UniMiFlow

BIOMETRA
Department of Medical Biotechnology and Translational Medicine

UNIVERSITÀ DEGLI STUDI DI MILANO

Given the overlapping analytic features between high dimensional flow cytometry RNA sequencing and considering the several scientific intersections of these two experimental technologies at single cell level, UniMiFlow started to provide dry training courses focused on modern analytic methodologies and bioinformatic approaches for the analysis of data generated from experiments of single cell RNA sequencing.

UniMiFlow

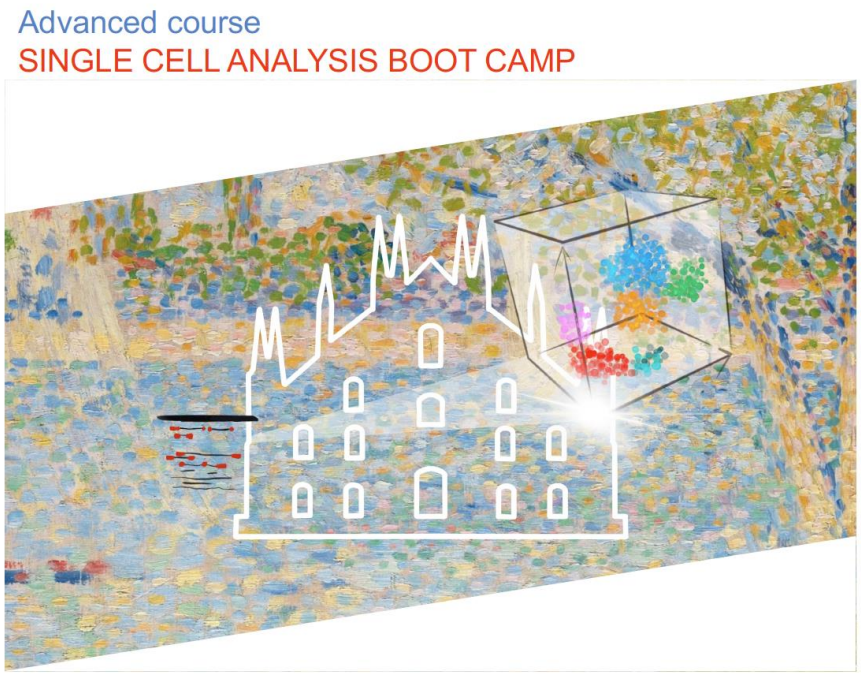
BIOMETRA
Department of Medical Biotechnology and Translational Medicine

UNIVERSITÀ DEGLI STUDI DI MILANO

Advanced course

SINGLE CELL ANALYSIS BOOT CAMP

Milan, July 22-26 2024



UniMiFlow

BIOMETRA
Department of Medical Biotechnology and Translational Medicine

UNIVERSITÀ DEGLI STUDI DI MILANO

Advanced course

SINGLE CELL ANALYSIS BOOT CAMP

Class Coordinators

Prof. Silvia Della Bella, University of Milan
Dr. Simone Puccio, National Research Council
Prof. Domenico Mavilio, University of Milan



Site

Teaching Pole of UNIMI in Via Del Conservatorio
(Frontal lesson and informatic Labs)

Segretery

citometria.biometra@unimi.it

UniMiFlow

BIOMETRA
Department of Medical Biotechnology and Translational Medicine

UNIVERSITÀ DEGLI STUDI DI MILANO

Advanced course

SINGLE CELL ANALYSIS BOOT CAMP

Aim of the Course I

The increasing accessibility of single-cell RNA sequencing (scRNA-seq) platforms is creating a growing pressing need to train people capable to analyze the obtained results. The analysis of scRNA-seq data requires new analytical approaches, as assumptions from bulk RNA-seq experiments cannot be applied. This course will illustrate issues that can be addressed by scRNA-seq and will discuss the most appropriate computational and statistical methods available for scRNA-seq data analysis.

UniMiFlow

BIOMETRA
Department of Medical Biotechnology and Translational Medicine

UNIVERSITÀ DEGLI STUDI DI MILANO

Advanced course

SINGLE CELL ANALYSIS BOOT CAMP

Aim of the Course II

In particular, the course aims to:

i) understand the basic concepts of scRNA-seq data analysis;

ii) use scRNA-seq Seurat data workflow;

iii) process and analyze scRNA-seq data, including cell classification and identification of specific cell populations;

UniMiFlow

BIOMETRA
Department of Medical Biotechnology and Translational Medicine

UNIVERSITÀ DEGLI STUDI DI MILANO

Advanced course

SINGLE CELL ANALYSIS BOOT CAMP

Aim of the Course Iii

iv) measure the expression dynamics of genes at the single cell level;

v) perform gene set enrichment analysis and characterize cell-cell interactions;

UniMiFlow

BIOMETRA
Department of Medical Biotechnology and Translational Medicine

UNIVERSITÀ DEGLI STUDI DI MILANO

Advanced course

SINGLE CELL ANALYSIS BOOT CAMP

Aim of the Course IIi

vi) understand the importance of scRNA-seq data analysis in fueling discovery and innovation in medicine, biology and biotechnology fields (talks in the morning).

UniMiFlow

BIOMETRA
Department of Medical Biotechnology and Translational Medicine

UNIVERSITÀ DEGLI STUDI DI MILANO

Advanced course

SINGLE CELL ANALYSIS BOOT CAMP

MONDAY 22 JULY 2024

Introduction to single cell technology

Sala Lauree- via Conservatorio 7

h. 8.30-9.00	Registration
h. 9.00-10.00	*Domenico Mavilio* Welcome and presentation of the Advanced course
h. 10.00-11.00	*Clelia Peano* Single cell sequencing technologies and applications
h. 11.00-12.00	Coffee break with the speakers
h. 12.00-13.00	*Valentina Proserpio* Single cell RNA-seq in fundamental and translational research

Aula informatica 2- via Conservatorio 7

h. 14.00-18.00	*Simone Puccio, Luca Lambroia, Sara Terzoli* Hands-on: Introduction to R Seurat package; loading data and creating Seurat objects; data quality control

Morning

- ✓ ***Introduction to the course***
- ✓ ***Introduction to scRNAseq***
- ✓ ***Coffee Breaks***

Afternoon

- ✓ ***Dry Lab in informatic rooms***
- ✓ ***Hands-on preparation R Seurat***

UniMiFlow

BIOMETRA
Department of Medical Biotechnology and Translational Medicine

UNIVERSITÀ DEGLI STUDI DI MILANO

Advanced course

SINGLE CELL ANALYSIS BOOT CAMP

TUESDAY 23 JULY 2024

TOPIC. scRNA-seq to dissect brain complexity

Sala Lauree- via Conservatorio 7

h. 9.00-10.00 *Simona Lodato*
Dissecting cerebral cortex diversity at single cell resolution: implications for development and disease

h. 10.00-11.00 *Giuseppe Testa*
Neurodevelopmental disease modelling at single cell resolution

h. 11.00-12.00 Coffee break with the speakers

h. 12.00-13.00 *Rocco Piazza*
First-hit SETBP1 mutations cause a myeloproliferative disorder with bone marrow fibrosis

Aula informatica 2- via Conservatorio 7

h. 14.00-18.00 *Simone Puccio, Matteo Miotto, Anna Putignano, Silvia Della Bella*
Hands-on: Dimensionality reduction and batch effect detection

Morning

- ✓ ***scRNAseq and Neuroscience***
- ✓ ***Coffee Breaks***
- ✓ ***Mieloproliferative Disorders***

Afternoon

- ✓ ***Dry Lab in informatic rooms***
- ✓ ***Dimensionality Reduction and Batch Effect***

UniMiFlow

BIOMETRA
Department of Medical Biotechnology and Translational Medicine

UNIVERSITÀ DEGLI STUDI DI MILANO

Advanced course

SINGLE CELL ANALYSIS BOOT CAMP

WEDNESDAY 24 JULY 2024

TOPIC. scRNA-seq to dissect immune responses

Sala Lauree- via Conservatorio 7

h. 9.00-10.00 *Domenico Mavilio*

From RNA-seq to multiparametric flow cytometry: computational approaches merging two different technologies at single cell level

h. 10.00-11.00 *Emilia Mazza*

Molecular mechanisms of resistance to immune checkpoint blockade mediated by $CD4^+$ regulatory T cells

h. 11.00-12.00 Coffee break with the speakers

h. 12.00-13.00 *Massimiliano Pagani*

Connecting topology to function in the tumor microenvironment

Aula informatica 2- via Conservatorio 7

h. 14.00-18.00 *Simone Puccio, Emilia Mazza, Roberta Carriero, Domenico Mavilio*

Hands-on: Detection of hypervariable genes, clustering and cluster tree: statistical analysis of differentially expressed genes

Morning

- ✓ ***scRNAseq, immunology and disease modeling.***
- ✓ ***Coffee Breaks***

Afternoon

- ✓ ***Dry Lab in informatic rooms***
- ✓ ***Clustering and DEGs***

UniMiFlow

BIOMETRA
Department of Medical Biotechnology and Translational Medicine

UNIVERSITÀ DEGLI STUDI DI MILANO

Advanced course

SINGLE CELL ANALYSIS BOOT CAMP

THURSDAY 25 JULY 2024

TOPIC. scRNA-seq and T cell biology

Sala Lauree- via Conservatorio 7

h. 9.00-10.00 *Enrico Lugli*
Profiling T cells in human cancer

h. 10.00-11.00 *Cecilia Dominguez Conde*
Human immune cells across tissues and age

h. 11.00-12.00 Coffee break with the speakers

h. 12.00-13.00 *Blagoje Soskic*
Single cell transcriptomics to explore immune disease mechanisms

Aula informatica 2- via Conservatorio 7

h. 14.00-18.00 *Simone Puccio, Sara Terzoli, Silvia Della Bella*
Hands-on: Pathway enrichment and definition of cell-cell interactions

Morning

- ✓ ***scRNAseq and immunology***
- ✓ ***Coffee Breaks***
- ✓ ***Disease Modelling***

Afternoon

- ✓ ***Dry Lab in informatic rooms***
- ✓ ***Pathways***

UniMiFlow

BIOMETRA
Department of Medical Biotechnology and Translational Medicine

UNIVERSITÀ DEGLI STUDI DI MILANO

Advanced course

SINGLE CELL ANALYSIS BOOT CAMP

FRIDAY 26 JULY 2024

TOPIC. Spatial transcriptomics and transcriptional control of cell identity

Sala Lauree- via Conservatorio 7

h. 9.00-10.00	*Federica Marchesi*	Single cell transcriptomics: pros and cons of different approaches
h. 10.00-11.00	*Silvio Bicciato*	Computational analysis of imaging-based spatial transcriptomics data
h. 11.00-12.00	Coffee break with the speakers	
h. 12.00-13.00	*Chiara Laura*	Single cell transcriptomics to unveil immune responses in the liver
h. 13.00-14.00	Final exam and customer satisfaction questionnaire	

Morning

- ✓ ***scRNAseq and spatial transcriptomic***
- ✓ ***Coffee Breaks***
- ✓ ***Transcriptional control***

Afternoon

- ✓ ***Final Test and Feedback***

UniMiFlow

BIOMETRA
Department of Medical Biotechnology and Translational Medicine

UNIVERSITÀ DEGLI STUDI DI MILANO

Advanced course

SINGLE CELL ANALYSIS BOOT CAMP

Site (Morning): Via Del Coservatorio (Sala Lauree)

BIOMETRA
Department of Medical Biotechnology and Translational Medicine

UniMiFlow

UNIVERSITÀ DEGLI STUDI DI MILANO

Advanced course

SINGLE CELL ANALYSIS BOOT CAMP

Site (Afternoon): (Aula Informatica in Via de Coservatorio) per Dry Lab)

Silvia

Simone

Domenico

Emilia

Luca

Roberta

Sara T.

Paolo

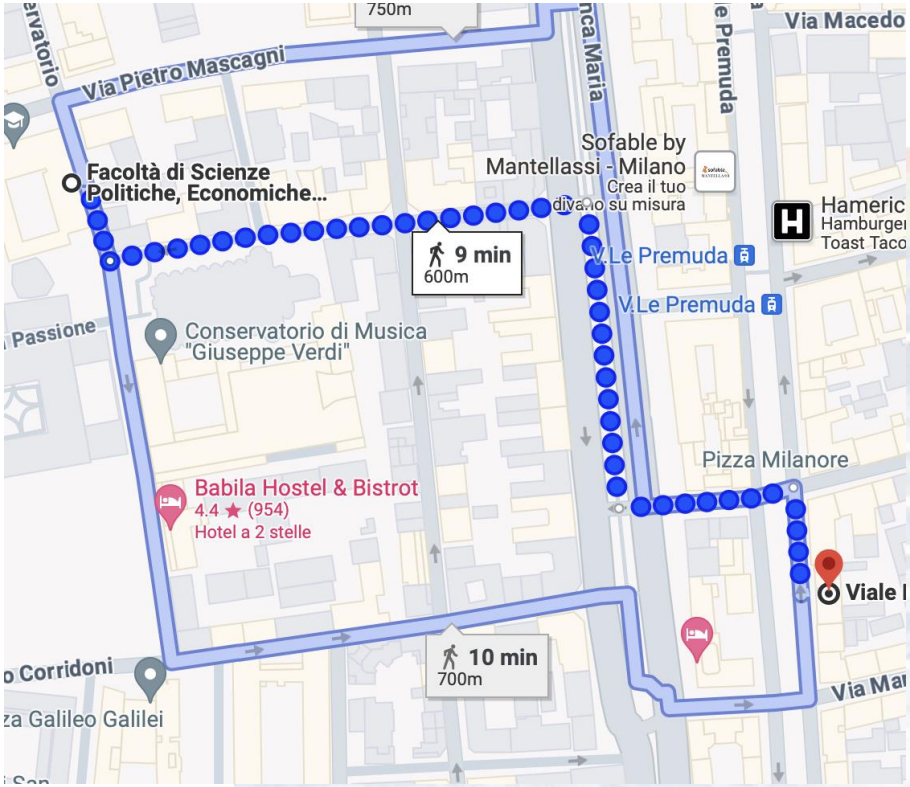
UniMiFlow

BIOMETRA

UNIVERSITÀ DEGLI STUDI DI MILANO

Advanced course

SINGLE CELL ANALYSIS BOOT CAMP



Pausa Caffè
(Pasticceria Adolfo Stefanelli)

Voucher Giornaliero (Lun-Giov)

- n. 1 caffè o cappuccio
- n. 1 brioche (gusto a scelta)
- Acqua

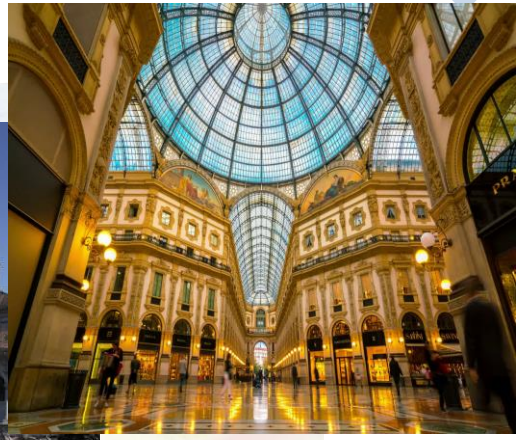
BIOMETRA
Department of Medical Biotechnology and Translational Medicine

UniMiFlow

UNIVERSITÀ DEGLI STUDI DI MILANO

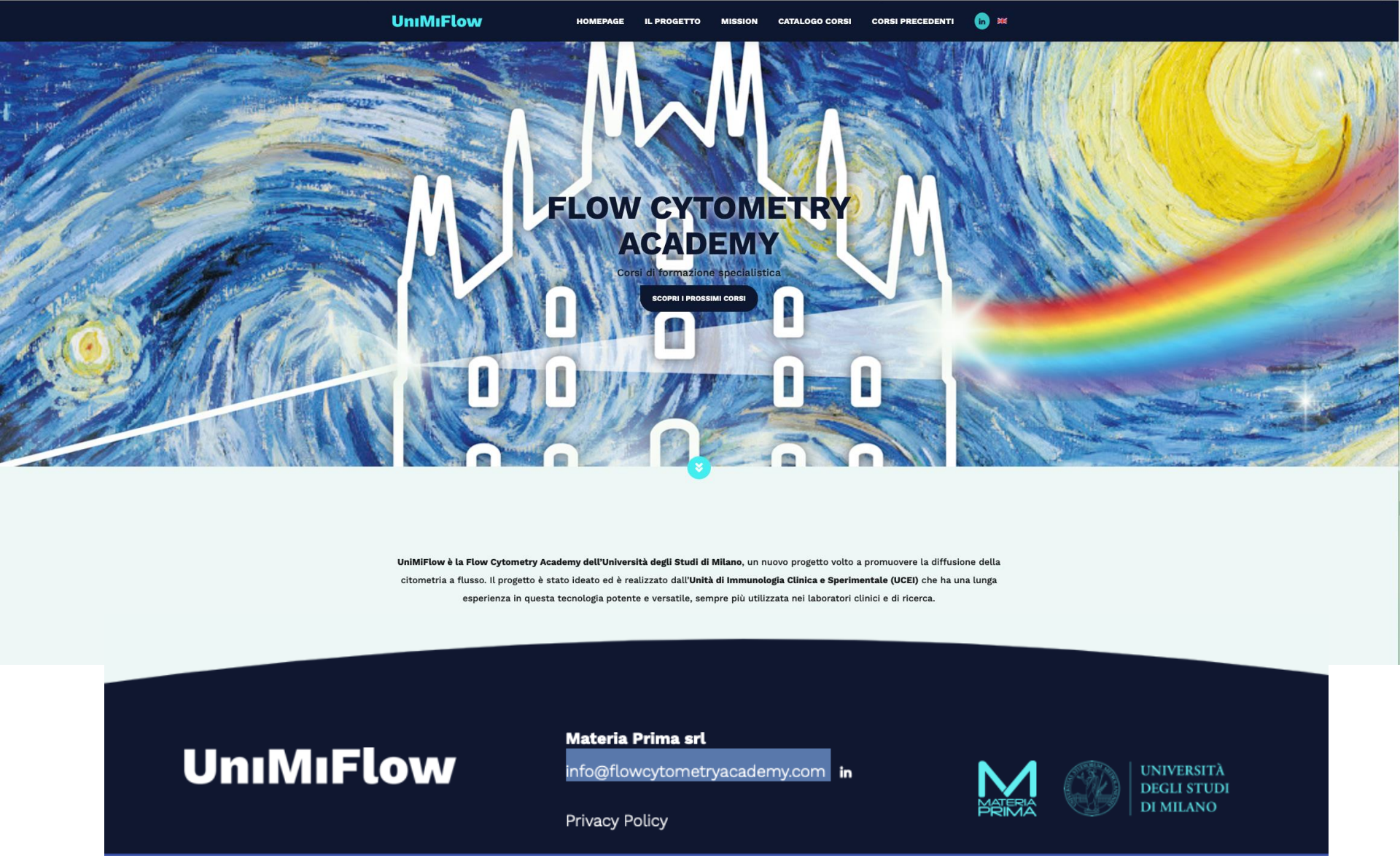
Advanced course

SINGLE CELL ANALYSIS BOOT CAMP



Benvenuti a Milano

UNIVERSITÀ DEGLI STUDI DI MILANO



Website: https://flowcytometryacademy.com

Linkedin: https://www.linkedin.com/in/flowcytometryacademy-unimi/

Email: info@flowcytometryacademy.com