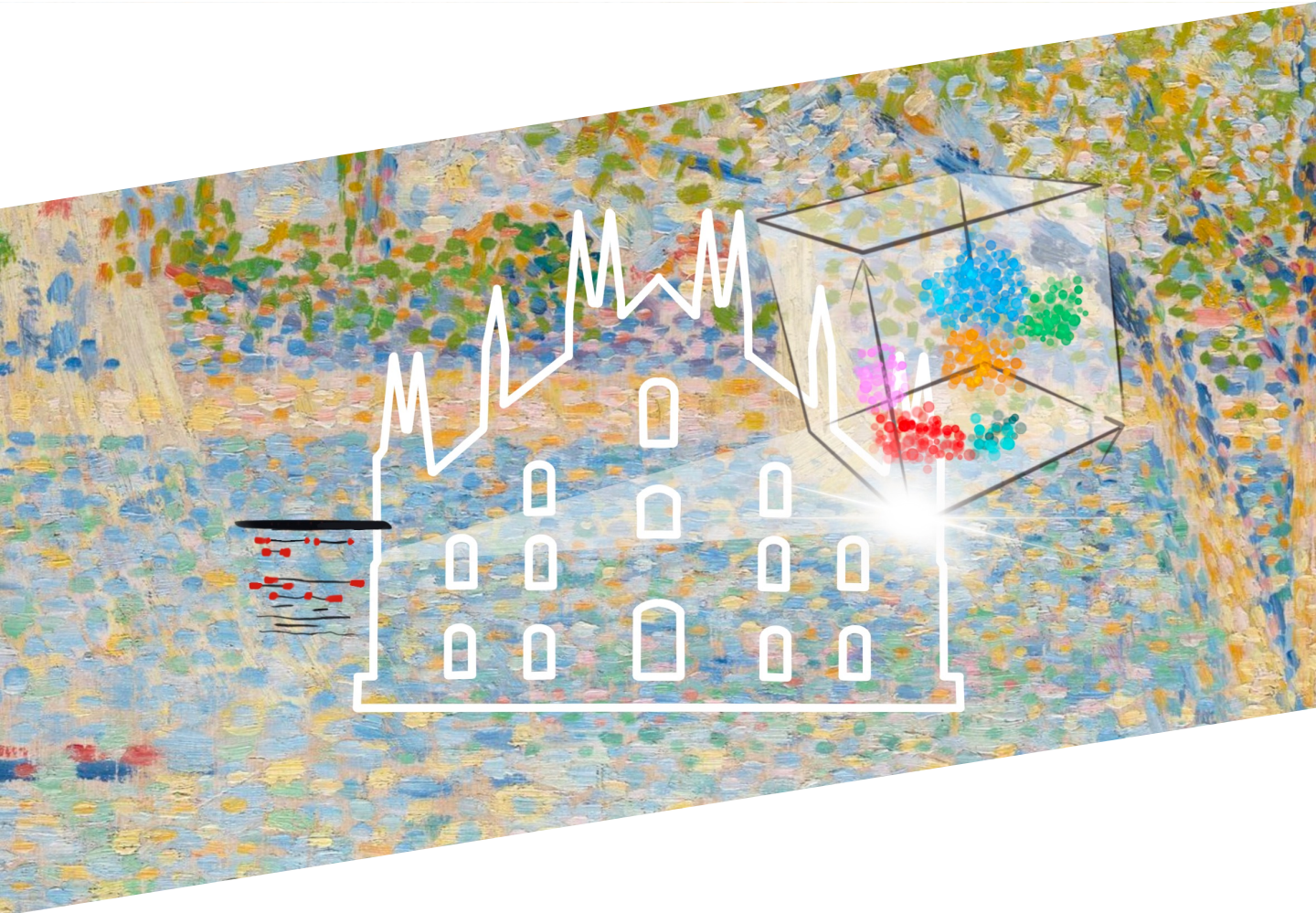


Advanced course  
**SINGLE CELL ANALYSIS BOOT CAMP**



Università degli Studi di Milano  
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**UNIVERSITÀ  
DEGLI STUDI  
DI MILANO**

MONDAY 11 SEPTEMBER 2023

Introduction to single cell technology

*Room M502 - via Santa Sofia 9*

- 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
- h. 12.00-13.00      *Simone Puccio, Silvia Della Bella*  
Hands-on preparation – Informatic workframes for single cell transcriptomic analysis

*Zeta Room - via Santa Sofia 9*

- h. 14.00-18.00      *Simone Puccio, Luca Lambroia*  
DRY LAB: Introduction to R Seurat; loading data and making Seurat objects; data quality control

TUESDAY 12 SEPTEMBER 2023

TOPIC. scRNA-seq to dissect brain complexity

*Room M502 - via Santa Sofia 9*

- h. 9.00-10.00      *Josè Davila Velderrain*  
Analysing brain single cell states in health and disease
- h. 10.00-11.00      *Simona Lodato*  
Dissecting cerebral cortex diversity at single cell resolution:  
implications for development and disease
- h. 11.00-12.00      Coffee break
- h. 12.00-13.00      *Simone Puccio, Silvia Della Bella*  
Hands-on preparation – Dimensionality reduction (UMAP, tSNE) and  
batch correction

*Aula Zeta - via Santa Sofia 9/1*

- h. 14.00-18.00      *Simone Puccio, Silvia Della Bella*  
DRY LAB: Metadata visualization using UMAP and tSNE plots; batch  
effect detection and correction

WEDNESDAY 13 SEPTEMBER 2023

TOPIC. Single cell insights into neurology

Room M502 - via Santa Sofia 9

- h. 9.00-10.00      *Domenico Mavilio*  
From RNAseq to multi parametric flow cytometry: computational approaches merging two different technologies at single cell level
- h. 11.00-12.00      *Emilia Mazza*  
Molecular mechanisms of resistance to immune checkpoint blockade mediated by CD4<sup>+</sup> T regulatory cells
- h. 11.00-12.00      Coffee break
- h. 12.00-13.00      *Giuseppe Testa*  
Neurodevelopmental disease modelling at single cell resolution
- Aula Zeta - via Santa Sofia 9*
- h. 14.00-18.00      *Emilia Mazza, Roberta Carriero, Domenico Mavilio*  
DRY LAB: Detection of hypervariable genes, clustering and cluster tree; statistical analysis of differentially expressed genes

THURSDAY 14 SEPTEMBER 2023

TOPIC. scRNA-seq and T cell biology

*Room M502 - via Santa Sofia 9*

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

*Aula Zeta - via Santa Sofia 9*

- h. 14.00-18.00    *Sara Terzoli, Marco De Luca, Silvia Della Bella*  
DRY LAB: Pathway enrichment and definition of cell-cell interactions



FRIDAY 15 SEPTEMBER 2023

**TOPIC. Spatial transcriptomics and transcriptional control of cell identity**

*Room M205 - via Santa Sofia 9*

- |                |  |
|----------------|--|
| h. 9.00-10.00  | <i>Federica Marchesi</i><br>In-depth analysis of human macrophages in colorectal liver metastases    |
| h. 10.00-11.00 | <i>Silvio Bicciato</i><br>Computational analysis of single cell data from spatial omics technologies |
| h. 11.00-12.00 | Coffee break   |
| h. 12.00-13.00 | <i>Renato Ostuni</i><br>Transcriptional control of myeloid cell identity and activation              |
| h. 13.00-14.00 | Final exam   |

## ***Relatori***

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