



# SINGLE-CELL GENOMICS

FOR BEGINNERS

March 31<sup>st</sup> to April 8<sup>th</sup>, 2022



## March 31st, Thursday

09:30 - 10:00: WELCOME and course overview

10:00 - 11:00: INTRODUCTION TO PRACTICAL SESSION I: Protocols and overview on sample preparation. **Ana Munoz-Manchado, University of Cádiz, Spain**

11:00 - 12:00: PRACTICAL SESSION I: “How to optimize the preparation of cells and nuclei for single-cell/nuclei sequencing”  
**Maria Delso Vallejo, Milteniy**

12:00 - 13:30: LUNCH Break

13:30 - 18:00: PRACTICAL SESSION I: Hands-on sample preparation.

## April 1st, Friday

09:30 - 12:30: PRACTICAL SESSION I continued: Hands-on sample preparation.

12:30 - 14:00: LUNCH Break

14:00 - 15:00: INTRODUCTION TO PRACTICAL SESSION II: Protocol and stepwise objectives of Chromium Next GEM, **Hannah Hochgerner, Technion Israel Institute of Technology, Israel**

15:00 – 18:00 PRACTICAL SESSION II: Hands-on protocol from chromium Next GEM Single Cell kits;

## April 4th, Monday

10:30 – 12:30 INTRODUCTION TO PRACTICAL SESSION III: Introduction to single-cell genomics computational analysis, **Nuno Osório, ICVS- Portugal**

12:30 - 14:00: LUNCH Break

14:00 – 15:00: INSPIRATIONAL TALK: TBA, **Ana Munoz-Manchado, University of Cádiz, Spain**

15:00 – 18:00 PRACTICAL SESSION III: Data analysis for single-cell/nucleus RNA-seq: getting started, part 1. (programming languages and required packages);

## April 5th, Tuesday

09:30 – 10:30 INSPIRATIONAL TALK: “Revealing the molecular and cellular architecture of the nervous system”, **Gioele La Manno, (Swiss Federal Institute of Technology Lausanne, Switzerland)**

10:30 – 12:30: INTRODUCTION TO PRACTICAL SESSION IV: Introduction to data analysis for single-cell/nucleus RNA-seq; **Alex Lederer (Swiss Federal Institute of Technology Lausanne, Switzerland)**

12:30 - 14:00: LUNCH Break

14:00 – 15:00: INSPIRATIONAL TALK: “Applications of single-cell ATAC-seq data”; **Gabriel Santpere-Baró, Hospital del Mar Medical Research Institute, Spain**

15:00 – 18:00 PRACTICAL SESSION IV, part 1: Hands-on data analysis for single-cell/nucleus RNA-seq.

#### **April 6th, Wednesday**

09:30 – 10:30: INSPIRATIONAL TALK: “Cell types and more in the mouse amygdala”, **Amit Zeisel, Technion Israel Institute of Technology, Israel**

10:30 – 12:30: PRACTICAL SESSION IV, part 2: Hands-on data analysis for single-cell/nucleus RNA-seq.

12:30 - 14:00: LUNCH Break

14:00 – 15:00: INSPIRATIONAL TALK: “Multimodal profiling of the chromatin with single-cell resolution”, **Marek Bartosovic, Karolinska Institute, Sweden**

15:00 – 18:00 PRACTICAL SESSION IV, part 2: Hands-on data analysis for single-cell/nucleus RNA-seq.

#### **April 7th, Thursday**

09:30 – 12:30: PRACTICAL SESSION IV, part 3: Hands-on data analysis for single-cell/nucleus RNA-seq.

12:30 - 14:00: LUNCH Break

14:00 – 15:00: INSPIRATIONAL TALK: “Single Nuclei RNA-sequencing: a method to study pathologies of the human brain”, **Sarah Jaekel, Institute for Stroke and Dementia, Munich, Germany**

14:00 – 18:00 PRACTICAL SESSION IV, part 3: Hands-on data analysis for single-cell/nucleus RNA-seq.

#### **April 8th, Friday**

09:30 – 12:30: PRACTICAL SESSION IV, part 4: Hands-on single-cell/nucleus RNA-seq data analysis

12:30 - 14:00: LUNCH Break

14:00 – 15:00: INSPIRATIONAL TALK: “Single-cell genomics in the brain: opening doors to understand Multiple Sclerosis”, **Ana Mendanha Falcão, Braga, Portugal**

15:00 – 18:00: PRACTICAL SESSION IV, part 4: Hands-on single-cell/nucleus RNA-seq data analysis

#### **Tutors:**

Nuno Osório (ICVS, Portugal)

Marek Bartosovic (Karolinska Institutet, Sweden)

Lili Li (Karolinska Institutet, Sweden)

Alex Lederer (Swiss Federal Institute of Technology Lausanne, Switzerland)

Leonardo Garma (Karolinska Institutet, Sweden)

Mónica Fernandes (ICVS, Portugal)

Ana Falcão (ICVS, Portugal)

Joana Silva (ICVS, Portugal)

Eduarda Correia (ICVS, Portugal)

Sara Ramos (ILC, Portugal)

#### **Patrocinadores:**



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