



# SINGLE-CELL GENOMICS

FOR BEGINNERS



2<sup>nd</sup> Edition

April 3<sup>rd</sup> to April 13<sup>th</sup>, 2024

## April 3rd, Wednesday

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

10:00 - 11:00: INTRODUCTION TO SINGLE-CELL GENOMICS: TBA **Cátia Moutinho, GWCCG Garvan Institute, Australia**

11:00 - 12:00: INTRODUCTION TO PRACTICAL SESSION I: Protocols and overview on sample preparation. **Ana Munoz-Manchado, University of Cádiz/INiBICA, Spain**

12:00 - 13:30: LUNCH Break

13:30 - 18:00: PRACTICAL SESSION I: Hands-on sample preparation – Ana Falcão, Ana Munoz-Manchado, Joana Silva

## April 4th, Thursday

09:30 - 12:30: PRACTICAL SESSION I continued: Hands-on sample preparation - Ana Falcão, Ana Munoz-Manchado, Joana Silva

12:30 - 13:30: LUNCH Break

13:30 - 14:30: INTRODUCTION TO PRACTICAL SESSION II: Protocol and stepwise objectives of Chromium Next GEM, **Ana Borges, Bonsai Lab**

### Bonsai Lab

14:30 – 17:00 PRACTICAL SESSION II: Hands-on protocol from chromium Next GEM Single Cell kits - Ana Falcão, Ana Munoz-Manchado, Joana Silva

17:00 – 18:00: INSPIRATIONAL TALK: TBA, **Ana Munoz-Manchado, University of Cádiz/INiBICA, Spain**

## April 5th, Friday

09:30 – 10:30: SELF LEARNING: The basics of Python programming

10:30 – 12:30: INSPIRATIONAL TALK: TBA, **Gonçalo Castelo-Branco, Karolinska Institutet (Portuguese Glia Meeting)**

12:30 - 14:30: LUNCH Break

14:30 - 17:30: SELF LEARNING: The basics of Python programming

## April 8th, Monday

09:30 – 10:30: INSPIRATIONAL TALK: TBA, **Fernanda Marques, ICVS, Braga**

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 – 18:00 PRACTICAL SESSION III: Data analysis for single-cell/nucleus RNA-seq: getting started, part 1. (programming languages and required packages) - Nuno Osório, Leonardo Garma, Mónica Fernandes, Juan Manuel Barva

### **April 9th, Tuesday**

09:30 – 10:30 INSPIRATIONAL TALK: TBA, **Carina Soares-Cunha, ICVS, Braga**

10:30 – 12:30: INTRODUCTION TO PRACTICAL SESSION IV: Introduction to data analysis for single-cell/nucleus RNA-seq - Nuno Osório, Leonardo Garma, Mónica Fernandes, Juan Manuel Barva

12:30 - 14:00: LUNCH Break

14:00 – 15:00: INSPIRATIONAL TALK: “Applications of single-cell ATAC-seq data/TBA”; **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 - Nuno Osório, Leonardo Garma, Mónica Fernandes, Juan Manuel Barva

### **April 10th, Wednesday**

09:30 – 12:30: PRACTICAL SESSION IV, part 2: Hands-on data analysis for single-cell/nucleus RNA-seq - Nuno Osório, Leonardo Garma, Mónica Fernandes, Juan Manuel Barva

12:30 - 14:00: LUNCH Break

14:00 – 17:00 PRACTICAL SESSION IV, part 2: Hands-on data analysis for single-cell/nucleus RNA-seq - Nuno Osório, Leonardo Garma, Mónica Fernandes, Juan Manuel Barva

### **April 11th, Thursday**

09:30 – 12:30: PRACTICAL SESSION IV, part 3: Hands-on data analysis for single-cell/nucleus RNA-seq - Nuno Osório, Leonardo Garma, Mónica Fernandes, Juan Manuel Barva

12:30 - 14:00: LUNCH Break

14:00 – 15:00: INSPIRATIONAL TALK: TBA, **Jessica Roelands, LUMC, Netherlands**

15:00 – 18:00 PRACTICAL SESSION IV, part 3: Hands-on data analysis for single-cell/nucleus RNA-seq - Nuno Osório, Leonardo Garma, Mónica Fernandes, Juan Manuel Barva

### **April 12th, Friday**

09:30 – 12:30: PRACTICAL SESSION IV, part 4: Hands-on single-cell/nucleus RNA-seq data analysis - Nuno Osório, Leonardo Garma, Mónica Fernandes, Juan Manuel Barva

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 - Nuno Osório, Leonardo Garma, Mónica Fernandes, Juan Manuel Barva

### **April 13th, Saturday**

9:30 – 11:30: INTRODUCTION TO SPATIAL TRANSCRIPTOMICS: the GPS on single cell

11:30 – 12:30: INSPIRATIONAL TALK: TBA, Lars Borm, **Vlaams Instituut voor Biotechnologie, Leuven, Belgium**

12:30 – 13:00: Wrap-up

**Tutors/Faculty:**

Nuno Osório (ICVS, Portugal)

Leonardo Garma (CNIO, Spain)

Mónica Fernandes (Karolinska Institutet)

Juan Manuel Barva (University of Cádiz/INiBICA, Spain)

Ana Munoz-Manchado (University of Cádiz/INiBICA, Spain)

Carina Soares-Cunha (ICVS, Portugal)

Bruno Costa (ICVS, Portugal)

Ana Falcão (ICVS, Portugal)

Joana Silva (ICVS, Portugal)