Spatial Transcriptomics Self-Training

Monash Genomics and Bioinformatics Platform (MGBP) $\,$

Compiled: May 02, 2025

Contents

1	Getting started 1.1 Summary	5 5
2	Introduction 2.1 What is Spatial Trancriptomics?	7 7 7
3	Xenium	9
4	COSmix 4.1 Technology 4.2 Data	11 11 11
5	MerScope 5.1 Technology	13 13 13
6	Preprocessing	15
7	Xenium	17
8	Cosmix	19
9	MerScope	21
10	Normalisation	23
11	Xenium	25
12	Cosmix	27
13	MerScope	29
14	Dimensionality Reduction	31

4	CONTENTS
15 Xenium	33
16 Cosmix	35
17 MerScope	37
18 Clustering	39
19 Xenium	41
20 Cosmix	43
21 MerScope	45
22 Cell Annotation	47
23 Xenium	49
24 Cosmix	51
25 Cell Annotation	53
26 Integration	55
27 Cell to Cell Signaling	57

Getting started

Data: Xenium Data

1.1 Summary

This workshop, conducted by the Monash Genomics and Bioinformatics Platform, will cover Spatial Tanscriptomics Analysis

Important links:

- Installation and Setup instructions
- ullet Slideshow introduction
- Challenge solutions (no peeking!)

Introduction

- 2.1 What is Spatial Trancriptomics?
- 2.2 What Research questions can answer?

- $3.0.1 \quad {\bf Technology}$
- 3.0.2 Data

COSmix

- 4.1 Technology
- 4.2 Data

MerScope

- 5.1 Technology
- 5.2 Data

Preprocessing

Cosmix

MerScope

Normalisation

Cosmix

MerScope

Dimensionality Reduction

Cosmix

MerScope

Clustering

Xenium

Cosmix

MerScope

Cell Annotation

Xenium

Cosmix

Cell Annotation

Integration

Cell to Cell Signaling