



HUMAN
CELL
ATLAS

2024 HCA Single-Cell Omics in-person Computational and Experimental Design Workshop, Bangkok

Day 1 - 24 June 2024

8:30 AM - 9:00 AM GMT +7 / Sun Jun 23, 9:30 PM - 10:00 PM Your local time (30 Min)

Check-in and Registration

📍 Stang Mongkolsuk

9:00 AM - 9:05 AM GMT +7 / Sun Jun 23, 10:00 PM - 10:05 PM Your local time (5 Min)

Welcome Remarks

📍 Stang Mongkolsuk

9:05 AM - 9:10 AM GMT +7 / Sun Jun 23, 10:05 PM - 10:10 PM Your local time (5 Min)

Opening Speech

📍 Stang Mongkolsuk

Speaker: Prasit Suwannalert, Faculty of Science, Mahidol University

9:10 AM - 9:25 AM GMT +7 / Sun Jun 23, 10:10 PM - 10:25 PM Your local time (15 Min)

HCA Overview

📍 Stang Mongkolsuk

Speaker: John Randell, Human Cell Atlas

9:25 AM - 9:40 AM GMT +7 / Sun Jun 23, 10:25 PM - 10:40 PM Your local time (15 Min)

HCA Asia

📍 Stang Mongkolsuk

Speaker: Ponpan Matangkasombut

9:40 AM - 10:10 AM GMT +7 / Sun Jun 23, 10:40 PM - 11:10 PM Your local time (30 Min)

Keynote: Overview and impact of single-cell and spatial genomics

📍 Stang Mongkolsuk

Speaker: Alex Shalek, MIT | Broad Institute | Ragon Institute

10:10 AM - 10:25 AM GMT +7 / Sun Jun 23, 11:10 PM - 11:25 PM Your local time (15 Min)

Single-cell Genomics in Thailand

📍 Stang Mongkolsuk

Speaker: Varodom Charoensawan, Faculty of Medicine, Siriraj Hospital, Mahidol University

10:25 AM - 10:40 AM GMT +7 / Sun Jun 23, 11:25 PM - 11:40 PM Your local time (15 Min)

Single-cell Genomics in infectious disease research

📍 Stang Mongkolsuk

Speaker: Waradon Sungnak, Faculty of Science, Mahidol University

10:40 AM - 11:10 AM GMT +7 / Sun Jun 23, 11:40 PM - Mon Jun 24, 12:10 AM Your local time (30 Min)

Morning Break

 Stang Mongkolsuk

11:10 AM - 11:20 AM GMT +7 / 12:10 AM - 12:20 AM Your local time (10 Min)

HCA Code of Conduct & Housekeeping

 Stang Mongkolsuk

11:20 AM - 12:10 PM GMT +7 / 12:20 AM - 1:10 AM Your local time (50 Min)

Computational and Experimental: Project Overview & Introduction to Methods

 Stang Mongkolsuk

12:10 PM - 1:10 PM GMT +7 / 1:10 AM - 2:10 AM Your local time (1 Hour)

Lunch (All) + Poster Session

1:10 PM - 2:40 PM GMT +7 / 2:10 AM - 3:40 AM Your local time (1 Hour, 30 Min)

Experimental: Introduction

- Overview of single cell RNA-seq compared to other transcriptomics approaches
- Experimental design
- Sample preparation (Tissue dissociation) and cell capture techniques

1:10 PM - 3:40 PM GMT +7 / 2:10 AM - 4:40 AM Your local time (2 Hours, 30 Min)

Computational

Introductory: Preprocessing & QC + Questions

Advanced: Data Integration & Cell Type Annotation/DE + Questions

2:40 PM - 3:10 PM GMT +7 / 3:40 AM - 4:10 AM Your local time (30 Min)

Break (Experimental)

3:10 PM - 5:10 PM GMT +7 / 4:10 AM - 6:10 AM Your local time (2 Hours)

Experimental: Wetlab Experiment

Hands-on mouse's spleen dissociation and cell counting

3:40 PM - 4:10 PM GMT +7 / 4:40 AM - 5:10 AM Your local time (30 Min)

Break (Computational)

4:10 PM - 5:10 PM GMT +7 / 5:10 AM - 6:10 AM Your local time (1 Hour)

Computational

Introductory: Preprocessing Lab & QC Lab; Projects

Advanced: Data Integration Lab & Cell Type Annotation/DE Lab; Projects

Day 2 - 25 June 2024

9:00 AM - 10:00 AM GMT +7 / Mon Jun 24, 10:00 PM - 11:00 PM Your local time (1 Hour)

Computational

Introductory: Welcome Day 2 Dimension Reduction + Clustering +DE (Room - R203)

Advanced: Welcome Day 2 multi-omics (scATAC-seq+scRNA-seq) - (Room - P114)

9:00 AM - 10:30 AM GMT +7 / Mon Jun 24, 10:00 PM - 11:30 PM Your local time (1 Hour, 30 Min)

Experimental Introduction

- Step overviews of 10X and Parse Bio

10:00 AM - 10:30 AM GMT +7 / Mon Jun 24, 11:00 PM - 11:30 PM Your local time (30 Min)

Morning Break: Computational

10:30 AM - 11:00 AM GMT +7 / Mon Jun 24, 11:30 PM - Tue Jun 25, 12:00 AM Your local time (30 Min)

Morning Break: Experimental

10:30 AM - 12:00 PM GMT +7 / Mon Jun 24, 11:30 PM - Tue Jun 25, 1:00 AM Your local time (1 Hour, 30 Min)

Computational

Introductory: Dimension Reduction + Clustering +DE Lab

Advanced: multi-omics lab

11:00 AM - 12:30 PM GMT +7 / 12:00 AM - 1:30 AM Your local time (1 Hour, 30 Min)

Experimental: Wetlab Experiments

- Whole blood sample loading to GEM-X Chip
- GEM-RT incubation
- Practice with the 10X training kit

12:00 PM - 1:00 PM GMT +7 / 1:00 AM - 2:00 AM Your local time (1 Hour)

Lunch (Computational) + Poster Session

12:30 PM - 1:30 PM GMT +7 / 1:30 AM - 2:30 AM Your local time (1 Hour)

Lunch (Experimental) + Poster Session

1:00 PM - 3:30 PM GMT +7 / 2:00 AM - 4:30 AM Your local time (2 Hours, 30 Min)

Computational

Introductory: Cell Type Annotation + Data Integration + Batch correction

Advanced: Differential Abundance + Lab

1:30 PM - 3:30 PM GMT +7 / 2:30 AM - 4:30 AM Your local time (2 Hours)

Experimental

PBMC hashing with Cell Surface Protein Labeling Protocol

PBMC sample loading to GEM-X Chip

GEM-RT incubation

3:30 PM - 4:00 PM GMT +7 / 4:30 AM - 5:00 AM Your local time (30 Min)

Afternoon Break (All)

4:00 PM - 5:30 PM GMT +7 / 5:00 AM - 6:30 AM Your local time (1 Hour, 30 Min)

Computational

Introductory: Lab for "Differential expression, cell type annotation and functional data analysis"

Advanced: Differential Abundance +lab

4:00 PM - 6:00 PM GMT +7 / 5:00 AM - 7:00 AM Your local time (2 Hours)

Experimental

Post GEM-RT Cleanup & cDNA Amplification

QC

Day 3 - 26 June 2024

9:00 AM - 10:00 AM GMT +7 / Tue Jun 25, 10:00 PM - 11:00 PM Your local time (1 Hour)

Computational

Combined: Lessons learned so far

9:00 AM - 10:30 AM GMT +7 / Tue Jun 25, 10:00 PM - 11:30 PM Your local time (1 Hour, 30 Min)

Experimental

Post Gem-RT cleanup
cDNA amplification

10:00 AM - 10:30 AM GMT +7 / Tue Jun 25, 11:00 PM - 11:30 PM Your local time (30 Min)

Morning Break (Computational)

10:30 AM - 11:00 AM GMT +7 / Tue Jun 25, 11:30 PM - Wed Jun 26, 12:00 AM Your local time (30 Min)

Morning Break (Experimental)

10:30 AM - 12:00 PM GMT +7 / Tue Jun 25, 11:30 PM - Wed Jun 26, 1:00 AM Your local time (1 Hour, 30 Min)

Computational

TCR/BCR + CITE-seq Lecture

11:00 AM - 12:00 PM GMT +7 / 12:00 AM - 1:00 AM Your local time (1 Hour)

Experimental

cDNA cleanup

12:00 PM - 1:00 PM GMT +7 / 1:00 AM - 2:00 AM Your local time (1 Hour)

Lunch (All) + Poster Session

1:00 PM - 3:00 PM GMT +7 / 2:00 AM - 4:00 AM Your local time (2 Hours)

Experimental

GeX fragmentation

Post fragmentation cleanup

1:00 PM - 3:30 PM GMT +7 / 2:00 AM - 4:30 AM Your local time (2 Hours, 30 Min)

Computational

TCR/BCR Lab

Cite-Seq Lab

3:00 PM - 3:30 PM GMT +7 / 4:00 AM - 4:30 AM Your local time (30 Min)

Afternoon Break (Experimental)

3:30 PM - 4:00 PM GMT +7 / 4:30 AM - 5:00 AM Your local time (30 Min)

Afternoon Break (Computational)

3:30 PM - 5:30 PM GMT +7 / 4:30 AM - 6:30 AM Your local time (2 Hours)

Experimental

Adaptor Ligation, Clean up

Sample index PCR

4:00 PM - 5:30 PM GMT +7 / 5:00 AM - 6:30 AM Your local time (1 Hour, 30 Min)

Computational: Projects

Day 4 - 27 June 2024

9:00 AM - 10:00 AM GMT +7 / Wed Jun 26, 10:00 PM - 11:00 PM Your local time (1 Hour)

Computational

Combined: Welcome Day 4+ Recap; Trajectory Inference

9:00 AM - 10:30 AM GMT +7 / Wed Jun 26, 10:00 PM - 11:30 PM Your local time (1 Hour, 30 Min)

Experimental

Lecture (TCR/BCR)

Post index PCR cleanup

10:00 AM - 10:30 AM GMT +7 / Wed Jun 26, 11:00 PM - 11:30 PM Your local time (30 Min)

Morning Break (Computational)

10:30 AM - 11:00 AM GMT +7 / Wed Jun 26, 11:30 PM - Thu Jun 27, 12:00 AM Your local time (30 Min)

Morning Break (Experimental)

10:30 AM - 12:00 PM GMT +7 / Wed Jun 26, 11:30 PM - Thu Jun 27, 1:00 AM Your local time (1 Hour, 30 Min)

Computational

Combined: Trajectory Inference Lab

11:00 AM - 12:00 PM GMT +7 / 12:00 AM - 1:00 AM Your local time (1 Hour)

Experimental: Wet lab experiment

HTO Sample Index PCR

12:00 PM - 1:00 PM GMT +7 / 1:00 AM - 2:00 AM Your local time (1 Hour)

Lunch (All) + Poster Session

Poster Abstracts

1:00 PM - 3:00 PM GMT +7 / 2:00 AM - 4:00 AM Your local time (2 Hours)

Experimental

HTO Post Index PCR Clean up

GEx + HTO QC

1:00 PM - 3:30 PM GMT +7 / 2:00 AM - 4:30 AM Your local time (2 Hours, 30 Min)

Computational

Combined: Cell-Cell Communication+lab

3:00 PM - 3:30 PM GMT +7 / 4:00 AM - 4:30 AM Your local time (30 Min)

Afternoon Break (Experimental)

3:30 PM - 4:00 PM GMT +7 / 4:30 AM - 5:00 AM Your local time (30 Min)

Afternoon Break (Computational)

3:30 PM - 5:30 PM GMT +7 / 4:30 AM - 6:30 AM Your local time (2 Hours)

Experimental

Discussion/lecture

4:00 PM - 5:30 PM GMT +7 / 5:00 AM - 6:30 AM Your local time (1 Hour, 30 Min)

Computational: Projects

Day 5 - 28 June 2024

9:00 AM - 10:30 AM GMT +7 / Thu Jun 27, 10:00 PM - 11:30 PM Your local time (1 Hour, 30 Min)

Computational

Projects & Presentation preparations

9:00 AM - 10:30 AM GMT +7 / Thu Jun 27, 10:00 PM - 11:30 PM Your local time (1 Hour, 30 Min)

Experimental

Basic Computational analysis

10:30 AM - 11:00 AM GMT +7 / Thu Jun 27, 11:30 PM - Fri Jun 28, 12:00 AM Your local time (30 Min)

Morning Break (All)

11:00 AM - 12:00 PM GMT +7 / 12:00 AM - 1:00 AM Your local time (1 Hour)

Computational

Combined: Work on project/prepare presentation

11:00 AM - 12:30 PM GMT +7 / 12:00 AM - 1:30 AM Your local time (1 Hour, 30 Min)

Experimental

Basic Computational analysis

12:00 PM - 1:00 PM GMT +7 / 1:00 AM - 2:00 AM Your local time (1 Hour)

Lunch (Computational)

Take down Posters

12:30 PM - 1:30 PM GMT +7 / 1:30 AM - 2:30 AM Your local time (1 Hour)

Lunch (Experimental)

Take down Posters

1:00 PM - 3:00 PM GMT +7 / 2:00 AM - 4:00 AM Your local time (2 Hours)

Lectures & Group Presentations (All)

3:00 PM - 3:30 PM GMT +7 / 4:00 AM - 4:30 AM Your local time (30 Min)

Afternoon break

3:30 PM - 4:30 PM GMT +7 / 4:30 AM - 5:30 AM Your local time (1 Hour)

Lectures & Group Presentations (All)

4:30 PM - 5:30 PM GMT +7 / 5:30 AM - 6:30 AM Your local time (1 Hour)

Closing Ceremony & Remarks

6:00 PM - 6:30 PM GMT +7 / 7:00 AM - 7:30 AM Your local time (30 Min)

Commute to Closing Dinner

Location TBD

6:30 PM - 9:00 PM GMT +7 / 7:30 AM - 10:00 AM Your local time (2 Hours, 30 Min)

Closing Dinner sponsored by BD Biosciences

Location: House of Smooth Curry

Sponsored By: BD BioSciences

