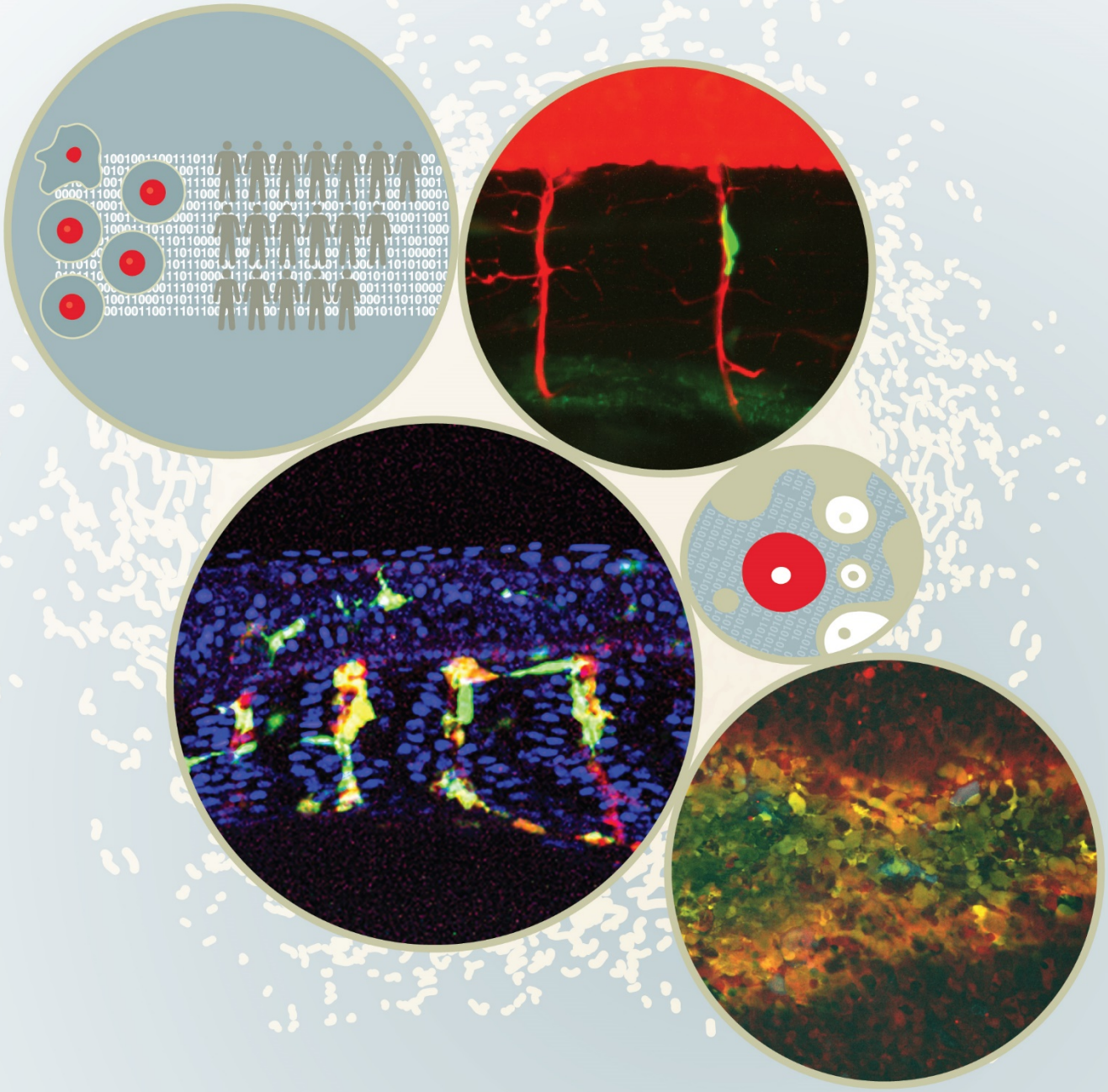
MRC HUMAN GENETICS UNIT SYMPOSIUM

ABERRANT CELL STATE TRANSITIONS IN HUMAN DISEASE

23 - 24 September 2020

Virtual Symposium Hosted By

MRC Human Genetics Unit,
The University of Edinburgh



MRC Human Genetics Unit

THE UNIVERSITY of EDINBURGH

Disease Models & Mechanisms

MRC HUMAN GENETICS UNIT ONLINE SYMPOSIUM:
ABERRANT CELL STATE TRANSITIONS IN HUMAN DISEASE

DAY 1 PROGRAMME: Wednesday 23rd September 2020

WELCOME & INTRODUCTION

10.00 BST **Wendy Bickmore, University of Edinburgh**

BREAKOUT ROOMS

10.10 **1-2 hosts per room** (Meet and Greet/ Meeting goals) – please join us at https://us02web.zoom.us/j/89917141357?pwd=MzNkNzJCMXNDQXFVNm0vU0VEbmE4QT09
Meeting ID: 899 1714 1357 Passcode: 379222)

10.30 **SESSION 1 - CELL TRANSITIONS IN HUMAN DISEASE**
Chairs: Alessandro Brombin and Liz Patton MRC Human Genetics Unit, The University of Edinburgh

10.30 **Mechanisms of lineage specification in human embryos.**
Kathy Niakan - The Francis Crick Institute

10:55 **The Alzheimer's brain: from single cells to cellular communities.**
Naomi Habib - The Hebrew University of Jerusalem

SELECTED TALKS FROM ABSTRACTS

11:20 **Single cell RNA-sequencing identifies a novel pro-regenerative macrophage subpopulation following acetaminophen-induced liver injury.**
Dyana Markose - The University of Edinburgh

11:35 **Deciphering the mechanisms driving human Dupuytren's disease at single-cell level.**
Ross Dobie - The University of Edinburgh

11:50 **Myeloid heterogeneity in progression and regression of experimental kidney disease.**
Bryan Conway - The University of Edinburgh

12:05 **Single cell RNA-seq profiling of murine endothelial cells in response to pulmonary arterial hypertension.**
Julie Rodor - The University of Edinburgh

12:20 LUNCH

13.00 **SESSION 2 - ANALYTIC AND TECHNICAL APPROACHES**
Ailith Ewing and Chris Ponting

13.00 **Applying spatially-resolved single-cell genomics to mammalian gastrulation**
John Marioni - European Bioinformatics Institute

13.25 **Challenges in constructing gene network interactions using single-cell RNA-seq data.**
Ava Khamseh – MRC Human Genetics Unit, The University of Edinburgh

13:50 **Transcription dynamics in single cells**
Timothee Lionnet - NYU Grossman School of Medicine

SELECTED SHORT TALKS FROM ABSTRACTS

14:15 **Milo: Differential cell state abundance testing using kNN-graphs.**
Mike Morgan - CRUK - Cambridge Institute, University of Cambridge

14:30 BRIEF BREAK

14:45 **scMET: Bayesian modelling of DNA methylation heterogeneity at single-cell resolution.**
Catalina Vallejos - MRC Human Genetics Unit, The University of Edinburgh

15:10 **Computational approaches to modelling cell state transitions.**
Magnus Rattray - University of Manchester

15:35 **Using single cell genomics to investigate the fibrotic niche of human liver cirrhosis.**
Neil Henderson - The University of Edinburgh

16:00 **BRIEF CHAIRS REVIEW**
Chris Ponting and Liz Patton

16:15 END OF DAY 1

DAY 2 PROGRAMME: Thursday 24th September 2020

09:30 BST **SESSION 3 - CELL TRANSITIONS IN DEVELOPMENT AND HAEMATOPOIESIS**
Chairs: David FitzPatrick and Jana Travnickova, MRC Human Genetics Unit, The University of Edinburgh

09.35 **Investigating human blood development at the single-cell level.**
Ana Cvejic - The University of Cambridge

SELECTED SHORT TALKS FROM ABSTRACTS

10:00 **Functional diversification of SRSF protein kinase to control ubiquitin-dependent neurodevelopmental signalling.**
Greg Finlay - The University of Dundee

10:15 **Deciphering visceral adipose tissue heterogeneity.**
You Ying Chau - The University of Edinburgh

10.30 **The rise and fall of the Thymic Epithelial Cell: a single cell journey through ontogeny.**
Jeanette Baran Gale - MRC Human Genetics Unit, The University of Edinburgh

10:55 BREAK

11:10 **Neuronal diversification and lineage recording during development.**
Bushra Raj – Harvard University

11.35 **Decoding the developing immune system.**
Muzlifah Haniffa - The University of Newcastle

12:00 LUNCH

12.45 **SESSION 4 - CELL TRANSITIONS IN CANCER**
Chairs: Jeanette Baran Gale and Neil Henderson

12.45 **Nongenetic mechanisms of tumour evolution and therapy resistance.**
Chris Marine - Laboratory for Molecular Cancer Biology (VIB-KU Leuven)

13:10 **Discovery of novel melanocyte cell populations in zebrafish.**
Liz Patton – MRC Human Genetics Unit, The University of Edinburgh

SELECTED SHORT TALKS FROM ABSTRACTS

13:35 **Heterogeneous cell subpopulations characterise melanoma residual disease.**
Jana Travnickova - MRC Human Genetics Unit, The University of Edinburgh

13:50 **Histone 3.3 G34R/V mutant high-grade gliomas depend on a neuronal cell of origin.**
Selin Jessa - McGill University

14:05 **Transcriptomic states:The heterogeneity of high grade serous ovarian carcinomas**
Thomas Parry, Cancer Research UK Edinburgh Centre, The University of Edinburgh

14:20 **SESSION 4 - CELL TRANSITIONS IN CANCER (CONTINUED)**
Chairs: Jeanette Baran Gale and Neil Henderson

14:20 **Single-cell heterogeneity in response to oncogenic stress.**
Tamir Chandra - The University of Edinburgh

14:45 **Single cell approaches reveal similarities in clonal haemopoiesis and myeloproliferative neoplasms.**
Kristina Kirschner - University of Glasgow

15:10 BREAK

15:25 **SELECTED TALK PRIZES** (Sponsored by Disease Models & Mechanisms)

SUMMARY AND CHAIRS PANEL DISCUSSION
Liz Patton and Chris Ponting

16:00 END OF DAY 2 MEETING