StemCellMathLab'18 on tour:

Quantitative Analysis of Clonality in Haematopoiesis

- Concepts, methods and potentials -

Homerton College, University of Cambridge, UK, 12.-14. September 2018

https://tu-dresden.de/med/scml2108

It is the idea of the workshop to have **very short presentations (5 minutes!)** in which **you comment on the particular topic of the session**, possibly illustrated by your own data. This should be the basis for a subsequent discussion to which everyone is invited. The discussion may involve a particular dataset which could also be shared on slides, but we ask everyone to **respect the intention of the meeting which is to get multiple opinions on the table in an effort to build some consensus for an emerging field**. You are also invited to comment on the "C -topics" during your initial presentation and we will jointly catch up on this on Friday.

Wednesday, 12th September 2018

Arrival and registration from 12 noon

Session 1 (1 – 3.30 pm)
Chair: David Kent

Introduction to the workshop, Ingmar Glauche

A2: Establishing the core components of the haematopoietic structure – what does it mean to be a "distinct subpopulation" and is this notion useful? How does this structure change throughout development / ageing?

Short presentations:
Bertie Göttgens
Jason Cosgrove
Kerstin Cornils
Iwo Kucinski
Colin Hammond

Coffee break (3.30 – 4.30 pm)

Session 2 (4.30 – 6.30 pm)
Chair: Leïla Perié

A1: Can we infer the structure and dynamics of haematopoietic differentiation from clonal data? Are there informative theoretical tools to model these processes?

Short presentations:
Jason Xu / Vladimir N Minin
Edyta Wojtowicz
Christoph Baldow
Ken Duffy
Ben Simons

7.30 pm - conference dinner at Homerton College

Thursday, 13th September 2018

Session 3 (8.30 – 10.00 am)
Chair: Ingmar Glauche

A3: What does the inferred tree mean? Is it a genealogy? Is it the most parsimonious tree? Can we account for intrinsically heterogenous populations?

Short presentations:
Alejo Rodriguez-Fraticelli
Bastiaan Spanjaard
Anne-Marie Lyne

Coffee break (10 - 10.30 am)

Session 4 (10.30 am – 12.30 pm)
Chair: tba

A4: Can we infer additional information from this data by using different types of mathematical models? e.g. dynamics of haematopoiesis in homeostasis and during stress response, differentiation rates, inference of stem cell/progenitor numbers, asymmetric/symmetric division

Short presentations:
Thomas Höfer
Dawn Lin
Martijn Brugman
Jason Xu / Vladimir N Minin
Leïla Perié
Danilo Pellin

Lunch (12.30 – 2 pm)

Session 5 (2 – 3.30 pm)
Chair: Anne-Marie Lyne

B1: How do distinct clones compete and evolve? What is clonal heterogeneity and can we estimate it? B2: How do mutations affect clonal dynamics – can we follow and model disease modifying mutations?

Short presentations:
Daniela Cesana & Andrea Calabria
Leonid Bystrykh
Rong Lu
Cynthia Dunbar

Coffee break (3.30 - 4.30 pm)

Session 6 (4.30 – 6.00 pm)
Chair: Elisa Laurenti

B3: Can a theoretical understanding of haematopoiesis and the underlying dynamics improve the success of cell and gene therapies?

Short presentations:
Mary Sehl
Ingmar Glauche
Jennifer Adair
Emmanuelle Six

8.00 pm - dinner at "The Green Man"

Friday, 14th September 2018

<u>Session 7 (8.30 – 10.30 am)</u>

Focus section C: Processing and reporting of clonal data
C1: How should I process my clonal data? How should I report and visualise it?
C2: Should we agree on processing and reporting pipelines?
C3: What remains from your conclusion by the time you take ambiguities in your data into account (e.g. sequencing errors, uniqueness of barcodes, sampling, quantification bias)?

Leïla Perié
Anne-Marie Lyne
Elisa Laurenti
Ingmar Glauche
David Kent

Open for further contributions

Coffee break (10.30- 11 am)

<u>Session 8 (11 am – 12.30 pm)</u> - Determination of workshop consensus statements

The main outcome of the workshop will be a **commissioned article** *in Experimental Hematology which will summarise the discussions and (hopefully) act as a guide for the field. This session will focus on determining areas of agreement, areas of diverging opinion, and areas that future researchers/practitioners will need to engage with.*

all participants

12.30 pm - lunch and end of workshop