CHAIR FOR CLINICAL BIOINFORMATICS
SAARLAND UNIVERSITY

SEMINAR RNA SEQUENCING – KICK-OFF MEETING

Tutor:
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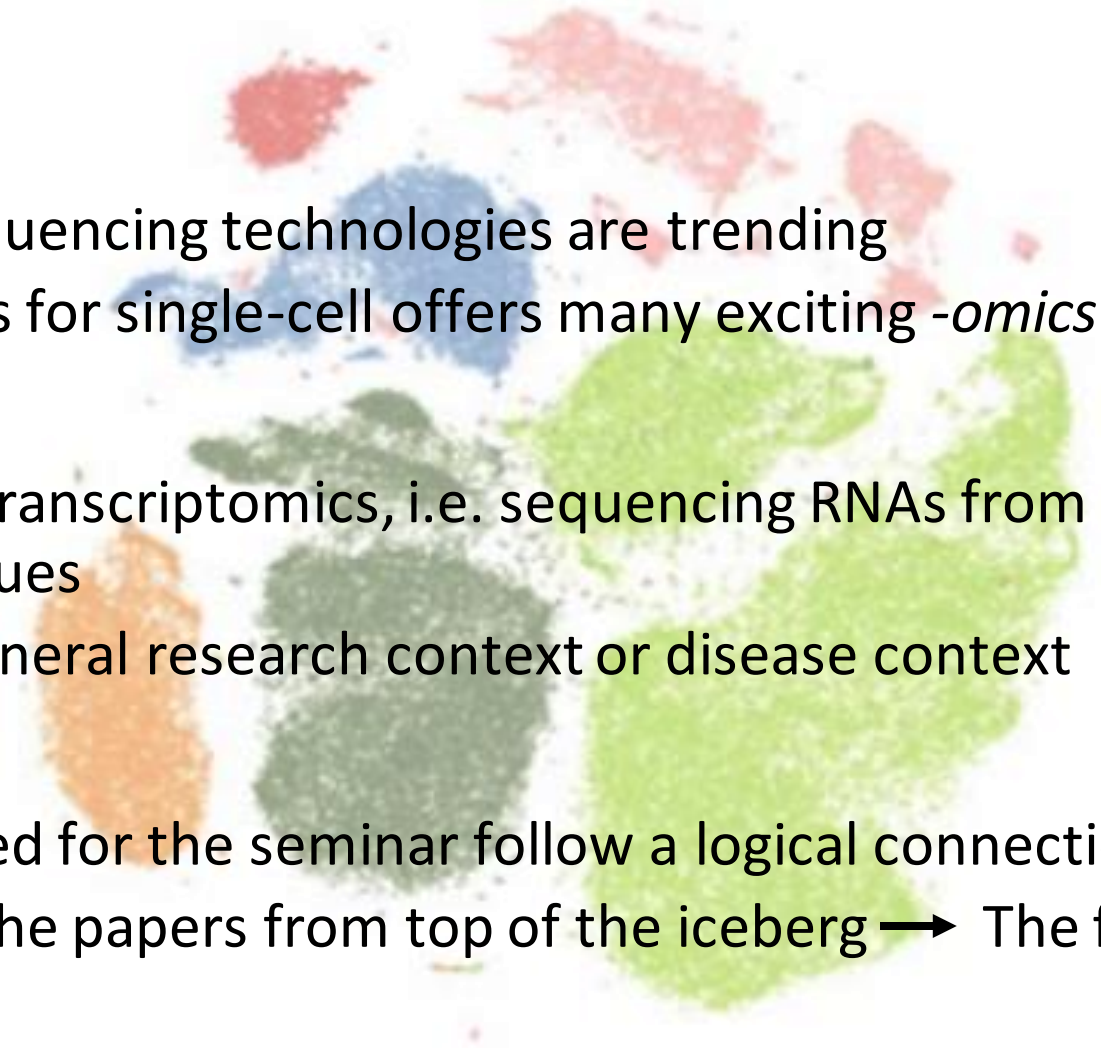
Thanks for enrolling!



- Why?
  - Single-cell sequencing technologies are trending
  - Bioinformatics for single-cell offers many exciting *-omics* applications
- What?
  - We focus on transcriptomics, i.e. sequencing RNAs from populations of cell types and tissues
  - Can be in a general research context or disease context
- How?
  - Papers selected for the seminar follow a logical connection & ordering
  - We selected the papers from top of the iceberg → The field is moving fast!

- Seminar (Master‘s only, 7 CPs - graded):
  - No formal prerequisites
  - But good skills in **maths, programming, and bioinformatics** are assumed

- Good english skills as **all talks** will be held in english language!

Event	Time	Comments
Registration	25.04.2022 - 15.05.2022	
Kick-off meeting [mandatory]	Today (31.05.2022)	
Deadline to register in HISPOS or de-register from seminar [mandatory]	21.06.2022	3 weeks after the kick-off meeting
Deadline for feedback [optional]	21.08.2022	1 weeks before the presentations
Presentations	31.08 / 01.09.2022	In person
Summary submission deadline	08.09.2022	1 week after the presentations

TOPICS: SINGLE-CELL RNA SEQUENCING

	Student	Topic
Seminar	Muhammad Saqlain Jaffar	1. Systematic comparison of single-cell and single-nucleus RNA-sequencing methods
Seminar	Tanya Malkani	2. Modular and efficient pre-processing of single-cell RNA-seq (NEW)
Seminar	Sara Farmahini Farahani	3. Bias, robustness and scalability in single-cell differential expression analysis
Proseminar	Marcial Paszkiel	4. Classification of low quality cells from single-cell RNA-seq data
Proseminar	Lucas Meyer	5. Leveraging the Cell Ontology to classify unseen cell types
Seminar	Ayat Ismail	6. The dynamics and regulators of cell fate decisions are revealed by pseudotemporal ordering of single cells
Seminar	Areeba Khan	7. RNA velocity of single cells
Seminar	Tobias Wolff	8. Inference and analysis of cell-cell communication using CellChat
Seminar	Ahmed Osman	9. Benchmarking algorithms for gene regulatory network inference from single-cell transcriptomic data
Seminar	Umutcan Ünaldı	10. Integrating single-cell transcriptomic data across different conditions, technologies, and species

Certificate requirements:

1. Successful presentation:
    - Talk: **30 minutes** for a Proseminar and **40 minutes** for a Seminar
    - Discussion: **5 minutes** during which you should be able to answer questions from the tutors/audience
2. Attendance to all presentations is **mandatory**
3. Submitting a summary report:
    - Short description of the presented topic(s)
    - Ca. 2 pages of text, excluding title (page), references, figures, tables etc..
    - No figures, tables or formulas required
    - Main structure: title page, main text (with or without subsections), references
    - It is recommended to write the report using LaTeX to train scientific writing

Final grade:

- Primarily based on the given presentation & follow-up discussion
- Might be influenced by the quality of the submitted summary report

Most importantly:

Practice!

But also:

- Try to reduce the amount of text
  - prevent showing entire sentences
  - use figures or visualizations provided by the literature
- Rule of thumb:

  you should be able to explain everything that's shown on your slides
- Proof-read your slides
- Speak freely and do not use cheat sheets

We expect you to:

- Read our presentation guidelines:
  https://www.ccb.uni-saarland.de/wp-content/uploads/2017/01/guidelines.pdf
- Fill-out and send the presentation checklist along with your slides:
  https://www.ccb.uni-saarland.de/wp-content/uploads/2014/09/presentation_guidelines.pdf
- Ask for feedback or formulate questions whenever you are stuck
- Independently use the available literature to enhance your knowledge on the assigned topic
  - *See also our **recommended reading** literature on the course site!*

Any questions?