Kick-off Meeting
Single-cell RNA Sequencing

Sommer Semester 2023

Saarland University
Chair for Clinical Bioinformatics

3rd May, 2023

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Welcome

Thanks for enrolling!

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General information

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How to pass the course

Certificate requirements:

1) Submitting a summary (until 17th of May)
2) LSF/HISPOS registration (until 24th of May)
3) Presentation (at 4th of August)
4) Attendance to all presentations
5) Submitting an essay (until 11th of August)

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For clarification:

	Study program	Credit points	Presentation length
Proseminar	Bachelor's only	5CPs - graded	30 minutes
Seminar	Master's only	7CPs - graded	40 minutes

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How to pass the course

Summary:

- Submission until 17th of May (2 weeks after the kick-off meeting)
- 3 pages ($\geq$1500 words, Arial, standard font size: 12)
- No additional literature. Summary **only** about the assigned paper.
- Use your own words, no copying (plagiarism check)
- No figures, tables and formulas are required. Nevertheless:
  - self-created
  - **included** in the 3 pages
  - need reference
- Recommendation: LaTeX to train scientific writing

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How to pass the course

Successful presentation:

- Content: Explanation of the assigned paper with the help of further literature (other papers, books, ...)
- Time limit: **30 min** for a proseminar (Bachelor) and **40 min** for a seminar (Master)
- Discussion: Correct answering of questions from the audience, at least **5 minutes**
- Attendance to all presentations is **mandatory**. Asking questions is highly recommended.

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How to pass the course

Essay:

- Submission until 11th of August (1 week after the presentation)
- Short description of the assigned paper using more literature (other papers, books, ...) (Do not forget the references)
- Main structure: title (page), main text (with or without subsections), references
- 2 pages (Arial, standard font size: 12) excluding title (page), section titles, figures, tables, references, etc.
- Use your own words, no copying (plagiarism check)
- No figures, tables and formulas are required. Nevertheless:
  - self-created
  - **excluded** from the 2 pages
  - need reference
- Recommendation: LaTeX to train scientific writing

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Grading

Final grade:

- Summary (25%)
- Presentation, slides & follow-up discussion (50%)
- Essay (25%)

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Pro- / Seminar: Single-cell RNA Sequencing

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About this course

Why?

- Single-cell sequencing technologies are trending
- Bioinformatics for single-cell offers many exciting *-omics* applications

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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

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- Single-cell sequencing technologies are trending
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- We focus on transcriptomics, i.e. sequencing RNAs from populations of cell types and tissues
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What are the main methods used?

- Papers selected for the seminar follow a logical connection & ordering
- We selected the papers from top of the iceberg $\rightarrow$ The field is moving fast

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Distributed Topics

Student	Topic
Jibin Varghese	1) SCENIC: single-cell regulatory network inference and clustering
Ana Shikhiashvili	2) Leveraging the Cell Ontology to classify unseen cell types
Florence Kurz	3) DoubletFinder: Doublet Detection in Single-Cell RNA Sequencing Data Using Artificial Nearest Neighbor
Ian Ferenc Diks	4) SoupX removes ambient RNA contamination from droplet-based single-cell RNA sequencing data
Mohit Singh	5) Integrating single-cell transcriptomic data across different conditions, technologies, and species
Rahma Qadeer	6) Bias, robustness and scalability in single-cell differential expression analysis
Zijie Ye	7) Profiling spatiotemporal gene expression of the developing human spinal cord and implications for ependymoma origin
Talha Rehman	8) Single-cell transcriptomic landscape of the developing human spinal cord
Ahmed Lamloum	9) Confronting false discoveries in single-cell differential expression

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Course Schedule

Event	Time	Comments
Registration deadline (mandatory)	April 24, 2023	-
Kick-off meeting (mandatory)	Today	Place: E2 1, R206
Summary submission (mandatory)	May 17, 2023	2 week after the kick-off meeting
Deadline to register (**or** deregister) in LSF/HISPOS (mandatory)	May 24, 2023	3 weeks after the kick-off meeting
Deadline for feedback (optional)	July 21, 2023	2 weeks before the presentation
Presentations (mandatory)	August 4, 2023	Place: E2 1, R206
Essay submission (mandatory)	August 11, 2023	1 week after the presentations

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Dos & Don'ts

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Dos (How to give a good scientific presentation)

Most importantly:

Practice!

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Dos (How to give a good scientific presentation)

Most importantly:

Practice!

But also:

- Try to reduce the amount of text
  - Prevent showing entire sentences
  - Use figures or visualisations (high resolution, appropriated font size, ...)
  - Add slide numbers
- You should be able to explain everything that is shown on you slides
- Proof-read your slides
- Ask for feedback or formulate questions (2x slide feedback only before the deadline)
- During your presentation speak freely

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Don’ts (How you will not pass the course)

Do not:

- Copy from the assigned paper or other literature
- Forget to reference figures, tables or information taken from other sources
- Show formulas that you cannot elaborate further
- Rely only on visualisations from the assigned paper
  - Search for further literature
  - Use e.g. Inkscape to draw own figures
  - Do not forget the reference
- Change layouts / formatting too often
- Deviate from the time constraint
- Send us a large list of vague questions
- Ignore our comments on your slides
- Ignore the recommended literature
- Assume a superficial understanding suffices

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Further material and reading

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 you slides:
  `https://www.ccb.uni-saarland.de/wp-content/uploads/2014/09/presentation_guidelines.pdf`
- Independently use the available literature to enhance your knowledge on the assigned topic (take a look at our **recommended reading** literature on the course website (`https://www.ccb.uni-saarland.de/teaching/pro-seminar-single-cell-rna-sequencing-summer-term-2023/`)!)

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