

PhD Journal Club “Method and Logic in Biology” 2025/2026

Syllabus

Time & Venue

Kick-off Journal Club:

Tuesday, 7 October 2025, 09:00 – 13:00, MPI AGE, meeting room 2 (1st floor)

Regular Journal Clubs:

Thursdays *or tba*, 12:30 – 14:30, MPI AGE, seminar room 1 or *tba*

Dates and Chaperones

Kick-off Meeting on “Hallmarks of aging: An expanding universe” :

07 Oct. 2025: Dr. Sebastian Grönke

Hallmarks of aging: An expanding universe, López-Otín et al. 2023, Cell,
<https://doi.org/10.1016/j.cell.2022.11.001>

Regular Journal Clubs (*corresponding lecture*):

- 1) 21 Nov. 2025 Dr. Jane Reznick (*Model Systems of Ageing*)
Friday!!!
- 2) 04 Dec. 2025 Dr. Ron Jachimowicz (*Telomeres and Ageing*)
13:00 – 15:00 !!!
- 3) 15 Jan. 2026 Dr. Maria Palumbieri / Matic Lab (*Genome Stability in Ageing*)
- 4) 22 Jan. 2026 Dr. Dusanka Milenkovic / Langer Lab (*Functions of Mitochondrial Dynamics in Cellular Homeostasis*)
- 5) 05 Mar. 2026 Dr. Santiago Serrano-Saénz / Walczak Lab (*Cell Death and Cancer Evolution*)
- 6) 12 Mar. 2026 Dr. Christina Ising (*Differential Vulnerability in Neuro-degeneration*)

- 7) 19 Mar. 2026 Prof. Dr. Bernhard Schermer (*RNA-Biology in Kidney Disease*)
- 8) 23 Apr. 2026 Dr. Lukas Steuernagel (*Systems Biology of Ageing*)
- 9) 21 May 2026 Dr. Corinna Bauder / Brüning Lab (*Developmental Origin of Ageing-related Disease*)
- 10) 12 Jun. 2026 Dr. Matthias Rübsam / Niessen Lab (*Protein Homeostasis in the Femal Germline*)
Friday!!!

Publications:

- 1) 21 Nov. 2025 *A cGAS-mediated mechanism in naked mole-rats potentiates DNA repair and delays aging*, Chen et al. **2025**, Science
Friday!!!
<https://doi.org/10.1126/science.adp5056> (Change of paper!)
- 2) 04 Dec. 2025 *Senescence-associated secretory phenotypes reveal cell-nonautonomous functions of oncogenic RAS and the p53 tumor suppressor*, Coppé et al. **2008**, PLoS Biology
13:00 – 15:00 !!!
<https://doi.org/10.1371/journal.pbio.0060301>
- 3) 15 Jan. 2026 *A rare human centenarian variant of SIRT6 enhances genome stability and interaction with Lamin A*, Simon et al. **2022**, EMBO Journal
<https://doi.org/10.15252/emj.2021110393>
- 4) 22 Jan. 2026 *Imbalanced OPA1 processing and mitochondrial fragmentation cause heart failure in mice*, Wai et al. **2015**, Science
<https://doi.org/10.1126/science.aad0116>
- 5) 05 Mar. 2026 *Integration of innate immune signalling by caspase-8 cleavage of N4BP1*, Gitlin et al. **2020**, Nature
<https://doi.org/10.1038/s41586-020-2796-5>
- 6) 12 Mar. 2026 *Age-dependent progression from clearance to vulnerability in the early response of periventricular microglia to α -synuclein toxic species*, Sirerol-Piquer et al. **2025**, Molecular Neurodegeneration
<https://doi.org/10.1186/s13024-025-00816-1>
- 7) 19 Mar. 2026 *A microscopy-based CRISPR screening platform enables organellar functional genomics and illuminates ciliary biology*, Sun et al. **2026**, Developmental Cell
<https://doi.org/10.1016/j.devcel.2025.10.015>

- 8) 23 Apr. 2026 *Brain-wide cell-type-specific transcriptomic signatures of healthy ageing in mice*, Jin et al. **2025**, Nature
<https://doi.org/10.1038/s41586-024-08350-8>
- 9) 21 May 2026 *FGF21 promotes longevity in diet-induced obesity through metabolic benefits independent of growth suppression*, Gliniak et al. **2025**, Cell Metabolism
<https://doi.org/10.1016/j.cmet.2025.05.011>
- 10) 12 Jun. 2026 *Vasculature atrophy causes a stiffened microenvironment that augments epidermal stem cell differentiation in aged skin*, Ichijo et al. **2022**, Nature Aging
 Friday!!!
<https://doi.org/10.1038/s43587-022-00244-6>

Course Description

Each journal club session will be taught by a faculty member. One current or classic paper with strong relevance in the field of ageing research will be discussed per session. You will receive all publications in advance in order to have sufficient time for preparation. For each paper, one student will be in charge of outlining the major hypothesis and summarizing the results, concluding statements and posing future directions (15 min). All other students will be responsible for describing, but most importantly for critically analyzing 1 - 2 figures per paper (~5 min). After the presentations, the respective paper will be extensively discussed (~20 min) by the group and the chaperone will give feedback to the whole group on their performance. Individual performance will be evaluated by the chaperones and the feedback will be handed out to the students at a later stage.

Course Objective

The journal club aims to teach you critical thinking skills. Moreover, it provides an overview of current literature and classical publications. You are strongly encouraged to actively participate. PIs should strongly emphasize the use of questions as a rhetorical and narrative device that drives the science. Therefore, you should present the depicted hypotheses being tested as questions, the content of each figure should first be posed as a question. PIs are expected to play an active role in challenge the students and raising critical points that they might have been missed.

Guidelines for presenting a paper

- What is the overall hypothesis being tested in the paper?
- What approach did the authors use to address the hypothesis?
- What is the result and why is it important?
- Are new research questions raised by the work in the paper?
- Are there alternatives? Limitations of each approach?
- What are the major findings?
- Did you see patterns or trends in the data that the author did not mention?

- Are the conclusions drawn from the results justified?
- Are there appropriate controls?
- Are there other factors that could have influenced the results?
- Were the hypotheses adequately tested?
- If you were to continue this research, what would you do next and how?