

ASPERT Théo

Nationality: French
Age: 27 y.o
PhD in biophysics (of aging)
Expert in microfluidics

Contact

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Bioengineer and Ph.D in biophysics passionate about the biology of aging, I have a strong expertise in developing, using, and transmitting microfluidics, timelapse microscopy, and image processing technics to study how cells age, at the single-cell level.

MAIN R&D EXPERIENCES ▼

Charvin lab

Ph.D

Institut de Génétique et de Biologie Moléculaire et Cellulaire (INSERM, CNRS, University of Strasbourg)

[2017 - Dec 2021]

R&D and scientific projects:

- Development of a high-throughput platform for replicative aging based on microfluidics and microscopy (published).
- Deep learning-based automated detection of cell divisions for replicative lifespan reconstruction (published).
- Measuring the statistics of extrachromosomal rDNA Circle excisions, a major event in the replicative lifespan of budding yeast cells (in prep.).
- Monitoring the dynamics of entry into quiescence during an unperturbed lifecycle at single-cell level (published).
- Development of a microfluidic device to couple single-cell timelapse analysis with biochemical assays (in prep.).
- 9 collaborative projects (from Switzerland, Japan, U.K, Germany, Italy, France. See taspert.github.io/Research#collabs), requiring the development/use of microfluidic strategies (3 published).
- 2 first-author publications, 5 publications (2 first-author in prep.). Co-reviewed 3 publications.

Technical skills developed:

Microfluidics (experimental, theoretical and simulations (COMSOL)). **Microfabrication** (design (AutoCAD), photo- and soft-lithography, clean room management). **Timelapse**, confocal and epifluorescence **microscopy**, microscope and hardware programming (Micromanager). Classical and **deep-learning image and sequence processing** (CNN, LSTM, U-Net). Electronics and automation. **Data science and software development** (Matlab, Python).

Quantitative biology (data acquisition, processing and visualization. Deterministic and stochastic modeling). Yeast biology (notably aging and quiescence).

Classical biology tools: FACS, PCR, DNA gels, yeast and bacteria strains generation.

Saudou lab -

4 months internship
Grenoble Institute of Neurosciences
[2016]

Description of a new mode of vesicles transport along axons (co-author publi., in review in Cell)

Technical skills developed:

Timelapse with spinning disk confocal microscopy, microfluidics, image and data processing, arduino automation, neuronal cell culture, immunofluorescence tagging.

ALMA MATER ▼

Grenoble Institute of Technology - PHELMA

*Bachelor's degree in Engineering Physics

***Master's degree of bioengineering** (physics and instrumentation for biomedical applications)

Grenoble-Alps University

***Master of Science in Nanobiology**

[2014-2017]

Ex of courses/practicals: Theoretical and experimental microfluidics, microfabrication, hydrodynamics, numerical modelisation, multi-physics simulations (COMSOL), image processing, molecular and cellular biology, physiology, systems biology.

Ex of projects: Studying the influence of shear stress on *Dictyostelium discoideum* actin polymerization using a microfluidic device.

Lycée Pothier - Pre-engineering class

[2011-2014]

Intensive undergraduate preparation in mathematics, physics and engineering sciences for the national competitive entrance exams to French «Grandes Ecoles».

OTHER SKILLS ▼

Chatting with computers and machines

Matlab, Python, C++, HTML/CSS, Fiji/Java

3D modeling and printing (FDM, SLA), Arduino, DIY

Printed 500+ facemasks for hospitals during the Covid19 pandemic

Conveying a scientific/technical message

Giving talks, Powerpoint, Adobe suite, Webdesign

PERSONNAL INTERESTS ▼

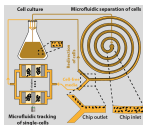
Cycling (road/mountain/gravel), hiking, trekking
100+km/week

Photography/Astrophotography

Environment and society

Co-founder of twitter.com/sapiensecologie

2021



Monitoring single-cell dynamics of entry into quiescence during an unperturbed lifecycle

Aspert Théo*, Jacquell Basile*, Laporte Damien, Sagot Isabelle, Charvin Gilles

* Equally contributed to the work

Life, 10:e73186, (2021) - DOI: 10.7554/eLife.73186

[Abstract](#)



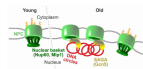
DetecDiv, a deep-learning platform for automated cell division tracking and replicative lifespan analysis

Théo Aspert, Didier Hentsch, Gilles Charvin

bioRxiv, (2021) - DOI: 10.1101/2021.10.05.463175

[Abstract](#)

2021

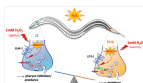


Specialization of chromatin-bound nuclear pore complexes promotes yeast aging

Anne C. Meinema, **Aspert Théo**, Sung Sik Lee, Gilles Charvin, Yves Barral

bioRxiv, (2021) - DOI: 10.1101/2021.06.28.450139

[Abstract](#)



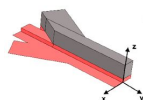
Distinct mechanisms underlie H2O2 sensing in C. elegans head and tail

Quintin Sophie, **Aspert Théo**, Charvin Gilles

bioRxiv, (2021) - DOI: 10.1101/2021.07.26.451501

[Abstract](#)

2019



Self-Learning Microfluidic Platform for Single-Cell Imaging and Classification in Flow

Constantinou I*, Jendrusch M*, **Aspert Théo**, Görlitz F, Schulze A, Charvin G, Knop M.

* Equally contributed to the work

Micromachines, 10: 311, (2019) - DOI: 10.3390/mi10050311

[Abstract](#)

Talks

Tracking single-cells during aging and environmental adaptation using microfluidics, high-throughput microscopy and deep-learning

Journées plénières du GDR - Micro-nano-fluidique, September 2021

Replicative aging: capturing the start of the countdown to death using high-throughput microfluidics and deep-learning

IGBMC Internal Seminar - Online, June 2021

Selectively harvesting post-senescent cells during replicative aging

International Conference on Yeast Genetics and Molecular Biology - Gothenburg (Sweden), August 2019

Selectively harvesting post-senescent cells during replicative aging

Experimental Approaches to Evolution and Ecology Using Yeast and Other Model Systems - EMBL Heidelberg (Germany), October 2018