

Frontiers in Microbial Systems 2025

Classes will take place at ENS, Biology department, 46 rue d'Ulm, in **room 305**. The broad theme of **antimicrobial strategies and their escape** has been selected as an Ariadne's thread for the week.

Monday November 10th — Welcome at the frontiers

- 9h – 10h30 **Olivier Espéli**, CIRB (Collège de France) — Introduction to bacterial cell physiology.
- 10h45 – 12h15 **Alice Lebreton**, IBENS (ENS-PSL) — Introduction to host-pathogen interactions.
- 13h45 – 15h15 **Laurent Aussel**, LCB (CNRS-Aix-Marseille Université) — Inside *Salmonella*.
- 15h30 – 17h **Zeynep Baharoglu**, Institut Pasteur & IBPC — Eitranscriptomics and bacterial adaptation to antimicrobial stress.

Tuesday November 11th — Holiday

Wednesday November 12th — Epidemiology and antimicrobial strategies

- 9h – 10h30 **Valérie Choumet**, Institut Pasteur — Disarming the vector: How mosquito and tick saliva shape pathogen transmission — Implications for anti-microbial strategies and their evasion.
- 10h45 – 12h15 **Sylvain Brisse**, Institut Pasteur — Global genomic surveillance of antimicrobial resistance.
- 13h45 – 15h45 **Alexandra Aubry**, Cimi (Paris) — Mycobacteria: Ordinary bacteria or extraordinary foes requiring new strategies.
- 16h – 17h *Group chalk presentations: selection of topics related to the course.*

Thursday November 13th — Host antimicrobial defences; tolerance to antimicrobials

- 9h – 10h *Preparation of flash group chalk presentations on the selected topics.*
- 10h15 – 12h15 **Caroline Demangel**, Institut Pasteur — Targeting Sec61: an immune evasion strategy invented by mycobacteria.
- 13h45 – 15h15 **Alessandro Pagliuso**, Micalis (INRAE Jouy-en-Josas) — The sleeping monsters: Understanding the biology of Persisters and VBNC cells.
- 15h30 – 16h15 **Olivier Espéli**, CIRB — Ndd: a viral tool for nucleoid disruption.
- 16h15 – 17h **Alice Lebreton**, IBENS — The controversy on spontaneous generation: Félix Pouchet against Louis Pasteur, 1859-1865.

Friday November 14th — Antimicrobial mechanism: From molecules to cells and populations

- 9h – 10h30 **Meriem El Karoui**, LBPA (ENS Paris-Saclay) — Bacterial physiology and response to antimicrobials at the single cell level.
- 10h45 – 12h15 *Flash group chalk presentations on the selected topics.*
- 14h – 16h **Mireille Ansaldi**, LCB (CNRS-Aix-Marseille Université) — Phage-antibiotic synergy: how antibiotics improve phage predation.

The exam is taking place in the morning of December 9th