

ACADEMIC EDUCATION

- October 2021 **PhD in Molecular Microbiology**
Ministerial doctoral grant
Doctoral School n°341 – Ecosystems, Evolution, Modelling, Microbiology (E2M2) - University Lyon 1
- 2015 - 2017 **MSc in Molecular Microbiology, Pathogenesis and Microbial Ecology** - University Lyon1
- 2012 - 2015 **BSc in Cell Biology and Physiology** - Faculty of Sciences and Technology - University of Limoges

RESEARCH EXPERIENCE AND PUBLICATIONS

January 2022 – present **Postdoctoral Researcher in Molecular Microbiology**



Collège de France — Interdisciplinary Research Center in Biology (CIRB)

Team "Functioning and Adaptation of Micro-organisms", led by Olivier Espéli

"Impact of the function and cooperation of bacterial topoisomerases on the maintenance of DNA topological equilibrium during gene transcription and the cell cycle"

Funding :  SISTERS et TOPORNAP



-  Borde C.*, Martin S.*, Nedjar H., Groseille J., Ruiz-Gutierrez N., Bruder E., Rimsky S., Koszul R., Espéli O. DNA topoisomerase I C-terminal domain is crucial for the pathogeny and stress response of adherent Invasive *E. coli*. **(In preparation)**
-  Borde C., Sagon G., Veyrier I., Bruno L., Brendon-Crozat E., Cornet F., Espéli O. An in vivo degradation system to study cross-talk between topoisomerases in *E. coli*. **(In preparation)**
-  Le Gall J., Borde C., Portman J. R., Bruno L., Espéli O., Nadal M. and Strick T. R. Characterization of transcription associated R-loop formation. **(In preparation)**
-  Vidmar V.*, Borde C.*, Bruno L., Miropolskaya N., Takacs M., Batisse C., Saint-André C., Zhu C., Espéli O., Lamour V., Weixlbaumer A. 2025. DNA topoisomerase I acts as supercoiling sensor for bacterial transcription elongation. **Nat. Struct. Mol. Biol.**
-  Borde C., Bruno L., Espéli O. 2024. Untangling bacterial DNA topoisomerases functions. **Biochem. Soc. Trans.**
-  Bignaud A.*, Cockram C.*, Borde C., Groseille J., Allemand E., Thierry A., Marbouty M., Mozziconacci J., Espéli O., Koszul R. 2024. Transcription-induced domains form the elementary constraining building blocks of bacterial chromosomes. **Nat. Struct. Mol. Biol.**

October 2017 – October 2021 **Doctoral Researcher in Molecular Microbiology**



University Lyon 1 — Laboratory of Microbiology, Adaptation and Pathogenicity, MTSB team

Supervised by Agnès Rodrigue

"Roles of the Zra two-component system and the Yhd ABC transporter in the stress response of *Enterobacteriaceae*"

Funding: Doctoral contract with ministerial grant and half ATER position (4th year)

-  Borde C., Effantin G., Balmand S., Romestaing C., Gueguen-Chaignon V., Rodrigue The functional plasticity of the YhdWXYZ ABC transporter enables antibiotic homeostasis and host colonisation in enteric bacteria. **BioRxiv**
-  Rome K., Borde C., Taher R., Cayron J., Lesterlin C., Gueguen E., De Rosny E., Rodrigue A. 2018. ZraPSR is a novel ESR that contributes to intrinsic antibiotic tolerance in *Escherichia coli*. **J. Mol. Biol.**

January 2017 – June 2017 **Research Internship in Microbiology**



University Lyon 1 — Laboratory of Microbiology, Adaptation and Pathogenicity, MTSB team

"Identification of the ZraR regulon involved in the stress response of *E. coli*"

MAIN SCIENTIFIC COMMUNICATIONS

The Biology and Physics of Prokaryotic Chromosome VII, York, UK 

November 2025 — "A supercoiling sensor for transcription elongation in *E. coli*: Topoisomerase I"

18th National Congress of the French Society for Microbiology (SFM), Rennes, France 

October 2023 — "DNA topoisomerase I C-terminal domain is crucial for the pathogenicity and stress response of adherent invasive *E. coli*"  **Awarded the "Iconography" Poster Prize**

EMBO Workshop "DNA Topology and Topoisomerases", Villars-sur-Ollon, Switzerland 

September 2023 — "An in vivo degradation system to study cross-talk between topoisomerases in *E. coli*"

EMBO Workshop "Bacterial Networks" (BacNet19), Spain 

September 2019 — "Different regulation and function of an ABC transporter in two *Enterobacteria*"

TEACHING ACTIVITIES

TEACHING

2020-2021 **Part-time Temporary Teaching and Research Assistant** (114 hours of tutorials and practical work)

- Bacterial Genetics module for 3rd-year bachelor's students
- Microbiology module for second-year bachelor's students

2017-2020 **Temporary Teaching Associate at INSA Lyon engineering school** (192 hours of tutorials and practical work)

- General Biology module for 3rd year of engineering school, Bioinformatics specialisation
- Biotechnology and Cellular Imaging module for 4th year of engineering school, Biochemistry and Biotechnology specialisation

SUPERVISION

Supervision of PhD students, engineers and undergraduates and postgraduates on work experiences

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| - Gaëlle Sagon (2025-2026) : engineer | - Charlotte Rousseau (2023) : 1st year of the Master's degree |
| - Lisa Bruno (2023-2025) : engineer | - Katell belvaire and Corentin Bonnet (2020) : 1st year of the Master's degree |
| - Julien Le Gall (2024) : PhD student | - Maxence Rambaud (2018) : 1st year of the Master's degree |

PUBLIC ENGAGEMENT AND SCIENTIFIC OUTREACH

2025 Oral Communication, "Pint of Science" public science festival, Gif-sur-Yvette
"Bacteria: Friends, Enemies... or Both?"



2024-present Active member of the Young Members Section of the French Society for Microbiology (SFM)



- Promotion of scientific career pathways
- Organisation of "career insertion" live sessions for young scientists
- Involvement in organising the "Microbes" congress (2025 edition), Bordeaux: session chair, communication organiser of an "Artificial Intelligence" session

2023-present Active member of ChADoC (Associate Researchers and PhD Students of the Collège de France)

- Organisation of scientific seminars and social events
- Organisation of and participation in Science festival at the Collège de France

ChADoC
COLLÈGE DE FRANCE

fête de la
Science

Outreach stand with activities and a science trail for children; 2025:
laboratory tours