

Thibaut Morel-Journal

CONTACT

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POSITIONS

MAÎTRE DE CONFÉRENCES

SINCE 2023

Université Sorbonne Paris Nord

UFR SMBH, IAME research unit

POSTDOCS

2021 - 2023

CNRS

Centre interdisciplinaire de recherche en biologie

2018 - 2021

INRAE

Institut Sophia Agrobiotech (2021)

BIOEPAR research unit (2018 - 2020)

2016 - 2018

Université Catholique de Louvain

Earth and Life Institute

EDUCATION

PHD IN ECOLOGY

2015

University of Nice

Stratégies d'introduction d'organismes dans un environnement spatialement structuré

MS IN BIOLOGY

2012

University Claude Bernard Lyon 1

Agrégation et productivité des chercheurs : de l'effet Allee aux politiques de la science

EVALUATION

JURY MEMBER

PhD thesis

A. Le Meur (examiner, 2026)

MCF (asst. prof.) recruitment

in section 65 (reviewer, 2026)

Master's thesis

Thérapies et technologie du vivant (reviewer, 2026)

REVIEWER

incl. Ecol Lett, Divers Distrib, Sci Rep, R Soc

Open Sci, PCI Evol Biol, Evolution, Oikos, Biol

Lett, Ecol Evol

RESEARCH

CURRENT

Intra-host and inter-host bacterial dynamics

Models of bacterial turnover (notably *E. coli* and *S. pneumoniae*) accounting for intrinsic bacterial traits, intra- and/or inter-specific interactions, host immunity and antibiotics

Interaction between bacterial traits and dynamics

Analyses of longitudinal and experimental data to link commensal traits, pathogenicity and/or antibiotic resistance to each other or to epidemiological dynamics.

Bacterial genetic diversity shaped by host-level patterns

Visualization and models of the spatial distribution of bacterial types (strains, groups) depending on the demography, movements and transmission

EARLIER

- Non-equilibrium metapopulation dynamics depending on landscape structure
- Dispersal patterns and invasive spread through pushed invasion fronts
- Bovine cattle disease spread through contact and movement networks
- Interaction between genetic variability and phenotypic plasticity

TEACHING

LAST FIVE YEARS

Degrees

- Bachelor's degree at Univ. Sorbonne Paris Nord (*Sciences de la vie, Sciences sanitaires et sociales, Sciences pour la santé*)
- Master's degree at Univ. Sorbonne Paris Nord (*Thérapies et technologie du vivant*) and at Univ. Paris Cité
- Engineer's degree at AgroParisTech

Subjects (Eq TD)

- Algorithmics (275h) and office automation (155h)
- Biostatistics and data analysis (250h)
- Epidemiology and risk control (20h)
- Microbial ecology and evolution (6h)

EARLIER

Animal epidemiology (AgroParisTech), ecology (UCLouvain), biometrics (UCLouvain), project management (UCLouvain)

MENTORING

PHD STUDENTS

Camilya Elouardi (2025-2028)

Role of plasmids encoding antibiotic resistance in the evolutionary success of emerging multi-resistant clones

Zein Assad (2024-2027)

Modeling the selective pressures on *S. pneumoniae* created by pneumococcal conjugate vaccines and the subsequent vaccine escape

INTERNS

LAST FIVE YEARS

Jules Baldous (2025, master), Octave Frances (2025, licence)

EARLIER

Master students ×3 (2018, 2015, 2013), engineering students ×2 (2015, 2014), DUT (2014)

PEER-REVIEWED

1. Mallecot E., Berti V., Petitjean M., Meyer J., Gueye S., [Morel-Journal T.](#), Clermont O., Poirel L., Denamur E., Royer G., Armand-Lefevre L. (2026) Influence of iron uptake systems on cefiderocol activity in *Escherichia coli*: at the crossroads of antibiotic resistance and virulence. *Antimicrobial Agents and Chemotherapy*. doi:10.1128/aac.01679-25
2. [Morel-Journal T.](#), Guyeux C., Sola C. (2026) Migrations and tuberculosis: a comparative study of *Mycobacterium tuberculosis* genomic population structure in Brazil and Mozambique to historical triangular slave trade knowledge to reconstruct the origins of tuberculosis infections caused by lineage 1 in Brazil. *Tuberculosis*, 102734. doi:10.1016/j.tube.2026.102734
3. Krishna A., Tonkin-Hill G., [Morel-Journal T.](#), Bentley S., Turner P., Blanquart F., Lehtinen S. (2025) Quantifying the effects of antibiotic resistance and within-host competition on strain fitness in *Streptococcus pneumoniae*. *PLoS Biology* 23(8), e3003300. doi:10.1371/journal.pbio.3003300
4. Assad Z., Hozé N., [Morel-Journal T.](#), Ouldali N. (2025) Adapting pneumococcal conjugate vaccines to serotype replacement: are we always one step behind? *Infectious Diseases Now* 55(5), 105085. doi:10.1016/j.idnow.2025.105085
5. [Morel-Journal T.](#), Lehtinen S., Cotto O., Amia R., Clermont O., Dion S., Figueroa C., Martinson J.N.V., Ralaimazava P., Duval X., Nowrouzian F.L., Walk S.T., Denamur E., Blanquart F. (2025) Residence-colonization trade-off and niche differentiation enable co-existence of *Escherichia coli* phylogroups in healthy humans. *The ISME Journal*, 19(1), wraf089. doi:10.1093/ismejo/wraf089
6. Condamine B., [Morel-Journal T.](#), Tesson F., Magnan M., Bernheim A., Denamur E., Blanquart F., Clermont O. (2025) Strain phylogroup and environmental constraints shape *Escherichia coli* dynamics and diversity over a 20-year human gut time series. *The ISME Journal*, 19(1), wrae245. doi:10.1093/ismejo/wrae245
7. [Morel-Journal T.](#), Ezanno P., Vergu E. (2024) Rewiring cattle movement to limit infection spread. *Veterinary Research* 55(1), 111. doi:10.1186/s13567-024-01365-z
8. Allain M., [Morel-Journal T.](#), Condamine B., Gibeaux B., Gachet B., Gschwind R., Houhamdi L., Denamur E., Landraud L. (2024). IncC plasmid genome rearrangements influence the vertical and horizontal transmission tradeoff in *Escherichia coli*. *Antimicrobial Agents and Chemotherapy*, e00554-24. doi:10.1128/aac.00554-24
9. [Morel-Journal T.](#), Haond M., Duan L., Mailleret L., Vercken E. (2023) Colonisation debt: when invasion history impacts current range expansion. *Peer Community Journal*, 2023(1). doi:10.24072/pcjournal.293
10. Svendsen N., Radchuck V., [Morel-Journal T.](#), Thuillier V., Schtickzelle N. (2023) Complexity vs linearity: relationships between functional traits in a protist. *BMC Ecology and Evolution* 23(1). doi:10.1186/s12862-022-02102-w
11. [Morel-Journal T.](#), Haond M., Lamy L., Muru D., Vercken E., Mailleret L., Roques L. (2022) When expansion stalls: an extension to the concept of range pinning in ecology. *Ecography* 2022(2). doi:10.1111/ecog.06018
12. Haond M., [Morel-Journal T.](#), Lombaert E., Vercken E., Mailleret L., Roques L. (2021). When higher carrying capacities lead to faster propagation. *Peer Community Journal* 2021(1). doi:10.24072/pcjournal.66
13. [Morel-Journal T.](#), Vergu E., Mercier J-B., Bareille N., Ezanno P. (2021) Selecting sorting centres to avoid long distance transport of weaned beef calves. *Scientific Reports*. 11(1), 1-10. doi:10.1038/s41598-020-79844-4
14. [Morel-Journal T.](#), Assié S., Vergu E., Mercier J-B., Bonnet-Beaugrand F., Ezanno P. (2021) Minimizing the number of origins in batches of weaned calves to reduce their risks of developing bovine respiratory diseases. *Veterinary Research*. 52(1), 1-12. doi:10.1186/s13567-020-00872-z
15. [Morel-Journal T.](#), Herve L., Assié S., Mercier J-B, Vergu E., Ezanno P., Bareille N. (2020) Pourquoi et comment repenser les pratiques d'allotement des brouillards en vue de l'enrichissement ? In *Actes des 25emes Rencontres autour des Recherches sur les Ruminants 2020*. Institut de l'élevage (Idele), Ed Technipiel, Paris.
16. [Morel-Journal T.](#), Thuillier V. Pennekamp F., Chaine A.S., Legrand D., Laurent E., Schtickzelle N. (2020) A multidimensional approach to the expression of phenotypic plasticity. *Functional Ecology*. 34(11), 2338-2349. doi:10.1111/1365-2435.13667
17. Jacob S., Laurent E., [Morel-Journal T.](#), Schtickzelle N. (2020) Fragmentation and the context-dependence of dispersal syndromes: matrix harshness modifies resident-disperser phenotypic differences in microcosms. *Oikos* 129(2), 158-169. doi:10.1111/oik.06857
18. [Morel-Journal T.](#), Rais Assa C., Mailleret L., Vercken E. (2019) Its all about connections: hubs and invasion in habitat networks. *Ecology Letters*, 22(2), 313-321. doi:10.1111/ele.13192
19. Keryling J., Schweiger A.H., Bahn M., Ineson P., Migliavacca M., [Morel-Journal T.](#), Christiansen J.R., Schtickzelle N., Larsen K.S. (2018) To replicate, or not to replicate? That is the question: how to tackle nonlinear responses in ecological experiments. *Ecology letters*, 21(11), 1629-1638. doi:10.1111/ele.13134
20. [Morel-Journal T.](#), Hautier M., Vercken E., Mailleret L. (2018) Clustered or scattered? The impact of habitat distribution on establishment and early spread. *Ecography*, 41(10), 1675-1683. doi:10.1111/ecog.03397
21. [Morel-Journal T.](#), Pioniot C., Vercken E., Mailleret L. (2016). Evidence for an optimal level of connectivity for establishment and colonization. *Biology letters*, 12(11), 20160704. doi:10.1098/rsbl.2016.0704

22. Morel-Journal T., Girod P., Mailleret L., Auguste, A., Blin A., Vercken, E. (2016). The highs and lows of dispersal: how connectivity and initial population size jointly shape establishment dynamics in discrete landscapes. *Oikos*, 125(6), 769-777. doi:10.1111/oik.02718
23. Morel-Journal T., Fauvergue X., Lombaert E., Mailleret L., Malausa T., Ris N., Vercken E. (2015). De l'utilisation de microcosmes pour le test d'hypothèses en biologie de l'invasion. *Revue d'Ecologie*, 70(12), 16-27.
24. Bermond G., Blin A., Vercken E., Ravigné V., Rieux A., Mallez S., Morel-Journal T., Guillemaud T. (2013). Estimation of the dispersal of a major pest of maize by cline analysis of a temporary contact zone between two invasive outbreaks. *Molecular Ecology*, 22(21), 5368-5381. doi:10.1111/mec.12489

PREPRINTS

25. Assad Z., La K., Levy C., Cohen R., El Mniai A., Fafi I., Valtuille Z., Bechet S., Corrad F., Werner A., Rodriguez C., N'Debi M., Lo S.W., Blanquart F., Osei L., Jaboyedoff M., Angoulvant F., Bonacorsi S., Bidet P., Birgy A., de Pontual L., Basmaci R., Varon E., Morel-Journal T.*, Ouldali N.* (2026) Quantifying the mechanisms of vaccine-induced serotype replacement in *Streptococcus pneumoniae* using genome-informed modelling. *BioRxiv*. doi:10.64898/2026.06.29.735370
26. Schtickzelle N., Laurent, E., Morel-Journal T. (2020) 3D Printing for Ecology and Evolution: A Hands-on Guide to Turn an Idea into Reality. *Preprints*. doi:10.20944/preprints202003.0220.v1

PRESENTATIONS

ORAL PRESENTATIONS IN SCIENTIFIC CONGRESSES

1. Le Gal F., Morel-Journal T. (2026) TTHALESS: transmission de la tuberculose humaine et animale à Lwiro : étude des souches mycobactériennes. *Symposium 'Les mycobactéries dans le concept One Health'*, Orléans, France
2. Morel-Journal T., Blanquart F. (2022) Trade-offs between colonization and survival enable *E. coli* coexistence. *Workshop 'Mathematical Modelling of Microbiomes'*, Plön, Allemagne
3. Morel-Journal T., Haond M., Lamy L., Muru D., Vercken E., Mailleret L., Roques L. (2021) When expansion flounders: an extension of the concept of range pinning in ecology. *Stochastic Models and Experiments in Ecology and Biology*, Venise, Italie
4. Morel-Journal T. (2019) Un algorithme de réallocation de mouvements appliqué à la propagation d'épidémies chez les bovins. *Réunion du Réseau Modélisation et Statistique en Santé des Animaux et des Plantes (ModStatSAP)*, Paris, France
5. Morel-Journal T., Thuillier V., Chaîne A.S., Legrand D., Laurent E., Schtickzelle N. (2018) The expression of phenotypic plasticity of different fitness related traits in multi-dimensional environments. *International Conference on Ecological Sciences 2018*, Rennes, France
6. Morel-Journal T., Thuillier V., Chaîne A.S., Legrand D., Laurent E., Schtickzelle N. (2017) Reaction norms in 3D: phenotypic plasticity of *Tetrahymena* ciliates according to combined temperature and nutrient levels. *BES-GFÖ-NecoV-EEF Joint Annual Meeting 2017*, Gand, Belgique
7. Morel-Journal T., Schtickzelle N. (2017) Metapopulation dynamics under environmental change: models and experiments. *FEEDING Network conference*, Louvain-la-Neuve, Belgique
8. Fauvergue X., Morel-Journal T., Vercken E., Calcagno V., Courchamp F. (2016) Fitness consequence of small population size in academia. *International Conference on Ecological Sciences 2016*, Marseille, France
9. Morel-Journal T., Martinez-Rodriguez P., Berger C., Groussier-Bout G., Dumbardon-Martial T., Lepilleur T., Maignet P., Malausa T., Ris N., Sanchez-Martin V., Seguret J., Vergès V., Warot S., Zaviero T. (2016) Exploring and exploiting intraspecific diversity in the genus *Trichogramma*. *2016 International Congress of Entomology*, Orlando, Floride, USA
10. Morel-Journal T., Rais Assa C., Vercken E., Mailleret L. (2015). It's all about connections: hubs and invasions in habitat networks. *100th ESA Annual Meeting*, Baltimore, Maryland, USA
11. Morel-Journal T., Hautier M., Vercken E., Mailleret L. (2014). Clustered or scattered? The impact of habitat distribution on establishment dynamics. *BES/SFE Joint 2014 Annual Meeting*, Lille, France
12. Morel-Journal T., Girod P., Mailleret L., Vercken E. (2014). *Trichogrammas* surf on pushed waves: effect of propagule pressure and connectivity of the introduction site on the invasion of an experimental discrete landscape. *Entomophagistes 2014*, Louvain-la-Neuve, Belgique
13. Morel-Journal T., Girod P., Mailleret L., Vercken E. (2013). Effets de la pression de propagule et de la connectivité du site d'introduction sur l'invasion d'un paysage expérimental par une espèce de trichogramme, *35ème réunion annuelle du groupe d'Etude de Biologie et Génétique des Populations*, Marseille, France

OTHER ORAL PRESENTATIONS

14. Morel-Journal T. (2026) Coexistence of *E. coli* lineages enabled by a residence-colonization trade-off and niche differentiation. *Invited seminar at the Earth and Life Institute*, Louvain-la-Neuve, Belgique

*co-last author of the paper

15. Morel-Journal T. (2025) How demographic mechanisms and the environmental carrying capacity can limit the spread of invasive species. *Invited SaMMBA (Statistical and Mathematical Modeling in Biological Applications) seminar at Institut Pasteur*, Paris, France
16. Morel-Journal T., Mailleret L., Vercken E. (2024) Modelling invasions waves in relation with the carrying capacity. *Invited seminar at Laboratoire Jacques Louis Lion*, Paris, France
17. Morel-Journal T., Mailleret L., Vercken E. (2024) Pushed invasion fronts and the role of the environment. *Invited seminar at Laboratoire de Physique de l'ENS*, Paris, France
18. Morel-Journal T., Picot A., Blanquart F. (2024) Trade-off and niche differentiation underpin coexistence among *Escherichia coli* in the human gut. *Invited seminar at the BIOEPAR research unit*, Nantes, France
19. Morel-Journal T., Picot A., Blanquart F. (2023) Investigating trade-offs in the colonization dynamics of commensal bacteria. *Invited seminar at the IAME research unit*, Paris, France
20. Morel-Journal T., Vergu E., Ezanno P. (2021) Management of cattle movements to prevent infections. *Invited seminar at the Earth and Life Institute*, Louvain-la-Neuve, Belgique
21. Morel-Journal T. (2020) Les leviers de réduction d'usage d'antibiotiques en élevage au niveau de la filière. *Journée de formation Sant'Innov pour les enseignants de lycées agricoles*, Nantes, France
22. Morel-Journal T., Hervé L., Vergu E. Bareille N., Assié S., Ezanno P. (2019) Des algorithmes pour gérer les flux d'approvisionnement des broutards en France. *SPACE 2019*, Rennes, France

POSTERS

23. Morel-Journal T., Guyeux C., Sola C. (2025) Comparing passed slave migration history to *Mycobacterium tuberculosis* genomics population structure to reconstruct the origins of L1 tuberculosis infections in Brazil. *ESM annual meeting*, Lisbon, Portugal

MISCELLANEOUS

SOFTWARES

1. Rewiring algorithm for bovine movements presented in paper #7, available at: sourcesup.renater.fr/projects/pub-rewir-algo
2. Distance optimization algorithm presented in paper #13, available at: sourcesup.renater.fr/projects/pub-dist-algo
3. Young bovine batch optimization algorithm presented in paper #14, available at: sourcesup.renater.fr/projects/pub-youngb-algo

SERIOUS GAMES

4. *Jeu Sant'Innov*, developped as part of PSDR project *Sant'Innov*, available at: ludotheque.gamae.fr/game/58