

Curriculum Vitae

Christopher T. Lefevre

Date de naissance: 07 Octobre 1980

Nationalité: Française

Institut de Biosciences et Biotechnologies d'Aix-Marseille

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Chercheur CRCN CNRS

Formation universitaire

- **2018 : Habilitation à diriger des recherches en Sciences.** Aix-Marseille Université.
- **2008 : Doctorat. Sciences de l'environnement, spécialité Océanographie.** CNRS/Aix-Marseille Université, Laboratoire de Chimie Bactérienne, CNRS UPR 9043.
Sujet : Isolement et caractérisation de bactéries magnétotactiques de la mer Méditerranée. Sous la direction de Long Fei Wu.
- **2005 : Master de Biologie et Ecologie Marines,** Centre d'Océanographie de Marseille, CNRS/Aix-Marseille Université, France.
- **2002 : Licence de Biologie des Organismes Marins,** Centre d'Océanographie de Marseille, CNRS/Aix-Marseille Université, France.

Parcours scientifique

- **Depuis 2014 : Chercheur CNRS,** Institut de Biosciences et Biotechnologies, CEA/CNRS/Aix-Marseille Université, France. Responsable : David Pignol.
Reconstruction de l'histoire évolutive de fonctions bactériennes.
- **2013 : Post-doctorat,** Max Planck Institute of Colloids and Interfaces, Department of Biomaterials, Potsdam, Germany. Responsable : Damien Faivre.
Sensing mechanisms in magnetotactic bacteria.
- **2011-13 : Post-doctorat,** Institut de Biosciences et Biotechnologies, CEA/CNRS/Aix-Marseille Université, France. Responsable : David Pignol.
Ecophysiologie et évolution des bactéries magnétotactiques.
- **2008-11 : Post-doctorat,** University of Nevada, Las Vegas, USA. Responsable : Dennis Bazylinski.
Biodiversity and ecophysiology of magnetotactic bacteria.

Financements obtenus

- 2026-2027 : **PHC Sakura** (coordinateur), collaboration avec Azuma Taoka.

Order or Disorder? How Bacteria Fine-Tuned Their Magnetic Field

- 2026-2027 : **ECOS-Sud, Chili** – C25B01 (coordinateur), collaboration avec Milko Jorquera Tapia.

Exploration of the rhizospheres of plants in peatlands of the Chilean winter fall-Valdivian Forest as a reservoir for the bioprospecting of magnetotactic bacteria to improve the plant growth under waterlogging conditions

- 2026-2029 : **ANR PRME MTB-TAXIS** (coordinateur). En collaboration avec Caroline Monteil et Philippe Ortet. Budget : 457 k€.

Diversity of chemotactic behaviors in magnetotactic bacteria

- 2026-2027 : **Call IM2B – 2026 – Interdisciplinarity** (participant). En collaboration avec Gaël Erauso. Budget 40 k€.

Asgardomics: exploring the diversity of Asgard archaea from shallow hydrothermal vents via culture-based and omics methods

- 2025-2030 : **MSCA Staff Exchanges** (responsable du WP3). En collaboration avec Petra Paiè. Budget 656 k€.

Technologies for Extreme Environment Observation and Research

- 2024-2025 : **Programme de recherche à risque CEA**, action d'amorçage (participant). Budget : 85 k€

Exploration de la biodiversité et culture des microorganismes photosynthétiques pour les biocarburants de demain

- 2024-2027 : **ANR PRC MTB-CPR** (coordinateur). En collaboration avec Raphaël Méheust (Genoscope, Evry). Budget : 435 k€.

Deciphering the ecology and functioning of the symbiotic relationships between nanobacteria (CPR) and magnetotactic bacteria

- 2023 : **Synchrotron ALBA**, ligne MISTRAL (coordinateur). 12 x 8 h.

Observation and X-ray absorption spectroscopy of biomineralized bacterial inclusions of amorphous calcium carbonates

- 2023 : **Projet transverse BIAM** (coordinateur). Budget : 10 k€

Characterizing the symbiotic relationships between nanobacteria (CPR) and magnetotactic bacteria.

- 2022-2025 : **ANR PRC SymbioMagnet** (coordinateur). En collaboration avec Nicolas Menguy (IMPMC, Paris) et David Vallenet (Genoscope, Evry). Budget : 515 k€.

Deciphering the biodiversity, ecology and evolution of magnetotactic symbiosis

- 2022-2025 : **ANR PRC CarboMagnet** (participant). Coordonnée par Caroline Monteil (BIAM). En collaboration avec Karim Benzerara (IMPMC, Paris), David Vallenet (Genoscope, Evry) et Didier Jézéquel (IPGP, Paris). Budget : 539 k€.

Contribution of magnetotactic bacteria forming intracellular carbonate mineral phases to the sequestration of inorganic carbon and alkaline earth elements

- 2022 : **Synchrotron ALBA**, ligne MISTRAL (coordinateur). 9 x 8 h.

X-ray tomography of magnetotactic holobionts.

- 2021-2024 : **ANR PRCi franco-allemande ANCESMAG** (partenaire). En collaboration avec Dirk Schüler (Université de Bayreuth) et Guy Perrière (LBBE, Lyon). Budget : 443 k€.

Ancestral sequence reconstruction and functional expression of proteins involved in bacterial magnetosome biogenesis.

- 2021-2025 : **ANR PRC BACMAG** (participant). En collaboration avec Cécile Cottin-Bizonne (ILM, Lyon), Eric Clément (ESPCI, Paris) et Damien Faivre (BIAM). Budget : 570 k€.

Exploiter le transport et la rhéologie, assistés par un champ, d'un magnétofluide bactérien.

- 2021-2024 : **ANR PRCi franco-allemande manaconv** (participant). En collaboration avec Stefan Klumpp (University Göttingen) et Damien Faivre (BIAM). Budget : 444 k€.

Navigation des bactéries magnétotactiques en milieu complexe

- 2020-2021 : **MITI Adaptation du vivant à son environnement – CNRS** (coordinateur). Budget : 50 k€.

Symbioses magnétotactiques: une adaptation des eucaryotes microbiens aux environnements anoxiques.

- 2019-2023 : **ANR PRC PHOSTORE** (partenaire). En collaboration avec Elodie Duprat (IMPMC, Paris). Budget : 359 k€.

Phosphorus sequestration: contribution of magnetotactic bacteria in oxic–anoxic transition zones.

- 2019 : **Synchrotron SOLEIL**, ligne HERMES (coordinateur). 12 x 8 h.

Understanding the magnetic moment of magnetotactic holobionts by measuring the magnetic polarity of biomineralized magnetic nanoparticle chain.

- 2019 : **Synchrotron SOLEIL**, ligne HERMES (participant). 9 x 8 h.

STXM analysis of magnetotactic bacteria forming intracellular amorphous Ca-carbonates.

- 2019 : **Synchrotron SOLEIL**, ligne HERMES (participant). 15 x 8 h.

X-ray microscopy and absorption spectroscopy of biomineralized magnetite and greigite nanoparticles within magnetotactic bacteria

- 2019 : **EC2CO – CNRS** (partenaire). En collaboration avec Elodie Duprat (IMPMC, Paris). Budget : 14 k€.

Contribution of magnetotactic bacteria to the phosphorus cycle and impacts of environmental parameters.

- 2018-2022 : **ANR PRC SIGMAG** (partenaire). En collaboration avec Vincent Busigny (IPGP, Paris). Budget : 267 k€.

Signature of magnetite produced by magnetotactic bacteria: chemical and isotopic perspectives.

- 2018-2019: **Ministère du commerce, de l'innovation et de l'emploi (Nouvelle-Zélande) (MBIE)** (partenaire). En collaboration avec Richard Weld. Budget qui m'a été alloué : 62 k€.

Magnetotactic bacteria for removing contaminants from manufacturing processes.

- 2018: **ISOTOP - CNRS** (coordinateur). Budget : 24 k€.

Isotopic signature of iron of biomineralized nanomagnets from magnetotactic bacteria.

- 2018 : **Synchrotron ALBA**, ligne MISTRAL (participant). 9 x 8 h.

X-ray tomography of greigite-/magnetite-producing magnetotactic bacteria from culture and from the environment.

- 2017-2018 : **ANR Tremplin-ERC BIOMAGNET** (coordinateur). Budget : 150 k€.

Exploration of the biodiversity of magnetotactic bacteria.

- 2017-2018 : **INSU CNRS, Terre Solide** (partenaire). En collaboration avec Vincent Busigny (IPGP, Paris). Budget : 8 k€.

Signature isotopique du fer des bactéries magnétotactiques d'un lac anoxique et ferrugineux, analogue aux océans Précambriens.

- 2017 : **DEFI Instrumentation aux limites** (partenaire). En collaboration avec Vincent Busigny (IPGP, Paris). Budget : 15 k€.

Développement d'un système de concentration in situ de bactéries magnétotactiques.

- 2017 : **Fonds France-Berkeley**. En collaboration avec Arash Komeili (Berkeley, University of California). Budget : 12 k\$.

Uncovering the molecular mechanisms of greigite biomineralization in magnetic bacteria.

- 2015-2017 : **ANR PRCi franco-allemande GROMA** (participant). En collaboration avec Damien Faivre (Max Planck Institute, Potsdam). Budget : 675 k€.

Greigite or magnetite: Environmental and genetic determinants controlling biomineralization in magnetotactic bacteria.

- 2013-2016 : **ANR Programme Nanotechnologies et Nanosystèmes MEFISTO** (participant). En collaboration avec David Pignol. Budget : 1 148 k€.

Targeted biological nano-magnets for theranostic.

- 2016 : **Dumont d'Urville Nouvelle Zélande-France Science et Technology Support Programme**. Programme d'échange en collaboration avec Richard Weld (Lincoln University).

Biogéographie des bactéries magnétotactiques.

- 2014 : **Interactions Terre/Vie – CNRS, INSU** (partenaire). En collaboration avec François Guyot (Muséum national d'histoire naturelle de Paris). Budget : 7 500 €.

Intracellular greigite: new metabolic marker from the environment and geological record.

- 2013 : **Appel à Projets En Génomique Environnementale – CNRS, INEE** (coordinateur avec David Pignol). Budget : 11 120 €.

Genetic characterization of the biodiversity of magnetotactic bacteria to study the evolution of magnetotaxis.

- 2012 : **South Africa – France Science and Technology Research Cooperation**. PHC PROTEA. Programme d'échange en collaboration avec Marla Tuffin (University of the Western Cape, Cape Town).

Etude des bactéries magnétotactiques d'Afrique du Sud.

- 2011 : **Fondation pour la recherche médicale** « retour post-doctorant » grant SPF20101220993 (coordinateur). Durée : 2 ans.

Optimization of the production of bacterial nano-bio-magnets for their use in MRI.

- 2008 : **Fondation pour la recherche médicale** « fin de thèse » grant FDT20080913879. Durée: 1 an.

Activités d'encadrement

- 2024-2026 : **Doctorante**, Elsa Turrini (co-encadrement Caroline Monteil) – *Ancient metabolism in magnetotactic bacteria.*
- 2023-2026 : **Doctorante**, Emilie Brivet – *Symbiotic relationships between nanobacteria (CPR) and magnetotactic bacteria.*
- 2023-2026: **Ingénieur d'étude CDD**, Marine Bergot (co-encadrement avec Caroline Monteil) – Développement d'outils bioinformatiques pour la prédiction de voies métaboliques et l'analyse phylogénétique.
- 2022-2024 : **Ingénieur d'étude CDD**, Elsa Turrini (co-encadrement avec Caroline Monteil) – *Culture d'une bactérie magnétotactique produisant des inclusions de carbonate.*
- 2023 : **Master 2**, Emilie Brivet (co-encadrement Christian Godon) – *Characterizing the symbiotic relationships between nanobacteria (CPR) and magnetotactic bacteria.*
- 2022 : **Master 2**, Akanksha Praharaj (co-encadrement avec Vincent Busigny) – CEA Cadarache/IPGP – *Biogeochemical signature of anisotropic magnetite magnetosomes.*
- 2022 : **Master 2**, Elsa Turrini (co-encadrement avec Mila Sirinelli) – CEA Cadarache – *Etude de la coexistence des magnétosomes et carboxysomes chez les bactéries magnétotactiques.*

- 2021 : **Mobilité chercheur étranger FEMS**, Veronika Koziarova – CEA Cadarache – *Culturing of magnetotactic bacteria biomineralizing intracellular carbonate mineral phases.*
- 2021-2024 : **Doctorante**, Camille Mangin (codirection avec Caroline Monteil) – CEA Cadarache – *Bio-minéralisation intracellulaire par les microorganismes des interfaces oxi-ques-anoxiques : diversité, mécanismes et évolution.*
- 2020-2024 : **Doctorant**, Romain Bolzoni (codirection avec Karim Benzerara) – CEA Cadarache/IMPMC – *Biodiversité, écologie et évolution des microorganismes symbiotiques magnétotactiques.*
- 2020 : **Master 2**, Romain Bolzoni – CEA Cadarache – *Caractérisation des bactéries magnétotactiques avec carbonates de calcium intracellulaires dans le lac Pavin.*
- 2019 : **Licence 3**, Camille Garau – CEA Cadarache – *Caractérisation de bactéries magnétotactiques produisant des granules de carbonates de calcium intracellulaires.*
- 2018-2021: **Doctorante**, Cécile Bidaud (codirection avec Nicolas Menguy) – IMPMC/CEA Cadarache – *Phosphorus sequestration: contribution of magnetotactic bacteria in oxic-anoxic transition zones.*
- 2017-2021: **Doctorant**, François Mathon (codirection avec Vincent Busigny) – IPGP/CEA Cadarache – *Signature des magnétites produites par les bactéries magnétotactiques : perspectives chimiques et isotopiques.*
- 2017 : **Ecole d'ingénieur 2^e année**, Emmanuel Michaud – CEA Cadarache – *Identification et caractérisation de bactéries magnétotactiques.*
- 2016-2020 : **Post-doctorante**, Caroline Monteil – CEA Cadarache – *Evolutionary history of magnetotactic bacteria.*
- 2015-2018 : **Doctorante**, Elodie Descamps (codirection avec David Pignol) – CEA Cadarache – *Molecular and environmental mechanisms responsible for greigite biomineralization.*
- 2009-2011 : **Doctorant**, Nathan Viora (supervision) – University of Nevada at Las Vegas, United States – *Phylogenetic studies of newly isolated freshwater Magnetospirilla using cbb and mam genes.*
- 2009 : **Master**, Marian Schmidt – University of Nevada at Las Vegas, United States – *Phylogenetic diversity of Mojave desert magnetotactic bacteria.*

Activités d'expertise

Rapporteur pour les journaux : Applied and Environmental Microbiology, Environmental Microbiology, PLoS One, PLoS Genetics, PLoS Biology, Scientific Reports, The ISME Journal, Nature Communications, Journal of Bacteriology, Geomicrobiology Journal, Frontiers in Microbiology, Microbial Ecology, FEMS

Microbiology letters, Antonie van Leeuwenhoek Journal of Microbiology, Gogent Biology, Canadian Journal of Microbiology, Journal of Nanomaterials, Proceedings of the National Academy of Sciences.

Editeur pour le journal Scientific Reports.

Jury de thèse :

- 2015 : **Matthieu Amor** - Institut de Physique du Globe de Paris, Sorbonne Paris Cité, Université Paris Diderot: **examineur**. *Signatures chimiques et isotopiques de la magnétite des bactéries magnétotactiques*.
- 2016 : **Xiohui Zhu** - McMaster University, Hamilton, Canada: **rapporteur**. *Study of magnetotactic bacteria by soft X-ray microscopy*
- 2019 : **Benoît Vincenti** - Sorbonne Université : **examineur**. *Organisation collective d'une suspension de bactéries magnétotactiques*.
- 2025 : **Changsong WU** - Sorbonne Université : **rapporteur**. *Aerotatic response and magnetic control of a magnetotactic bacterium (MSR-1)*.
- 2025 : **Matheus de Souza Lima Mendes** – Université de Bordeaux : **invité**. *Magnetochiral nanocomposites: from natural to synthetic strategies towards the observation of the magnetochiral dichroism phenomenon*.
- 2025 : **Guilhem Curé** – Université de Bordeaux : **examineur**. *Multiscale magnetometry to probe biosynthesis and biotransformation of nanoparticles in human stem cells*.

Rapporteur à des appels à projet pour les institutions : European Research Council, Swiss National Science Foundation, Nasa.

Publications

Indice bibliométrique

- 87 publications : 66 articles, 12 revues, 8 chapitre de livre et 1 highlight dont 72 publications de rang A.
- 66 articles publiés dont 14 en auteur correspondant (dont 1 *Science*, 1 *Nature Microbiology*, 2 *PNAS*, 8 *The ISME Journal*, 8 *Environmental Microbiology* et 5 *Applied Environmental Microbiology*).
- 12 revues publiées (1 dans *Microbiology and Molecular Biology Reviews*, 1 *Physics Reports* et 3 dans *Trends in Microbiology*).

- 8 chapitres de livre publiés.
- 1 highlight sollicité après expertise d'un article.
- H-index: 39 (Google Scholar).
- 13 conférences invitées dans des congrès internationaux.

1. Articles

2026

- 1) Bolzoni R, Monteil CL, Alonso B, Godon C, Menguy N, Fouteau S, da Cunha V, Bergot M, Skouri-Panet F, Chevrier D, Pereiro E, Duverger A, Vallenet D, Cruaud C, Abreu F, Benzerara K, **Lefevre CT (2026)** Magnetoreception in a freshwater ciliate arises from endosymbiosis. *Nature Communications*. Sous presse

2025

- 2) Sirinelli-Kojadinovic M, Turrini ECA, Ropion E, Alonso B, Bergot M, Gachon E, Ortet P, Soto-Rodriguez PED, Monteil CL, **Lefevre CT (2025)** *Magnetovirga frankeli* gen. Nov., sp. nov., a magnetotactic bacterium isolated from the Salton Sea, California, that represents a novel lineage in the *Gammaproteobacteria*. *Systematic and Applied Microbiology*. 48:126621
- 3) Gachon E, Lambert S, Grosse S, Turrini E, Ropion E, Klumpp S, **Lefevre CT**, Sirinelli M, Faivre D (2025) A magnetotactic bacterium capable of magnetic sensing. *iScience*. 28:113377
- 4) Busigny V, Mathon FP, Amor M, Guyot F, Menguy N, Lefevre CT (2025) Iron isotope fractionation in magnetite produced by the marine magnetotactic bacterium *Magnetovibrio blakemorei*. *Geochimica et Cosmochimica Acta*. 398:83-98
- 5) Mangin CC, Benzerara K, Bergot M, Menguy N, Alonso B, Fouteau S, Méheust R, Chevrier D, Godon C, Turrini E, Mehta N, Duverger A, Travert C, Busigny V, Duprat E, Bolzoni R, Cruaud C, Viollier E, Jézéquel D, Vallenet D, **Lefevre CT**, Monteil CL (2024) Magnetotactic bacteria affiliated with multiple *Pseudomonadota* families biomineralize intracellular Ca-carbonate. *The ISME Journal*. wrae260
- 6) Chobert SC, Roger-Margueritat M, Flandrin L, Berraies S, **Lefevre CT**, Pelosi L, Junier I, Varoquaux N, Pierrel F, Abby SS (2024) Dynamic quinone repertoire accompanied the diversification of energy metabolism in *Pseudomonadota*. *The ISME Journal*. wrae253

2024

- 7) Kovács A, Pósfai M, Zingsem B, Li ZA, Pekker P, Caron J, Prévéral S, **Lefevre CT**, Bazylinski DA, Frankel RB, Dunin-Borkowski RE (2024) Influence of crystal shape and orientation on the magnetic microstructure of bullet-shaped magnetosomes synthesized by magnetotactic bacteria. *Geo-Bio Interfaces*. 1, e1, pp.1-11
- 8) Mathon FP, Amor M, Guyot F, Menguy N, **Lefevre CT**, Busigny V (2024) Establishing the content in trace and minor elements of magnetite as a biosignature of magnetotactic bacteria. *Geochimica et Cosmochimica Acta*. 386: 127-138

2023

- 9) Awal RP, Müller FD, Pfeiffer D, Monteil CL, Perrière G, **Lefèvre CT**, Schüler (2023) Experimental analysis of diverse actin-like proteins from various magnetotactic bacteria by functional expression in *Magnetospirillum gryphiswaldense*. *mBio*. 14:e0164923
- 10) D.Awal RP, **Lefèvre CT**, Schüler D (2023) Functional expression of foreign magnetosome genes in the alphaproteobacterium *Magnetospirillum gryphiswaldense*. *mBio*. 14:e0328222
- 11) Chevrier DM, Juhin A, Menguy N, Bolzoni R, Soto-Rodriguez PED, Kojadinovic-Sirinelli M, Paterson GA, Belkhou R, Williams W, Skouri-Panet F, Kosta A, Le Guenno H, Pereiro E, Faivre D, Benzerara K, Monteil CL, **Lefèvre CT** (2023) Collective magnetotaxis of microbial holobionts is optimized by the three-dimensional organization and magnetic properties of ectosymbionts. *PNAS*. 120:e2216975120

2022

- 12) Wan J, Monteil CL, Taoka A, Ernie G, Park K, Amor M, Taylor-Cornejo E, Lefevre CT, Komeili A (2022) McaA and McaB control the dynamic positioning of a bacterial magnetic organelle. *Nature Communication*. 13:5652.
- 13) Monteil CL, Vallenet D, Schüler D, **Lefèvre CT** (2022) Magnetosome proteins belong to universal protein families involved in many cell processes. *PNAS*. 119:e2208648119.
- 14) Park Y, Eyal Z, Pekker P, Chevrier DM, **Lefèvre CT**, Arnoux P, Armengaud J, Monteil CL, Gal A, Pósfaï M, Faivre D (2022) Periplasmic bacterial biomineralization of copper sulfide nanoparticles. *Advanced Science*. 9:e2203444.
- 15) Bidaud CC, Monteil CL, Menguy N, Busigny V, Jézéquel D, Viollier E, Travert C, Skouri-Panet F, Benzerara K, **Lefèvre CT**, Duprat E (2022) Biogeochemical niche of magnetotactic cocci capable to sequester large polyphosphate inclusions in the anoxic layer of the Lake Pavin water column. *Frontiers in Microbiology*. 12:789134.
- 16) Failor KC, Liu H, Llontop MEM, LeBlanc S, Eckshtain-Levi N, Sharma P, Reed A, Yang S, Tian L, **Lefèvre CT**, Menguy N, Du L, Monteil CL, Vinatzer BA (2022) Ice nucleation in a Gram-positive bacterium isolated from precipitation depends on a polyketide synthase and non-ribosomal peptide synthetase. *The ISME Journal*. 16:890-897.

2021

- 17) Busigny V, Mathon FP, Jézéquel D, Bidaud CC, Viollier E, Bardoux G, Bourrand JJ, Benzerara K, Duprat E, Menguy N, Monteil CL, **Lefèvre CT** (2021) Mass collection of magnetotactic bacteria from the permanently stratified ferruginous Lake Pavin, France. *Environment Microbiology*. 24:721-736.
- 18) Benzerara K, Bolzoni R, Monteil CL, Beyssac O, Forni O, Alonso B, Asta MP, **Lefèvre CT** (2021) The gamaproteobacterium *Achromatium* forms intracellular amorphous calcium carbonate and not (crystalline) calcite. *Geobiology*. 19:199-213.
- 19) Trubitsyn D, Monteil CL, Geurink C, Morillo-Lopez V, de Almeida LG, de Vasconcelos AT, Abreu F, Bazylnski DA, **Lefèvre CT** (2021) Complete genome sequence of strain SS-5, a magnetotactic gammaproteobacterium isolated from the Salton Sea, a shallow, saline, endorheic rift lake located on the San Andreas Fault, California. *Microbiology Resource Announcement*. 10:e00928-20.
- 20) Monteil CL, Benzerara K, Menguy N, Bidaud CC, Michot-Achdjian E, Bolzoni R, Mathon FP, Coutaud M, Alonso B, Garau C, Jézéquel D, Viollier E, Ginet N, Floriani M, Swaraj S, Sachse M, Busigny V, Duprat E, Guyot F, **Lefèvre CT** (2021) Intracellular amorphous Ca-

carbonate and magnetite biomineralization by a magnetotactic bacterium affiliated to the Alphaproteobacteria. *The ISME Journal*. 15:1-18.

2020

- 21) Monteil CL, Grouzdev DS, Perrière G, Alonso B, Rouy Z, Cruveiller S, Ginet N, Pignol D, **Lefevre CT** (2020) Repeated horizontal gene transfers triggered parallel evolution of magnetotaxis in two evolutionary divergent lineages of magnetotactic bacteria. *The ISME Journal*. 14:1783–1794.
- 22) Bente K, Mohammadinejad S, Charsooghi MA, Bachmann F, Codutti A, **Lefèvre CT**, Klumpp S, Faivre D. (2020) High-speed motility originates from cooperatively pushing and pulling flagella bundles in bilophotrichous bacteria. *Elife* 9:e47551.
- 23) Geurink C, **Lefevre CT**, Monteil CL, Morillo-Lopez V, Abreu F, Bazylinski DA, Trubitsyn D (2020) Complete Genome Sequence of Strain BW-2, a Magnetotactic Gammaproteobacterium in the Family Ectothiorhodospiraceae, Isolated from a Brackish Spring in Death Valley, California. *Microbiology Resource Announcement*. 9:e01144-19.
- 24) Curcio A, Van de Walle A, Serrano A, Preveral S, Péchoux C, Pignol D, Menguy N, **Lefevre CT**, Espinosa A, Wilhelm C. (2020) Transformation Cycle of Magnetosomes in Human Stem Cells: From Degradation to Biosynthesis of Magnetic Nanoparticles Anew. *ACS Nano*. 14:1406-1417.
- 25) Hafsi M, Preveral S, Hoog C, Hérault J, Perrier GA, **Lefèvre CT**, Michel H, Pignol D, Doyen J, Pourcher T, Humbert O, Thariat J, Cambien B. (2020) RGD-functionalized magnetosomes are efficient tumor radioenhancers for X-rays and protons. *Nanomedicine*. 23:102084.

2019

- 26) Pohl A, Berger F, Sullan RMA, Valverde-Tercedor C, Freindl K, Spiridis N, **Lefèvre CT**, Menguy N, Klumpp S, Blank KG, Faivre D. (2019) Decoding Biomineralization: Interaction of a Mad10-Derived Peptide with Magnetite Thin Films. *Nano Letters* 19:8207-8215.
- 27) Monteil CL, Vallenet D, Menguy N, Benzerara K, Barbe V, Fouteau S, Cruaud C, Floriani M, Viollier E, Adryanczyk G, Leonhardt N, Faivre D, Pignol D, López-García P, Weld RJ, **Lefèvre CT** (2019) Ectosymbiotic bacteria at the origin of magnetoreception in a marine protist. *Nature Microbiology* 4:1088-1095.

2018

- 28) Monteil CL, Perrière G, Menguy N, Ginet N, Alonso B, Waisbord N, Cruveiller S, Pignol D, **Lefèvre CT** (2018) Genomic study of a novel magnetotactic Alphaproteobacteria uncovers the multiple ancestry of magnetotaxis. *Environmental Microbiology* 20:4415-4430.
- 29) Plan Sangnier A, Preveral S, Curcio A, K A Silva A, **Lefèvre CT**, Pignol D, Lalatonne Y, Wilhelm C (2018) Targeted thermal therapy with genetically engineered magnetite magnetosomes@RGD: Photothermia is far more efficient than magnetic hyperthermia. *Journal of Controlled Release* 279:271-281.
- 30) Monteil CL, Menguy N, Prévèral S, Warren A, Pignol D, **Lefèvre CT** (2018) Accumulation and dissolution of magnetite crystals in a magnetically responsive ciliate. *Applied and Environmental Microbiology* pii: e02865-17

- 31) Smit BA, Van Zyl E, Joubert JJ, Meyer W, Prévéral S, **Lefèvre CT**, Venter SN. (2018) Magnetotactic bacteria used to generate electricity based on Faraday's law of electromagnetic induction. *Letter and Applied Microbiology* 66:362-367

2017

- 32) Werckmann J, Cypriano J, **Lefèvre CT**, Dembelé K, Ersen O, Bazylnski DA, Lins U, Farina M (2017) Localized iron accumulation precedes nucleation and growth of magnetite crystals in magnetotactic bacteria. *Scientific Reports* 7: 8291
- 33) Rivas-Lamelo S, Benzerara K, **Lefèvre CT**, Monteil CL, Jézéquel D, Menguy N, Viollier E, Guyot F, Féraud C, Point M, Skouri-Panet F, Trcera N, Miot J, Duprat E (2017) Magnetotactic bacteria as a new model for P sequestration in the ferruginous Lake Pavin. *Geochemical Perspective Letter* 5: 35–41.
- 34) Descamps ECT, Monteil CL, Menguy N, Ginet N, Pignol D, Bazylnski DA, **Lefèvre CT** (2017) *Desulfamplus magnetovallimortis* gen. nov., sp. nov., a magnetotactic bacterium from a brackish desert spring able to biomineralize greigite and magnetite, that represents a novel lineage in the Desulfobacteraceae. *Systematic Applied Microbiology* 40:280–289
- 35) Bazylnski DA, Morillo V, **Lefèvre CT**, Vilorio N, Dubbels BL, Williams TJ. (2017) *Endothiovibrio diazotrophicus* gen. nov., sp. nov., a novel nitrogen-fixing, sulfur-oxidizing Gammaproteobacterium isolated from a salt marsh. *International Journal of Systematic and Evolutionary Microbiology*. 67:1491-1498
- 36) Boucher M, Geffroy F, Prévéral S, Bellanger L, Selingue E, Adryanczyk-Perrier G, Péan M, **Lefèvre CT**, Pignol D, Ginet N, Mériaux S. (2017) Genetically tailored magnetosomes used as MRI probe for molecular imaging of brain tumor. *Biomaterials*. 121:167-178

2016

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4. Highlights

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Conférences invitées dans des congrès internationaux

- 1) **Lefèvre CT**, Abreu F, Lins U, Bazylinski DA (2010) Non-magnetotactic multicellular prokaryotes from low saline, nonmarine aquatic environments and their unusual negative phototactic behavior. 49th Annu. Meet. Arizona-Nevada Branch Am. Soc. Microbiol., Program and Abstract: OP12, p. 10
- 2) **Lefèvre CT**, Abreu F, Pósai M, Prozorov T, Lins U, Frankel RB, Bazylinski DA (2010) Phylogenetic diversity and physiology of large rod-shaped greigite-producing magnetotactic bacteria. Abstract, MTB 2010, 2nd International Symposium on Magnetotactic Bacteria and Biomineralization, Beijing, China. Meeting Program and Abstract: pp. 36-37
- 3) **Lefèvre CT**, Schmidt ML, Vioria N, Trubitsyn D, Schüler D, Bazylinski DA. (2012) Insights into the origin and evolution of magnetosome genes in newly isolated magnetotactic bacteria in the genus *Magnetospirillum*. 3d International Magnetotactic Bacteria Meeting, Berkeley, California. Abstract: pp. 7
- 4) **Lefèvre CT (2013)** Biodiversity and evolution of magnetotactic bacteria. 18th Biennial Conference of the South African Society of Microbiology (SASM), Bela Bela, South Africa. Abstract: pp. 12
- 5) **Lefèvre CT (2014)** How to combine bacterial division with magnetic polarity for magnetotactic bacteria with a single polar flagellum, MTB Meeting, Rio de Janeiro, Brazil. Abstract: pp 22.
- 6) **Lefèvre CT et al. (2014)** Aerobic respiration by sulfate-reducing magnetotactic bacteria, Rio de Janeiro, Brazil. Abstract: pp 18.
- 7) **Lefèvre CT (2014)** Evolution and mechanisms of biomineralization in magnetotactic bacteria. Biomineralization short course, Paris, France.
- 8) **Lefèvre CT (2015)** Evolutionary history of controlled biomineralization of magnetite and greigite in magnetotactic bacteria. Goldschmidt conference, Prague, Czech Republic. pp 130
- 9) **Lefèvre CT (2016)** Genomic insights into magnetotactic bacteria. MTB Meeting, Carry-le-Rouet, France. Abstract: pp 51
- 10) **Lefèvre CT**, N. Menguy, K. Benzerara, V. Busigny, C.C. Mangin, N. Mehta, C. Traver, R. Bolzoni, C.C. Bidaud, F. Mathon, D. Jézéquel, E. Viollier, F. Skouri-Panet, E. Duprat, C.L. Monteil (2022) Lake

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- 11) **Lefevre CT (2022)** Exploring the biodiversity of magnetotactic microorganisms. The 7th International Meeting On Magnetotactic Bacteria, Bayreuth, Allemagne. Abstract: pp 23
- 12) **Lefevre CT et al. (2024)** Magnetotactic ~~bacteria~~ microeukaryotes. The 8th International Meeting On Magnetotactic Bacteria, Bilbao, Espagne. Abstract: pp 12
- 13) **Lefevre CT et al. (2025)** Collective magnetotaxis. DeepDyn Annual Conference 2025, HKK Hotel, Wernigerode, Allemagne.

Collaborations majeures

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