

Personal Name Olivier Espéli Date of birth: August 26, 1973 Nationality: French		Position Director of research CNRS Deputy Director of the CIRB Group leader of the 'Cell cycle and chromosome dynamics' team, UMR7241 Collège de France, Paris, France ORCID : 0000-0003-2804-2192	
Degree	Institution	Years	Field of study
HDR	Paris-Saclay University	2009	Molecular microbiology
PhD	Aix-Marseille University	2000	Molecular genetics
Master	Aix-Marseille University	1996	Genetics

Current & Previous Positions

2021	Director of Research 1st class CNRS
2019	Deputy director of the Centre for Interdisciplinary Research in Biology at the Collège de France,
2014-	Group Leader, Centre for Interdisciplinary Research in Biology at the Collège de France. « Cell cycle and chromosome dynamics »
2013-	Director of Research 2nd class CNRS
2011-2013	Group Leader, Centre de Génétique Moléculaire, CNRS. « Chromosome dynamics »
2004- 2010	Chargé de Recherche CNRS, Centre de Génétique Moléculaire, CNRS, Gif-sur-Yvette. Group of F. Boccard.
2000-2004	Research Fellow, Memorial Sloan Kettering Cancer Center, New York, Pr. KJ Marians.
1996-2000	Ph.D. student, Centre de Génétique Moléculaire, CNRS, Gif-sur-Yvette., Dr. F Boccard.

Teaching and Scientific responsibilities

2020 – now	Member of the Academic Senate of PSL University
2019 – now	Delegate of the Collège de France at the PSL research committee
2019 – now	Member of the CIRB laboratory counsel
2018 – now	Member of the scientific committee of the Life Science Master, Ecole Normale Supérieure, PSL
2018 – now	French delegate for the EU-COST action EuroMicroPH
2016 – now	Organizer of the Frontiers in Microbial Systems teaching for the Life Science Master, Ecole Normale Supérieure, PSL
2011 – now	Member of the jury of several doctoral schools
2005 – now	≈ 100 hours teaching for graduate schools in the University of Paris-Sorbonne, Paris – Diderot, Paris – Saclay, Toulouse, Nancy, Grenoble, Namur (Belgium), Birmingham (England), Leiden (Netherlands).

Major Research grants

2020 -2021	Fondation Weizmann France (80 k€) Olivier Espéli* , Roi Abraham
2019 - 2022	ANR PRCE, Bach (200 k€) Olivier Espéli* , Francois Xavier Barre, Mauro Modesti
2018 – 2021	ANR PRCE, Persist3R (175 k€) Marie-Agnès Petit*, Ivan Matic, Olivier Espéli
2018 - 2019	Fondation ARC (50k€)
2018	Association François Aupetit pour les MICI (20 k€)
2015 - 2018	ANR PRCE, HIRESBACS (163 k€) Olivier Espéli* , Marcello Nollmann, Julien Mozziconacci, Romain Koszul

2015 - 2018	Labex Memolife (60k€) Alice Lebreton*, Lionel Navarro, Guy Tran Van Nhieu, Olivier Espéli
2015 - 2016	IDEX PSL projet structurants (40 k€) Olivier Hyrien*, Olivier Espéli
2013 - 2017	ANR PRCE, MEIOREC (138 k€) Bertrand Llorente*, Romain Koszul, Olivier Espéli
2014 - 2015	Fondation ARC 50k€
2013 - 2017	ANR PRCE, MAGISBAC (151 k€) François Cornet*, Didier Mazel, Eduardo Rocha, Olivier Espéli
2013 - 2014	Fondation pour la Recherche Médicale (80k€)
2010 - 2015	ANR JCJC SISTERS (300k€)

*coordinator of the project

Are only indicated amounts funding the group of Olivier Espéli

Contributions to grants for the structuring of the CIRB and PSL University

2020	Sesame grant (Region Ile de France) for the renovation of the CIRB animal house (420 k€)
2020	Structuration de la Formation et de la Recherche (SFRI), Plan Investissement d'Avenir, One-PSL (20 M€) structuration of PSL teaching in graduate programs.

Scientific communications and editorial activities

Invited speaker at the Gordon conference “chromosome dynamics” 2011 and 2013, the ASM general meeting 2012, EMBO workshop Topoisomerases 2015, 2017, 2021. **Selected speaker** in 20 conferences and workshops (Gordon conferences, EMBO workshops, Keystone conferences, Cold Spring Harbor Laboratory meetings, etc). Invited for seminars in France and Europe (30)

2020	Topic Editor for Frontiers in Infection and Cellular Microbiology , <i>Facultative Intracellular Bacteria: Exception or Rule?</i>
2018	Co-organizer of the CNRS – CSIC workshop on bacterial adaptation to stress, Gif sur Yvette
2017	Editor of a protocol book for Methods in Molecular Biology, <i>The Bacterial Nucleoid</i>
2016 – now	Associate editor for the EcoSal Plus journal (American Society for Microbiology)
2012 – now	Co-organizer of the “Biology and Physics of the bacterial chromatin” workshop in Leiden, Netherlands, 2012, Birmingham, UK, 2014, Paris (College de France) September 2016, running online in 2021 https://biophychrom2021.sciencesconf.org/
2012 – now	Member of the scientific board the “Colloque des 3R”
2008 – now	Member of the scientific board of the GDR “ADN”

Regular reviewer of manuscripts for Nature, Science, Cell, Molecular Cell, EMBO Journal, PLoS Genetics, Nucleic Acid Research, Molecular Microbiology, Journal of Molecular Biology, Genes to cells, Biophysical Journal, Frontiers, etc...

Evaluation of grant applications and scientific institutions for ANR, BBSRC, DFG, Wellcome trust and Israel Science Foundation

36 Publications (H-index 23; average citations per items 65)

Publications (* Corresponding author(s))

1: Brenna Conin, Ingrid Billault-Chaumartin, Hafez El Sayyed, Nicole Quenech'D¹, Charlotte Cockram, Romain Koszul and Olivier Espéli. *Genomic contacts reveal the control of sister chromosome decatenation in E. coli*. Nucleic Acids Research in press (DOI: gkac105)

2: Prudent V, Demarre G, Vazeille E, Wery M, Quenech'Du N, Ravet A, Dauverd-Girault J, van Dijk E, Bringer MA, Descrimes M, Barnich N, Rimsky S, Morillon A, Espéli O. *The Crohn's disease-related bacterial strain LF82 assembles biofilm-like communities to protect itself from phagolysosomal attack*. Commun Biol. 2021 May 25;4(1):627. doi: 10.1038/s42003-021-02161-7. PMID: 34035436

3: Aubry M, Wang WA, Guyodo Y, Delacou E, Guigner JM, **Espéli O**, Lebreton A, Guyot F, Gueroui Z. *Engineering E. coli for Magnetic Control and the Spatial Localization of Functions*. ACS Synth Biol. 2020 Nov 20;9(11):3030-3041. doi: 10.1021/acssynbio.0c00286. Epub 2020 Sep 25. PMID: 32927947

4 : Lambert S, Borde V, Charbonnier JB, Dantzer F, **Espéli O**, Guirouilh-Barbat J, Llorente B, Legube G, Prioleau MN, Radicella P. *Des mécanismes moléculaires aux applications cliniques. L'essentiel du Colloque Réplication-Réparation-Recombinaison 2019*. Bull Cancer. 2020 Feb;107(2):283-287. doi: 10.1016/j.bulcan.2020.01.003. Epub 2020 Jan 31. PMID: 32014246 French. No abstract available.

5: Planchenault C, Pons MC, Schiavon C, Siguier P, Rech J, Guynet C, Dauverd-Girault J, Cury J, Rocha EPC, Junier I, Cornet F, **Espéli O***. *Intracellular Positioning Systems Limit the Entropic Eviction of Secondary Replicons Toward the Nucleoid Edges in Bacterial Cells*. J Mol Biol. 2020 Feb 7;432(3):745-761. doi: 10.1016/j.jmb.2019.11.027. Epub 2020 Jan 11. PMID: 31931015.

6: Demarre G, Prudent V, Schenk H, Rousseau E, Bringer MA, Barnich N, Tran Van Nhieu G, Rimsky S, De Monte S, **Espéli O***. *The Crohn's disease-associated Escherichia coli strain LF82 relies on SOS and stringent responses to survive, multiply and tolerate antibiotics within macrophages*. PLoS Pathog. 2019 Nov 14;15(11):e1008123. doi: 10.1371/journal.ppat.1008123. PMID: 31725806; PMCID:PMC6855411.

7: Muller H, Scolari VF, Agier N, Piazza A, Thierry A, Mercy G, Descorps-Declere S, Lazar-Stefanita L, Espéli O, Llorente B, Fischer G, Mozziconacci J, Koszul R. *Characterizing meiotic chromosomes' structure and pairing using a designer sequence optimized for Hi-C*. Mol Syst Biol. 2018 Jul 16;14(7):e8293. doi:10.15252/msb.20188293. PMID: 30012718; PMCID: PMC6047084.

8: Lioy VS, Cournac A, Marbouty M, Duigou S, Mozziconacci J, **Espéli O**, Boccard F, Koszul R. *Multiscale Structuring of the E. coli Chromosome by Nucleoid-Associated and Condensin Proteins*. Cell. 2018 Feb 8;172(4):771-783.e18. doi:10.1016/j.cell.2017.12.027. Epub 2018 Jan 18. PMID: 29358050.

9: El Sayyed H, **Espéli O***. *Mapping E. coli Topoisomerase IV Binding and Activity Sites*. Methods Mol Biol. 2018;1703:87-94. doi: 10.1007/978-1-4939-7459-7_6. PMID: 29177735.

- 10: Vickridge E, Planchenault C, Cockram C, Junceda IG, **Espéli O***. *Management of E. coli sister chromatid cohesion in response to genotoxic stress*. Nat Commun.2017 Mar 6;8:14618. doi: 10.1038/ncomms14618. PMID: 28262707; PMCID: PMC5343486.
- 11: Demarre G, Prudent V, **Espéli O***. *Imaging the Cell Cycle of Pathogen E. coli During Growth in Macrophage*. Methods Mol Biol. 2017;1624:227-236. doi:10.1007/978-1-4939-7098-8_17. PMID: 28842887.
- 12: Vickridge E, Planchenault C, **Espéli O***. *Revealing Sister Chromatid Interactions with the loxP/Cre Recombination Assay*. Methods Mol Biol.2017;1624:29-37. doi: 10.1007/978-1-4939-7098-8_3. PMID: 28842873.
- 13: El Sayyed H, Le Chat L, Lebailly E, Vickridge E, Pages C, Cornet F, Cosentino Lagomarsino M, **Espéli O***. *Mapping Topoisomerase IV Binding and Activity Sites on the E. coli Genome*. PLoS Genet. 2016 May 12;12(5):e1006025. doi:10.1371/journal.pgen.1006025. PMID: 27171414; PMCID: PMC4865107.
- 14: Lagomarsino MC, **Espéli O**, Junier I. *From structure to function of bacterial chromosomes: Evolutionary perspectives and ideas for new experiments*. FEBS Lett.2015 Oct 7;589(20 Pt A):2996-3004. doi: 10.1016/j.febslet.2015.07.002. Epub 2015Jul 11. PMID: 26171924.
- 15: Passot FM, Nguyen HH, Dard-Dascot C, Thermes C, Servant P, **Espéli O**, Sommer S. *Nucleoid organization in the radioresistant bacterium Deinococcus radiodurans*. Mol Microbiol. 2015 Aug;97(4):759-74. doi: 10.1111/mmi.13064. Epub 2015 Jun 25. PMID: 25988355.
- 16: Junier I, Boccard F, **Espéli O***. *Polymer modeling of the E. coli genome reveals the involvement of locus positioning and macrodomain structuring for the control of chromosome conformation and segregation*. Nucleic Acids Res. 2014 Feb;42(3):1461-73. doi: 10.1093/nar/gkt1005. Epub 2013 Nov 4. PMID: 24194594;PMCID: PMC3919569.
- 17: Le Chat L, **Espéli O***. *Let's get 'Fisical' with bacterial nucleoid*. Mol Microbiol. 2012 Dec;86(6):1285-90. doi: 10.1111/mmi.12073. Epub 2012 Oct 29. PMID: 23078263.
- 18: Dupaigne P, Tonthat NK, **Espéli O**, Whitfill T, Boccard F, Schumacher MA. *Molecular basis for a protein-mediated DNA-bridging mechanism that functions in condensation of the E. coli chromosome*. Mol Cell. 2012 Nov 30;48(4):560-71. doi:10.1016/j.molcel.2012.09.009. Epub 2012 Oct 18. PMID: 23084832.
- 19: Dame RT, **Espéli O**, Grainger DC, Wiggins PA. *Multidisciplinary perspectives on bacterial genome organization and dynamics*. Mol Microbiol. 2012 Dec;86(5):1023-30. doi: 10.1111/mmi.12055. Epub 2012 Oct 15. PMID: 23066904.
- 20: Lesterlin C, Gigant E, Boccard F, **Espéli O***. *Sister chromatid interactions in bacteria revealed by a site-specific recombination assay*. EMBO J. 2012 Aug 15;31(16):3468-79. doi: 10.1038/emboj.2012.194. Epub 2012 Jul 20. PMID: 22820946; PMCID: PMC3419930.
- 21: **Espéli O***, Borne R, Dupaigne P, Thiel A, Gigant E, Mercier R, Boccard F. *A MatP-divisome interaction coordinates chromosome segregation with cell division in E. coli*. EMBO J. 2012 May 11;31(14):3198-211. doi: 10.1038/emboj.2012.128. PMID: 22580828; PMCID: PMC3400007.
- 22: Thiel A, Valens M, Vallet-Gely I, **Espéli O**, Boccard F. *Long-range chromosome organization in E. coli: a site-specific system isolates the Ter macrodomain*. PLoS Genet. 2012;8(4):e1002672. doi: 10.1371/journal.pgen.1002672. Epub 2012 Apr 19. PMID: 22532809; PMCID: PMC3330122.

- 23: Possoz C, Junier I, **Espéli O***. *Bacterial chromosome segregation*. Front Biosci (Landmark Ed). 2012 Jan 1;17:1020-34. doi: 10.2741/3971. PMID: 22201788.
- 24: Rabhi M, **Espéli O**, Schwartz A, Cayrol B, Rahmouni AR, Arluison V, Boudvillain M. *The Sm-like RNA chaperone Hfq mediates transcription antitermination at Rho-dependent terminators*. EMBO J. 2011 Jun14;30(14):2805-16. doi: 10.1038/emboj.2011.192. PMID: 21673658; PMCID: PMC3160251.
- 25: Mercier R, **Espéli O**, Boccard F. L'organisation à grande échelle du chromosome bactérien [*Bacterial chromosome organization*]. Med Sci (Paris). 2009 Nov;25(11):885-7. French. doi: 10.1051/medsci/20092511885. PMID: 19951655.
- 26: Mercier R, Petit MA, Schbath S, Robin S, El Karoui M, Boccard F, **Espéli O***. *The MatP/matS site-specific system organizes the terminus region of the E. coli chromosome into a macrodomain*. Cell. 2008 Oct 31;135(3):475-85. doi:10.1016/j.cell.2008.08.031. PMID: 18984159.
- 26: **Espéli O***, Mercier R, Boccard F. *DNA dynamics vary according to macrodomain topography in the E. coli chromosome*. Mol Microbiol. 2008 Jun;68(6):1418-27. doi: 10.1111/j.1365-2958.2008.06239.x. Epub 2008 Apr 11. PMID: 18410497.
- 28: Esnault E, Valens M, **Espéli O**, Boccard F. *Chromosome structuring limits genome plasticity in Escherichia coli*. PLoS Genet. 2007 Dec;3(12):e226. doi:10.1371/journal.pgen.0030226. PMID: 18085828; PMCID: PMC2134941.
- 29: **Espéli O**, Boccard F. *Organization of the Escherichia coli chromosome into macrodomains and its possible functional implications*. J Struct Biol. 2006 Nov;156(2):304-10. doi: 10.1016/j.jsb.2006.07.010. Epub 2006 Aug 2. PMID:16979349.
- 30: **Espéli O**, Marians KJ. *Untangling intracellular DNA topology*. Mol Microbiol.2004 May;52(4):925-31. doi: 10.1111/j.1365-2958.2004.04047.x. PMID: 15130115.
- 31: **Espéli O**, Nurse P, Levine C, Lee C, Marians KJ. *SetB: an integral membrane protein that affects chromosome segregation in Escherichia coli*. Mol Microbiol.2003 Oct;50(2):495-509. doi: 10.1046/j.1365-2958.2003.03736.x. PMID: 14617174.
- 32: **Espéli O**, Lee C, Marians KJ. *A physical and functional interaction between Escherichia coli FtsK and topoisomerase IV*. J Biol Chem. 2003 Nov7;278(45):44639-44. doi: 10.1074/jbc.M308926200. Epub 2003 Aug 25. PMID:12939258.
- 33: **Espéli O**, Levine C, Hassing H, Marians KJ. *Temporal regulation of topoisomerase IV activity in E. coli*. Mol Cell. 2003 Jan;11(1):189-201. doi:10.1016/s1097-2765(03)00013-3. PMID: 12535532.
- 34: **Espéli O**, Moulin L, Boccard F. *Transcription attenuation associated with bacterial repetitive extragenic BIME elements*. J Mol Biol. 2001 Nov 30;314(3):375-86. doi: 10.1006/jmbi.2001.5150. PMID: 11846552.
- 35: Rossignol M, Basset A, **Espéli O**, Boccard F. *NKBOR, a mini-Tn10-based transposon for random insertion in the chromosome of Gram-negative bacteria and the rapid recovery of sequences flanking the insertion sites in Escherichiacoli*. Res Microbiol. 2001 Jun;152(5):481-5. doi: 10.1016/s0923-2508(01)01221-9. PMID: 11446516.

36: **Espéli O**, Boccard F. *In vivo cleavage of Escherichia coli BIME-2 repeats by DNA gyrase: genetic characterization of the target and identification of the cut site.* Mol Microbiol. 1997 Nov;26(4):767-77. doi:10.1046/j.1365-2958.1997.6121983.x. PMID: 9427406.