

Marco Fumasoni *Ph.D.*

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Links: [Personal website](#), [Google scholar](#), [ORCiD](#)

Scholarly profile

I was trained as a molecular geneticist studying the mechanisms that maintain genome stability during the replication of damaged DNA templates. I then used experimental evolution combined with molecular, cellular, and quantitative approaches to study the mechanisms and dynamics of genome evolution. My lab at the GIMM studies the interplay between genome maintenance mechanisms and evolutionary forces in shaping cell biology.

Research experience

- 2024 -** **Group Leader**, Gulbenkian Institute for Molecular Medicine (GIMM), Oeiras, PT
 Assistant Professor, Faculty of Medicine, University of Lisbon, Lisbon, PT
- 2021-24** **Group Leader**, Instituto Gulbenkian de Ciência (IGC), Oeiras, PT
- 2015-21** **Postdoctoral fellow**, Harvard University, Cambridge, U.S.A.
 Faculty Advisor: Prof. Andrew W. Murray

Education

- 2014** **Ph.D. in Molecular Medicine**, SEMM (European School of Molecular Medicine) / University of Milan / IFOM, IT. Faculty Advisor: Dr. Dana Branzei
- 2008** **M.Sc. in Molecular Biology of the Cell**, University of Milan / IFOM, IT
 Faculty Advisor: Dr. Marco Foiani
- 2006** **B.Sc. in Biological Sciences**, University of Milan, IT

Publications

* corresponding author; † equal contribution

Research articles

1. Natalino M., **Fumasoni M.*** (2025). Compensatory evolution to DNA replication stress is robust to nutrient availability. *MolSysBio*. DOI: 10.1038/s44320-025-00127-z
2. Alsina A., **Fumasoni M.***, Sartori P*. (2025) Model-based inference of cell cycle dynamics captures alterations of the DNA replication programme. *bioRxiv*. DOI: 10.1101/2025.03.19.644216
3. Dolce V., Dusi S., Giannattasio M., Joseph C.R., **Fumasoni M.** and Dana Branzei (2022). Parental histone deposition on the replicated strands promotes error-free DNA damage tolerance and regulates drug resistance. *Genes dev*. DOI: 10.1101/GAD.349207.121

4. **Fumasoni M.***, Murray A.W. (2021). Ploidy and recombination proficiency shape the evolutionary adaptation to constitutive DNA replication stress. *PLoS Genet* 17 (11), e1009875. DOI: 10.1371/journal.pgen.1009875
5. Srinivasan M., **Fumasoni M.**, Petela N.J., Murray A.W., Nasmyth K.A. (2020). Cohesion is established during DNA replication utilising chromosome associated cohesin rings as well as those loaded de novo onto nascent DNAs. *eLife* 2020;9:e56611. DOI: 10.7554/eLife.56611
6. **Fumasoni, M.*** and Murray, A.W. (2020). The evolutionary plasticity of chromosome metabolism allows adaptation to DNA replication stress. *eLife* 2020;9:e51963. DOI: 10.7554/eLife.51963
7. **Fumasoni, M.**, Zwicky, K., Vanoli, F., Lopes, M., Branzei, D. (2015). Error-free DNA damage tolerance and sister chromatid proximity during DNA replication rely on the Pola/primase/Ctf4 complex. *Mol Cell* 57, 812-823. DOI: 10.1016/j.molcel.2014.12.038
8. Gonzalez-Huici, V., Szakal, B., Urulangodi, M., Psakhye, I., Castellucci, F., Menolfi, D., Rajakumara, E., **Fumasoni, M.**, Bermejo, R., Jentsch, S., and Branzei D. (2014). DNA bending facilitates the error-free DNA damage tolerance pathway and upholds genome integrity. *EMBO J* 33, 327-340. DOI: 10.1002/embj.201387425
9. Karras, G.I., **Fumasoni, M.**, Sienski, G., Vanoli, F., Branzei, D., and Jentsch, S. (2013). Noncanonical role of the 9-1-1 clamp in the error-free DNA damage tolerance pathway. *Mol Cell* 49, 536-546. DOI: 10.1016/j.molcel.2012.11.016
10. Vanoli, F.†, **Fumasoni, M.†**, Szakal, B., Maloisel, L., and Branzei, D. (2010). Replication and recombination factors contributing to recombination-dependent bypass of DNA lesions by template switch. *PLoS Genet* 6, e1001205. DOI: 10.1371/journal.pgen.1001205
11. Bernstein, K.A., Shor, E., Sunjevaric, I., **Fumasoni, M.**, Burgess, R.C., Foiani, M., Branzei, D., and Rothstein, R. (2009). Sgs1 function in the repair of DNA replication intermediates is separable from its role in homologous recombinational repair. *EMBO J* 28, 915-925. DOI: 10.1038/emboj.2009.28

Review articles

12. Natalino M., **Fumasoni M.*** (2023). Experimental approaches to study evolutionary cell biology using yeasts. *Yeast*. DOI: 10.1002/yea.3848
13. LaBar T.*, Hsieh Y.P., **Fumasoni M.***, and Murray A.W.* (2020). Evolutionary repair experiments as a window to the molecular diversity of life. *Curr. Biol.* 30, R565–R574, DOI: 10.1016/j.cub.2020.03.046

Commentaries

14. **Fumasoni M.*** (2020). Tell me where you've been and I'll tell you how you'll evolve. *mBio*. DOI: 10.1128/mBio.02043-20

Protocols

15. Korovesi A.G., Morgado L., **Fumasoni M.**, Henriques R., Heil H.S., Del Rosario M. (2022). Expansion microscopy on *Saccharomyces cerevisiae*. *MicroPubl Biol.* DOI: 10.17912/micropub.biology.000566

Awards & grants

Funds

2023 **HFSP** Early Career Grant, IGC, PORTUGAL
2023 **EMBO** Installation Grant, IGC, PORTUGAL
2022 **FCT** PeX, IGC, PORTUGAL
2018 **ESEB** Outreach fund, Harvard University, USA

Fellowships

2024 – 2030 **FCT CEEC** for Scientific Employment Stimulus, IGC, PORTUGAL
2021 – 2023 **Marie Curie** Individual Fellowship (Reintegration), IGC, PORTUGAL
2016 – 2019 **HFSP** long-term post-doctoral fellowship, Harvard University, USA
2016 – 2016 **AIRC** iCare post-doctoral fellowship (MSCA COFUND), Harvard University, USA
2015 – 2016 **EMBO** long-term post-doctoral fellowship (MSCA COFUND), Harvard University, USA
2009 – 2013 **FIRC** PhD fellowship for cancer research in Italy, IFOM, Milan, ITALY

Awards

2020 **SMBE** registration award, 2020
2018 Certificate of excellence in teaching, **Harvard University**, USA
2016 Best poster prize, **EMBL** conference, Heidelberg, Germany

Scholarships

2003 – 2008 Merit scholarships, **University of Milan**, Italy

Presentations

Invited presentations

Cosentino-Lagomarsino/Micali/Ciandrini labs retreat, Castell'Arquato (IT), Sept 24-26, 2025
Konstanz Research School Chemical Biology (KoRS-CB) Retreat, Bad Herrenalb (DE), Sept 15-17, 2025
IFOM, Milan (IT), Nov 18th, 2024.
XXII Jornadas de Biologia de Leveduras Prof. Nicolau van Uden, Curia (PT), Sept 20th, 2024 (Keynote)
Horizons in Molecular Biology Symposium, MPI for Multidisciplinary Sciences (DE), Sep 9th, 2024.
Horizons in Genomics Seminar, LIIGH, UNAM Juriquilla, MX, Aug 12th, 2024
Cell Size Retreat, Preda, CH, Jan 19th, 2024
Galway University, Centre for Chromosome Biology, Galway, IE, Nov 13th, 2023
EMBO Young Scientists Forum, Lisbon, PT, Oct 13th, 2023
EMBO YIP meeting, Milan, IT, May 23th, 2023
LS4Future PI meeting, Vimeiro (PT), March 22nd, 2023
COLife meeting, Oeiras, PT, Sep 19th, 2022
EMBL Junior PI retreat, Oeiras, PT, Sep 13th, 2022

MPI for Evolutionary Biology, Plön, DE, Apr 19th, 2022
iMM, Lisbon, PT, Apr 4th, 2022
IRCAN, Nice, FR, Sep 24th, 2020
CBI / IPBS, Toulouse, FR, Jul 17th, 2020
CRBM, Montpellier, FR, Jun 30th, 2020
IGC, Oeiras, PT, Apr 23rd, 2020
IGC, Oeiras, PT, Mar 12th, 2020
EPFL, Lausanne, CH, Mar 6th, 2020 (canc. due to COVID-19)
IFOM, IT, Oct 19th, 2019
Tufts University, MA, US. Mar 7th, 2019
Broad Institute of Harvard and MIT, MA, US. May 18th, 2016

Contributed presentations

SMBE Annual meeting, Beijing (CN), June 20-24, 2025
GRC Molecular Mechanisms in Evolution, Stonehill College, MA, US. Jun 22-27, 2025
EMBO Meeting of the EMBO communities (*EMBO60*). Heidelberg, DE. Oct 28 Nov 1, 2024.
EMBO conference: Molecular Mechanisms in Evolution and Ecology. Heidelberg, DE. Oct 8-12, 2024
 22th **HFSP** Awardees Meeting. Cape Town, ZA. Dec 6-8, 2023
GRC Molecular Mechanisms in Evolution, Stonehill College, MA, US. Jun 25-30, 2023
EMBO The cell cycle: One engine – many cycles. Konstanz, DE. Oct 12-20, 2022.
WCS Evolutionary Systems Biology. Online, Feb 9-11, 2022
 20th **HFSP** Awardees Meeting. Online, Jul 5-8, 2021
EMBO conference: Molecular Mechanisms in Evolution and Ecology. Online, Sept 30 – Oct 2, 2020
 19th **HFSP** Awardees Meeting, Tsukuba International Congress Center, JP. Jul 9-13, 2019
GRC Molecular Mechanism in Evolution, Stonehill College, MA, US. Jun 8-14, 2019
ASCB|EMBO Annual Meeting, San Diego Conference Center, CA, US. Dec 8-12, 2018
EMBO Fellows' Meeting, EMBL Heidelberg, DE. Jun 14-18, 2018
 17th **HFSP** Awardees Meeting, Champalimaud Centre for the Unknown, Lisbon, PT. Jul 10-12, 2017
SMBE Annual Meeting, Austin, TX, US. Jul 2-6, 2017
EMBO USA Fellows' meeting, The Koch Institute, MIT, Cambridge, US. Nov 4-6, 2016
EMBO conference: Experimental Approaches to Evolution and Ecology Using Yeast and Other Model Systems, EMBL Heidelberg, DE. Oct 19-23, 2016
FASEB SRC: Yeast Chromosome Structure, Replication, and Segregation. Steamboat Springs, CO, USA. Jul 13-18, 2014
 Intl. PhD student cancer conference, **Beatson Institute** of Cancer Research Glasgow, UK. Jun 15-17, 2011
Responses to DNA damage, Egmond aan Zee, NL. April 3-8, 2011

Teaching experience

Instituto Gulbenkian de Ciencia (IGC, PT)

- Structural and Molecular Biology, IGC-IBB graduate program (organizer, 2021-)
- History of Biology, IGC-IBB graduate program (lecturer, 2022)
- Inside the Cell and Cell Biology, IGC- IBB graduate program (lecturer, 2021-2023)

- Evolution, IGC-IBB graduate program (lecturer, 2021-)
- Summer School, IGC Undergraduate course (co-organizer, 2021-2023)

University of Lisbon (FCUL, PT)

- Evolutionary and Developmental Biology, master program (lecturer, 2021-)

Harvard University (USA)

- Cellular Biology and Molecular Medicine, Undergraduate course (Teaching assistant, Fall 2018)
- Model organisms jamboree, MCO graduate program (Teaching assistant, Fall 2017)
- Science Communication, SSQBio graduate program (Teaching assistant, Fall 2019)

Pazmany University (HU)

- Quantitative Biology, master program (lecturer, 2024-)

Universidad Continental, Lima (PE)

- Clubes de Ciencia Peru, Undergraduate-level course (Organizer, Jul 3–Aug 5, 2018).

Universidad Veracruzana, Xalapa (MX)

- Clubes de Ciencia Mexico, Undergraduate-level course (Organizer, Aug 4–10, 2024).

Pedagogical Training

- Laboratory Leadership for Group Leaders, EMBO Solutions (Apr 19, 2024)
- Leadership for Young Group Leaders, Chaperone (Feb 2, 2024)
- Active Bystander Toolkit, EU-LIFE (Nov 11, 2021)
- Fall Teaching Conference, Derek Bok Harvard Center for Teaching and Learning (Aug 23-24, 2017)
- Laboratory Management Certificate - The art of leadership, EMBO (Oct 5, 2017)

Professional service

Committee Service

PhD program committee member, **IGC**, 2024-
 Early career reviewer, **eLife**, 2023-
 Open science team, Organizer, **IGC**, 2023-
 Policy task force member, **EU-Life/CoARA**, 2022-
 Chair, **ASAPbio**, Community Action Group, 2021-2022
 Theses committee and evaluator, **IGC**, Integrative Biology and Biomedicine PhD program, 2021-
 Fellow, **ASAPbio**, Organization of webinars on preprints, 2020
 Member, **Harvard Diversity** Inclusion and Belonging (DIB) initiative, 2020-21
 Member, **Harvard FAS** Post-Doctoral Association (FAS-PDA), 2017-21
 Organizer, Yeast Systems Biology Group (YSG), **Broad Institute** of Harvard and MIT, 2017-18

Professional Membership

GSA - Genetics Society of America, 2020 –
 ASCB - American Society for Cell Biology, 2018 –
 SMBE - Society for Molecular Biology and Evolution, 2017 –