

Djordje Bajić

POSTDOCTORAL ASSOCIATE · DEPT. ECOLOGY & EVOLUTIONARY BIOLOGY · MICROBIAL SCIENCES INSTITUTE · YALE UNIVERSITY

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Professional Experience

Jul 2016- Present **Postdoctoral Associate**, Yale University, New Haven, CT, USA
Feb 2015-Oct 2015 **Research Associate**, Biological Research Center, Hungarian Academy of Science, Szeged, Hungary

Education

Universidad Autonoma de Madrid

Madrid, Spain

PHD BIOPHYSICS

Sep. 2010 - Feb. 2016

• Advisor: Dr. Juan F. Poyatos

Universidad Autonoma de Madrid

Madrid, Spain

M.Sc. BIOPHYSICS

Sep. 2009 - Sep. 2010

Universidad Autonoma de Madrid

Madrid, Spain

B.Sc. BIOCHEMISTRY

Sep. 2003 - Sep. 2009

Publications

* shared first authorship; # co-corresponding authorship, † co-supervised

- [17] Estrela S.#, Vila J.C.C., Lu N., Bajić D., Rebolleda-Gomez M., Chang CY., Goldford J, Sanchez-Gorostiaga A, Sanchez A#. 2021. *Functional attractors in microbial community assembly*. **Cell Systems** S2405471221003793
- [16] Peralta-Marzal, Lucía N, Prince N, Bajić D., Roussin L, Naudon L, Rabot S, Garssen J, Kraneveld AD, and Perez-Pardo P. 2021. *The Impact of Gut Microbiota-Derived Metabolites in Autism Spectrum Disorders*. **International Journal of Molecular Sciences** 22, 18: 10052.
- [15] Dukovski I.*, Bajić D.*, Chacón J.M.*, Quintin M*, Vila J.C.C., Sulheim S., Pacheco A.R., Bernstein D., Korolev K., Sanchez A., Harcombe W.D., Segrè D. 2021. *A metabolic modeling platform for the computation of microbial ecosystems in time and space (COMETS)*. **Nature Protocols** 16, 5030–5082
- [14] Bajić, D.*#, Rebolleda-Gomez M., Muñoz MM, Sanchez A#. 2021. *The macroevolutionary consequences of niche construction in microbial metabolism*. **Frontiers in Microbiology** 12:718082
- [13] Lino F.S.O.†, Bajić D., Vila J.C.C., Sanchez A., Sommer M.O.A. 2021. *Complex yeast-bacteria interactions shape the yield of industrial ethanol fermentations*. **Nature Communications** 12 (1), 1-1[2
- [12] Alonso-Lavin AJ, Bajić D., Poyatos J.F. 2021. *Tolerance to NADH/NAD⁺ imbalance anticipates aging and anti-aging interventions*. **iScience** 102697
- [11] Kovács K.*, Farkas Z.*, Bajić D.*, Kalapis D., Kintsés B., Notebaart R.A., Poyatos J.F., Kemmeren P., Holstege F.C.P., Pál C.#, Papp B#. 2020. *Suboptimal global transcriptional response increases the harmful effects of loss-of-function mutations in yeast*. **Molecular Biology and Evolution** msaa280
- [10] Chang C.*†, Osborne M.L.*, Bajić, D. & Sanchez A. 2020. *Artificially selecting microbial communities using propagule strategies*. **Evolution** 74:10, 2392-2403 (<https://doi.org/10.1101/2020.05.01.066282>)

- [9] Bajić D. & Sanchez A. 2020. *The ecology and evolution of microbial metabolic decision-making*. **Current Opinion in Biotechnology**, 62:123–128.
- [8] Sanchez-Gorostiaga A.* , Bajić D.*, Osborne M.L., Poyatos J.F., Sanchez A. 2019. *High order interactions distort the functional landscape of microbial consortia*. **PLoS Biology** 17(12): e3000550
- [7] Bajić, D.*#, Vila, J.C.C.*†, Blount, Z.D., Sanchez, A#. 2018. *On the deformability of an empirical fitness landscape by microbial evolution*. **Proceedings of the National Academy of Sciences, USA** 115(44):11286-11291
- [6] Goldford, J.* , Lu, N.* , Bajić, D., Estrela, S., Sanchez-Gorostiaga, A., Tikhonov, M., Segre, D., Mehta, P.#, Sanchez, A.#. 2018. *Emergent simplicity in microbial community assembly*. **Science** 361:469-74
- [5] Rodrigo G., Bajić D., Elola I., Poyatos J.F. 2017. *Deconstructing a multiple antibiotic resistance regulation through the quantification of its input function*. **NPJ Systems Biology and Applications** 3: Article number: 30
- [4] Rodrigo G., Bajić D., Elola I., Poyatos J.F. 2016. *Antagonistic autoregulation speeds up a homogeneous response in Escherichia coli*. **Scientific Reports** 6: Article number: 36196
- [3] *Biología de sistemas*. Book chapter in: *Bioinformática con Ñ* (editors: Sebastián A, Pascual-García A). 2014. Aguirre J., Bajić D., Guantes R. **Independently published**, ISBN:978-84-617-1976-X.
- [2] Bajić D., Moreno-Fenoll C., Poyatos J.F. 2014. *Rewiring of genetic networks in response to modification of genetic background*. **Genome biology and evolution** 6 : 3267–3280.
- [1] Bajić D., Poyatos J.F. 2012. *Balancing noise and plasticity in eukaryotic gene expression*. **BMC Genomics** 13: 343.

Awards, Fellowships, & Grants

2014	Short-Term Fellowship , European Molecular Biology Organization	€ 7,940
2009	Master Scholarship , Universidad Autónoma de Madrid	€ 5,000
2008	Undergraduate Collaboration Scholarship , Spanish Ministry of Education	€ 2,700
2006	Erasmus Scholarship , European Commission	€ 3,500

Presentations

INVITED TALKS

- Sep 2020. **AEEB Evolutionary Biology Meeting**, Marseille, France [postponed Sep. 2022]
- Jun 2020. **Max Planck Institute for Evolutionary Biology Seminar Series**, Plön, Germany
- Jul 2019. **II "Impact of horizontal gene transfer on natural microbiomes" HFSP Project Meeting**, Tokyo, Japan.
- Mar 2019. **COMETS Hackathon**, Boston University, Boston, USA
- Oct 2018. **Guest Lecture**. E&EB225 Evolutionary Biology, Yale University
- Mar 2018. **SMAL Talk**, Yale University, New Haven, USA
- Mar 2019. **I "Impact of horizontal gene transfer on natural microbiomes" HFSP Project Meeting**, Lausanne, Switzerland.
- Dec 2017. **Department Seminar**, Ramon y Cajal University Hospital, Microbiology Research Unit, Madrid, Spain
- Dec 2013 **XXI National Center for Biotechnology Scientific Workshop**. CNB-CSIC, Madrid, Spain
- Feb 2012. **Guest Lecture**. Master in Biomedicine, Postgraduate Program in Molecular Biosciences. , Universidad Autonoma de Madrid

CONTRIBUTED PRESENTATIONS

2021. Talk. **EMBO Predicting Evolution Workshop**. Heidelberg, Germany (Virtual)

2020. Talk. **6th Bioinformatics & Systems Biology Conference bioSB2020**. Netherlands (Virtual).

2019 Poster. **Gordon Research Conference in Microbial Population Biology** Andover, NH USA

2018 Talk. **Wellcome Conference on Evolutionary Systems Biology**, Hinxton, UK

2017 Poster. **International Workshop on Systems Biology and Molecular Economy of Microbial Communities**, The Abdus Salam International Center for Theoretical Physics, Trieste, Italy

2017 Poster. **Pan-microbial Trait Ecology Workshop** National Institute for Mathematical and Biological Synthesis, Knoxville TN, USA

2015. Poster. **Annual Meeting of the Society for Molecular Biology and Evolution**, Vienna, Austria

2014. Poster. **Workshop on the Economy of a Cell: Resource Allocation, Trade-Offs and Efficiency in Living Systems**, The Abdus Salam International Center for Theoretical Physics, Trieste, Italy

2014. Poster. **Causality, Information Transfer and Dynamical Networks International Workshop**, Max Planck Institute for Physics of Complex Systems, Dresden, Germany

2011. Poster. **International Conference on Systems Biology ICSB2011**, Heidelberg, Germany

Mentoring

2019-2020 **Sotaro Takano, PhD**, Visiting postdoc (6 mo), co-supervised project (paper in prep.)

2019 **Felipe Lino**, Visiting PhD Student (4 mo), co-supervised project (Nat. Commun. 2021)

2016-2022 **Jean C.C. Vila**, PhD Student, co-supervised Thesis (EEB, Yale University)

2019-2020 **Madeline Bender**, Co-directed Senior Thesis, EEB, Yale University (paper in prep.)

Professional Service and Outreach

COMMISSIONS OF TRUST

2020 **NASA Exobiology Solicitation**, Grant Evaluation Panel Member

PEER REVIEW

Science Advances, Nature Communications, Genome Biology, ISME Journal, PLoS Computational Biology, BMC Systems Biology, Proceedings of the Royal Society B: Biological Sciences.

PROFESSIONAL MEMBERSHIPS

Society for the Study of Evolution

OUTREACH & DEVELOPMENT

I-Corps Spark Program, New England Regional Innovation Node, MIT

Boston, USA

PARTICIPANT

Sep 2020 - Dec 2020

- Part of the National Science Foundation (NSF) Innovation corps, aimed at "preparing scientists and engineers to extend their focus beyond the laboratory to accelerate the transfer of cutting-edge research into commercial success".
- Participated as a member of the core COMETS team. The goal was to obtain training for start-up foundation in order to commercialize the COMETS software platform

ComNPlay SCIENCE H2020 Project

Online

PARTICIPANT

May 2020

- Project aimed to help Europe better understand the new ways in which non-formal and informal science learning is taking place through various coding, making, and play activities, beyond the formal boundaries of science education.
- Gave award-winning interview online to primary school kid.

Wikillerato.org

Online

CONTENT CURATOR AND ADMINISTRATOR

2011

- Website aimed at providing content for spanish high school students.
- Created content pages and helped coordinate other people's additions