

Yoav Ram — CV

School of Zoology, Faculty of Life Sciences, Tel Aviv University

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Education

2010–2016	PhD , Direct PhD track, Tel Aviv University Mentor — Lilach Hadany Thesis — <i>The Evolution of Stress-Induced Mutagenesis: Causes and Consequences</i>
2010–2012	MSc , Direct PhD track, Tel Aviv University Theoretical & Computational Biology
2007–2010	BSc , Biology and Mathematics <i>magna cum lauda</i> , Tel Aviv University

Employment

2020–	Senior lecturer School of Zoology, Faculty of Life Sciences, Tel Aviv University Sagol School of Neurosciences, Tel Aviv University Safra Center for Bioinformatics, Tel Aviv University
2018–2020	Senior lecturer School of Computer Science, Reichman University (Herzliya)
2016–2018	Postdoctoral fellow Department of Biology, Stanford University Center for Computational, Evolutionary, and Human Genomics, Stanford University Mentor — Marcus W. Feldman
2016	Postdoctoral fellow Department of Plant Sciences, Faculty of Life Sciences, Tel Aviv University
2016	Data scientist , Neura
2010–2016	Ph.D. student Department of Plant Sciences, Faculty of Life Sciences, Tel Aviv University Mentor — Prof. Lilach Hadany
2008–2010	Research assistant Department of Plant Sciences, Faculty of Life Sciences, Tel Aviv University Mentor — Prof. Lilach Hadany
2008–2009	Software developer , NetAlign
2006–2008	Software developer , XLNet

Grants & Awards

2025	Israel Science Foundation (ISF) Personal Research grant, 2025-2032
2024	TAD center for artificial intelligence and data science grant, PI, 2024
*	Minerva Center for the study of Population Fragmentation , Co-PI
2023	TAD center for artificial intelligence and data science grant, Co-PI, 2023
2022	US-Israel Binational Science Foundation (BSF) research grant, 2023-2026
*	Zuckerman postdoctoral fellowship to JC McDonald, postdoc at the lab, 2022-2024
2020	Israel Science Foundation (ISF) KillCorona research grant, 2020-2022
*	John Templeton Foundation grant, Co-PI, 2021-2024
*	Minerva Center on Lab Evolution, Co-PI, 2020-2025
*	Excellence in Teaching award from Reichman University
2019	Israel Science Foundation (ISF) Personal Research grant, 2019-23
*	AWS Cloud Credits for Research program
*	NVIDIA Accelerated Data Science GPU grant
2016-17	Postdoctoral fellowship from the Stanford Center for Computational, Evolutionary, and Human Genomics
2015-16	Dean's Award for Excellence in Teaching, Engineering Faculty, Tel Aviv University
2015	The Israel Society for Microbiology travel award
*	The Anat Karuskopf Fund travel award
*	The Manna Institute for Plants BioSciences travel award
2014	The Israeli Ministry of Science and Technology International Education Scholarship
2013-2014	Research achievements scholarship, Life Sciences Faculty, Tel Aviv University.
*	Fellowship from the Manna Program in Food Safety and Security
2013	The Manna Institute for Plants BioSciences travel award
2012	Registration & accommodation waiver for PopGroup45 in Nottingham, UK
*	Crowd-funded travel expenses for PopGroup45 via The #SciFund Challenge
2011-2012	Research achievements scholarship, Life Sciences Faculty, Tel Aviv University
2011	Society for the Study of Evolution International travel award
2010-2015	Direct Ph.D. scholarship , Department of Plant Sciences, Tel Aviv University
2010	Society for Molecular Biology & Evolution Undergraduate Diversity Mentoring Program award
*	Best poster award at Mathematical Methods in Systems Biology workshop, Tel Aviv, Israel
2009	Amos de-Shalit Ulpana for excellent students in Life Sciences, Weizmann Institute.

Publications * equal contribution, lab members

Preprints

- Yesharim, M., Perl, R.G.B., Roll, U., Gafny, S., Geffen, E., **Ram, Y.** (2026) *Near-perfect photo-ID of the Hula painted frog with zero-shot deep local-feature matching*. arXiv. DOI: [10.48550/arXiv.2601.08798](https://doi.org/10.48550/arXiv.2601.08798)
- Oron, T., Karstadt, R., **Ram, Y.** (2025) *A Modern Reanalysis of McManus' Genetic Model of Handedness*. EcoEvoRxiv. DOI: [10.32942/X25W7S](https://doi.org/10.32942/X25W7S)
- Karstadt, R., Shiff, C., Oron, T., Ben Nun, N., **Ram, Y.** (2025) *Transmission of human handedness: a reanalysis*. EcoEvoRxiv. DOI: [10.32942/X2WK8K](https://doi.org/10.32942/X2WK8K)
- De, T., Ben Nun, N., Spealman, P., Suresh, I., Avecilla, G., Abdul-Rahman, F., **Ram, Y.**, Gresham, D. (2025) *Segmental copy number amplifications are more stable than aneuploidies in the absence of selection*. bioRxiv. DOI: [10.1101/2025.07.21.665951](https://doi.org/10.1101/2025.07.21.665951)
- Macdonald, J.C., Blanco-Portillo, J., Feldman, M.W., **Ram, Y.** (2024) *Bayesian Estimation of the Number of Significant Principal Components for Cultural Data*. arXiv. DOI: [10.48550/arXiv.2409.12129](https://doi.org/10.48550/arXiv.2409.12129)
- Pontz, M., Stana, R., **Ram, Y.** (2023) *Fixation probability and fixation time under strong recurrent mutation*. EcoEvoRxiv. DOI: [10.32942/X23P4Z](https://doi.org/10.32942/X23P4Z)

Published

- Stana, R., Ben-David, U., Weissman, D.B., **Ram, Y.** (2025) *Evolutionary rescue by aneuploidy in tumors exposed to anti-cancer drugs*. Genetics. DOI: [10.1093/genetics/iyaf098](https://doi.org/10.1093/genetics/iyaf098)
- Chuong, J., Ben Nun, N., Suresh, I., Matthews, J., De, T., Avecilla, G., Abdul-Rahman, F., Brandt, N., **Ram, Y.**, Gresham, D. (2025) *Template switching during DNA replication is a prevalent source of adaptive gene amplification*. eLife. DOI: [10.7554/eLife.98934.3](https://doi.org/10.7554/eLife.98934.3)
- Macdonald, J.C., Blanco-Portillo, J., Feldman, M.W., **Ram, Y.** (2024) *Cultural transmission, networks, and clusters among Austronesian-speaking peoples*. Evolutionary Human Sciences. DOI: [10.1017/ehs.2024.45](https://doi.org/10.1017/ehs.2024.45)
- Galke, L., **Ram, Y.**, Raviv, L. (2024) *Deep neural networks and humans both benefit from compositional language structure*. Nature Communications. DOI: [10.1038/s41467-024-55158-1](https://doi.org/10.1038/s41467-024-55158-1)
- Egozi, S., **Ram, Y.** (2024) *Prestige bias in cultural evolutionary dynamics*. Royal Society Open Science. DOI: [10.1098/rsos.230650](https://doi.org/10.1098/rsos.230650)
- Shvartzman, B., **Ram, Y.** (2024) *Self-replicating artificial neural networks give rise to universal evolutionary dynamics*. PLOS Computational Biology. DOI: [10.1371/journal.pcbi.1012004](https://doi.org/10.1371/journal.pcbi.1012004)
- Kohanovski, I., Pontz, M., Vande Zande, P., Selmecki, A., Dahan, O., Pilpel, Y., Yona, A.H., **Ram, Y.** (2024) *Aneuploidy can be an evolutionary diversion on the path to adaptation*. Molecular Biology and Evolution. DOI: [10.1093/molbev/msae052](https://doi.org/10.1093/molbev/msae052)
- Ram, Y.** (2024) *The evolution of modifier genes*. Nature Reviews Genetics. DOI: [10.1038/s41576-024-00724-y](https://doi.org/10.1038/s41576-024-00724-y)
- Borofsky, T., Feldman, M.W., **Ram, Y.** (2024) *Cultural transmission, competition for prey, and the evolution of cooperative hunting*. Theoretical Population Biology. DOI: [10.1016/j.tpb.2023.12.005](https://doi.org/10.1016/j.tpb.2023.12.005)
- Lobinska, G., Pilpel, Y., **Ram, Y.** (2023) *Phenotype switching of the mutation rate facilitates adaptive evolution*. Genetics. DOI: [10.1093/genetics/iyad111](https://doi.org/10.1093/genetics/iyad111)
- Caspi, I., Meir, M., Ben Nun, N., Abu Rass, R., Yakhini, U., Stern, A., **Ram, Y.** (2023) *Mutation Rate, Selection, and Epistasis Inferred from RNA Virus Haplotypes via Neural Posterior Estimation*. Virus Evolution. DOI: [10.1093/ve/vead033](https://doi.org/10.1093/ve/vead033)
- Avecilla, G., Chuong, J.N., Li, F., Sherlock, G., Gresham, D., **Ram, Y.** (2022) *Simulation-Based Inference of Evolutionary Parameters from Adaptation Dynamics Using Neural Networks*. PLOS Biology. DOI: [10.1371/journal.pbio.3001633](https://doi.org/10.1371/journal.pbio.3001633)
- Kolodny, O., Feldman, M.W., Lotem, A., **Ram, Y.** (2002) *Differential application of cultural practices at the family and individual levels may alter heritability estimates*. Behavioral and Brain Sciences. DOI: [10.1017/S0140525X21001576](https://doi.org/10.1017/S0140525X21001576)
- Cohen, O., **Ram, Y.**, Hadany, L., Gafny, S., Geffen, E. (2022) *The effect of habitat and climatic on microsatellite diversity and allele length variation*. Frontiers in Ecology and Evolution. DOI: [10.3389/fevo.2022.893856](https://doi.org/10.3389/fevo.2022.893856)

- Gurevich, Y., **Ram, Y.**, Hadany, L. (2022) *Modeling the evolution of SARS-CoV-2 under non-pharmaceutical interventions*. Evolution, Medicine, and Public Health. DOI: [10.1093/emph/eoc013](https://doi.org/10.1093/emph/eoc013)
- Denton, K.K., **Ram, Y.**, Feldman, M.W. (2022) *Conditions that favor cumulative cultural evolution*. Philosophical Transactions B. DOI: [10.1098/rstb.2021.0400](https://doi.org/10.1098/rstb.2021.0400)
- Kohanovski, I., Obolski, U., **Ram, Y.** (2022) *Inferring the effective start dates of non-pharmaceutical interventions during COVID-19 outbreaks*. International Journal of Infectious Diseases. DOI: [10.1016/j.ijid.2021.12.364](https://doi.org/10.1016/j.ijid.2021.12.364)
- Denton, K.K., **Ram, Y.**, Feldman, M.W. (2021) *Conformity and content-biased cultural transmission in the evolution of altruism*. Theoretical Population Biology. DOI: [10.1016/j.tpb.2021.10.004](https://doi.org/10.1016/j.tpb.2021.10.004)
- Cohen, O., **Ram, Y.**, Hadany, L., Gafny, S., Geffen, E. (2021) *Annual climatic fluctuations and short-term variations in population genetics*. Scientific Reports. DOI: [10.1038/s41598-021-92696-w](https://doi.org/10.1038/s41598-021-92696-w)
- Gutiérrez, R., **Ram, Y.**, Berman, J., de Sousa, K.C.M., Nachum-Biala, Y., Britzi, M., Elad, D., Glaser, G., Covo, S., Harrus, S. (2021) *Adaptive resistance mutations at supra-inhibitory concentrations independent of SOS mutagenesis*. Molecular Biology and Evolution. DOI: [10.1093/molbev/msab196](https://doi.org/10.1093/molbev/msab196)
- Cohen, D., Lewin-Epstein, O., Feldman, M.W., **Ram, Y.** (2021) *Non-Vertical Cultural Transmission, Assortment, and the Evolution of Cooperation*. Proceedings of the Royal Society B. DOI: [10.1098/rspb.2020.3162](https://doi.org/10.1098/rspb.2020.3162)
- Arthur, R.F., Jones, J.H., Bonds, M.H., **Ram, Y.**, Feldman, M.W. (2021) *Adaptive social contact rates induce complex dynamics during epidemics*. PLOS Computational Biology. DOI: [10.1371/journal.pcbi.1008639](https://doi.org/10.1371/journal.pcbi.1008639)
- Kolodny, O., Berger, M., Feldman, M.W., **Ram, Y.** (2020) *A new perspective for mitigation of SARS-CoV-2 infection: priming the immune system for attack*. Open Biology. DOI: [10.1098/rsob.200138](https://doi.org/10.1098/rsob.200138)
- Krebs Denton, K., **Ram, Y.**, Liberman, U., Feldman, M.W. (2020) *Cultural evolution of conformity and anticonformity*. Proceedings of the National Academy of Sciences USA. DOI: [10.1073/pnas.2004102117](https://doi.org/10.1073/pnas.2004102117)
- Ram, Y.**, Obolski, U., Feldman, M.W., Berman, J. and Hadany, L. (2020) *Reply to Balsa-Canto et al.: Growth models are applicable to growth data, not to stationary-phase data*. Proceedings of the National Academy of Sciences USA. DOI: [10.1073/pnas.1917758117](https://doi.org/10.1073/pnas.1917758117)
- Liberman, U., **Ram, Y.**, Altenberg, L., Feldman, M.W. *The Evolution of Frequency-Dependent Cultural Transmission*. Theoretical Population Biology. DOI: [10.1016/j.tpb.2019.12.004](https://doi.org/10.1016/j.tpb.2019.12.004)
- Ram, Y.**, Dellus-Gur, E., Bibi, M., Karkare, K., Obolski, U., Feldman, M.W., Cooper, T.F., Berman, J. and Hadany, L. (2019) *Predicting Microbial Growth in a Mixed Culture from Growth Curve Data*. Proceedings of the National Academy of Sciences USA, 201902217. DOI: [10.1073/pnas.1902217116](https://doi.org/10.1073/pnas.1902217116).
- Ram, Y.**, Hadany, L. (2019) *Evolution of stress-induced mutagenesis in the presence of horizontal gene transfer*. The American Naturalist, 194:1. DOI: [10.1086/703457](https://doi.org/10.1086/703457).
- Zinger, E., Guiejman, A., Obolski, U., **Ram, Y.**, Ruby, E., Binder, M., Yechieli, N., Ohad, N., Hadany L. (2019) *Less fit Lamium amplexicaule plants produce more dispersible seeds*. Scientific Reports. DOI: [10.1038/s41598-019-42158-1](https://doi.org/10.1038/s41598-019-42158-1).
- Ram, Y.**, Liberman, U., Feldman, M.W. (2019) *Vertical and oblique cultural transmission fluctuating in time and in space*. Theoretical Population Biology, 125:11-19. DOI: [10.1016/j.tpb.2018.11.001](https://doi.org/10.1016/j.tpb.2018.11.001).
- Ram, Y.**, Liberman, U., Feldman, M.W. (2018) *Evolution of vertical and oblique transmission under fluctuating selection*. Proceedings of the National Academy of Sciences USA, 201719171. DOI: [10.1073/pnas.1719171115](https://doi.org/10.1073/pnas.1719171115).
- Ram, Y.**, Altenberg, L., Liberman, U., Feldman, M.W. (2018) *Generation of variation and a modified mean fitness principle: Necessity is the mother of genetic invention*. Theoretical Population Biology, 123:1-8. DOI: [10.1016/j.tpb.2018.02.004](https://doi.org/10.1016/j.tpb.2018.02.004).

- Harari, Y., **Ram, Y.**, Rappoport, N., Hadany, L., Kupiec, M. (2018) *Spontaneous changes in ploidy are common in yeast*. Current Biology, 28:1–11. DOI: [j.cub.2018.01.062](#).
- Harari, Y., **Ram, Y.**, Kupiec, M. (2018) *Frequent ploidy changes in growing yeast cultures*. Current Genetics, 0:1–4.. DOI: [10.1007/s00294-018-0823-y](#).
- Obolski, U.*, **Ram, Y.***, Hadany, L. (2018) *Evolution on rugged adaptive landscapes*. Reports on Progress in Physics, 81: 12602. DOI: [10.1088/1361-6633/aa94d4](#).
- Dellus-Gur, E., **Ram, Y.**, Hadany, L. (2017) *Errors in mutagenesis and the benefit of cell-to-cell signalling in the evolution of stress-induced mutagenesis*. Royal Society Open Science, 4:170529. DOI: [10.1098/rsos.170529](#).
- Obolski, U., Lewin-Epstein, O., Even-Tov, E., **Ram, Y.**, Hadany, L. (2017) *With a little help from my friends: cooperation can accelerate the rate of adaptive valley crossing*. BMC Evolutionary Biology, 17:143. DOI: [10.1186/s12862-017-0983-2](#).
- Rougier, N.P., . . . , **Ram, Y.**, et al. (2017) *Sustainable computational science: the ReScience initiative*. PeerJ Computer Science, 3: e142. DOI: [10.7717/peerj-cs.142](#).
- Ram, Y.**, Hadany, L. (2016) *Condition-dependent sex: who does it, when, and why?*. Philosophical Transactions of the Royal Society B, 371: 20150539. DOI: [10.1098/rstb.2015.0539](#).
- Ram, Y.**, Hadany, L. (2015) *The probability of improvement in Fisher's geometric model: a probabilistic approach*. Theoretical Population Biology, 99: 1-6. DOI: [10.1016/j.tpb.2014.10.004](#).
- Ram, Y.**, Hadany, L. (2014) *Stress-induced mutagenesis and complex adaptation*. Proceedings of the Royal Society B. 281: 20141025. DOI: [10.1098/rspb.2014.1025](#).
- Gueijman, A., Ayali, A., **Ram, Y.**, Hadany, L. (2013) *Dispersing away from bad environments: The evolution of fitness-associated dispersal (FAD) in homogeneous environments*. BMC Evolutionary Biology, 13:125. DOI: [10.1186/1471-2148-13-125](#).
- Ram, Y.**, Hadany, L. (2012) *The evolution of stress-induced hypermutation in asexual populations*. Evolution 66: 2315–2328. DOI: [10.1111/j.1558-5646.2012.01576.x](#).

Teaching Experience

2022–	Senior Lecturer , Tel Aviv University * Evolution (undergraduate course) * Models in Population Biology (graduate course)
2018–2020	Senior Lecturer , Reichman University * Introduction to Computer Science (undergraduate mandatory course) * Scientific Computing with Python (advanced course) * Computational Models in Biology (graduate seminar)
2016–	Technical Instructor , Industry Designed and developed multiple scientific programming workshops Taught 1-5 day workshops in Israel and in California python.yoavram.com
2013–2015	Lecturer , Tel Aviv University Python Programming for Engineers (Engineering Faculty) Python Programming for Biologists (Life Sciences Faculty) Introduction to Programming for Engineers (summer introductory course) Gentle Introduction to Programming (summer introductory course)
2013–2016	Mentoring of undergraduate and graduate students at Hadany Lab Supervised five undergraduate students doing research projects Participated in mentoring of three postgraduate students
2011–2015	Teaching Assistant , Python Programming for Engineers, Tel Aviv University Python Programming for Engineers (Engineering Faculty) Extended Introduction to Computer Science (School of Computer Science) Evolution (Life Sciences Faculty)

Selected Presentations

2025	Invited speaker, <i>BioInference</i> conference, Bardonecchia, Italy
*	Oral presentation, <i>Israel Zoological Society annual meeting</i> , Sde Boqer
2024	Invited speaker & Student poster, <i>Modeling and Theory in Population Biology workshop</i> , Banff International Research Station, Canada
*	Invited speaker, <i>Israeli Society for Evolutionary Biology</i> conference, Hebrew University
2023	Invited speaker, <i>FISEB/ILANIT</i> , Eilat
*	Oral presentation, <i>Gordon Research Conference</i> on Molecular Mechanisms in Evolution, Stonehill College, Easton, MA, USA
*	Oral presentation, <i>Israeli Society for Evolutionary Biology</i> conference, Haifa University
*	Oral presentation, <i>Israeli Society for Evolutionary Biology</i> conference, Haifa University
*	Oral presentation, <i>Israel Zoological Society annual meeting</i> , Tel Hai College
*	Oral presentation, <i>SMB MEPI-PDEE Mini-Conference</i> , Virtual
2022	Oral presentation, <i>International Society for Behavioral Ecology conference</i> , Stockholm, Sweden
*	Oral presentation, <i>Cultural Evolution Society</i> , Aarhus, Denmark (hybrid)
*	Oral presentation, <i>Models in Population Dynamics, Ecology and Evolution conference</i> , Torino, Italy (hybrid)
*	Invited speaker, <i>Israeli Society for Evolutionary Biology</i> conference, Weizmann Institute
*	Invited speaker, <i>1st Annual Conference of the TAU Center for Combating Pandemics</i> , Tel Aviv University
*	Oral presentation, <i>Israel Zoological Society annual meeting</i> , Tel Aviv University
2021	Oral presentation, <i>Culture Conference 2021</i> , virtual conference
*	Oral presentation, <i>Society of Mathematical Biology 2021</i> , virtual conference
2020	Invited speaker, <i>Gruter Institute Squaw Valley Conference</i> on The Evolution of Co-operation, virtual conference
*	Poster presentation, <i>EMBL Conference</i> on Molecular Mechanisms in Evolution and Ecology, virtual conference
*	Invited speaker, <i>TAU Theory-fest</i> , Tel Aviv University
*	Invited speaker, <i>The Language of Evolution & Evolution of Language</i> conference, Weizmann Institute
*	Oral presentation, <i>FISEB/ILANIT</i> , Eilat.
2019	Oral presentation, <i>Gordon Research Conference</i> on Molecular Mechanisms in Evolution, Stonehill College, Easton, MA, USA
*	Oral presentation, <i>Israel Society for Microbiology</i> annual meeting, Weizmann Institute
*	Invited speaker, <i>Socio-Technological Evolution of the Human Species</i> workshop, Safed, Israel
*	Seminar, <i>Center for Genomics and Systems Biology</i> , New York University, New York
*	Session chair & Oral presentation, the <i>First Meeting of the Israeli Society for Evolutionary Biology</i> , Steinhardt Museum of Natural History, Tel Aviv
*	Poster presentation by student, the <i>Israeli Society for Evolutionary Biology conference</i> , Steinhardt Museum of Natural History, Tel Aviv
*	Poster presentation by student, <i>Genetics, Genomics & Evolution</i> , Tel Aviv University
2018	Invited speaker, <i>Genome Evolution Conference</i> , Weizmann Institute
2017	Oral presentation, <i>Evolgenome</i> seminar, Stanford University
*	Poster, <i>Gordon Research Conference</i> on Biological Mechanisms in Evolution, Stonehill College, Easton, MA, USA
*	Oral presentation, <i>Israel Society for Microbiology</i> annual meeting.
*	Oral presentation, <i>FISEB/ILANIT</i> , Eilat.
2016	Seminar, the <i>Instituto Gulbenkian de Ciência</i> , Portugal.

2015	Oral presentation, Gordon Research Conference on Biological Mechanisms in Evolution, Stonehill College, Easton, MA, USA * Poster at the "Forecasting Evolution?" SFB 680 conference in Lisbon, Portugal * Seminar, <i>Institute of Science and Technology</i> , Austria * Short oral presentation, <i>Two2Many</i> Systems Biology Conference, Weizmann Institute
2013	Poster, <i>ESEB 2013</i> in Lisbon, Portugal * Poster, <i>Gordon Research Conference</i> on Biological Mechanisms in Evolution, Stonehill College, Easton, MA, USA * Oral presentation, 5th Annual <i>SIDEER Graduate Symposium</i> , Ben-Gurion University of the Negev, Sede-Boqer Campus
2012	Oral presentation, <i>Genetics, Genomics, and Evolution</i> , Ben-Gurion University of the Negev. DOI: 10.6084/m9.figshare.96049 . * Oral presentation, PopGroup 45 in Nottingham, UK. DOI: 10.6084/m9.figshare.95939 .
2011	Poster, <i>ESEB 2011</i> in Tubingen, Germany. F1000 Posters 2011, 2: 1484.
2010	Poster, <i>SMBE 2010</i> in Lyon, France.
as undergrad	Poster, <i>MMSB</i> in Tel Aviv, Israel, 2010 – Best poster award

Other Academic Activities

Service	
2025	Associate editor, Population Biology Modeling & Theory
2020	Program committee & Session chair, <i>Second Meeting of the Israeli Society for Evolutionary Biology</i>
2019	Program committee & Session chair, <i>First Meeting of the Israeli Society for Evolutionary Biology</i>
2011-2014	Co-organizer, BioMath Student Journal Club, Tel Aviv University