

Curriculum Vitae

Oren Bachar



Personal details

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Languages: Hebrew, English, Arabic

Education

- 2025-present** Postdoctoral researcher in the Max Planck Institute for Terrestrial Microbiology, Marburg, Germany. Department of Biochemistry and Synthetic Metabolism. Host: Prof. Tobias Erb. Project name: developing solar-driven new-to-nature cascades for CO₂ fixation using light-harvesting nanomaterials.
- 2018-2025** PhD (direct track) in Biotechnology and Food Engineering, Technion - Israeli Institute of Technology. Supervisor: Assoc. Prof. Omer Yehezkeli. Dissertation Title: Synthesis of Self-assembled Metal Nanoparticles Using Protein Cages in Living Systems.
- 2014-2018** BSc. (Cum Laude) in Biotechnology and Food engineering, Technion - Israeli Institute of Technology.

Professional Experience and Appointments

- 2018-2019** Guided four undergraduate students from Lehigh University and Boston University during summer fellowships under the supervision of Asst. Prof. Omer Yehezkeli.
- 2017-2018** Graduate final project under the supervision of Prof. Yechezkel Kashi, The Faculty Biotechnology and Food Engineering, Technion-Israel Institute of Technology. Subject Title: The Use of Olive Mill Wastewater as an Alternative Antibiotic Agent in Bioethanol Fermentations. During this study I developed protocols for the isolation of diverse yeast strains found naturally in Olive wastewater for biofuel applications.
- 2016-2018** Research Assistant at "Applied Genomics and Food Microbiology" lab lead by Prof. Yechezkel Kashi. I worked on the development of improved *Saccharomyces cerevisiae* strains for the bioethanol industry.

Teaching

- 2019-2024** Head Teaching Assistant, Biosensors and NanoBio-hybrids (graduate and undergraduate), for six semesters. I took part in the establishment of the new course, developing new laboratory experiments. These state of the art experiments demonstrated the synthesis of different nanomaterials and the design of cutting-edge colorimetric and electrochemical biosensors.
- 2018-2024** Head Teaching Assistant, *Thermodynamics in Biotechnology and Food Engineering* (undergraduate), for six semesters.

Fellowships, Awards and Honors

2025	Minerva Postdoctoral Fellowship.
2025	Best annual published paper award, Faculty of Biotechnology and Food Engineering, Technion.
2023	Best poster award in the 2nd annual synthetic biology meeting in Israel, Ben-Gurion University of the Negev.
2023	Best talk award in memory of Prof. Dan Tawfik, Mechanisms of Life, Advanced Ph.D student symposium, Weizmann Institute of Science
2023	Jacobs award for an excellent publication in exact sciences.
2022	Teaching Assistant Excellence Award - Thermodynamics in Biotechnology and Food Engineering.
2022	Russell Berrie Nanotechnology Institute 1st Prize for excellence in Nanoscience & Nanotechnology.
2022	Russell Berrie Nanotechnology Institute Excellence Fellowship.
2021	Best Ph.D. poster award in Research Day, Department of Biotechnology and Food Engineering, Technion, Israel.
2021	Chemical Science Outstanding Poster Prize at the Chemical Science Symposium: Biohybrid Approaches to Sustainable Energy Conversion.
2020	Zeff, Fine and Daniel Foundations Excellence Scholarship.
2018	B.Sc. graduation cum laude, Faculty of Biotechnology and Food Engineering, Technion.
2017	Technion President's list honor, top 3%
2016-2018	Technion Dean of Biotechnology and Food engineering faculty honor, top 15%

List of Publications

O. Bachar[†], M. Meirovich[†], N. Leshinsky and O. Yehezkeli, "A Microbial/Enzymatic Light-Induced NADPH Regeneration Electrochemical Cells for Continuous Electrosynthesis of Enantioselective Products", *Trends in Biotechnology (In Press)*, 2025. <http://bit.ly/4mR6GyC>

O. Bachar, M. Meirovich & O. Yehezkeli, "Integrated Biotic-abiotic Solar Driven NADPH Regeneration Platform in *E. coli* for Chemical Biomanufacturing Applications", *Advanced Functional Materials*, 34, 2314443, 2024. <https://bit.ly/4lOpBdp>

M. Meirovich, **O. Bachar**, M. Shemesh, Y. Cohen, A. Popik and O. Yehezkeli, "Light-driven, Bias-Free Nitrogenase-Based Bioelectrochemical Cell for Ammonia Generation", *Biosensors and Bioelectronics*, 255, 116254, 2024. <https://bit.ly/4d0mLOT>

Y. Zeibaq, **O. Bachar**, J. Sklyar, N. Adir, and O. Yehezkeli, "A Bioengineered Stable Protein 1-Hemin Complex with Enhanced Peroxidase-Like Catalytic Properties", *Small Science*, 2400025, 2024. <https://bit.ly/42ysFTv>

O. Bachar, R. Cohen, M. Meirovich, Y. Cohen and O. Yehezkeli, "Biotic-Abiotic hybrids for Bioanalytics and Biocatalysis", *Current Opinion in Biotechnology*, 81:102943, 2023. <https://bit.ly/44HAGGU>

R. Cohen, N. Herzallh, **O. Bachar**, M. Meirovich, L. Frech, Y. Cohen & O. Yehezkeli "An Oxygen-Insensitive Biosensor and a Biofuel Cell Device based on FMN L-Lactate Dehydrogenase", *Bioelectrochemistry*, 149, 108316, 2023. <https://bit.ly/3RyQ6Wr>

O. Bachar, M. Meirovich, Y. Zeibaq & O. Yehezkeli, "Protein-Mediated Biosynthesis of Semiconductor Nanocrystals for Photocatalytic NAD(P)H Regeneration and Chiral Amine Production ", *Angewandte Chemie International Edition*, 61, e202202457, 2022. <https://bit.ly/3UStumd>

S. Gihaz, N. Herzallh, Y. Cohen, **O. Bachar**, A. Fishman, and O. Yehezkeli, "The Structure of Bilirubin Oxidase from *Bacillus pumilus* Reveals a Unique Disulfide Bond for Site-specific Direct Electron Transfer", *Biosensors*, 12, 258, 2022. <https://bit.ly/4jTVyzb>

M. Meirovich, **O. Bachar**, Ramesh Nandi, Nadav Amdursky & O. Yehezkeli "Tailoring QDs Sizes for Optimal Photoinduced Catalytic Activation of Nitrogenase", *ChemSusChem*, 14, 1-8, 2021. <https://bit.ly/42PVrxM>

O. Bachar, M. Meirovich, R. Kurzion & O. Yehezkeli, "in Vivo and in Vitro Protein Mediated Synthesis of Palladium Nanoparticles for Hydrogenation Reactions", *Chemical Communications*, 56, 11211-11214, 2020. <https://bit.ly/4ixmJyI>

M. Meirovich, **O. Bachar** & O. Yehezkeli, "Artificial, Photoinduced Activation of Nitrogenase Using Directed and Mediated Electron Transfer Processes", *Catalysts*, 10, 979, 2020. <https://bit.ly/4lPQ9uC>

Activities and Skills

2023 Plus500 Award for Outstanding Volunteer Service.

2020-2025 ALEH - a non-profit organization that supports visual impaired and blind students in Israel. I take part in a running group for visual impaired and blind people.

2017-2020 "Amcha" - social support services for Holocaust survivors, volunteer. Meeting weekly a Holocaust survivor and taking part in many activities to support Holocaust survivors.