





Curriculum Vitae

Yinon Moise Bar-On

Personal Details

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Nationality	Israeli	Address at work	Division of Geological and Planetary Sciences, California Institute of Technology, 1200 E California Blvd, Pasadena, CA, 91125
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Education

2023-	Postdoctoral researcher	California Institute of Technology
2017-2022	Ph.D	Ron Milo's lab, Department of Plant & Environmental Sciences, Weizmann Institute of Science <u>Thesis</u> : A Quantitative View of the Biosphere
2014-2016	M.Sc	Ron Milo's lab, Department of Plant & Environmental Sciences, Weizmann Institute of Science <u>Thesis</u> : The biomass distribution on Earth; <u>Grades</u> : Thesis – 100, GPA: 95.7
2011-2014	B.Sc	Tel-Aviv University. B.Sc in biology GPA: 99, Summa Cum Laude

Honors and Awards

2023	Schmidt Science Fellow
2023	Rothschild fellowship for postdoctoral studies
2022	Honorable mention, International Birnstiel Award for Doctoral Research in Molecular Life Sciences
2022	Daniel Brenner Memorial Prize for PhD Students
2021	Letter of appreciation for outstanding contribution in addressing the COVID-19 pandemic by the Director General of the Israeli Ministry of Health
2020	Elected for participation in the 70 th Lindau Laureate Meeting
2019	Best poster award, "Advances in complex systems" course at the Lake Como School of Advanced Studies
2018-2022	Azrieli Foundation fellowship for outstanding Ph.D students
2017	Winning proposal in the research-award competition "Innovative awards - 4th round" hosted by the Systems Biology forum, granted \$10,000.
2017	Susan Sapir Memorial Prize for MSc Students
2015	Winning proposal in the research-award competition "Learning from Cellular Heterogeneity" hosted by the Systems Biology forum, granted \$10,000.
2014	Rector's award for outstanding academic excellence, Tel-Aviv University
2014	Dean's award for outstanding academic excellence, Biology faculty, Tel-Aviv University
2013	Elad Granadir scholarship for excellence, Tel-Aviv University
2013	Dean's award for outstanding academic excellence, Biology faculty, Tel-Aviv University
2013	Rector's award for outstanding academic excellence, Tel-Aviv University
2012	Dean's award for outstanding academic excellence, Tel-Aviv University

Invited Lectures

- June 2022 Departmental Seminar, California Institute of Technology, “A quantitative view of the biosphere”, Pasadena, CA
- May 2022 “The total mass and average rate of rubisco”, EGU General Assembly 2022, Vienna, Austria
- March 2020 “The Organism and its Environment” EMBL Symposium, “The Biomass Distribution on Earth”, Heidelberg, Germany
- May 2019 Departmental Seminar, Inter-University Institute for Marine Sciences, “The Biomass Distribution on Earth”, Eilat, Israel
- June 2018 Departmental Seminar, Hebrew University, “The Biomass Distribution on Earth”, Revohot, Israel
- Oct. 2017 Departmental Seminar, University of Haifa, “The Biomass Distribution on Earth”, Haifa, Israel
- Sept. 2017 Seminar at the University of Osaka, “A quantitative view of the biosphere: from the most abundant taxa to the most abundant proteins”, Osaka, Japan
- Sept. 2017 Departmental Seminar, University of Hiroshima, “A quantitative view of the biosphere: from the most abundant taxa to the most abundant proteins”, Hiroshima, Japan
- Sept. 2017 55th Annual meeting of the biophysical society of Japan, “A quantitative view of the biosphere: from the most abundant taxa to the most abundant proteins”, Kumamoto, Japan
- Aug. 2017 MIT Microbial Systems Seminar Series, “The distribution of Biomass on Earth”, Boston, USA

Volunteering and Educational Work

- 2018-2022 Volunteering at the science communication unit, Davidson Institute of Science Education
- 2017-2019 Teaching assistant in the graduate course “*Cell biology by the numbers*”, given by Prof. Ron Milo, fall semester 2017-18
- 2017-2019 Mentor at the “*Alpha program*” for gifted students, Davidson Institute of Science Education

International training

- July 2019 “*Advances in complex systems*” course at the Lake Como School of Advanced Studies
- June-Aug. 2017 “*Microbial Diversity*” course at the Marine Biological Lab, Woods Hole, MA, USA (20 participants)

List of publications

Park, S. W., Sun, K., Abbott, S., Sender, R., **Bar-On, Y. M.**, Weitz, J. S., ... & Dushoff, J. (2023). Inferring the differences in incubation-period and generation-interval distributions of the Delta and Omicron variants of SARS-CoV-2. *PNAS*, *120*(22), e2221887120.

Amir, O., Goldberg, Y., Mandel, M., **Bar-On, Y. M.**, Freedman, L. S., Bodenheimer, O., ... & Milo, R. (2023). Three phases of increasing complexity in estimating vaccine protection. *International Journal of Epidemiology*, dyad073.

Amir, O., Goldberg, Y., Mandel, M., **Bar-On, Y. M.**, Bodenheimer, O., Freedman, L., ... & Milo, R. (2023). Protection against Omicron BA. 1/BA. 2 severe disease 0–7 months after BNT162b2 booster. *Communications biology*, *6*(1), 315.

Greenspoon, L., Krieger, E., Sender, R., Rosenberg, Y., **Bar-On, Y.M.**, Moran, U., Antman, T., Meiri, S., Roll, U., Noor, E. and Milo, R., 2023. The global biomass of wild mammals. *PNAS*, *120*(10), p.e2204892120.

Rosenberg, Y.*, **Bar-On, Y.M.***, Fromm, A., Ostikar, M., Shoshany, A., Giz, O. and Milo, R., 2023. The global biomass and number of terrestrial arthropods. *Science Advances*, *9*(5), p.eabq4049.

*Equal contribution

- Bar-On, Y.**, Baron, T., Cornfeld, O. and Yashiv, E., 2023. When to Lock, Not Whom: Managing Epidemics Using Time-Based Restrictions. *Review of Economic Dynamics*.
- Amir, O., Goldberg, Y., Mandel, M., **Bar-On, Y.M.**, Bodenheimer, O., Freedman, L., Ash, N., Alroy-Preis, S., Huppert, A. and Milo, R., 2023. Initial protection against SARS-CoV-2 omicron lineage infection in children and adolescents by BNT162b2 in Israel: an observational study. *The Lancet Infectious Diseases*, 23(1), pp.67-73.
- Chure, G., Banks, R.A., Flamholz, A.I., Sarai, N.S., Kamb, M., Lopez-Gomez, I., **Bar-On, Y.**, Milo, R. and Phillips, R., 2022. Anthroponumbers. org: A quantitative database of human impacts on Planet Earth. *Patterns*, 3(9), p.100552.
- Sender, R.* **Bar-On, Y.***, Park, S.W., Noor, E., Dushoff, J. and Milo, R., 2022. The unmitigated profile of COVID-19 infectiousness. *eLife*, 11, p.e79134.
*Equal contribution
- Goldberg, Y., Mandel, M., **Bar-On, Y.M.**, Bodenheimer, O., Freedman, L.S., Ash, N., Alroy-Preis, S., Huppert, A. and Milo, R., 2022. Protection and Waning of Natural and Hybrid Immunity to SARS-CoV-2. *New England Journal of Medicine*.
- Amir, O., Goldberg, Y., Mandel, M., **Bar-On, Y.M.**, Bodenheimer, O., Ash, N., Alroy-Preis, S., Huppert, A. and Milo, R., 2022. Protection following BNT162b2 booster in adolescents substantially exceeds that of a fresh 2-dose vaccine. *Nature communications*, 13(1), pp.1-5.
- Bar-On, Y.M.***, Goldberg, Y.* Mandel, M., Bodenheimer, O., Amir, O., Freedman, L., Alroy-Preis, S., Ash, N., Huppert, A. and Milo, R., 2022. Protection by a Fourth Dose of BNT162b2 against Omicron in Israel. *New England Journal of Medicine*.
*Equal contribution
- Bar-On, Y.M.***, Goldberg, Y.* Mandel, M., Bodenheimer, O., Freedman, L., Alroy-Preis, S., Ash, N., Huppert, A. and Milo, R., 2021. Protection Across Age Groups of BNT162b2 Vaccine Booster against Covid-19. *New England Journal of Medicine*, 385(26), pp. 2421-2430 *Equal contribution
- Hatton, I.A., Heneghan, R.F., **Bar-On, Y.M.** and Galbraith, E.D., 2021. The global ocean size-spectrum from bacteria to whales. *Science Advances*, 7(46), abh3732.
- Bar-On, Y.M.***, Goldberg, Y.* Mandel, M.* Bodenheimer, O., Freedman, L., Kalkstein, N., Mizrahi, B., Alroy-Preis, S., Ash, N., Milo, R. and Huppert, A., 2021. Protection of BNT162b2 vaccine booster against covid-19 in Israel. *New England Journal of Medicine*, 385(15), pp.1393-1400. *Equal contribution
- Sender, R.* **Bar-On, Y.M.***, Flamholz, A., Gleizer, S., Bernsthein, B., Phillips, R., Milo, R., The total number and mass of SARS-CoV-2 virions in an infected person. (2021). *PNAS*, 118 (25), e2024815118. *Equal contribution
- Elhacham, E., Ben-Uri, L., Grozovski, J., **Bar-On Y.M.**, Milo, R., Global human-made mass exceeds all living biomass. (2020). *Nature*, 588 (7838), 442-444.
- Gliezer, S.* **Bar-On, Y.M.***, Ben-Nissan, R.* Milo, R., Engineering Microbes to Produce Fuel, Commodities, and Food from CO₂. (2020). *Cell Reports Physical Science*, 100223. *Equal contribution
- Davidi, D., Shamshoum, M., Guo, Z., **Bar-On, Y.M.**, ... & Milo, R. Highly active rubiscos discovered by systematic interrogation of natural sequence diversity. (2020). *The EMBO Journal*, 39(18), e104081.
- Tsy-pin, L.M., Saunders, S.H., **Bar-On, Y.M.**, Leadbetter, J.R., Newman, D.K., Draft genome sequence of the redox-active enteric bacterium *Citrobacter portucalensis*. (2020). *Microbiology Resource Announcements*, 9 (32).
- Bar-On, Y.M.**, Flamholz, A., Phillips, R., Milo, R., SARS-CoV-2 (COVID-19) by the numbers. (2020). *eLife*, 9, e57309.
- Bar-On, Y.M.**, Milo, R. The biomass composition of the oceans - a blueprint of our blue planet. (2019). *Cell*, 179(6), 1451-1454.
- Gleizer, S., Ben-Nissan, R., Antonovsky, N., **Bar-On, Y.M.**, Zohar, Y., ... & Milo, R. (2019). Conversion of *Escherichia coli* to generate all biomass carbon from CO₂. *Cell*, 179(16), 1255-1263. e12.
- Flamholz, A. I., Prywes, N., Moran, U., Davidi, D., **Bar-On, Y. M.**, Oltrogge, L. M., ... & Milo, R. (2019). Revisiting Tradeoffs between Rubisco Kinetic Parameters. *Biochemistry*, 58(31), 3365-3376.
- Bar-On, Y.M.**, Milo, R. (2019). Towards a quantitative view of the global ubiquity of biofilms. *Nature Reviews Microbiology*, 17, 199-200.

- Strauss, S. K., Schirman, D., Jona, G., Brooks, A. N., Kunjapur, A. M., Ba, A. N. N., ... **Bar-On Y.M.**, ... & Yona, A. H. (2019). Evolthon: A community endeavor to evolve lab evolution. *PLoS biology*, 17(3), e3000182.
- Bar-On, Y. M.**, & Milo, R. (2019). The global mass and average rate of rubisco. *PNAS*, 116(10), 4738-4743.
- Bar-On, Y. M.**, Phillips, R., & Milo, R. (2018). The biomass distribution on Earth. *PNAS*, 115(25), 6506-6511.
- Herz, E., Antonovsky, N., **Bar-On, Y.M.**, Davidi, Gleizer, S., ... & Milo, R. (2017). The genetic basis for the adaptation of E. coli to sugar synthesis from CO₂. *Nature Communications*, 8, 1705.
- Barenholz, U., Davidi, D., Reznik, E., **Bar-On, Y.M.**, Antonovsky, N., Noor, E., & Milo, R. (2017). Design principles of autocatalytic cycles constrain enzyme kinetics and force low substrate saturation at flux branch points. *eLife*, 6, e20667.
- Antonovsky, N., Gleizer, S., Noor, E., Zohar, Y., Herz, E., Barenholz, U., ... **Bar-On Y.M.**, ... & Milo, R. (2016). Sugar synthesis from CO₂ in Escherichia coli. *Cell*, 166(1), 115-125.
- Murphy, M., Clare, E. L., Rydell, J., Yovel, Y., **Bar-On, Y.M.**, Oelbaum, P., & Fenton, M. B. (2016). Opportunistic use of banana flower bracts by Glossophaga soricina. *Acta Chiropterologica*, 18(1), 209-213.
- Shamir, M., **Bar-On, Y.M.**, Phillips, R., & Milo, R. (2016). Snapshot: timescales in cell biology. *Cell*, 164(6), 1302-1302.
- Boonman, A. *, **Bar-On, Y.M.***, Cvikel, N., & Yovel, Y. (2013). It's not black or white—on the range of vision and echolocation in echolocating bats. *Frontiers in physiology*, 4. *Equal contribution