

# CURRICULUM VITAE – RON MILO

## A. Personal details

*Name:* Ron Milo  
*Date and place of birth:* 11 Feb 1975, Haifa, Israel  
*Sex:* Male  
*Nationality:* Israeli  
*Marital status:* Married + 3 (cute) daughters

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## B. Education

2006-2008: Harvard Medical School, Boston, USA – Harvard Systems Biology Fellow.  
Advisor Prof. Marc Kirschner

2005-2006: Weizmann Institute of Science – post-doctoral fellow, Alon lab

2001-2005: Weizmann Institute of Science – Ph.D. biological physics.  
Advisor Prof. Uri Alon  
Thesis subject:  
"Analyzing complex biological networks: Network motifs,  
Super-families and towards dynamic proteomics"

1997-1999: Tel-Aviv University - M.Sc. Electrical Engineering.

1993-1996: Hebrew University of Jerusalem - B.Sc. in Physics and Mathematics with  
distinction

## C. Employment History

2019-present Full Professor in the Department of Plant and Environmental Sciences, Weizmann  
Institute of Science. The Charles and Louise Gartner professional chair

2014-2019 Associate Professor in the Department of Plant and Environmental Sciences,  
Weizmann Institute of Science. The Charles and Louise Gartner professional chair

2008-2014 Senior scientist in the Department of Plant Sciences, Weizmann Institute of Science

2006-2008 Harvard Medical School – Harvard Systems Biology Fellow

## **D. Academic administration**

### ***Institutional service activities***

- Chairperson of committee of the honorary lifetime achievement award of the Israeli society of ecology and environmental sciences (2018-present)
- Member of executive board of the Israeli society of ecology and environmental sciences (2018-present)
- Chairperson, Science and Technology in elementary and middle schools steering committee, Israel ministry of Education (2017-present)
- Head, Sustainability and Energy Research Initiative at Weizmann (2017-present)
- Weizmann scientific council steering committee member (2017-present)
- Head, Israel young academy of sciences (2015-2017)
- Head, Beck Canadian center for alternative energy research at Weizmann (2017-present)
- Member of steering committee for Weizmann new research grants and projects website
- Member of committee for the evaluation of the Weizmann female postdoc fellowships program
- Member of steering committee of Weizmann visitor center
- Life sciences senior scientists' day, 2011, Organizer (with Nachum Ulanovsky).
- Founding member and coordinator, Weizmann young PI forum ([www.weizmann.ac.il/YoungPI](http://www.weizmann.ac.il/YoungPI))
- Head of the green and sustainable campus task force nominated by Weizmann president, [www.weizmann.ac.il/Green](http://www.weizmann.ac.il/Green) (2010-present)

## **E. Other appointments**

### ***Teaching experience***

- 2019-2020: "Cell Biology by the Numbers", Feinberg graduate school, WIS (40 students).
- 2018-2019: "Cell Biology by the Numbers", Feinberg graduate school, WIS (40 students).
- 2017-2018: "Cell Biology by the Numbers", Feinberg graduate school, WIS (50 students).
- 2015-2016: "Cell Biology by the Numbers", Feinberg graduate school, WIS (50 students).
- 2014-2015: "Cell Biology by the Numbers", Feinberg graduate school, WIS (40 students).
- 2013-2014: "Cell Biology by the Numbers", Feinberg graduate school, WIS (50 students).
- 2010: "Plant biology", Feinberg graduate school, WIS (science teachers track, with members of the Plant Sciences department).
- 2010: "Photosynthesis in a changing world", Feinberg graduate school, WIS (with members of the Plant Sciences department).
- 2010: APH161, "Physical biology of the cell", Cold spring harbor laboratory winter mini-course, (with Prof. Rob Phillips, Caltech & Prof. Julie Theriot Stanford).
- 2009, 2010: "Renewable/Sustainable energy", Feinberg graduate school, WIS (with Prof. David Cahen).
- 2007: Guest lecturer, Harvard university; Course: Adaptation in biology

- 2004-2005: Teaching fellow, WIS, Course: Introduction to systems biology
- 2000-2002: Teaching fellow, School of physics Hebrew University Jerusalem. Courses: Waves and optics; Advanced laboratory in physics

### ***Student examiner***

- M.Sc. candidates admission committees to the Weizmann Institute biology and bioinformatics tracks.
- Ph.D. advisory committee: Zvi Tamari (Barkai lab), Nir Waysbort (Friedman lab), Alon Wellner (Tawfik lab), Michal Breker (Schuldiner lab), Sivan Navon (Pilpel lab), Uria Alcolombri (Vardi lab), Shai Fleyshon (Pick lab), Tamir Biezuner (Shapiro lab), Pablo Szekely (Alon lab), Guy Polturak (Aharoni lab), Yael Korem (Alon lab), Uri Weill (Schuldiner lab), Hila Sheftel (Alon lab), Yonit Ben David (Bayer lab), Ido Rog (Klein lab), Huanhuan Wang (Yakir lab)
- MSc examiner: Assaf Carmi, Idan Frumkin (Pilpel lab), Irit Schachrai (Alon lab), Leeat Yankilevitch (Segal lab), Hila Sheftel (Alon lab), Guy Gaziv (Alon lab).
- PhD examiner: Yoni Savir (Tlusty lab), Danny Ben Zvi (Barkai lab), Sergey Malitsky (Aharony lab), Shira Mintz (Aharony lab), Menny Kirma (Galili lab), Tamir Klein (Yakir lab), Johanna Stern (Bayer lab), Idan Frumkin (Pilpel lab).
- External thesis examiner and advisory board: Tomer Benyamini (Ruppim and Sharan lab, Tel Aviv University), Naama Tepper (Shlomi lab, Technion), Noa Gordin (Eichler lab, BGU), Dimitry Moch (Shlomi lab, Technion), Alon Stern (Shlomi lab, Technion), Shir Tariki (Kissinger lab, BGU).

### ***Peer reviewer***

- Scientific journals, ≈10 manuscripts per year (including Science, PNAS, Cell, eLife (also as guest editor), JACS, Nature Chemical Biology, Molecular Systems Biology, PLOS Computational Biology, Plant Physiology, Biophysical Journal, FEBS Letters, Plant Science, J. Exp. Botany, BMC systems biology, Trends in Plant Science, Metabolites, NAR, PLOS ONE, Computational and Structural Biotechnology Journal, Metabolic Engineering, Scientific Reports, Environmental Microbiology, Synthetic Biology, Biochemical Society Transactions, Small Ruminant Research, Clinical and Experimental Pharmacology and Physiology, Bioinformatics, Science Advances, Nature Communications, Biotechnology Advances, Cell Stress and Chaperones, Elementa, Cell Systems, Microbial cell factories, Surveys in Geophysics, Biochemical Society Transactions).
- Grant applications from Israel and abroad (HFSP, BSF, ISF, BARD, Swiss national science foundation, Dutch organization for scientific research-NWO, Portugal ministry of science, Israel Ministry of agriculture, Israel Ministry of Science).

## **F. International Recognition**

### ***Honors and awards***

- 2019 Elected EMBO member
- 2013 Weizmann Institute Scientific Council award
- 2012 EMBO Young Investigator Program
- 2010 Thomson-Reuters International Excellence in Scientific Research recognition for 2000-2009 (based on ISI highly cited paper)
- 2008 Yigal Alon Fellowship award by the Council for Higher Education in Israel
- 2006 Recipient of the GE & Science Prize for Young Life Scientists “All Other Countries” category winner
- 2006 Recipient of the Kennedy Prize, Weizmann Institute
- 2005 Recipient of the Helinger Memorial Prize, Weizmann Institute
- 2004 Recipient of the D.N.Chorafas international Ph.D. award
- 2004 Recipient of the Israeli parliament award for university students
- 2004 Recipient of the Dean's award for excellence at the Weizmann Institute
- 2002 Recipient of the Horowitz center for complexity science Ph.D. Scholarship
- 1998 Recipient of the Trozki Scholarship for outstanding achievements
- 1997 Recipient of the Tel-Aviv University School of Engineering Scholarship for Outstanding Achievements
- 1994 Dean's list in Faculty of Exact Sciences of Hebrew University of Jerusalem
- 1992 Recipient of the Amos-De-Schalit Scholarship for research work done in a summer workshop at the Weizmann Institute; Chosen for Weizmann Institute Delegation to Young Scientist International Conference in London.
- 1990 First place in National Physics Olympiad, Technion and Israel national museum of science

### ***Conferences and Workshops Organization***

- 2019 Organizer of session in the annual conference of the Israeli society for ecology and the environment, at the Tel Aviv university.
- 2018 Organizing committee annual conference of the Israeli society for ecology and the environment, at the Weizmann Institute.
- 2018 Panel organizer and leader, “The future of Israeli science education”, Tel Aviv University.
- 2018 Overseeing the students organizing committee, “Synthetic Biology Applications for a Livable Future”, at the Weizmann Institute.
- 2017 Organizer & chair of session conference on “Food for today and tomorrow” at the Weizmann Institute.
- 2016 Member of organizing committee of sustainable food systems conference, TAU.

- 2015 Organizer and chair of session on “Food security and sustainability” in the annual meeting of the Israeli society for ecology and environmental studies, Jerusalem.
- 2013 Invited chair of 16<sup>th</sup> International conference of photosynthesis research session on “Regulation of C3 carbon reduction cycle”, St. Louis, USA
- 2015 Chair of session in the annual meeting of the Israeli society for ecology and environmental studies, HUJI.
- 2013 Chair and organizer of session in annual meeting of the Israeli society for microbiology, “Evolutionary Processes in Microbiology”, Bar Ilan University, Israel
- 2011 Session chair and workshop organizer (“Sustainability and Systems biology”) at the Weizmann-Harvard meeting on systems biology
- 2010 Weizmann systems biology annual retreat (with Eran Segal)
- 2010 Department of plant sciences retreat (with Dror Noy)

### ***Lectures at Congresses and Workshops***

1. Synthetic biology against climate change, “Sugar synthesis from CO<sub>2</sub> in E. coli”, Boston University, Dec. 2019.
2. Joshua Lederberg - John von Neumann Symposium, “The biomass distribution on Earth”, Rockefeller University, Nov. 2019.
3. EMBL faculty retreat, “The biomass distribution on Earth”, Germany, Sept. 2019.
4. Big data in health care symposium, “The number of human and bacteria cells in the body and their turnover rates” WIS, May, 2019.
5. Dynamo-Laboratory of Excellence symposium key note speaker, “The biomass distribution on Earth”, Paris, Mar. 2019
6. Weizmann biophysics school, “The biomass distribution on Earth”, Rehovot, Oct. 2018.
7. International Symposium on Synthetic Biology in Photosynthesis Research, “Lessons from synthetic engineering of carbon fixation”, Shanghai China, Aug. 2018.
8. MBL course on physiology, “The biomass distribution on Earth”, Woods Hole, USA, Jul. 2018.
9. Optimization and Trade-offs in Cell Growth and Survival, “The biomass distribution on Earth”, Weizmann Institute, Feb. 2018.
10. How to change the world conference, “The biomass distribution on Earth”, Royal Institute of Science London, Nov. 2017.
11. Gordon research conference CO<sub>2</sub> Assimilation in Plants from Genome to Biome, “Sugar synthesis from CO<sub>2</sub> in E. coli”, Italy, May 2017.
12. Ilanit conference of the Israeli federation of biology societies, workshop on soft skills for young researchers, Eilat, Feb. 2017.
13. Evolution and Systems Microbiology session at the Ilanit conference of the Israeli federation of biology societies, “Evolving carbon fixation in the lab”, Eilat, Feb. 2017.
14. Keynote speaker at conference on facing high throughput data analysis challenges in life sciences, Tel-Hai college, “Sugar synthesis from CO<sub>2</sub> in E. coli”, Dec. 2016.
15. Keynote speaker at the 17<sup>th</sup> International conference on photosynthesis research, “Sugar synthesis from CO<sub>2</sub> in E. coli”, Maastricht, Aug. 2016.
16. Sustainable food systems conference, “Land, water and GHG burdens of meat, eggs and dairy production”, Tel Aviv University, June 2016.
17. Harvard plant biology initiative annual symposium, “Evolving carbon fixation in the lab”, Boston, May 2016.
18. Batsheva de Rothschild conf. on breaking yield barriers of crop plants, “Redesigning carbon fixation through computational & evolutionary approaches”, Ein Gedi, Mar. 2016.
19. European winter school on systems biology, “Cell biology by the numbers”, Innsbruck, Feb. 2016.
20. Radcliffe meeting on Gene expression by the numbers, “A minimalistic resource allocation model explains ubiquitous increase in proteins expression with growth rate”, Boston, June 2015.
21. Microbial ecogenomics in agriculture symposium, “Can E. coli be evolved to perform carbon fixation?”, Hagshrim, May 2015.

22. EMBO Young Investigator program symposium, "Can E. coli be evolved to perform carbon fixation?", Barcelona, May 2015.
23. Migal-Leopoldina-FEMS symposium, Microbiology 2015 - Health and Environment, "Rewiring E. coli central metabolism for carbon fixation", Hagoshrim, Mar. 2015.
24. Meeting of the German & Israeli young academics, "BioNumbers & Proteomaps: Cell Biology by the Numbers made accessible and visual", Jerusalem, Feb. 2015.
25. The sounds of photosynthesis, WIS, "Rewiring E. coli central metabolism for carbon fixation", Feb. 2015.
26. Chemistry and biotechnology at the service of humanity symposium, Technion, Israel, Oct. 2014.
27. Workshop on the Economy of a Cell: Resource Allocation, Trade-Offs and Efficiency in Living Systems, Trieste, Italy, June 2014.
28. Yale-Weizmann symposia, WIS, "Rethinking carbon fixation", Jan 2014
29. Keynote speaker at SB@NL systems biology conference, Nov 2013, "Rethinking carbon fixation"
30. Israeli Society of ecology and the environment annual meeting, "Multi-Metric Environmental Costs of Animal-Based Categories of the United States' Diet", HUJI, Oct. 2013
31. Speaker and session head at the 16<sup>th</sup> International society of photosynthesis research meeting, St. Louis, Aug 2013, "Rethinking carbon fixation"
32. Israeli Society of microbiology annual meeting, "microbiology by the numbers", Bar Ilan University, Feb. 2013
33. Weizmann-Jefferson symposia, WIS, "Rethinking carbon fixation", Jan 2013
34. From molecules to networks conference memorizing Efraim Katzir legacy, "Lessons from genome wide quantitative proteomics studies", WIS, Nov 2012
35. Invited as keynote speaker to the Gordon research seminar on "Molecular Basis of Microbial One-Carbon Metabolism" (lecture delivered by my student due to family constraints), August 2012.
36. ETH life sciences symposium, key note speaker, "Rethinking carbon fixation", Davos, June 2012
37. Weizmann-Strasbourg symposium, "Rethinking carbon fixation", WIS, Jan 2012
38. Annual meeting of Sunbiopath, "Rethinking carbon fixation", WIS, Jan 2012
39. Technion, BioNorth Shmuel Neeman center, "Rethinking carbon fixation", December 2011
40. Genopole, Paris France, "Rethinking carbon fixation", November 2011
41. International conference of the society for experimental biology, key note speaker, "Rethinking carbon fixation", July 2011, Glasgow
42. Invited speaker to the Gordon research conference on "CO<sub>2</sub> Assimilation in Plants: Genome to Biome (lecture delivered by my student due to family constraints), May 2011.
43. CRI (center for interdisciplinary research) Paris, "BioNumbers- from personal dream to community resource", Mar 2011
44. Weizmann-Harvard meeting on systems biology, "Rethinking carbon fixation", WIS, Mar 2011
45. Ilanit, Eilat, "Rethinking carbon fixation", Feb 2011
46. Made in Weizmann, January 2011, "BioNumbers – the database of useful biological numbers"
47. National Congress of Biochemistry, Porto, Portugal, 10/12/10 (keynote speaker)
48. Systems Biology: Bridging the Gap between Disciplines, Barcelona, Spain, 10/11/10 (keynote speaker)
49. Weizmann-Korean institute of science and technology symposium, WIS, 30/11/10, "Rethinking carbon fixation".
50. International symposium on Signals, Sensing and Plant Primary Metabolism, Potsdam Germany, 7/10/10
51. Cambridge UK, Sainsbury Institute for plant sciences, 8/7/10
52. Israeli Society for biochemistry and molecular biology, WIS, 4/2/10, "Metabolomics"
53. Weizmann-Singapore technology institute symposium, Zichron Yaakov, 10/1/10
54. San Diego/Del Mar, Sainsbury Institute for plant sciences, 20/11/09
55. Ein Gedi/ISF metabolism symposium, 02/11/09
56. Portugal systems biology workshop, Nov 09
57. 2nd International BIOMICS Workshop & Conference, WIS, Aug 09
58. EU Summer course, plant systems biology, Nottingham, UK, Jun 09
59. Israeli Association for Microbiology Conference, Bar Ilan University, Mar 09
60. Nano-course lecturer, optimality models in biology, HMS, USA, May 09
61. Israeli Association for Bioinformatics Conference, WIS, Apr 09
62. Imperial College-WIS workshop, Zichron Yaacov, Jan 09
63. Energy optimization and the design of photosynthesis, March 2009, Avron-Minerva symposium on photosynthesis, Jerusalem, Israel
64. Energy optimization and the design of photosynthesis, June 2008, Gordon research conference, Amherst, USA

65. Energy optimization and the design of photosynthesis, May 2008, Prochlorofest MIT, Cambridge, USA
66. Variability and memory of protein levels in human cells, September 2007, Hebrew University faculty of biology, Jerusalem, Israel
67. Energy optimization and the design of photosynthesis, May 2007, Banbury meeting on design principles in biology conference, Cold spring harbor , USA
68. Variability and memory of protein levels in human cells, August 2006, American Protein society annual meeting, San Diego, USA
69. National Evolutionary Synthesis Center (NESCent) Workshop on Integrated Studies of Genetic Networks: A New Evolutionary Synthesis, Florida, January 2006
70. EMBL young investigators PhD course, Heidelberg, September 2005
71. Okinawa institute for science and technology, International conference on systems biology, Japan, 2005.
72. Mathematical biosciences institute, "Searching for building blocks and design principles in the genetic regulatory network of E. coli", Mathematical Biosciences institute, Ohio state university, Nov 2004
73. Belgian bioinformatics conference 2004, Leuven, Belgium. (Keynote speaker)

### ***Invited seminars***

1. HUJI, dept. of cell and developmental biology seminar, "The biomass distribution on Earth", Jerusalem, May 2019.
2. ETH Zurich, Systems biology seminar, "The biomass distribution on Earth", Switzerland, Apr. 2019.
3. BGU Sde Boker Ecology faculty seminar, "The biomass distribution on Earth", Mar. 2019.
4. WIS physics colloquium, "The biomass distribution on Earth", Feb. 2019.
5. Tel Aviv University, Department of Zoology seminar, "The biomass distribution on Earth", Nov. 2018
6. Israel Institute for Biological Research seminar, "Can E. coli be evolved to perform carbon fixation?", Nes-Ziona, Oct. 2018.
7. ETH Basel seminar, "The biomass distribution on Earth", Switzerland, Aug. 2018.
8. Keynote lecture at the Israeli parliament (Knesset) annual ceremony for young scientists, Mar .2018.
9. Swammerdam Institute for Life Sciences (SILS) of the University of Amsterdam seminar, "The biomass distribution on Earth", Aug. 2017.
10. BGU Sde Boker plants faculty seminar, "Can E. coli be persuaded to make sugar from CO<sub>2</sub>?", Dec 2016.
11. National iGEM meeting, Technion, "Sugar synthesis from CO<sub>2</sub> in E. coli", Sept 2016.
12. Master class at Center Research Interdisciplinary (CRI), Paris, "Sugar synthesis from CO<sub>2</sub> in E. coli", Sept 2016.
13. Technion medical school, "Can E. coli be evolved to perform carbon fixation?", faculty seminar, June 2016.
14. Ben Gurion University, "Can E. coli be evolved to perform carbon fixation?", biology faculty seminar, May 2016.
15. WIS, "Can E. coli be evolved to perform carbon fixation?", metabolism forum, May 2016.
16. WIS, "Can E. coli be evolved to perform carbon fixation?", life sciences colloquium, Apr. 2016.
17. Bar Ilan University, "Can E. coli be evolved to perform carbon fixation?", Nano sciences seminar, Apr. 2016.
18. Haifa University, "Can E. coli be evolved to perform carbon fixation?", Dept. seminar, Mar. 2016.
19. Bar Ilan University, "Can E. coli be evolved to perform carbon fixation?", Biophysics seminar, Jan. 2016.
20. ETH Zurich, "Can E. coli be evolved to perform carbon fixation?", Nov. 2015.
21. Vrije universiteit Amsterdam lunch seminar, "A fully functional Calvin cycle in E. coli", Apr. 2015.
22. Hebrew University, Department of computer science BioForum, "Rewiring E. coli central metabolism for carbon fixation", Oct 2014
23. University of Lausanne (UNIL), Faculty of biology and medicine, biology and integrative genomics lecture series, June 2014
24. Tel Aviv University, Porter school of environmental studies, March 2014
25. Tel-chai college/Migal, Biotechnology unit, "Rethinking carbon fixation", Feb 2014

26. Oxford University, Department of Botany, "Rethinking carbon fixation", April 2013
27. John Innes research center, "Rethinking carbon fixation", April 2013
28. Vulcani Agricultural Research Organization, "Rethinking carbon fixation", Jan 2013
29. Tel Aviv University, Department of molecular and cell biology, "Rethinking carbon fixation", Jan 2013
30. Hebrew University, Department of biological chemistry, "Rethinking carbon fixation", Jan 2013
31. Ben Gurion University, Department of physical chemistry, "Rethinking carbon fixation", Dec 2012
32. WIS, Mathematical principles in biology forum, "Taking a census of the cell proteome", November 2012
33. Ecole Normale Superieure, Paris, "Rethinking carbon fixation", September 2012
34. Berkeley, EBI colloquium, "Rethinking carbon fixation", May 2012
35. Stanford, Carnegie institute seminar, "Rethinking carbon fixation", May 2012
36. Caltech, Biophysics colloquium, "Rethinking carbon fixation", April 2012
37. Hebrew university Jerusalem, Faculty of agriculture, Department of environmental studies, "Rethinking carbon fixation", March 2012
38. WIS, Plant Sciences Department seminar, "Back of the envelope glimpses into cell biology", January 2012
39. WIS, Mathematical principles in biology forum, "Back of the envelope glimpses into cell biology", January 2012
40. Tel Aviv University, Department of earth and planetary sciences, "Rethinking carbon fixation", Nov 2011
41. WIS, Department of environmental science and energy research, "Rethinking carbon fixation", June 2011
42. Tel Aviv University, Department of biotechnology and microbiology, "Rethinking carbon fixation", May 2011
43. Tel Aviv University, Department of ecology and biology of plants, "Rethinking carbon fixation", May 2011
44. Haifa University – Oranim, "Rethinking carbon fixation", April 2011
45. WIS, Forum on mathematical principles in biology, "the moderately proficient enzyme - ", March 2011
46. WIS, department of biological chemistry, "Rethinking carbon fixation", Feb 2011
47. Hebrew University, department of earth sciences, "Rethinking carbon fixation", Feb 2011
48. Ben Gurion University, department of immunology and microbiology, "Rethinking carbon fixation" 11/10
49. Cambridge UK, Department of plant sciences, "Rethinking carbon fixation" 11/10
50. Evogene Inc., "Rethinking carbon fixation" 22/7/10
51. Bar Ilan University, Biology, "Rethinking carbon fixation" 23/6/10
52. Tel Aviv University, Computer science, "Rethinking carbon fixation" 20/5/10
53. Hebrew university Jerusalem, Givat Ram, Department plant sciences and the environment, "Rethinking carbon fixation" 16/5/10
54. Ben Gurion University, Department of biology, "Rethinking carbon fixation" 26/4/10
55. Rethinking carbon metabolism, February 2010, Bat Yaar agricultural research station, Bat Yaar, Israel.
56. Tel Aviv University, Department of cell biology and immunology, Optimality in carbon metabolism, January 2010.
57. Mathematical principles in biology forum, "Rethinking carbon fixation", WIS, 23/12/09
58. Vulcani Agricultural Research Organization, "Rethinking carbon fixation", 2/12/09
59. Department of Plant molecular biology, University of Lausanne, "Optimality in carbon metabolism", 27/8/09
60. Technion, Bioinformatics Forum, "Optimality in carbon metabolism", 11 June 09



61. Plant Sciences Department, Faculty of Agriculture, HUJI, "Optimality in carbon metabolism", Jun 2009
62. MPI Golm, symposium, "Optimality in carbon metabolism", Jun 09
63. Sde Boker, Department Seminar, Ben Gurion University, Apr 09
64. Tel Aviv University, Department of Molecular and ecological Plant biology, "Optimality in carbon metabolism",
65. Mathematical principles in biology forum, "The relationship between physiological and evolutionary adaptations in hemoglobin", WIS, Oct 08
66. Energy optimization and the design of photosynthesis, 2008, Theory lunch Department systems biology, Harvard Medical School, Boston, USA
67. WIS, Department plant sciences, "Energy optimization and the design of photosynthesis", 29/11/2007
68. Mount Sinai Medical School seminar, "Variability and memory of protein levels in human cells", NYC, 2008
69. Faculty of biology, Technion, "Variability and memory of protein levels in human cells", 2008
70. Faculty of biology, Hebrew university Jerusalem, "Variability and memory of protein levels in human cells", 2008
71. MIT department of physics seminar, "Variability and memory of protein levels in human cells" 2007
72. Tufts University, Bioinformatics lectures series, "Variability and memory of protein levels in human cells" 2007
73. Harvard Bauer Center for systems biology forum, "Variability and memory of protein levels in human cells" 9/2/2007
74. Department plant sciences, "Variability and memory of protein levels in human cells", WIS, 7/1/2007
75. Department of biomedical engineering seminar, Boston University, "Variability and memory of protein levels in human cells", 27 September 2006
76. Hebrew university Jerusalem Haddasa, Bioinformatics seminar, "Variability and memory of protein levels in human cells" 20/3/2006
77. Technion, Bioinformatics Forum, "Variability and memory of protein levels in human cells" 9/3/2006
78. MIT cell signaling initiative seminar, "Variability and memory of protein levels in human cells" 2006
79. Harvard division of engineering and applied science seminar, "Variability and memory of protein levels in human cells" 2006
80. UCSF, "Variability and memory of protein levels in human cells" 2006
81. About 10 seminars on PhD research on network motifs prior to 2002-2005

### ***Educational outreach activities***

- 2002-present: >10 outreach lectures at Davidson center for scientific education, including a TEDx education lecture.
- 2008-present: 2-3 lectures a year in high schools, educational programs, NGOs etc.
- 2010, Keynote lecture at the annual meeting of Israeli high school biology teachers
- 2012, Keynote lecture at the annual meeting of Israeli high school chemistry teachers

## **G. Scientific Productivity**

### ***Competitive Grants***

- Singapore-Israel, NRF-ISF (2017-2020): Integrating in vivo and in vitro approaches for metagenomic RuBisCO sequence mining to improve carbon fixation (\$300K/lab). with Dr. Oliver Mueller-Cajar from NTU.

- Israeli science foundation (ISF 740/16; 2016-2021): A fully functional Calvin-Benson cycle in *E. coli* for rapid lab evolution of Rubisco (\$80K/y; Total \$400K).
- European research council (2016-2020): Analysis, Design and Experimental Evolution of Novel Carbon Fixation Pathways (€400K/y; Total €2.0M).
- EMBO young investigator program (2013-2015, €15K/y; Total €45K).
- Kahn Center for Systems Biology of the Human Cell (2011-2012): Mapping the genetic and metabolic rearrangements associated with the adaptation of *E. coli* for growth on the C1 compound formic acid A first step for engineering *E. coli* for cultivation using electricity (\$40K)
- European research council (2011-2015): Synthetic metabolic pathways for carbon fixation (€300K/y; Total €1.5M)
- Alternative energy research initiative Weizmann (2009) – Alternative Carbon Fixation Cycles for Increased Productivity and Sustainable Energy (\$50K)
- Israeli science foundation (ISF; 2008-2011): The quantitative relationship of gene regulation and function to natural environmental conditions in the Lac model system (\$60K/y; Total \$240K).
- Israeli science foundation equipment - Photosynthetic and wild strains high throughput dynamic gene expression characterization facility (\$140K)
- Alternative energy research initiative Weizmann (2008-2010) - GeoNumbers: the useful energy, environment and sustainability numbers database & ecoDollars: the environmental cost of products. (\$60K)
- Yeda-Sela foundation - Investigation of optimality principles in the structure of metabolic networks (\$50K)

## **Lab members**

### **M.Sc. students -**

- Melina, 2018-present
- Lior Greenspon, 2018-present
- Roee Ben-Nissan, 2017-2019
- Taga Shaket, 2017-2018
- Yinon Bar-On, 2015-2016
- Elad Hertz, 2015-2017
- Shmuel Gleizer, 2012-2013
- Shira Amram 2012- 2014
- Ayellet Levin, 2011-2013
- Oren Yishai, 2011-2013
- Niv Antonovsky, 2009-2010

### **Ph.D. students -**

- Roee Ben-Nissan, 2019-present
- Ron Sender, 2018-present

- Yinon Bar-On, 2017-present
- Yonatan Zegman, 2015-2016
- Dan Davidi, 2013-2018
- Alon Shepon, 2013-2018
- Shmuel Gleizer, 2013-2018
- Uri Barenholz, 2012-2016
- Leeat Yankielowicz-Keren (joint with Eran Segal), 2011- 2016
- Lior Zelcbuch, 2011-2015
- Niv Antonovsky, 2011-2015
- Elad Noor, 2009-2013
- Arren Bar Even, 2009-2012

### **Postdoctoral fellows -**

- Shmuel Gleizer, 2018-2020
- Dan Davidi, 2018-2019
- Alon Shepon, 2017-2018
- Noam Prywess, 2016-2018
- David Wernick, 2015-2017
- Niv Antonovsky, 2015-2016
- Alon Wellner, 2013
- Arren Bar Even, 2012-2013
- Libbat Tirosh, 2009-2010

### **Lab technicians -**

- Keren Frish, 2016-2017
- Yehudit Zohar, 2011- 2016

### **Undergraduate workers by the hour -**

Approx. 6 at any given time, >30 in total.

### **Other researchers/programmers**

- Alon Shepon, 2010-2013
- Uri Moran, 2010-present
- Avi Flamholz, 2010-2012
- Wolfram Liebermeister, 2011

## **H. Patents**

- “ENZYMATIC SYSTEMS FOR CARBON FIXATION AND METHODS OF GENERATING SAME” (2010-024) US patent application no. 13/576,720
- “METHOD OF PRODUCTION OF ASTAXANTHIN” (2012-050), Chinese’s application no.: 2013800378485; European Patent application no.: 13820518.2; Japanese patent application no.: 2015-522250; US patent application no.: 14/415,612:

- "USE OF THE REDUCTIVE GLYCINE PATHWAY FOR GENERATING FORMATOTROHIC AND AUTOTROPHIC MICROORGANISMS" (2012-058) US patent application no. 14/417,559, European Patent application no.: 13759023.8; US20150218528A1
- "USE OF ENZYMES WHICH CATALYZE PYRUVATE SYNTHESIS FROM FORMATE AND ACETYL-CoA AND BACTERIA EXPRESSING SAME" (2013-087), PCT patent application no.: PCT/IL2014/051080; US20170081682A1
- "RECOMBINANT MICROORGANISMS CAPABLE OF CARBON FIXATION" (2014-039), PCT patent application No.: PCT/IL2015/050540
- 2 patents from PhD period on network motifs

## **I. Languages**

- Hebrew, English – fluent in reading, writing and speaking