

Ari Meerson, PhD

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Education and Research:

- 2013-pres** MIGAL Galilee Research Institute, Kiryat Shmona, Israel. Head of Genomics lab.
Research interests: molecular links between chronic diseases; roles of non-coding RNAs in human disease; circulating microRNA-based biomarkers; genomics/transcriptomics.
- 2015-2022** University of Copenhagen, Denmark. Guest Researcher, BMI.
- 2009-2013** NIH/NIDDK (Phoenix), AZ, USA. Postdoctoral Fellow. Supervisor: Prof. Leslie Baier.
Initiated a study of microRNAs in the pathologies of obesity and diabetes. Studied the molecular and genetic basis of complex traits by high-throughput methods.
- 2003-2008** Hebrew University, Jerusalem, Israel. PhD program, Department of Biological Chemistry. Advisor: Prof. Hermona Soreq. Thesis: Roles of microRNAs in mammalian stress reactions from blood to brain. PhD, 2009.
- 2001-2003** Feinberg Graduate School of the Weizmann Institute of Science, Rehovot, Israel. MSc program, Department of Molecular Cell Biology. Advisor: Prof. Varda Rotter. MSc, 2004.
- 1999-2001** Hebrew University, Jerusalem, Israel. Faculty of Life Sciences. Honors Program. BSc 2002, *cum laude*, completed in 2 years; Dean's list and scholarship.
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Assay development:

- 2017-pres** Developed a qPCR-based genetic assay for establishing the sex of Russian sturgeon fish, for caviar aquaculture. The method is in commercial use by Caviar Galilee Ltd. since **2021**.
- 2017** Developed a qRT-PCR-based molecular assay for assessing maize late wilt disease (published)
- 2016** Developed an optimized protocol for isolating microRNAs from plasma vesicles (published)
- 2010-2013** Designed multiple genotyping and expression assays for eQTLs
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Teaching and Mentoring:

- 2017-pres** Mentor to 1 PhD student (Hila Yehuda, HUJI), 4 MSc students (Yaniv Eliraz, Akram Hajouj, Rahaf Salalha and Tiferet Schindler, Tel Hai), and 9 undergraduate students (Adi Rubin, Ariel Kelrich, Rahaf Salalha, Shiran Rachel Peretz, Roni Agam, Yuval Shahak, Amit Malka, Artyom Vodnev and Linoy Amsalem (Tel Hai))
- 2017-pres** Tel Hai Academic College, Biotechnology Department. Teaching 6 courses: Developmental Genetics (starting **2017**); microRNAs/RNA World (starting **2020**); Evolution, and Molecular Genetics B (both starting **2021**); Practical Workshop in Genomic Lab Methods, and Big Questions in the Life Sciences (both starting **2023**). Approved for promotion to Senior Lecturer.
- 2018-pres** Tel Hai, Science Faculty. Supervisory committee member for 3 MSc students
- 2016-pres** Tel Hai, Excellence Center. Mentored 8 high school students
- 2009-2012** NIH/NIDDK (Phoenix), AZ, USA. Mentored 3 interns
- 2011-2013** Yeshiva High School of Arizona, Phoenix. Biology, AP Biology and Chemistry instructor
- 2009-2011** Shearim Torah High School for Girls, Phoenix. Biology and AP Biology instructor
- 2004-2008** Hebrew University, Jerusalem, Israel. Teaching assistant in the following courses: Membrane-mediated Molecular Processes, undergraduate course
From Transgene to Protein, PhD laboratory workshop
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Computer Experience:

- Windows, Linux and Mac OS, hardware, software incl. bioinformatics
- 2004-2008** Acting system administrator for the Soreq research group (>20 workstations)
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Military and Voluntary Service:

- 1996-1999** Israel Defense Forces, compulsory service in elite unit. Rank: Sergeant First Class
- 1994-2008** Israel Police Civil Guard, from **2000** special unit
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Languages: English, Hebrew, Russian – excellent; German, French, Spanish, Danish – reading ability

Workshops (selected):

2020	COST DARTER workshop on delivery of RNA therapeutics, Copenhagen, Denmark
2017	Tel Hai Academic College NGS workshop, Kiryat Shmona, Israel
2016	Danish Diabetes Academy Winter School: Diabetes Complications, Málaga, Spain
2014	EMBO High Throughput Sequencing Data Analysis, EMBL/EBI, Cambridge, UK Danish Diabetes Academy "Rising Stars" conference, Aarhus, Denmark
2012	NIH "Scientists Teaching Science" Pedagogy workshop, Bethesda MD GRC, Post-Transcriptional Regulation of Gene Expression, Salve Regina, Newport RI
2011	NIH/NIDDK Grant Writing workshop, Phoenix AZ
2004	EMBO Functional Imaging, NCBS, Bangalore, India

Peer-reviewed research articles: (total citations: >1.5k, Google Scholar)

1. Yehuda H, Madrer N, Goldberg D, Soreq H, **Meerson A**. Inversely Regulated Inflammation-Related Processes Mediate Anxiety–Obesity Links in Zebrafish Larvae and Adults. *Cells* 2023, 12(13), 1794; DOI: 10.3390/cells12131794
2. Degani G, **Meerson A**. Transcriptome variation in Banded newt (*Ommatotriton vittatus*) during its life cycle and adaptation to an unpredictable habitat. *Submitted*
3. Sopić M, Karaduzovic-Hadziabdic K, Kardassis D, Maegdefessel L, Martelli F, **Meerson A**, Munjas J, Loredan Niculescu S, Stoll M, Magni P, Devaux Y. Transcriptomics methods for atherosclerotic plaque characterization. *Submitted*
4. **Meerson A**, Shahar O, Mor I. Editorial: Molecular links between metabolism and neural dysfunction. *Frontiers in Neurosci.* 2023 May; DOI:10.3389/fnins.2023.1212939
5. Degani G, Nevo M, Hajouj A, Hurvitz A, Veksler-Lublinsky I, **Meerson A**. Whole-genome inter-sex variation in Russian sturgeon (*Acipenser gueldenstaedtii*). *Int. J. Mol. Sci.* 2022, 23(16), 9469; DOI: 10.3390/ijms23169469
6. **Meerson A**, Khatib S, Mahajna J. Flavonoids targeting cancer stem cells for augmenting cancer therapeutics. *Int. J. Mol. Sci.* 2021, 22(23), 13044; DOI: 10.3390/ijms222313044
7. Degani G, Veksler-Lublinsky I, **Meerson A**. Markers of Genetic Variation in Blue Gourami (*Trichogaster trichopterus*) as a Model for Labyrinth Fish. *Biology* 2021 10(3), 228
8. Curzon AY, Shirak A, **Meerson A**, Degani G, Hurvitz A, Ben-Naim N, Domovitz R, Ron M and Seroussi E. Cross-species conservation of a transposase-linked element enables genetic sexing of commercial populations of Russian sturgeon (*Acipenser gueldenstaedtii*). *Animal Genetics* 2022, 00, 1–6. DOI: 10.1111/age.13188
9. **Meerson A**. Leptin-responsive miR-4443 is a small regulatory RNA independent of the canonic microRNA biogenesis pathway. *Biomolecules* 2020 Feb; 10(2): 293
10. **Meerson A**, Eliraz Y, Yehuda H, Knight B, Crundwell M, Ferguson D, Lee BP, Harries LW. Obesity impacts the regulation of miR-10b and its targets in primary breast tumors. *BMC Cancer* 2019 Jan; 19:86
11. Blum A, Rohana H, **Meerson A**, Jabaly H, Nahul N, Celesh D, Romanenko O, Tamir S. MicroRNA-423 may regulate diabetic vasculopathy. *Clin Exp Med* 2019 Aug; DOI: 10.1007/s10238-019-00573-8. Free full text: <https://rdcu.be/bO10G>
12. **Meerson A**, Najjar A, Saad E, Sbeit W, Barhoum M, Assy N. Sex differences in plasma microRNA biomarkers of early and complicated diabetes mellitus in Israeli Arab and Jewish patients. *Non-coding RNA* 2019 Apr; 5(2):32
13. Pastukh N#, **Meerson A**#, Kalish D, Jabaly H, Blum A. (#: equal contributors) Serum miR-122 levels correlate with diabetic retinopathy and high cardiovascular mortality rate. *Clin Exp Med* 2019 Jan; DOI: 10.1007/s10238-019-00546-x
14. Degani G, Hurvitz A, Eliraz Y, **Meerson A**. Sex-related gonadal gene expression differences in the Russian sturgeon (*Acipenser gueldenstaedtii*) grown in stable aquaculture conditions. *Animal Rep Sci* 2019 Jan; 200:75-85
15. Degani G, Alon A, Hajouj A, **Meerson A**. Vitellogenesis in the blue gourami is accompanied by brain transcriptome changes. *Fishes* 2019 Oct; 4(4):54
16. Jackson K, Sessler N, Shelly Ben Shushan R, **Meerson A**, LeBaron TW, Tamir S. Effects of alkaline-electrolyzed and hydrogen-rich water, in a high-fat-diet nonalcoholic fatty liver disease mouse model. *World J. Gastroenterol.* 2018 Dec; 24(45):5095-5108
17. Degani O, Movshowitz D, Dor S, **Meerson A**, Goldblat Y, Rabinovitz O. Evaluating Azoxystrobin seed coating against maize late wilt disease using a sensitive qPCR-based method. *Plant Disease* 2018 Jul; DOI: 10.1094/PDIS-05-18-0759-RE
18. Blum A, Yehuda H, Geron N, **Meerson A**. Elevated levels of miR-122 in serum may contribute to improved endothelial function and lower oncologic risk following bariatric surgery. *IMAJ* 2017 Oct; 19:620-4
19. **Meerson A**, Yehuda H. Leptin and insulin up-regulate miR-4443 to suppress NCOA1 and TRAF4, and decrease the invasiveness of human colon cancer cells. *BMC Cancer* 2016 Nov; 16:882
20. **Meerson A**, Ploug T. Assessment of 6 commercial plasma small RNA isolation kits using qRT-PCR and

electrophoretic separation: higher recovery of microRNA following ultracentrifugation. *Biol Methods & Protocols* 2016 Dec; 1:1/bpw003

21. **Meerson A**, Traurig M, Ossowski V, Fleming JM, Mullins M, Baier LJ. Human adipose microRNA-221 is up-regulated in obesity and affects fat metabolism downstream of leptin and TNF α . *Diabetologia* 2013 Sep; 56(9): 1971-9
22. **Meerson A**, Cacheaux L, Goosens KA, Sapolsky R, Soreq H, Kaufer D. Changes in Brain microRNAs Contribute to Cholinergic Stress Reactions. *J Mol Neurosci*. 2010 Jan, 40(1): 47-55
23. Shaked I#, **Meerson A**#, Wolf Y, Avni R, Greenberg D, Gilboa-Geffen A, Soreq H. (#equal contributors) MicroRNA-132 Potentiates Cholinergic Anti-Inflammatory Signaling by Targeting Acetylcholinesterase. *Immunity* 2009 Dec 18; 31(6):965-73 (cover; also featured in News and Views of that issue)
24. Guimaraes-Sternberg C, **Meerson A**, Shaked I, Soreq H. MicroRNA modulation of megakaryoblast fate involves cholinergic signaling. *Leuk Res* 2006 May 30 (5):583-95
25. Shorer H, Amar N, **Meerson A**, Elazar Z. Modulation of N-ethylmaleimide-sensitive factor activity upon amino acid deprivation. *J Biol Chem* 2005 Apr 22; 280(16):16219-26
26. **Meerson A**, Milyavsky M, Rotter V. p53 mediates density-dependent growth arrest. *FEBS Lett* 2004 Feb 13; 559(1-3):152-8
27. Milyavsky M, Shats I, Erez N, Tang X, Senderovich S, **Meerson A**, Tabach Y, Goldfinger N, Ginsberg D, Harris CC, Rotter V. Prolonged culture of telomerase-immortalized human fibroblasts leads to a premalignant phenotype. *Cancer Res* 2003 Nov 1; 63(21):7147-57

Other publications:

1. Schuster R. Israeli Study Finds How Obesity Can Increase Breast Cancer Rates. *HaAretz* 2019 May 19
2. **Meerson A**. How obesity can contribute to spreading colon cancer. *HaAretz* 2016 Dec 22 (Hebrew)

Research Funding, Prizes and Honors (selected):

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| 2021 | The Dr. Raphael Bitzur Young Researcher Award, the Israeli Society for Treatment and Prevention of Atherosclerosis (granted to Rahaf Salalha, MSc student) |
| 2017-2023 | Internal research grants, 3 from MIGAL, 2 from Tel Hai Academic College, 1 collaboration grant from MIGAL/Tel Hai/Ort Braude College |
| 2017 | DiaObesity International Conference, Jerusalem. Invited talk |
| 2016-pres | Member, EU COST actions CA16113 (CliniMARK), CA17103 (Delivery of RNA Therapy), CA20110 (exRNA-PATH). MC Member, CA17129 (CardioRNA), CA21153 (AtheroNET) |
| 2016-2018 | Type 2 diabetes research grant, D-Cure/CSO-MOH |
| 2015-2018 | Visiting Professorship, Danish Diabetes Academy (Novo Nordisk Foundation) |
| 2013-2015 | Gesher Award, Israel Cancer Research Fund/MOST |
| 2014 | Travel Award, The Daniel Turnberg UK/Middle East Travel Fellowship Scheme |
| 2013 | Travel Award, Copenhagen Bioscience Conferences (Novo Nordisk Foundation) |
| 2011 | NIDDK Nancy Nossal Fellowship Award (intramural grant competition) |

Review Activities:

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| 2018-pres | Member, Danish Diabetes Academy Committee for Talent Development |
| 2020-pres | Member of Editorial Board, <i>Diabetology</i> (MDPI); guest editor, <i>International Journal of Molecular Sciences</i> (MDPI); guest editor, <i>Frontiers in Neuroscience - Neuroenergetics, Nutrition, and Brain Health</i> |
| 2014-pres | Invited Reviewer for: American Journal of Physiology – Endocrinology and Metabolism; Aquaculture research; Artificial Cells, Nanomedicine and Biotechnology; Bioengineered; Biology Methods and Protocols; BioMed Research International; Biomedicines; Biomolecules; BMJ Open Ophthalmology; Cancers; Cell Death and Disease; Cells; Diabetes Research and Clinical Practice; Diseases; Endocrine and Metabolic Science; European Journal of Pharmacology; Evidence-based Complementary and Alternative Medicine; FEBS Journal; Frontiers in Cardiovascular Medicine; Frontiers in Molecular Neuroscience; Frontiers in Medicine; Frontiers in Oncology; Gene Reports; Genes; Genomics; Gut; International Journal of Environmental Research and Public Health; International Journal of Molecular Sciences; Journal of Clinical Medicine; Journal of Translational Medicine; JoVE; Metabolites; Molecular Brain; Molecules; Nutrition and Metabolism; PeerJ; Pharmaceuticals; Research Square; RNA Biology; Israel Cancer Association; University of Exeter, UK; Icelandic Research Fund; Hebrew University (Faculty of Sciences; Faculty of Medicine); Ben Gurion University of the Negev. |
| 2012-2013 | Reviewer at American Journal Experts |