Miri Krupkin, PhD

Curriculum Vitae

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Education

2011 – 2016	Ph.D., Structural Biology, Weizmann Institute of Science.
2008 – 2011	M.Sc., Structural Biology, Weizmann Institute of Science.
2005 – 2008	B.Sc., Chemistry, Bar-Ilan University, graduated *magna cum laude*.

Research Experience

2019 - present	Postdoc, laboratory of Joseph Puglisi and Elisabetta Viani Puglisi, Stanford University. Research focus: Architecture of HIV viral RNA
2017 - 2019	Postdoc, laboratory of Katharina Ribbeck, Massachusetts Institute of Technology. Research focus: Mucus in health and disease.
2016 - 2017	Postdoc., laboratory of Ada Yonath, Weizmann Institute of Science. Research focus: *Ribosome structure and function*
2011 - 2016	Ph.D., laboratory of Ada Yonath, Weizmann Institute of Science. Thesis: *The Origin of the Ribosome and its Paralyzation by Antibiotics*.
2009 - 2011	M.Sc., laboratory of Ada Yonath, Weizmann Institute of Science. Thesis: *Towards the Determination of the Structure of Mycobacterium smegmatis Ribosome.*
2008 - 2009	Rotations at Weizmann Institute of Science: Ribosome structure and function, laboratory of Ada Yonath. Organized lipid domains, laboratory of Lia Addadi. Nano and bio composite materials, laboratory of Daniel Wagner.
2007 - 2008	Undergraduate research at Bar Ilan University: Conducting polymers, laboratory of Joseph Frey.

Publications

1. **Krupkin M***, Jackson LN*, Ha B*, Puglisi EV. "Advances in understanding the initiation of HIV-1 reverse transcription". (submitted)
2. Matzov D, Eyal Z, Benhamou RI, Shalev-Benami M, Halfon Y, **Krupkin M**, Zimmerman E, Rozenberg H, Bashan A, Fridman M, Yonath A. "Structural insights of lincosamides targeting the ribosome of Staphylococcus aureus". Nucleic Acids Res. 2017 Sep 29;45(17):10284-10292.
3. Wekselman I, Zimmerman E, Davidovich C, Belousoff M, Matzov D**, Krupkin M**, Rozenberg H, Bashan A, Friedlander G, Kjeldgaard J, Ingmer H, Lindahl L, Zengel JM, Yonath A. "The Ribosomal Protein uL22 Modulates the Shape of the Protein Exit Tunnel". Structure. 2017 Aug 1;25(8):1233-1241.e3. Epub 2017 Jul 6.
4. **Krupkin M***, Wekselman I*, Matzov D, Eyal Z, Diskin Posner Y, Rozenberg H, Zimmerman E, Bashan A, Yonath A. "Avilamycin and evernimicin induce structural changes in rProteins uL16 and CTC that enhance the inhibition of A-site tRNA binding". Proc Natl Acad Sci U S A. 2016 Nov 1;113(44):E6796-E6805.

5. Eyal Z*, Matzov D*, **Krupkin M**, Paukner S, Riedl R, Rozenberg H, Zimmerman E, Bashan A, and Yonath A. "A novel pleuromutilin antibacterial compound, its binding mode and selectivity mechanism". Sci Rep. 2016 Dec 13;6:39004.
6. Auerbach-Nevo T, Baram D, Bashan A, Belousoff M, Breiner E, Davidovich C, Cimicata G, Eyal Z, Halfon Y, **Krupkin M**, Matzov D, Metz M, Rufayda M, Peretz M, Pick O, Pyetan E, Rozenberg H, Shalev-Benami M, Wekselman I, … Yonath A. "Ribosomal antibiotics: Contemporary challenges". Antibiotics (Basel). 2016 Jun 29;5(3). pii: E24.
7. Eyal Z*, Matzov D*, **Krupkin M**, Wekselman I, Paukner S, Zimmerman E, Rozenberg H, Bashan A, Yonath A. "Structural insights into species-specific features of the ribosome from the pathogen staphylococcus aureus". Proc Natl Acad Sci U S A. 2015 Oct 27;112(43):E5805-14.
8. Sun L, Xiong Y, Bashan A, Zimmerman E, Shulman Daube S, Peleg Y, Albeck S, Unger T, Yonath H, **Krupkin M**, Matzov D, Yonath A. "A recombinant collagen–mRNA platform for controllable protein synthesis". Chembiochem. 2015 Jul 6;16(10):1415-9.
9. **Krupkin M**, Bashan A, Yonath A. (2014) "Glimpse into the Origin of Life: What was First, the Genetic Code or its Products, the Proteins?" in "Why does Evolution Matter? The Importance of Understanding Evolution", G. Trueba, ed. (Cambridge Scholars Publishing), p. 87-100.
10. Huang L, **Krupkin M**, Bashan A, Yonath A, Massa L. "Protoribosome by quantum kernel energy method". Proc Natl Acad Sci U S A. 2013 Sep 10;110(37):14900-5.
11. **Krupkin M**, Matzov D, Tang H, Metz M, Kalaora R, Belousoff MJ, Zimmerman E, Bashan A, Yonath A. A vestige of a prebiotic bonding machine is functioning within the contemporary ribosome. Philos Trans R Soc Lond B Biol Sci. 2011 Oct 27;366(1580):2972-8.
    - Research highlight, "The chemical origins of life and its early evolution: an introduction", Phil. Trans. R. Soc. B3662853–2856 (2011).
12. Bashan A, Zimmerman E, Belousoff MJ, Rozenberg H, Davidovich C, Wekselman I, Shapira T, **Krupkin M**, Yonath A. "The ribosome as drug target: lessons from 3D structures". Isr Chem Soc. 2010, 25, 10-18.
13. Davidovich C, Belousoff M, Wekselman I, Shapira T, **Krupkin M**, Zimmerman E, Bashan A, Yonath A. "The proto-ribosome : An ancient nano-machine for peptide bond formation". Isr J Chem. 2010 Jun 18;50(1):29-35.

** Equal contribution.*

Conferences and Presentations

2020 CSHL Retroviruses 2020, Cold Spring Harbor Laboratory, USA.

2020 Conference on Retroviruses and Opportunistic Infection- CROI 2020, Boston, USA.

2020 Bay Area CryoEM Meeting, CA, USA.

2019 Frontiers of Biophysics 17th Course, Erice, Italy.

2019 Structural Biology Department, Stanford School of Medicine, USA.
Guest seminar: Layers of Protection: from molecular mechanisms to organism defense

2019 Simons Electron Microscopy Center, New York Structural Biology Center, USA.
Guest seminar: Avilamycin Induces Structural Changes in Ribosomal Proteins uL16 And CTC That Enhance the Inhibition Of A-Site tRNA Binding

2019 Biochemistry and Biophysics Department, UCSF, USA.
Guest seminar: Layers of Protection: from molecular mechanisms to organism defense.

2019 Chemistry Department, University of Utah, USA.
Guest seminar: Layers of Protection: from molecular mechanisms to organism defense.

2019 The 4th Annual MIT-Harvard Microbiome Symposium, Boston.
Organizer. **Chairperson**.

2018 MIT Path of Professorship, MIT, USA.

2017 Structural Mass Spectrometry Workshop, Weizmann Institute of Science, Israel.

2016 Biological Engineering Department, MIT, USA.
Guest seminar: Origin of The Ribosome and its Paralyzation by Antibiotics

2016 Cincinnati Children's Hospital Medical Center, USA.
Guest seminar: Origin of The Ribosome and its Paralyzation by Antibiotics

2016 Ribosome Structure and Function EMBO conference, Strasbourg, France.
Poster: The structure of avilamycin bound to the large ribosomal subunit.

2016 Israel Society for Astrobiology and the Origin of Life (ILASOL) annual meeting, Ben-Gurion University, Israel.
Talk: The origin of the ribosome: A vestige of a prebiotic bonding machine is functioning within the contemporary ribosome.

2016 8th Graduate Students Chemistry Symposium, Ben-Gurion University, Israel.
Talk: Avilamycin induces structural changes in rProteins uL16 and CTC that enhance the inhibition of A-site tRNA binding

2016 Israel Crystallography Association (ICA) Meeting, Tel-Aviv University, Israel.
Talk: The structure of avilamycin bound to the large ribosomal subunit.

2015 Frontiers in Chemical Sciences Symposium, Weizmann Institute of Science, Israel.
Organizer. Panel leader.

2015 Genetics, Genomics and Evolution (GGE) conference, Tel-Aviv University, Israel.
Talk:* The origin of the ribosome: A vestige of a prebiotic bonding machine is functioning within the contemporary ribosome.
***Best Talk Award.**

2014 The Society for Molecular Biology and Evolution SMBE2014 meeting, San Juan, Puerto Rico.
Poster: The origin of the ribosome: A vestige of a prebiotic bonding machine is functioning within the contemporary ribosome.

2014 The RNA society 19th annual meeting, Quebec, Canada.
Poster: The origin of the ribosome: A vestige of a prebiotic bonding machine is functioning within the contemporary ribosome.

2014 Structure and dynamics of RNA interactions, Montreal, Canada.
Poster: The origin of the ribosome: A vestige of a prebiotic bonding machine is functioning within the contemporary ribosome.

2014 ILANIT, Federation of the Israel Societies for Experimental Biology, Eilat, Israel.
Poster: The proto-ribosome and the origin of life

2013 School of medicine, Stanford, USA.
Guest seminar: The Ribosome's Origin – The Proto Ribosome.

2013 Ribosomes, Napa, USA.
Poster: The Ribosome's Origin – The Proto Ribosome.

2013 The 63rd Lindau Nobel Laureate Meeting, Germany.

2013 RNA Bioinformatics Structure Function and Regulation Workshop, Technion, Israel.
Talk: The Ribosome's Origin – The Proto Ribosome.

2012 Israel Society for Astrobiology and the Origin of Life (ILASOL) annual meeting, Weizmann Institute of Science, Israel.
Talk: A vestige of a prebiotic bonding entity is functioning within the contemporary ribosome.

2011 ILANIT, Federation of the Israel Societies for Experimental Biology, Eilat, Israel.
Poster: Mycobacterium Smegmatis Ribosome as A Tool for A Structural Insight into Antibiotics Action on Pathogens

2011 Structural Biology Department, Weizmann Institute of Science, Israel.
Seminar: Towards the Determination of the Structure of Mycobacterium smegmatis Ribosome.

2010 BCA/CCP4 Summer School in Protein Crystallography, Oxford, UK
Talk: Towards the Determination of the Structure of *Mycobacterium smegmatis* Ribosome".

Awards and Fellowships

2016 Travel fellowship award, Cincinnati Children's Hospital Medical Center, USA.

2015 Best talk, Genetics, Genomics and Evolution conference, Tel Aviv University.

2013 Vallee travel fellowship award, "The 63rd Lindau Nobel Laureate Meeting", Germany.

2012 - 2016 Adams Ph.D. fellowship of the Israel Academy of Sciences and Humanities.

2007 Schächter summer scholarship for research, Bar-Ilan University.

2006 Dean's Honors list, Bar-Ilan University.

Other Activities

2020 Reviewer Board for the international peer-reviewed journal Antibiotics.

2019 Organizer of the MIT-Harvard Microbiome symposium, Boston.

2018 Mentor at the MRL summer internship program, MIT.

2018 Panel speaker: Finding a postdoc, MIT.

2018 - 2019 Organizer of "GlycoBioClub"- the MIT Glycobiology journal club, MIT.

2017 - 2018 Science outreach at the Boston Science Museum, Boston.

2015 Organizer of the Frontiers in Chemical Sciences Symposium, Israel.

2015 Panel leader: Gender Balance in Chemical Sciences, Frontiers in Chemical Sciences Symposium, Weizmann Institute of Science.

2013 Chair of Weizmann Institute Student Council, Israel.

2013 Panel organizer and speaker: How to choose a rotation lab, Weizmann Institute of Science.

2010 BCA/CCP4 Summer School in Protein Crystallography at Oxford, UK.

2009 - 2017 Synchrotron user. Locations: ESRF, France. SLS, Swiss. Diamond, UK.

2009 - 2016 Instructor in "Chetz", "The De-Shalit Research Camp (Zuta)" and other youth science programs of the Davidson Institute of Science Education, Israel.