Stanford

Miri Krupkin

Basic Life Research Scientist, Structural Biology

Bio

BIO

My background is deeply rooted in structural biology and biochemistry of proteins and RNA. My current research focuses on understanding the regulatory role of RNA structures in HIV infection. To this end, I am focusing on revealing the conformational landscape of viral RNA during reverse transcription. I am also devoted to promoting science education and outreach.

HONORS AND AWARDS

- Travel fellowship award, Cincinnati Children's Hospital Medical Center, Ohio, USA (2016)
- Best talk, Genetics, Genomics and Evolution conference, Tel Aviv University (2015)
- Vallee travel fellowship award, "The 63rd Lindau Nobel Laureate Meeting", Germany (2013)
- Adams Ph.D. fellowship, The Israel Academy of Sciences and Humanities (2012-2016)
- Schächter summer scholarship for research, Bar-Ilan University (2007)
- Dean's Honors list, Bar-Ilan University (2006)

EDUCATION AND CERTIFICATIONS

- Doctor of Philosophy, Weizmann Instituteof Science (2016)
- Master of Science, Weizmann Institute of Science (2011)
- Bachelor of Science, Bar-Ilan University (2008)

Publications

PUBLICATIONS

- **Uncovering translation roadblocks during the development of a synthetic tRNA.** *Nucleic acids research*
  Prabhakar, A., Krahn, N., Zhang, J., Vargas-Rodriguez, O., Krupkin, M., Fu, Z., Acosta-Reyes, F. J., Ge, X., Choi, J., Crnkovic, A., Ehrenberg, M., Puglisi, E. V., Soll, et al
  2022
- **Origin of life: protoribosome forms peptide bonds and links RNA and protein dominated worlds** *NUCLEIC ACIDS RESEARCH*
  Bose, T., Fridkin, G., Davidovich, C., Krupkin, M., Dinger, N., Falkovich, A. H., Peleg, Y., Agmon, I., Bashan, A., Yonath, A.
  2022; 50 (4): 1815-1828
- **Advances in understanding the initiation of HIV-1 reverse transcription.** *Current opinion in structural biology*
  Krupkin, M. n., Jackson, L. N., Ha, B. n., Puglisi, E. V.
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- **Avilamycin and evernimicin induce structural changes in rProteins uL16 and CTC that enhance the inhibition of A-site tRNA binding.** *Proceedings of the National Academy of Sciences of the United States of America*
  Krupkin, M., Wekselman, I., Matzov, D., Eyal, Z., Diskin Posner, Y., Rozenberg, H., Zimmerman, E., Bashan, A., Yonath, A.
  2016; 113 (44): E6796-E6805

- **A vestige of a prebiotic bonding machine is functioning within the contemporary ribosome.** *Philosophical transactions of the Royal Society of London. Series B, Biological sciences*
  Krupkin, M., Matzov, D., Tang, H., Metz, M., Kalaora, R., Belousoff, M. J., Zimmerman, E., Bashan, A., Yonath, A.
  2011; 366 (1580): 2972-8

- **Comparison of Physicochemical Properties of Native Mucus and Reconstituted Mucin Gels.** *Biomacromolecules*
  Wagner, C. E., Krupkin, M., Smith-Dupont, K. B., Wu, C. M., Bustos, N. A., Witten, J., Ribbeck, K.
  2023; 24 (2): 628-639

- **Structural insights of lincosamides targeting the ribosome of Staphylococcus aureus.** *Nucleic acids research*
  Matzov, D., Eyal, Z., Benhamou, R. I., Shalev-Benami, M., Halfon, Y., Krupkin, M., Zimmerman, E., Rozenberg, H., Bashan, A., Fridman, M., Yonath, A.
  2017; 45 (17): 10284-10292

- **The Ribosomal Protein uL22 Modulates the Shape of the Protein Exit Tunnel.** *Structure (London, England : 1993)*
  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, et al
  2017; 25 (8): 1233-1241.e3

- **A novel pleuromutilin antibacterial compound, its binding mode and selectivity mechanism.** *Scientific reports*
  Eyal, Z., Matzov, D., Krupkin, M., Paukner, S., Riedl, R., Rozenberg, H., Zimmerman, E., Bashan, A., Yonath, A.
  2016; 6: 39004

- **Ribosomal Antibiotics: Contemporary Challenges.** *Antibiotics (Basel, Switzerland)*
  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, et al
  2016; 5 (3)

- **Structural insights into species-specific features of the ribosome from the pathogen Staphylococcus aureus.** *Proceedings of the National Academy of Sciences of the United States of America*
  Eyal, Z., Matzov, D., Krupkin, M., Wekselman, I., Paukner, S., Zimmerman, E., Rozenberg, H., Bashan, A., Yonath, A.
  2015; 112 (43): E5805-14

- **A Recombinant Collagen-mRNA Platform for Controllable Protein Synthesis.** *Chembiochem : a European journal of chemical biology*
  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.
  2015; 16 (10): 1415-9

- **Protoribosome by quantum kernel energy method.** *Proceedings of the National Academy of Sciences of the United States of America*
  Huang, L., Krupkin, M., Bashan, A., Yonath, A., Massa, L.
  2013; 110 (37): 14900-5

- **The Proto-Ribosome: an ancient nano-machine for peptide bond formation.** *Israel journal of chemistry*
  Davidovich, C., Belousoff, M., Wekselman, I., Shapira, T., Krupkin, M., Zimmerman, E., Bashan, A., Yonath, A.
  2010; 50 (1): 29-35