Iris Dror

Contact Information

MIGAL - Galilee Research Institute and Tel-Hai collage, Israel
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Positions and Education

2024-now	**Principal Investigator, MIGAL - Galilee Research Institute and Tel-Hai collage, Israel.**
2021-2024	**Assistant Project Scientist, University of California, Los Angeles, Los Angeles, USA.** Plath lab, Department of Biological Chemistry.
2015 - 2021	**Postdoctoral Researcher, University of California, Los Angeles, Los Angeles, USA.** Plath lab, Department of Biological Chemistry.
2009 - 2015	**Ph.D., Faculty of Biology, Technion - Israel Institute of Technology, Haifa, Israel.** Topic: “New computational approaches to study protein-nucleic acid recognition". Advisor: Prof. Yael Mandel-Gutfreund.
2011 - 2013	**Visiting student, Molecular and Computational Biology Program, Department of Biological Sciences, University of Southern California, Los Angeles, USA.** Advisor: Dr. Remo Rohs.
2007 - 2009	**B.Sc., Faculty of Biology, Technion - Israel Institute of Technology, Haifa, Israel.** Final project topic: “Assessing transcription factor motifs by comparing transcription factor expression to gene expression".

Publications

1. **Dror I***, Tan T*, Plath K. “A critical role for X-chromosome architecture in mammalian X-chromosome dosage compensation”. Curr Opin Genet Dev. 2024 Aug;87:102235.
2. **Dror I***, Chitiashvili T*, Tan S, Cano C, Sahakyan A, Markaki Y, Chronis C, Collier A, Deng W, Liang G, Sun Y, Afasizheva A, Miller J, Xiao W, Black D, Ding F, Plath K. “XIST directly regulates X-linked and autosomal genes in naïve human pluripotent cells”. Cell. 2024 Jan 4;187(1):110-129.e31.
3. Elkoshi N, Parikh S, Malcov-Brog H, Parikh R, Manich P, Netti F, Maliah A, Elkoshi H, Haj M, Rippin I, Frand J, Perluk T, Haiat-Factor R, Golan T, Regev-Rudzki N, Kiper E, Brenner R, Gonen P, **Dror I**, Levi H, Hameiri O, Cohen-Gulkar M, Eldar-Finkelman H, Ast G, Nizri E, Ziv Y, Elkon R, Khaled M, Ebenstein Y, Shiloh Y, Levy C. “Ataxia Telangiectasia Mutated Signaling Delays Skin Pigmentation upon UV Exposure by Mediating MITF Function toward DNA Repair Mode”. J Invest Dermatol. 2023 Dec;143(12):2494-2506.e4.
4. Chitiashvili T, Hsu FM, **Dror I**, Plath K, Clark A. “FGFR3 is expressed by human primordial germ cells and is repressed after meiotic initiation to form primordial oocytes”. Stem Cell Reports. 2022 Jun 14;17(6):1268-1278.
5. Markaki Y, Chong JG, Wang Y, Jacobson EC, Luong C, Tan SYX, Jachowicz JW, Strehle M, Maestrini D, Banerjee AK, Mistry BA, **Dror I**, Dossin F, Schöneberg J, Heard E, Guttman M, Chou T, Plath K. “Xist nucleates local protein gradients to propagate silencing across the X chromosome”. Cell. 2021 Dec 9;184(25):6212.

6. Chitiashvili T, **Dror I**, Kim R, Hsu FM, Chaudhari R, Pandolfi E, Chen D, Liebscher S, Schenke-Layland K, Plath K, Clark A. “Female human primordial germ cells display X-chromosome dosage compensation despite the absence of X-inactivation”. Nat Cell Biol. 2020 Dec;22(12):1436-1446.
7. Malcov-Brog H, Alpert A, Golan T, Parikh S, Nordlinger A, Netti F, Sheinboim D, **Dror I**, Thomas L, Cosson C, Gonen P, Stanevsky Y, Brenner R, Perluk T, Frand J, Elgavish S, Nevo Y, Rahat D, Tabach Y, Khaled M, Shen-Orr SS, Levy C.” UV-Protection Timer Controls Linkage between Stress and Pigmentation Skin Protection Systems”. Mol Cell. 2018 Nov 1;72(3):444-456.e7.
8. Sheinboim D, Maza I, **Dror I**, Parikh S, Krupalnik V, Bell RE, Zviran A, Suita Y, Hakim O, Mandel-Gutfreund Y, Khaled M. “OCT4 impedes cell fate redirection by the melanocyte lineage master regulator MITF in mouse ESCs”. Nature Communications. 2017 Oct 18;8(1):1022.
9. Schöne S, Jurk M, Helabad MB, **Dror I**, Lebars I, Kieffer B, Imhof P, Rohs R, Vingron M, Thomas-Chollier M, Meijsing SH. “Sequences flanking the core-binding site modulate glucocorticoid receptor structure and activity”. Nature communications. 2016 Sep 1;7:12621.
10. **Dror I**, Rohs R, Mandel-Gutfreund Y. “How motif environment influences transcription factor search dynamics: Finding a needle in a haystack”. BioEssays. 2016 Jul 1;38(7):605-12.
11. **Dror I**, Golan T, Levy C, Rohs R, Mandel-Gutfreund Y. “A widespread role of the motif environment in transcription factor binding across diverse protein families”. Genome research. 2015 Sep 1;25(9):1268-80. (Selected for top ten paper awards in RECOMB conference 2016)
12. Abe N, **Dror I**, Yang L, Slattery M, Zhou T, Bussemaker HJ, Rohs R, Mann RS. “Deconvolving the recognition of DNA shape from sequence”. Cell. 2015 Apr 9;161(2):307-18. (Selected for top ten paper awards in RECOMB conference 2015)
13. Yang L, Zhou T, **Dror I**, Mathelier A, Wasserman WW, Gordân R, Rohs R. “TFBSshape: a motif database for DNA shape features of transcription factor binding sites”. Nucleic acids research. 2013 Nov 7;42(D1):D148-55. (Selected as Nucleic Acid Research breakthrough article)
14. **Dror I**, Zhou T, Mandel-Gutfreund Y, Rohs R. “Covariation between homeodomain transcription factors and the shape of their DNA binding sites”. Nucleic acids research. 2013 Sep 27;42(1):430-41. (Selected as the Faculty of Biology, Technion, paper of the month)
15. Zhou T, Yang L, Lu Y, **Dror I**, Dantas Machado AC, Ghane T, Di Felice R, Rohs R. “DNAshape: a method for the high-throughput prediction of DNA structural features on a genomic scale”. Nucleic acids research. 2013 May 22;41(W1):W56-62.
16. Gordân R, Shen N*, **Dror I***, Zhou T, Horton J, Rohs R, Bulyk ML. “Genomic regions flanking E-box binding sites influence DNA binding specificity of bHLH transcription factors through DNA shape”. Cell reports. 2013 Apr 25;3(4):1093-104. (Selected for top ten paper awards in RECOMB 2013)
17. Machado AC, Saleebyan SB, Holmes BT, Karelina M, Tam J, Kim SY, Kim KH, **Dror I**, Hodis E, Martz E, Compeau PA. “Proteopedia: 3D visualization and annotation of transcription factor–DNA readout modes”. Biochemistry and Molecular Biology Education. 2012 Nov 1;40(6):400-1.
18. **Dror** I, Shazman S, Mukherjee S, Zhang Y, Glaser F, Mandel-Gutfreund Y. “Predicting nucleic acid binding interfaces from structural models of proteins”. Proteins: Structure, Function, and Bioinformatics. 2012 Feb 1;80(2):482-9.
19. Slattery M, Riley T, Liu P, Abe N, Gomez-Alcala P, **Dror I**, Zhou T, Rohs R, Honig B, Bussemaker HJ, Mann RS. “Cofactor binding evokes latent differences in DNA binding specificity between Hox proteins”. Cell. 2011 Dec 9;147(6):1270-82. (Selected for top ten paper awards in RECOMB conference 2011)

20. Paz I, Akerman M, **Dror I**, Kosti I, Mandel-Gutfreund Y. "SFmap: a web server for motif analysis and prediction of splicing factor binding sites". Nucleic acids research. 2010 May 25;38(suppl_2):W281-5.

* Equal contribution

Presentations in Conferences

Jun 2020	1. MIT Virtual Workshop: Genome Architecture and Dynamics. **Talk "XIST mediates unique mechanism of X-chromosome dosage compensation in early human development"**
Oct 2015	2. Computational Modeling of Gene Expression and its Evolution, Tel Aviv, Isreal. **Talk "A Widespread Role of the Motif Environment on Transcription Factor Binding Across Diverse Protein Families**"
Jun 2015	3. Advances and Challenges in Protein-RNA: Recognition, Regulation and Prediction, Banff, AB, Canada. **Talk "Beyond the consensus: The role of the motif environment on transcription factor binding"**
Feb 2014	4. FISEB/ILANIT 2014, Eilat, Israel. **Talk "Widespread evidence for DNA shape dependent transcription factor binding preferences"**
Nov 2013	5. RECOMB/ISCB Conference on Regulatory and Systems Genomics, with DREAM Challenges, Toronto, Ontario, Canada. **Talk "Widespread evidence for DNA shape dependent transcription factor binding preferences"**
Oct 2013	6. Genome informatics, Cold Spring Harbor Laboratory, NY, united states. **Talk "Widespread evidence for DNA shape dependent transcription factor binding preferences"**
Jun 2013	7. Rules of protein-DNA recognition: computational and experimental advances, Banff, AB, Canada. **Talk "Covariation between Homeodomains and the DNA shape of their binding sites provides new insights into protein-DNA recognition"**
Mar 2013	8. Technion Departmental Retreat, Kfar Blum, Israel. **Talk "Homeodomain-DNA shape recognition code"**
Jan 2012	9. Israel-germany symposium, Haifa, Israel. **Talk "Genome-wide DNA shape analysis of transcription factor binding sites"**
Nov 2011	10. USC Departmental Retreat, Laguna Beach, CA, United States. **Talk "Genome-wide DNA shape analysis of transcription factor binding sites"**

Selected Awards

2014	Israel ministry of science - Women in science fellowship
2014	Israel ministry of science - Travel fellowship
2012	Irwin and Joan Jacobs fellowship
2011, 2013	Honorary excellence scholarship from the faculty of biology

Public outreach

2015	Volunteered with "Aleh" association, working closely with visually impaired people