Dr. Achia Urbach

Curriculum Vitae and Publications

Contact

The Mina and Everard Goodman Faculty of Life Sciences

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Education and Training

Period	Institute	Area of Specialty	Qualification / Role
10/2000–08/2002	Hebrew University, Jerusalem, Israel	Life Sciences	B.Sc.
09/2002–08/2008	Hebrew University, Jerusalem, Israel	Genetics, Pluripotent cell biology	Direct PhD
08/2008–12/2013	Children's Hospital Boston; Harvard Stem Cell Institute; Harvard Medical School	Pluripotent cell biology, cancer, Wilms tumor	Postdoctoral Fellow
01/2014–10/2014	Hebrew University, Jerusalem, Israel	Stem cell biology	Research Fellow

Doctoral thesis: “Modeling Human Genetic Diseases Using Human Embryonic Stem Cells”

Doctoral advisor: Prof. Nissim Benvenisty

Postdoctoral advisor: Prof. George Daley

Academic Appointment

Period	Institute	Area of Specialty	Title
10/2014–present	The Mina and Everard Goodman Faculty of Life Sciences, Bar-Ilan University	Developmental biology; disease modeling with pluripotent stem cells; kidney development; LIN28	Senior Lecturer (tenured since October 2021)

University and Faculty Committees

Period	Institute	Position
2016–present	Bar-Ilan University	Member, Institutional Animal Care and Use Committee (IACUC)
2015–2017	The Mina & Everard Goodman Faculty of Life Sciences, Bar-Ilan University	Member of the Animal Research Facilities Committee

Period	Institute	Position
2015–2017	The Mina & Everard Goodman Faculty of Life Sciences, Bar-Ilan University	Member, Faculty Committee for the Selection of M.Sc. and Ph.D. Candidates
2021–2022	Bar-Ilan University	Member of the University Committee for the Selection of Outstanding Lecturers
2022–present	Bar-Ilan University	Member, Student Scholarships Committee
2021, 2022, 2024	The Azrieli Faculty of Medicine, Bar-Ilan University	Member, Promotions Committee
2025–present	Bar-Ilan University	Head, Faculty Committee for the Selection of M.Sc. and Ph.D. Candidates

Research Funding

Period	Funding Agency	Title	Amount
2025–2029	ISF Mavri Program	Developing RNA-based therapy for renal cystic ciliopathies	NIS 725,000 (Urbach lab)
2024–2026	Israel Cancer Association (ICA)	Precision Therapy for Developmental Malignancies: Wilms' Tumor as a Prototype for a Gene-Directed Therapeutic Approach. In collaboration with Dr. Pode-Shakked (Ichilov). ICA Excellence Grant.	NIS 180,000 (Urbach lab)
2024–2029	ISF Individual Research Grant	Unraveling the effects of LAP1 mutations on brain development using human pluripotent stem cells	NIS 1,400,000 + NIS 70,000 infrastructure funding
2021–2022	Estates Committee, Ministry of Justice, Israel	Derivation of human nephron progenitors from iPSC-derived kidney organoids for renal regeneration. In collaboration with Prof. Dekel (Sheba Medical Center, Israel).	NIS 166,000 (Urbach lab)
2019–2021	Ministry of Science and Technology, Israel	Treating chronic kidney disease via autologous nephric progenitor cells (NPCs). In collaboration with Prof. Dekel (Sheba Medical Center, Israel) and Prof. Kalisky (Bar-Ilan University, Israel).	NIS 500,000 (Urbach lab)
2019–2020	Israel Cancer Association (ICA)	Novel genetic engineering-based therapeutic approaches for Wilms tumor. In collaboration with Prof. Dekel (Sheba Medical Center, Israel).	NIS 75,000 (Urbach lab)

Period	Funding Agency	Title	Amount
2019–2020	ICRF	Novel genetic engineering-based therapeutic approaches for Wilms tumor. In collaboration with Prof. Dekel (Sheba Medical Center, Israel).	USD 50,000 (Urbach lab)
2017	ISF–INCPM	Use of the INCPM platform for ISF research grant 1389/15: The role of the stem cell factor LIN28 in mammalian embryonic development	NIS 33,000
2017	ISF Institutional Equipment Grant	BD FACSAria III Cell Sorter, 2 Laser ACDU 5B/3R	NIS 1,100,000
2017–2018	Israel Cancer Association (ICA)	Modeling rhabdoid tumors using human pluripotent stem cells	NIS 75,000
2015–2020	ISF Individual Research Grant	The role of the stem cell factor LIN28 in mammalian embryonic development	NIS 1,750,000
2015–2016	ISF New Faculty Equipment Grant	Equipment for a pluripotent stem cell research facility	NIS 485,000

Awards and Honors

Date	Awards and Honors
2001	Summer Scholarship for Excellent Undergraduate Students
2003–2005	Excellent Teaching Assistant Award
2004	Polak Scholarship for Excellent Graduate Students
2006	Extended Scholarship for Outstanding Doctoral Student
2007	Russek Scholarship for Excellent Graduate Students
2009	EMBO Postdoctoral Fellowship
2009	The Machiach Foundation Postdoctoral Fellowship
2013	Dana-Farber/Harvard Cancer Center Kidney Cancer SPORE Developmental Project Award
2020	Outstanding Lecturer, Bar-Ilan University
2020	Christians for Israel Chair in Medical Research

Publications

1. Drukker M, Katz G, Urbach A, Schuldiner M, Markel G, Itskovitz-Eldor J, Reubinoff B, Mandelboim O, Benvenisty N. “Characterization of the expression of MHC proteins in human embryonic stem cells.” Proc Natl Acad Sci U S A. 2002;99(15):9864–9869. PubMed
2. Urbach A, Schuldiner M, Benvenisty N. “Modeling for Lesch-Nyhan disease by gene targeting in human embryonic stem cells.” Stem Cells. 2004;22(4):635–641. PubMed

3. Eiges R#, Urbach A#, Malcov M, Frumkin T, Schwartz T, Amit A, Yaron Y, Eden A, Yanuka O, Benvenisty N, Ben-Yosef D. “Developmental study of fragile X syndrome using human embryonic stem cells derived from preimplantation genetically diagnosed embryos.” Cell Stem Cell. 2007;1(5):568–577. # Equal contributors. PubMed

4. Urbach A, Benvenisty N. “Studying early lethality of 45,XO (Turner's syndrome) embryos using human embryonic stem cells.” PLoS One. 2009;4(1):e4175. PubMed

5. Loh YH, Agarwal S, Park IH, Urbach A, Huo H, Heffner GC, Kim K, Miller JD, Ng K, Daley GQ. “Generation of induced pluripotent stem cells from human blood.” Blood. 2009;113:5476–5479. PubMed

6. Urbach A#, Bar-Nur O#, Daley GQ*, Benvenisty N*. “Differential modeling of fragile X syndrome by human embryonic stem cells and induced pluripotent stem cells.” Cell Stem Cell. 2010;6(5):407–411. # Equal contributors; * co-corresponding authors. PubMed

7. Loh YH, Hartung O, Li H, Guo C, Sahalie JM, Manos PD, Urbach A, Heffner GC, Grskovic M, Vigneault F, Lensch MW, Park IH, Agarwal S, Church GM, Collins JJ, Irion S, Daley GQ. “Reprogramming of T cells from human peripheral blood.” Cell Stem Cell. 2010;7(1):15–19. PubMed

8. Zhu H, Shyh-Chang N, Segrè AV, Shinoda G, Shah SP, Einhorn WS, Takeuchi A, Engreitz JM, Hagan JP, Kharas MG, Urbach A, Thornton JE, Triboulet R, Gregory RI; DIAGRAM Consortium; MAGIC Investigators; Altshuler D, Daley GQ. “The Lin28/let-7 axis regulates glucose metabolism.” Cell. 2011;147(1):81–94. PubMed

9. Urbach A, Yermalovich A, Spina CS, Zhu H, Perez-Atayde AR, Shukrun R, Charlton J, Sebire N, Mifsud W, Dekel B, Pritchard-Jones K, Daley GQ. “Lin28 sustains early renal progenitors and induces Wilms tumor.” Genes Dev. 2014;28(9):971–982. PubMed

10. Halevy T, Urbach A. “Comparing ESC and iPSC-Based Models for Human Genetic Disorders.” J Clin Med. 2014;3(4):1146–1162. Review. PubMed

11. Carmel-Gross I, Bollag N, Armon L, Urbach A. “LIN28: A Stem Cell Factor with a Key Role in Pediatric Tumor Formation.” Stem Cells Dev. 2016;25(5):367–377. Review. PubMed

12. Pleniceanu O, Shukrun R, Omer D, Vax E, Kanter I, Dziedzic K, Pode-Shakked N, Mark-Daniei M, Pri-Chen S, Gnatek Y, Alfandary H, Varda-Bloom N, Bar-Lev DD, Bollag N, Shtainfeld R, Armon L, Urbach A, Kalisky T, Nagler A, Harari-Steinberg O, Arbiser JL, Dekel B. “Peroxisome proliferator-activated receptor gamma (PPARγ) is central to the initiation and propagation of human angiomyolipoma, suggesting its potential as a therapeutic target.” EMBO Mol Med. 2017;9(4):508–530. PubMed

13. Trink A, Kanter I, Pode-Shakked N, Urbach A, Dekel B, Kalisky T. “Geometry of Gene Expression Space of Wilms' Tumors From Human Patients.” Neoplasia. 2018;20(8):871–881. PubMed

14. Robinton DA, Chal J, Lummertz da Rocha E, Han A, Yermalovich AV, Oginuma M, Schlaeger TM, Sousa P, Rodriguez A, Urbach A, Pourquié O, Daley GQ. “The Lin28/Let-7 pathway regulates the mammalian caudal body axis elongation program.” Dev Cell. 2019;48:395–406. PubMed

15. Komarovsky N, Armon L, Urbach A. “Lin28 over-expression delays normal embryonic lung development.” FASEB J. 2019;33(11):12008–12018. PubMed

16. Wineberg Y*, Bar-Lev T*, Futorian A*, Ben-Haim N, Armon L, Ickowicz D, Oriel S, Bucris E, Yehuda Y, Pode-Shakked N, Gilad S, Benjamin S, Hohenstein P, Dekel B#, Urbach A#, Kalisky T#. “Single-cell RNA sequencing reveals mRNA splice isoform switching during kidney development.” J Am Soc Nephrol. 2020;31(10):2278–2291. * Co-first authors; # co-last authors. PubMed

17. Gross-Carmel I, Armon L, Levy E, Waldman Ben-Asher H, Yaron O, Urbach A. “Human pluripotent stem cell fate regulation by SMARCB1.” Stem Cell Reports. 2020;15(5):1037–1046. PubMed

18. Attali-Padael Y, Armon L, Urbach A. “Apoptosis induction by the stem cell factor LIN28.” Biol Cell. 2021;113(11):450–457. PubMed

19. Ben-Haim Y, Armon L, Fichtman B, Epshtein I, Spiegel R, Harel A, Urbach A. “Generation and characterization of iPSC lines from two nuclear envelopathy patients with a homozygous nonsense mutation in the TOR1AIP1 gene.” Stem Cell Res. 2021;56:102539. PubMed

20. Wineberg Y, Kanter I, Ben-Haim N, Pode-Shakked N, Bucris E, Bar-Lev T, Oriel S, Reinus H, Yehuda Y, Gershon R, Shukrun R, Bar-Lev D, Urbach A, Dekel B, Kalisky T. “Characterization of alternative mRNA splicing in cultured cell populations representing progressive stages of human fetal kidney development.” Sci Rep. 2022;12(1):19548. PubMed

21. Trink Y, Urbach A, Dekel B, Hohenstein P, Goldberger J, Kalisky T. “Characterization of Continuous Transcriptional Heterogeneity in High-Risk Blastemal-Type Wilms' Tumors Using Unsupervised Machine Learning.” Int J Mol Sci. 2023;24(4):3532. PubMed

22. Trink Y, Urbach A, Dekel B, Hohenstein P, Goldberger J, Kalisky T. “Characterization of Alternative Splicing in High-Risk Wilms' Tumors.” Int J Mol Sci. 2024;25(8):4520. PubMed

23. Futorian A, Armon L, Waldman Ben-Asher H, Shoval I, Hazut I, Munitz A, Urbach A. “Nephron-Specific Lin28A Overexpression Triggers Severe Inflammatory Response and Kidney Damage.” Int J Biol Sci. 2024;20(10):4044–4054. PubMed

24. Namestnikov M, Cohen-Zontag O, Omer D, Gnatek Y, Goldberg S, Vincent T, Singh S, Shiber Y, Rafaeli Yehudai T, Volkov H, Folkman Genet D, Urbach A, Polak-Charcon S, Grinberg I, Pode-Shakked N, Weisz B, Vaknin Z, Freedman BS, Dekel B. “Human fetal kidney organoids model early human nephrogenesis and Notch-driven cell fate.” EMBO J. 2025;44(17):4681–4719. PubMed

25. Shlomovitz O*, Ben-Haim Y*, Eisenstein N, Armon L, Grinberg I, Polak-Charcon S, Atias-Varon D, Chowers G, Ben-Ruby D, Urbach A#, Vivante A#. “Elucidating Mechanisms of Hypomorphic WDR19-Related Kidney Failure.” Kidney Int Rep. 2025;10(10):3578–3591. * Co-first authors; # co-last authors. PubMed

26. Ben-Haim Y, Armon L, Peled D, Fichtman B, Elkaim Kadouch SA, Shoval I, Farah N, Mandel Y, Schlotawa L, Spiegel R, Harel A, Urbach A. “LAP1 Loss-of-Function Mutations Drive Premature Neuronal Differentiation and Microcephaly in Human Brain Organoids.” Stem Cell Reports, accepted for publication.