

Stanford



Tom Levy

Instructor, Institute for Stem Cell Biology and Regenerative Medicine

Bio

ACADEMIC APPOINTMENTS

- Instructor, Institute for Stem Cell Biology and Regenerative Medicine

HONORS AND AWARDS

- Gruss Lipper Postdoctoral Fellowship for Biomedical Research, The EGL Charitable Foundation (2021-2024)
- Rothschild Postdoctoral Fellowship, Yad Hanadiv Foundation (2021-2022)
- Vaadia-BARD Postdoctoral Fellowship, US-Israel Binational Agricultural Research and Development Fund (2021-2022)
- Stanford School of Medicine Dean's Postdoctoral Fellowship, Stanford School of Medicine (2021)
- COVID 19 Emergency Postdoctoral Fellowship, Israel Academy of Sciences and Humanities (2020-2022)

PROFESSIONAL EDUCATION

- PhD, Ben-Gurion University of the Negev , Life Sciences - Physiology and Endocrinology (2019)
- MSc (Summa Cum Laude), Ben-Gurion University of the Negev , Life Sciences (2016)
- BSc (Summa Cum Laude), Ben-Gurion University of the Negev , Marine Biology and Biotechnology (2014)

PATENTS

- Tom Levy, Rivka Manor, Amir Sagi. " Patent International Application No. PCT/IL2018/051046, Publication No. WO/2019/058371 Sex-linked genomic marker for crayfish and uses thereof", Sep 17, 2018

Publications

PUBLICATIONS

- **Germline stem cell isolation, lineage tracing, and aging in a protochordate.** *bioRxiv : the preprint server for biology*
Levy, T., Anselmi, C., Ishizuka, K. J., Gordon, T., Voskoboynik, Y., McGeever, E., Detweiler, A. M., Levin, L., Palmeri, K. J., Liu, D. D., Sinha, R., Ohene-Gambill, B. F., Raveh, et al
2025
- **Protandric Transcriptomes to Uncover Parts of the Crustacean Sex-Differentiation Puzzle** *FRONTIERS IN MARINE SCIENCE*
Levy, T., Zupo, V., Mutalipassi, M., Somma, E., Ruocco, N., Costantini, M., Abehsera, S., Manor, R., Chalifa-Caspi, V., Sagi, A., Aflalo, E. D.
2021; 8
- **Two Homogametic Genotypes - One Crayfish: On the Consequences of Intersexuality.** *iScience*
Levy, T., Ventura, T., De Leo, G., Grinshpan, N., Abu Abayed, F. A., Manor, R., Savaya, A., Sklarz, M. Y., Chalifa-Caspi, V., Mishmar, D., Sagi, A.
2020; 23 (11): 101652
- **The IAG-Switch and Further Transcriptomic Insights Into Sexual Differentiation of a Protandric Shrimp** *FRONTIERS IN MARINE SCIENCE*

- Levy, T., Tamone, S. L., Manor, R., Aflalo, E. D., Sklarz, M. Y., Chalifa-Caspi, V., Sagi, A.
2020; 7
- **The "IAG-Switch"-A Key Controlling Element in Decapod Crustacean Sex Differentiation** *FRONTIERS IN ENDOCRINOLOGY*
Levy, T., Sagi, A.
2020; 11: 651
 - **The protandric life history of the Northern spot shrimp *Pandalus platyceros*: molecular insights and implications for fishery management** *SCIENTIFIC REPORTS*
Levy, T., Tamone, S. L., Manor, R., Bower, E. D., Sagi, A.
2020; 10 (1): 1287
 - **Production of WW males lacking the masculine Z chromosome and mining the *Macrobrachium rosenbergii* genome for sex-chromosomes** *SCIENTIFIC REPORTS*
Levy, T., Rosen, O., Manor, R., Dotan, S., Azulay, D., Abramov, A., Sklarz, M. Y., Chalifa-Caspi, V., Baruch, K., Shechter, A., Sagi, A.
2019; 9: 12408
 - **Sex Control in Cultured Decapod Crustaceans** *SEX CONTROL IN AQUACULTURE, VOLS I AND II*
Levy, T., Aflalo, E. D., Sagi, A.
edited by Wang, H. P., Piferrer, F., Chen, S. L.
2019: 691–704
 - **The gene encoding the insulin-like androgenic gland hormone in an all-female parthenogenetic crayfish** *PLOS ONE*
Levy, T., Rosen, O., Simons, O., Alkalay, A., Sagi, A.
2017; 12 (12): e0189982
 - **All-female monosex culture in the freshwater prawn *Macrobrachium rosenbergii* - A comparative large-scale field study** *AQUACULTURE*
Levy, T., Rosen, O., Eilam, B., Azulay, D., Zohar, I., Aflalo, E. D., Benet, A., Naor, A., Shechter, A., Sagi, A.
2017; 479: 857–62
 - **A Single Injection of Hypertrophied Androgenic Gland Cells Produces All-Female Aquaculture** *MARINE BIOTECHNOLOGY*
Levy, T., Rosen, O., Eilam, B., Azulay, D., Aflalo, E. D., Manor, R., Shechter, A., Sagi, A.
2016; 18 (5): 554–63
 - **Electrical stimulation promotes longevity and regeneration in a colonial chordate.** *Proceedings of the National Academy of Sciences of the United States of America*
Domen, J., Voskoboynik, Y., Levy, T., Domen, E. M., Ishizuka, K. J., Palmeri, K. J., Anselmi, C., Rolander, T., Neff, N. F., Detweiler, A. M., Weissman, I. L., Gandy, K. L., Sahoo, et al
2026; 123 (22): e2610968123
 - **Regional Signaling Controls Stem Cell-Mediated Regeneration in an Invertebrate Chordate.** *bioRxiv : the preprint server for biology*
Gordon, T., Levy, T., Yu, C. J., Rosental, B., Lubeck, L., Manni, L., Weissman, I. L., Voskoboynik, A.
2025
 - **Identifying sex-chromosome-linked determinants of sexual differentiation in a WZ-ZZ sex inheritance crustacean†.** *Biology of reproduction*
Wahl, M., Borojovich, Y., Levy, T., Asculai, N., Manor, R., Rotblat, B., Levin, L., Chalifa-Caspi, V., Aflalo, E. D., Sagi, A.
2025
 - **Protocol for cell transplantation in *Nematostella vectensis*, a Hexacorallian model.** *STAR protocols*
Talice, S., Barkan, S. K., Snyder, G. A., Kozlovski, I., Sharoni, T., Levy, T., Lewandowska, M., Ehrens, D., Sultan, E., Azarov, A., Oisher, S., Yannai, R., Aharoni, et al
2025; 6 (3): 103913
 - **Electrical Stimulation Rejuvenates Tunicates: Altered Stem Cell and Immune Activity.** *bioRxiv : the preprint server for biology*
Domen, J., Voskoboynik, Y., Levy, T., Domen, E. M., Ishizuka, K. J., Palmeri, K. J., Anselmi, C., Rolander, T., Neff, N. F., Detweiler, A. M., Weissman, I. L., Gandy, K. L., Sahoo, et al
2025
 - **Candidate stem cell isolation and transplantation in Hexacorallia.** *Cell reports*
Talice, S., Kozlovski, I., Barkan, S. K., Snyder, G. A., Sharoni, T., Levy, T., Oisher, S., Ottolenghi, A., Eliachar, S., Ben-Romano, R., Berlyne, K., Yannai, R., Lewandowska, et al

2024; 43 (11): 114944

- **Shark shuffle: segregated co-occurrence of multiple dusky and sandbar lineages at a human-altered habitat in the eastern Mediterranean Sea.** *Scientific reports*
Bigal, E., Livne, L., Zemah-Shamir, Z., Levy, T., Shemesh, E., Tchernov, D., Scheinin, A.
2024; 14 (1): 19924
- **Regulation of early spermatogenesis in the giant prawn *Macrobrachium rosenbergii* by a GCL homolog.** *Biology of reproduction*
Molcho, J., Albagly, D., Levy, T., Manor, R., Aflalo, E. D., Alfaro-Montoya, J., Sagi, A.
2024
- **Monosex Populations of the Giant Freshwater Prawn *Macrobrachium rosenbergii*-From a Pre-Molecular Start to the Next Generation Era.** *International journal of molecular sciences*
Wahl, M., Levy, T., Ventura, T., Sagi, A.
2023; 24 (24)
- **Stocking density affects culture performance and economic profit of adult all-female Chinese mitten crabs (*Eriocheir sinensis*) reared in earthen ponds** *AQUACULTURE*
Zhang, G., Jiang, X., Zhou, W., Chen, W., Levy, T., Wu, X.
2024; 581
- **All-female crayfish populations for biocontrol and sustainable aquaculture** *AQUACULTURE*
Shaked, S. A., Levy, T., Moscovitz, S., Wattad, H., Manor, R., Ovadia, O., Sagi, A., Aflalo, E. D.
2024; 580
- **CANDIDATE STEM CELL ISOLATION AND TRANSPLANTATION IN HEXACORALLIA**
Talice, S., Barkan, S. K., Snyder, G. A., Ottolenghi, A., Eliachar, S., Ben-Romano, R., Oisher, S., Sharoni, T., Lewandowska, M., Sultan, E., Goldstein, O., Levy, T., Aharoni, et al
ELSEVIER SCI LTD.2023
- **Ferroptosis precedes apoptosis to facilitate specific death signalling by fatty acids.** *Proceedings. Biological sciences*
Zupo, V., Costantini, M., Aflalo, E. D., Levy, T., Chalifa-Caspi, V., Obayomi, O., Mutalipassi, M., Ruocco, N., Glaviano, F., Somma, E., Nieri, P., Sagi, A.
2023; 290 (2009): 20231327
- **Correlation between metabolomic profile and proliferation of *Macrobrachium rosenbergii* primary embryonic cell culture** *FRONTIERS IN MARINE SCIENCE*
Sudarshan, G., Weil, S., Jasinska, W., Manor, R., Goldstein, O., Aflalo, E. D., Ofir, R., Zimin, S. V., Levy, T., Rosental, B., Brotman, Y., Sagi, A.
2023; 10
- **Multiple Forms of Neural Cell Death in the Cyclical Brain Degeneration of A Colonial Chordate.** *Cells*
Anselmi, C., Caicci, F., Bocci, T., Guidetti, M., Priori, A., Giusti, V., Levy, T., Raveh, T., Voskoboynik, A., Weissman, I. L., Manni, L.
2023; 12 (7)
- **On genome editing in embryos and cells of the freshwater prawn *Macrobrachium rosenbergii*** *AQUACULTURE*
Molcho, J., Manor, R., Shamsian, M., Sudarshan, G., Ofir, R., Parker, D., Weil, S., Wattad, H., Hayun, E., Levy, T., Aflalo, E. D., Hendel, A., Sagi, et al
2022; 558
- **Genes Encoding the Glycoprotein Hormone GPA2/GPB5 and the Receptor LGR1 in a Female Prawn.** *Frontiers in endocrinology*
Wahl, M., Levy, T., Manor, R., Aflalo, E. D., Sagi, A., Aizen, J.
2022; 13: 823818
- **Botryllus schlosseri as a Unique Colonial Chordate Model for the Study and Modulation of Innate Immune Activity.** *Marine drugs*
Goldstein, O., Mandujano-Tinoco, E. A., Levy, T., Talice, S., Raveh, T., Gershoni-Yahalom, O., Voskoboynik, A., Rosental, B.
2021; 19 (8)
- **From sporadic single genes to a broader transcriptomic approach: Insights into the formation of the biomineralized exoskeleton in decapod crustaceans** *JOURNAL OF STRUCTURAL BIOLOGY*
Shaked, S. A., Abehsera, S., Levy, T., Chalifa-Caspi, V., Sagi, A.
2020; 212 (2): 107612

- **Ovarian development pattern and vitellogenesis of ridgetail white prawn, *Exopalaemon carinicauda*** *CELL AND TISSUE RESEARCH*
Wang, L., Guo, Q., Levy, T., Chen, T., Wu, X.
2020; 382 (2): 367–79
- **The IAG gene in the invasive crayfish *Procambarus clarkii* - towards sex manipulations for biocontrol and aquaculture** *MANAGEMENT OF BIOLOGICAL INVASIONS*
Savaya, A., De Leo, G., Aalto, E., Levy, T., Rosen, O., Manor, R., Aflalo, E. D., Tricarico, E., Sagi, A.
2020; 11 (2): 237–58
- **Three generations of prawns without the Z chromosome: Viable WW *Macrobrachium rosenbergii* all-female populations in polyculture with *Oreochromis niloticus*** *AQUACULTURE*
Molcho, J., Levy, T., Benet, A., Naor, A., Savaya, A., Manor, R., Abramov, A., Aflalo, E. D., Shechter, A., Sagi, A.
2020; 515
- **Identification and Characterization of an Insulin-Like Receptor Involved in Crustacean Reproduction** *ENDOCRINOLOGY*
Sharabi, O., Manor, R., Weil, S., Aflalo, E. D., Lezer, Y., Levy, T., Aizen, J., Ventura, T., Mather, P. B., Khalaila, I., Sagi, A.
2016; 157 (2): 928–41

PRESENTATIONS

- A single injection of hypertrophied androgenic gland cells produces all-female aquaculture - The 11th International Marine Biotechnology Conference (8/29/2016 - 9/2/2016)
- Sexual differentiation during the life history of a protandric shrimp - The Society for Integrative and Comparative Biology (1/4/2017 - 1/8/2017)
- Novel biotechnology for all-female prawn aquaculture by a single injection of hypertrophied androgenic gland cells - The 15th Asia-Pacific Biotechnology Congress (7/20/2017 - 7/22/2017)
- Biotechnology for all-female prawns – first time in crustacean aquaculture - The International Symposium of Genetics in Aquaculture (7/15/2018 - 7/20/2018)
- Do WW homogametic female redclaw crayfish exist? - The International Symposium of Genetics in Aquaculture (7/15/2018 - 7/20/2018)
- All-female redclaw crayfish aquaculture - The 12th International Marine Biotechnology Conference (9/9/2019 - 9/13/2019)
- WW neo-males, sex chromosomes and all-female aquaculture in crustaceans - The 12th International Marine Biotechnology Conference (9/9/2019 - 9/13/2019)
- The science behind the IAG-switch and the genome of the giant freshwater prawn *Macrobrachium rosenbergii* - Giant Prawn 2019 Conference (11/15/2019 - 11/18/2019)
- Germline stem cell competition in chimeras of the colonial tunicate *Botryllus schlosseri* – a mechanism of natural selection - The North American Comparative Immunology Workshop (6/5/2022 - 6/8/2022)
- Androgenic gland in neo-male prawns lacking male chromosomes – where does it come from and how is it possible? - The 10th International Crustacean Congress (5/22/2023 - 5/26/2023)
- *Pandalus platyceros* – a protandric shrimp as a model to explore the IAG-switch and crustacean sexual plasticity - The 10th International Crustacean Congress (5/22/2023 - 5/26/2023)
- The Colonial Tunicate *Botryllus schlosseri* - A Marine Model for Germline Stem Cells Competition - The North American Comparative Immunology Workshop (6/4/2023 - 6/8/2023)
- Germline stem cell competition in a marine tunicate: a reproductive mechanism highlighting natural selection at the cellular scale - Western Society of Naturalists - 104th Annual Meeting (11/9/2023 - 11/12/2023)
- Unlocking Secrets of Germline Stem Cells Through the Fascinating World of Marine Tunicates - 2023 Israeli Association of Aquatic Sciences Annual Meeting (2/11/2024 - 2/11/2024)
- Revealing the mysteries of stem cells through the fascinating world of marine tunicates - The 5th Rothschild Fellowships Colloquium (5/8/2024 - 5/9/2024)
- Functional and molecular characterization of germline stem cells in a marine tunicate and their role in gonadal regeneration - The North American Comparative Immunology Workshop (6/23/2024 - 6/26/2024)
- Characterizing Germline Stem Cells and Their Function In Gonadal Regeneration Throughout The Asexual Cycle Of A Colonial Tunicate - The 12th International Tunicate Meeting (7/22/2024 - 7/26/2024)
- Isolation, characterization and aging of germline stem cells in a hermaphrodite protochordate - The 15th International Congress on Invertebrate Reproduction and Development (6/2/2025 - 6/6/2025)
- Germline stem cell isolation, lineage tracing across generations, and aging in a protochordate - The 11th ILANIT Conference - The federation of the Israeli societies of experimental biology (2/23/2026 - 2/26/2026)