

## Curriculum Vitae–Shai Zilberzwige –Tal

### **Personal:**

Name: Shai Zilberzwige –Tal  
Institute: The Shmunis School of Biomedicine and Cancer Research, George S. Wise Faculty of Life Sciences, Tel Aviv University.  
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Date of birth: 22.01.1991  
Place of birth: Israel  
Gender: Female

### **Education:**

2017-present **PhD Student at The Life Sciences Fast Direct PhD Program for Outstanding Students**, Tel Aviv University. Under the supervision of Prof. Ehud Gazit.  
2017-2018 **M.Sc. Biotechnology**, Tel-Aviv University. Under the supervision of Prof. Ehud Gazit.  
2013-2016 **B.Sc., Biology with an emphasis on Biotechnology, (*summa cum laude*)**, Tel-Aviv University.  
2009-2010 **Emergency Medical Technician (EMT)** – Magen David Adom, as part of military service as an intensive care commander in the Israel Defense Force (IDF).

### **Academic and Professional Experience:**

2018-2020 **Supervisor of Teaching Assistants** in the Life Sciences Faculty, The Shmunis School of Biomedicine and Cancer Research, Tel-Aviv University. Microbiology laboratory (Graduate School Course), Trained and supervised 30 teaching assistants, overseeing 300 undergraduate students.  
2018-2019 **Synthetic Biology Instructor of “Alpha Research Program for Gifted Youth“**. Mentored high-school students from the top 5% of gifted youth in Israel, which led to poster presentation entitled “Optimizing ssDNA nanostructures production *in vivo*” by Raz Sofer at the NANO.IL conference, October 2018.  
**Instructor of “The Odyssey Program for Talented and Gifted Youth”**. Mentored high-school student pursuing a dual-disciplinary undergraduate degree, which included

the design of a research project, development of critical thinking, various biological assays performance and data analyzing.

2016-2017 **Assistant Student during a Research Project**, under the supervision of Prof. Ehud Gazit, The Shmunis School of Biomedicine and Cancer Research, Tel-Aviv University.

2015-2016 **Assistant Student during a Research Project**, under the supervision of Prof. Daniel Segal laboratory, The Shmunis School of Biomedicine and Cancer Research, Tel-Aviv University.

### **Academic and Professional Awards:**

2021 ACS Synthetic Biology Front Cover Image.

2021 The Marian Gertner Institute for Medical Nanosystems Excellent Award.

2020 Poster Award - The 1st International BioDesign Research Conference.

2019 Teaching Excellence Award, Faculty of Life Sciences, Tel-Aviv University.

2018 Tel Aviv university scholarship for Excellent Students.

2017 The Daniel Turnberg Travel Fellowship for Biomedical Researchers. Visiting student at Prof. Toumas Knowles laboratory at The Chemical Department of Cambridge University, UK.

2015-2016 Dean's honor.

### **Publications:**

1. **Zilberzwige – Tal, S.**, Gazit D., and Gazit, E, Encapsulation of Functional DNA nanostructures (*in preparation*, 2021).
2. **Zilberzwige - Tal, S.**, Fontanarrosa, P., Dorfan, Y., Gazit, E., and Myers, C., Investigating and Modeling the Factors that Effects the Performance of Genetic Circuits (*in preparation*, 2021).
3. Chakraborty, P., Oved, H., Yao, Y., Bychenko, D., Tang, Y., **Zilberzwige – Tal, S.**, Wei, G., Dvir, T., and Gazit, E. (2021) A Nano-Engineered Peptide Based Conductive Hydrogel Towards Supramolecular Biomaterials For Cardiac Tissue Engineering. *Advanced Materials*, p.2003738.
4. **Zilberzwige - Tal, S.**, Alon, D., Gazit, D., Zachariah, S., Hollander, A., Gazit, E., and Elbaz, J .(Accepted, *ACS syntactic biology*, 2021). Genetically Encoding Ultra-Stable Virus-like Particles Encapsulating Functional DNA Nanostructures in Living Bacteria.

5. Chakraborty, P., Tang, Y., Yamamoto, T., Yao, Y., Guterman, T., **Zilberzwige-Tal, S.**, Adadi, N., Ji, W., Dvir, T., Ramamoorthy, A., Wei, G. and Gazit, E. (2020). Unusual Two-Step Assembly of a Minimalistic Dipeptide-Based Functional Hydrogelator. *Advanced Materials*, p.1906043.
6. Ji, W., Yuan, C., **Zilberzwige-Tal, S.**, Xing, R., Chakraborty, P., Tao, K., Gilead, S., Yan, X. and Gazit, E. (2019). Metal-Ion Modulated Structural Transformation of Amyloid-Like Dipeptide Supramolecular Self-Assembly. *ACS Nano*, 13(6), pp.7300-7309.
7. **Zilberzwige-Tal, S.**, Levin, A., Toprakcioglu, Z., Knowles, T., Gazit, E. and Elbaz, J. (2019). Programmable On-Chip Artificial Cell Producing Post-Translationally Modified Ubiquitinated Protein. *Small*, Video abstract - <https://onlinelibrary.wiley.com/doi/full/10.1002/sml.201901780>
8. **Zilberzwige-Tal, S.**, Levin, A., Toprakcioglu, Z., Knowles, T., Gazit, E. and Elbaz, J. (2019). Programmable On-Chip Artificial Cell Producing Post-Translationally Modified Ubiquitinated Protein. *Small*, 15(31), p.1901780.
9. **Zilberzwige-Tal, S.**, and Gazit, E. (2018). Go with the Flow-Microfluidics Approaches for Amyloid Research. *Chemistry - An Asian Journal*, 13(22), pp.3437-3447.
10. Frenkel-Pinter, M., Shmueli, M., Raz, C., Yanku, M., **Zilberzwige, S.**, Gazit, E. and Segal, D. (2017). Interplay between protein glycosylation pathways in Alzheimer's disease. *Science Advances*, 3(9), p.e1601576.

### **Patents:**

1. "Compartmentalized central dogma activities within artificial cell". **United States Patent Application** Number. 16654249, filed [16.10.2019]. **Zilberzwige - Tal, S.**, Gazit, E. Elbaz.
2. "*In vivo* and *in vitro* platform for encapsulation of function DNA in virus-like particles (VLPs)". **United States Provisional Patent Application** Number. 62/879,555., filed [29.07.2019]. Elbaz, J., **Zilberzwige-Tal, S.**, Alon, D.

### **Oral presentations:**

- **Zilberzwige - Tal, S.**, Alon, D., Gazit, D., Zachariah, S., Hollander, A., Gazit, E., Elbaz, J. "Genetically Encoding Ultra-Stable Virus-like Particles Encapsulating Functional DNA Nanostructures in Living Bacteria", *The 1st International BioDesign Research Conference, October 2020*.
- **Zilberzwige - Tal, S.**, Alon, D., Gazit, D., Zachariah, S., Hollander, A., Gazit, E., Elbaz, J. "Mass Production of Self-assembled Synthetic Virus Encapsulating Functional ssDNA in

Living Bacteria, With Increased Activity and Resistance to Degradation in Human Blood Serum.” *Israel Society for Medical and Biological Engineering (ISMBE), February 2020.*

- **Zilberzwige-Tal, S.**, Levin, A., Toprakcioglu, Z., Knowles, T., Gazit, E., Elbaz, J. “Artificial cells with controllable central dogma activities as a tool for understanding complex biological events”, *The 27th Tel-Aviv University Alzheimer’s Disease Conference & First Joint UK-Israel Dementia Prevention, June 2019.*
- **Zilberzwige-Tal, S.**, Levin, A., Toprakcioglu, Z., Knowles, T., Gazit, E., Elbaz, J. “Artificial cells with controllable central dogma activities as a tool for understanding complex biological events”, *invited speaker in synthetic biology course for undergraduate students, Tel-Aviv University, March 2019.*
- **Zilberzwige-Tal, S.**, Levin, A., Toprakcioglu, Z., Knowles, T., Gazit, E. and Elbaz, J. “Artificial cells with controllable central dogma activities as a tool for understanding complex biological events”, *Israel Society for Medical and Biological Engineering (ISMBE), February 2019.*

#### **Poster presentations:**

- **Zilberzwige - Tal, S.**, Alon, D., Gazit, D., Zachariah, S., Hollander, A., Gazit, E., Elbaz, J. “Genetically Encoding Ultra-Stable Virus-like Particles Encapsulating Functional DNA Nanostructures in Living Bacteria“, *The 1st International BioDesign Research Conference, October 2020.*
- **Zilberzwige-Tal, S.**, Levin, A., Toprakcioglu, Z., Knowles, T., Gazit, E. and Elbaz, J. “Programmable artificial cell-on-a-chip”, *The 1st International BioDesign Research Conference, October 2020.*
- **Zilberzwige-Tal, S.**, Alon, D., Gazit, D., Zachariah, S., Hollander, A., Elbaz, J. Mass Production of Self-assembled Synthetic Virus Encapsulating Functional ssDNA in Living Bacteria. *ILANIT, February 2020.*
- **Zilberzwige-Tal, S.**, Levin, A., Knowles, TPJ., Elbaz, J., Gazit, E. Compartmentalized central dogma activities within a programmable artificial cell, *2nd Israeli Synthetic biology meeting, March 2019.*

#### **Languages:**

- Hebrew - Native language
- English - Fluent written and spoken