



Universiteit  
Leiden  
The Netherlands

## Quest for the cure: towards improving hematopoietic stem cell based lentiviral gene therapy

Tajer, S.P.

### Citation

Tajer, S. P. (2024, December 17). *Quest for the cure: towards improving hematopoietic stem cell based lentiviral gene therapy*. Retrieved from <https://hdl.handle.net/1887/4172518>

Version: Publisher's Version

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/4172518>

**Note:** To cite this publication please use the final published version (if applicable).

## Acknowledgment

As Haruki Murakami writes in *Kafka on the Shore*, "...once the storm is over, you won't remember how you made it through, how you managed to survive. You won't even be sure, in fact, whether the storm is really over. But one thing is certain. When you come out of the storm, you won't be the same person who walked in. That's what this storm's all about". Reflecting on my PhD journey, I realize the profound truth in these words. This journey has been a storm in itself and shaping me in ways I never anticipated. What you hold in your hands is just one result of this journey, but the impact of these years reaches far beyond. I owe immense gratitude to those who have been part of this journey.

To Frank and Karin, thank you for your continuous support, guidance, and the freedom you've given me to pursue my research. Frank, you've shown me the true value of persistence and believing in the process. I am especially grateful for your open-ness to discuss anything, be it work or personal matters. Dear Karin, your pragmatism, critical insights, and kindness have been invaluable.

Menzo, you are a visionary mentor. The idea of this PhD program and the collaboration with Batavia Biosciences began during my master's internship, and it wouldn't have been possible without your support and vision. For that, I am deeply thankful.

To my colleagues and friends from the Staal Lab, your support, conversations, and friendships made this journey more enjoyable. Marja and Sandra, thank you for your endless experience and guidance. Gita, it was a pleasure to work closely with you during the final years of my PhD. To Laura, Xiaolin, Sepideh, Martijn, Merijn, Saskia, and Nicole, thank you for the shared hours in the lab, the drinks, and the dinners. Kirsten, Lisa, Sander, Janine, and Leila, your invaluable feedback and support meant so much. Anita, Yuxi, Chantaal, it was a pleasure getting to know you.

Erik and Onur, thank you for your collaboration and help with the scRNA-seq experiments during the final phase of my PhD.

To the past and present members of the Department of Immunology, thank you for the shared knowledge, discussions, and fun times. Edwin, Simone, and Ijsbrand, your assistance with FACS troubleshooting was indispensable.

Taraneh, thanks so much for your creative input and for bringing the thesis to life with your beautiful illustrations and design.

In the years of my immigration to the Netherlands and calling Amsterdam home, a few people made it truly feel like home.

Parisa, your energy, joy, and love have been my rock. Thank you for all the laughter, cherished memories.

Elham, we were destined to find each other here in the Netherlands. I feel so lucky to have you as my friend, and LUMC and Immunology department made this friendship stronger, and I treasure all the fun memories, scientific debates, and life experiences we've shared.

Goli, your positivity has been a constant light. I'm so blessed to have your friendship and thank you for always being there for me no matter what.

Veronica, my dear Paranymp, what started as an officemate relationship grew into a friendship. I'm grateful for all the shared moments, from PhD frustrations to laughter and dinners. Wishing you all the best with your own PhD journey.

Arjan, thanks for all the memories through these years, and being a fun companion for checking out exhibitions, long talks over wine and tiramisu and of course helping out with the Dutch translation of the thesis summary.

My dear Andreja, I do vividly remember our first Master project together, and years later, being my dearest friend, with whom I grew up in Amsterdam. We both shared so many ups and downs during our PhDs journey and personal life. Thanks for being part of this journey and happy to have you next to me as my Paranymp.

My dearest Mahsima, it feels like nothing I write, does our friendship full justice. We've been close since our first week of university back in Shiraz, and you've been a part of every significant moment since then. We have experienced a life together, we laughed, we cried and we grew up together.

To my beloved parents, Maman and Baba, none of this would have been possible without your constant support. You've always motivated me to be my best self, and I'm forever thankful for everything you've done.

Last but not least, I would like to thank my biggest supporters in life, my dearest brothers, Ali and Ehsan, which without them and their unconditional love and support I wouldn't be in this way that I am. Thank you for always guiding and motivating me. To my loveliest sisters-in-law, Atefeh and Parisa, I'm grateful for your unconditional support and understanding in my journey.

## Curriculum vitae

Parisa was born on May 15, 1989, in Shiraz, Iran. In 2007, she got her diploma in natural sciences from Yas High School in Shiraz. She obtained her bachelor's degree in biology from Shiraz University in 2012. The following year, she moved to the Netherlands to pursue a master's in Biomedical Science at the University of Amsterdam. During her master's program, she gained research experience through internships in various academic institutions in the Netherlands and the USA.

To expand her experience in industry, Parisa completed an internship at Batavia Biosciences in Leiden, where she contributed to optimizing large-scale virus production. She earned her master's degree in 2016 and continued working as a research assistant at Batavia Biosciences. In 2017, she began a joint PhD project between the Immunology Department at Leiden Medical Center and Batavia Biosciences, under the supervision of Prof. Dr. Frank Staal and Dr. Karin Pike-Overzet. Her research, which focused on improving hematopoietic stem cell-based gene therapy using lentiviruses, resulted in this thesis.

## List of Publications

- **Ex Vivo Expansion of Hematopoietic Stem Cells for Therapeutic Purposes: Lessons from Development and the Niche** **Tajer P**, Pike-Overzet K, Arias S, Havenga M, Staal FJT.. *Cells*. 2019 Feb 18;8(2):169.
- **IL3 Has a Detrimental Effect on Hematopoietic Stem Cell Self-Renewal in Transplantation Settings.** **Tajer P**, Canté-Barrett K, Naber BAE, Vloemans SA, van Eggermond MCJA, van der Hoorn ML, Pike-Overzet K, Staal FJT.. *Int J Mol Sci*. 2022 Oct 22;23(21):12736.
- **Utilizing epigenetic regulators to improve HSC-based lentiviral gene therapy.** **Tajer P**, Karakaslar EO, Canté-Barrett K, Naber B.A.E., Vloemans A, van Eggermond M.C.J.A, van der Hoorn M.L, van den Akker E, Pike-Overzet K, Staal F.J.T; *Blood Adv* 2024; 8 (18): 4936–4947.
- **Restoration of T and B Cell Differentiation after RAG1 Gene Transfer in Human RAG1 Defective Hematopoietic Stem Cells** Sorel, N.; Díaz-Pascual, F.; Bessot, B.; Sadek, H.; Mollet, C.; Chouteau, M.; Zahn, M.; Gil-Farina, I.; **Tajer, P.**; van Eggermond, M.; et al.. *Biomedicines* **2024**, *12*, 1495.