



Universiteit
Leiden
The Netherlands

Advancements in cancer imaging: receptor-targeted approaches for enhanced precision and therapy guidance

Rezaei, S.

Citation

Rezaei, S. (2026, March 31). *Advancements in cancer imaging: receptor-targeted approaches for enhanced precision and therapy guidance*. Retrieved from <https://hdl.handle.net/1887/4300445>

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/1887/4300445>

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

Appendices

List of publications

Curriculum vitae

Acknowledgments

List of publications

- [1] **Rezaei S**, Fonteyne M, Cruz LJ, Badr N, Manelkar A, Saberi M, van Vlierberghe RL, Vahrmeijer AL, Eich C, Albericio F, van der Weerd L. Targeting rectal cancer using fluorescent nanoparticles conjugated to a novel GRPR-Binding peptide for tumor imaging applications. *Materials & Design*. 2025 Sep 26:114841.
- [2] Sayedipour SS, Schomann T, van de Looij SM, **Rezaei S**, Ramos YF, Vermonden T, van der Weerd L, Meulenbelt I, Cruz LJ. Poloxamer-based thermosensitive injectable hydrogels containing a self-assembling peptide for In situ gelation. *Computational and Structural Biotechnology Journal*. 2025 Sep 29
- [3] **S. Rezaei**, X. Zhang, R.L. van Vlierberghe, A. Piet, E.M.-K. Kranenbarg, A. Manelkar, Y. Seimbille, P. Laverman, L. van der Weerd, A.L. Vahrmeijer, Expression of Cholecystokinin 2 Receptor (CCK2R) in Rectal Cancer: Clinical Relevance and In Vitro Targeting with a Fluorescent CCK2R-Binding Peptide, *Pharmacological Research-Reports* (2025) 100054.
- [4] **S. Rezaei**, R.F. de Araújo Júnior, I.L.G. da Silva, T. Schomann, C. Eich, L.J. Cruz, Erythrocyte– cancer hybrid membrane-coated reduction-sensitive nanoparticles for enhancing chemotherapy efficacy in breast cancer, *Biomaterials Advances* 151 (2023) 213456.
- [5] L.J. Cruz, **S. Rezaei**, F. Grosveld, S. Philipsen, C. Eich, Nanoparticles targeting hematopoietic stem and progenitor cells: multimodal carriers for the treatment of hematological diseases, *Frontiers in Genome Editing* 4 (2022) 1030285.
- [6] Y. He, **S. Rezaei**, R.F.d.A. Júnior, L.J. Cruz, C. Eich, Multifunctional role of lipids in modulating the tumorigenic properties of 4T1 breast cancer cells, *International journal of molecular sciences* 23(8) (2022) 4240.
- [7] **S. Rezaei**, S. Kashanian, Y. Bahrami, H. Zhaleh, L.J. Cruz, Enhanced intracellular delivery of curcumin by chitosan-lipoic acid as reduction-responsive nanoparticles, *Current pharmaceutical biotechnology* 22(5) (2021) 622-635.
- [8] **S. Rezaei**, S. Kashanian, Y. Bahrami, L.J. Cruz, M. Motiei, Redox-sensitive and hyaluronic acid-functionalized nanoparticles for improving breast cancer treatment by cytoplasmic 17 α -methyltestosterone delivery, *Molecules* 25(5) (2020) 1181.
- [9] K. Rostamizadeh, **S. Rezaei**, M. Abdouss, S. Sadighian, S. Arish, A hybrid modeling approach for optimization of PMAA–chitosan–PEG nanoparticles for oral insulin delivery, *RSC advances* 5(85) (2015) 69152-69160.

Curriculum vitae

Somayeh Rezaei was born on November 22, 1989, in Zanjan, Iran. She obtained her bachelor's degree in Applied Chemistry from Zanjan University in June 2012. From 2012 to 2015, she continued her academic research at the School of Pharmacy, Amirkabir University of Technology (Tehran Polytechnic), one of the top three universities in Iran, and at the Medical School of Zanjan University of Medical Sciences. Under the supervision of Prof. Majid Abdouss and Prof. Kobra Rostamizadeh, she focused on the design and synthesis of polymeric nanoparticles for insulin encapsulation, with an emphasis on evaluating their stability and quality. She earned her master's degree in Chemistry with highest honors and was recognized as a top student during her studies. In March 2019, Somayeh moved to the Netherlands to join the Department of Radiology at Leiden University Medical Center as a researcher under the supervision of Dr. Luis J. Cruz and Dr. Christina Eich. Her research focused on developing polymeric nanoparticles for drug delivery, engineering extracellular vesicles for breast cancer targeting, and designing PLGA-based systems for imaging and PD-L1 gene editing. In March 2020, she began her PhD within the CAST project in the same department, supervised by Prof. Andrew Webb, Dr. Luis J. Cruz, and Dr. Christina Eich. In June 2023, she transitioned to the Department of Surgery under the supervision of Dr. Peter Kuppen to complete her research, focusing on the development of novel molecular imaging targets and strategies for rectal cancer, with a particular emphasis on epithelium marker expression. During this phase of her research, she successfully identified two novel markers for rectal cancer with strong potential for clinical application.

Acknowledgments

My PhD journey has deepened my appreciation for scientific inquiry the drive to observe, question, and wonder. This spirit guided me through challenges and uncertainty, while the support of those around me gave me strength and resilience. I am profoundly grateful to all who stood by me during this transformative time.

I am especially grateful to my promotor, Prof. dr. Andrew Webb, for your invaluable guidance and trust throughout this project. Your sharp intellect, constructive feedback, and calm mentorship provided a solid foundation on which I could build my ideas and grow as a researcher. I truly appreciate the academic freedom you gave me, which allowed me to explore and learn independently.

To my co-promotor, Dr. Peter Kuppen, I am deeply grateful for your sharp insight, steady encouragement, and unwavering clarity of vision. Your meticulous attention to detail and deep scientific perspective not only strengthened the quality of my research but also gave me the confidence to face challenges with focus and determination.

I would like to express my gratitude to Dr. Luis J. Cruz and Dr. Christina Eich for their invaluable guidance throughout this journey. Dr. Cruz gave me the opportunity to join the project, and Dr. Eich, as my daily supervisor, consistently provided feedback and advice.

My sincere thanks also go to Prof. dr. Louise van der Weerd and Prof. dr. Alexander Vahmeijer, whose constant support and encouragement were essential in helping me reach the final stage of this journey. Your belief in me gave me the confidence to keep going when things felt overwhelming.

I am grateful to our skilled and kind technicians Ronald and Shadvi, for teaching me the practical skills I needed in the surgery department. Thank you for your patience, clear explanations, and willingness to always help. You not only shared your expertise but also helped create a welcoming and collaborative environment in the lab.

I would like to thank the people at the D4 Lab and the Eindhoven Lab, especially the late Hetty (may she rest in peace), Chris, Maaike, Rashmir, and Trea, for their kindness, support, and the positive atmosphere they helped create.

To my dear paranympths, Sana and Mahin, thank you for being by my side both in science and in life. Your friendship, laughter, and emotional support gave me strength, and I will always be grateful for the memories we've created together. Leila graciously stepped in to take Mahin's place as my paranympth.

I would also like to thank the amazing members of our research team Nada, Mark, Xi, Jynx, Candido, Sana, Cludia, Lizzie, Yuanyuan, Timo, Julio, Andy, Jelle, Sabien, Chikit, and Reimondo. It was an honor to work with you. Your collaboration, insights, and dedication brought energy and life to this project. Each of you, in your own way, contributed to its success, and I feel fortunate to have been part of this team.

Finally, I want to thank my family for their unwavering love and support. To my husband, Esmaeil, thank you for your patience, strength, and constant encouragement. Your belief in me never wavered,

even during the most challenging moments of this journey. You stood by my side with understanding and resilience, offering comfort when I felt overwhelmed and celebrating every small victory along the way. Your sacrifices, quiet reassurance, and steady confidence gave me the courage to persevere. This achievement is as much yours as it is mine, and I am deeply grateful to share it with you. To my sister, Leila, your constant belief in me has been a true source of strength. To my sweet son Aren, once carried beneath my heart and now held in my arms, you are my greatest blessing and a reminder of what truly matters. And to my dear family in Iran, your love carried me from afar. This thesis is dedicated to my family, for their unconditional love and for always reminding me of who I am beyond titles and achievements