



**Universiteit
Leiden**

The Netherlands

**Advancing image-based localization of lipid-based
nanomedicines for the exploration of targeted drug delivery**

Os, W.L. van

Curriculum vitae

Winant van Os, born on February 9, 1994, in Schiedam, Netherlands, completed his education at SG Spieringshoek in Schiedam, where he finished his pre-university studies (VWO). He then pursued both a Bachelor's and a Master's degree in Bio-Pharmaceutical Sciences at Leiden University. Under the supervision of Prof. Wim Jiskoot at Leiden University, Winant undertook research on the characterization of monoclonal antibodies (mAbs) for intravenous administration. His work included analyzing the biophysical properties and stability of mAbs using advanced analytical techniques such as chromatography and spectroscopy to ensure their efficacy and safety for therapeutic use. Throughout his studies, Winant gained valuable experience through various research internships. At Leiden University, under the supervision of Prof. Dr. Joke Bouwstra, he conducted research on intravenous administration to target the skin using nanomedicine. In this research, nanoparticles were developed and characterized to improve drug delivery to the

skin through intravenous routes, enhancing his understanding of nanomedicine and targeted drug delivery systems. Further developing his expertise, Winant worked with Dr. Homira Behbahani on a project that focused on drug delivery to the brain, at the Karolinska Institutet in Stockholm, Sweden. Here, Winant worked on cell biodelivery devices designed for the delivery of therapeutic proteins in the brain. His work involved developing and testing innovative cell-based systems aimed at improving the efficacy of brain-targeted therapies. Through these diverse experiences, Winant has developed strong laboratory skills in drug formulation, analytical chemistry, and biopharmaceutical characterization. During his PhD trajectory, Winant has obtained novel skills in working with laboratory animals by obtaining a Federation of European Laboratory Animal Science Associations article 9 certificate, with an additional zebrafish-specific course succeeded at the Leiden Institute of Biology. He also achieved skills in microscopy image processing by obtaining a course certificate in use of Fiji/ImageJ at the University of Leicester. Moreover, Winant obtained skills for exploration of technology valorisation by successfully finishing the ‘Venture Academy’ at PLNT Leiden, and BioBusiness Summerschool in Amsterdam. Most important, he obtained transferable skills by being challenged in critical thinking, presenting at (international) conferences, coaching, working independently, data analysis- and interpretation, and supervising.

List of publications

Described in thesis :

van Os, W. L., Wielaert, L., Alter, C., Davidović, D., Šachl, R., Kock, T., Ugueto González, U., Arias-Alpizar, G., Lozano Vigario, F., Knol, R.A., Kuster, R., Romeijn, S., Lopez Mora, N., Detampel, P., Hof, M., Huwyler, J., Kros, A. (2024). Lipid conjugate dissociation analysis improves the in vivo understanding of lipid-based nanomedicine. *Journal of Controlled Release*, 371, 85-100.

Papadopoulou, P., van der Pol, R., van Hilten, N., van Os, W. L., Pattipeiluhu, R., Arias-Alpizar, G., Knol, R.A., Noteborn, W., Moradi, M., Joao Ferraz, M., Aerts, J.M.F.G., Sommerdijk, N., Campbell, F., Risselada, H.J., Sevink, G.J.A., Kros, A. (2024). Phase-Separated Lipid-Based Nanoparticles: Selective Behavior at the Nano-Bio Interface. *Advanced Materials*, 36(6), 2310872.

Other publications:

Zhang, H., van Os, W. L., Tian, X., Zu, G., Ribovski, L., Bron, R., Bussmann, J., Kros, A., Liu, Y., Zuhorn, I. S. (2021). Development of curcumin-loaded zein nanoparticles for transport across the blood–brain barrier and inhibition of glioblastoma cell growth. *Biomaterials Science*, 9(21), 7092-7103.

Leboux, R. J. T., Benne, N., van Os, W. L., Bussmann, J., Kros, A., Jiskoot, W., & Slütter, B. (2021). High-affinity antigen association to cationic liposomes via coiled coil-forming peptides induces a strong antigen-specific CD4⁺ T-cell response. *European Journal of Pharmaceutics and Biopharmaceutics*, 158, 96-105.

Supporting movies

<https://doi.org/10.4121/5f1a4b13-d82f-4bca-809d-89e2b233fe7b>



Acknowledgements

It was never my intention to pursue a PhD, until I entered the lab of prof. dr. Wim Jiskoot and prof dr. Joke Bouwstra during my Bachelor internship in Biopharmaceutical sciences. The atmosphere that you created with the research group and Wim's keen eye for formulation details encouraged me to pursue a PhD in the field of drug delivery technology. Thank you for the unforgettable moments that I could share with you and fellow colleagues Grzegorz, Connie, Stefan, Renata, Romain, Walter, Koen, Naomi, Pim, and many more. Thank you Pere, Laura, Fernando and Jannik for being great colleagues, and also becoming great friends. In specific Pere Català Quilis, sharing a single desk with you for nine months was a once-in-a-lifetime experience.

My intrinsic motivation to apply for a PhD was to contribute to the development and understanding of nanomedicine which could aid in improved quality of life. Confirmation or rejection of a hypothesis that could eventually, maybe, one day, result in therapeutic nanomedicine development is a job which requires an immense intrinsic motivation. It also requires a supervisor which supports you throughout good and difficult times. Alexander, thank you for guiding and supporting me on this PhD trajectory.

Thank you colleagues for the wise lessons and kindness. Gabriela, I never forget our time in Leicester and the coffee talks; we are still alive. Frederick, I admire your outspoken character in and outside the lab. Renzo, Dennis, Panagiota and Roy, your eye for detail on mRNA and LNPs has revolutionized this lab towards a successful LNP lab. Oscar, Ye, Don, Bochuan, Yun, Dinghoa, Michelle, Selina, Thomas, Niek, Niek, Max, Joyal, Jorn, Jasper, Indigo, Merel, Jeroen, Rianne, Stefan, Batuhan, Erik, Elena, Wessel, Jolinde, Andy, Tinxuan, David, Hugo, Josiah and all others; thank you for the great moments and helpful conversations. Jeroen, great biologist, thank you for introducing me to the zebrafish model. All other colleagues from SBC, thank you for having me around. Also LACDR and IBL colleagues, thanks to you, it (still) feels like coming home when entering your labs. Supportive staff, you are the best. In specific, Viorica, Gerda, Saskia, Joost, Guus, and Ulrike; with years of experience and main objective focus to keep experiments up and running, you are of huge value for the university, and therefore also for my PhD. Graduation students; Valentijn, Max, Sofie, David, Laura, Rick, Uri, Pim; seeing you grow during your projects was a great experience. Thank you.

Family and friends, thank you for your patience on a defense date and for being there when I brought my work to home, figuratively speaking. You are always there with kind words, wise advise and providing a mirror when required. Thank you Tim, Maurits, Rick, Patrick, Majlen, Jannik, Bastiaan, Maik, Lisa, Vincent, Max, Dani. Mom and dad, thank you for encouraging me to follow my curiosity throughout my whole life. Kirsten, Rick, Julie and Hidde; seeing you together

makes me think of Fred's wise words 'when I get home and see my children, I immediately forget about my workday'; same counts when visiting you. Family in law; Bas, Rick, Ward, Marie-Christine, Hans; thank you for the warmth and kindness. Most important, Noor, thank you for your support throughout these years when sharing my life with you.