

University of Groningen

Molecular motors in new media

Lubbe, Anouk Sophia

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version

Publisher's PDF, also known as Version of record

Publication date:
2017

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Lubbe, A. S. (2017). *Molecular motors in new media*. [Thesis fully internal (DIV), University of Groningen]. Rijksuniversiteit Groningen.

Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.

Acknowledgements

After seven and a half years in the same research group I feel like I am part of the furniture, so it is probably healthy that I am moving on. As a bachelor student, I saw the only motor proposal in the stack of potential projects, and thought that I would probably have to fight several people to get it. As it turned out, I was the only one who chose that project, and I have worked on molecular motors ever since. To be honest, I still can't understand why anyone would want to research anything else. I mean, it is a molecule and it is also a machine, what more could you want? Like probably everyone I experienced that some days were better than others, but I am so glad I persisted. I could not have done it all by myself though, so there a quite a few people who deserve my thanks.

Ben, I would like to thank you first and foremost. From early on you put a lot of faith in me and let me set my own course. I hope that I have fulfilled your expectations. Your continuous good mood and enthusiasm are infectious, and no matter how bad things seem, I always walk out of your office with new inspiration. It means so much to me that you asked me to help you write your book, and I will do everything I can to make sure it will be something we can both be proud of.

Wiktor, I can safely say that this thesis would not nearly have looked this good without you. Thank you especially for our weekly meetings; they kept me on track and you always had some smart idea or insightful comment. In particular I have appreciated your corrections on my papers and chapters. You only ever needed a few well-chosen words to make me realize what changes were needed and I think this made me a better writer. I am so happy that you ended up to be my copromotor.

This list would not be complete without Piet Kamminga and Cees van der Straaten. Without their help, I simply would not have been able to study chemistry at all. Thank you so much.

I would like to thank the reading committee, prof. Gerard Roelfes, prof. Adri Minnaard and prof. Joakim Andréasson, for their swift corrections and insightful comments. I would also like to thank prof. Andreas Herrmann for the pleasant collaboration, and for taking the time to read my thesis. Wesley, thank you for all the help and advice over the years.

When I find myself in times of trouble, Tom van Leeuwen comes to me. Speaking words of wisdom: "Just don't give a [high pitched bleep here]." Tom "Passion", thank you for teaching me to care a little less. Although the writing process was not particularly painful for either of us (judging by your occasional mumbled profanities, maybe a bit more for you), at times you just want to continuously bitch about it, and I am glad I could share that with you. Štacko, our synthesis god, in all these years I could

Acknowledgements

only marvel at your achievements in the fume hood, so I am sure you are at the start of a great career. I am happy to have worked with you, and wish you good luck with everything. Stefano, you are one of the kindest people I know and I hope you will be very happy in Italy. Wen-Hao, one can only wonder what deep and meaningful friendship we might have developed. Sander, you were a much needed addition to our Motor subgroup and you have lived up to that admirably. I want to thank you for all your advice and constructive comments, and wish you a stellar career. Kuang Yen, you crazy guy. I never know what you really think, but you are great to be around. Our lab was never weirder (or better) than when you were in it. And just so you know, I, too, have fond memories of our night in the tent.

About halfway during my PhD, suddenly all the coffee room people starting leaving, and I actually took out a newspaper subscription to fill my empty coffee breaks. Fortunately, a fresh batch of people arrived who were not afraid to procrastinate a little at 10 and 3. To all of you: I had a great time with you, and thank you for being so much fun. Dorus, your continuous shock at the conversation topics in the C-wing has been an enjoyment for many months. Thank you for being so pure. Didi, if religion does have to exist, then the world would be a much better place if all believers were like you: in possession of a good sense of humour and completely reasonable (oxymoron, I know). Thanks for letting me look at your boobs all these years. Filippo, being queen of evil is not your greatest part because really everyone can see the fabulous behind the façade. Thanks for the fun times, especially when they involved our shared loves for (Italian) food, drag queens, wine and trash in all forms and shapes. Henrieke, you are such a sweet person and have surprisingly remained so even after several years in the C-wing. I hope we didn't annoy you too much ;). Wojtjess, I hope you have forgiven me for our nightly ride in Boston and for pushing you at Rafal Klajn. He should be lucky if you ever went to work for him though. Adele, Thomas, Anne, Garçon, arschmaschine and all of the people above, thank you for the great trips to Gdansk, Munich, Berlin, New Hampshire and San Francisco. Everyone else who ever joined during our borrels, dinners, game nights and all the other good times we had, thank you so much.

After seven and a half years in this group, I have worked together with a great number of people. I would like to thank you all, in particular the Motor and Bio subgroups for the nice working atmosphere and all your contributions to my research. Of course the C-wing deserves a special mention here. I cannot even imagine what my life will be like without Loop Thursday, bockwurst buns, the your-mom jokes, that horrible complaining woman and the nasty smell that occasionally comes out of the fridge. Whenever in the next year I am gloating about drinking from a coconut on a pearly white beach while you are in subgroup meeting, know that at the same time I will be missing you very much.

Over the years I have supervised quite a number of students, with a varying degree of success. Sander, with only a little help from Jochem at the beginning and from me at the end, you still completed a nice MSc research. I hope you are enjoying yourself at Syncom. Sven, you did a great job and I am sure you are on your way to becoming an excellent chemist. Eva, I am impressed by your continuous optimism. Milan, there are no words to express my feelings. G, although I never really supervised you, you did a nice piece of research that will form a key part of a publication, so thank you very much.

Of course this thesis would not have existed without the proper characterization and technical support. Many thanks to Theodora, Monique, Wim and Hans. Pieter, thank you especially. I never really understand what you do because you are some kind of NMR wizard, but I know enough to understand that your help has been invaluable. I also want to thank the secretaries: Hilda, Annette, Maud and in particular Tineke. Tineke, if it were not for you I would probably still be waiting for my 2-year R&O meeting. You are a marvel of efficiency.

Other than basic organic chemistry, various techniques were required to conduct the research described in this thesis, many of which I know absolutely nothing about. Therefore, I am grateful to my many collaborators. Jan Willem, you spent quite some time laying the foundation for the DNA-motor hybrid project. Thank you for all that work. Qing, I really enjoyed working with you. DNA is really just a molecule, so I was surprised to learn how far removed our respective fields of expertise were from each other, but it made our discussions more interesting. Although we had no way of knowing, it is unfortunate that the design of the motor rendered your part of the work so challenging, but you made it work anyhow and I am proud of the work we did together. Alex, the MD part of this project has only just started, but I am really looking forward to seeing the results, which I am sure will be of tremendous value in the design of new motor-DNA hybrids. Marc, first of all I should thank you for your measurements, which transformed a project I had given up on into a decent and even interesting piece of research. But mostly I just had fun working with you. Erik and Esther, thank you for your contributions. I would also like to thank Salma Kassem and Miriam Wilson, who worked with Tom and me on a review on artificial molecular motors.

Giovanni and Pablo, thank you for organizing the best workweek with me. We went a completely different way than usual, which may have led to some more stress, but I think we can be happy and proud.

Pimpmaster Fred and the Magic Sticks, I am afraid that this will be the end for you. It's been fun though, whether we were with five or two people. Jochem, Jos, Wiktor, Thomas, Petra, Pieter, Lachlan and many guest members, thanks for the good times. Shame about Barzin. Fortunately, drinking beer and remembering trivia was not all I

Acknowledgements

did in the last five years. I would also like to thank the GSAC for the wonderful weekends and training.

Petra, you may be crazy but you are my favourite crazy person. I know that you are busy with your career and that weird card game you are into, but I hope to see more of you when I relocate, because you are truly one of the most fun people to be around. Thanks for all the support during the early years of my PhD.

Jochem, I've got a feeling that if I needed someone in my life, I need you. From me to you, I want to tell you something: don't ever change. Ooh! My soul is searchin' because all I've got to do is let it be, like dreamers do. Now and then, with a little help from my friends, I call your name. You really got a hold on me. Thank you girl.

Jos, I am unsure whether your move to Australia was the best or the worst thing that happened during my PhD. I lost a co-worker, climbing partner and pubquiz teammate, but as a result suddenly had so much time to actually do some research. Being friends over half the planet is easier than I thought though (and your powers of discussion are certainly not diluted by the distance). Thank you so much.

Ema, Judith, Kyra, Nanke, Nelske en Rian, ik ben niet de meest aanwezige vriendin geweest de afgelopen jaren. Het aanstaande jaar zal dat ook wat tegenvallen. Hoe dan ook, een weekendje Randstad of Pussy Dungeon was altijd een broodnodige onderbreking van de sleur. Ik ben ontzettend blij dat we elkaar nog steeds zien ondanks de indrukwekkende dingen waar jullie allemaal druk mee bezig zijn. Dank jullie wel. Ema, dank je voor de prachtige cover. Bas, je bent de meest relaxte huisgast die iemand zich maar kan wensen. We zullen volgend jaar eens zien of het andersom ook werkt. Mannold, ik heb de afgelopen 10 jaar bijna nooit meer dan 200 meter van je af gewoond, dus dat wordt even wennen. Kom anders gewoon even langs. Ik wil ook graag Eriks familie hartelijk bedanken voor de afgelopen jaren.

Papa, mama, Iris, Merel, oma en Ger, dank jullie wel voor alles. Ik zou niet zijn wie en waar ik nu ben zonder jullie. Jullie steun betekent alles voor me, en ik ga jullie heel erg missen komend jaar.

Erik, lief, je weet het allemaal allang. Ik kan niet wachten om met jou de wereld te zien. Dank je wel voor alles. ♥