



Universiteit
Leiden
The Netherlands

Chemical synthesis of fragments of galactosaminogalactan and pel polysaccharides

Zhang, Y.

Citation

Zhang, Y. (2021, November 9). *Chemical synthesis of fragments of galactosaminogalactan and pel polysaccharides*. Retrieved from <https://hdl.handle.net/1887/3239151>

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/1887/3239151>

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

List of Publications

1. Bamford, N.C.; Mauff F.; Van Loon, J. C.; Ostapska, H.; Snarr, B. D.; Zhang, Y.; Kitova, E. N.; Klassen, J. S.; Codée, J. D. C.; Sheppard, D. C., Howell, P. L. Structural and biochemical characterization of the exopolysaccharide deacetylase Agd3 required for *Aspergillus fumigatus* biofilm formation. *Nat. Commun.* **2020**, *11*: 2450.
2. Wang, L.; Zhang, Y.; Overkleeft, H. S.; van der Marel, G. A.; Codée, J. D. C. Reagent Controlled Glycosylations for the Assembly of Well-Defined Pel Oligosaccharides. *J. Org. Chem.* **2020**, *85*,15872-15884.
3. Zhang, Y.; Gomez-redondo, M.; Jimenez-Oses, G.; Arda, A.; Overkleeft, H. S.; van der Marel, G. A.; Jimenez-Barbero, J.; Codée, J. D. C. Synthesis and Structural Analysis of *Aspergillus fumigatus* Galactosaminogalactans Featuring α -Galactose, α -Galactosamine and α -N-Acetyl Galactosamine Linkages. *Angew. Chem., Int. Ed.* **2020**, *59*, 12746-12750.
4. Alex, C.; Visansirikul, S.; Zhang, Y.; Yasomanee, J. P.; Codée, J. D. C.; Demchenko, A. V. Synthesis of 2-azido-2-deoxy- and 2-acetamido-2-deoxy-D-manno derivatives as versatile building blocks. *Carbohydr. Res.* **2020**, *488*, 107900.
5. Bamford, N.; Mauff, F.; Subramanian, A.; Yip, P.; Millan, C.; Zhang, Y.; Zacharias, C.; Forman, A.; Nitz, M.; Codée, J. D. C.; Uson, I.; Sheppard, D.; Howell, P. L. Ega3 from the fungal pathogen *Aspergillus fumigatus* is an endo- α -1,4-galactosaminidase that disrupts microbial biofilms. *J. Biol. Chem.* **2019**, *294*, 13833-13849.
6. Mauff, F.; Bamford, N.; Alnabelseya, N.; Zhang, Y.; Baker, P.; Robinson, H.; Codée, J. D. C.; Howell, P. L.; Sheppard, D. C. Molecular mechanism of *Aspergillus fumigatus* biofilm disruption by fungal and bacterial glycoside hydrolases. *J. Biol. Chem.* **2019**, *294*, 10760-10772.
7. Sun, P.; Wang, P.; Zhang, Y.; Li, M. Construction of β -Mannosidic Bonds via Gold(I)-Catalyzed Glycosylations with Mannopyranosyl *ortho*-Hexynylbenzoates and Its Application in Synthesis of Acremomannolipin A. *J. Org. Chem.* **2015**, *80*, 4164-4175.
8. Zhang, Y.; Wang, P.; Song, N.; Li, M. Bromodimethyl-sulfonium bromide/silver triflate-promoted glycosylations using glycosyl allenoates as donors. *Carbohydr. Res.* **2013**, *381*, 101-111.
9. Chen, P.; Zhang, Y.; Wang, P.; Li, M. Synthesis of β -D-mannuronic acid disaccharide fragments. *Chinese Journal of Marine drugs*, **2014**, *33*, 63-68. (in Chinese)

Acknowledgements

Time flies! I will never forget those wonderful time at Bio-organic Synthesis group at Leiden University. At this, I would like to express my gratitude to all those helped me during the writing of this thesis.

Firstly, I would like to give my sincere gratitude to my supervisors, Prof. Dr. Gijs van der Marel and Prof. Dr. Jeroen Codée, for their reliable advice and inspiration of new ideas over the past four years. The opportunity you gave me to study in the Netherlands has totally changed my life. I have always been feeling lucky to work with you.

I express my gratitude to Prof. Dr. Hermen S. Overkleeft for allowing me to work in the Biosyn group. And I would like to thank Dima for some suggestions and support. Thank Nico, Hans, Rian, Bobby, Karthick, Fons and Simone for some purification, HRMS, and NMR analysis. Also, thank Jessica, Astrid and Mionne for your kind help.

I express my gratitude to my collaborators who make my work more meaningful. Thank Prof. Dr. Lynn Howell at University of Toronto, Canada; Prof. Dr. Don Sheppard at McGill University, Canada; Prof. Dr. Jesús Jiménez-Barbero at CIC bioGUNE, Spain; Dr. François Le Mauff, and Dr. Natalie C. Bamford for your help.

I express my gratitude all my colleagues in Biosyn group for your kind help and understanding. Thank Zhen, Sizhe, Liming, Qingju, Dung-Yeh, Tony, Jacopo, Francesca, Yurong, Qiang, Ming, Bing, Zirui, Na, Vincent, Wouter, Jacob, Hessel, Gijs, Thijs, Sara, Stefan, Niels, Elko, Tim, Mickey, Laura, Thomas, and other members in our group.

I express my gratitude to my Chinese friends in Leiden for lots of help in daily living. Thank Junfei, Heyang, Hui, Ciqing, Liang, Andi, Mengjie, Ye, Tingxian, Jing, Li, Qing, Botao, Juan and so on. It is my great pleasure to meet you.

I would like to thank my beloved parents and my family who have been supporting and caring for me all of my life. Last but not the least, I want to say 'thank you' to my wife, Yinzhi, for her love and constant support. I owe you everything.

Sept. 2021, Linyi

Yongzhen