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Total synthesis of alginate and zwitterionic SP1 oligosaccharides

Zhang, Q.

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Curriculum Vitae

Qingju Zhang was born in Biyang, Henan, China in November 1982. In 2004, he entered Xuchang University and obtained his bachelor degree of applied chemistry in 2008. Then, he moved to Zhengzhou University for master study in the field of organic chemistry. After following some courses and doing some research work under the supervision of Prof. Fuyi Zhang, he undertook his master research work in Prof. Biao Yu group at Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences (under the supervision of Prof. Yu and Prof. Jiansong Sun) in 2009. He obtained master degree with the thesis 'The synthesis of sugar-fused isoxazoline-*N*-oxides and their application in producing amino-containing branched-chain saccharide derivatives and the synthesis of nucleosides via gold-catalyzed glycosylation' in 2011. He continued to do the research work (total synthesis of Amipurimycin) in Prof. Yu group as research assistant until March 2013.

The doctoral studies presented here commenced in April 2013 under the supervision of Prof. dr. G. A. van der marel and Dr. J. D. C. Codée in Bio-organic Synthesis group of Leiden University. Parts of his research work were presented as posters at CHAINS, the NWO-CW division Synthesis and Design in Veldhoven (2013-2016), and as poster presentation at Reedijk Symposium in 2016. One poster was presented at the 19th European Carbohydrate Symposium in 2017 (Barcelona, Spain). Oral presentation were given at Hangzhou Young Scholars Forum, Zhejiang University of Technology in 2017 (Hangzhou, China) and at Natinal Engineering Research Center for Carbohydrate Synthesis, Jiangxi Normal University in 2016 and 2017 (Nanchang, China). He also participated International Symposium on Organic Chemistry in 2016 (Wageningen, Netherlands), Wageningen National Organic Chemistry in 2017 (Wageningen, Netherlands) and 29th International Carbohydrate Symposium in 2018 (Lisbon, Portugal). From September 2017, he continue the research work as post doctoral under the supervision of Dr. S. I. van Kasteren, Prof. dr. G. A. van der marel and Dr. J. D. C. Codée in Bio-organic Synthesis group of Leiden University.

He was received "Chinese Government award" in 2017.

荣获“国家优秀自费留学生奖学金-2017”

The poster at 29th International Carbohydrate Symposium (ICS 2018) won both *Organic & Biomolecular Chemistry* Poster Prize: Vaccine and *Chemistry A European Journal* Poster Award.

List of Publications

Total Synthesis, Structure analysis and Biological Studies of Zwitterionic SP1 Oligosaccharides

Manuscript in preparation

Amipurimycin, total synthesis of the proposed structures and diastereoisomers

Shengyang Wang, Jiansong Sun, Qingju Zhang, Xin Cao, Yachen Zhao, Gongli Tang and Biao Yu*, *Angew. Chem. Int. Ed*, **2018**, 57, 2884-2888.

Synthetic Zwitterionic Polysaccharides

Qingju Zhang, Herman S. Overkleeft, Gijsbert A. van der Marel, and Jeroen D. C. Codée*, *Current Opinion in Chemical Biology*, 2017, 40: 95-101.

Synthesis of the Staphylococcus aureus strain M capsular polysaccharide repeating unit

Bas Hagen, J. Hessel M. van Dijk, Qingju Zhang, Herman S. Overkleeft, Gijsbert A. van der Marel, Jeroen D. C. Codée*, *Org. Lett*, **2017**, 19, 2514-2517.

Chemical synthesis of guanosine diphosphate mannuronic acid (GDPManA) and its C-4-O-methyl and C-4-deoxy congeners.

Qingju Zhang, P. Lynne Howell, Herman S. Overkleeft, Dmitri V. Filippov, Gijsbert A. van der Marel, Jeroen D. C. Codée, *Carbohydr. Res*, **2017**, 450, 12–18.

On the Reactivity of Gulose and Guluronic Acid Building Blocks in the Context of Alginate Assembly

Qingju Zhang, Erwin R. van Rijssel, Marthe T. C. Walvoort, Herman S. Overkleeft, Gijsbert A. van der Marel, and Jeroen D. C. Codée*, *Eur. J. Org. Chem*, **2016**, 2393-2397.

Acceptor Reactivity in the Total Synthesis of Alginate Fragments Containing α -L-Guluronic Acid and β -D-Mannuronic Acid

Qingju Zhang, Erwin R. van Rijssel, Marthe T. C. Walvoort, Herman S. Overkleeft, Gijsbert A. van der Marel, and Jeroen D. C. Codée*, *Angew. Chem. Int. Ed*, **2015**, 54, 7670-7673.

An Efficient Approach to the Synthesis of Nucleosides, Gold(I)-Catalyzed N-Glycosylation of Pyrimidines and Purines with Glycosyl ortho-Alkynylbenzoates

Qingju Zhang, Jiansong Sun*, Yugen Zhu, Fuyi Zhang, Biao Yu*, *Angew. Chem. Int. Ed.*, **2011**, *50*, 4933-4936.

New Approach for the Synthesis of Sugar-containing Isoxaline-N-oxide

Qingju Zhang, Jiansong Sun*, Fuyi Zhang, Biao Yu*, *Eur. J. Org. Chem.*, **2010**, 3579-3582.

An Efficient Approach to the Synthesis of Nucleosides and their analogues

Biao Yu, Jiansong Sun, Qingju Zhang, Yao Li, CN 102127135A. (Patent Application)

Silica Phosphoric Acid: An Efficient and Recyclable Catalyst for the Solvent-free Synthesis of Acylals and Their Deprotection in MeOH

Fuyi Zhang, Hong Liu, Qingju Zhang, Yu-Fen Zhao, Feng-Ling Yang. *Synth. Commun.*, **2010**, *40*, 3240-3250.