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Chemical synthesis of fragments of streptococcal cell wall polysaccharides

Wang, Z.

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Chemical Synthesis of Fragments of Streptococcal Cell Wall Polysaccharides

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Zhen Wang

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Promotiecommissie

Promotoren:

Prof. Dr. Jeroen Codée

Prof. Dr. Gijs van der Marel

Overige leden:

Prof. Dr. Hermen Overkleeft (Leiden University, chairman)

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To my family and my friends.

人生没有白走的路，
也没有白吃的苦，
当下跨出去的每一步，
都是未来的基石与铺垫。

Every experience in life is not rewardless,
Also, no pain is in vain,
Every step of the moment,
Be the cornerstones and foreshadowing of the future.

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List of abbreviations

Ac	acetyl	DTBMP	2,6- <i>di-tert</i> -butyl-4-methylpyridine
ACN	acetonitrile	DTBS	di- <i>tert</i> -butylsilylidene
All	allyl	EA/EtO	ethyl acetate
aq.	aqueous	Ac	
Arom	aromatic	EDCI	<i>N</i> -(3-Dimethylaminopropyl)- <i>N'</i> -ethylcarbodiimide
atm	1 atmosphere = 10 ⁵ Pa		hydrochloride
BAIB	(diacetoxyiodo)benzene	eq	equivalents
Bn	benzyl	Fmoc	9-fluorenylmethoxycarbonyl
BOM	benzyloxymethyl	Gal	galactose
bs	broad singlet	Glc	glucose
BSP	1-benzenesulfinyl piperidine	GlcA	glucuronic acid
Bu	butyl	GlcN	glucosamine
<i>t</i> -Bu	<i>tert</i> -butyl	GlcN ₃	2-azido-2-deoxy glucose
Bz	benzoyl	GlcNAc	<i>N</i> -acetyl glucosamine
Cbz	benzyloxycarbonyl	HFIP	1,1,1,3,3,3-hexafluoro-2-propanol
ClAc	chloroacetyl	HMBC	heteronuclear multiple-bond correlation
COD	1,5-cyclooctadiene	HPLC	high performance liquid chromatography
CSA	camphorsulfonic acid	HRMS	high-resolution mass spectroscopy
CSO	(1 <i>S</i>)-(+)-(10-camphorsulfonyl)-oxaziridine	HSQC	heteronuclear single quantum coherence
d	doublet	IR	infrared
DCE	1,2-dichloroethane	J	coupling constant
DCM	dichloromethane	LAH	lithium aluminum hydride
dd	doublet of doublets	LC-MS	liquid chromatography-mass spectrometry
DDQ	2,3-dichloro-5,6-dicyano-1,4-benzoquinone	Lev	levulinoyl
(DHQD) ₂ PHAL	<i>bis</i> (dihydroquinidino)phthalazine	m	multiplet
DIPEA	diisopropylethylamine		
DMAP	<i>N,N</i> -4-dimethylaminopyridine		
DMF	dimethylformamide		
DMSO	dimethyl sulfoxide		

MALDI	matrix-associated laser desorption ionization	t	triplet
Man	mannose	TBAB	tetra- <i>n</i> -butylammonium bromide
ManA	mannuronic acid	TBAF	tetra- <i>n</i> -butylammonium fluoride
Ms	methanesulfonyl	TBAI	tetra- <i>n</i> -butylammonium iodide
MS	mass spectrometry	TBDPS	<i>tert</i> -butyldiphenylsilyl
MS	molecular sieves	TBS	<i>tert</i> -butyldimethylsilyl
Nap	2-methylnaphthyl	TCA	trichloroacetyl
NBS	<i>N</i> -bromosuccinimide	TEA	triethylamine
NIS	<i>N</i> -iodosuccinimide	TEMPO	2,2,6,6-tetramethyl-1-piperidinyloxy
NMR	nuclear magnetic resonance	Tf	trifluoromethanesulfonyl
NOESY	nuclear Overhauser effect spectroscopy	TfOH	triflic acid
Nu	nucleophile	Tf ₂ O	trifluoromethanesulfonic anhydride
NR	no reaction	TFA	trifluoroacetic acid
PE	petroleum ether	THF	tetrahydrofuran
Ph	phenyl	TIPS	triisopropylsilyl
Ph ₂ SO	diphenyl sulfoxide	TMS	trimethylsilyl
Phth	phthaloyl	TLC	thin layer chromatography
Piv	pivaloyl	TLR	toll like receptor
PMB	<i>para</i> -methoxybenzyl	Tol	<i>p</i> -tolyl
ppm	parts per million	Ts	<i>p</i> -toluenesulfonyl
Py	pyridine	TTBP	2,4,6-tri- <i>tert</i> -butylpyrimidine
q	quartet	<i>p</i> -TsOH	<i>p</i> -toluenesulfonic acid
RT	room temperature	UV	ultraviolet
Rf	retention factor		
s	singlet		
sat.	saturated		
SET	single electron transfer		