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Linda Del Bino

Synthesis of oligosaccharide libraries from GBS capsular polysaccharide for structure-based selection of vaccine candidates

PROEFSCHRIFT

ter verkrijging van
de graad van Doctor aan de Universiteit Leiden,
op gezag van Rector Magnificus prof.mr. C.J.J.M. Stolker,
volgens besluit van het College voor Promoties
te verdedigen op woensdag 28 oktober 2020
klokke 12:30 uur

door

Linda Del Bino

Geboren te Empoli, Italië in 1989

Promotiecommissie

Promotor:	Prof.dr. J. D. C. Codée Prof.dr. G. A. van der Marel
Copromotor:	Dr. R. Adamo (GSK Vaccines)
Overige leden:	Prof.dr. H. S. Overkleeft Prof.dr. J. Brouwer Prof.dr. L. Mulard (Institut Pasteur, Paris) Prof.dr. G. J. Boons (Utrecht University, Utrecht)

Vuela solo quien se atreve a hacerlo

Luis Sepùlveda

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List of abbreviations

mAb = monoclonal antibody
Ac = Acetyl
ACN = Acetonitrile
Ac_2O = Acetic anhydride
AcOH = Acetic acid
AgOTf = Silver trifluoromethanesulfonate
APC = Antigen Presenting Cell
DP = Degree of Polymerization
$BF_3 \cdot NEt_3$ = Boron trifluoride diethyl etherate
Bn = Benzyl
BnBr = Benzyl bromide
bs = broad singlet
BuOH = butanol
$(tBu)_2Si(OTf)_2$ = Di-tert-butyl silyl bis (trifluoromethanesulfonate)
Bz = Benzoyl
BzCl = Benzoyl chloride
CAN = Ammonium cerium (IV) nitrate
CCl_3CN = Trichloro acetonitrile
CPS = Capsular Polysaccharide
DBU = 1,8-Diazabicyclo[5.4.0]undec-7-ene
DCC = Dicyclohexylcarbodiimide
DCM = Dichloromethane
DDQ = 2,3-dichloro-5,6-dicyano-1,4-benzoquinone
DEA = diethanolamine
DMAP = 4-(Dimethylamino)pyridine
DMF = N,N-Dimethylformamide
DMSO = dimethyl sulfoxide
d = doublet
dd = doublet of doublets
dt = doublet of triplets
DT = Diphteria Toxoid
EDTA = ethylenediaminetetraacetic acid
EtOAc = Ethyl acetate
EtOH = Ethanol
Et_3SiH = triethylsilane
Fab = Fragment antigen-binding
Fmoc = Fluorenylmethoxycarbonyl
Fmoc-Cl = Fluorenylmethoxycarbonyl chloride
HSA = Human Serum Albumine
HEPES = (4-(2-hydroxyethyl)-1-piperazineethanesulfonic acid)
HPAEC-PAD = High-Performance Anion-Exchange Chromatography coupled with Pulsed Amperometric Detection
GBS = Group B streptococcus
IAP = Intrapartum Antibiotic Prophylaxis
K_d = dissociation constant
Lev = levulinoyl ester
m = multiplet
MD = Molecular Dynamics
MeONa = Sodium methoxide
MeOH = Methanol
MeOTf = Methyl Trifluoromethansulfonate
MS = Molecular Sieves
pNPP = *p*-Nitrophenyl Phosphate
NIS = N-iodosuccinimide
OPKA = opsonophagocytic killing assay
OS = oligosaccharide
PBS = phosphate buffered saline
PMP = p-Methoxyphenyl
Ph = phenyl
$PhBCl_2$ = dichlorophenylborane
$PhCH(OMe)_2$ = Benzaldehyde dimethyl acetal
Phth = Phthaloyl
$Phth_2O$ = Phthalic anhydride
PTSA = p-Toluenesulfonic acid
Py = Pyridine
rt = room temperature
RU = repeating unit
s = singlet

SEt = Ethyl-thiol
SIDEA = di-*N*-hydroxysuccinimidyl adipate
SPR = Surface Plasmon Resonance
STD-NMR = Saturation Transfer Difference
Nuclear Magnetic Resonance
TBAI = tetrabutylammonium iodide
TBDPS-Cl = tert-butyl diphenylsilyl chloride
TCA = Trichloroacetimidate
TD = T dependent
TEA = Triethylamine
TFA = Trifluoracetic acid
TfOH = Trifluoromethanesulfonic acid
THF = Tetrahydrofuran
TLC = Thin layer chromatography
TMSOTf = Trimethylsilyl
trifluoromethanesulfonate
Troc = 2,2,2-trichloroethoxycarbonyl
Tol = Toluene
t = triplet
TT = Tetanus Toxoid