Supplementary Materials:

New α-galactosidase-inhibiting aminohydroxycyclopentanes


[a]Glycogroup, Institute of Chemistry and Technology of Biobased Systems, Graz University of Technology, Stremaýrgasse 9, A-8010 Graz, Austria

[b]Institute of Inorganic Chemistry, Graz University of Technology, Stremaýrgasse 9, A-8010 Graz, Austria

[c]Chemistry Department, University of British Columbia, 2036 Main Mall, Vancouver, BC, Canada V6T 1Z1

Supplementary data: ¹H NMR, ¹³C NMR, COSY, and HSQC spectra
(3aS,3bS,6aS,7S,7aS)-1-Benzyl-5,5-dimethylhexahydro-1H-[1,3]dioxolo[4',5':3,4]cyclopenta[1,2-c]isoxazol-7-ol (16)

$^1$H NMR (300 MHz, CDCl$_3$): Compound 16

$^{13}$C NMR (75.5 MHz, CDCl$_3$): Compound 16
COSY (CDCl₃): Compound 16

HSQC (CDCl₃): Compound 16
(3aS,3bS,6aS,7S,7aS)-1-Benzyl-7-(methoxymethoxy)-5,5-dimethylhexahydro-1H-[1,3]dioxolo[4',5':3,4]cyclopenta[1,2-c]isoxazole (17)

$^1$H NMR (300 MHz, CDCl$_3$): Compound 17

$^{13}$C NMR (75.5 MHz, CDCl$_3$): Compound 17
COSY (CDCl₃): Compound 17

HSQC (CDCl₃): Compound 17
tert-Butyl [(3aS,4S,5S,6S,6aS)-4-(hydroxymethyl)-6-(methoxymethoxy)-2,2-dimethyl tetrahydro-4H-cyclopenta[d][1,3]dioxol-5-yl]carbamate or 1-(tert-Butyloxycarbonyl) amino-3,4-O-isopropylidene-2-O-methoxymethyl-β-L-altro-cyclopentane (18)

$^1$H NMR (300 MHz, CDCl$_3$): Compound 18

$^{13}$C NMR (75.5 MHz, CDCl$_3$): Compound 18
**COSY (CDCl₃): Compound 18**

**HSQC (CDCl₃): Compound 18**
tert-Butyl [(3aS,4R,5S,6S,6aS)-4-(hydroxymethyl)-6-(methoxymethoxy)-2,2-dimethyl tetrahydro-4H-cyclopenta[d][1,3]dioxol-5-yl]carbamate or 1-(tert-Butyloxy carbonyl) amino-3,4-O-isopropylidene-2-O-methoxymethyl-α-O-galacto-cyclopentane (21)

$^1$H NMR (300 MHz, CDCl$_3$): Compound 21

$^{13}$C NMR (75.5 MHz, CDCl$_3$): Compound 21
**COSY (CDCl$_3$): Compound 21**

![COSY Spectrum](image1)

**HSQC (CDCl$_3$): Compound 21**

![HSQC Spectrum](image2)
(1S,2S,3S,4S,5R)-4-Amino-5-(hydroxymethyl)cyclopentane-1,2,3-triol or 1-Amino-α-D-galacto-cyclopentane (22)

$^1$H NMR (300 MHz, D$_2$O, free base): Compound 22

$^{13}$C NMR (75.5 MHz, D$_2$O, free base): Compound 22
**COSY (D$_2$O, free base): Compound 22**

![COSY spectrum](image1)

**HSQC (D$_2$O, free base): Compound 22**

![HSQC spectrum](image2)
$^1$H NMR (300 MHz, D$_2$O, hydrochloride): Compound 22-HCl

[Graph of $^1$H NMR spectrum]

$^{13}$C NMR (75.5 MHz, D$_2$O, hydrochloride): Compound 22-HCl

[Graph of $^{13}$C NMR spectrum]
**COSY** (D$_2$O, hydrochloride): Compound 22-HCl

**HSQC** (D$_2$O, hydrochloride): Compound 22-HCl
(1S,2S,3S,4S,5R)-4-(n-Hexylamino)-5-(hydroxymethyl)cyclopentane-1,2,3-triol or 1-(Hexyl)amino-α-D-galacto-cyclopentane (23)

$^1H$ NMR (300 MHz, CD$_3$OD): Compound 23

$^{13}$C NMR (75.5 MHz, CD$_3$OD): Compound 23
**COSY (CD$_3$OD): Compound 23**

**HSQC (CD$_3$OD): Compound 23**
(1S,2S,3S,4S,5R)-4-(n-Nonylamino)-5-(hydroxymethyl)cyclopentane-1,2,3-triol or 1-(Nonyl)amino-α-D-galacto-cyclopentane (24)

$^1$H NMR (300 MHz, CD$_3$OD): Compound 24

$^{13}$C NMR (75.5 MHz, CD$_3$OD): Compound 24
**COSY (CD$_2$OD): Compound 24**

**HSQC (CD$_2$OD): Compound 24**
6-(((1S,2S,3S,4S,5R)-2,3,4-Trihydroxy-5-(hydroxymethyl)cyclopentyl)amino)hexanenitrile or 1-(6-Cyanohexyl)amino-α-D-galacto-cyclopentane (26)

$^1$H NMR (300 MHz, CD$_3$OD): Compound 25

$^{13}$C NMR (75.5 MHz, CD$_3$OD): Compound 25
**COSY (CD$_2$OD): Compound 25**

**HSQC (CD$_2$OD): Compound 25**
{(1S,2S,3S,4S,5R)-4-[(6-Aminohexyl)amino]-5-(hydroxymethyl)cyclopentane-1,2,3-triol or 1-(6-Aminohexyl)amino-α-D-galacto-cyclopentane (xx)}

$^{1}H$ NMR (300 MHz, CD$_{3}$OD): Compound 26

$^{13}$C NMR (75.5 MHz, CD$_{3}$OD): Compound 26
**COSY (CD$_2$OD): Compound 26**

**HSQC (CD$_2$OD): Compound 26**
5-(Dimethylamino)-N-(6-{{(1S,2S,3S,4S,5R)-2,3,4-trihydroxy-5-(hydroxymethyl)cyclopentyl]amino}hexyl}naphthalene-1-sulfonamide or 1-(6-Dansylaminohexyl)amino-α-D-galacto-cyclopentane (27)

$^1$H NMR (300 MHz, CD$_3$OD): Compound 27

$^{13}$C NMR (75.5 MHz, CD$_3$OD): Compound 27
COSY (CD<sub>3</sub>OD): Compound 27

HSQC (CD<sub>3</sub>OD): Compound 27