

Supplementary Materials:

New α -galactosidase-inhibiting aminohydroxycyclopentanes

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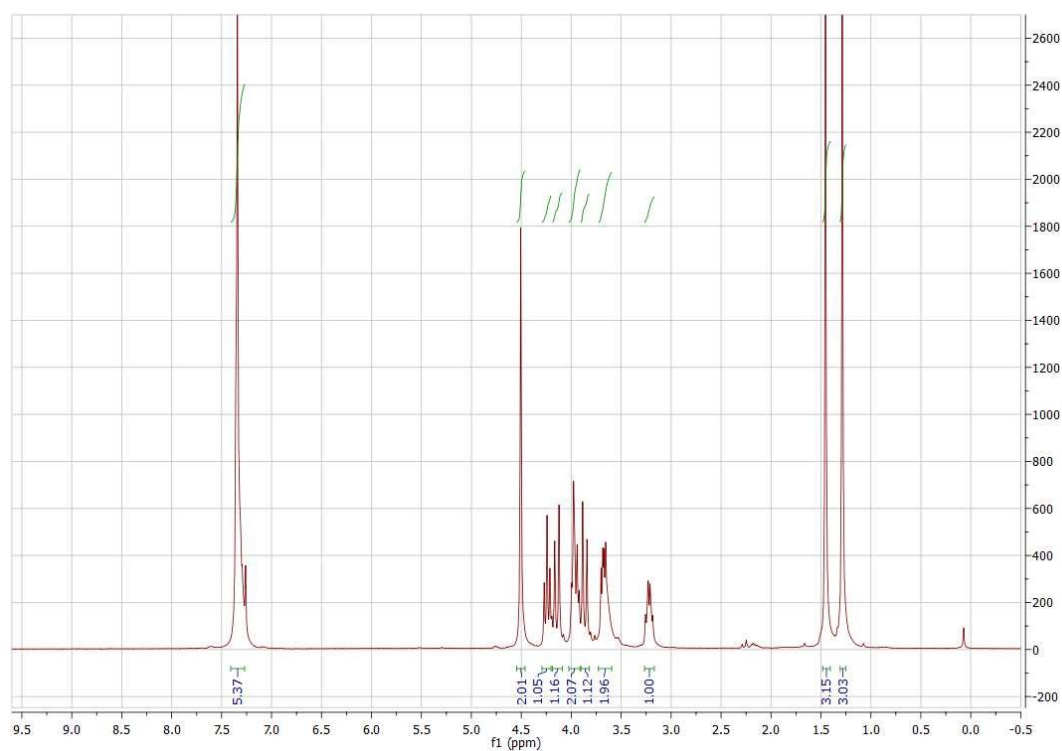
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Stremayrgasse 9, A-8010 Graz, Austria*

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

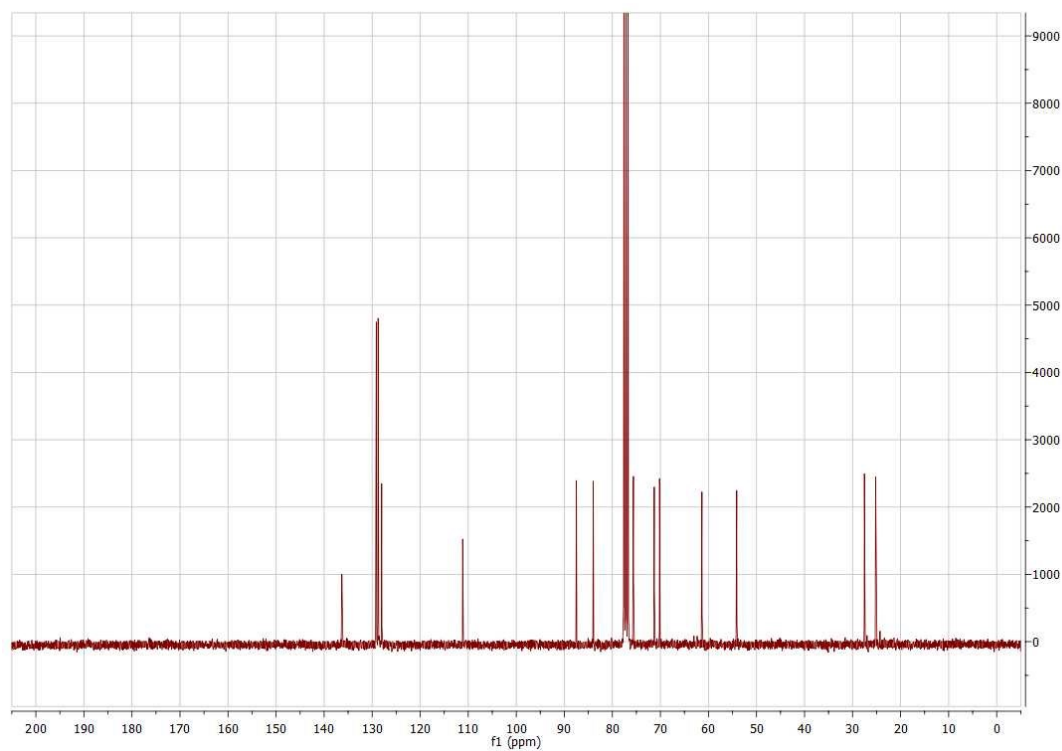
Supplementary data: ¹H NMR, ¹³C NMR, COSY, and HSQC spectra

**(3a*S*,3b*S*,6a*S*,7*S*,7a*S*)-1-Benzyl-5,5-dimethylhexahydro-1*H*-[1,3]dioxolo
[4',5':3,4]cyclopenta[1,2-*c*]isoxazol-7-ol (16)**

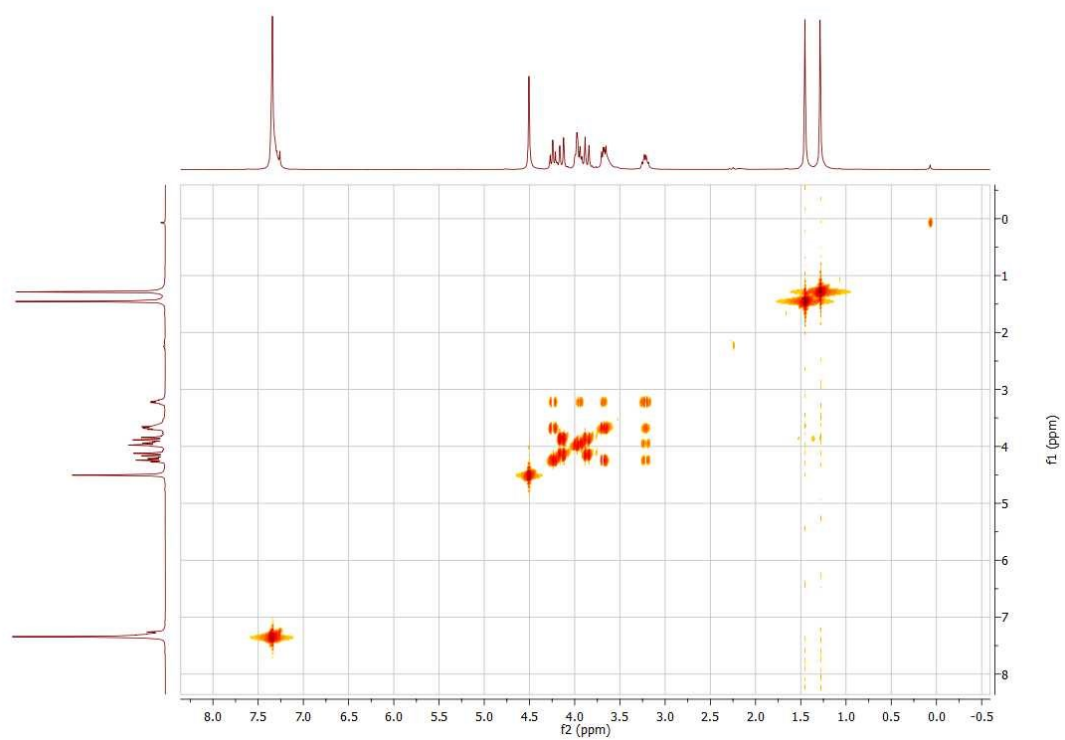
¹H NMR (300 MHz, CDCl₃): Compound 16



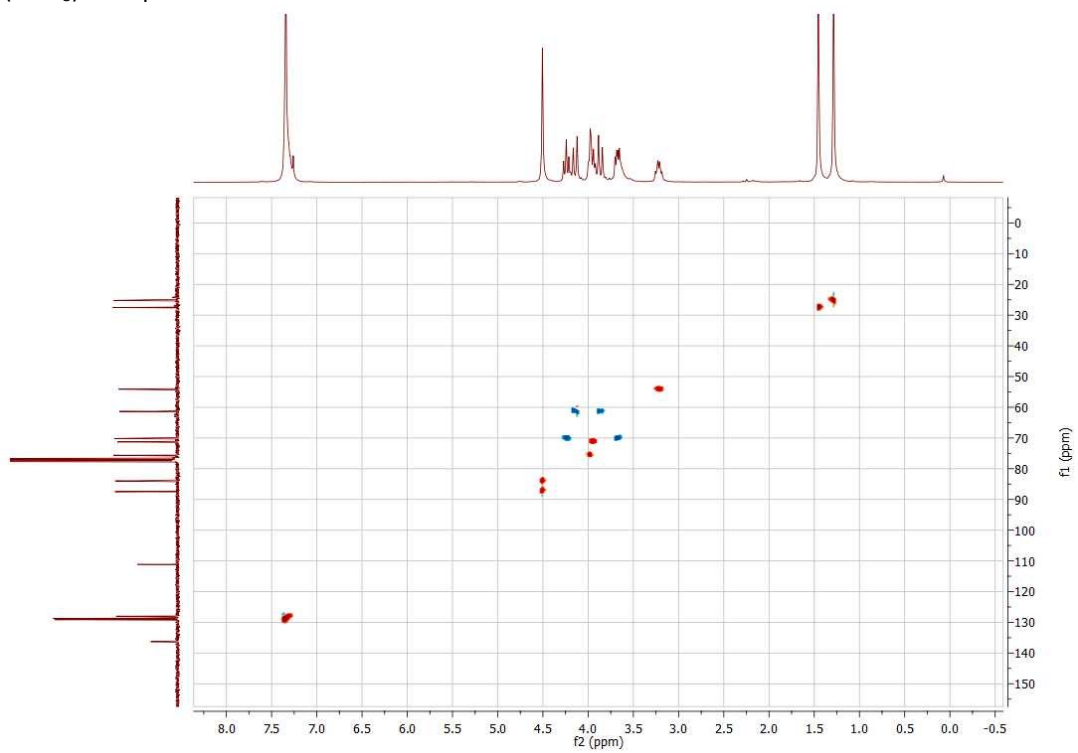
¹³C NMR (75.5 MHz, CDCl₃): Compound 16



COSY (CDCl₃): Compound 16

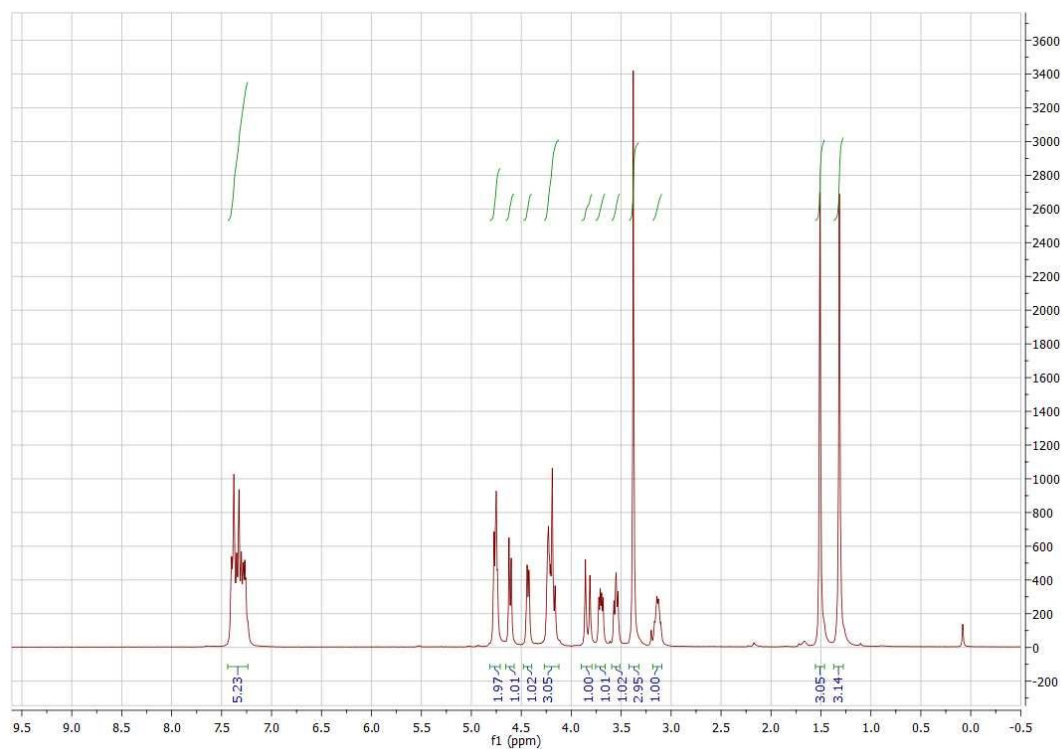


HSQC (CDCl₃): Compound 16

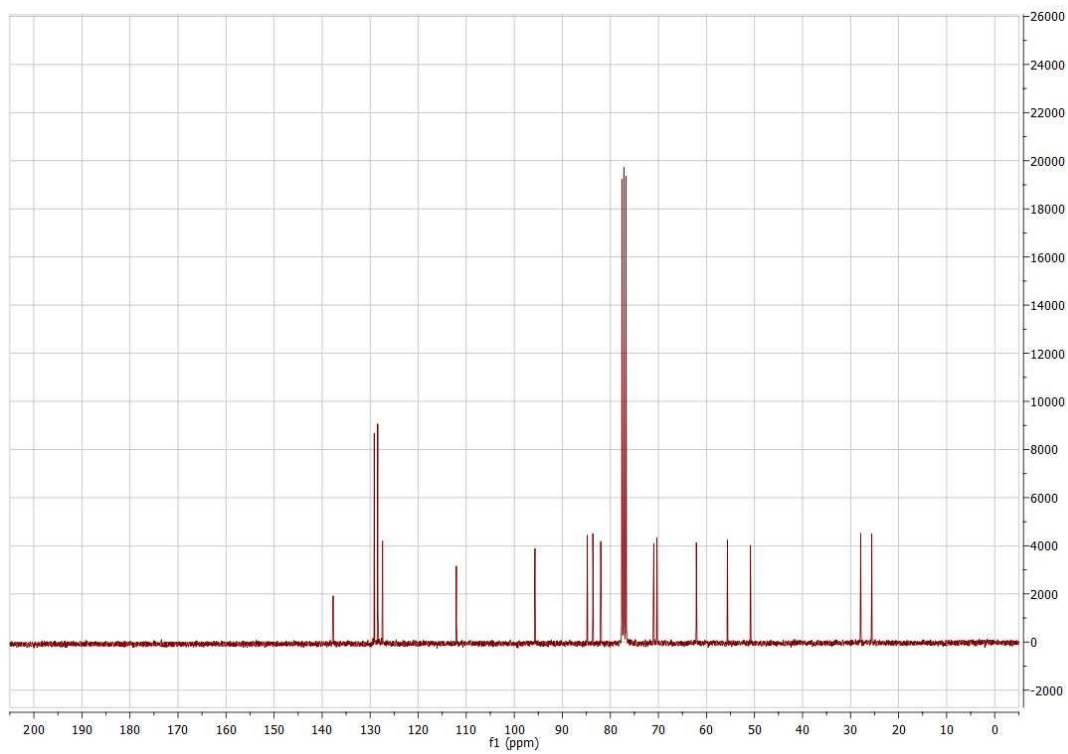


(3a*S*,3b*S*,6a*S*,7*S*,7a*S*)-1-Benzyl-7-(methoxymethoxy)-5,5-dimethylhexahydro-1*H*-[1,3]dioxolo[4',5':3,4]cyclopenta[1,2-*c*]isoxazole (17)

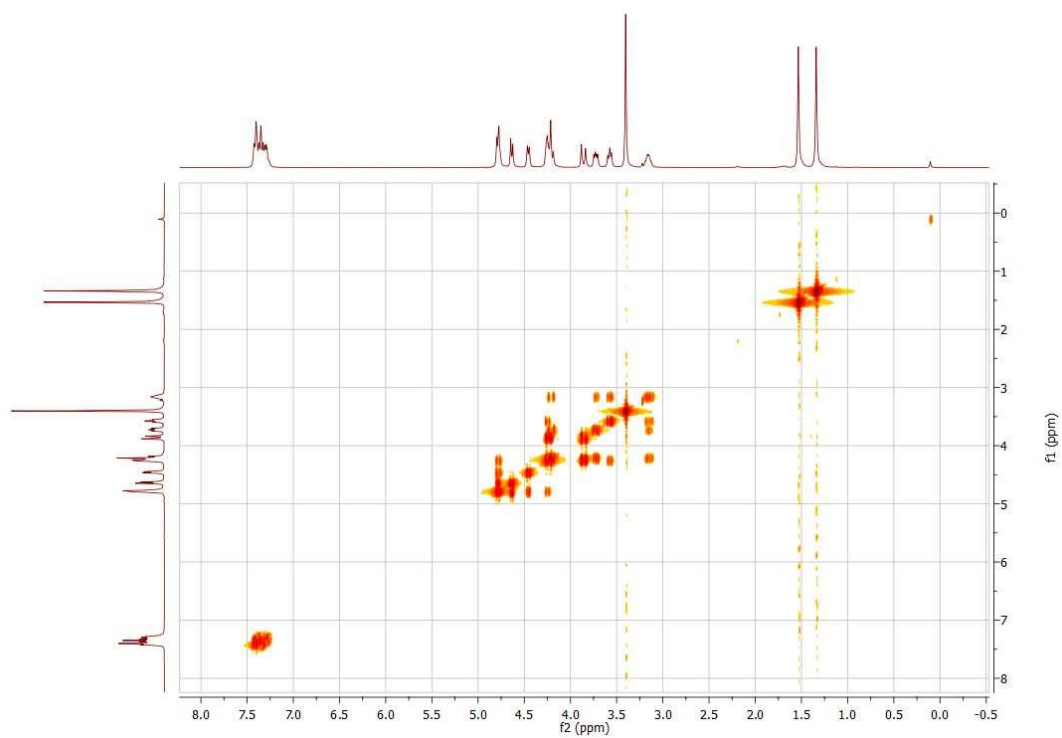
¹H NMR (300 MHz, CDCl₃): Compound 17



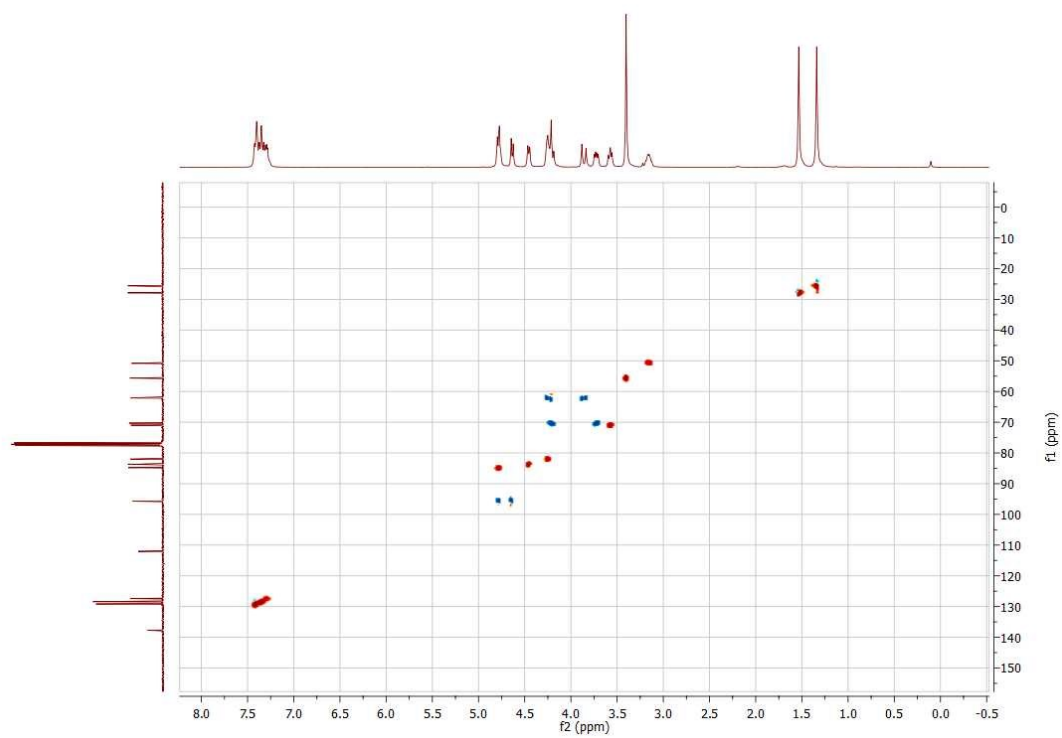
¹³C NMR (75.5 MHz, CDCl₃): Compound 17



COSY (CDCl₃): Compound 17

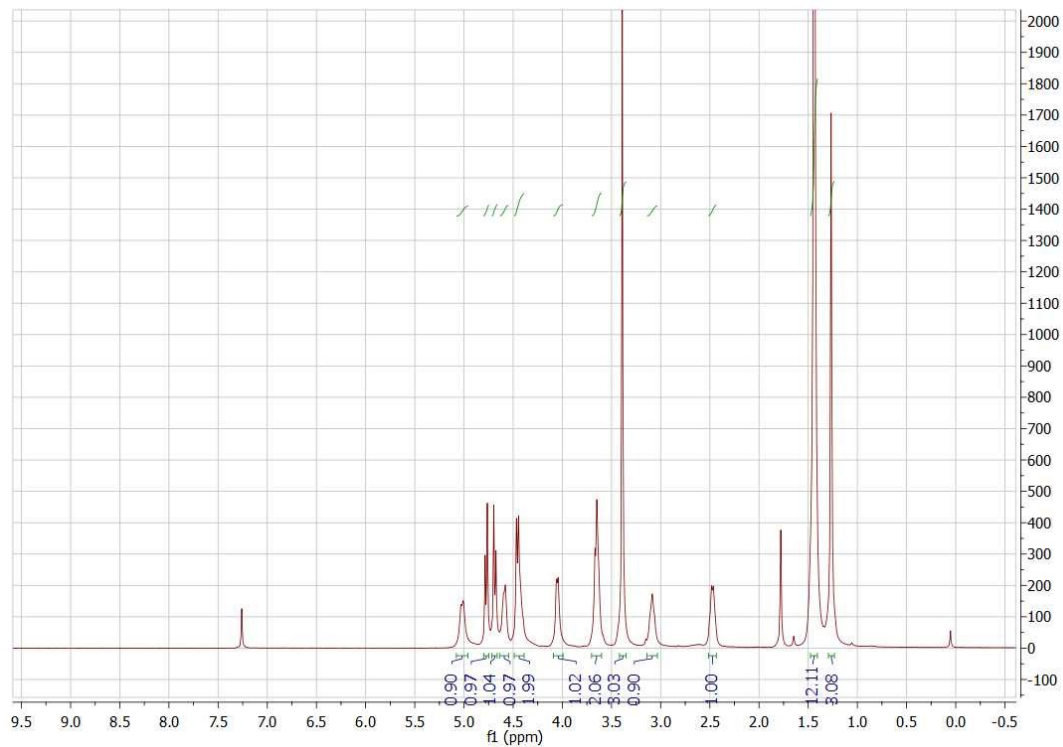


HSQC (CDCl₃): Compound 17

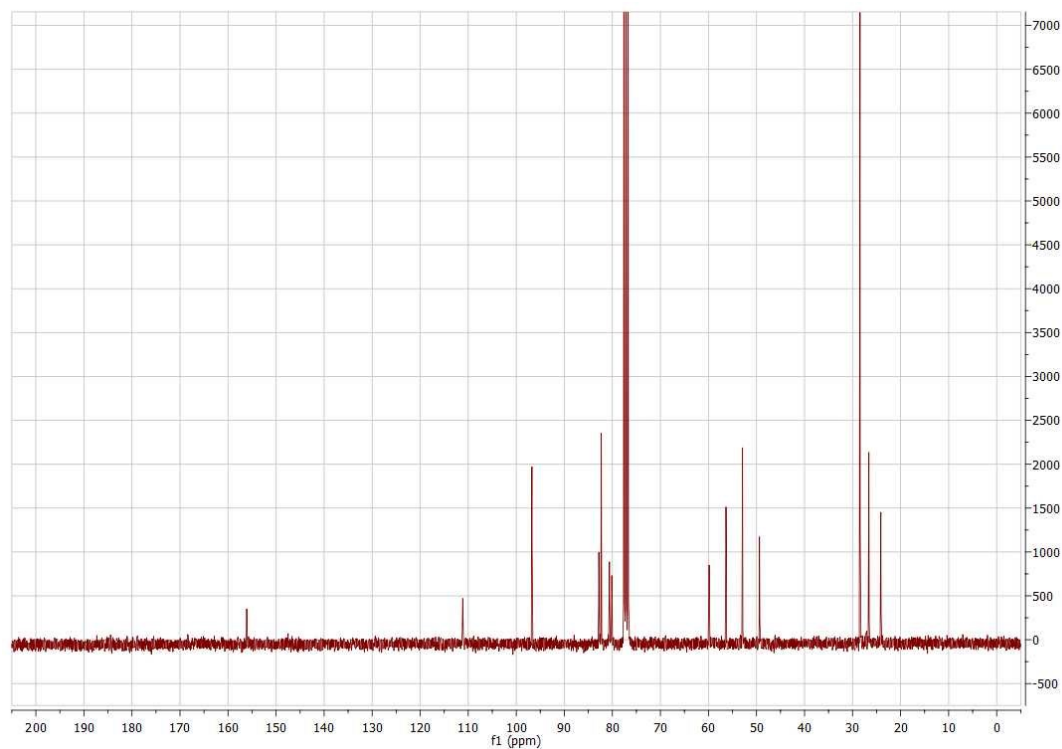


***tert*-Butyl [(3*aS*,4*S*,5*S*,6*S*,6*aS*)-4-(hydroxymethyl)-6-(methoxymethoxy)-2,2-dimethyl tetrahydro-4H-cyclopenta[*d*][1,3]dioxol-5-yl]carbamate or 1-(*tert*-Butyloxycarbonyl) amino-3,4-*O*-isopropylidene-2-*O*-methoxymethyl- β -L-*altro*-cyclopentane (18)**

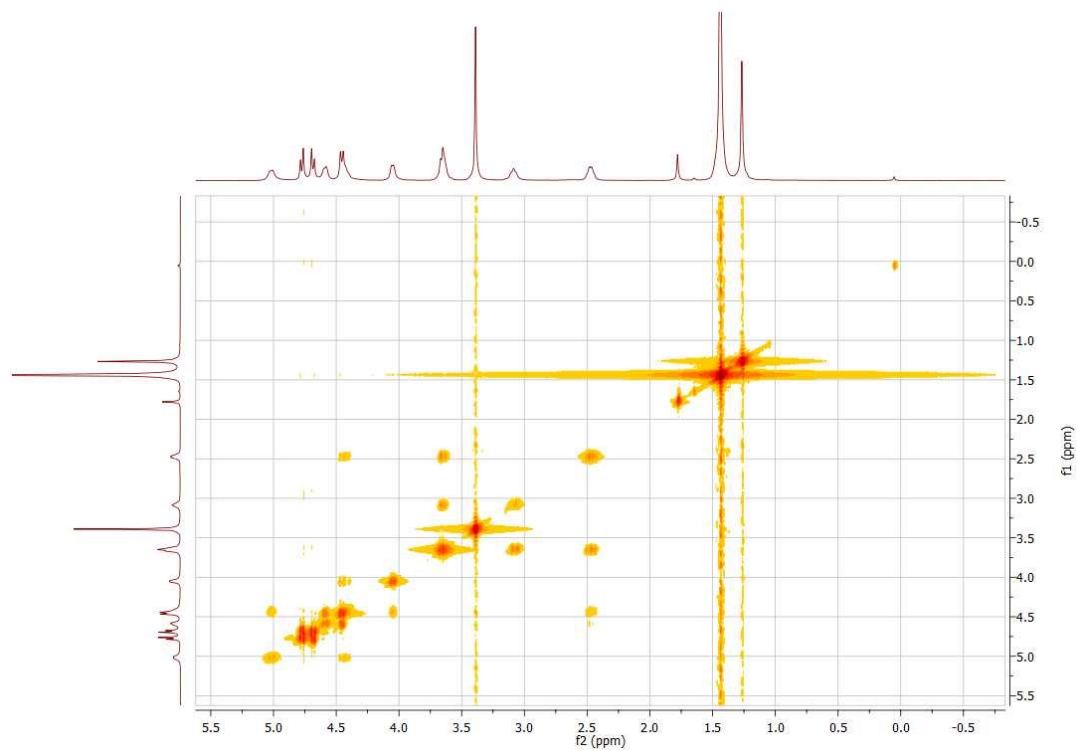
¹H NMR (300 MHz, CDCl₃): Compound 18



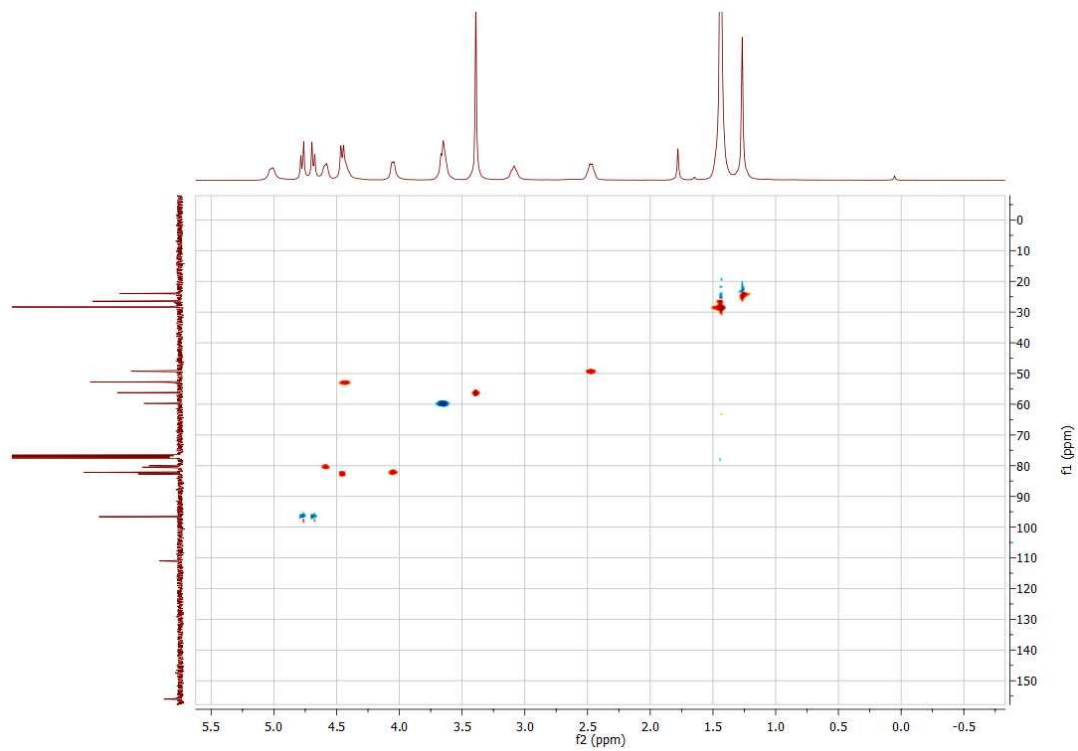
¹³C NMR (75.5 MHz, CDCl₃): Compound 18



COSY (CDCl₃): Compound 18

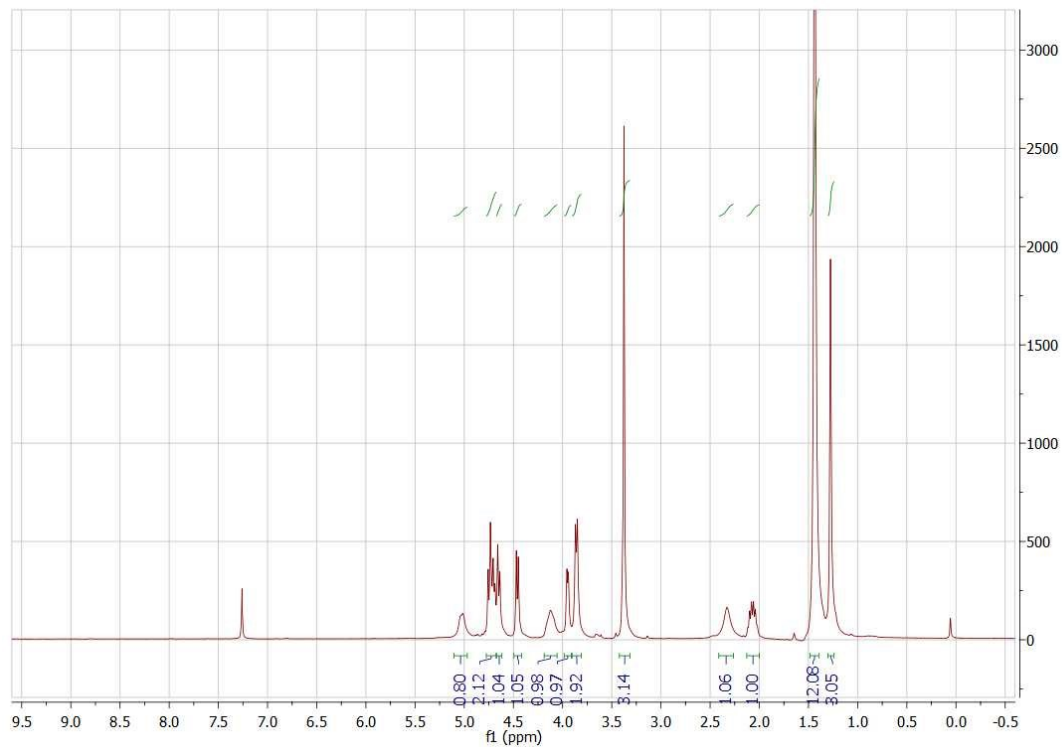


HSQC (CDCl₃): Compound 18

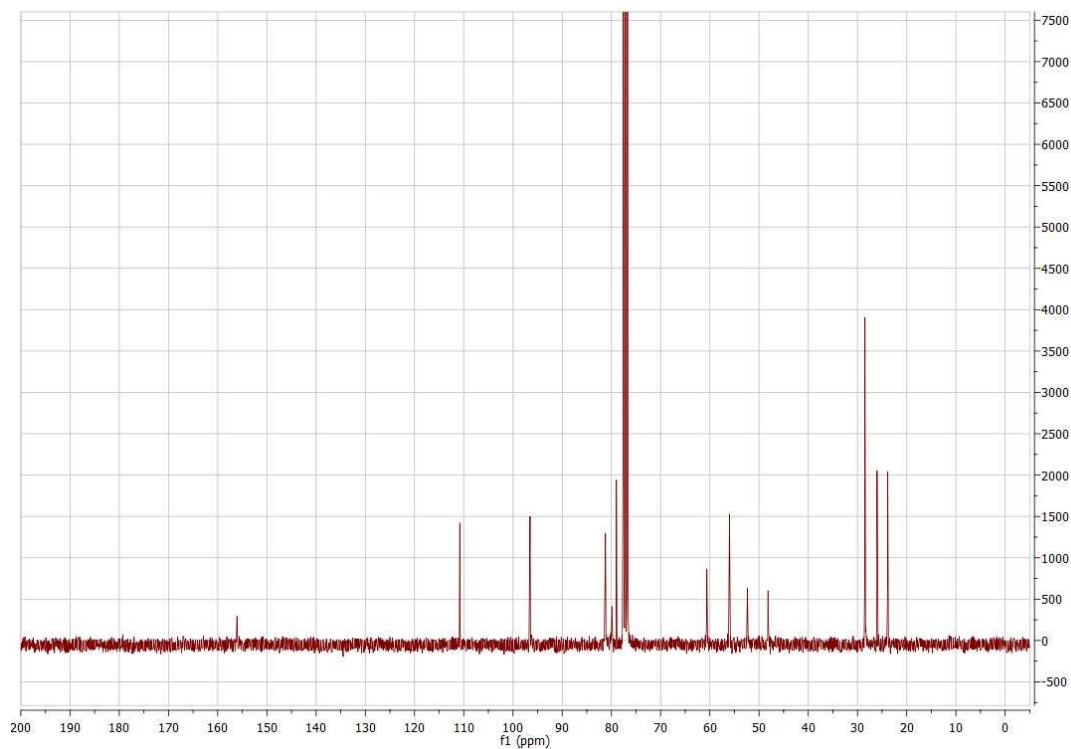


***tert*-Butyl [(3*aS*,4*R*,5*S*,6*S*,6*aS*)-4-(hydroxymethyl)-6-(methoxymethoxy)-2,2-dimethyl tetrahydro-4*H*-cyclopenta[*d*][1,3]dioxol-5-yl]carbamate or 1-(*tert*-Butyloxycarbonyl) amino-3,4-*O*-isopropylidene-2-*O*-methoxymethyl- α -D-*galacto*-cyclopentane (**21**)**

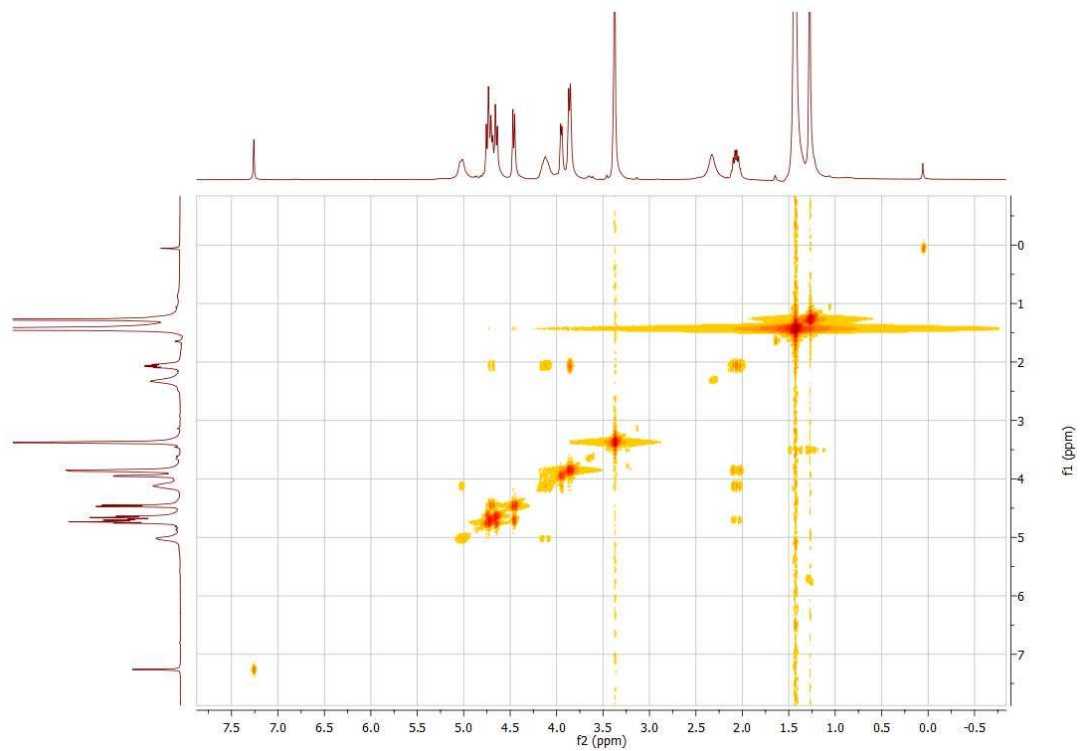
¹H NMR (300 MHz, CDCl₃): Compound **21**



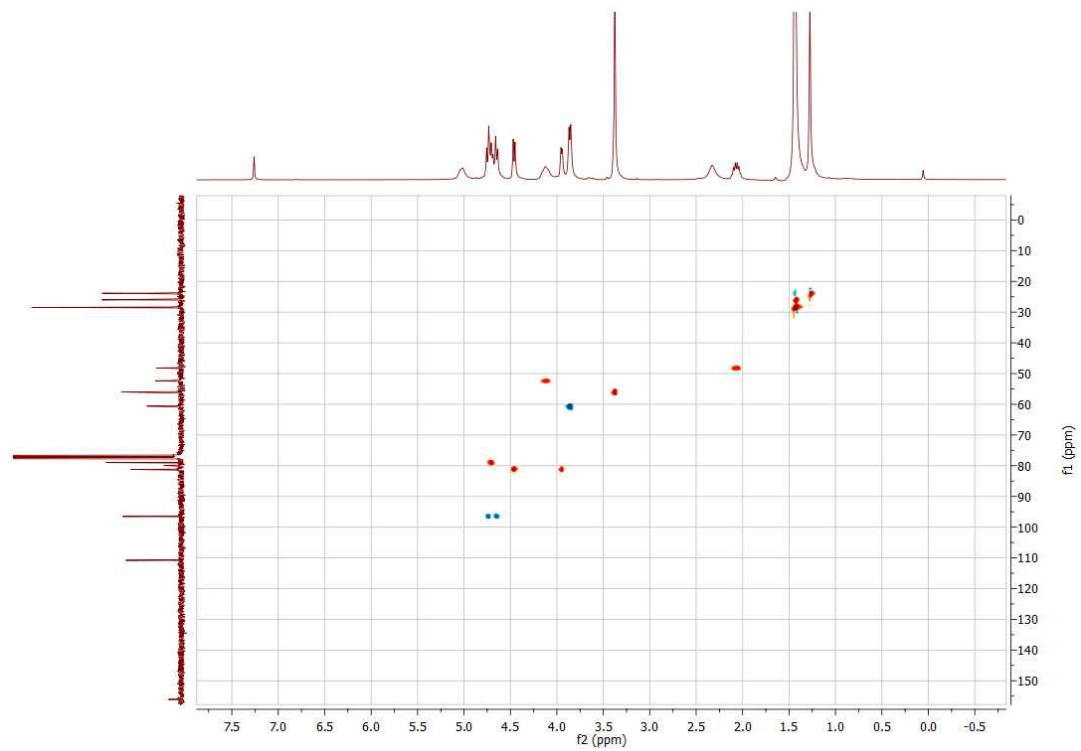
¹³C NMR (75.5 MHz, CDCl₃): Compound **21**



COSY (CDCl₃): Compound 21

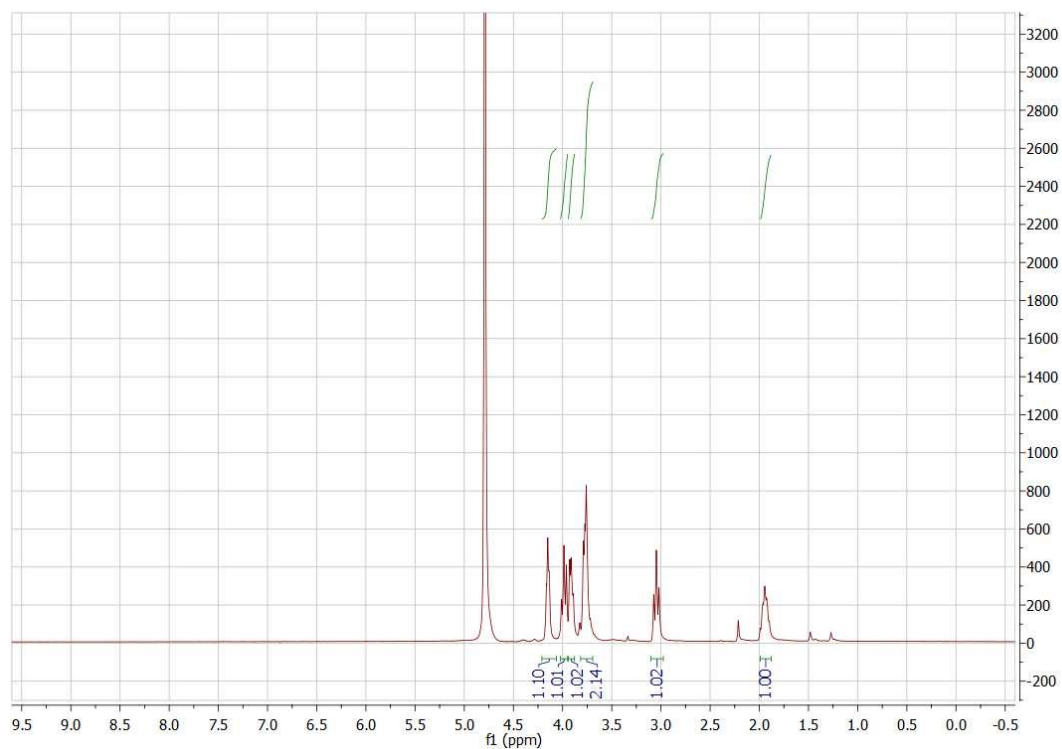


HSQC (CDCl₃): Compound 21

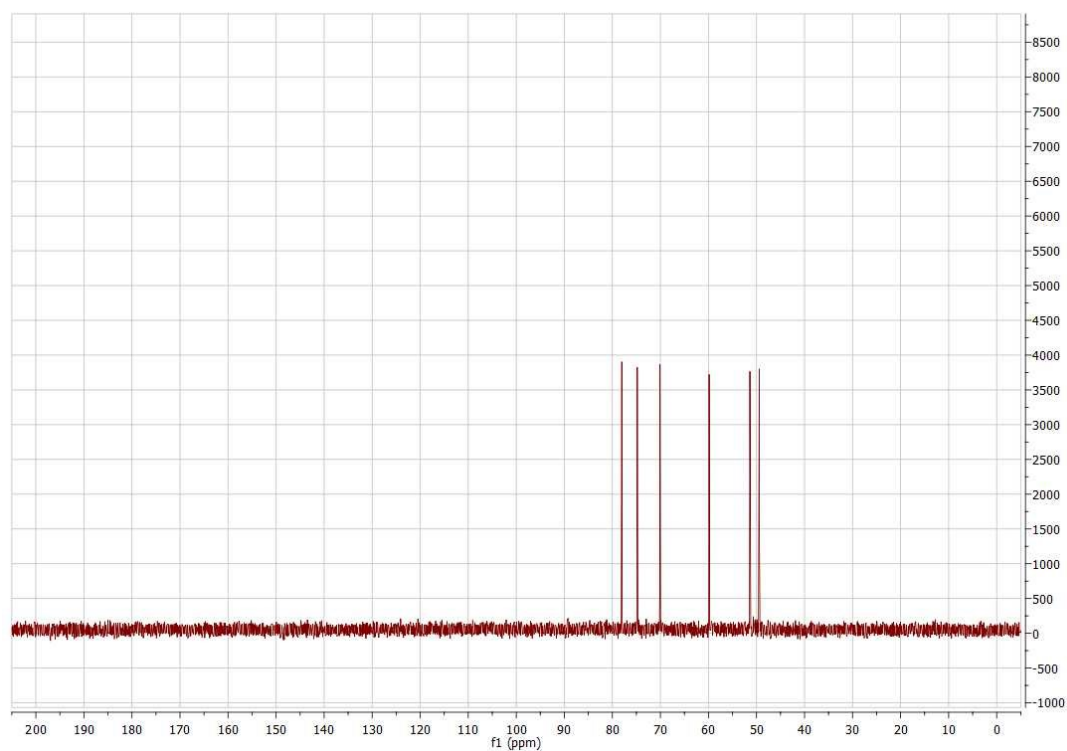


(1*S*,2*S*,3*S*,4*S*,5*R*)-4-Amino-5-(hydroxymethyl)cyclopentane-1,2,3-triol or 1-Amino- α -D-galacto-cyclopentane (22)

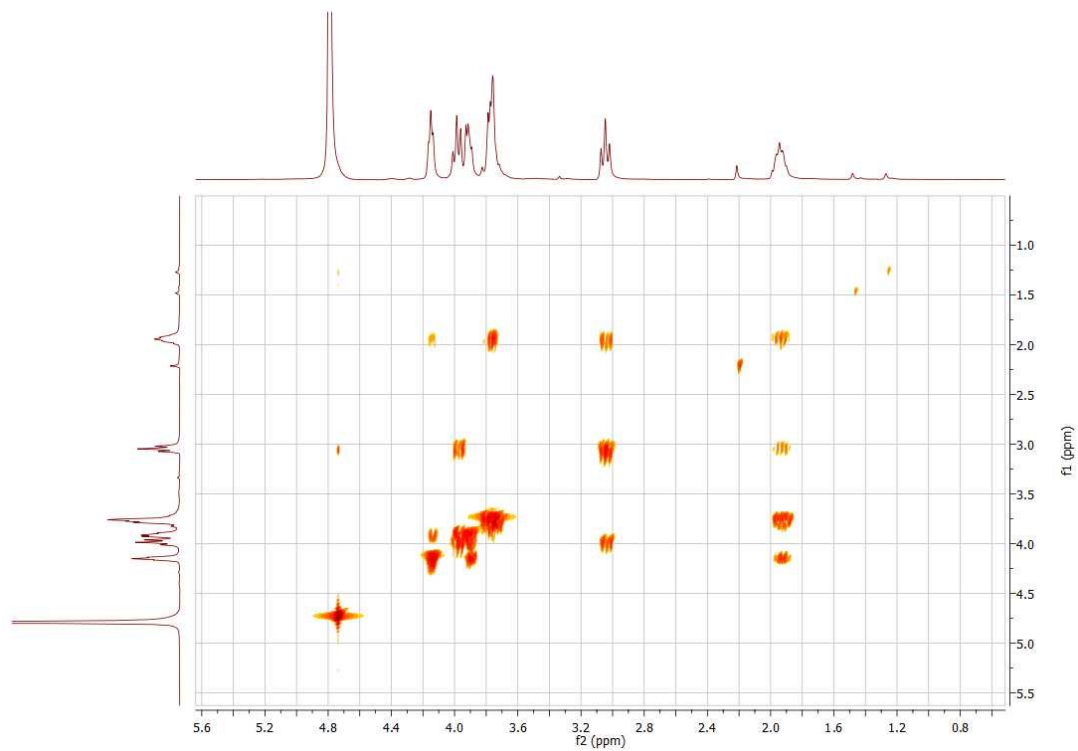
¹H NMR (300 MHz, D₂O, free base): Compound 22



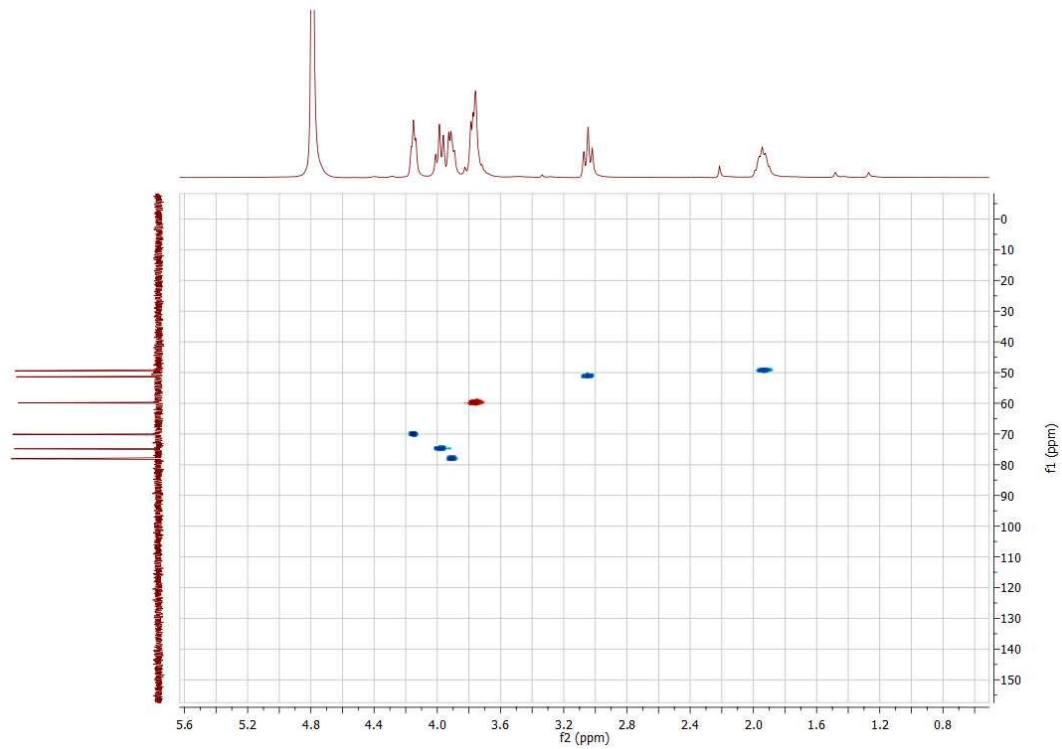
¹³C NMR (75.5 MHz, D₂O, free base): Compound 22



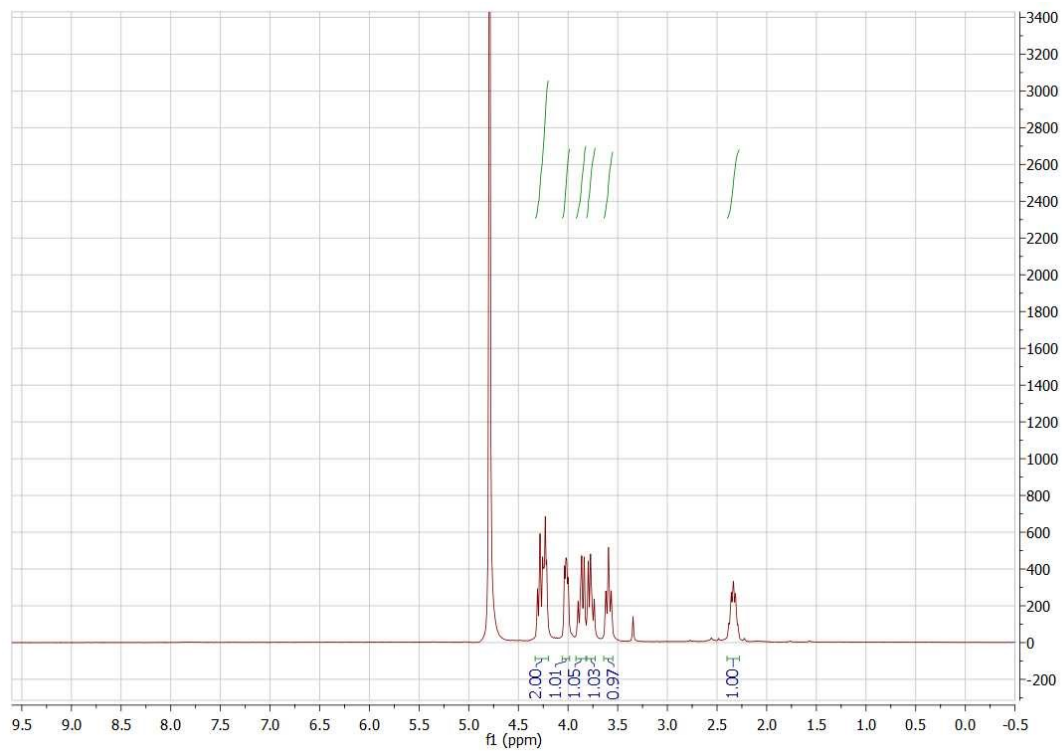
COSY (D₂O, free base): Compound **22**



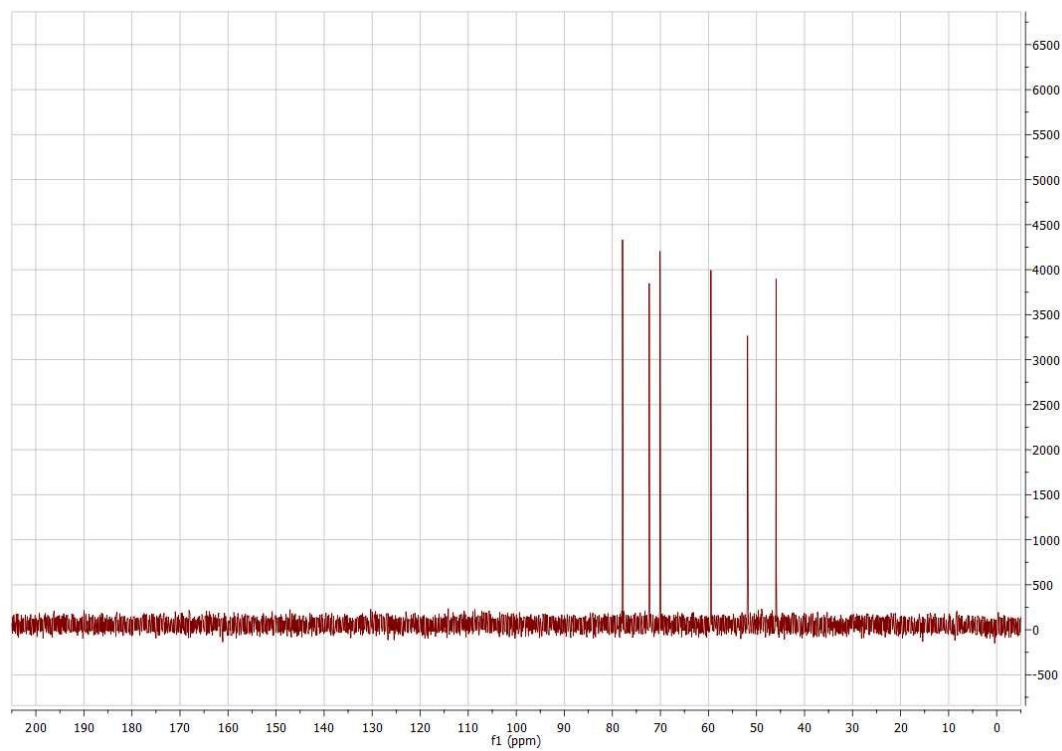
HSQC (D₂O, free base): Compound **22**



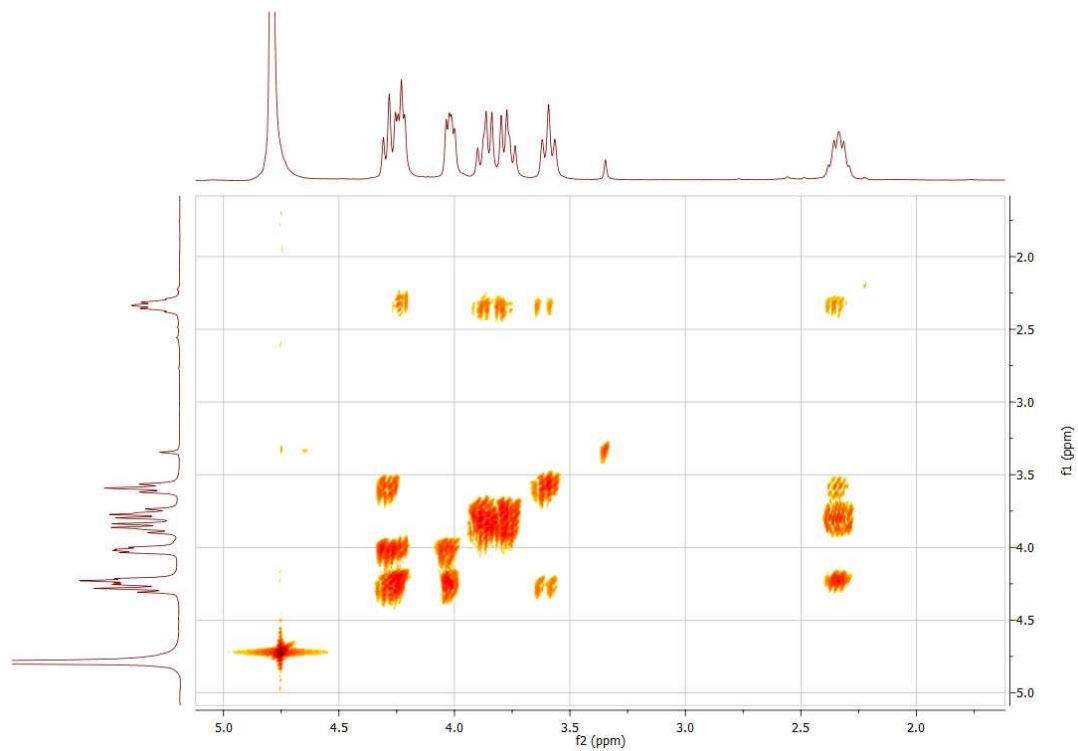
¹H NMR (300 MHz, D₂O, hydrochloride): Compound 22·HCl



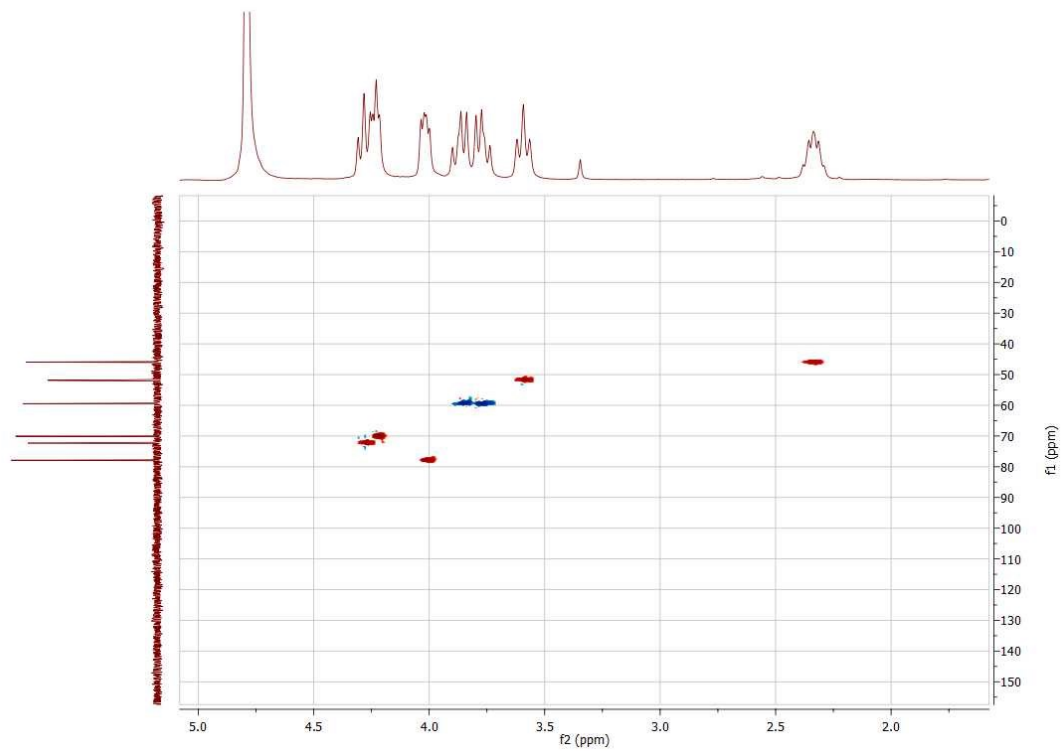
¹³C NMR (75.5 MHz, D₂O, hydrochloride): Compound 22·HCl



COSY (D₂O, hydrochloride): Compound **22**·HCl

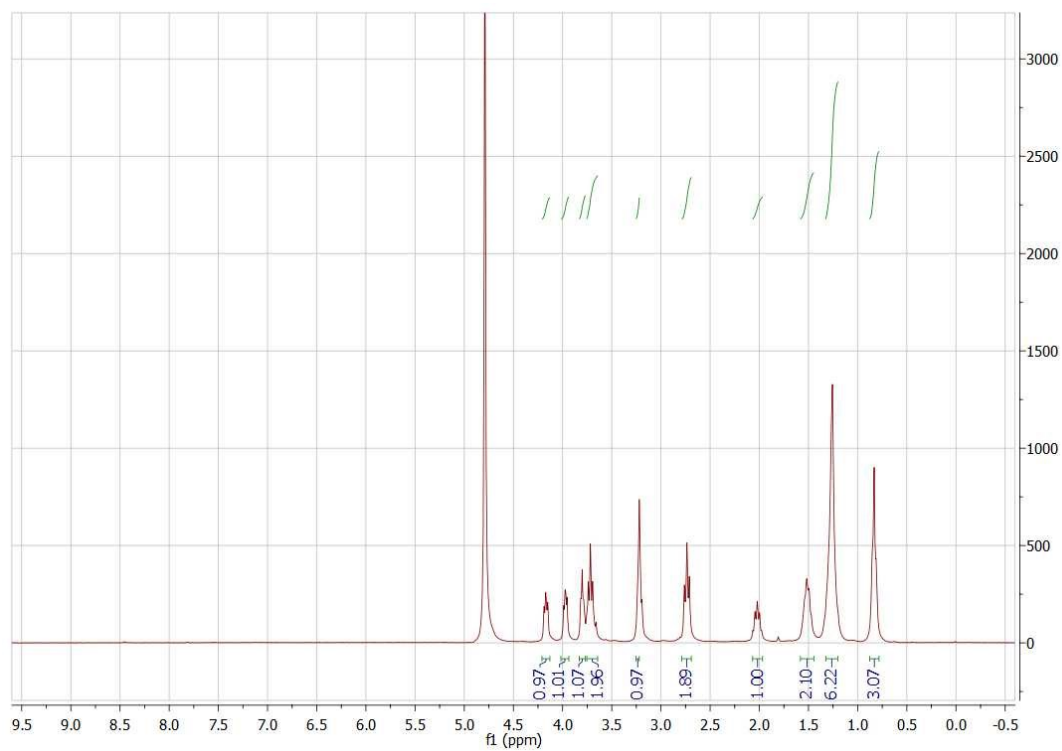


HSQC (D₂O, hydrochloride): Compound **22**·HCl

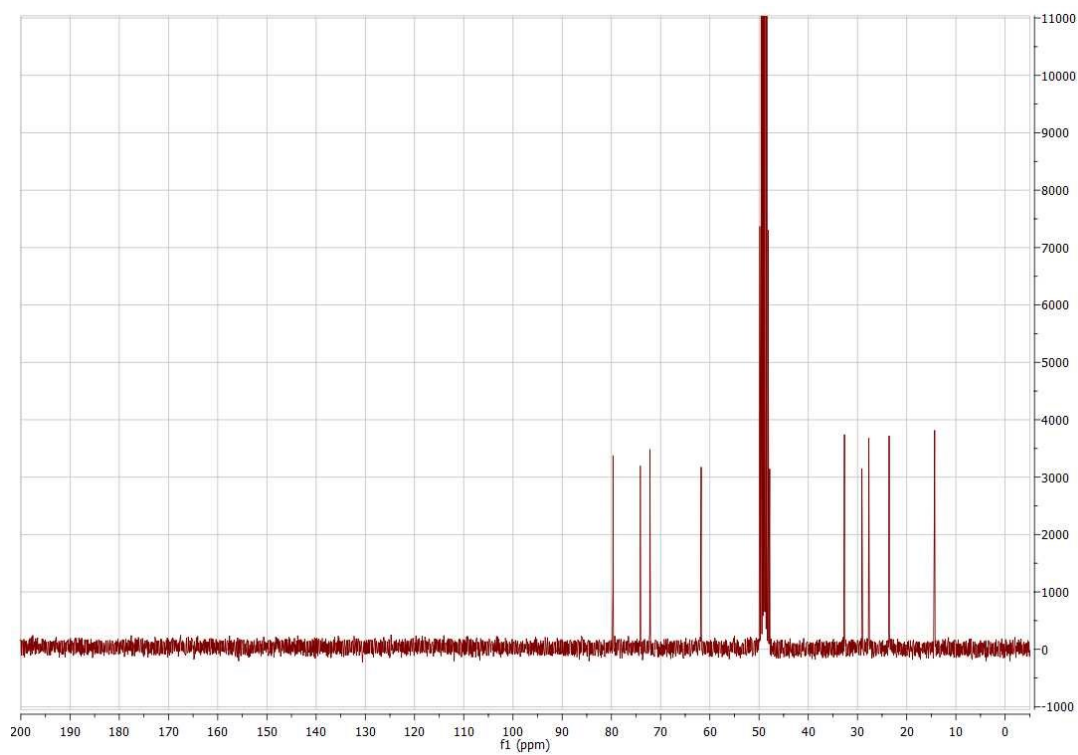


(1*S*,2*S*,3*S*,4*S*,5*R*)-4-(*n*-Hexylamino)-5-(hydroxymethyl)cyclopentane-1,2,3-triol or 1-(Hexyl)amino- α -D-galacto-cyclopentane (23**)**

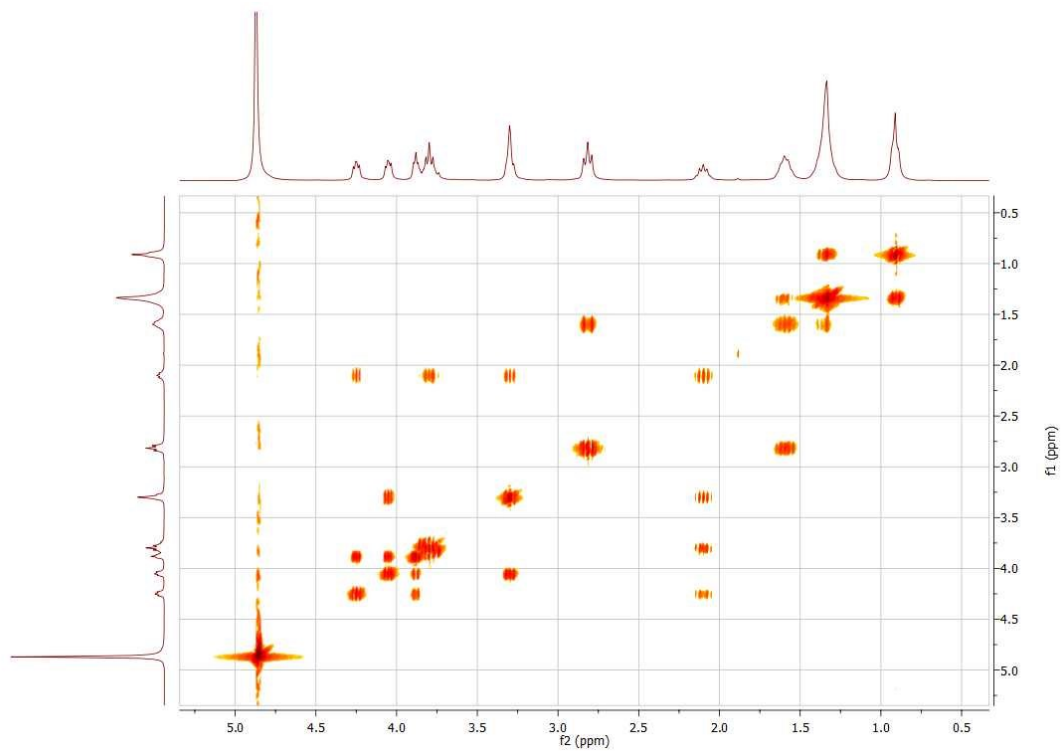
¹H NMR (300 MHz, CD₃OD): Compound **23**



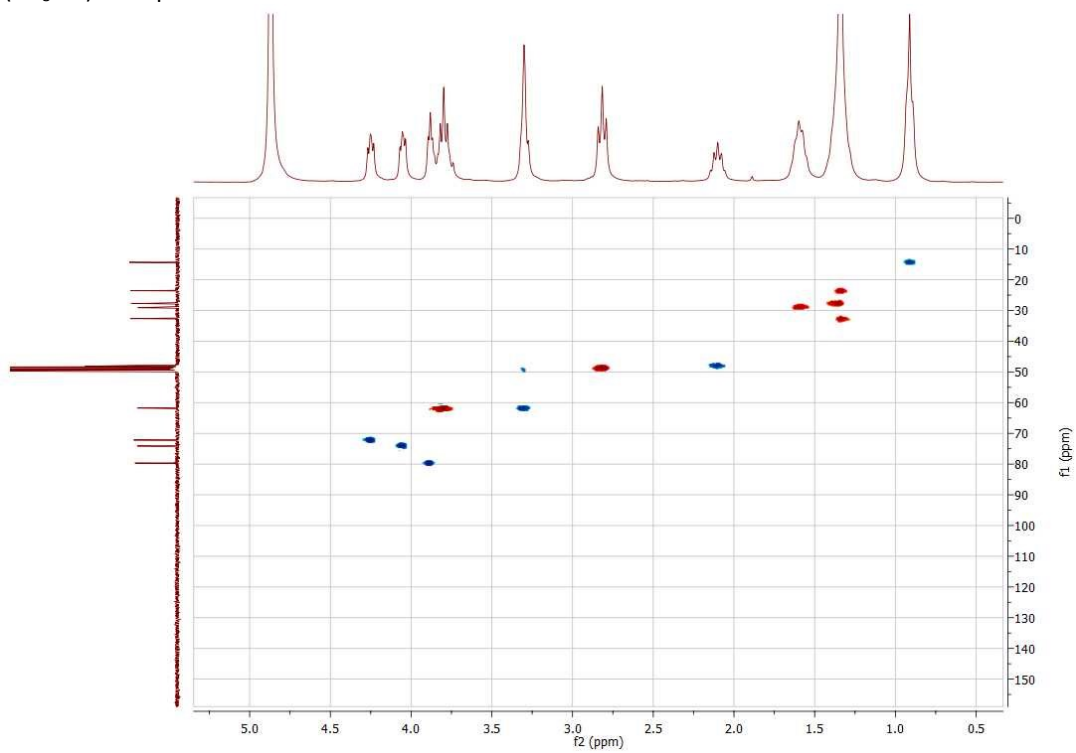
¹³C NMR (75.5 MHz, CD₃OD): Compound **23**



COSY (CD₃OD): Compound 23

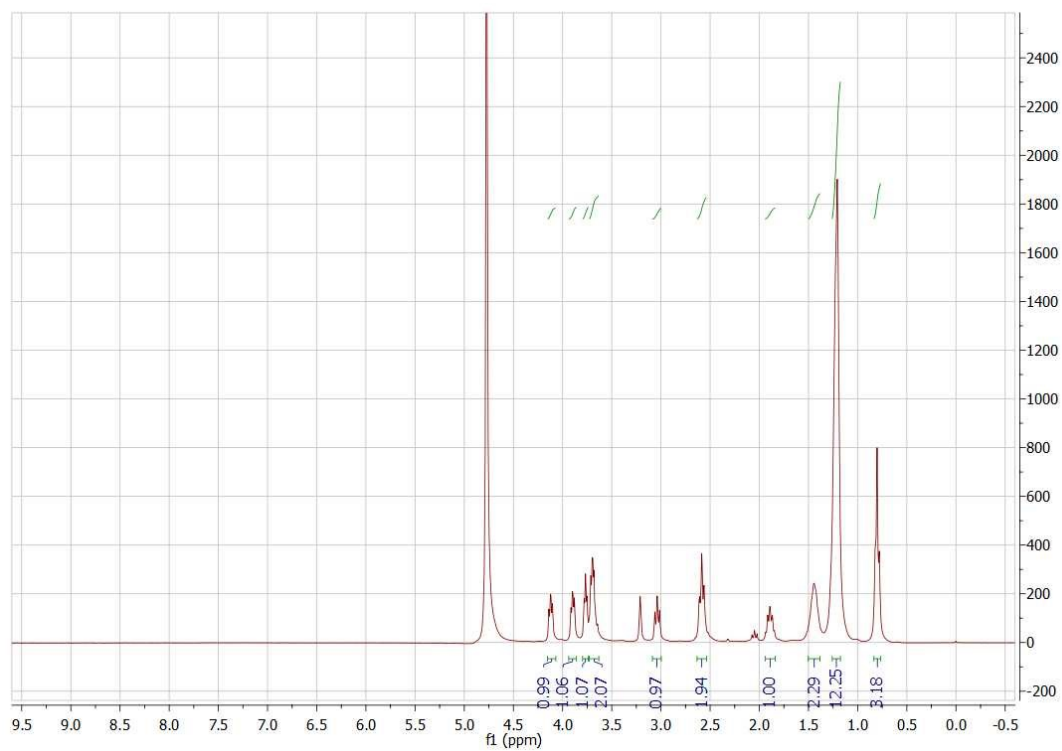


HSQC (CD₃OD): Compound 23

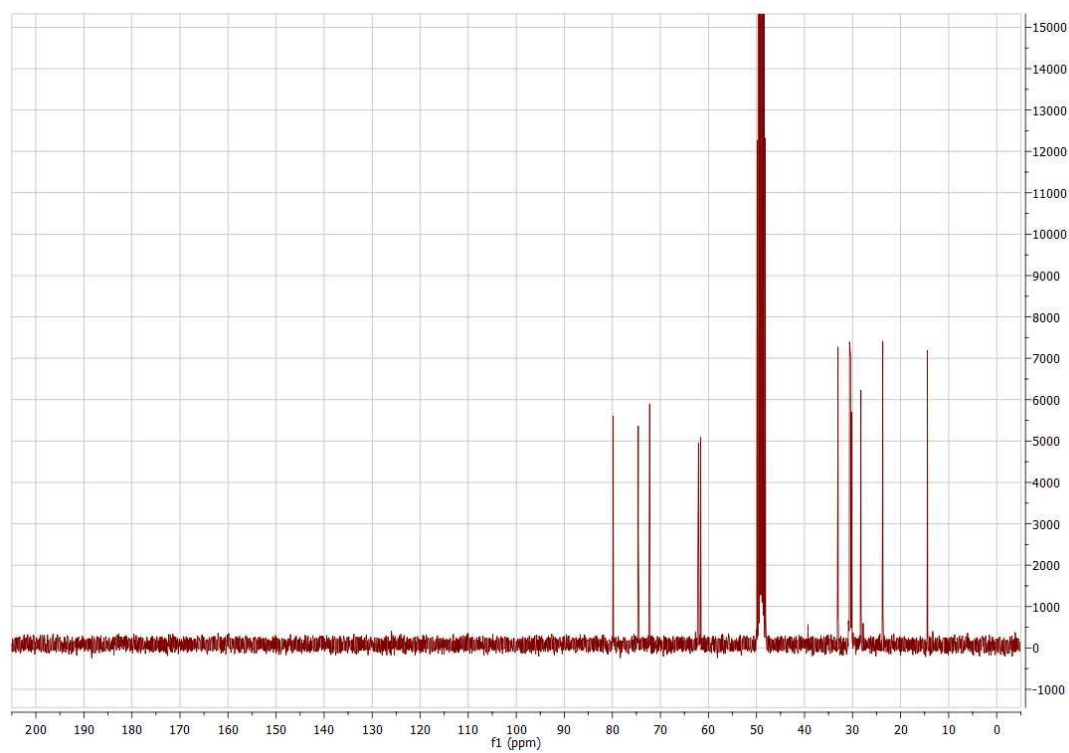


(1*S*,2*S*,3*S*,4*S*,5*R*)-4-(*n*-Nonylamino)-5-(hydroxymethyl)cyclopentane-1,2,3-triol or 1-(Nonyl)amino- α -D-galacto-cyclopentane (24**)**

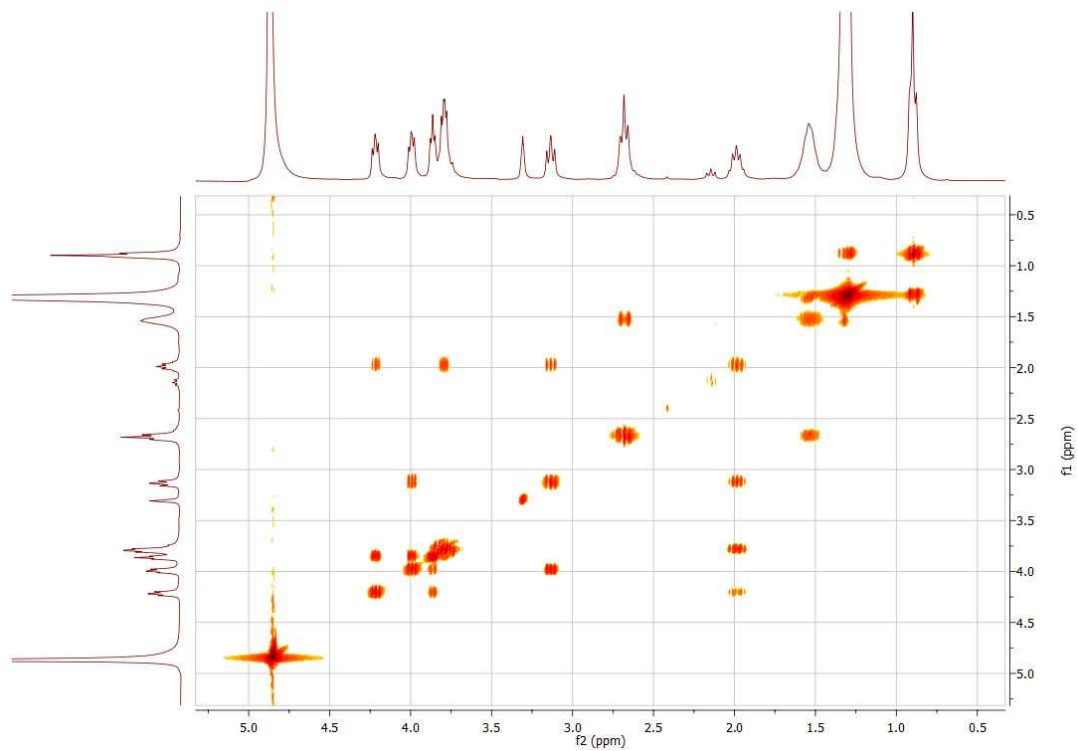
¹H NMR (300 MHz, CD₃OD): Compound **24**



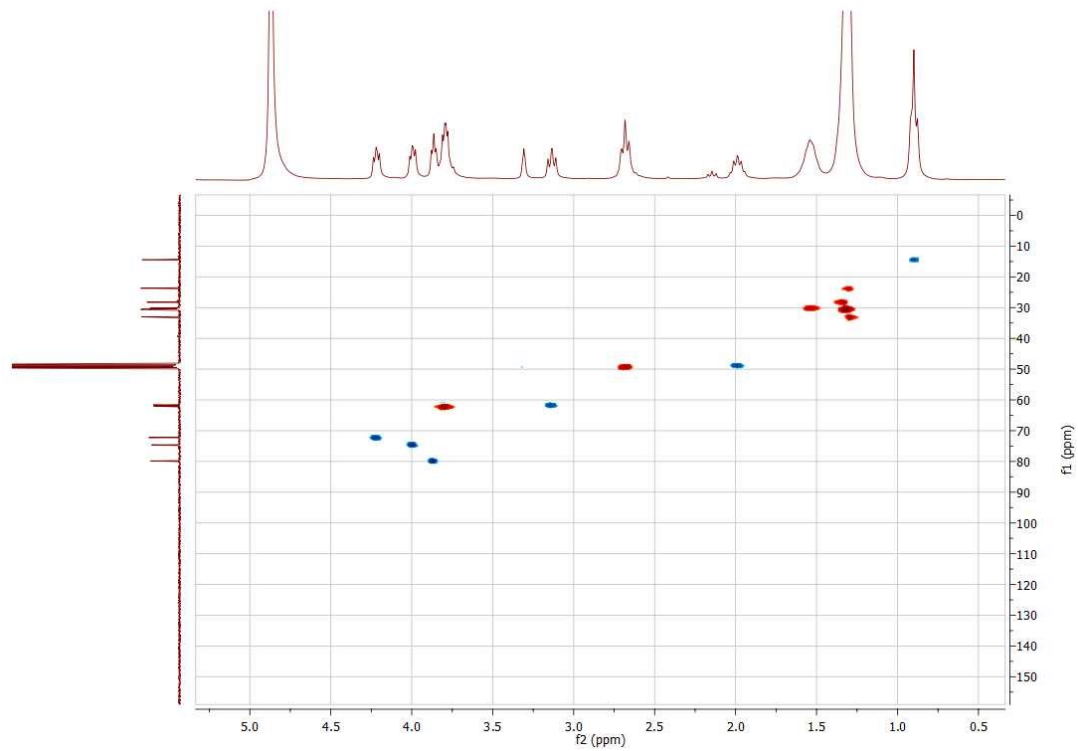
¹³C NMR (75.5 MHz, CD₃OD): Compound **24**



COSY (CD₃OD): Compound 24

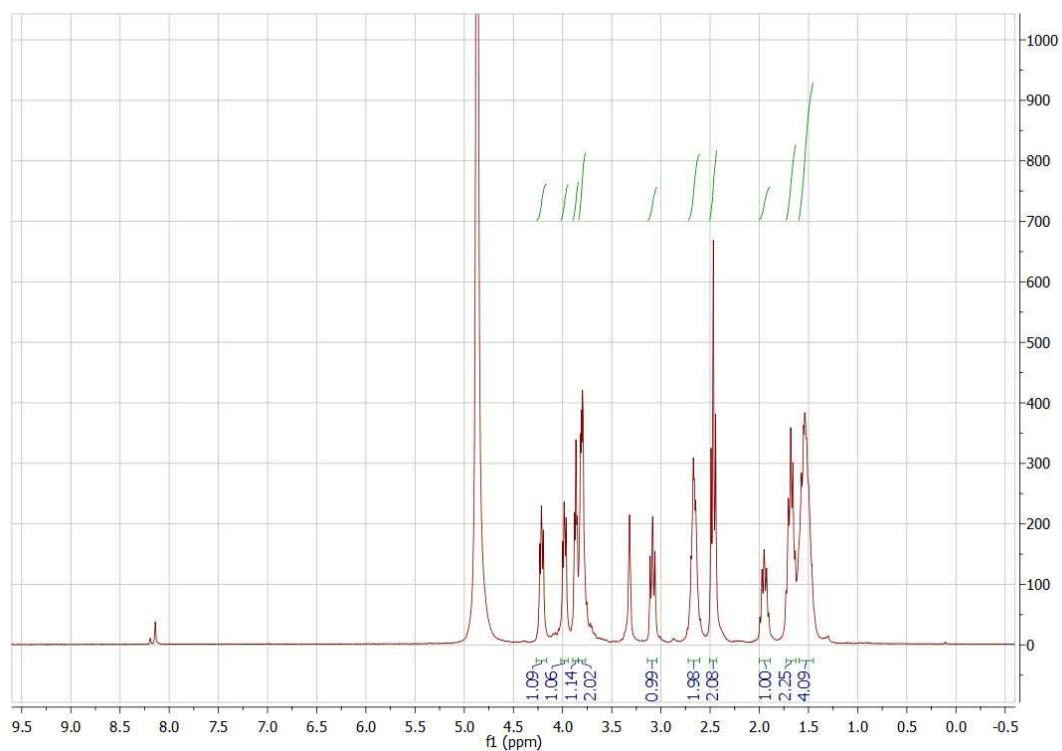


HSQC (CD₃OD): Compound 24

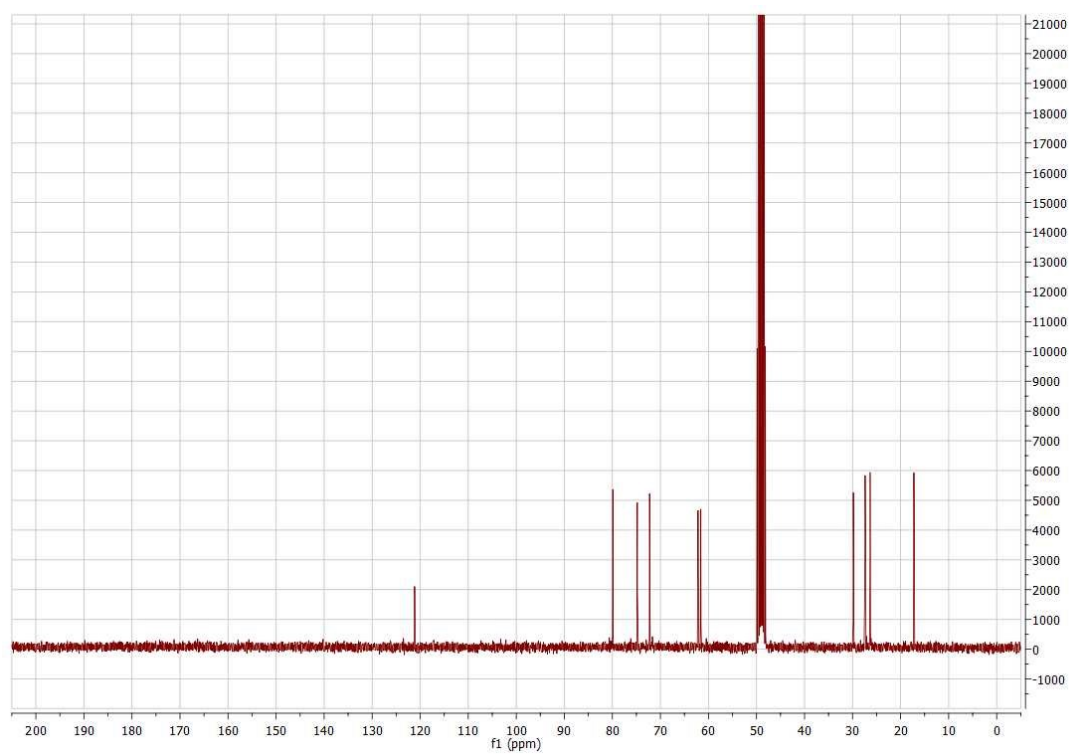


**6-(((1S,2S,3S,4S,5R)-2,3,4-Trihydroxy-5-(hydroxymethyl)cyclopentyl)amino)hexanenitrile
or 1-(6-Cyanoethyl)amino- α -D-galacto-cyclopentane (26)**

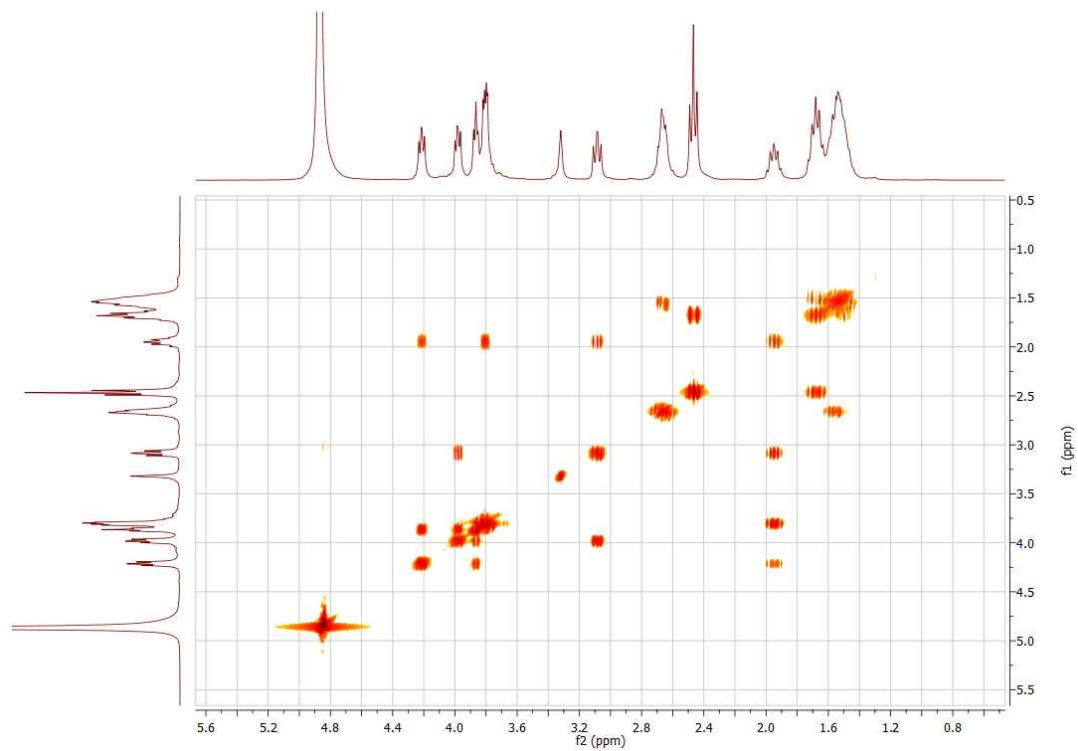
¹H NMR (300 MHz, CD₃OD): Compound 25



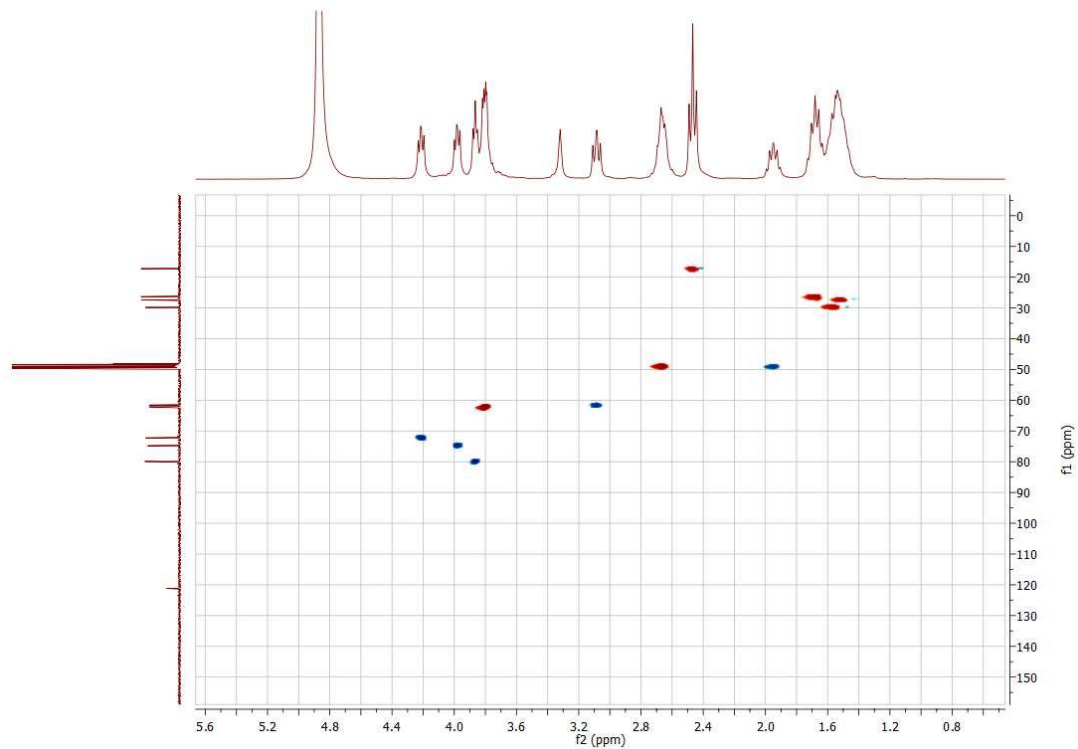
¹³C NMR (75.5 MHz, CD₃OD): Compound 25



COSY (CD₃OD): Compound 25

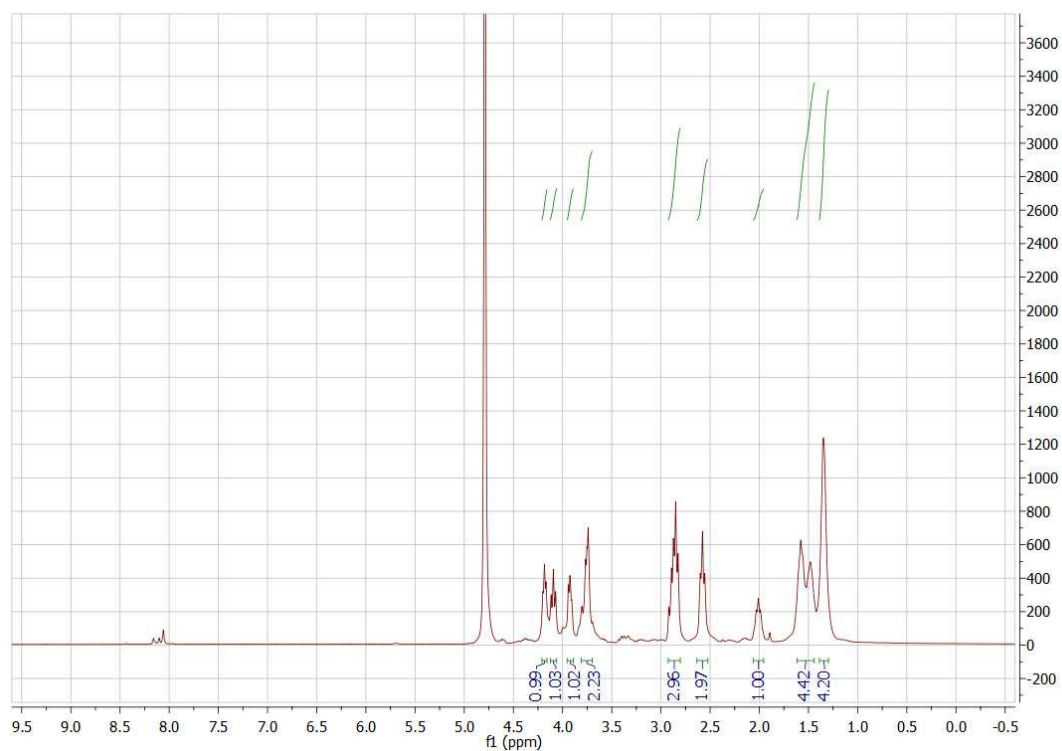


HSQC (CD₃OD): Compound 25

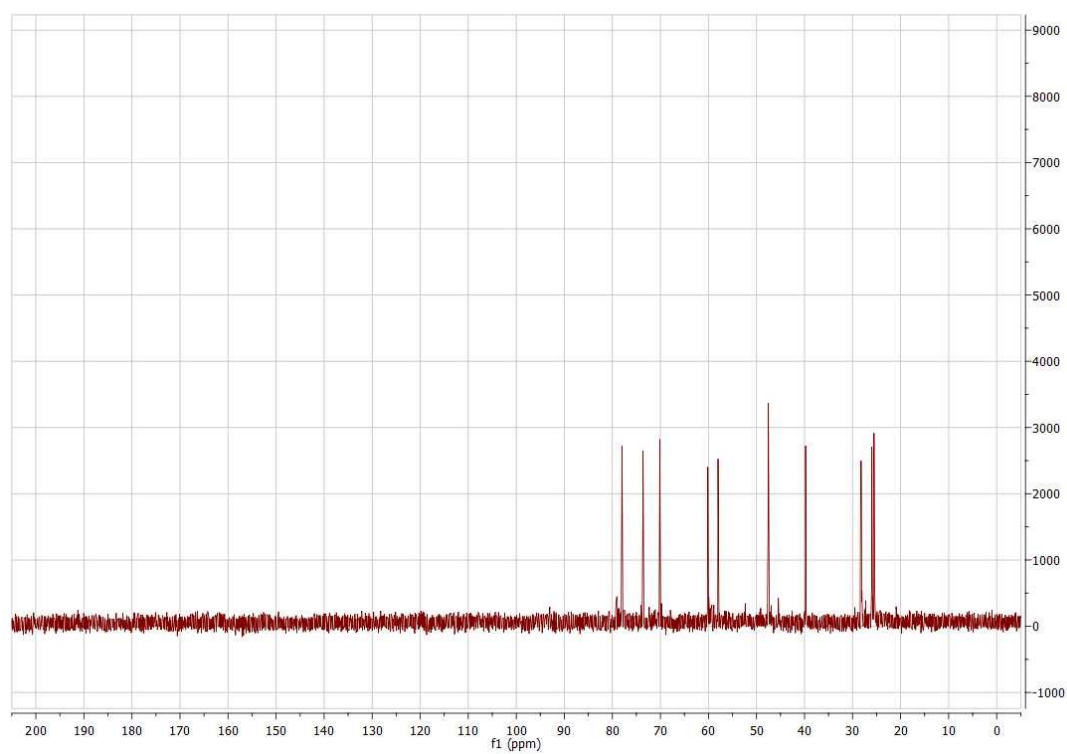


(1S,2S,3S,4S,5R)-4-[(6-Aminohexyl)amino]-5-(hydroxymethyl)cyclopentane-1,2,3-triol or 1-(6-Aminohexyl)amino- α -D-galacto-cyclopentane (xx)

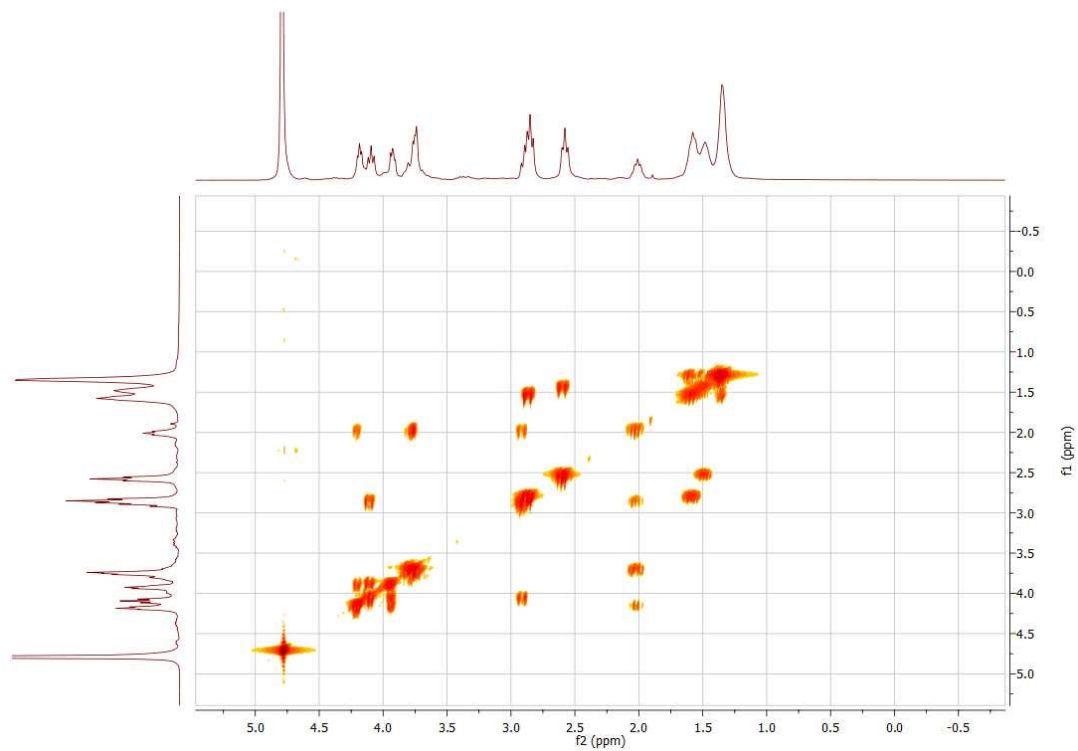
¹H NMR (300 MHz, CD₃OD): Compound 26



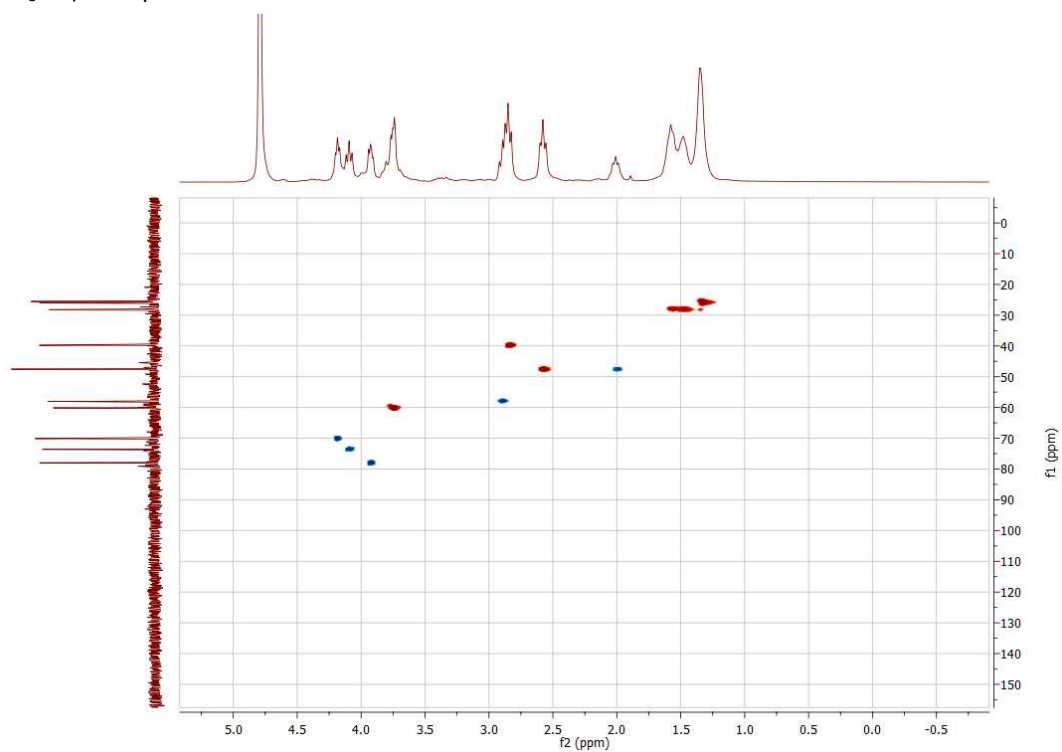
¹³C NMR (75.5 MHz, CD₃OD): Compound 26



COSY (CD₃OD): Compound 26

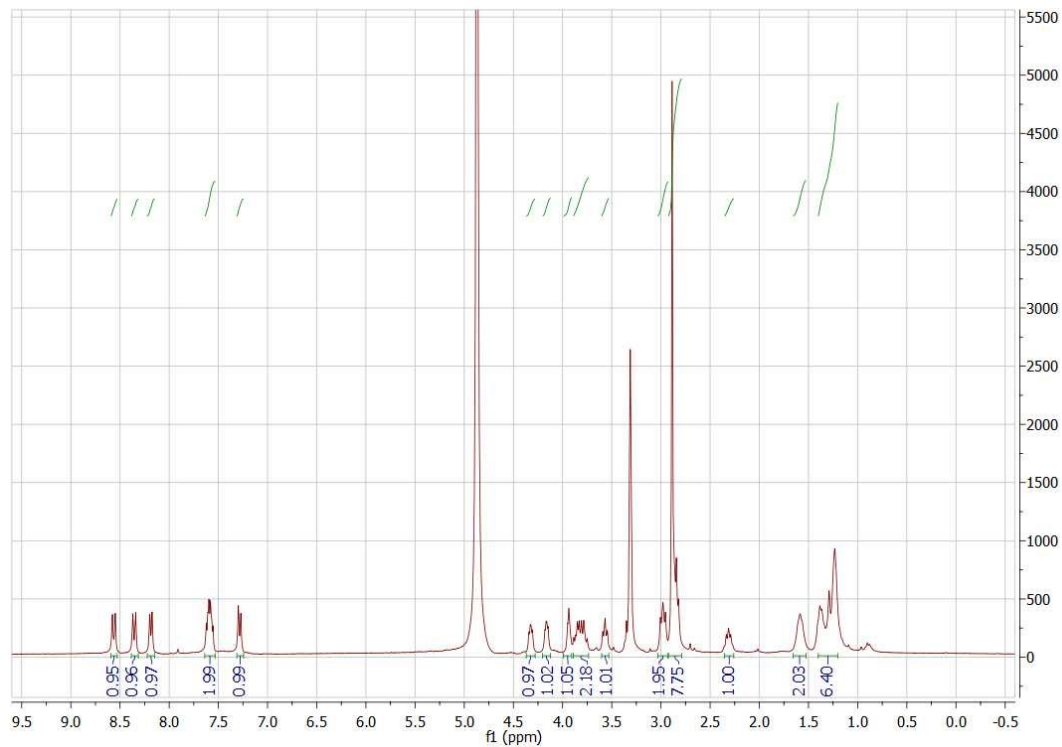


HSQC (CD₃OD): Compound 26

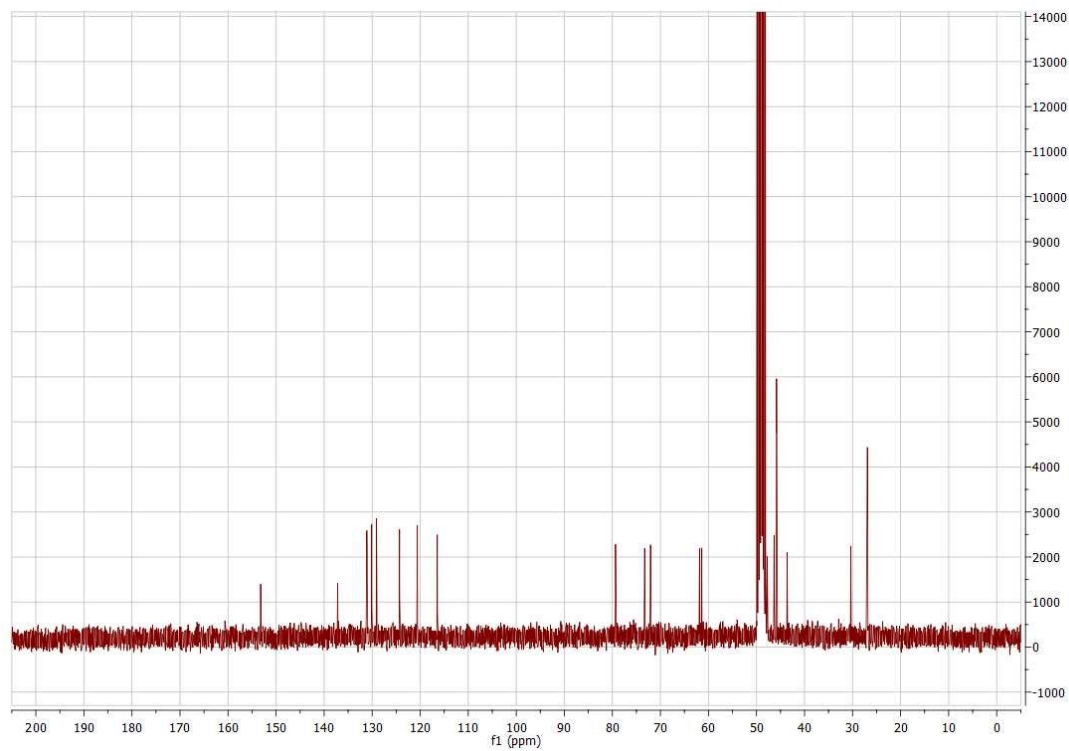


5-(Dimethylamino)-N-(6-{{{(1S,2S,3S,4S,5R)-2,3,4-trihydroxy-5-(hydroxymethyl)cyclopentyl} amino}hexyl)naphthalene-1-sulfonamide or 1-(6-Dansylaminohexyl)amino- α -D-galacto-cyclopentane (27)

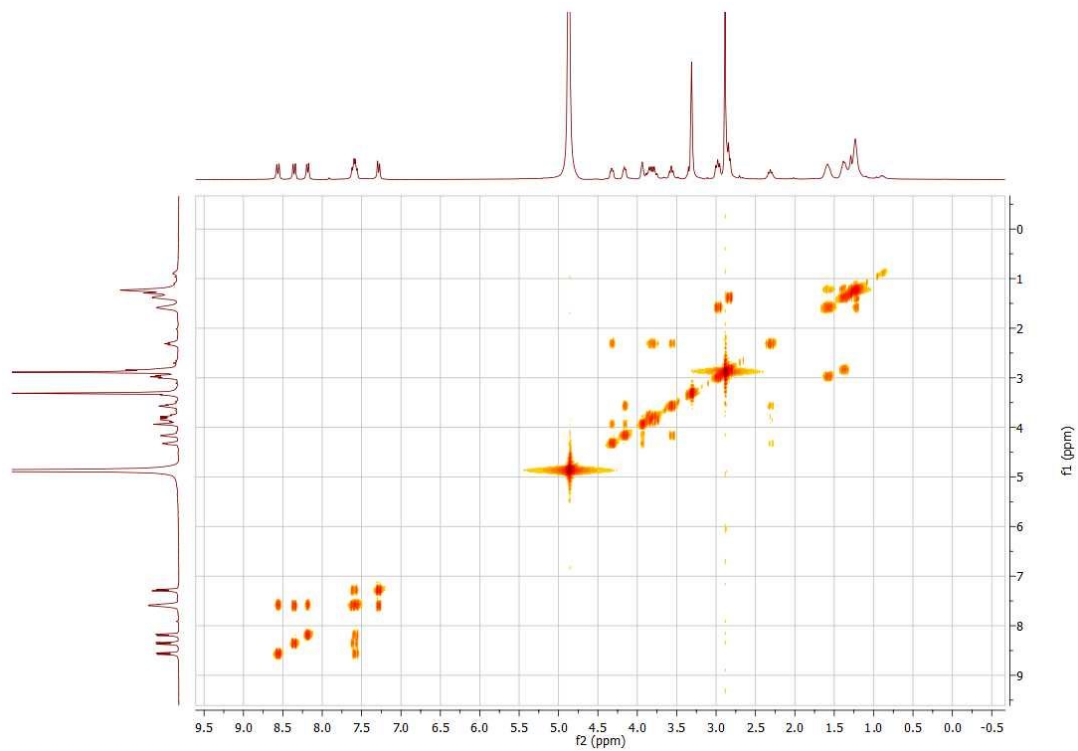
¹H NMR (300 MHz, CD₃OD): Compound 27



¹³C NMR (75.5 MHz, CD₃OD): Compound 27



COSY (CD₃OD): Compound 27



HSQC (CD₃OD): Compound 27

