Supporting Information

Demystifying Hexuronic Acid Ligand that Recognizes *Toxoplasma gondii* and Blocks its Invasion into Host Cells.

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[d] Equal contribution

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Experimental Section

1. XPS Analysis

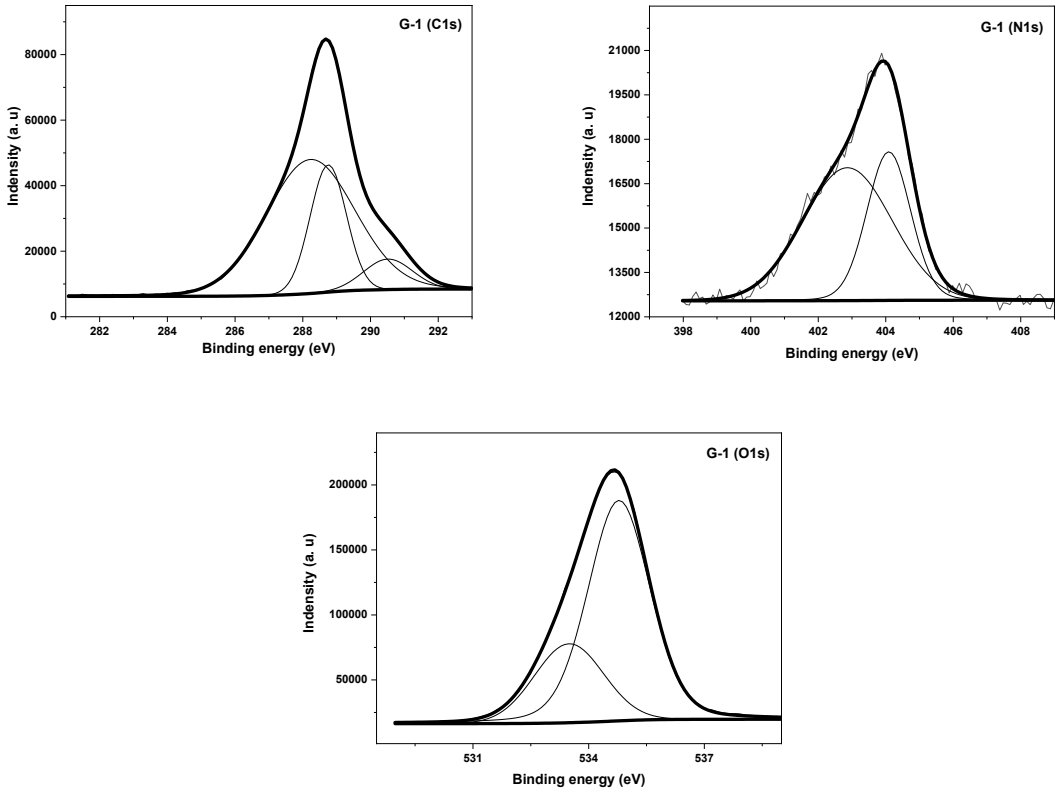
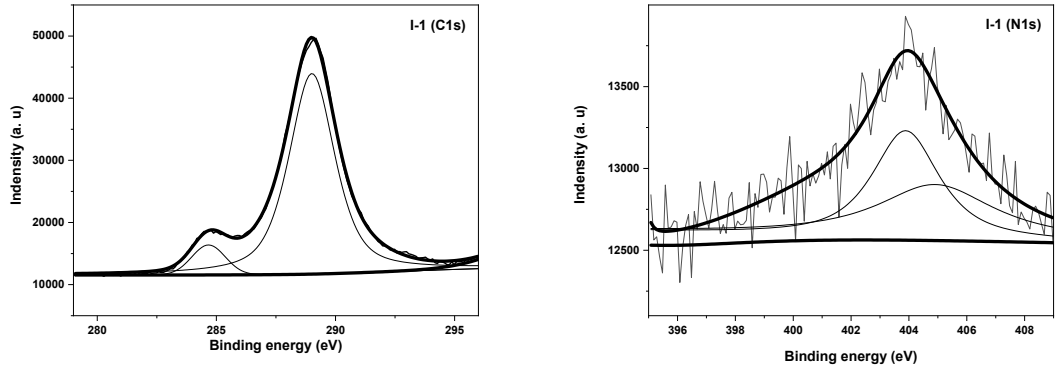


Figure S1. XPS spectra for **I-1** coated glass slide.



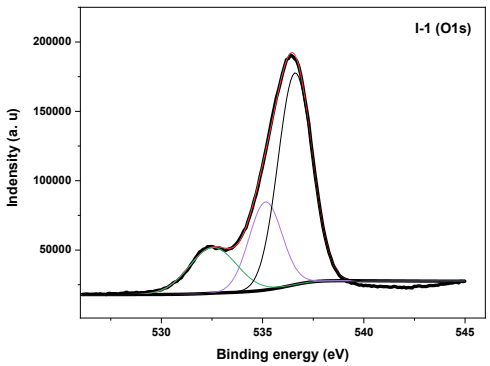
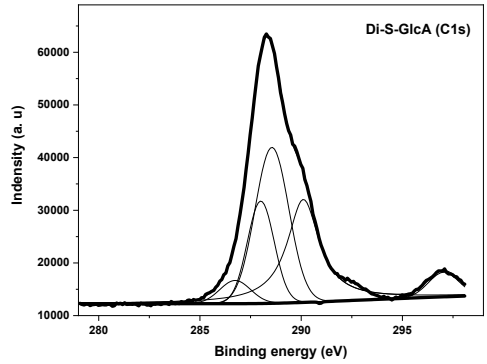
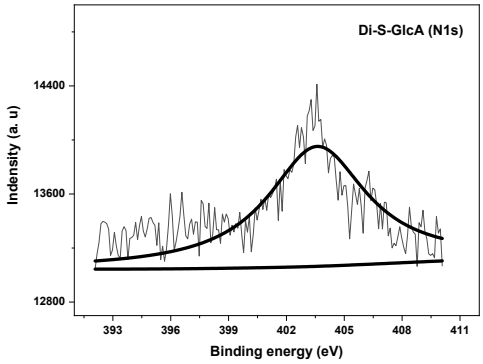
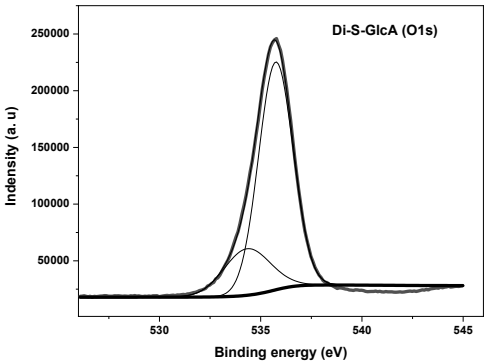
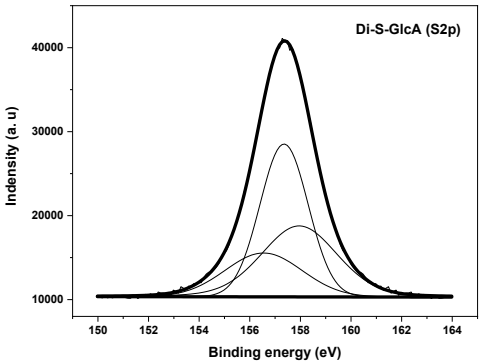


Figure S2. XPS spectra for **G-1** coated glass slide.









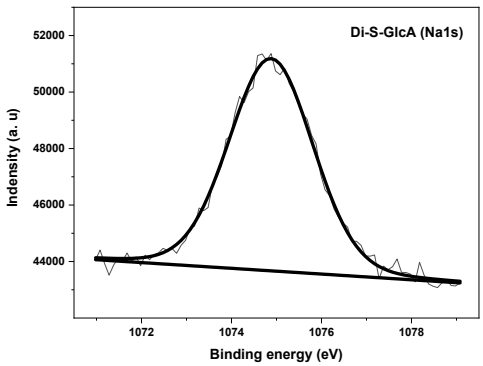
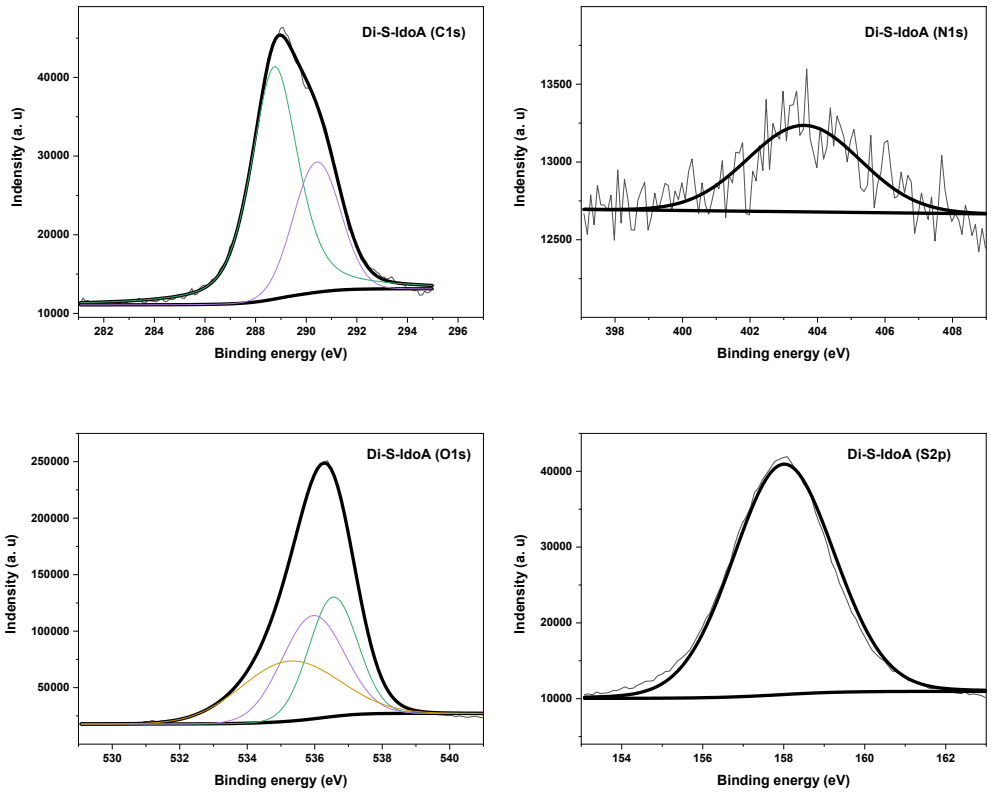


Figure S3. XPS spectra for **Di-S-GlcA** coated glass slide.



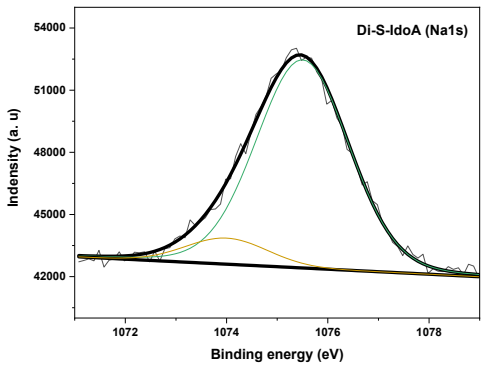


Figure S4. XPS spectra for **Di-S-IdoA** coated glass slide.

2. Quantification of sugar on glass slides.

The quantified values are given in Table S1.

Table S1. The estimated concentration of sugar on 1 X 1 cm^2 glass slides.

G-1	I-1	Di-S-IdoA	Di-S-GlcA
0.39 ± 0.01 µM	0.61 ± 0.01 µM	0.33 ± 0.02 µM	0.28 ± 0.04 µM

3. IR spectra of gelatin Conjugation

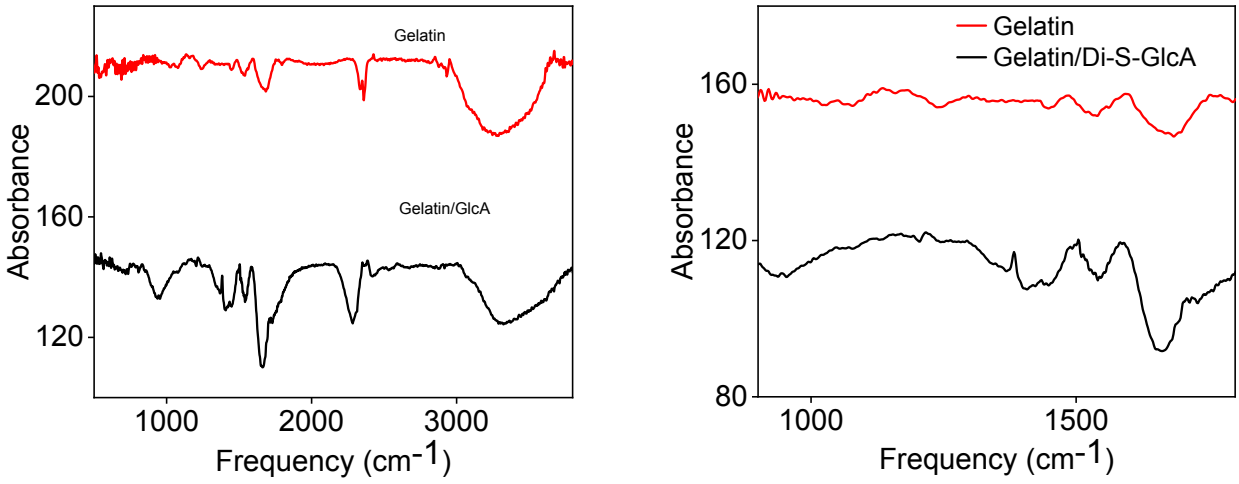


Figure S5. IR spectra of gelatin and gelatin conjugated **Di-S-GlcA**

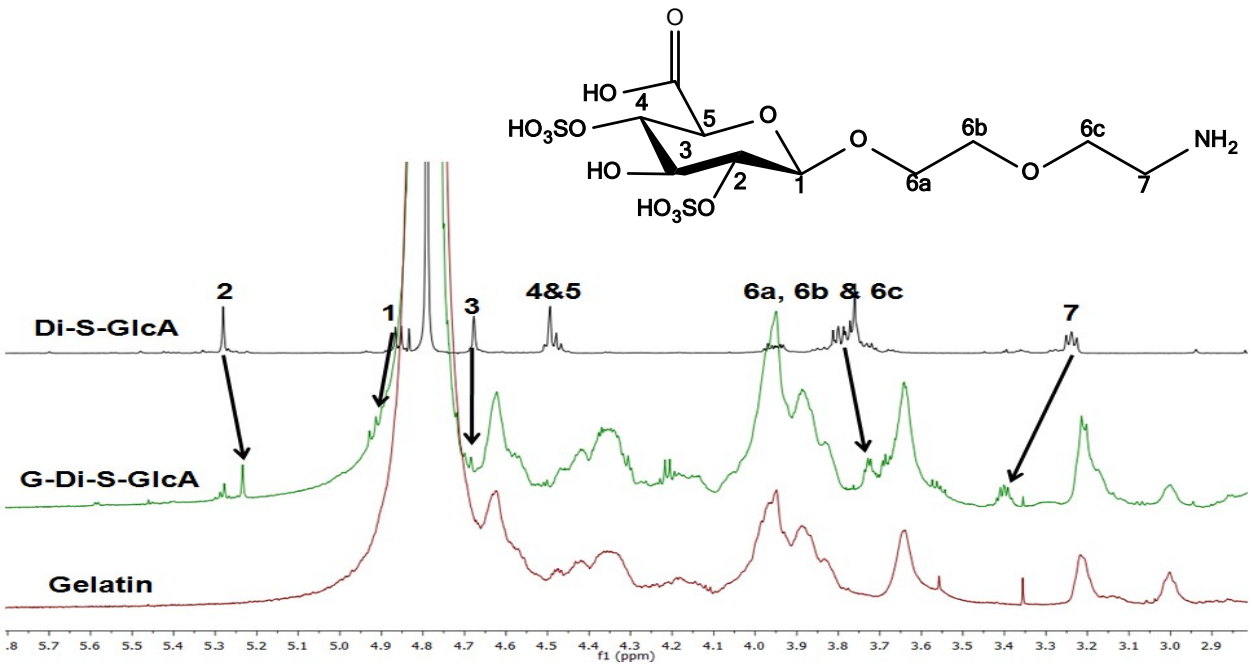


Figure S6. NMR spectra of Di-S-GlcA, gelatin and gelatin conjugated **Di-S-GlcA**

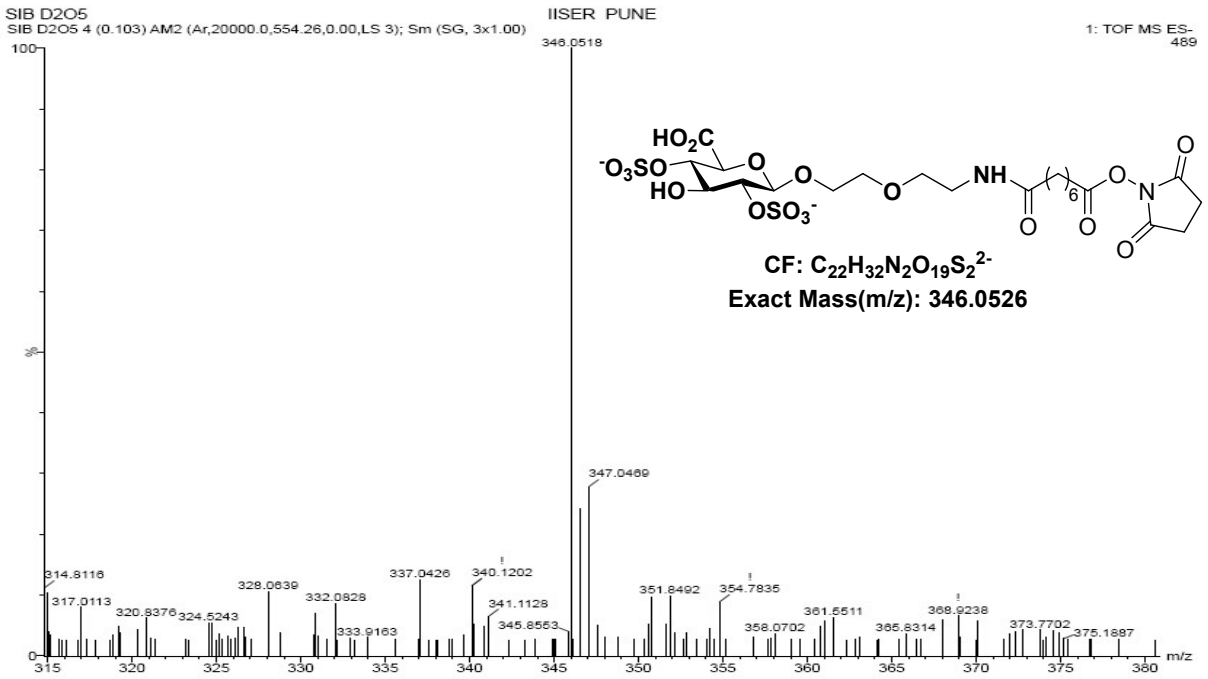


Figure S7. MALDI-TOF Mass spectra of **DSS-Di-S-GlcA** Conjugate

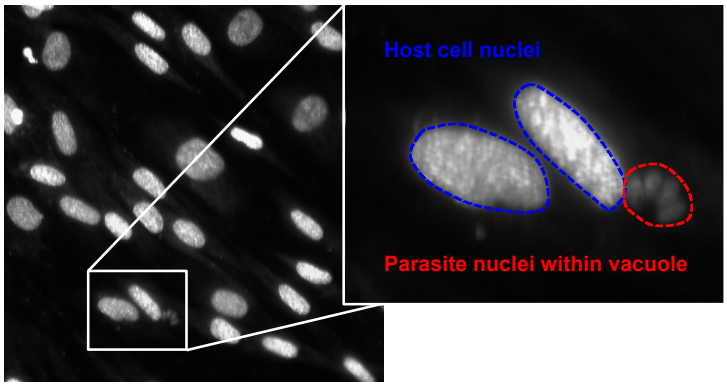
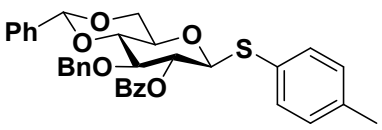


Figure S8. Microscopic image showing DAPI stained *T. gondii* infected host cell monolayers imaged for the invasion assays (See Figure 6b in main text). This is a representative image shown for control in which untreated parasites were allowed to invade the host cells and replicate for 24 h before fixing and imaging the infected cells. The detailed description of the experiment and imaging method is given in the Experimental Section of the main text. The microscopic image shows fluorescent DAPI staining in both host cell nuclei (which are bigger in size) and parasite nuclei (which are smaller in size and clustered together depending on the number of parasites within a single parasitophorous vacuole). The inset shows an expanded view of the host and parasite nuclei. The images were collected from glass bottom 96 well plates using a 63X water emulsion objective fitted to the Operetta CLS High-Content Analysis System.

4. NMR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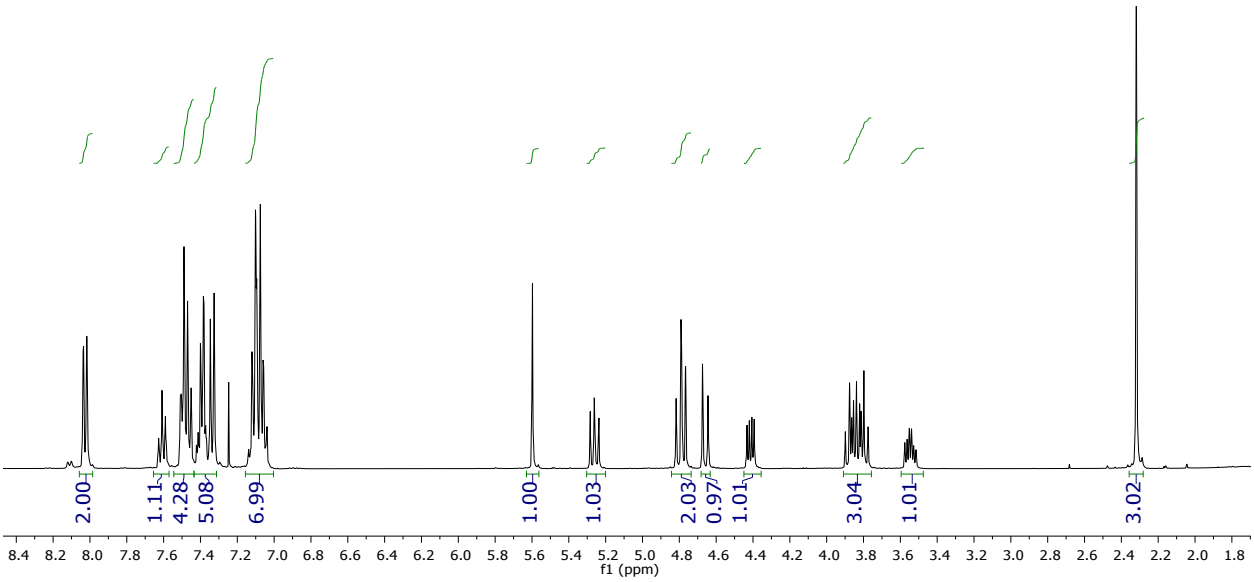
BzO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3.04
1.01
3.02
8.4 8.2 8.0 7.8 7.6 7.4 7.2 7.0 6.8 6.6 6.4 6.2 6.0 5.8 5.6 5.4 5.2 5.0 4.8 4.6 4.4 4.2 4.0 3.8 3.6 3.4 3.2 3.0 2.8 2.6 2.4 2.2 2.0 1.8
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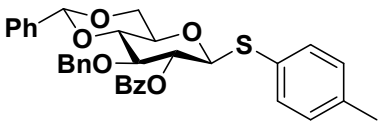
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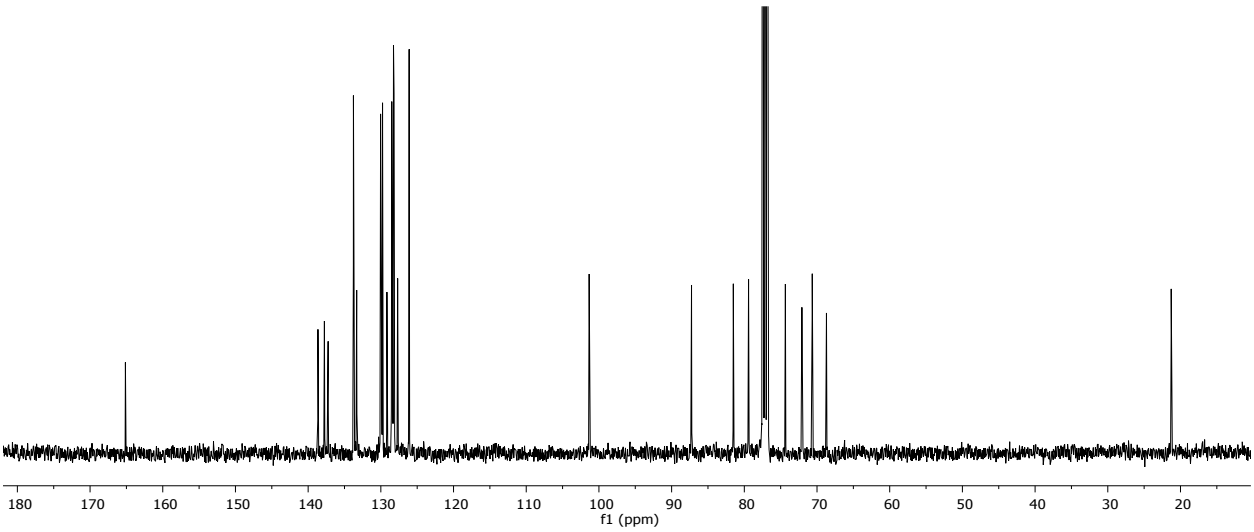
BzO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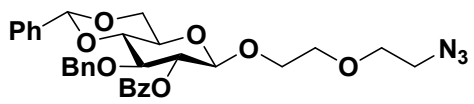
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BzO
O
O
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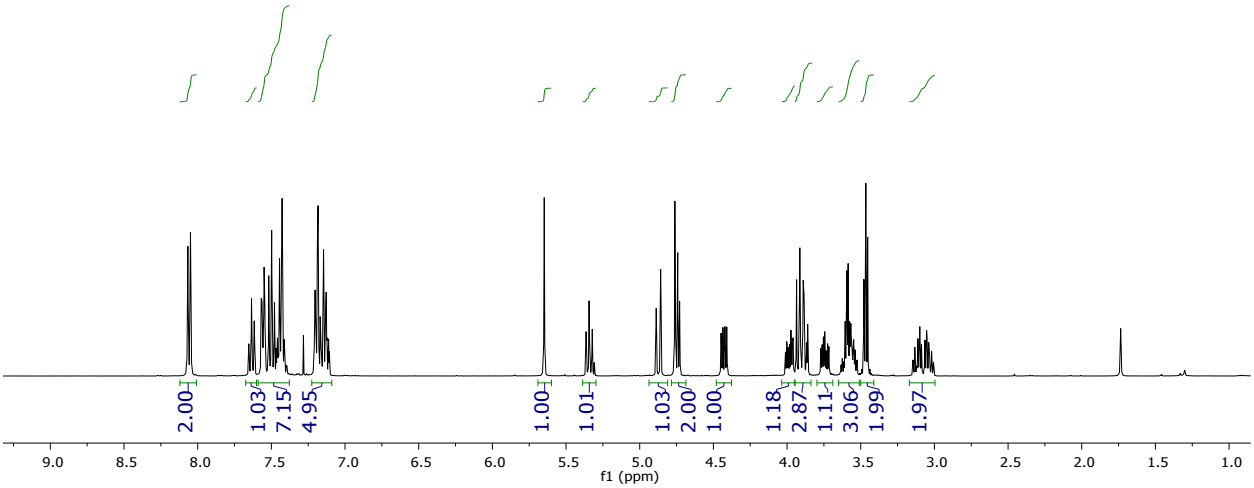
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8.0
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7.0
6.5
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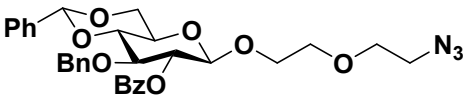
f1 (ppm)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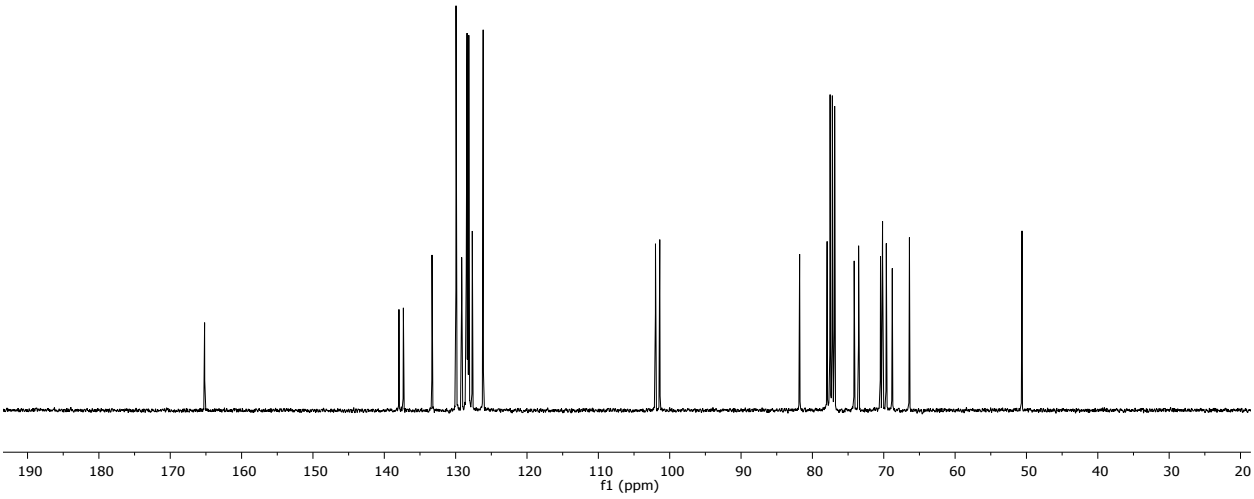
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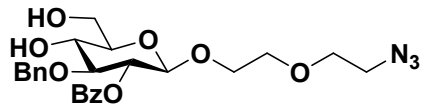
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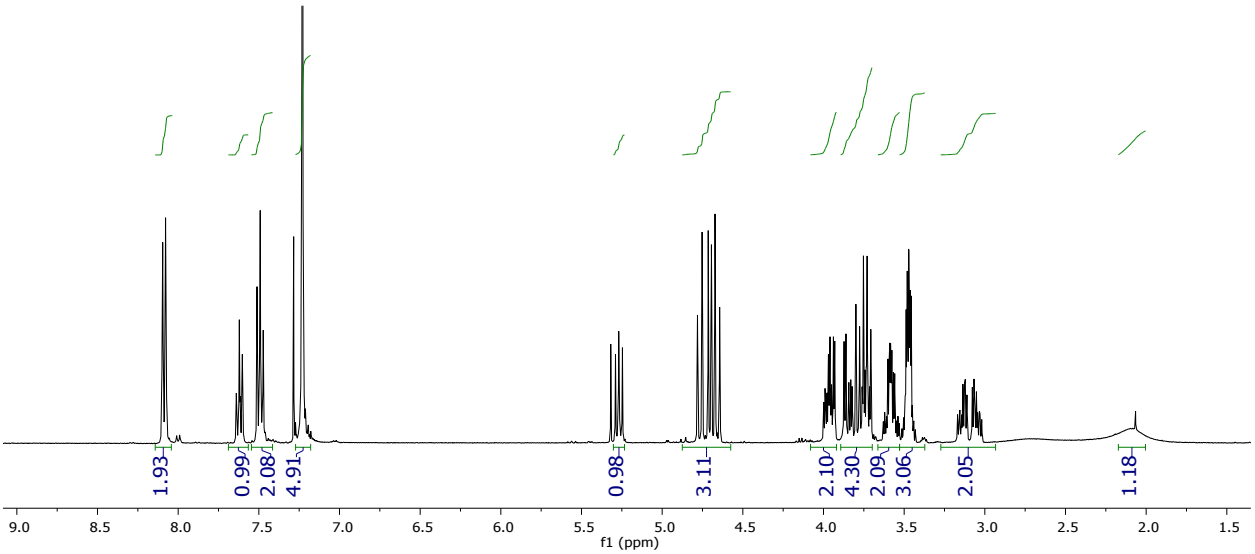
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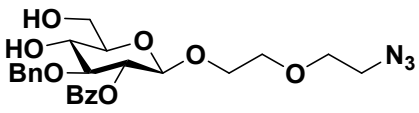
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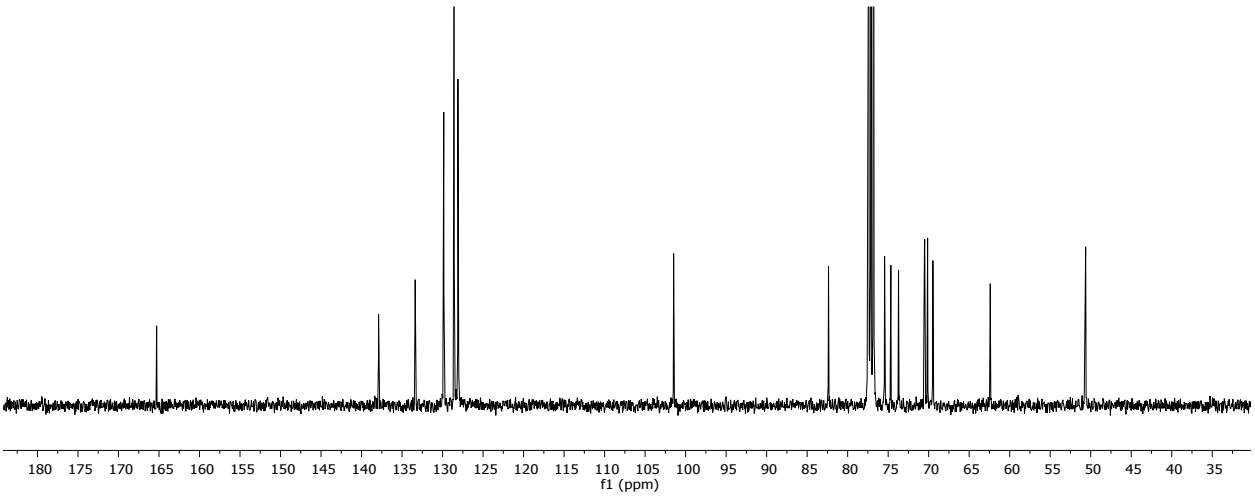
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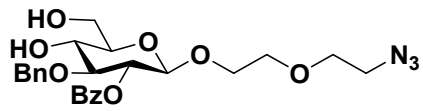
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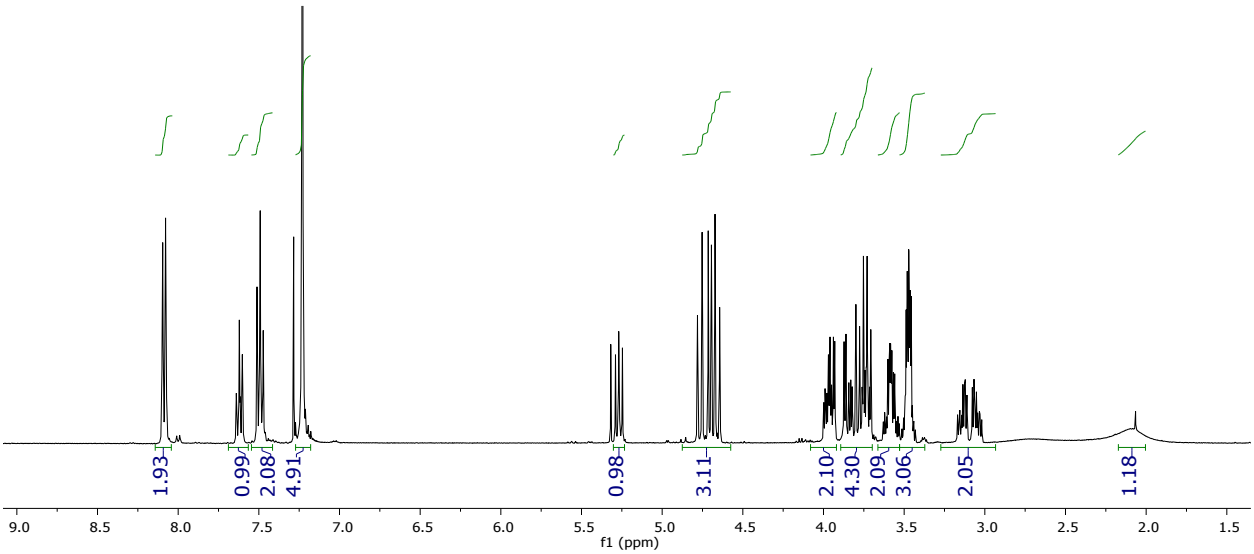
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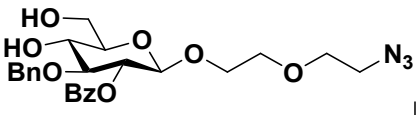
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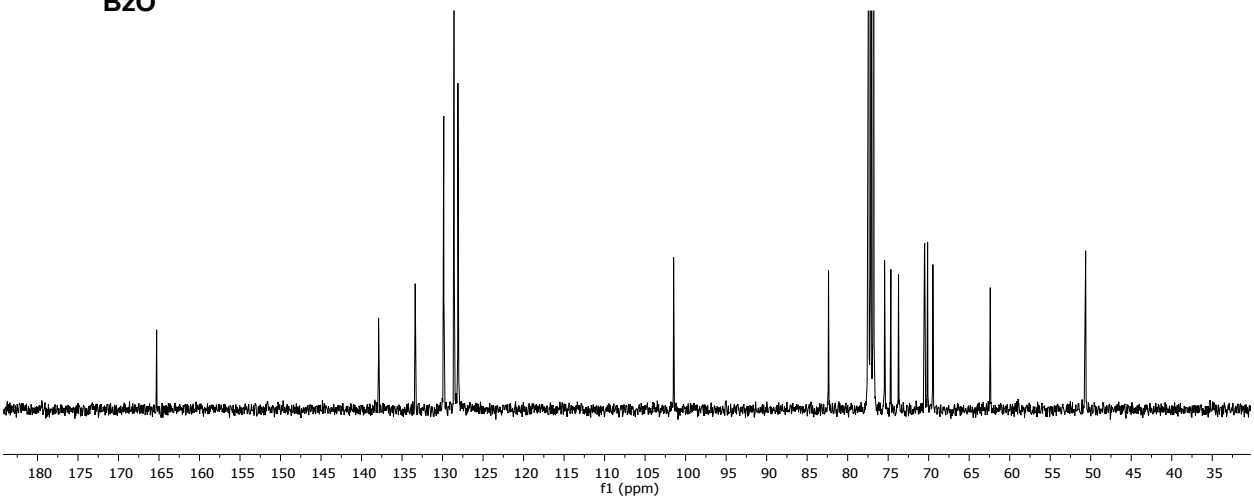
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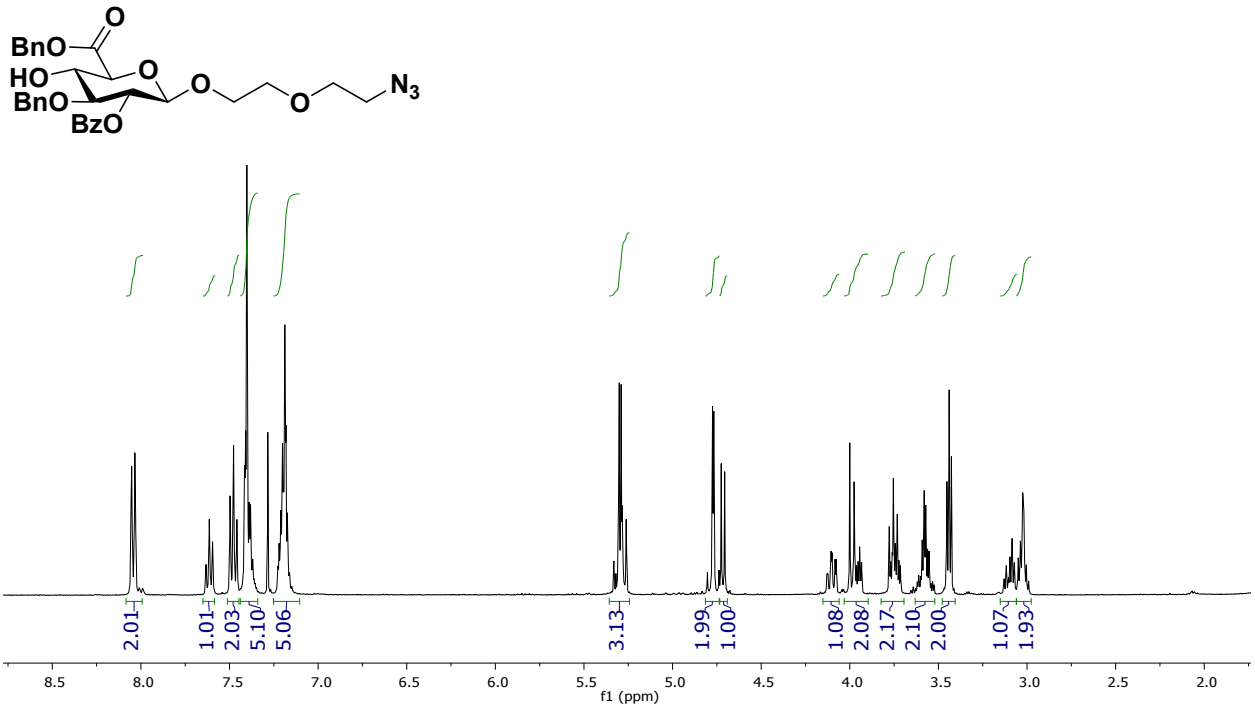
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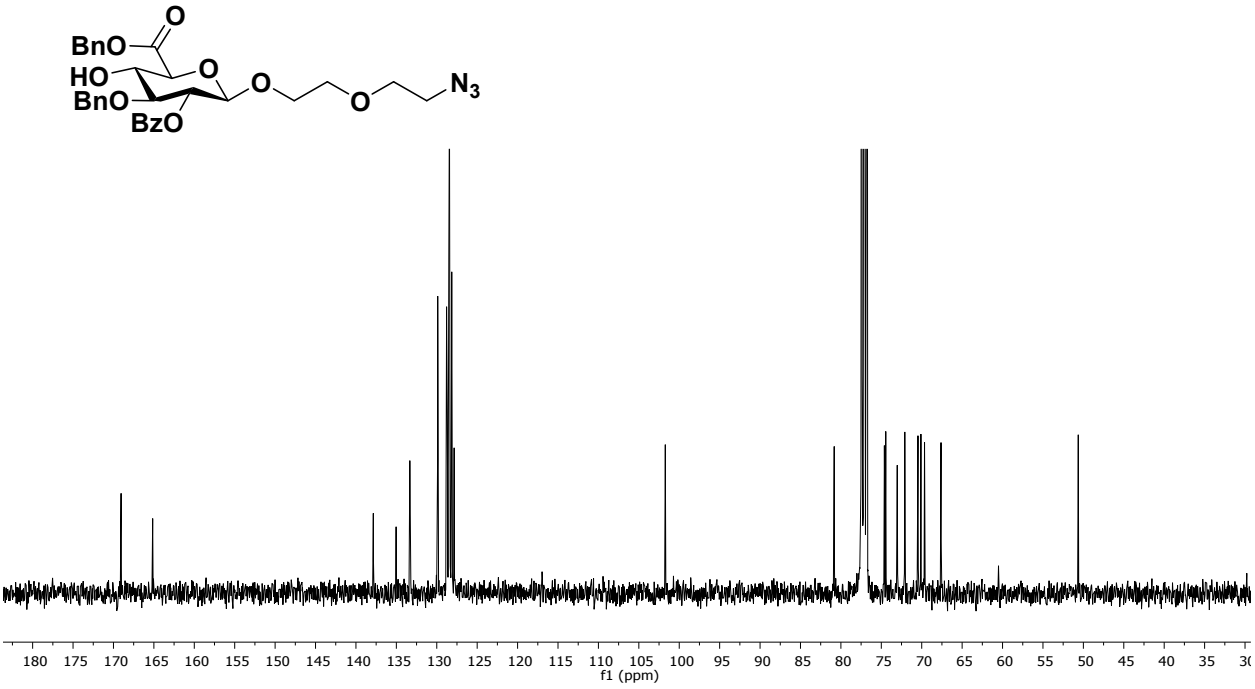
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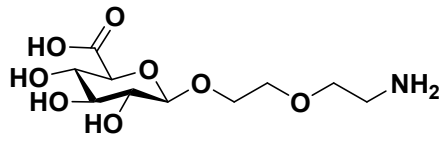
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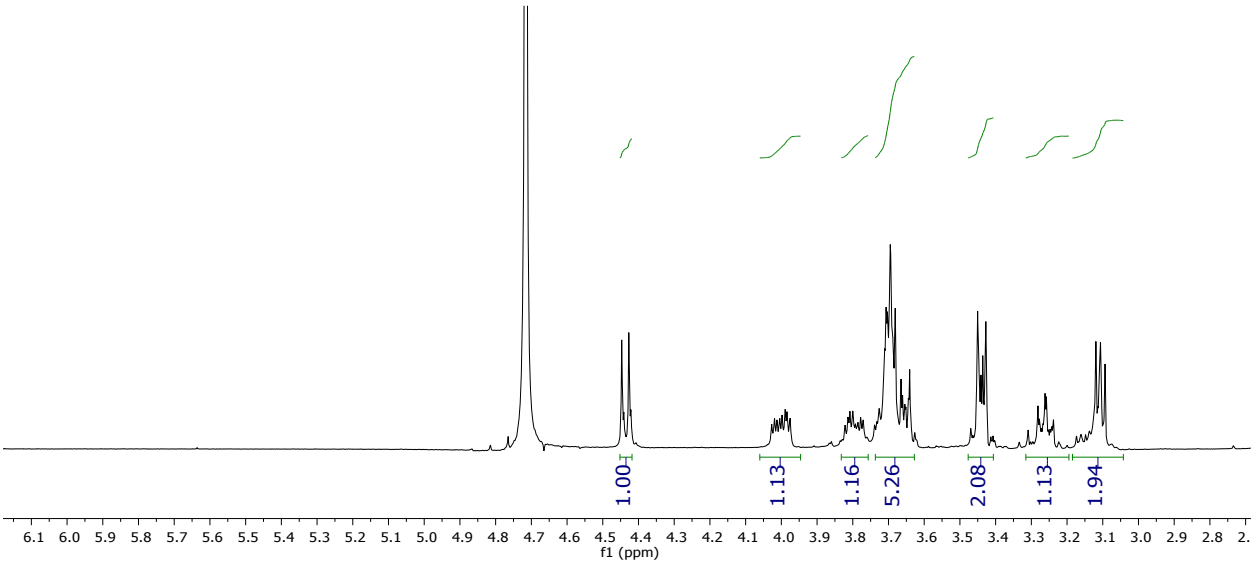
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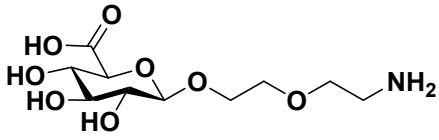
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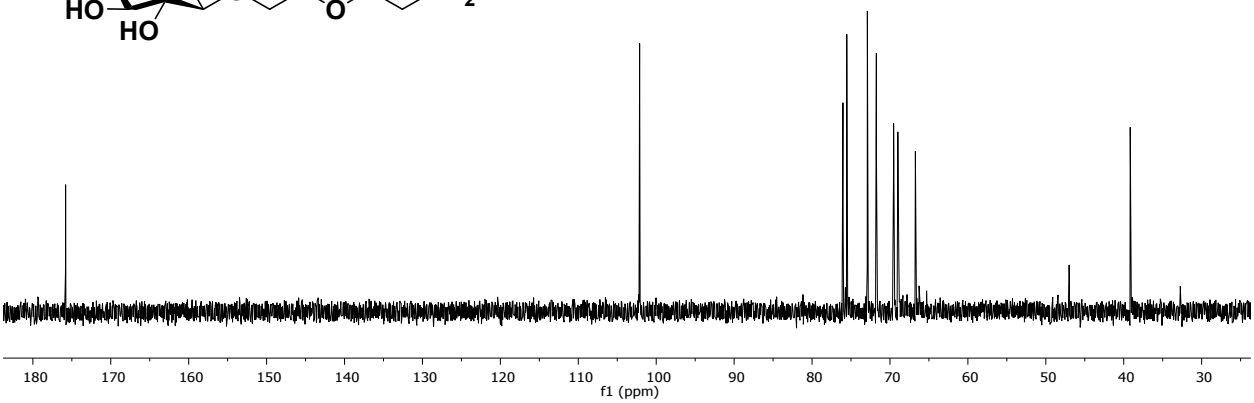
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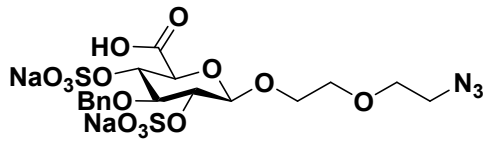
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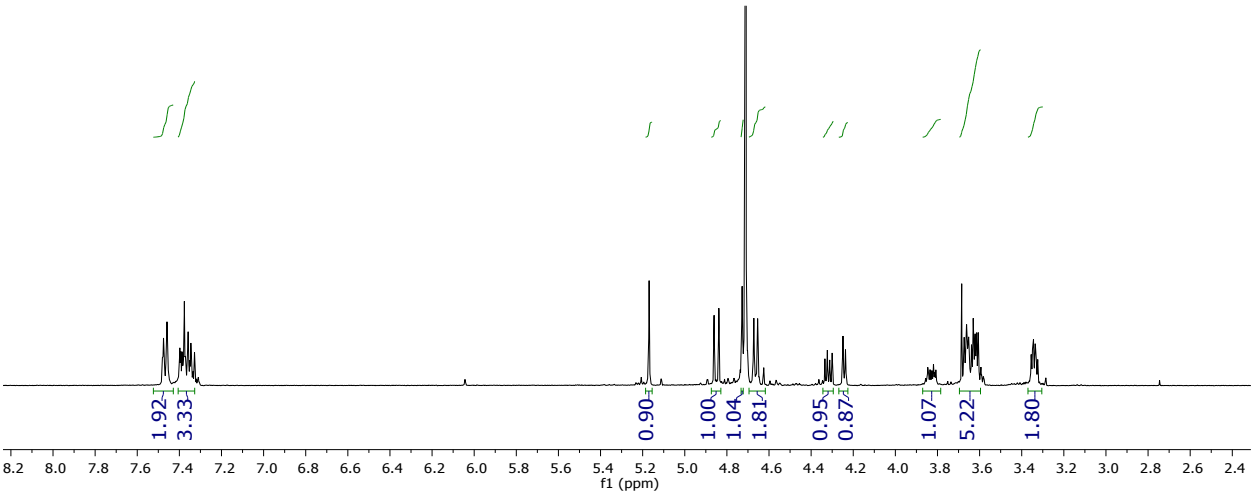
N3
NaO3SO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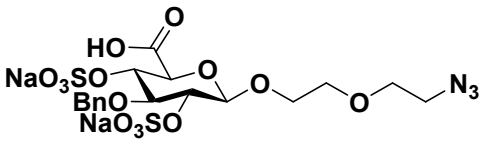
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NaO3SO
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BnO
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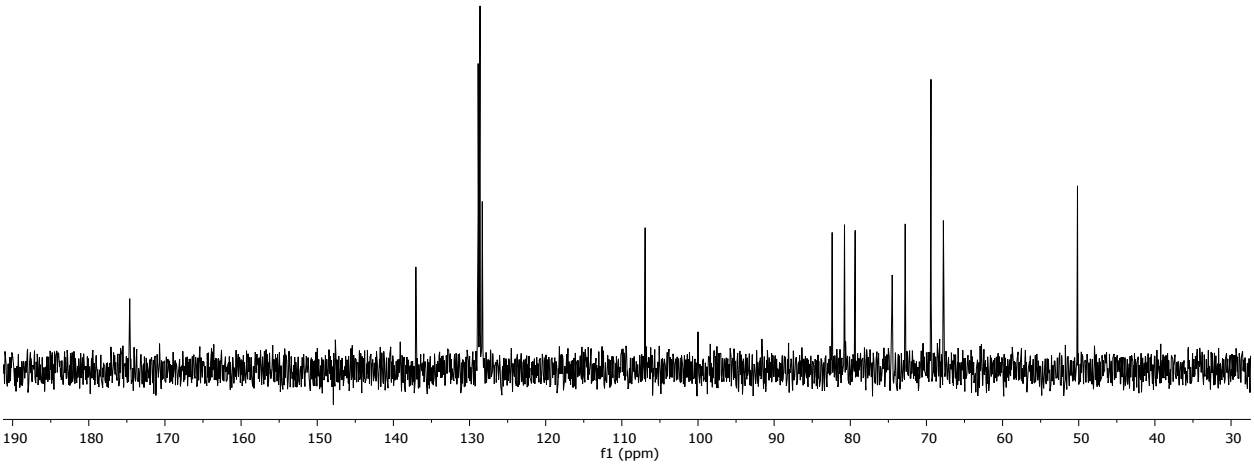
N3
NaO3SO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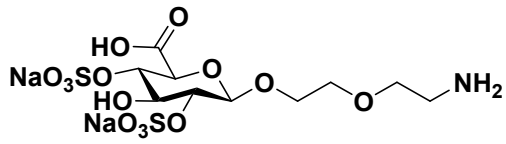
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HO
NaO3SO
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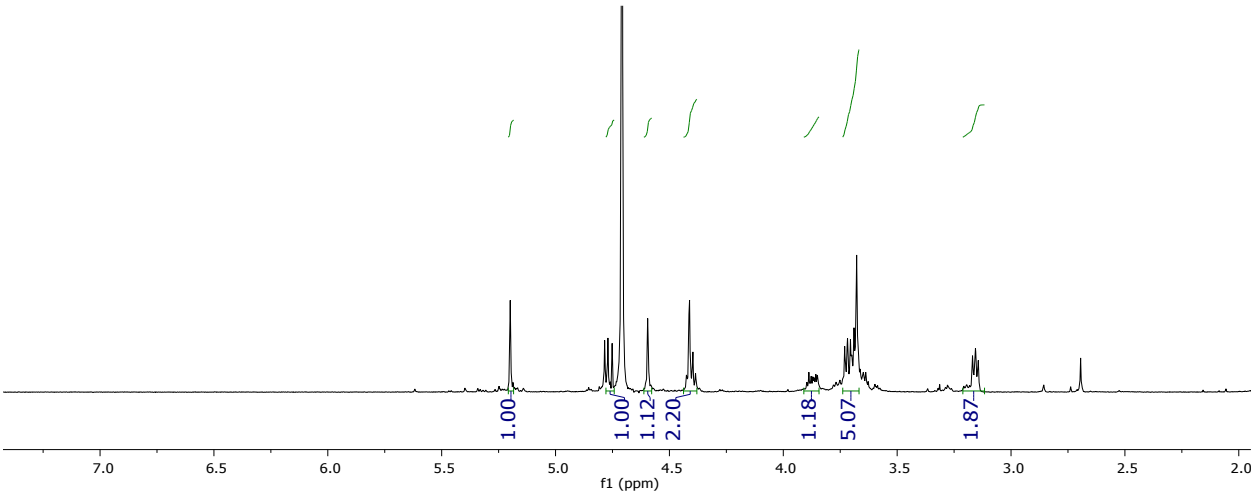
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6.0
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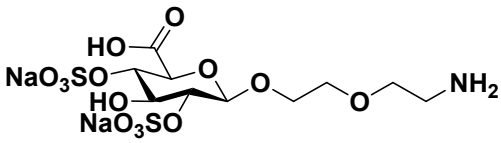
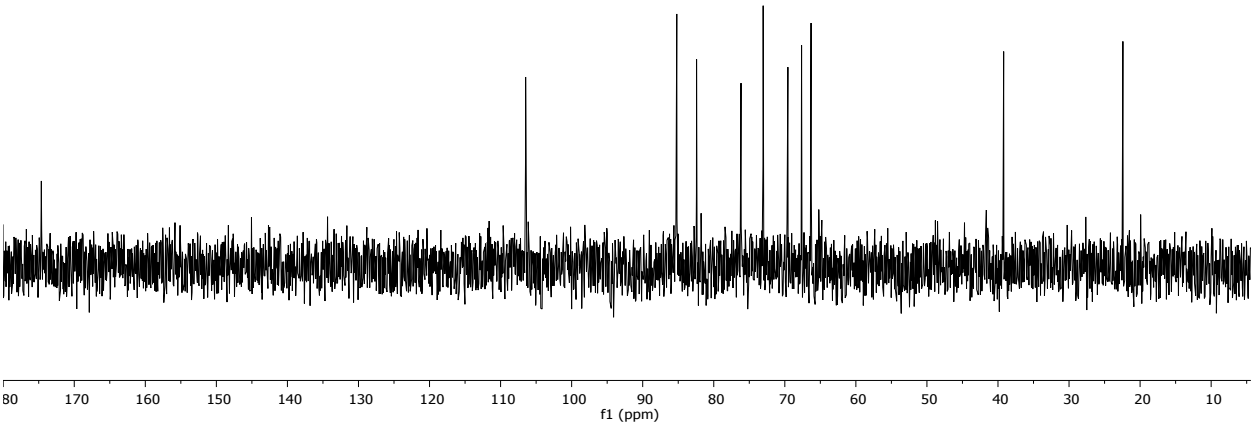
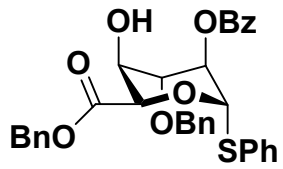
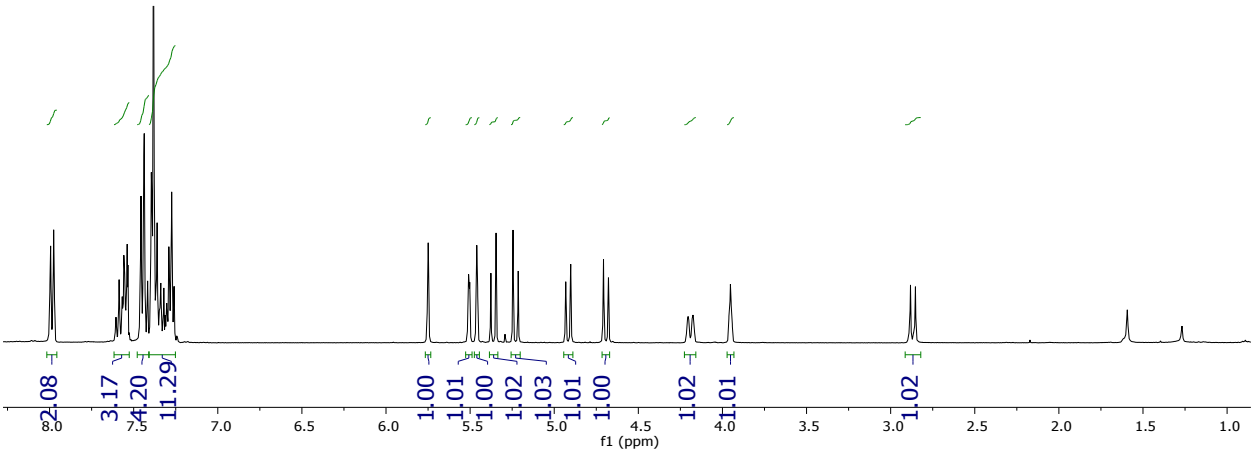
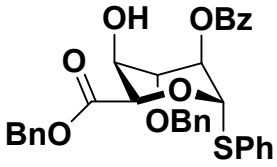
4.0
3.5
3.0
2.5
2.0
f1 (ppm)

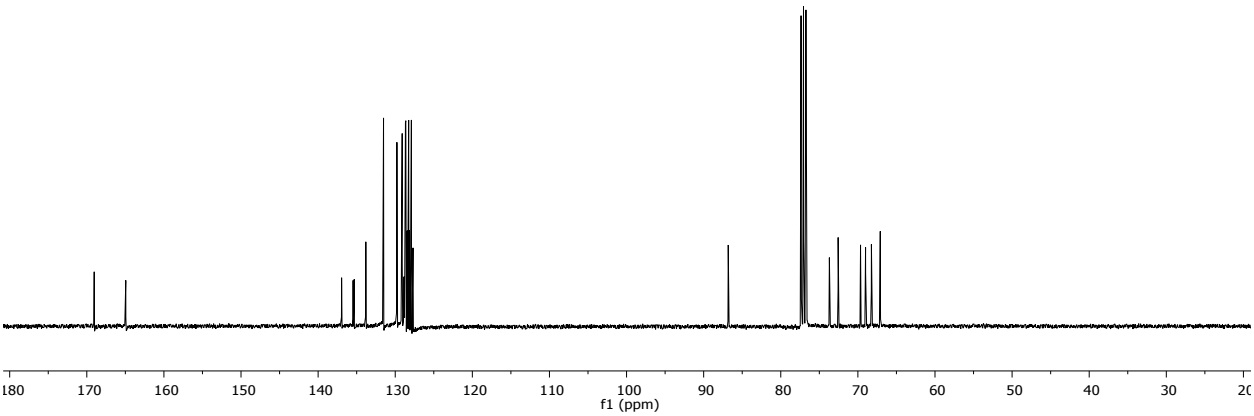

O
HO
NaO3SO
O
O
HO
NaO3SO
O
NH2

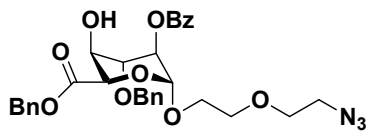

180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
f1 (ppm)

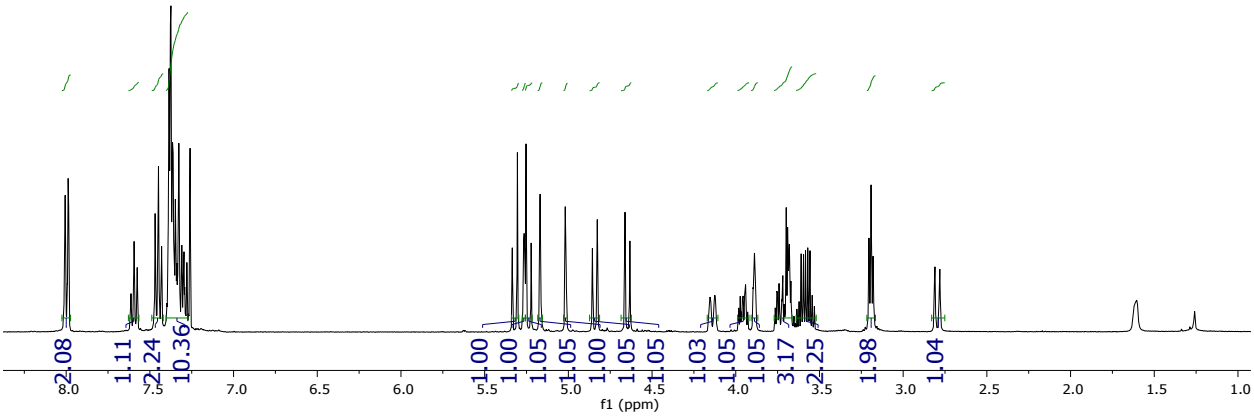

OH
OBz
O
O
OBn
BnO
SPh

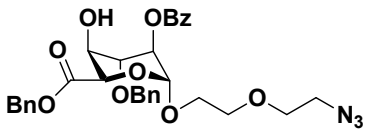

2.08
3.17
4.20
11.29
1.00
1.01
1.00
1.02
1.03
1.01
1.00
1.02
1.01
1.02
f1 (ppm)

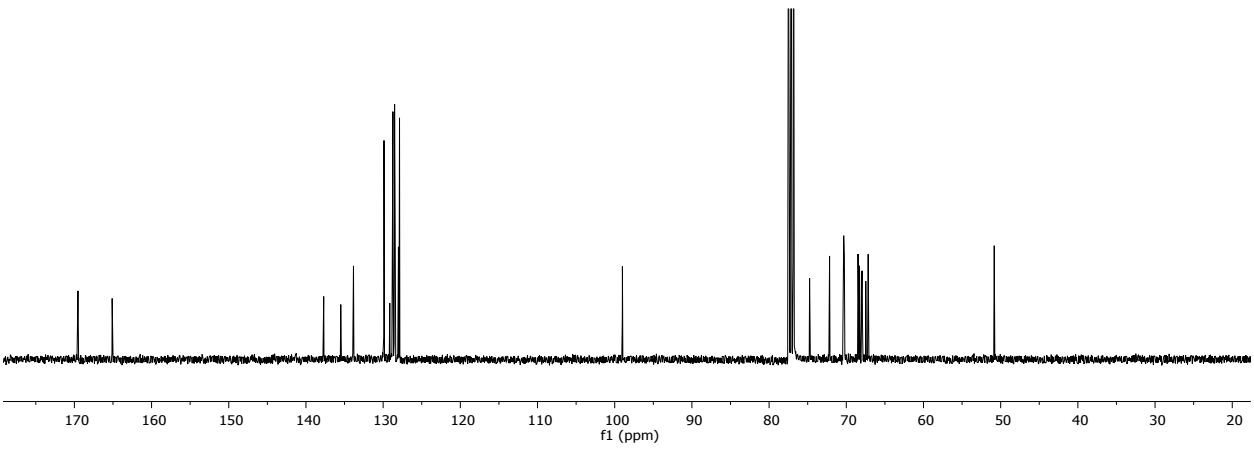

OH
OBz
O
O
OBn
BnO
SPh

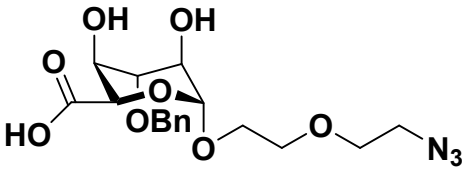

f1 (ppm)

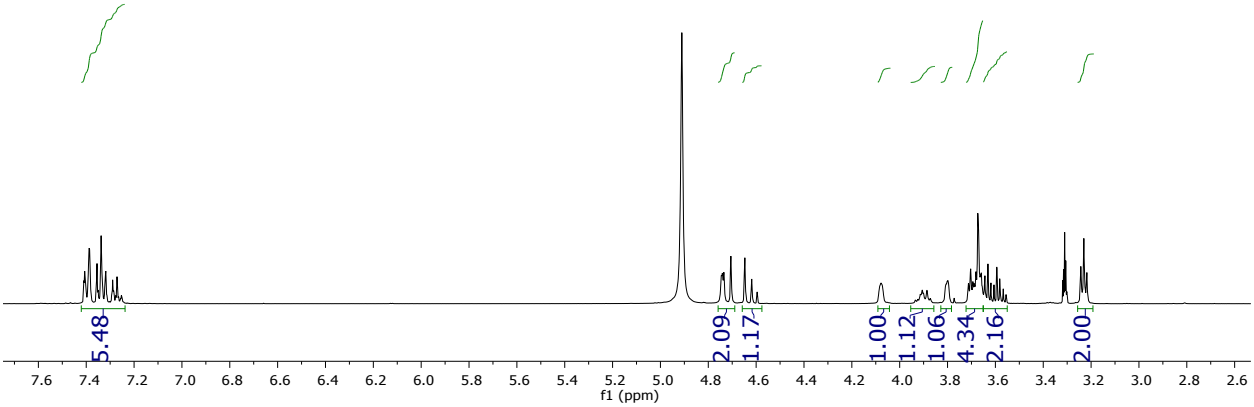

OH
OBz
O
O
BnO
OBn
O
O
N3

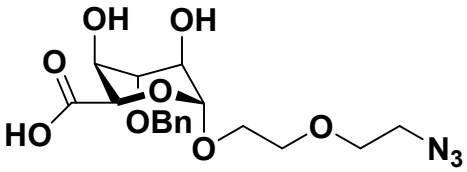

2.08
1.11
2.24
10.36
1.00
1.00
1.05
1.05
1.00
1.05
1.05
1.03
1.05
1.05
3.17
2.25
1.98
1.04
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
f1 (ppm)

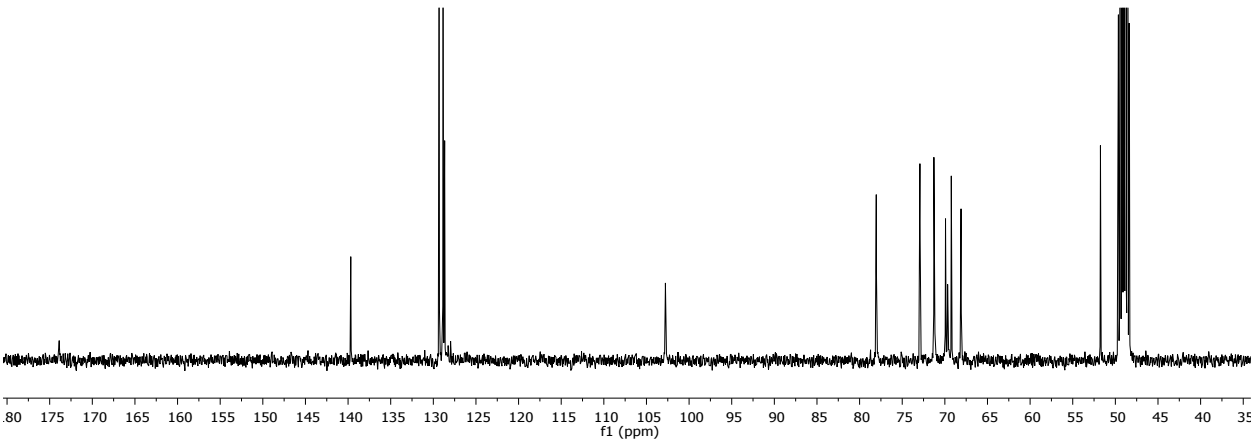

OH
OBz
O
O
BnO
OBn
O
O
N3

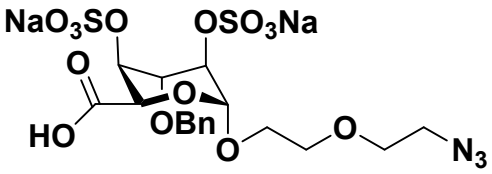

170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
f1 (ppm)

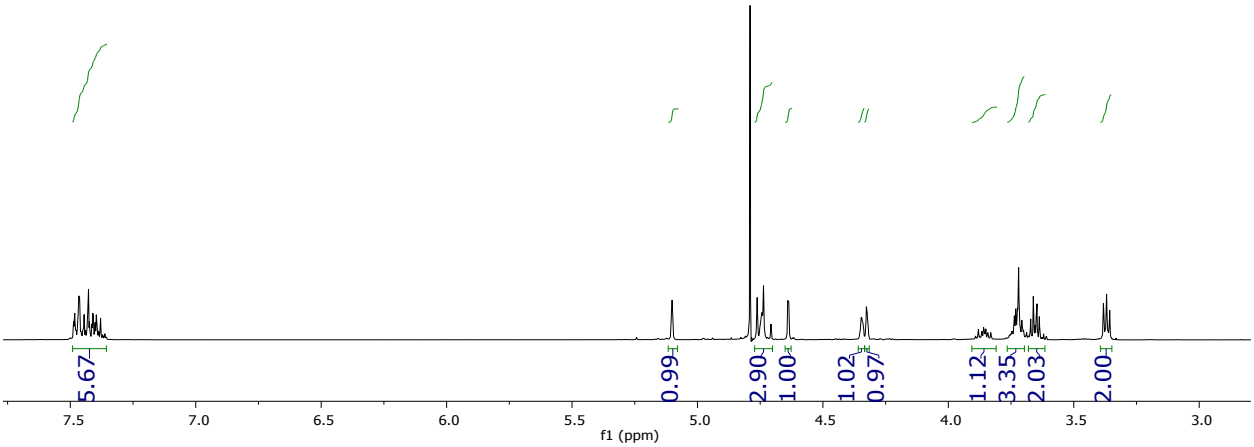

OH
OH
O
O
HO
OBn
O
O
N3

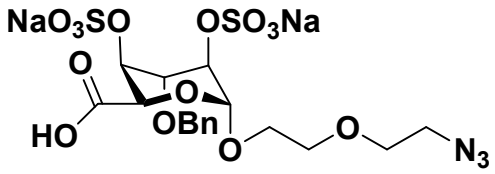

5.48
2.09
1.17
1.00
1.12
1.06
4.34
2.16
2.00
7.6 7.4 7.2 7.0 6.8 6.6 6.4 6.2 6.0 5.8 5.6 5.4 5.2 5.0 4.8 4.6 4.4 4.2 4.0 3.8 3.6 3.4 3.2 3.0 2.8 2.6
f1 (ppm)

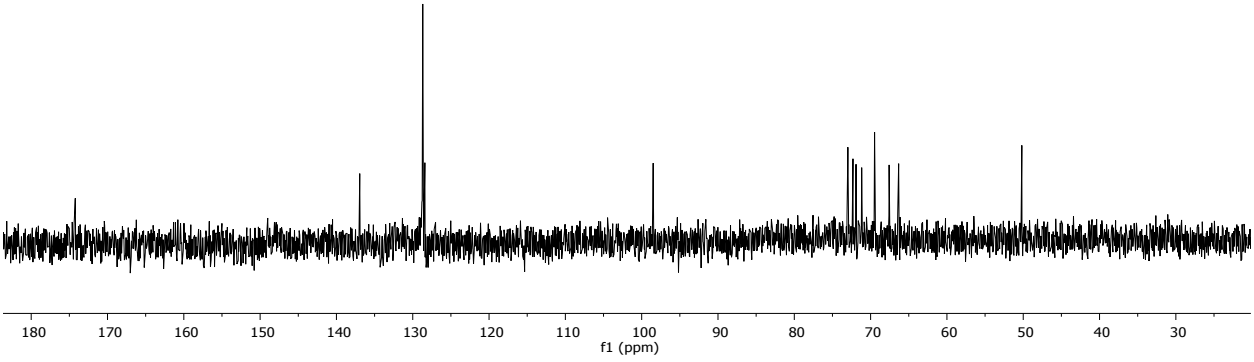

OH
OH
O
O
HO
OBn
O
O
N3

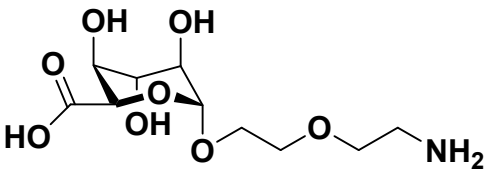

.80 175 170 165 160 155 150 145 140 135 130 125 120 115 110 105 100 95 90 85 80 75 70 65 60 55 50 45 40 35
f1 (ppm)

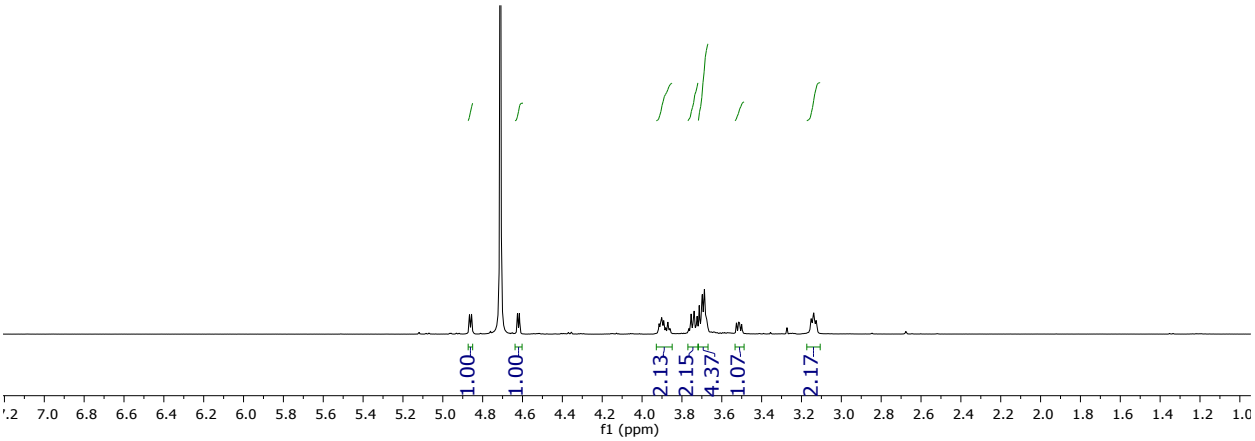

NaO3SO
OSO3Na
O
HO
O
OBn
O
O
N3

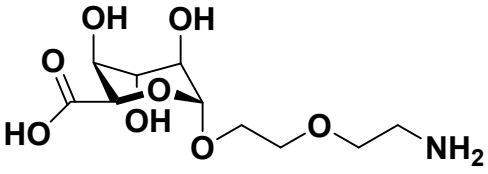

5.67
0.99
2.90
1.00
1.02
0.97
1.12
3.35
2.03
2.00
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
f1 (ppm)

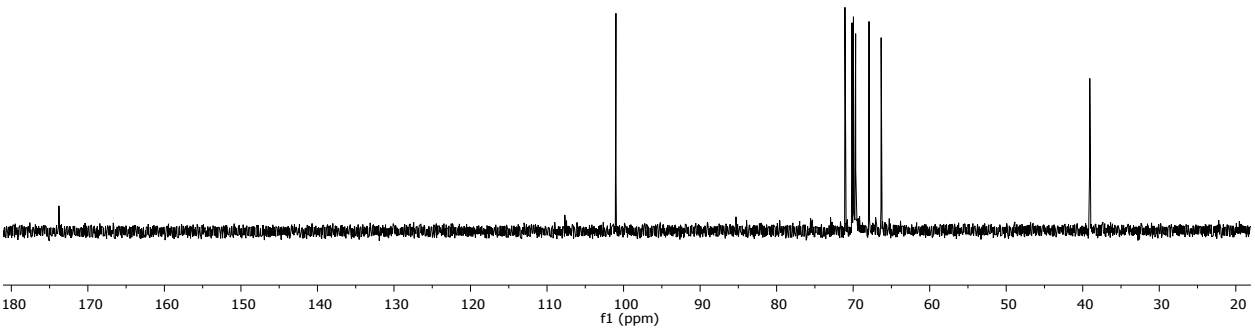

NaO3SO
OSO3Na
O
HO
O
OBn
O
O
N3

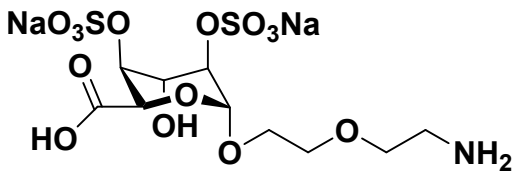

180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
f1 (ppm)

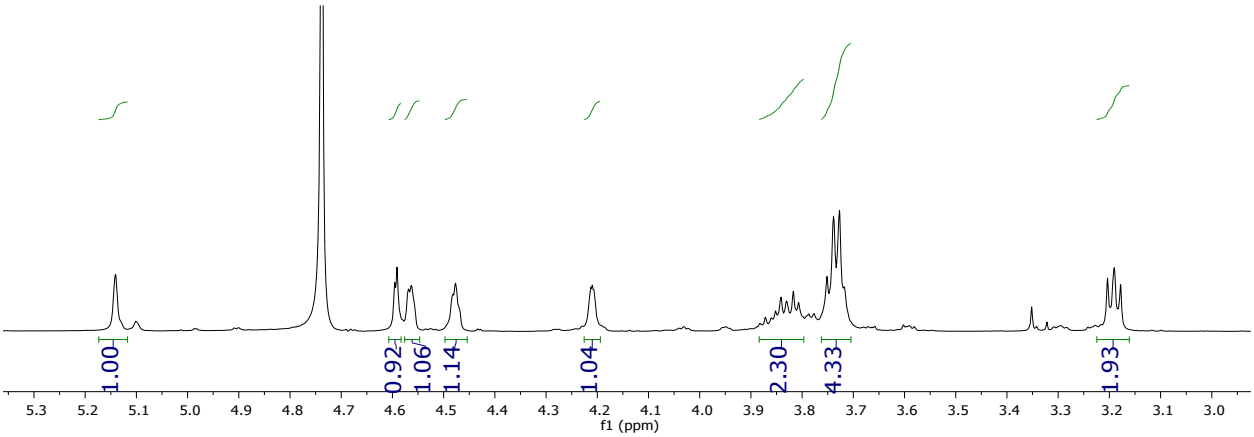

OH
OH
O
O
OH
HO
O
O
NH2

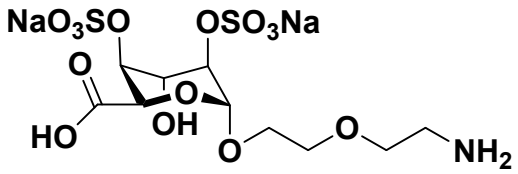

1.00
1.00
2.13
2.15
4.37
1.07
2.17
f1 (ppm)

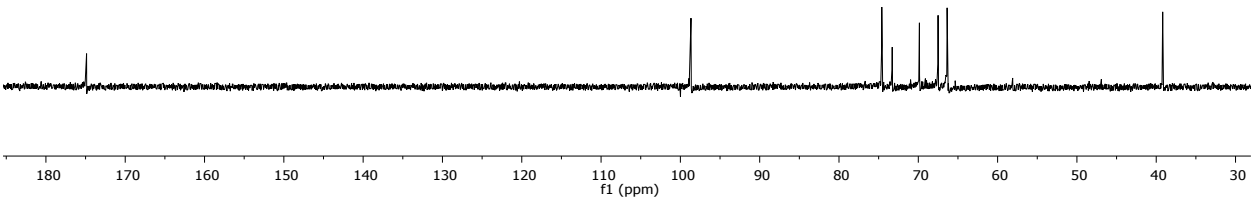

OH
OH
O
O
OH
HO
O
O
NH2


f1 (ppm)


NaO3SO
OSO3Na
O
HO
OH
O
O
O
NH2


1.00
0.92
1.06
1.14
1.04
2.30
4.33
1.93
5.3 5.2 5.1 5.0 4.9 4.8 4.7 4.6 4.5 4.4 4.3 4.2 4.1 4.0 3.9 3.8 3.7 3.6 3.5 3.4 3.3 3.2 3.1 3.0
f1 (ppm)


NaO3SO
OSO3Na
O
HO
OH
O
O
O
NH2


180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30
f1 (ppm)