

## Supporting Information (SI-2) for

Both D- and L-glucose polyphosphates mimic D-myo-inositol 1,4,5-trisphosphate: new synthetic agonists and partial agonists at the Ins(1,4,5)P<sub>3</sub> receptor

Megan L. Shipton,<sup>†</sup> Andrew M. Riley,<sup>†</sup> Ana M. Rossi,<sup>‡</sup> Charles A. Brearley,<sup>§</sup> Colin W. Taylor<sup>‡</sup> and Barry V. L. Potter<sup>\*†</sup>

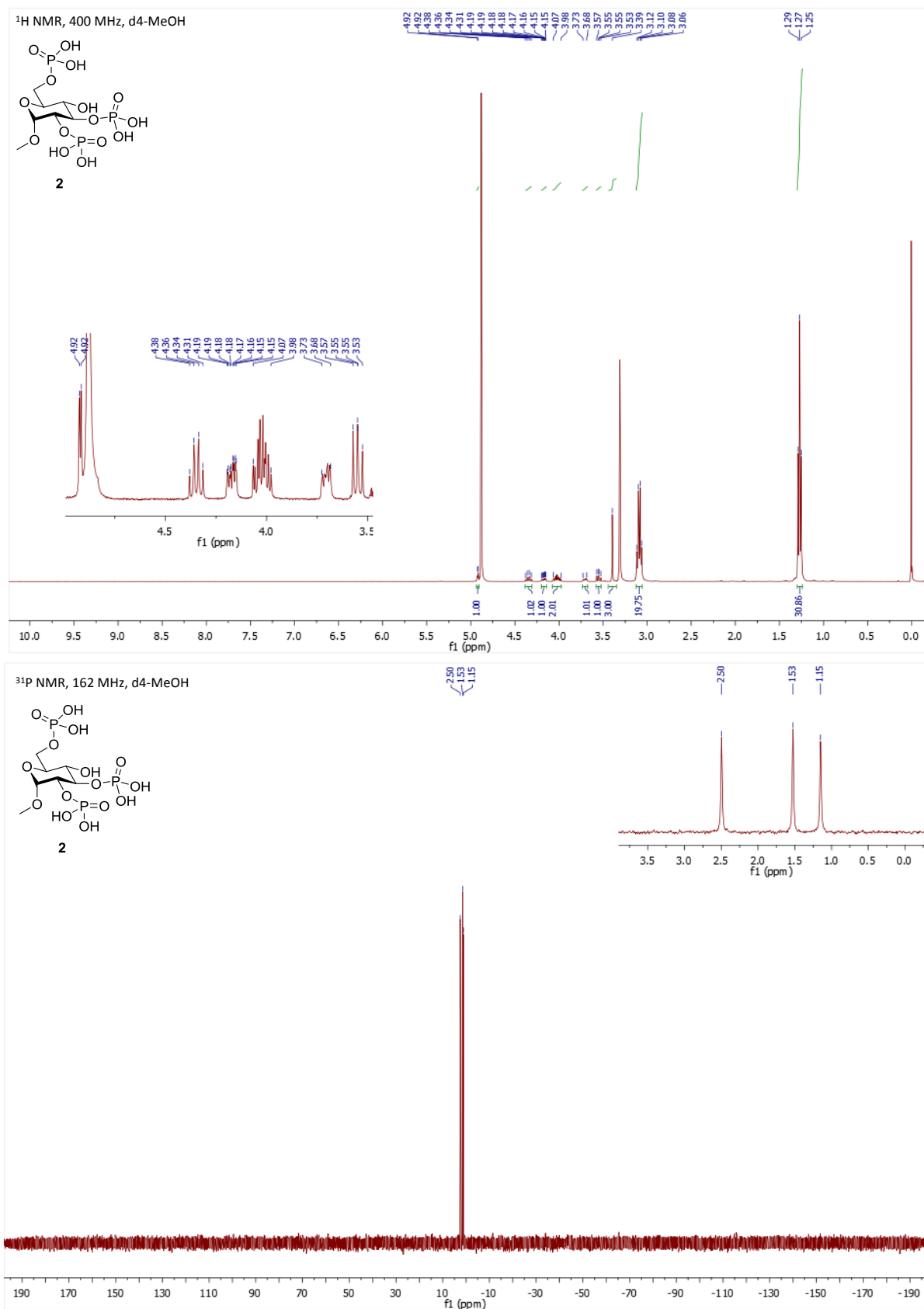
<sup>†</sup>Drug Discovery & Medicinal Chemistry, Department of Pharmacology, University of Oxford, Mansfield Road, OX1 3QT, United Kingdom

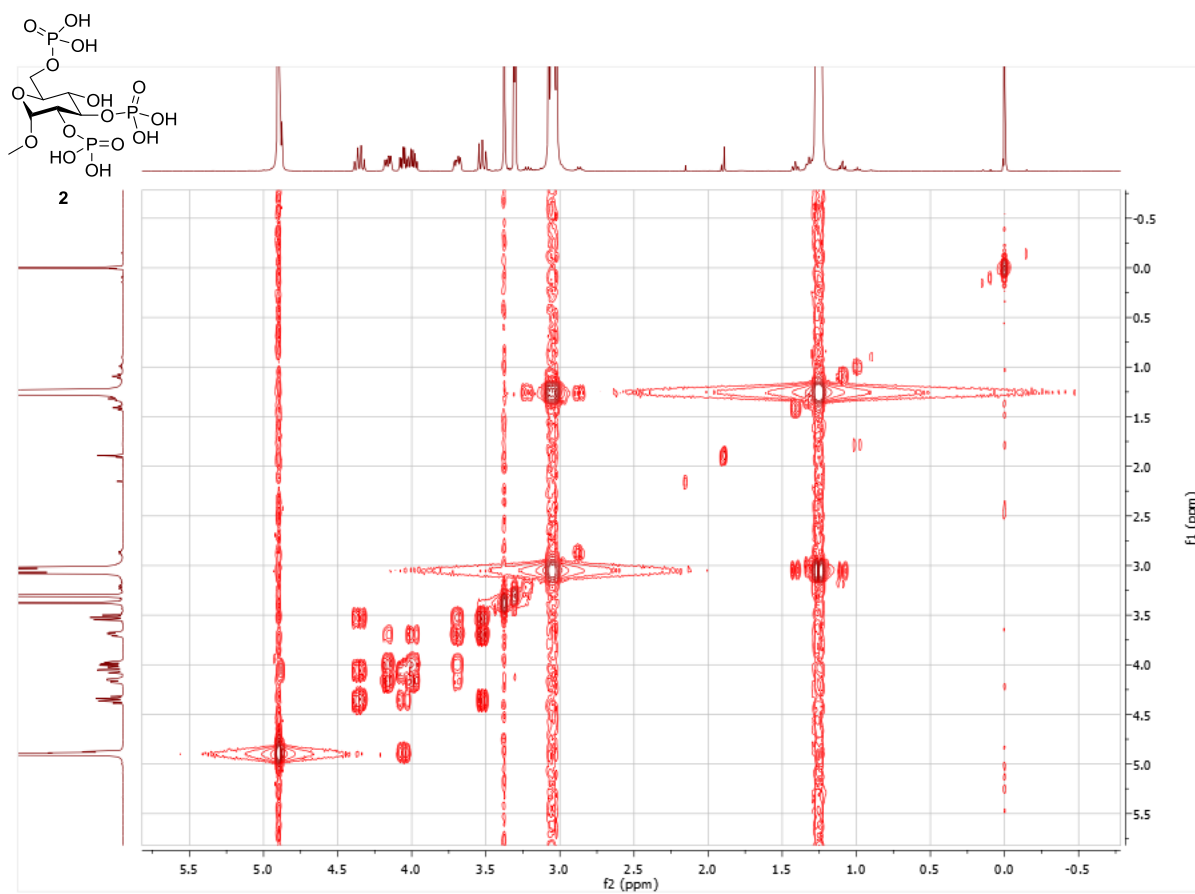
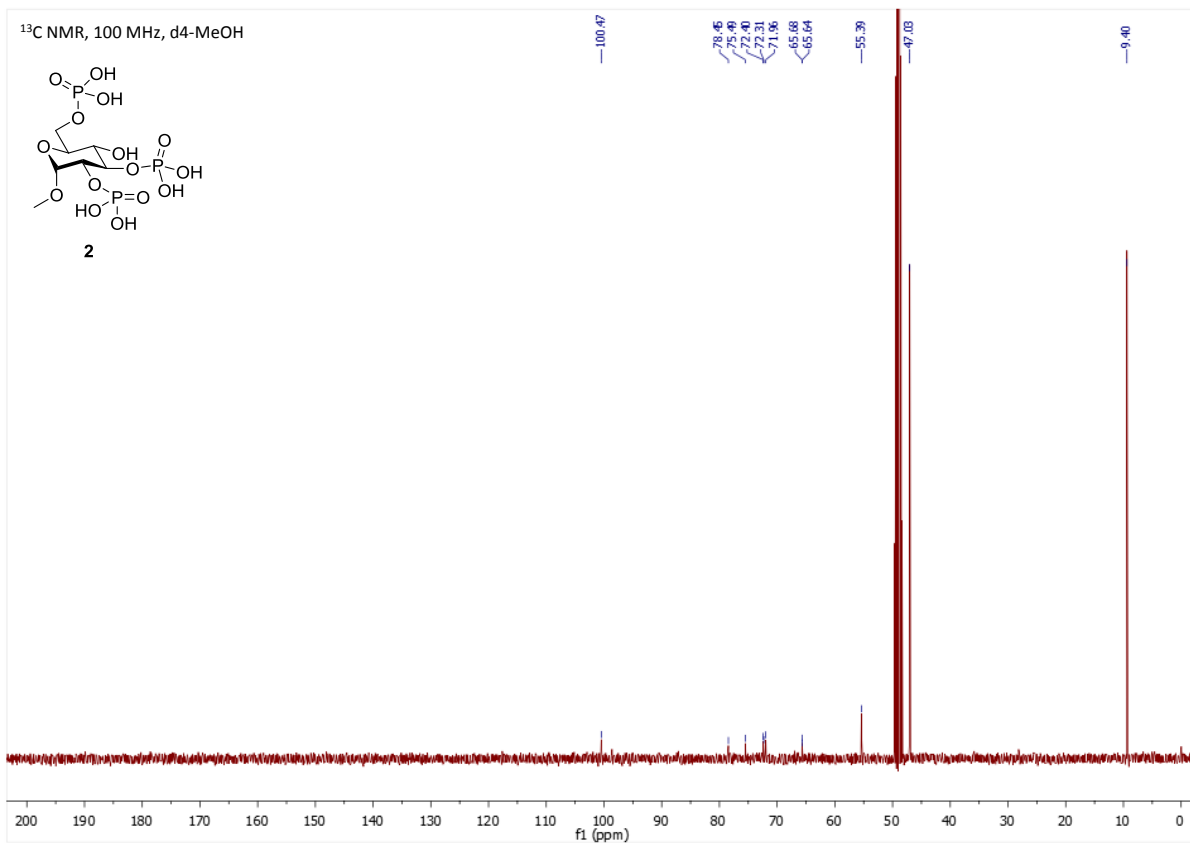
<sup>‡</sup>Department of Pharmacology, Tennis Court Road, University of Cambridge, CB2 1PD, United Kingdom

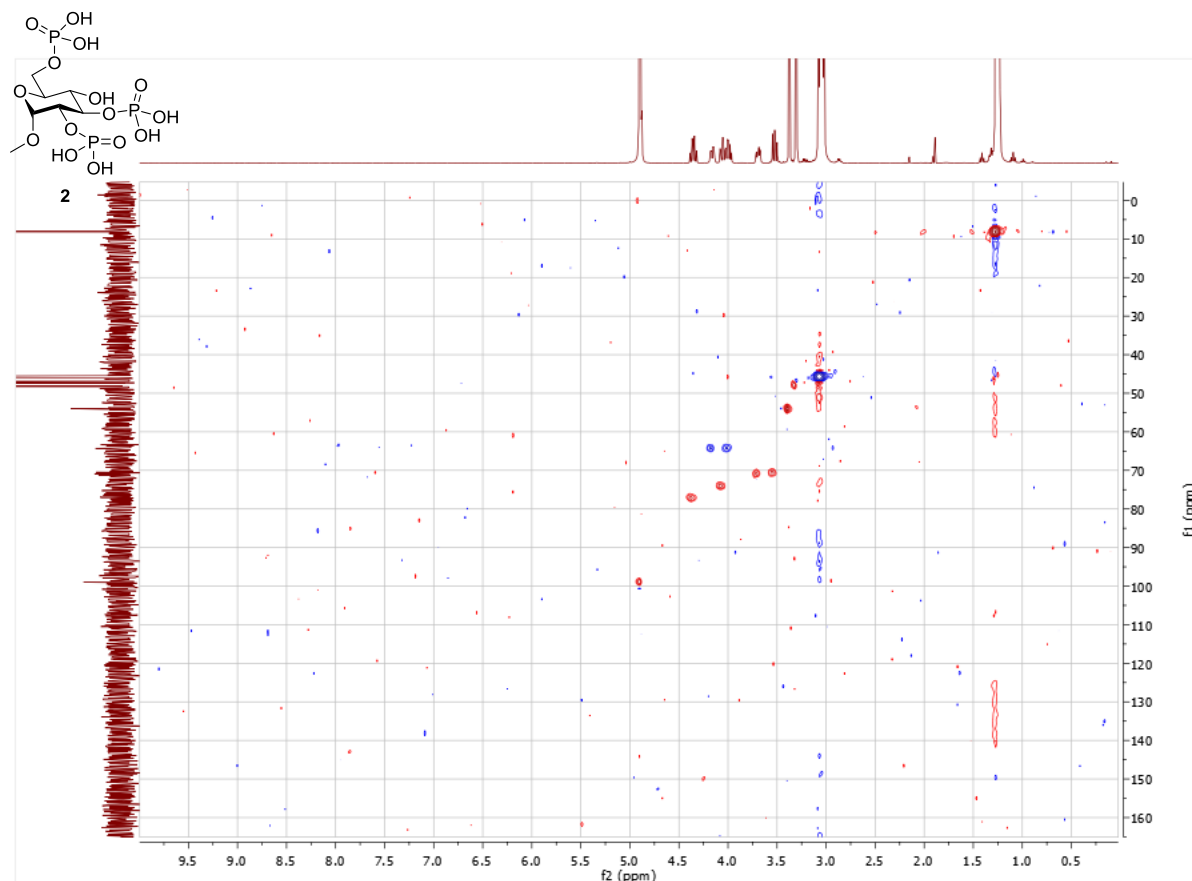
<sup>§</sup>School of Biological Sciences, University of East Anglia, Norwich Research Park, Norwich NR4 7TJ, United Kingdom

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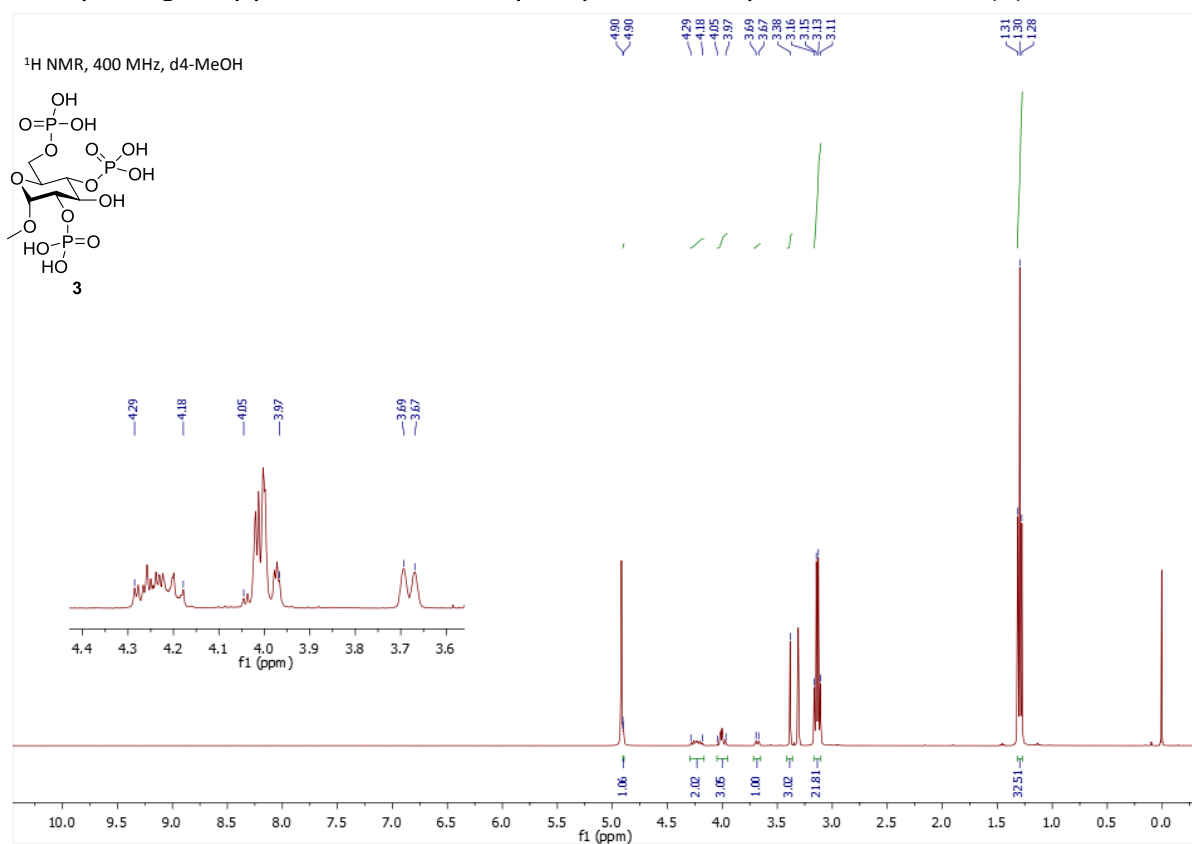
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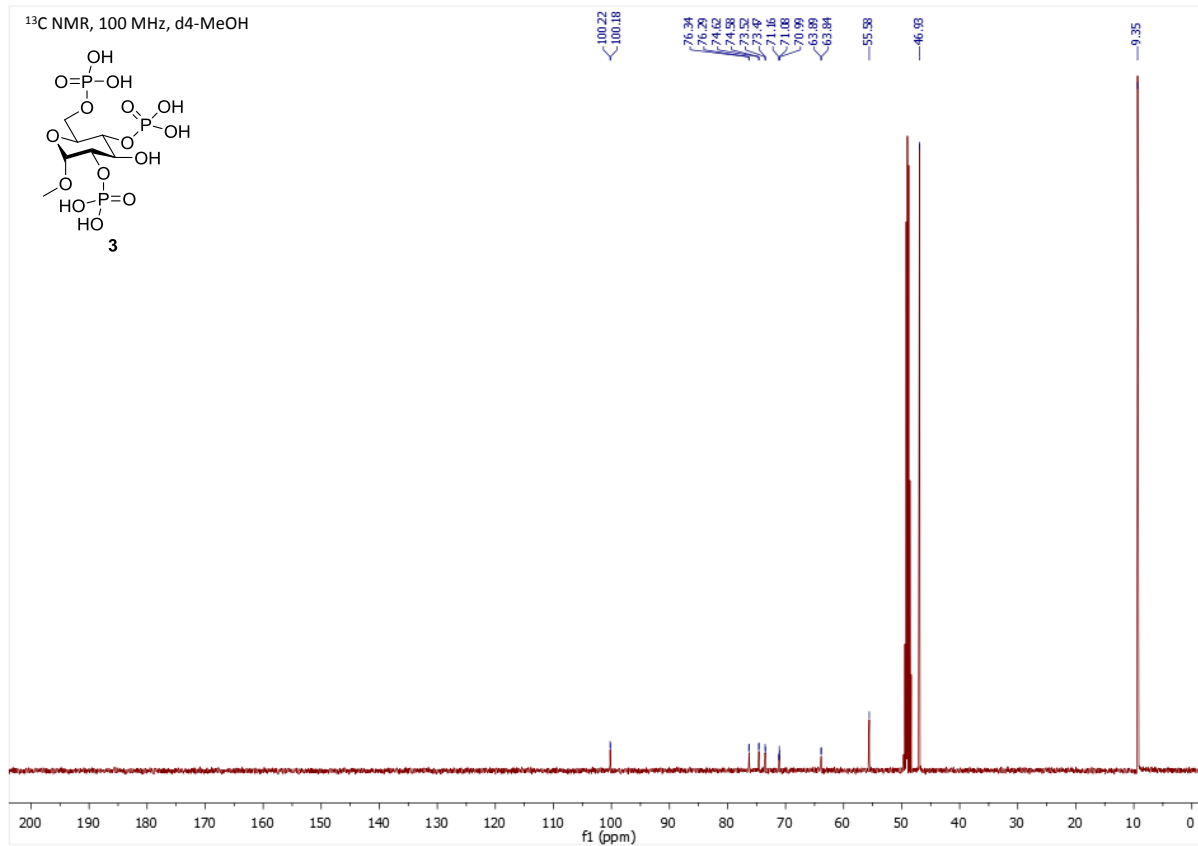
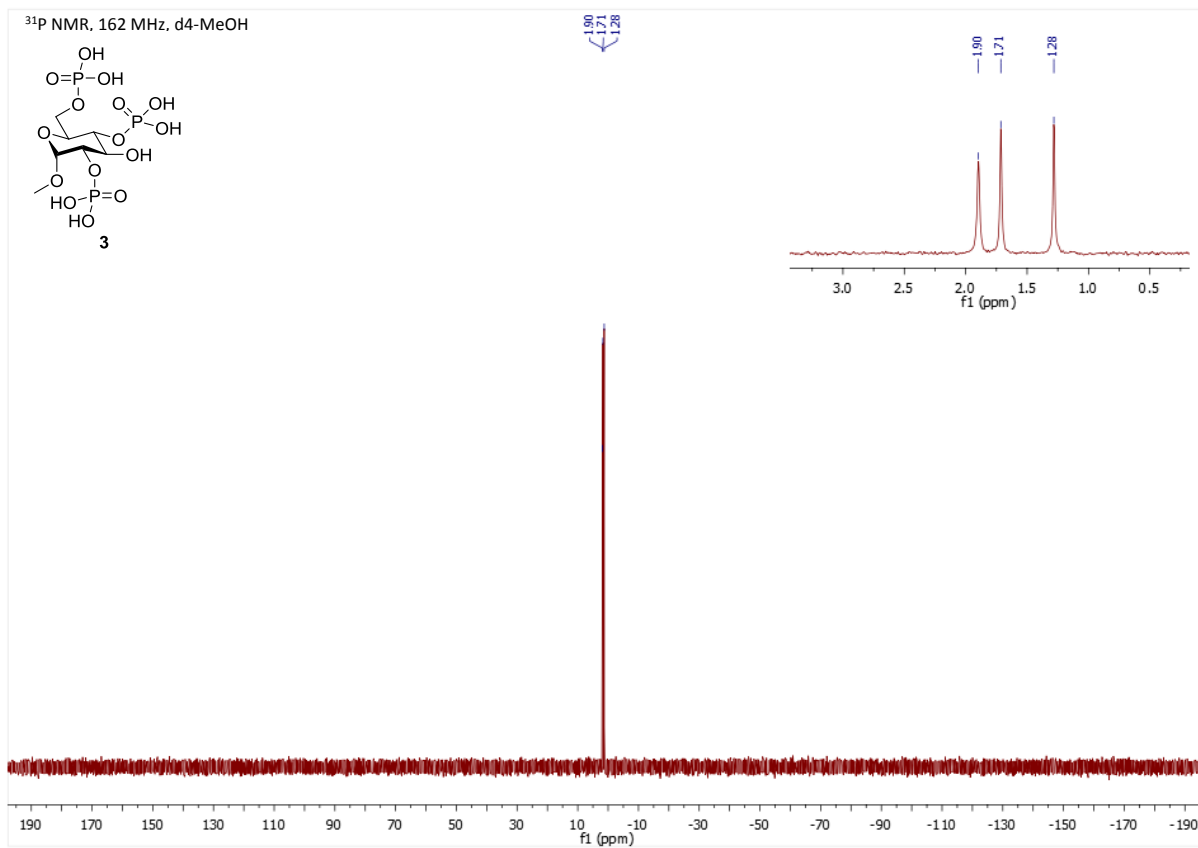
Methyl  $\alpha$ -L-glucopyranoside 2,3,6-trisphosphate triethylammonium salt (2)

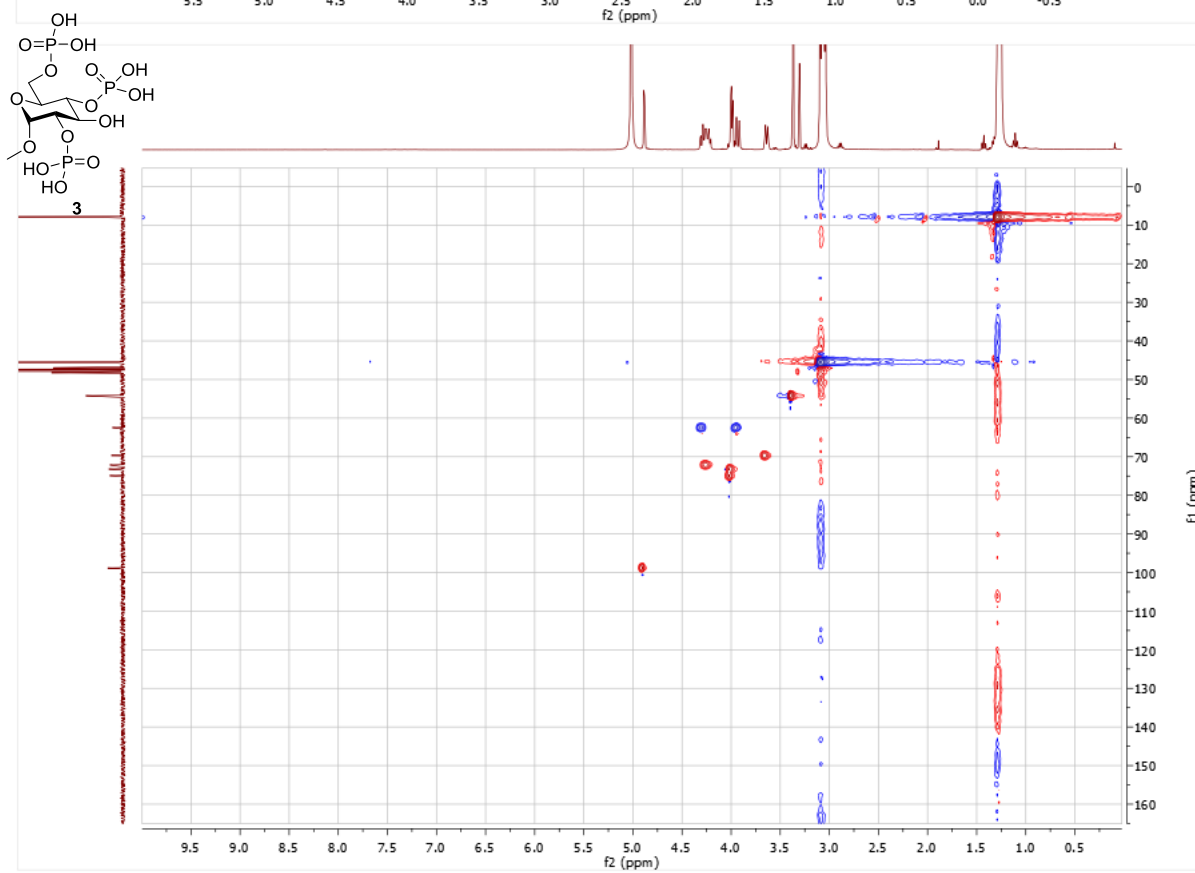
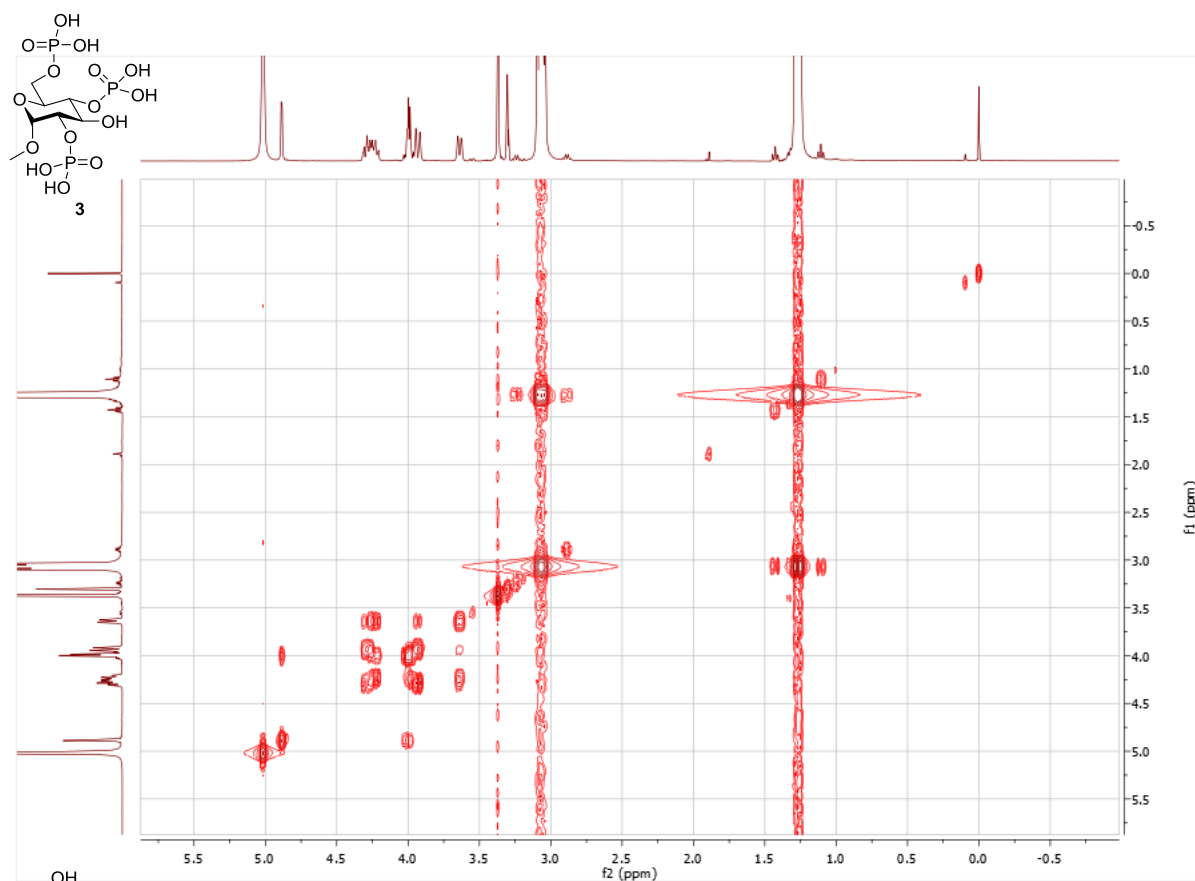


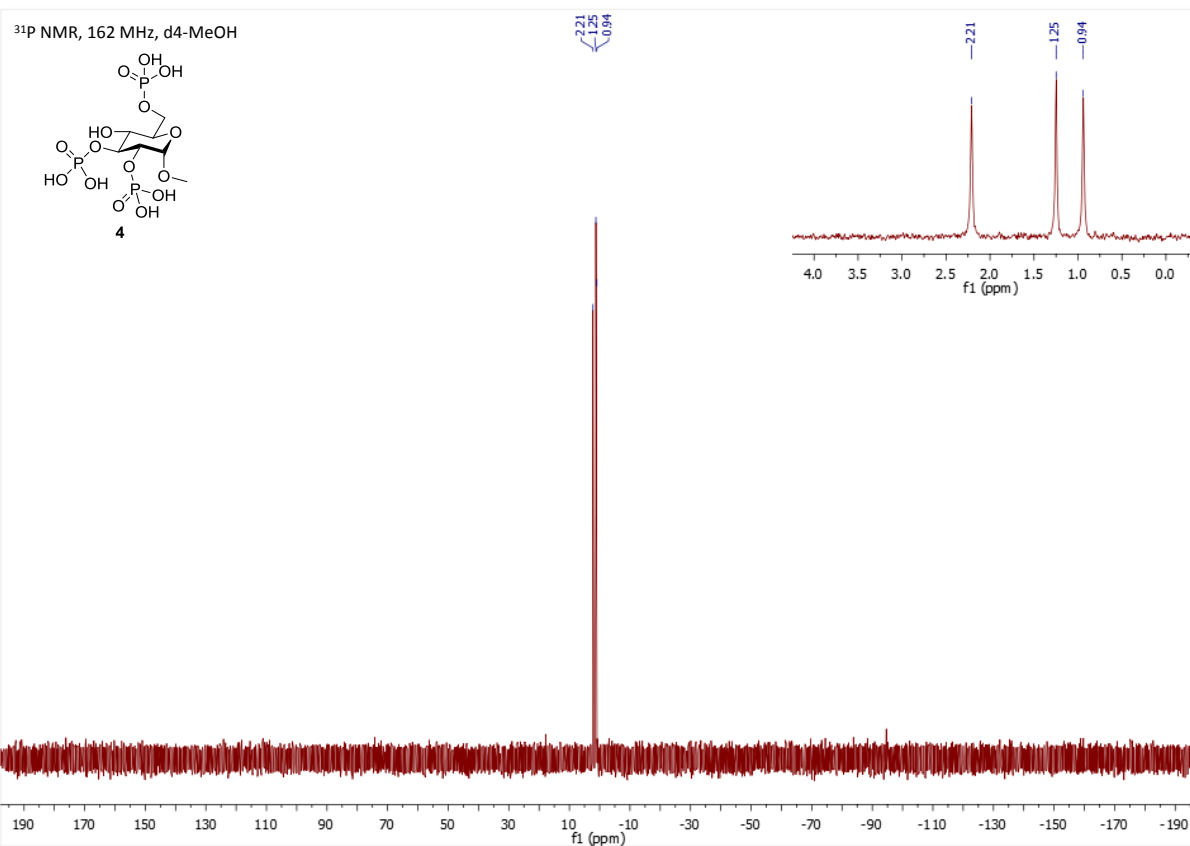
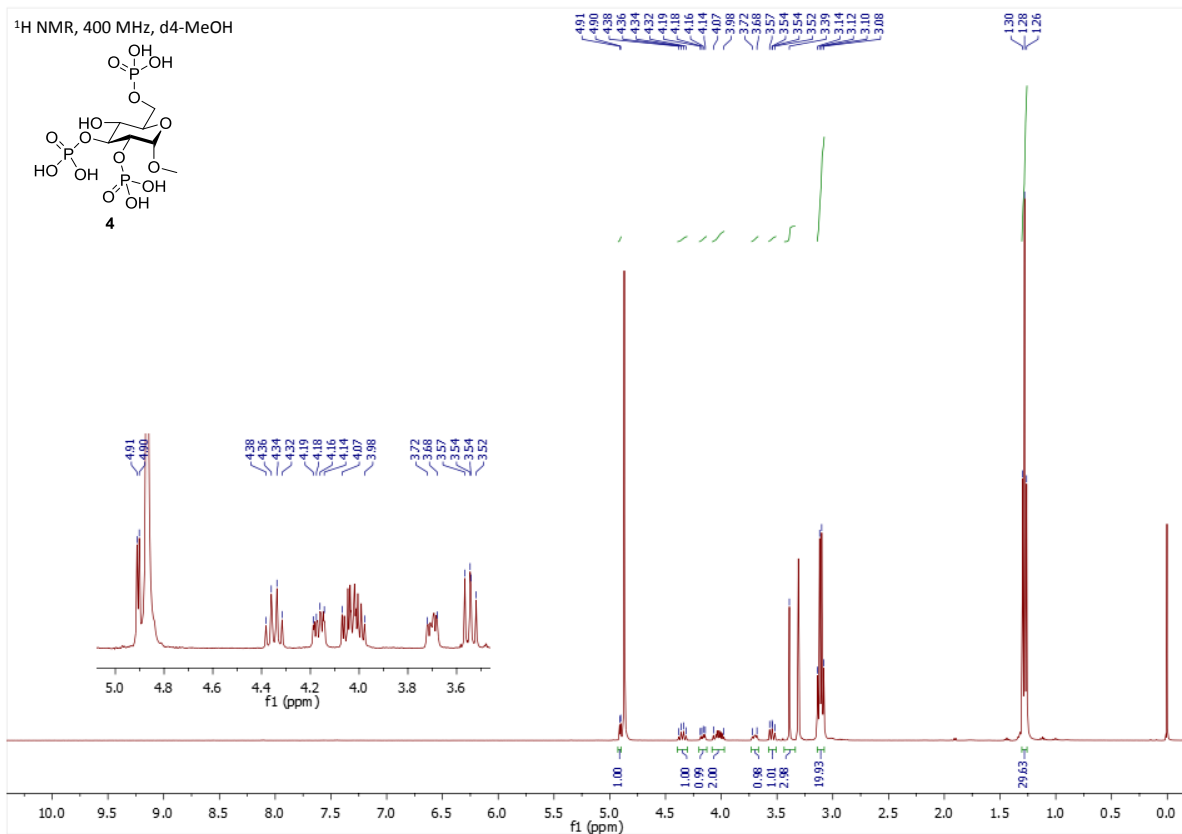


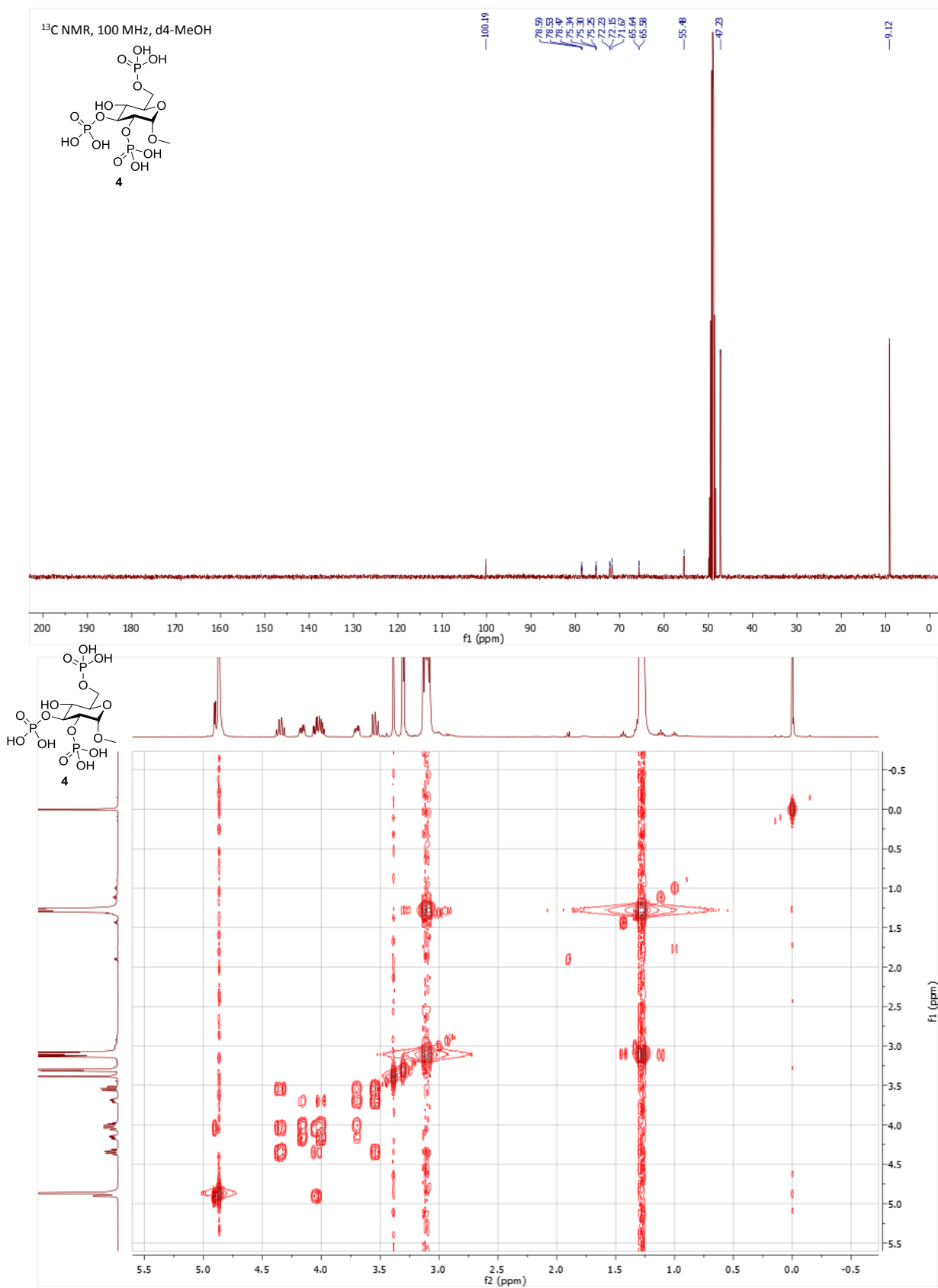
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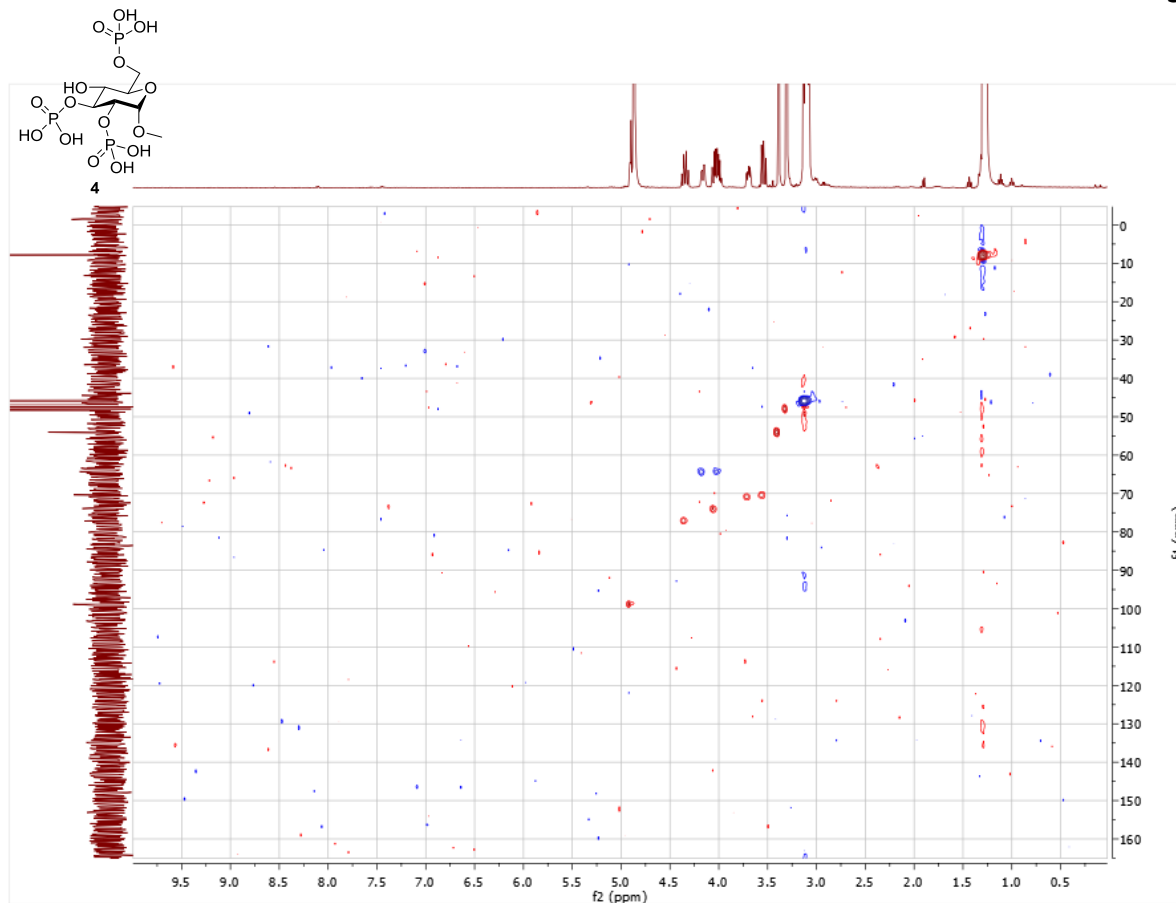




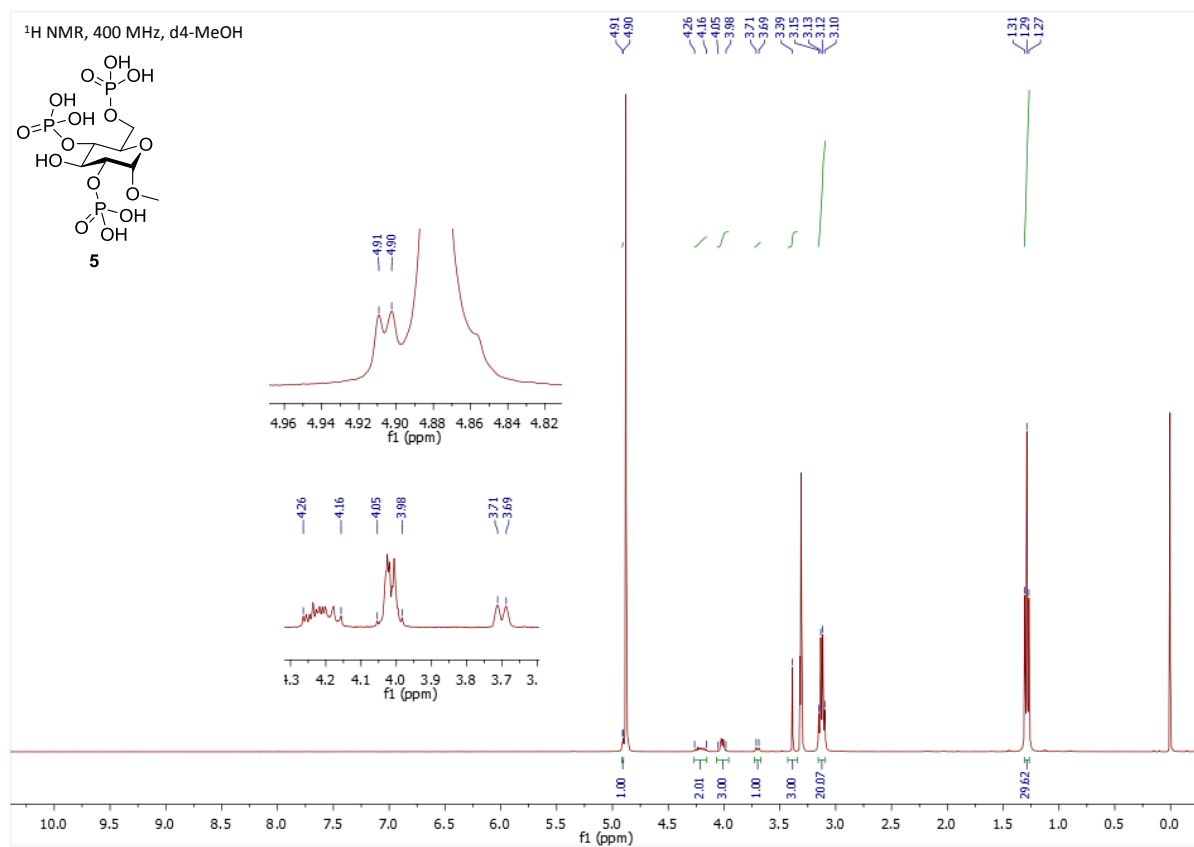
Methyl  $\alpha$ -D-glucopyranoside 2,3,6-trisphosphate triethylammonium salt (4)

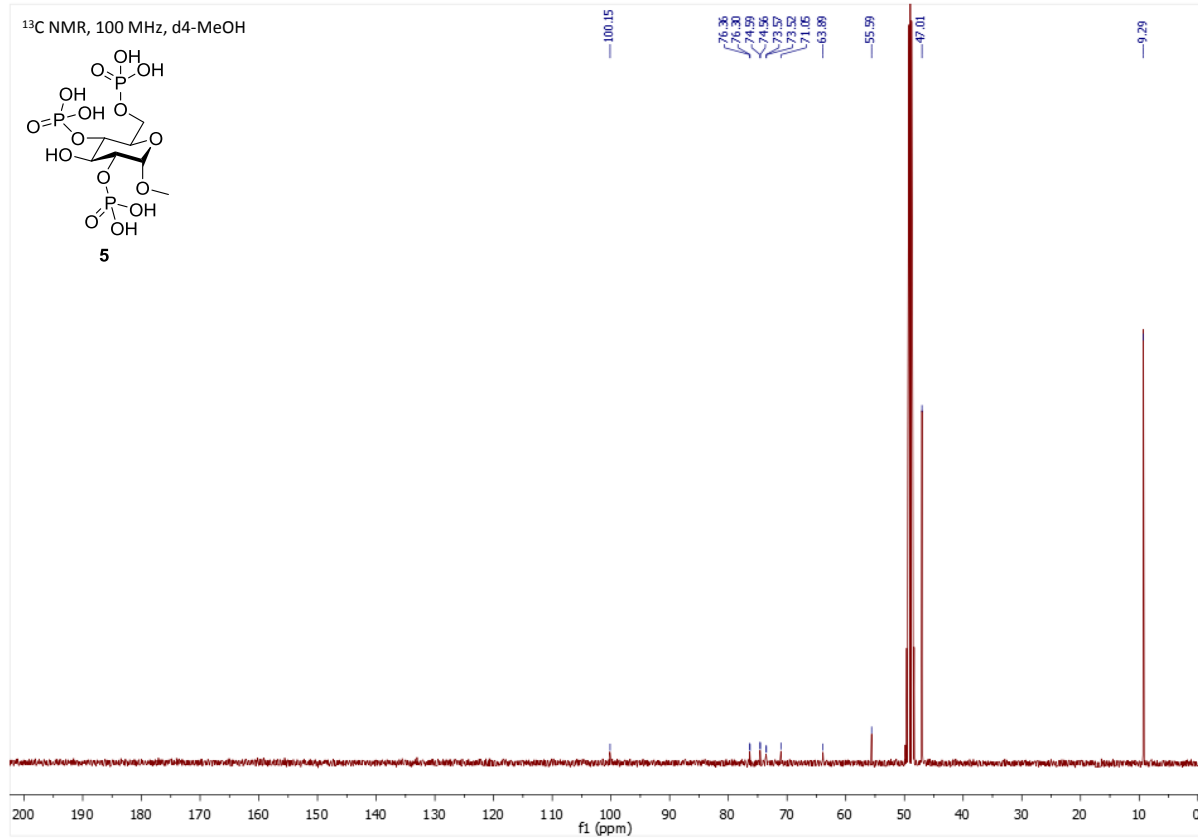
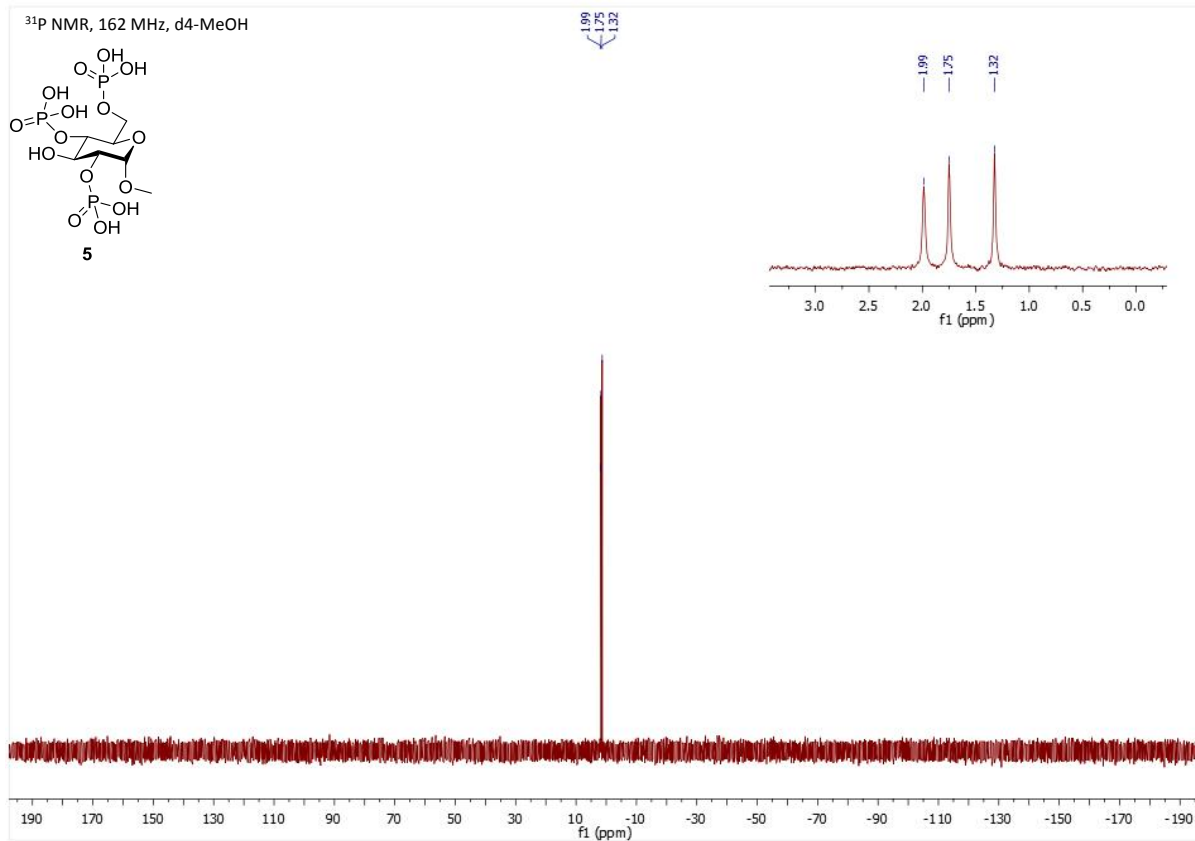


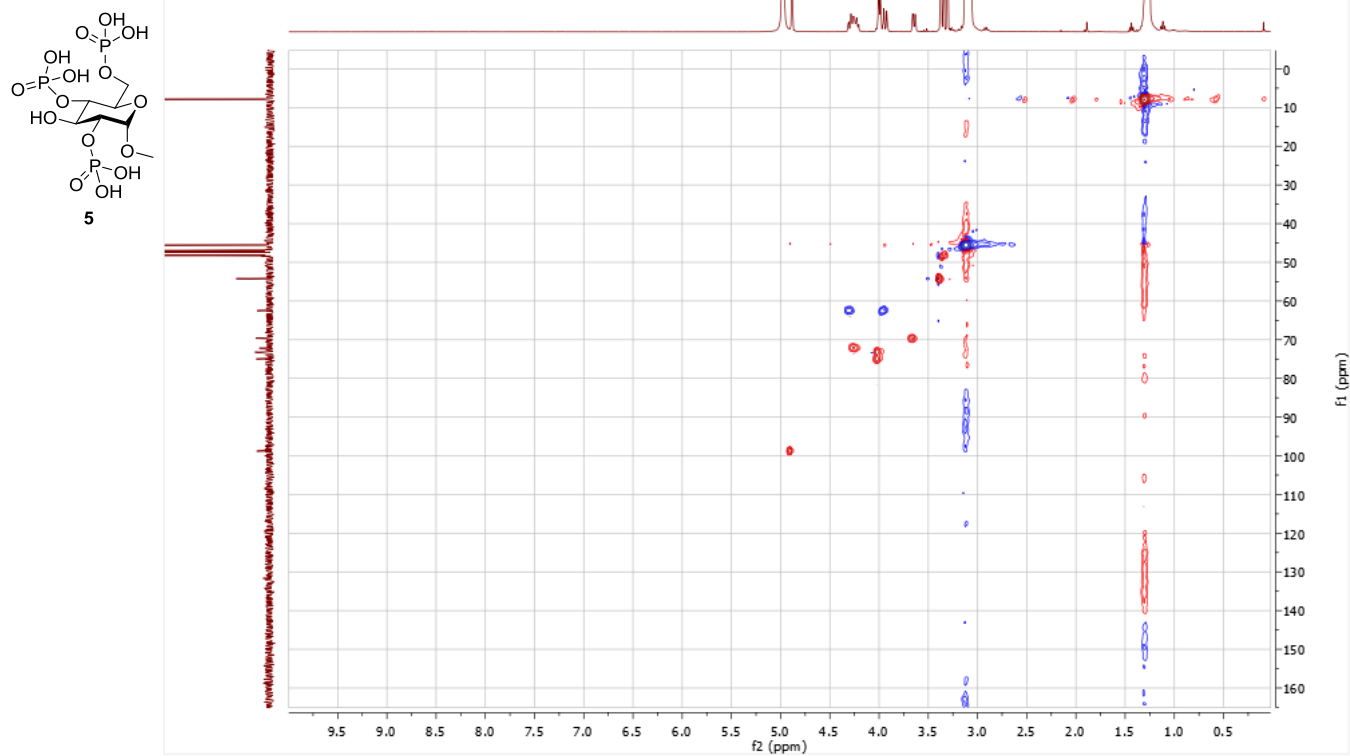
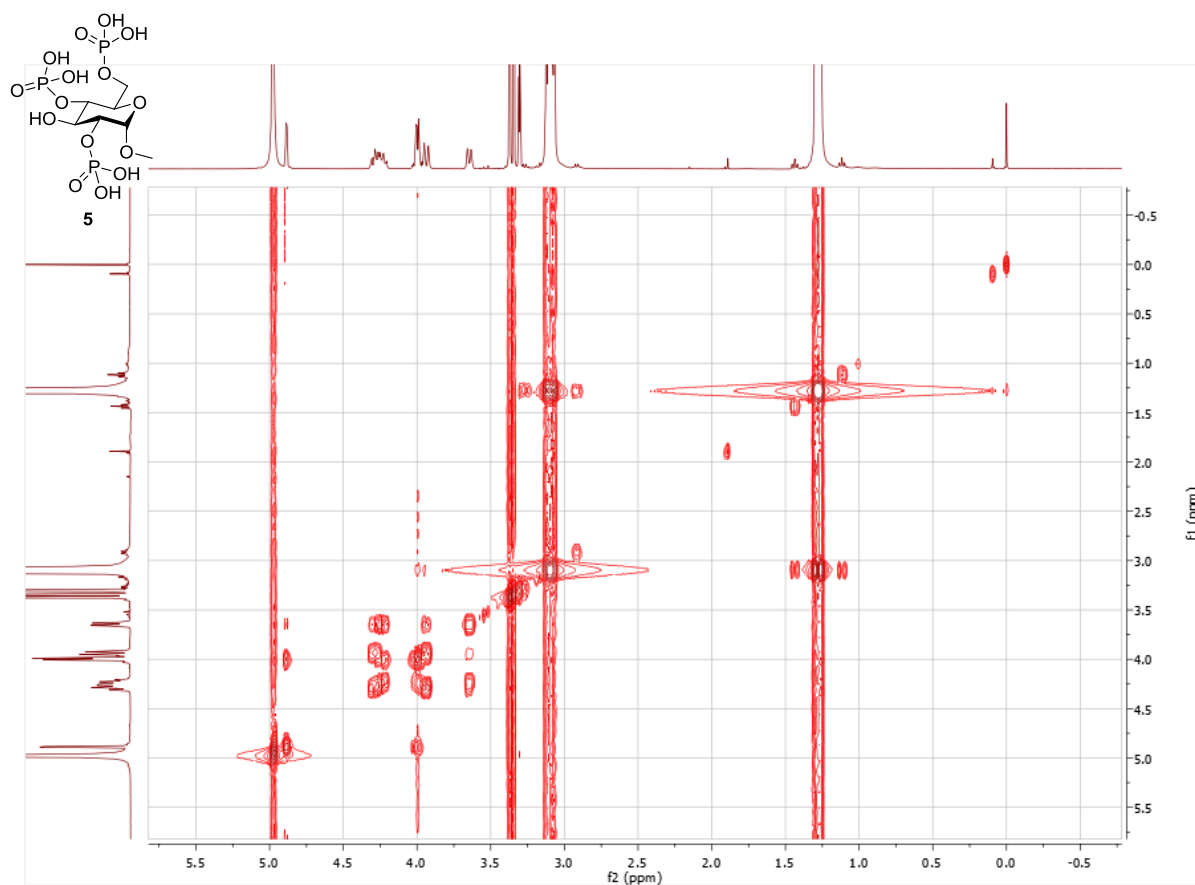


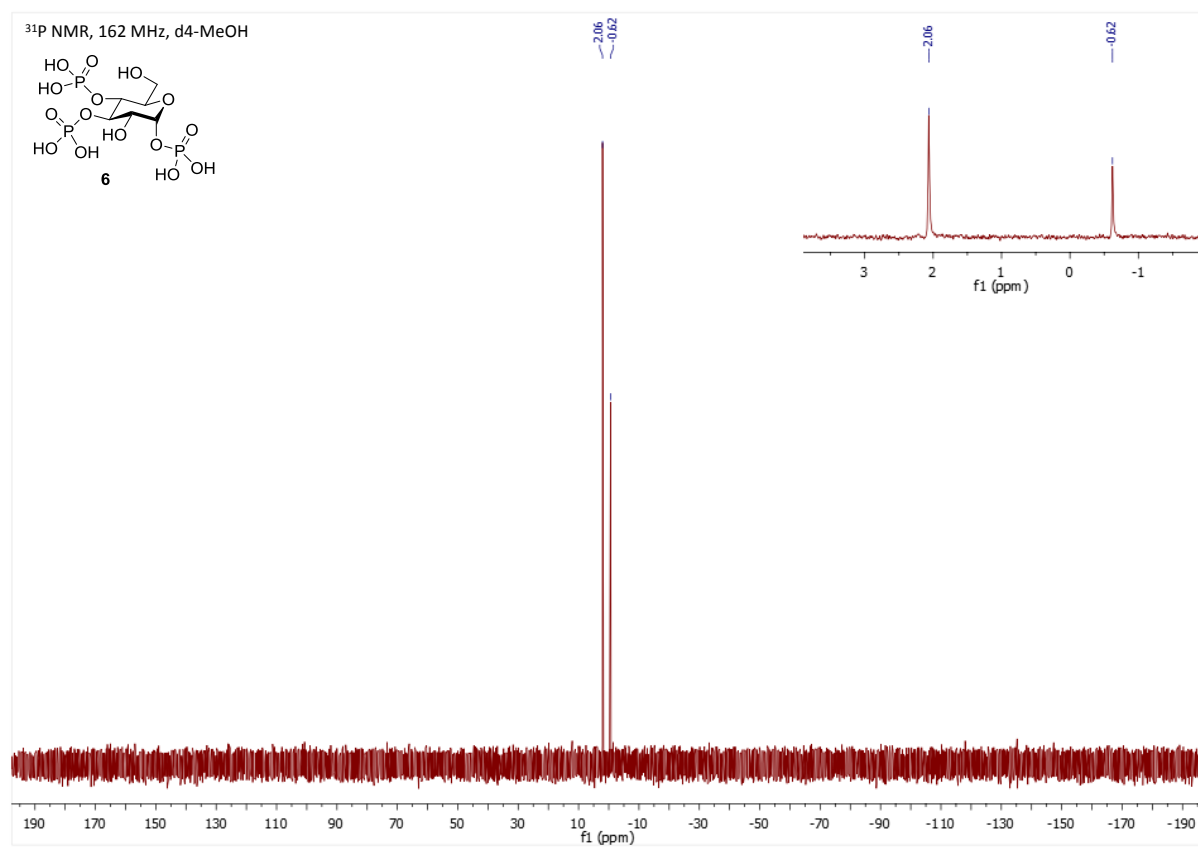
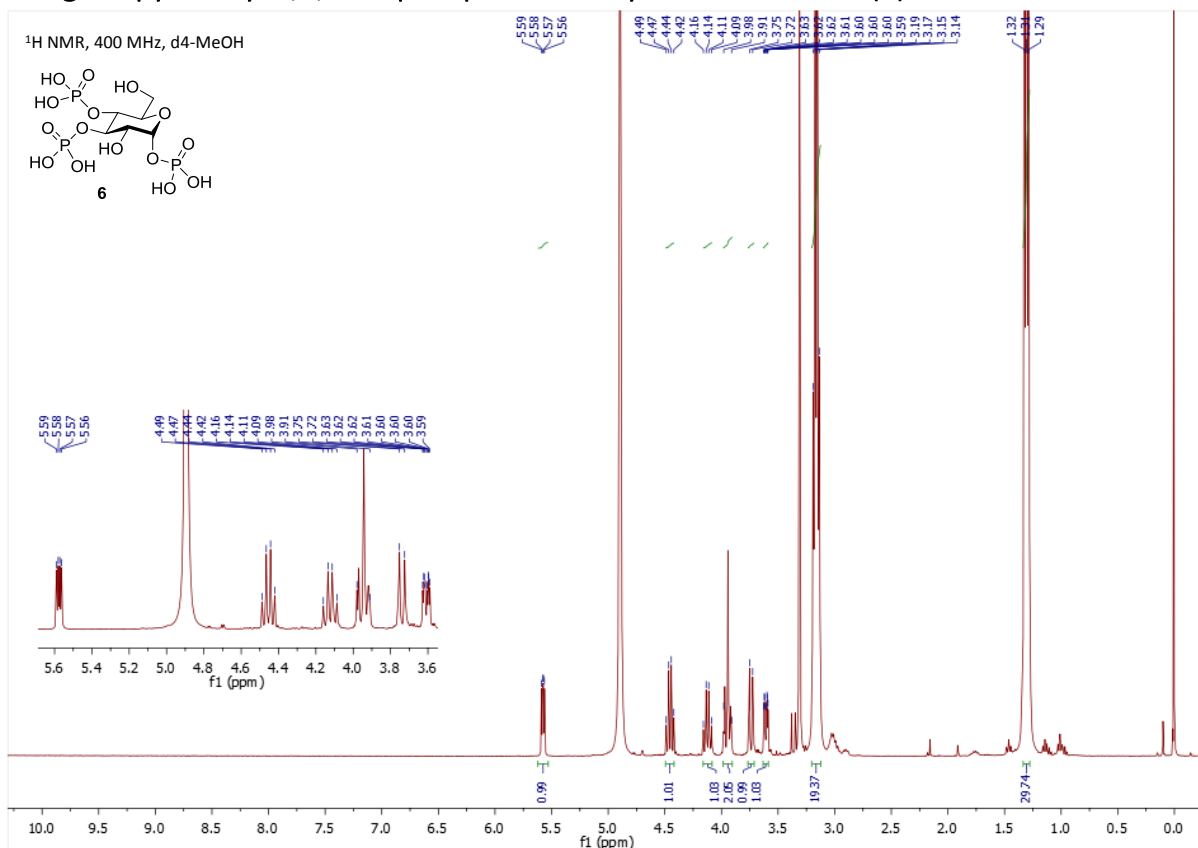


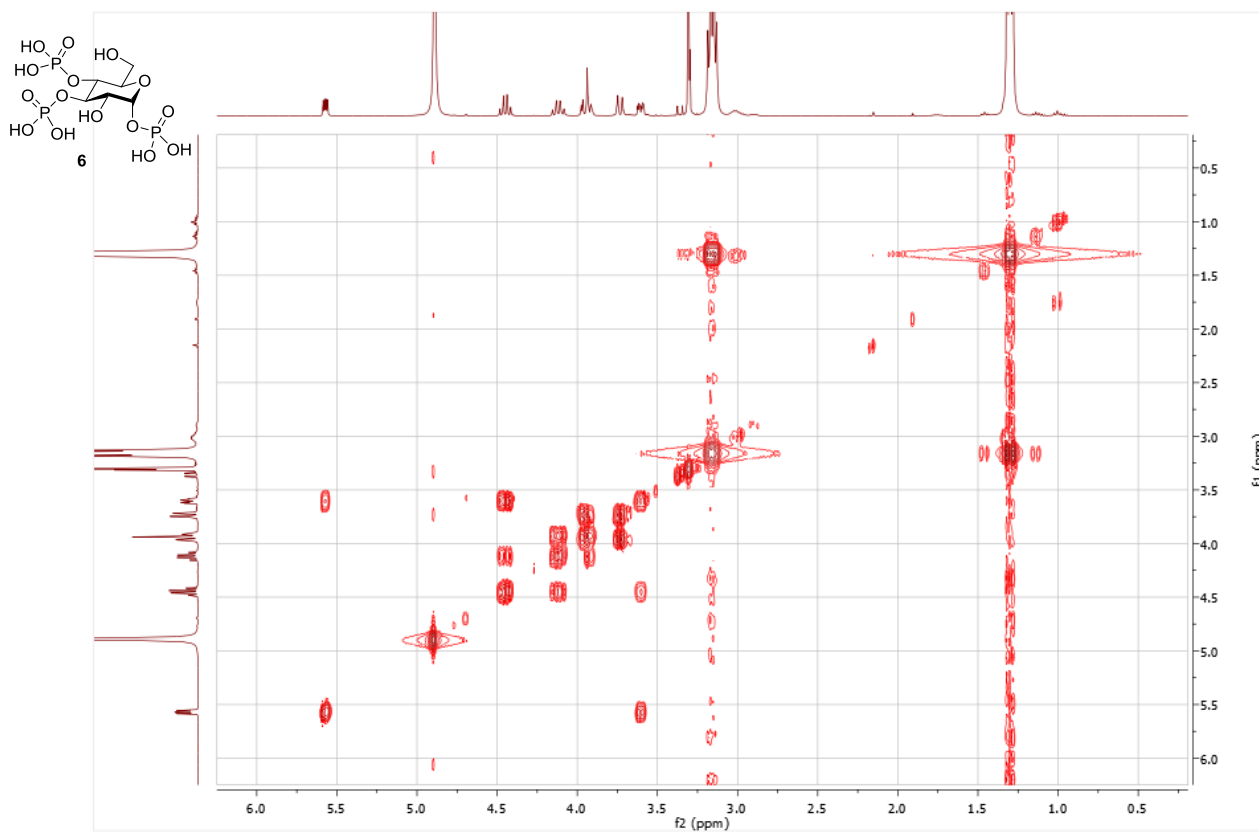
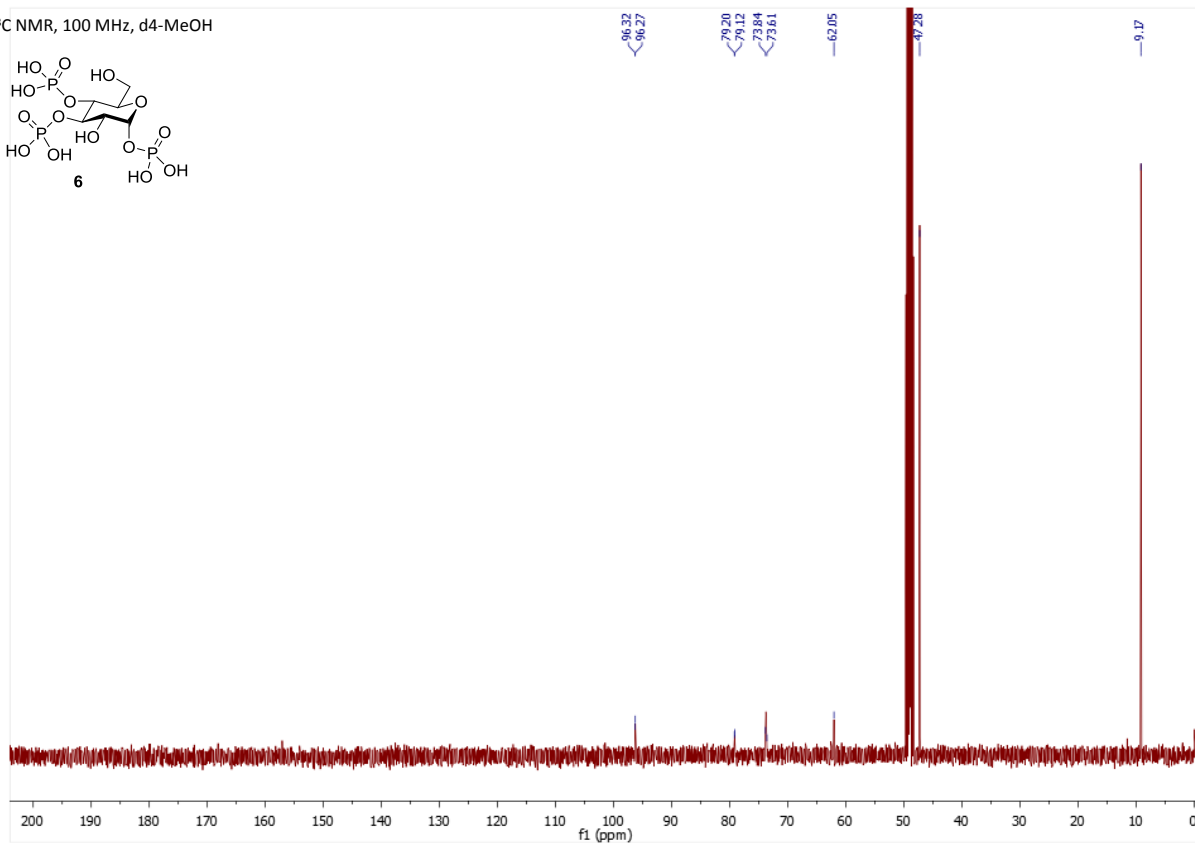
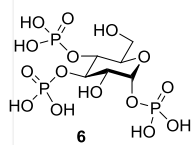
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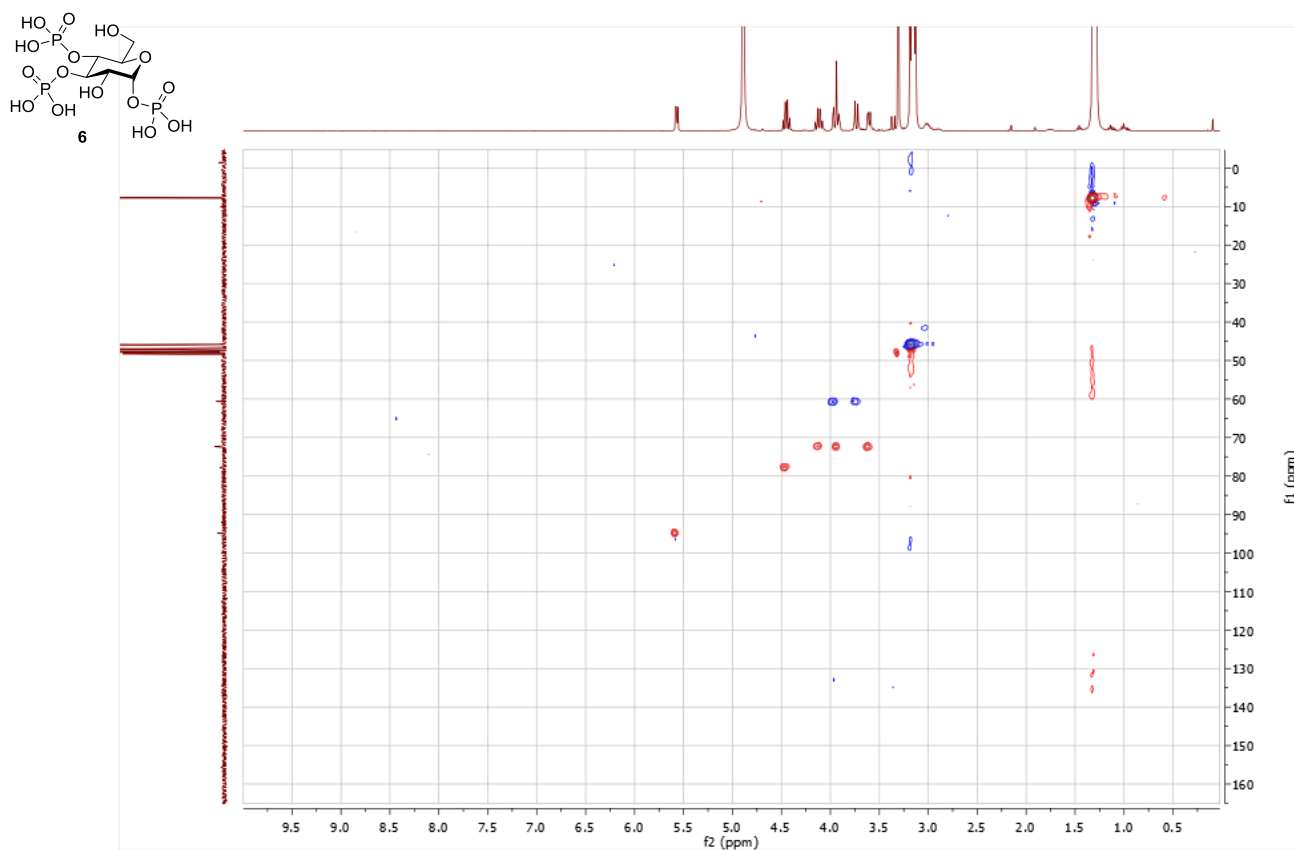




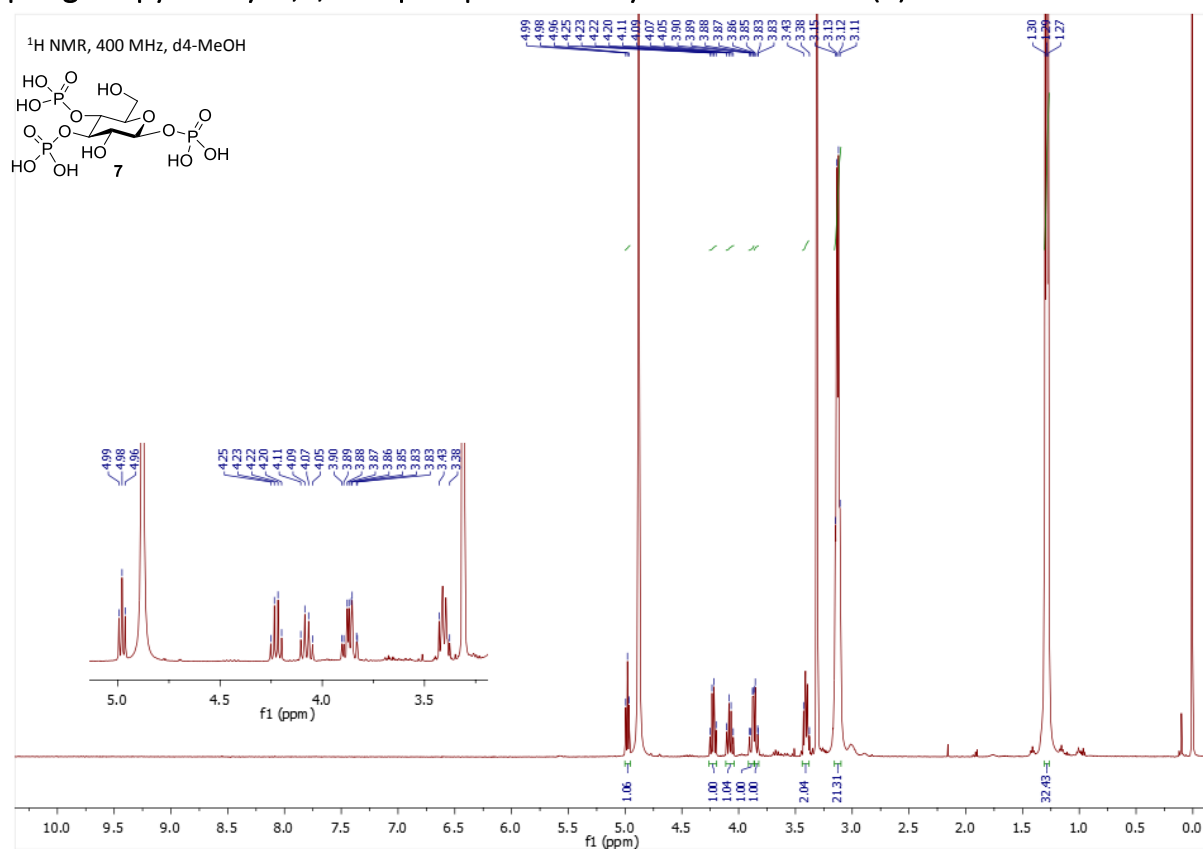


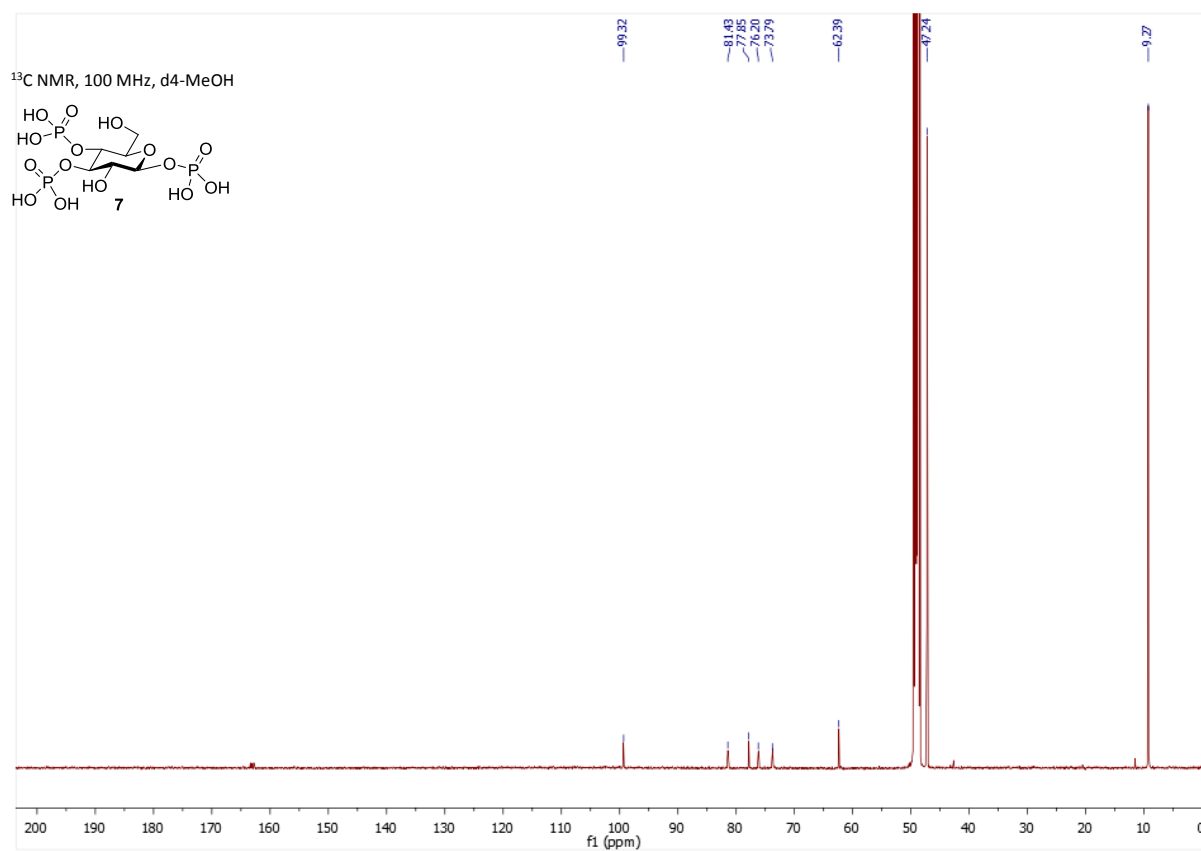
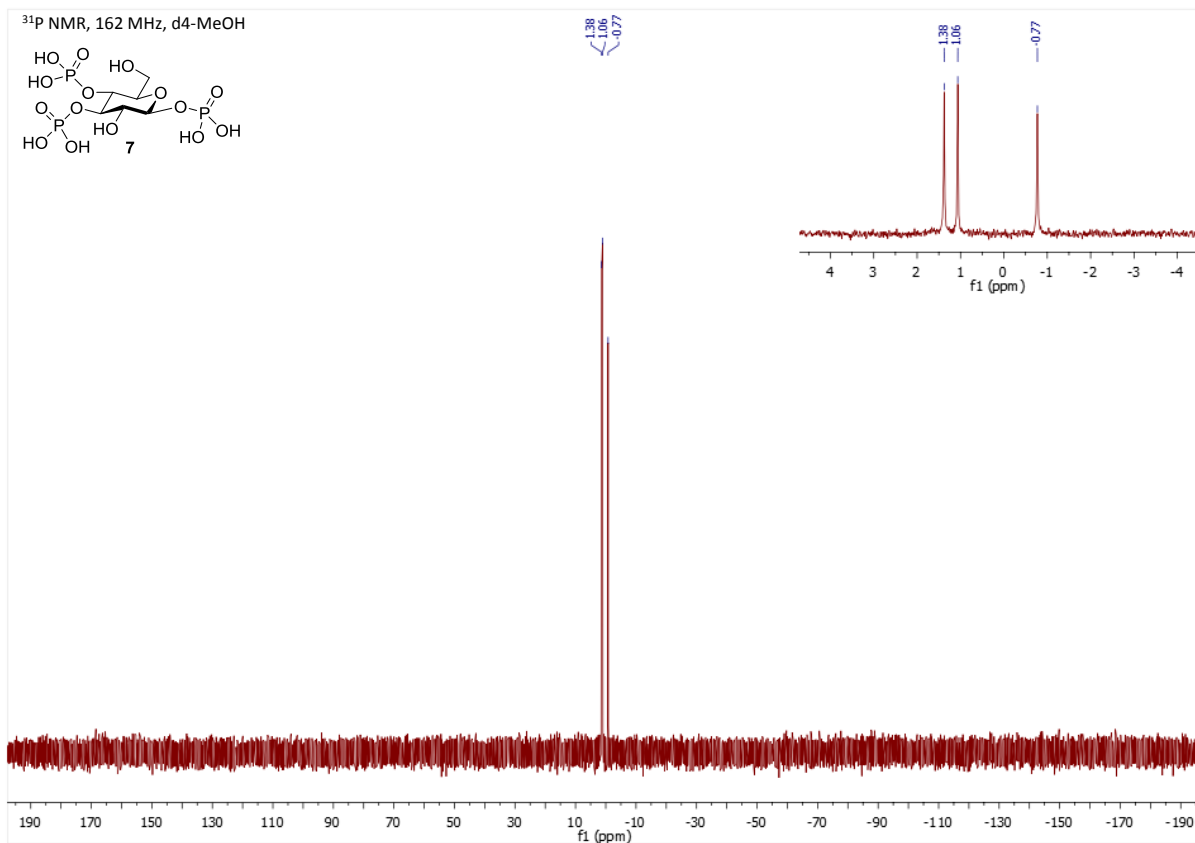
$\alpha$ -D-glucopyranosyl 1,3,4-trisphosphate triethylammonium salt (6)

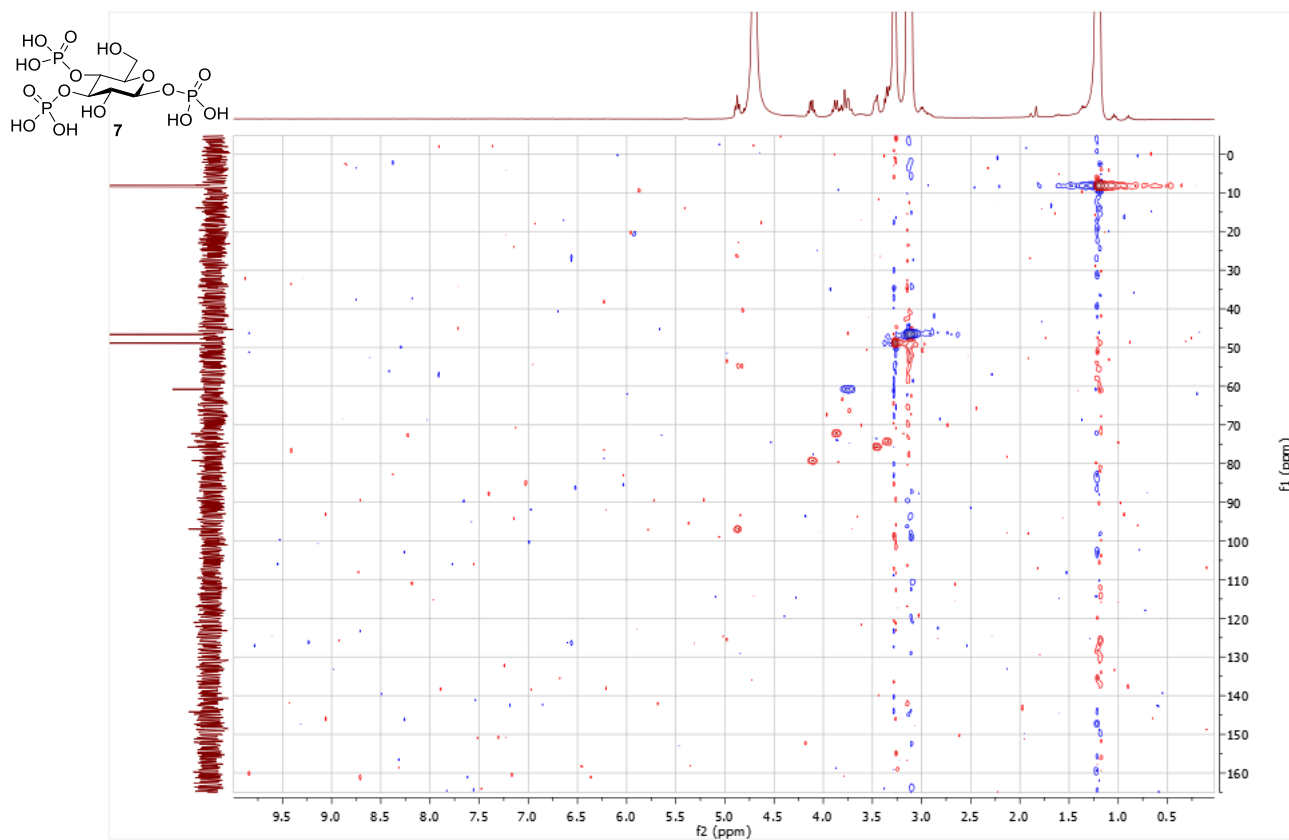
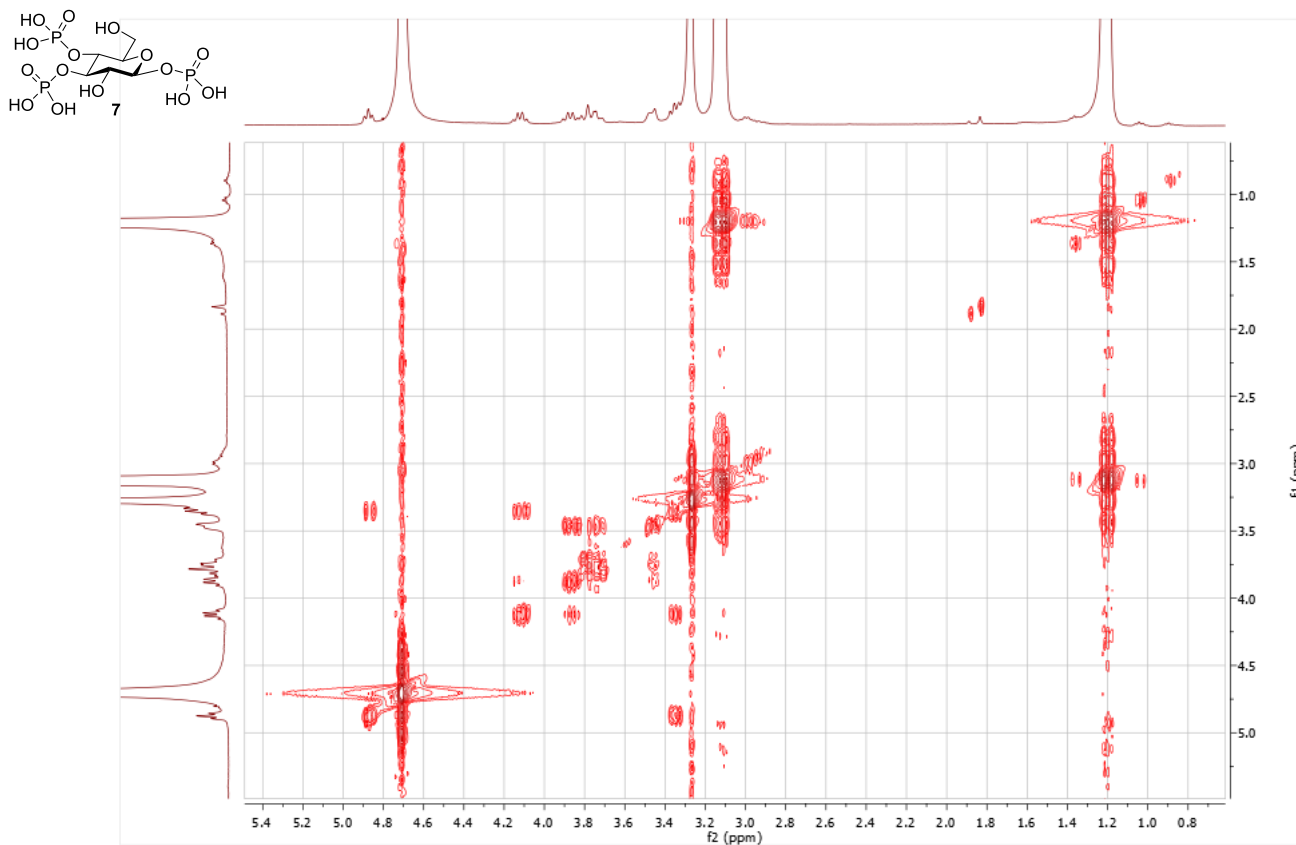
<sup>13</sup>C NMR, 100 MHz, d4-MeOH



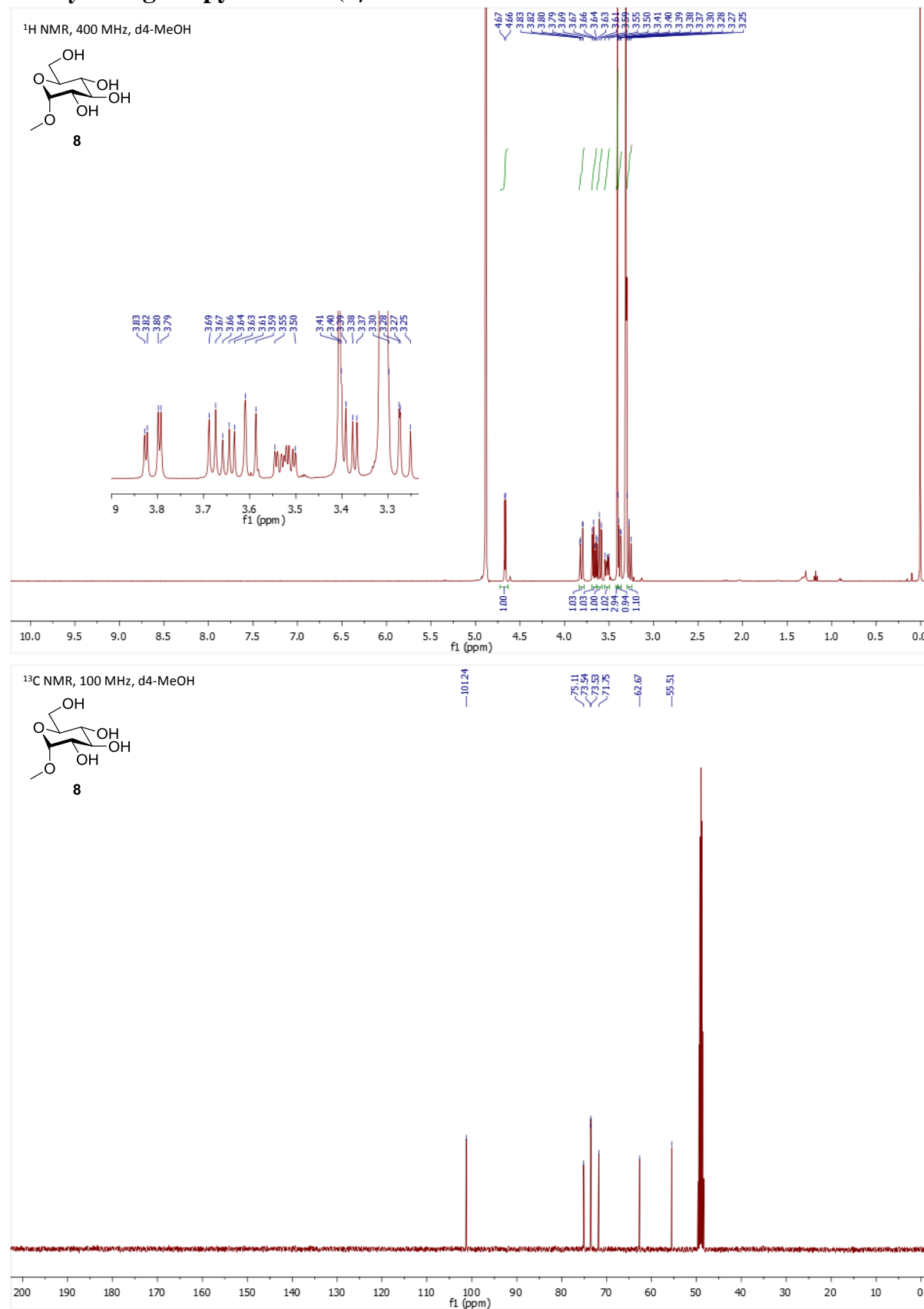
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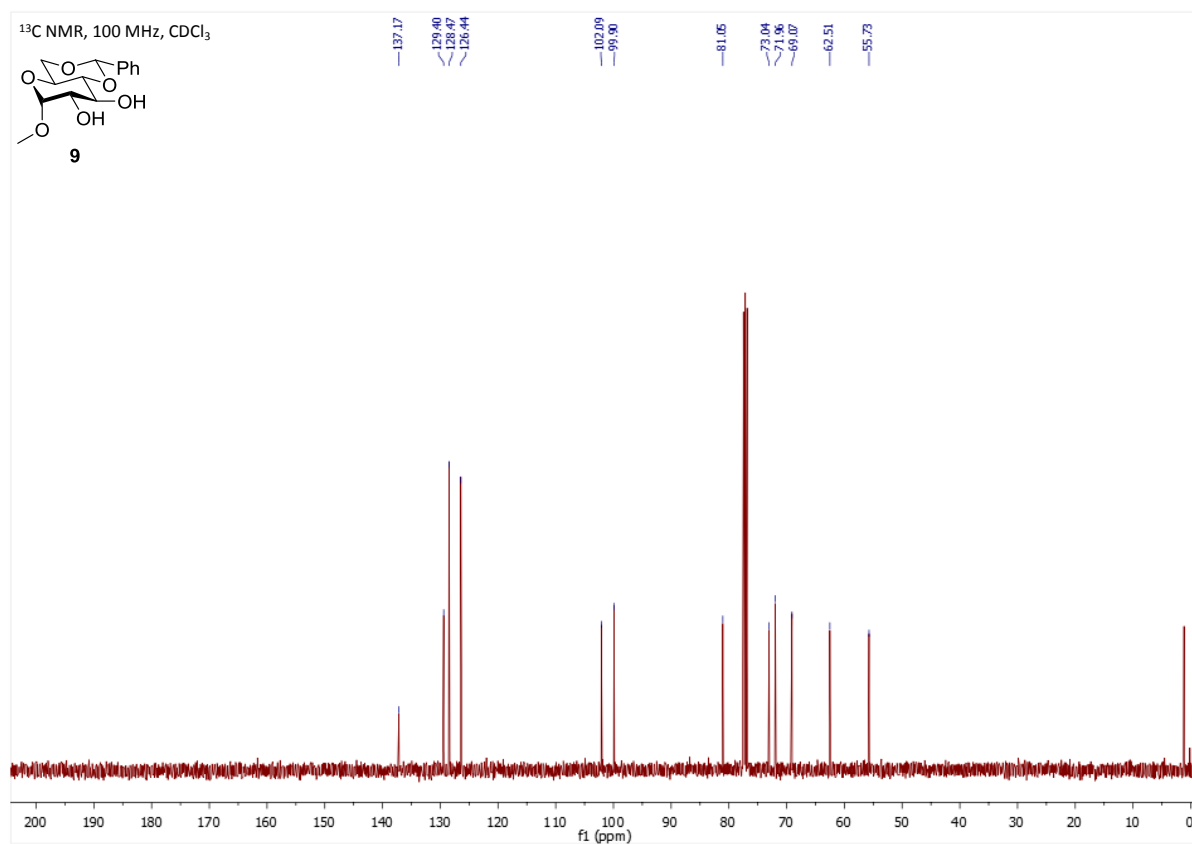
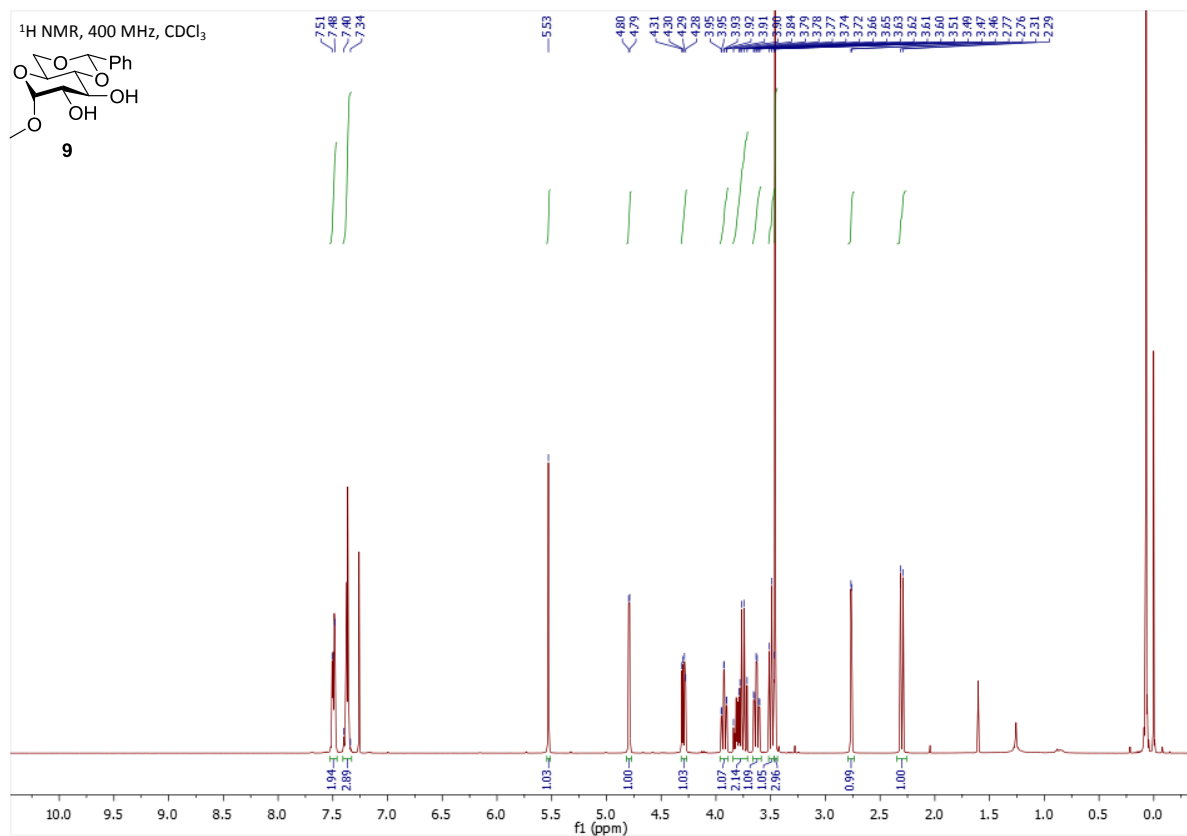


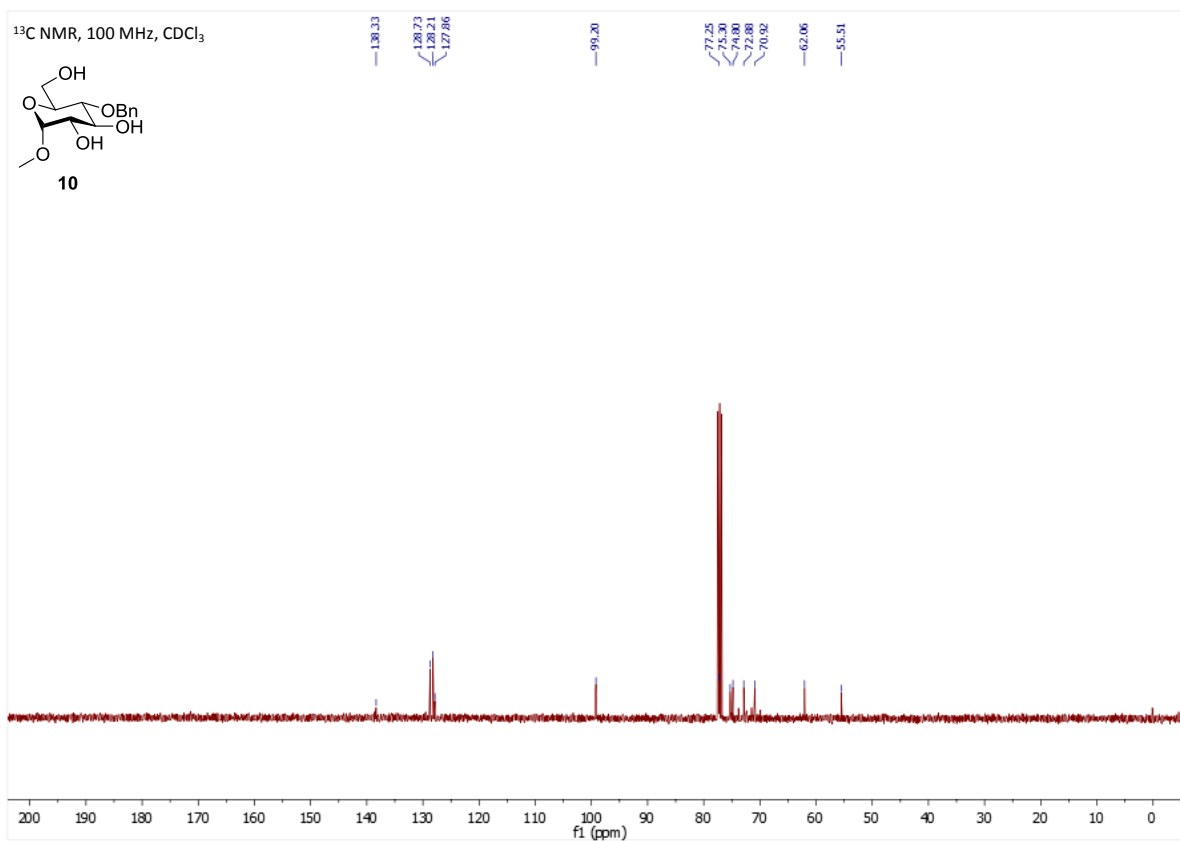
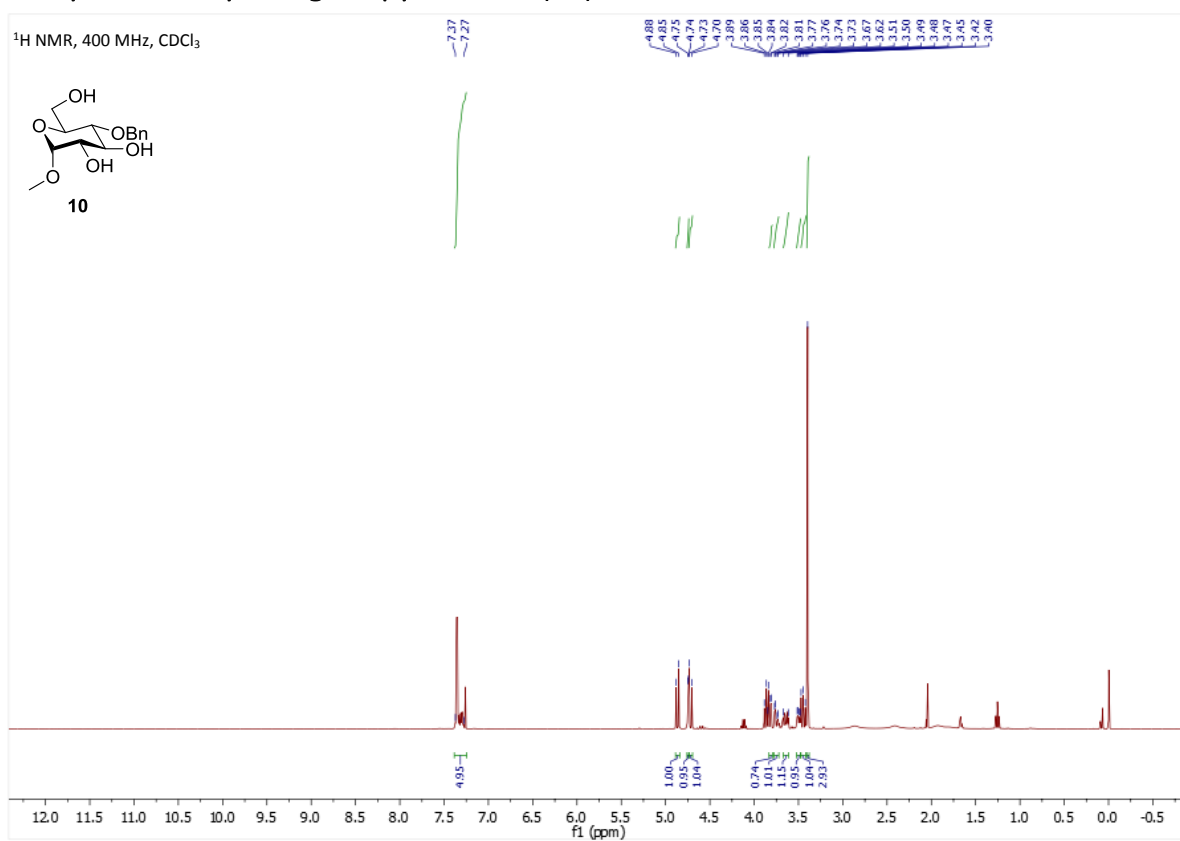


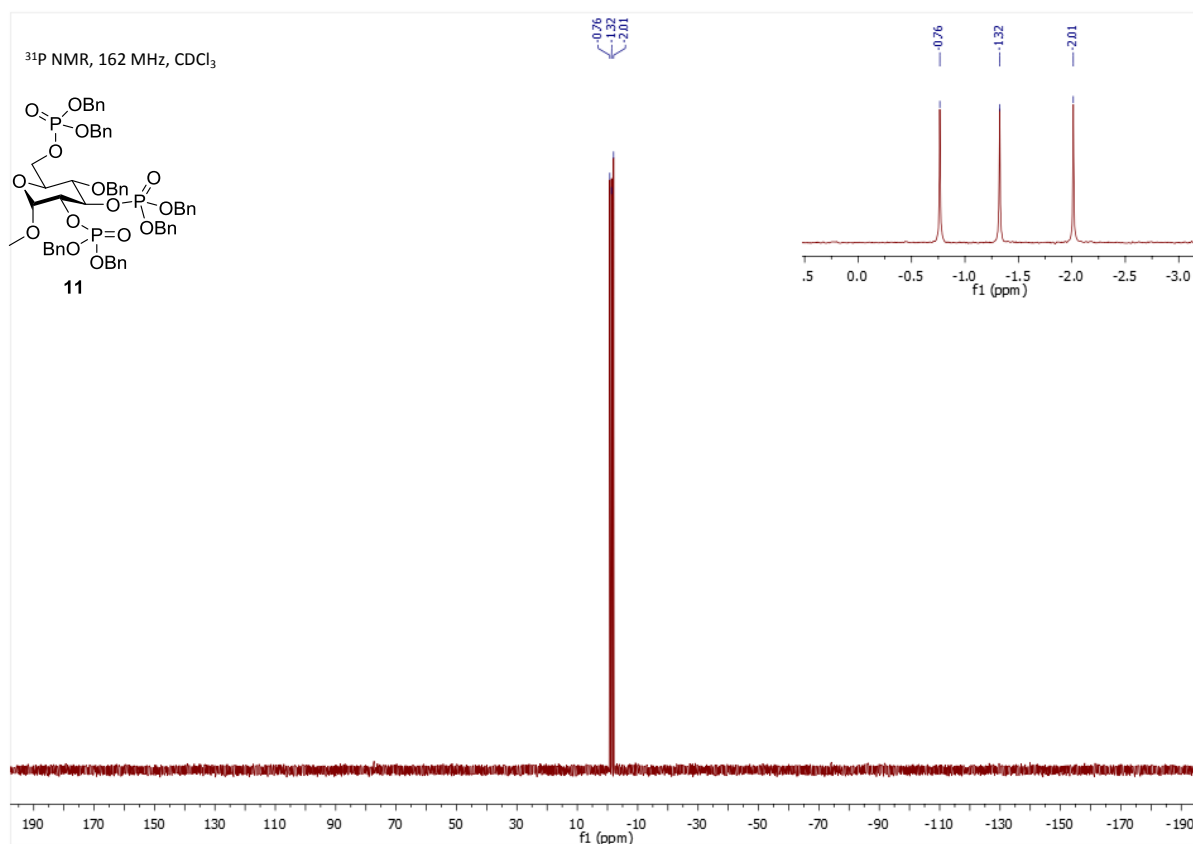
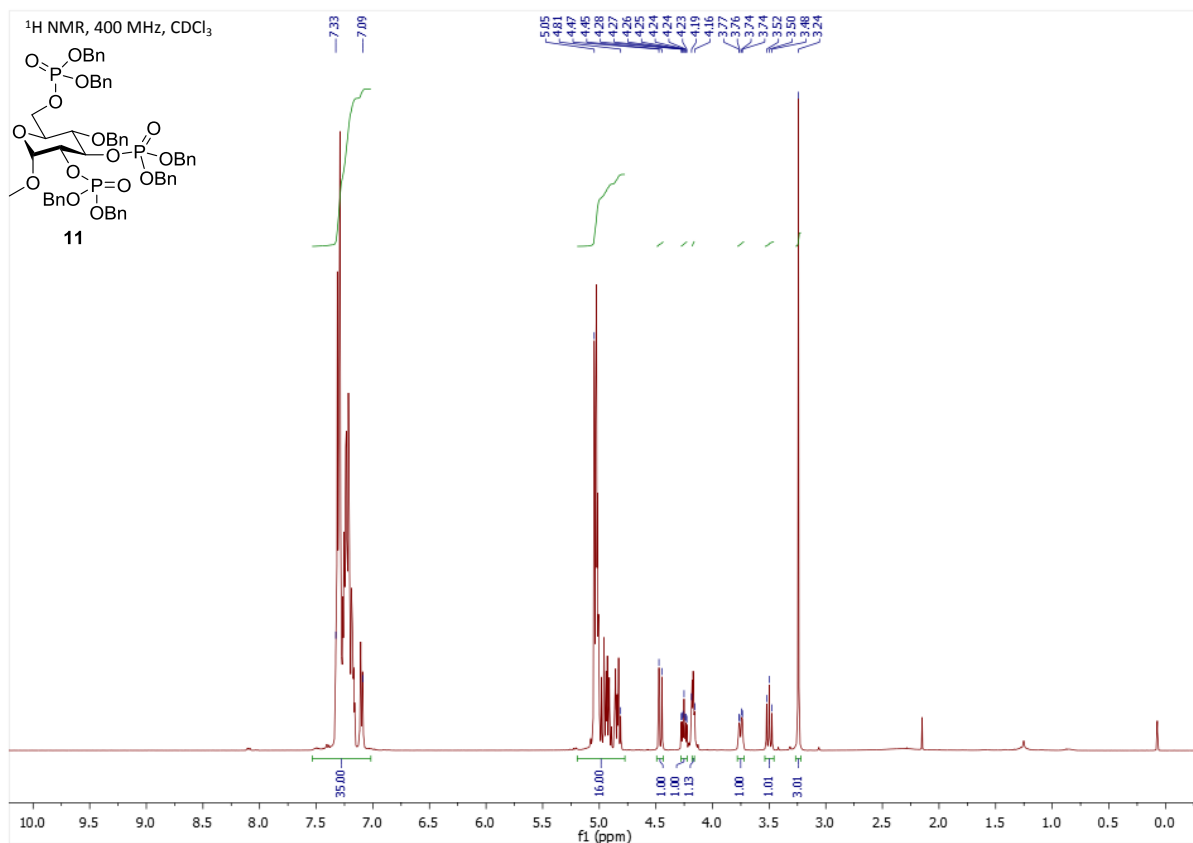


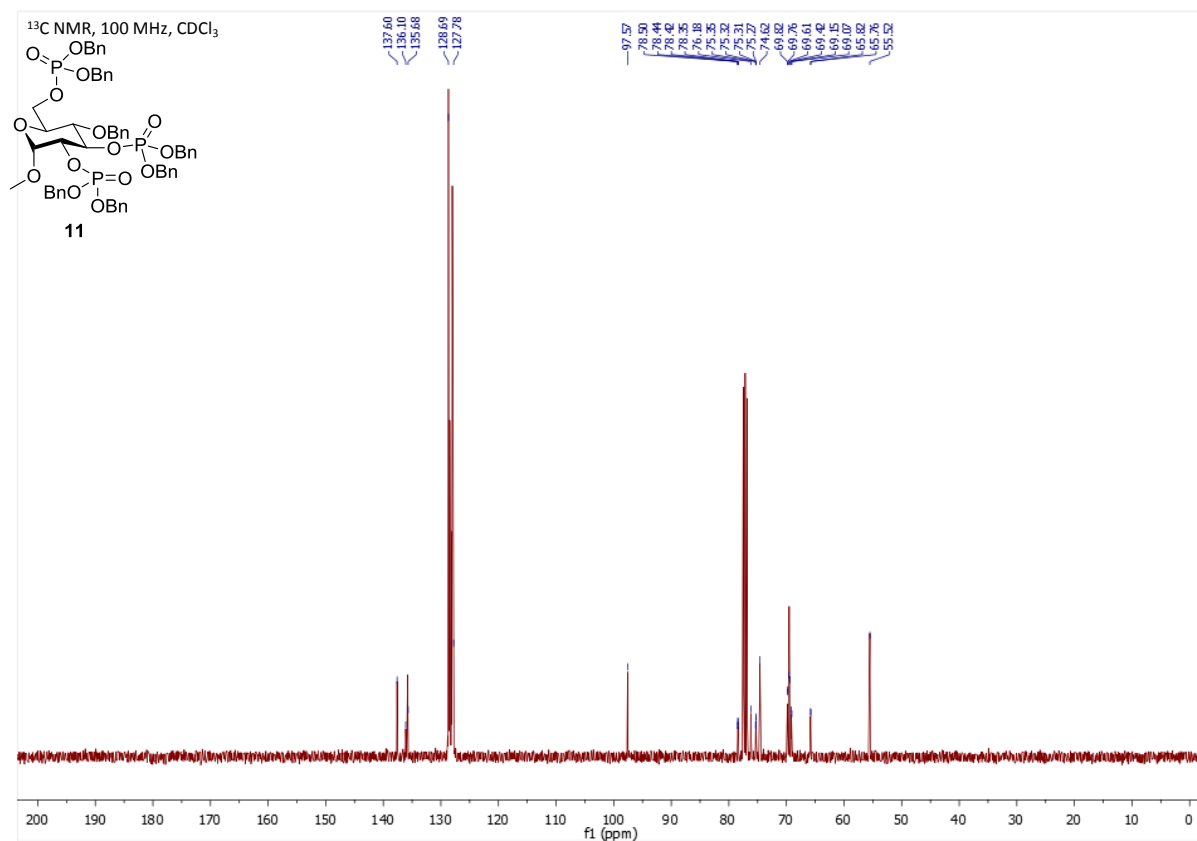


Methyl  $\alpha$ -L-glucopyranoside (8)

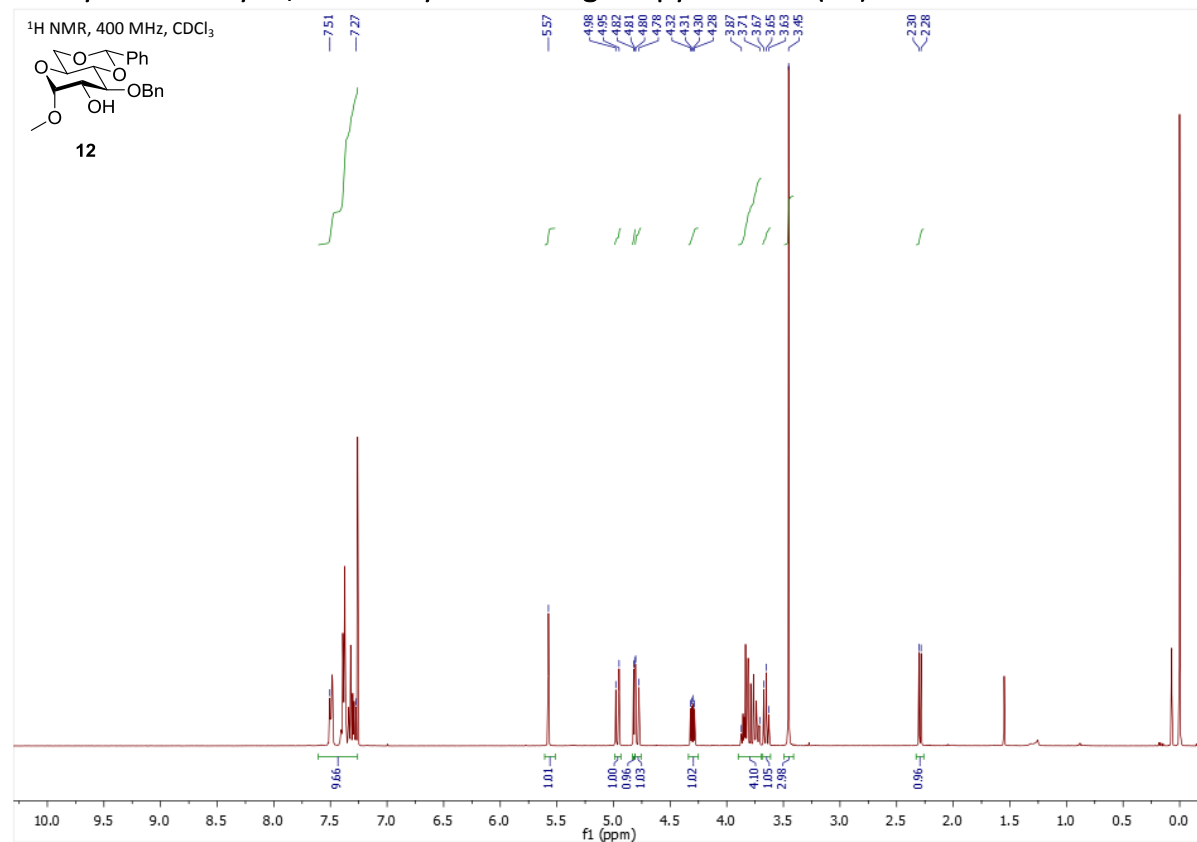
Methyl 4,6-O-benzylidene- $\alpha$ -L-glucopyranoside (9)

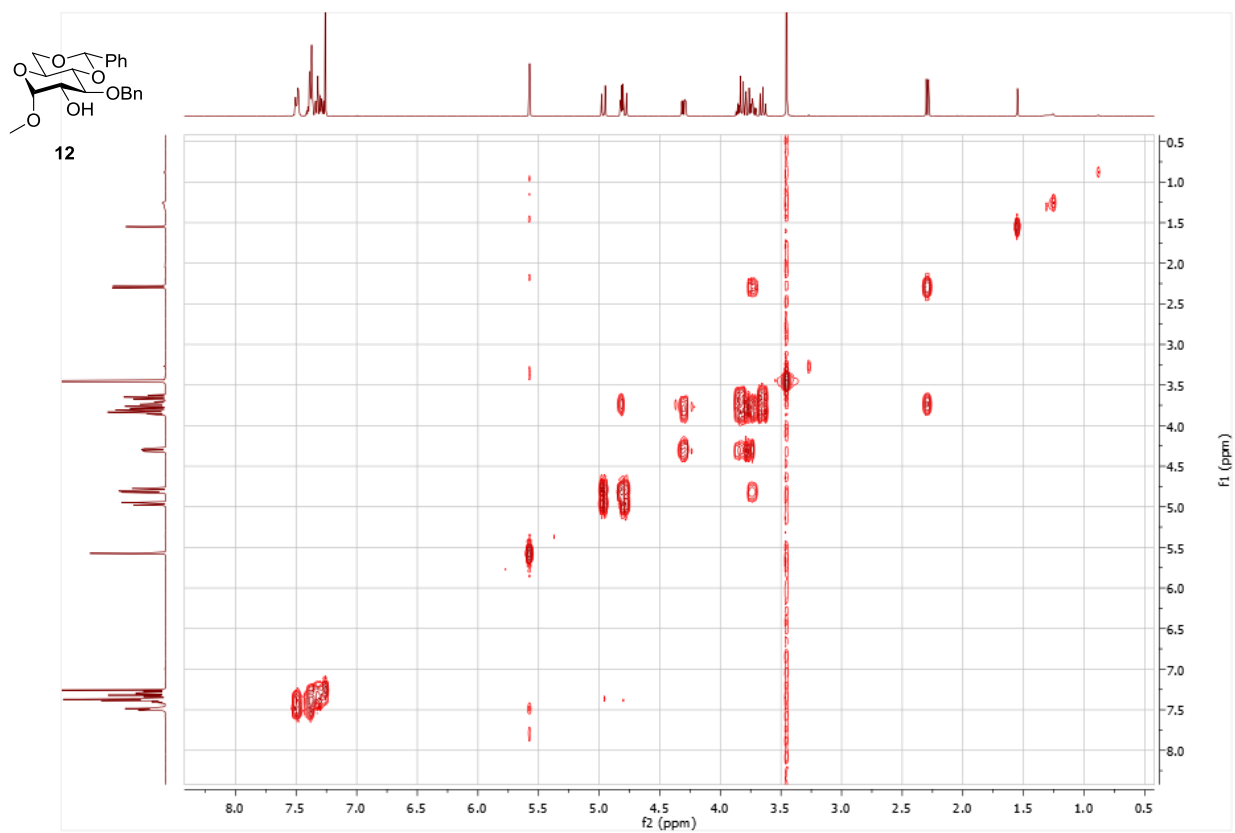
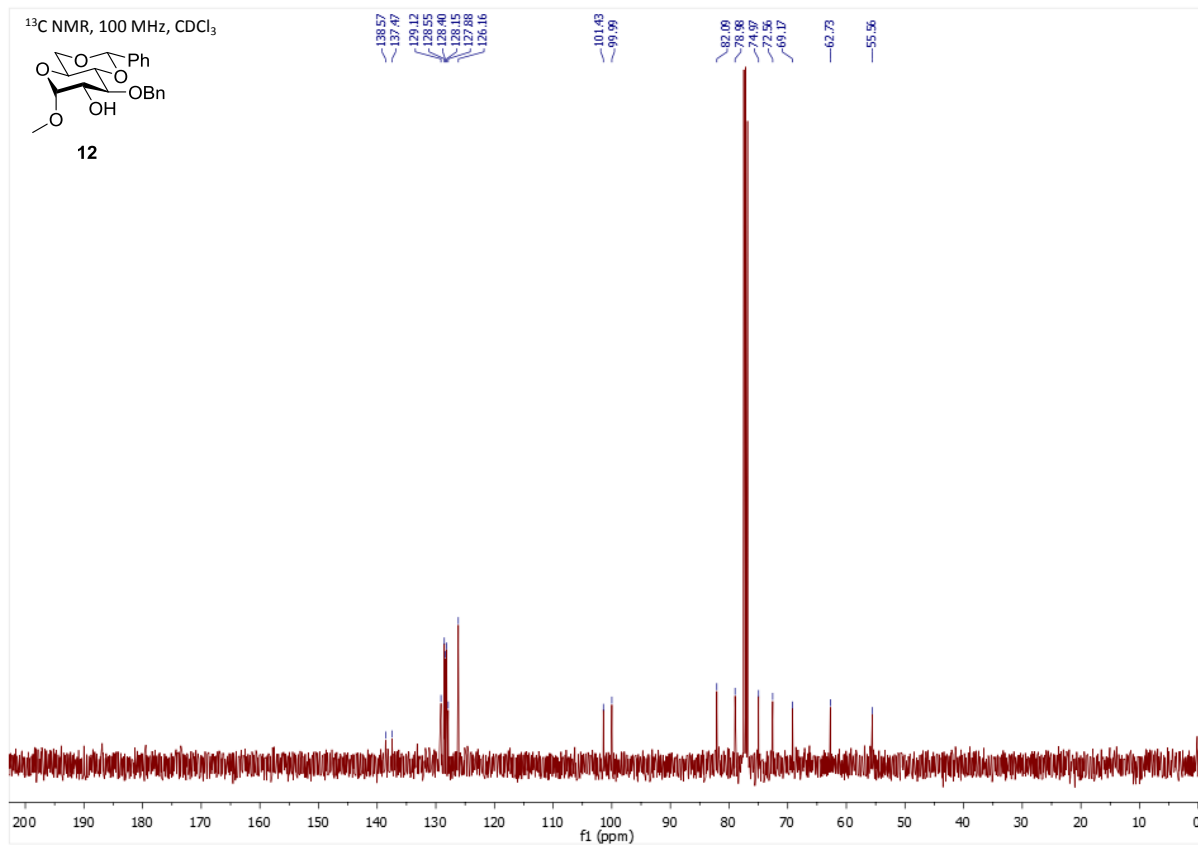
Methyl 4-O-benzyl- $\alpha$ -L-glucopyranoside (10)

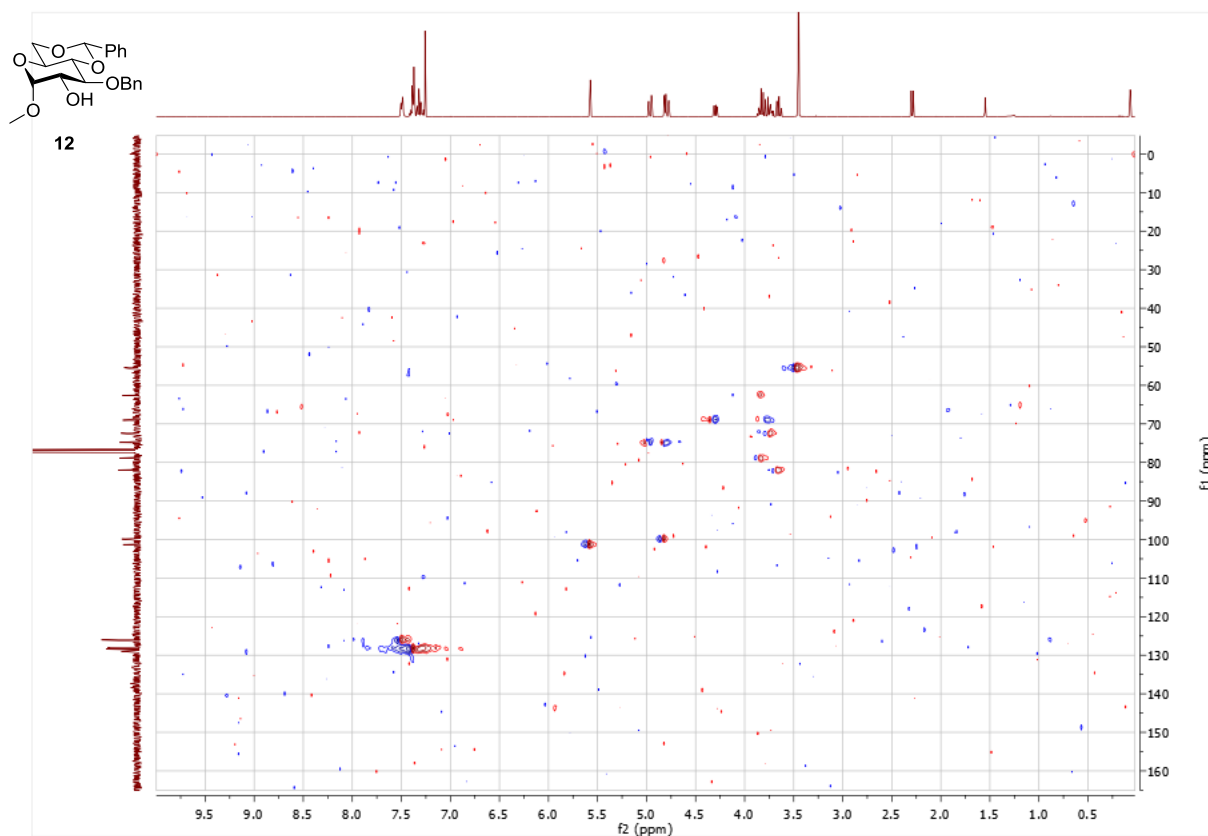
Methyl 4-O-benzyl- $\alpha$ -L-glucopyranoside 2,3,6-tris(dibenzyl phosphate) (11)



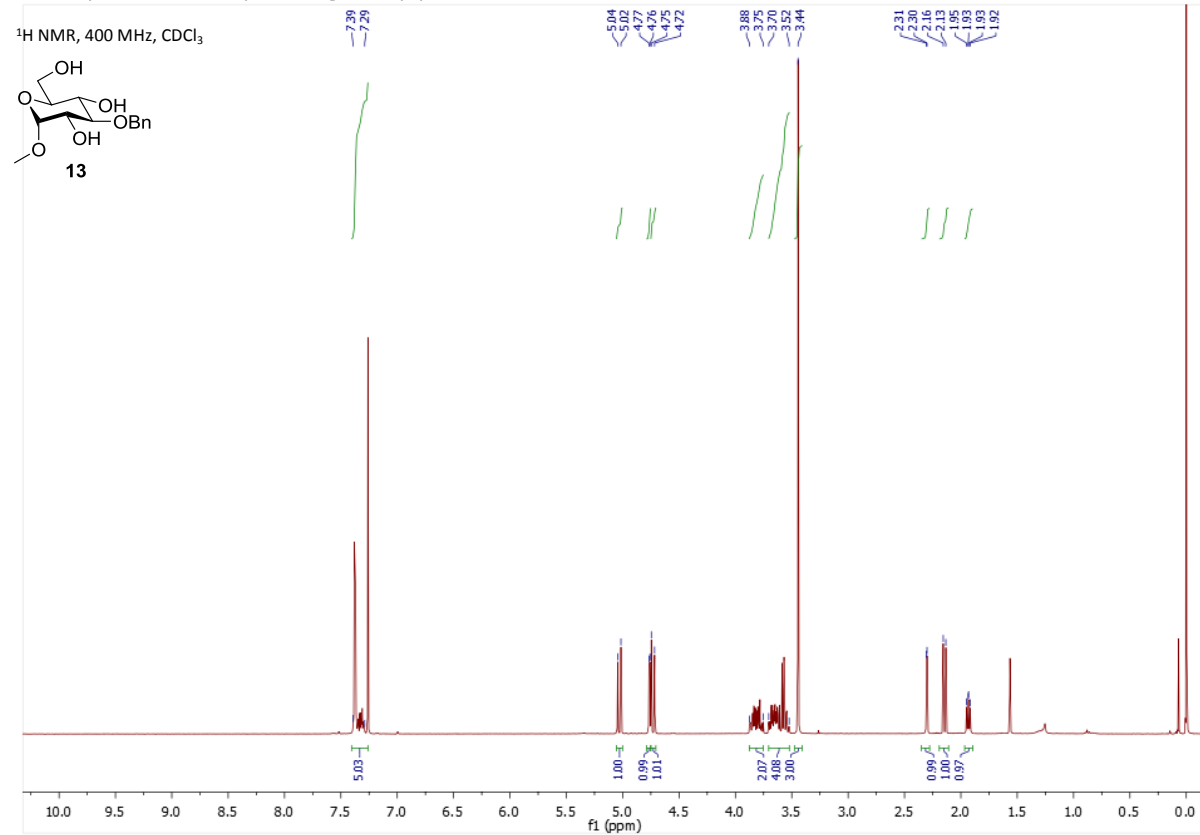
### Methyl 3-O-benzyl-4,6-O-benzylidene- $\alpha$ -L-glucopyranoside (**12**)

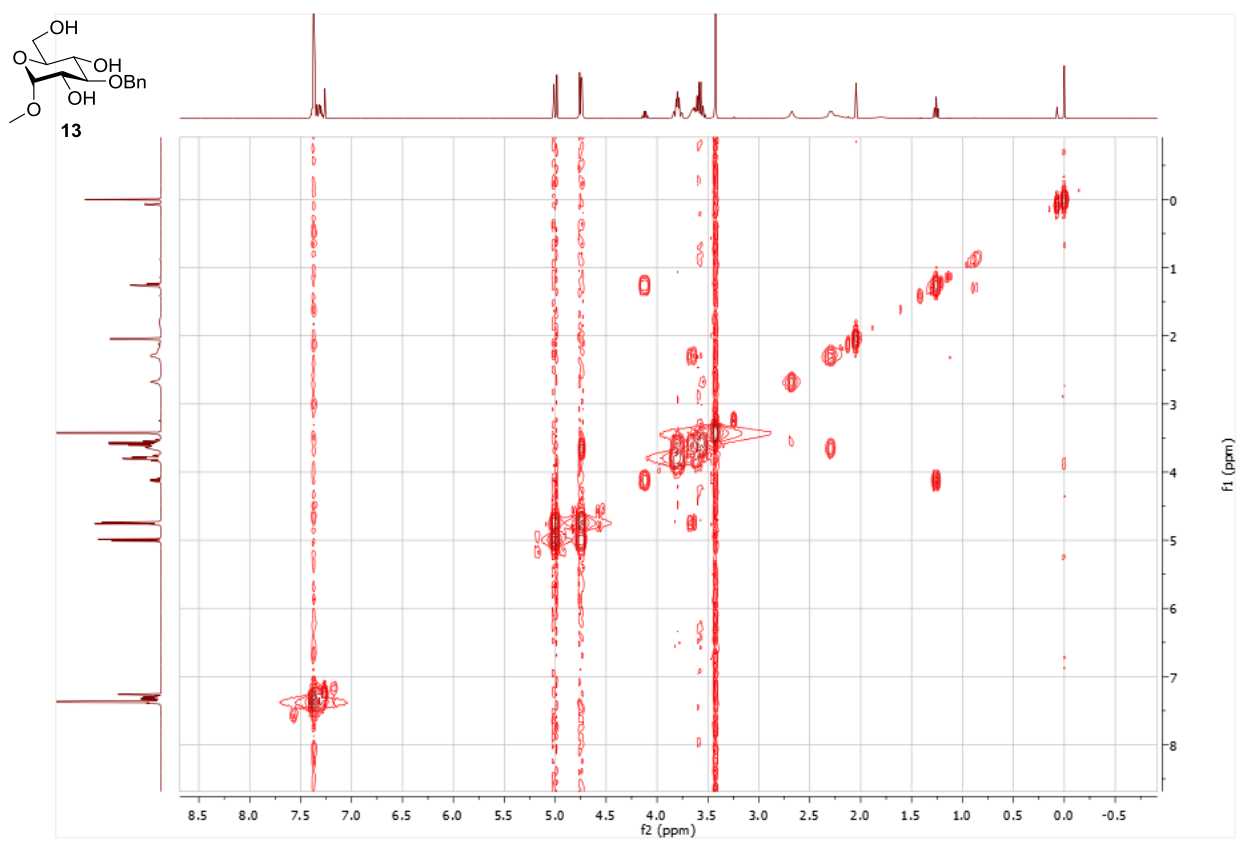
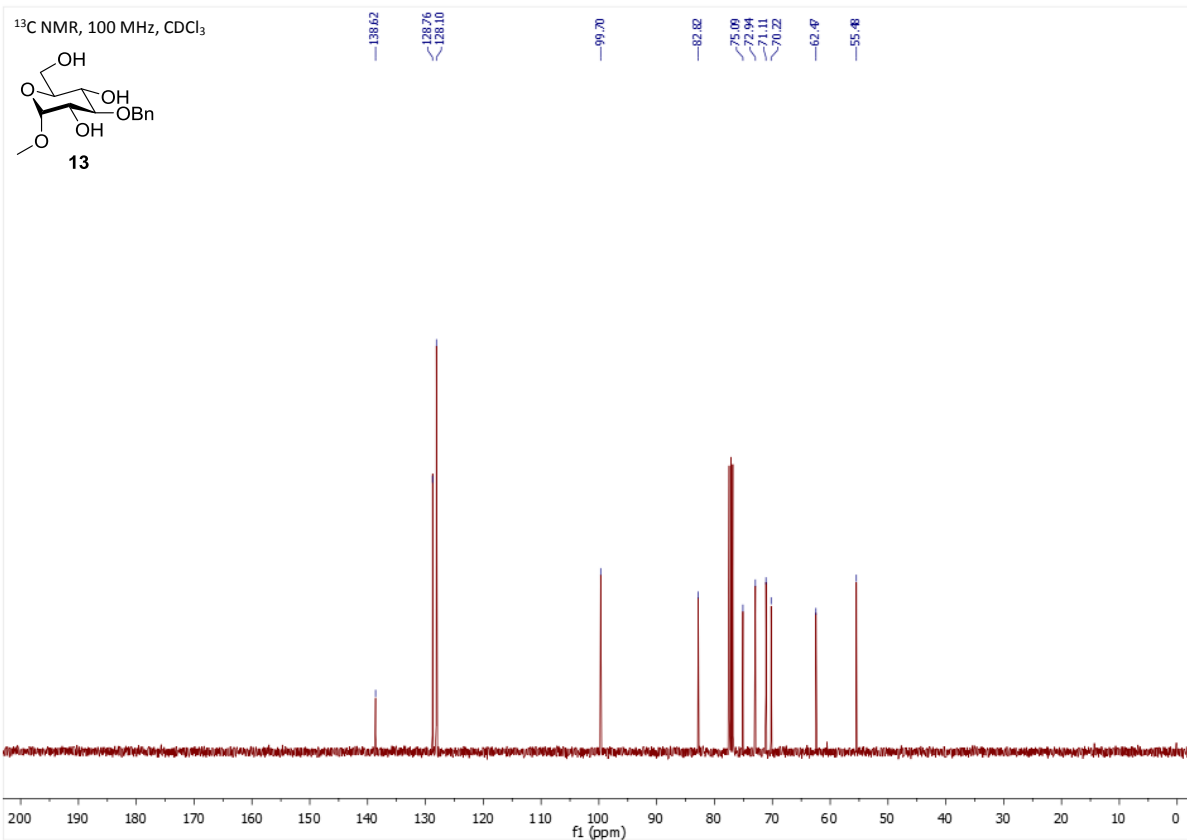




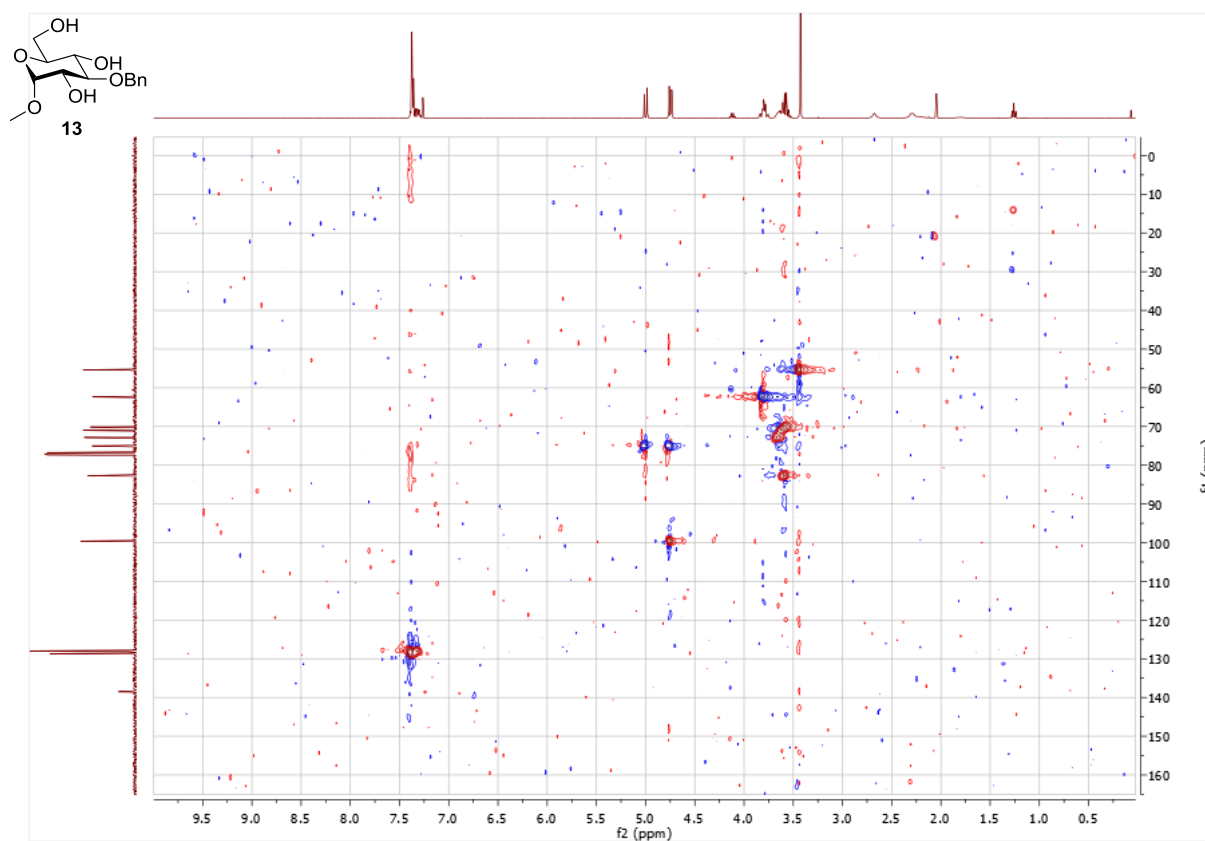


### Methyl 3-O-benzyl- $\alpha$ -L-glucopyranoside (13)

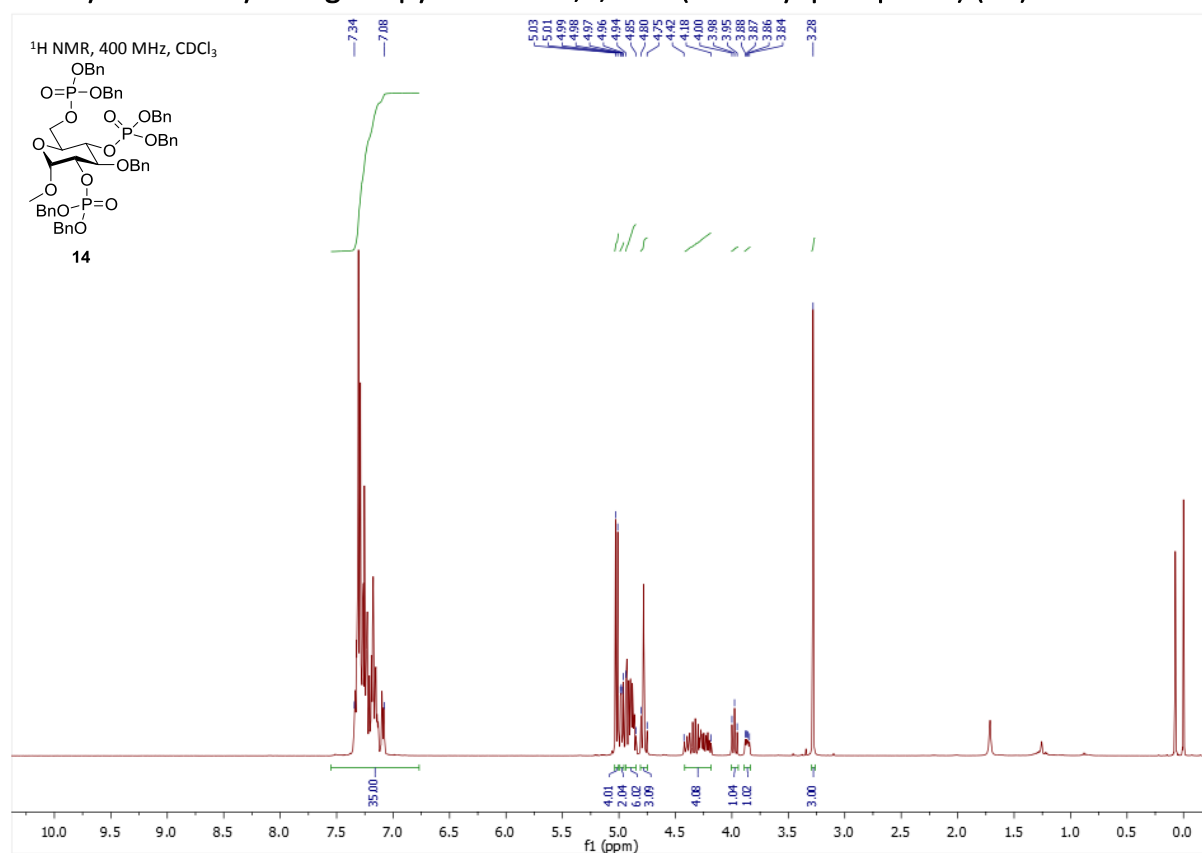


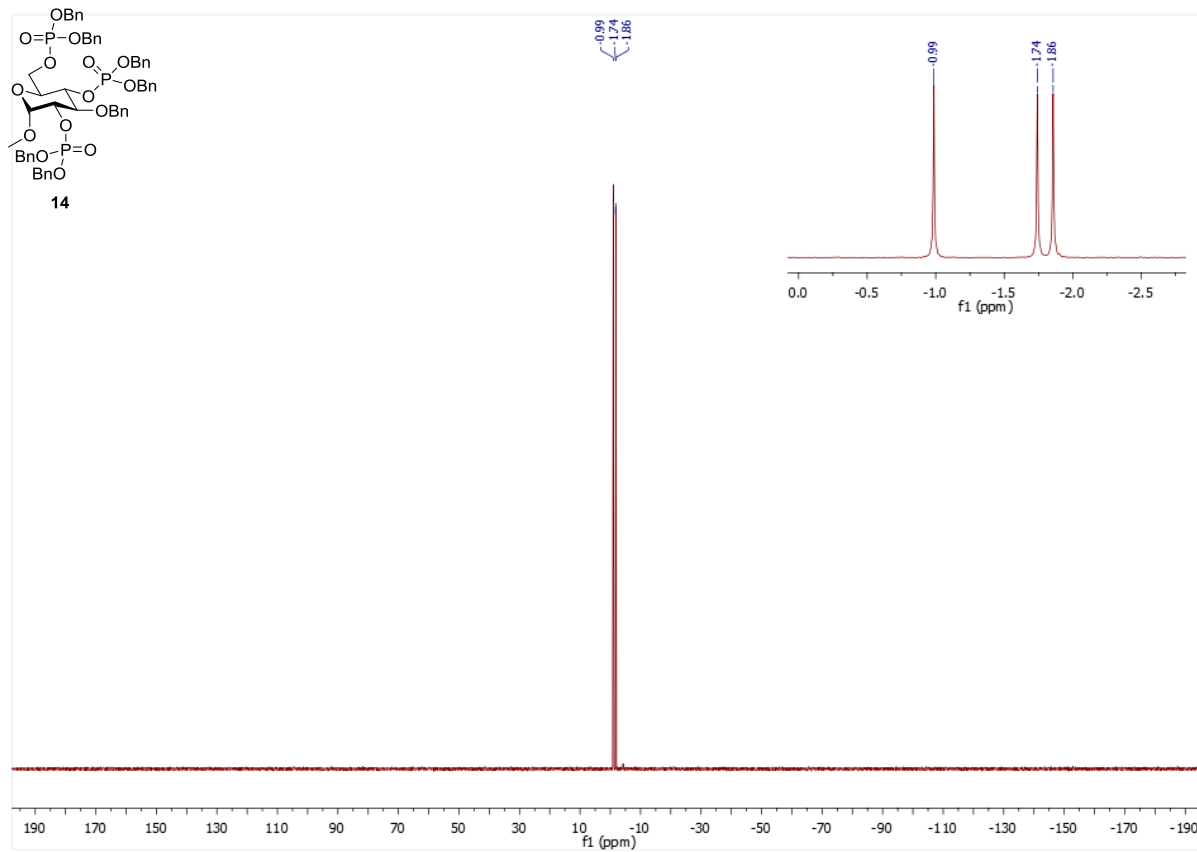
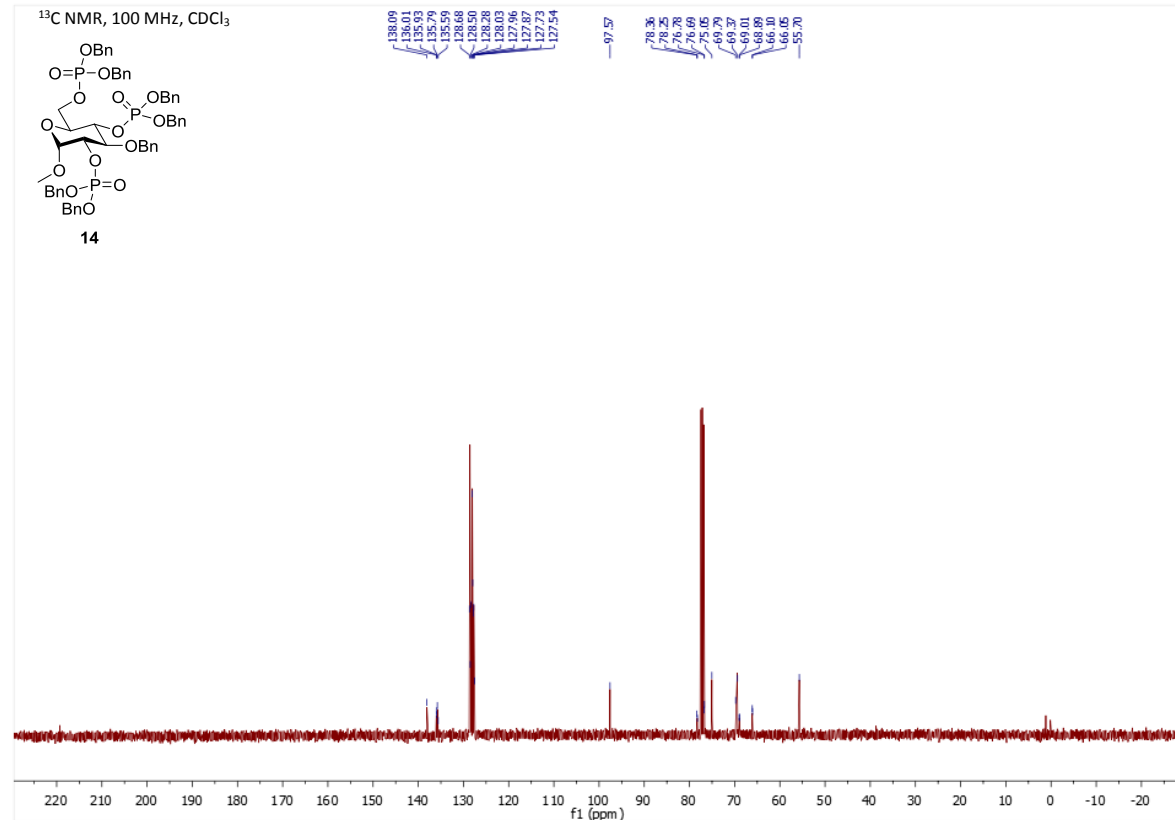


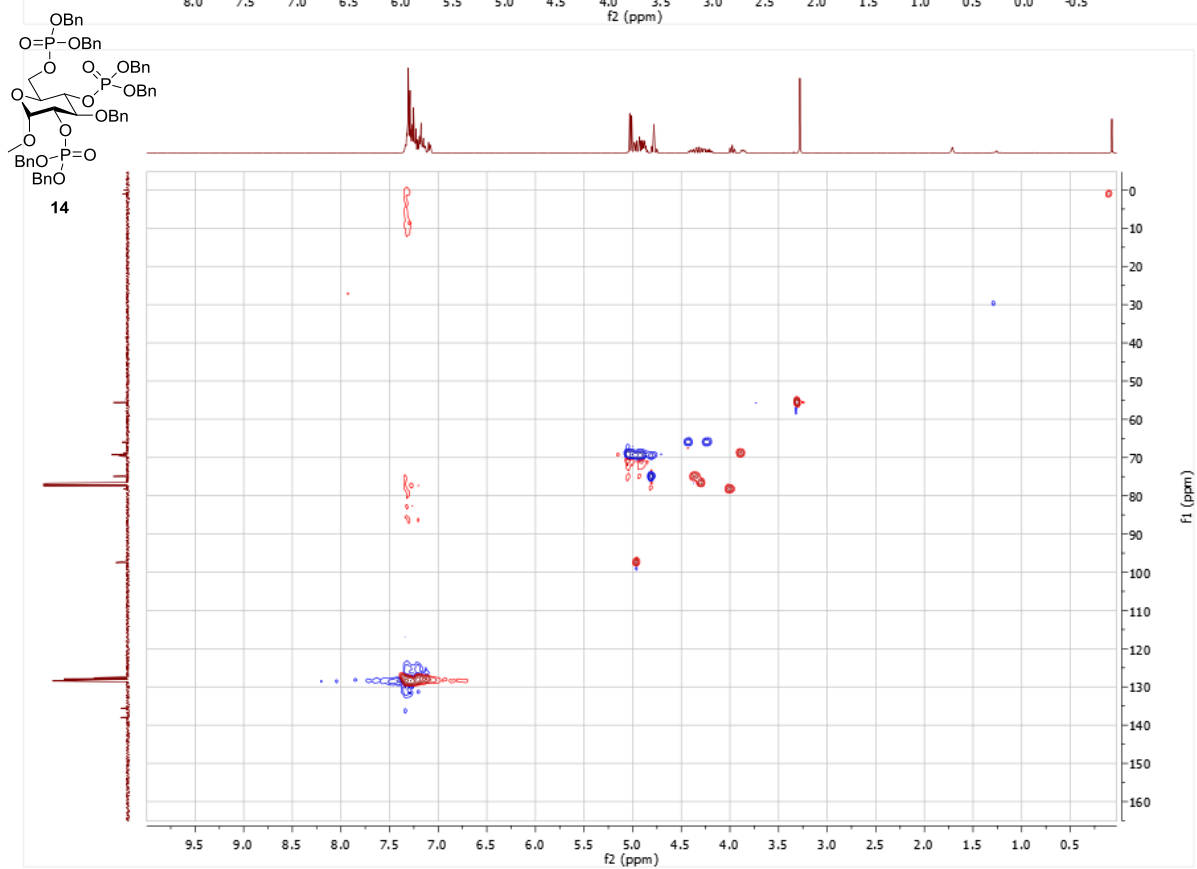
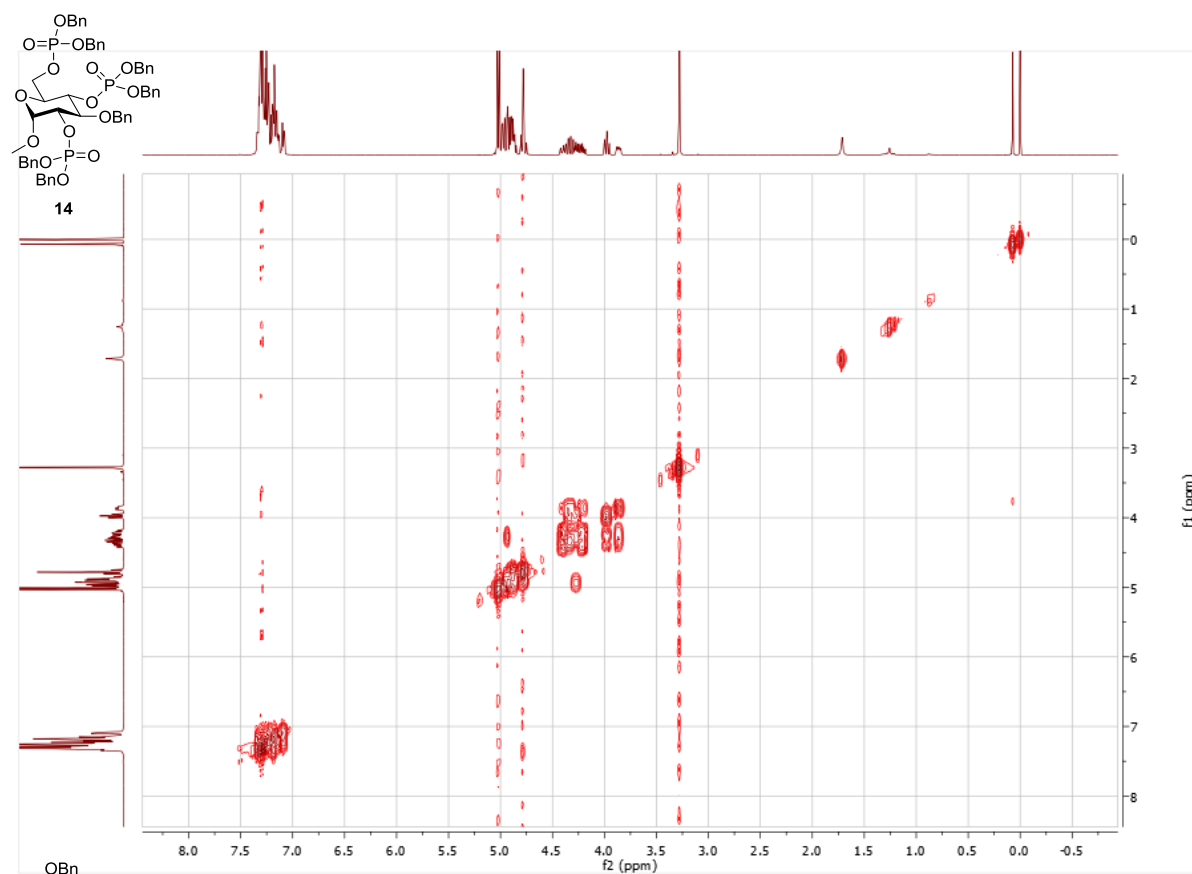


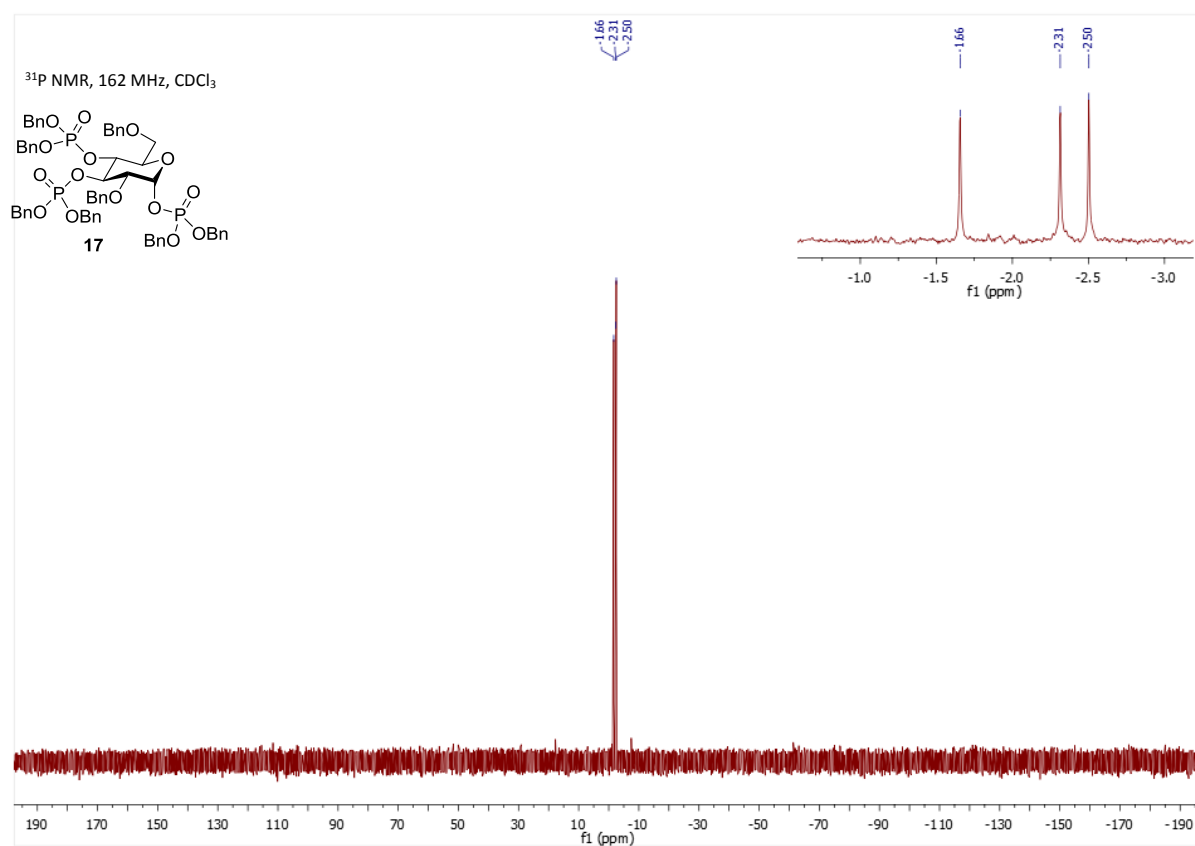
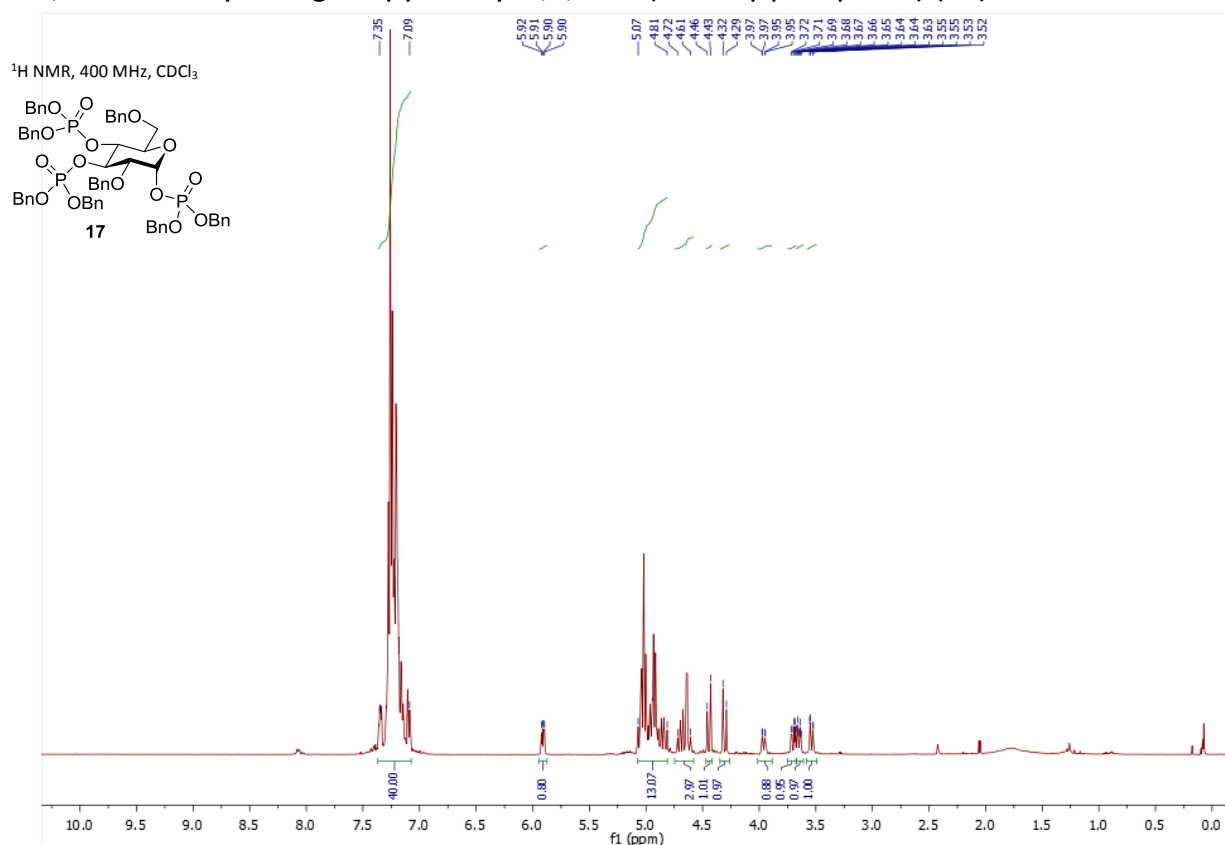


### Methyl 3-*O*-benzyl- $\alpha$ -L-glucopyranoside 2,4,6-tris(dibenzyl phosphate) (**14**)

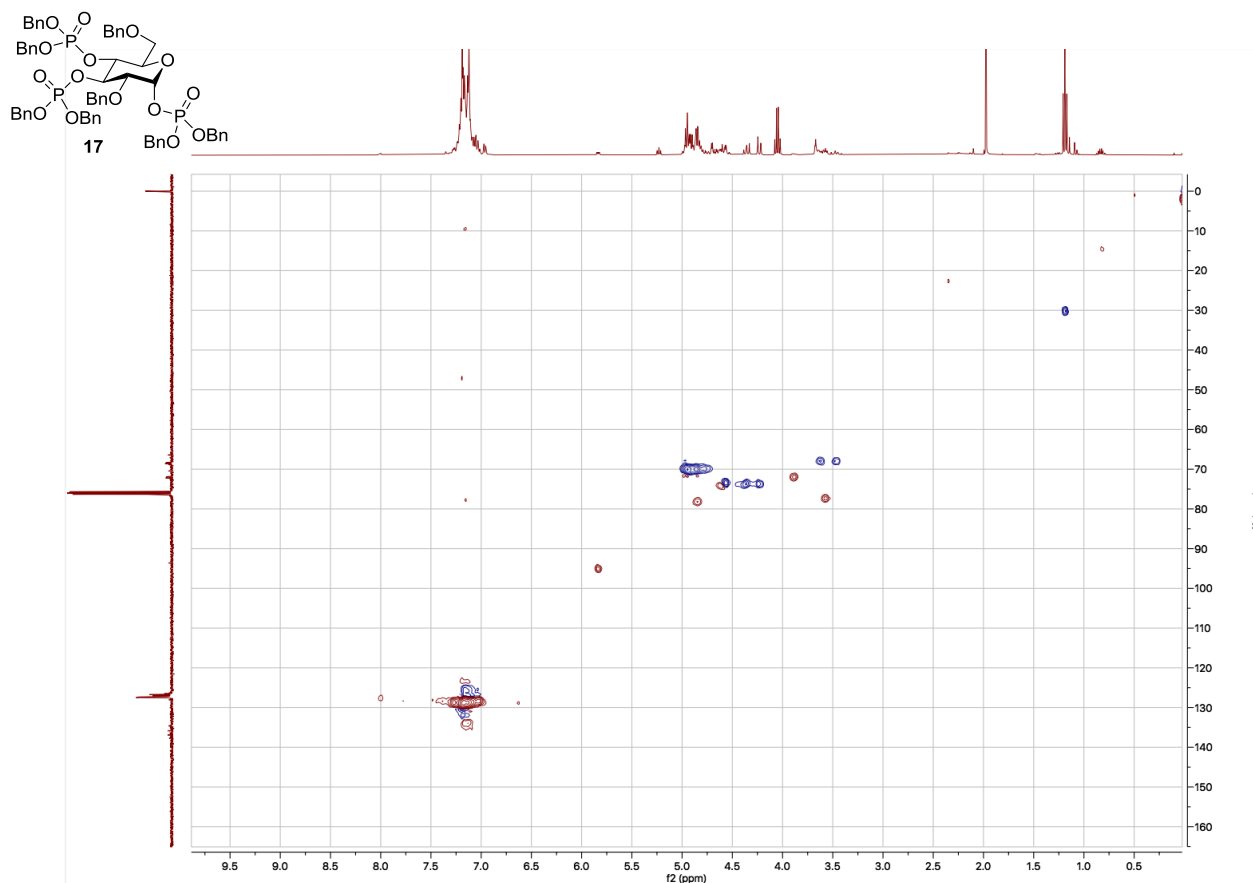
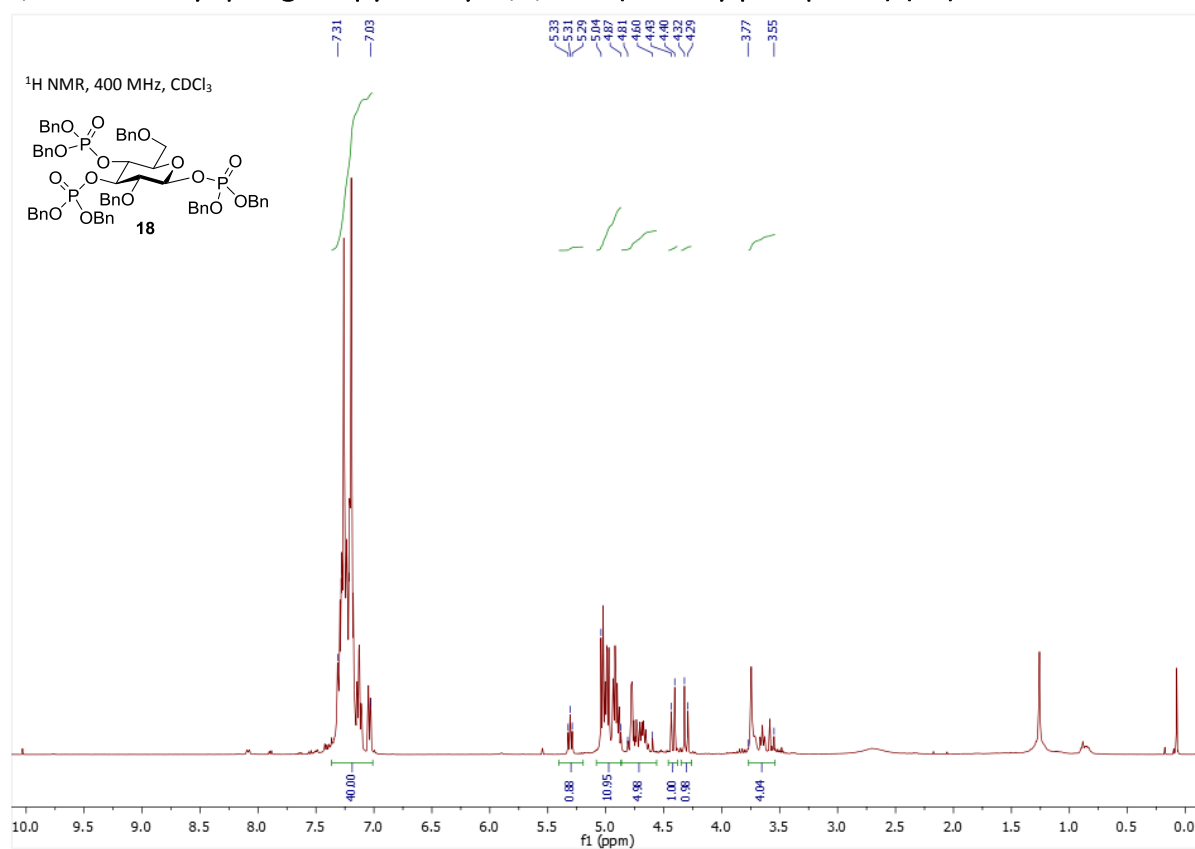


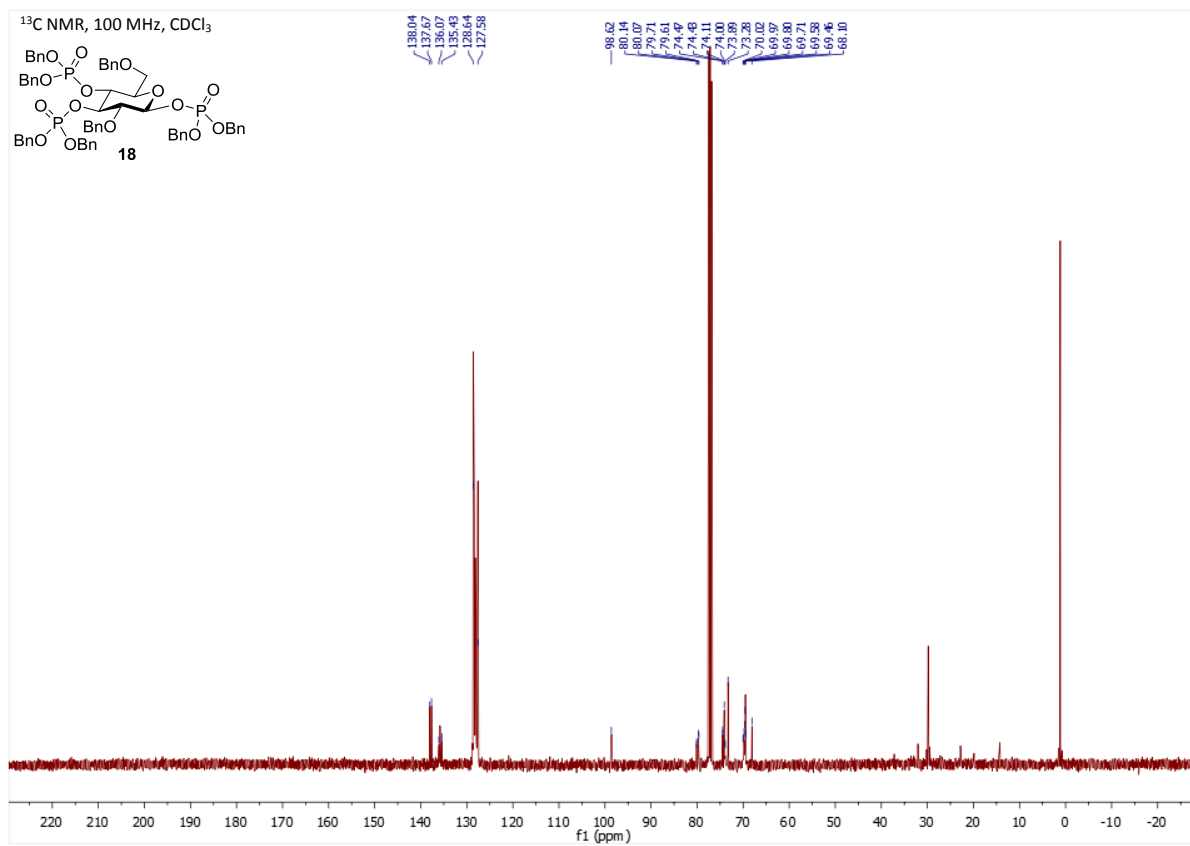
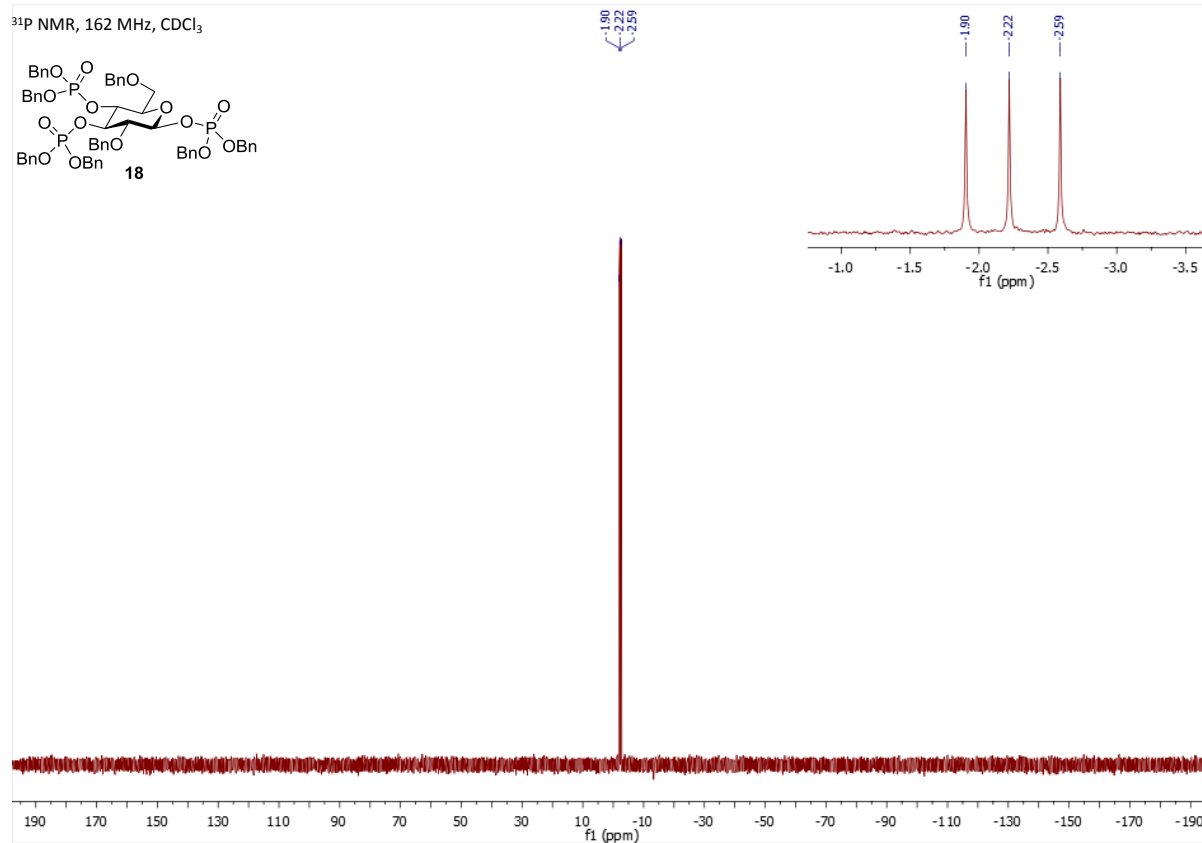
$^{31}\text{P}$  NMR, 162 MHz,  $\text{CDCl}_3$  $^{13}\text{C}$  NMR, 100 MHz,  $\text{CDCl}_3$ 

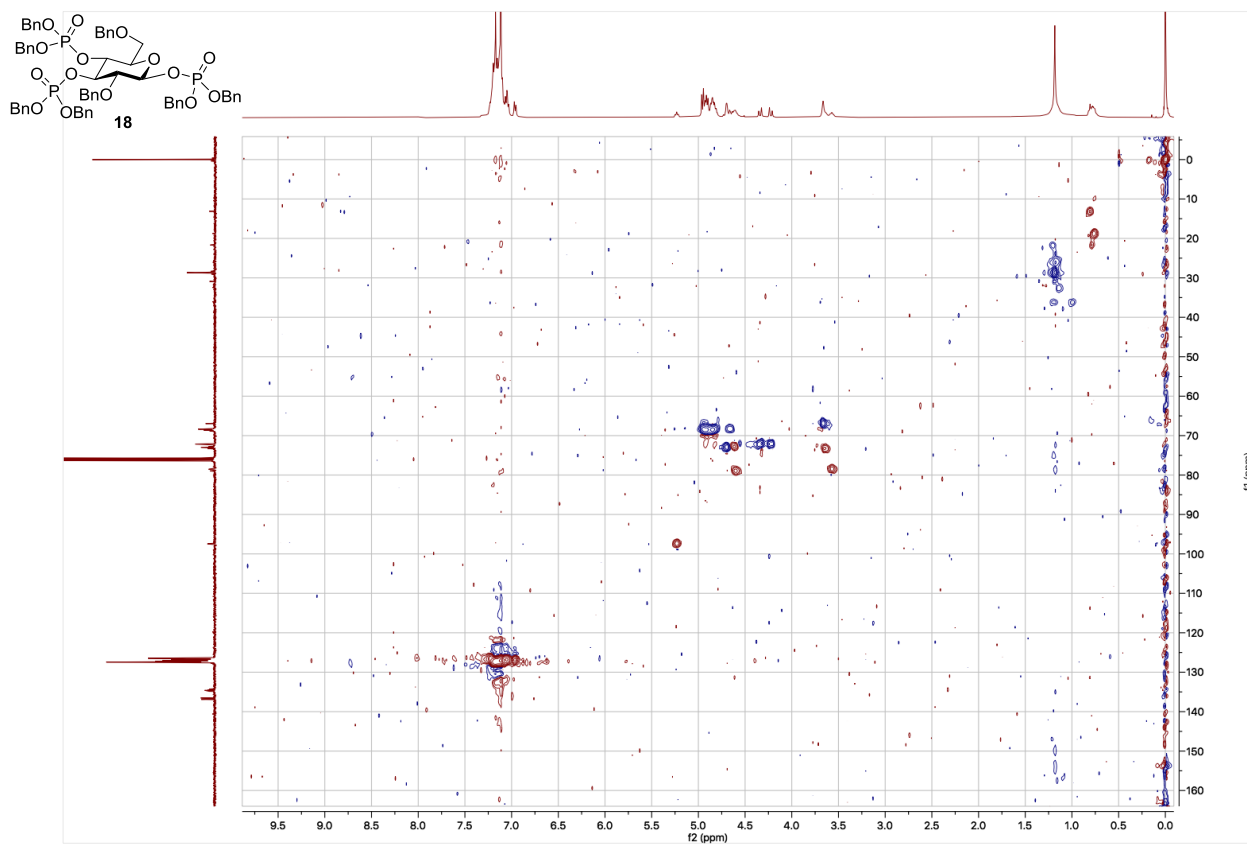
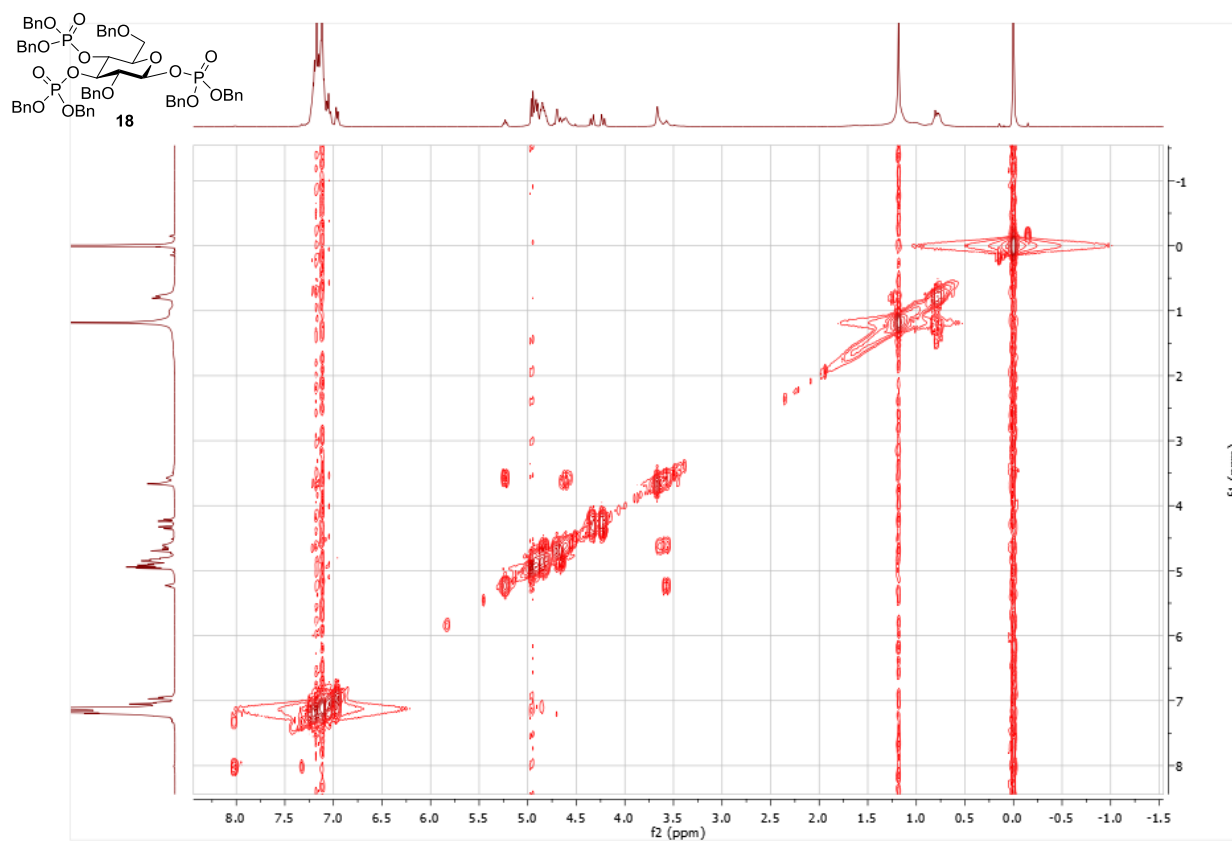


2,6-di-O-benzyl- $\alpha$ -D-glucopyranosyl 1,3,4-tris(dibenzylphosphate) (17)

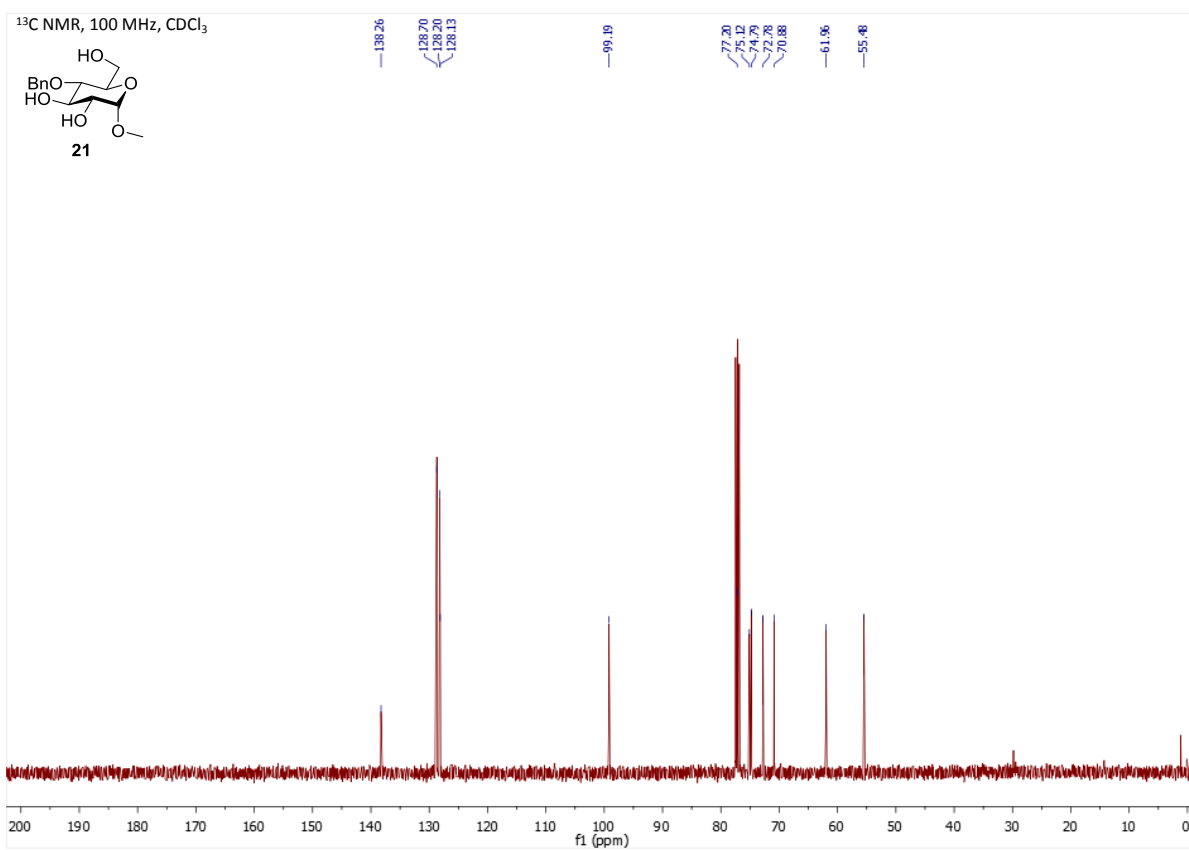
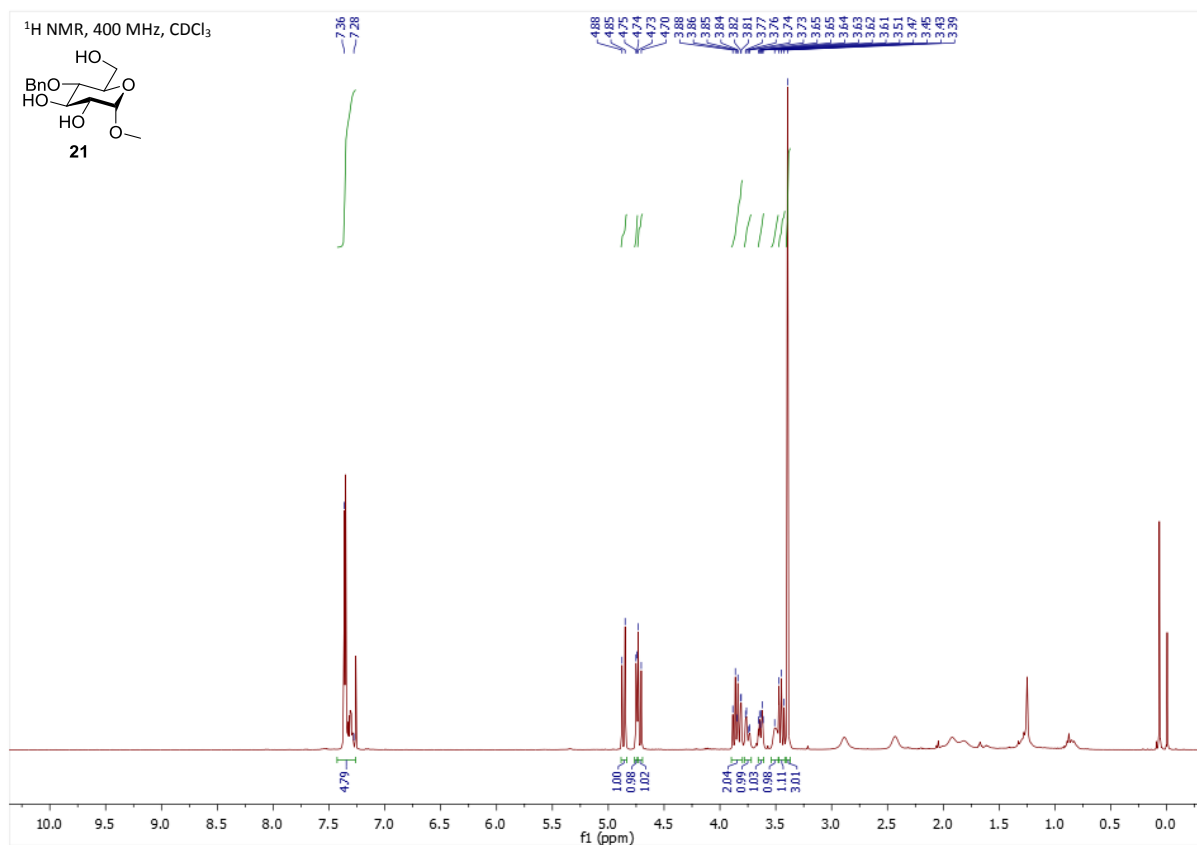


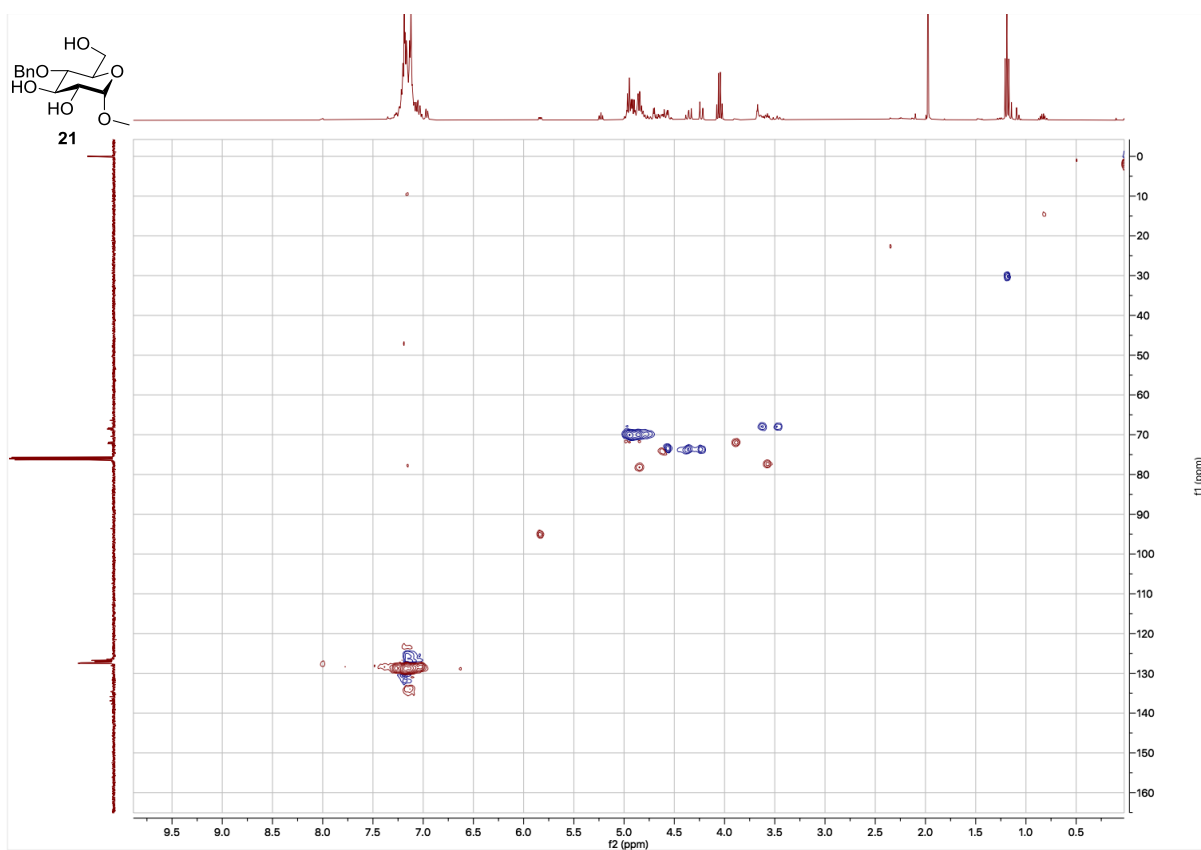
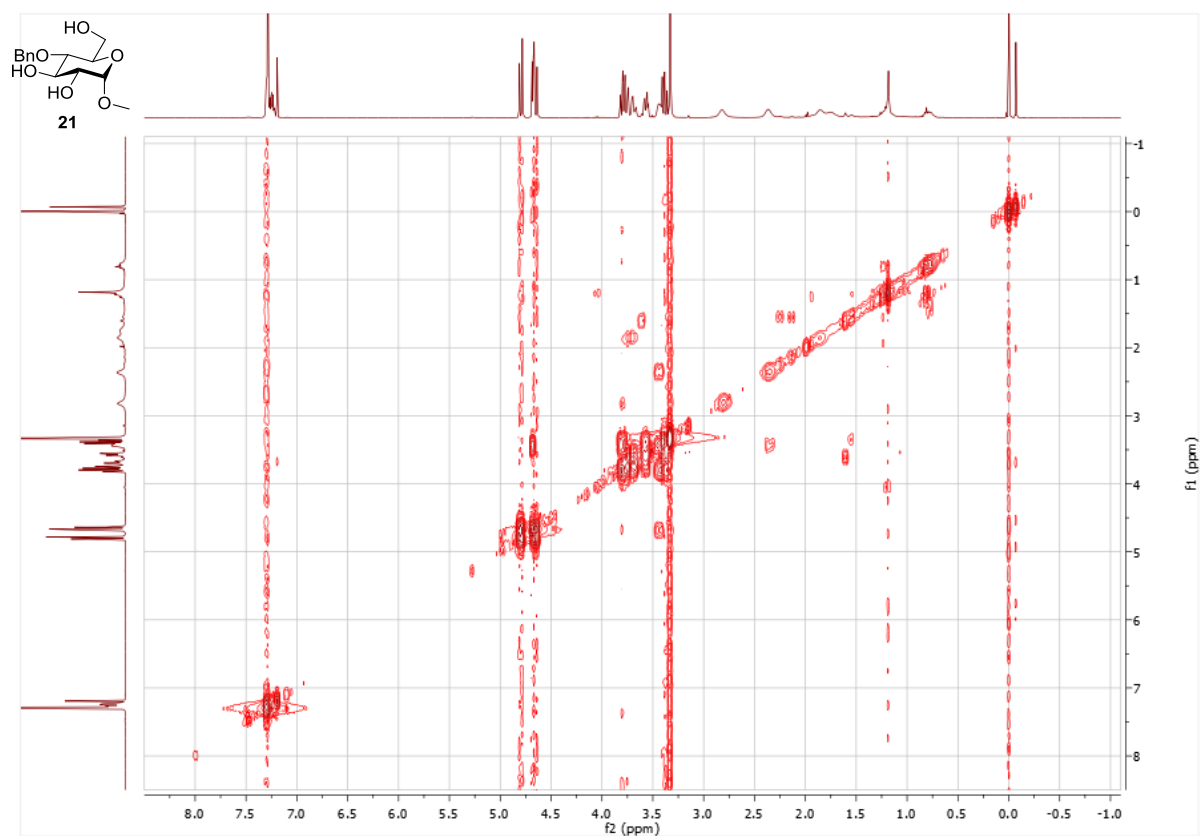
2,6-di-*O*-benzyl- $\beta$ -D-glucopyranosyl 1,3,4-tris(dibenzylphosphate) (18)

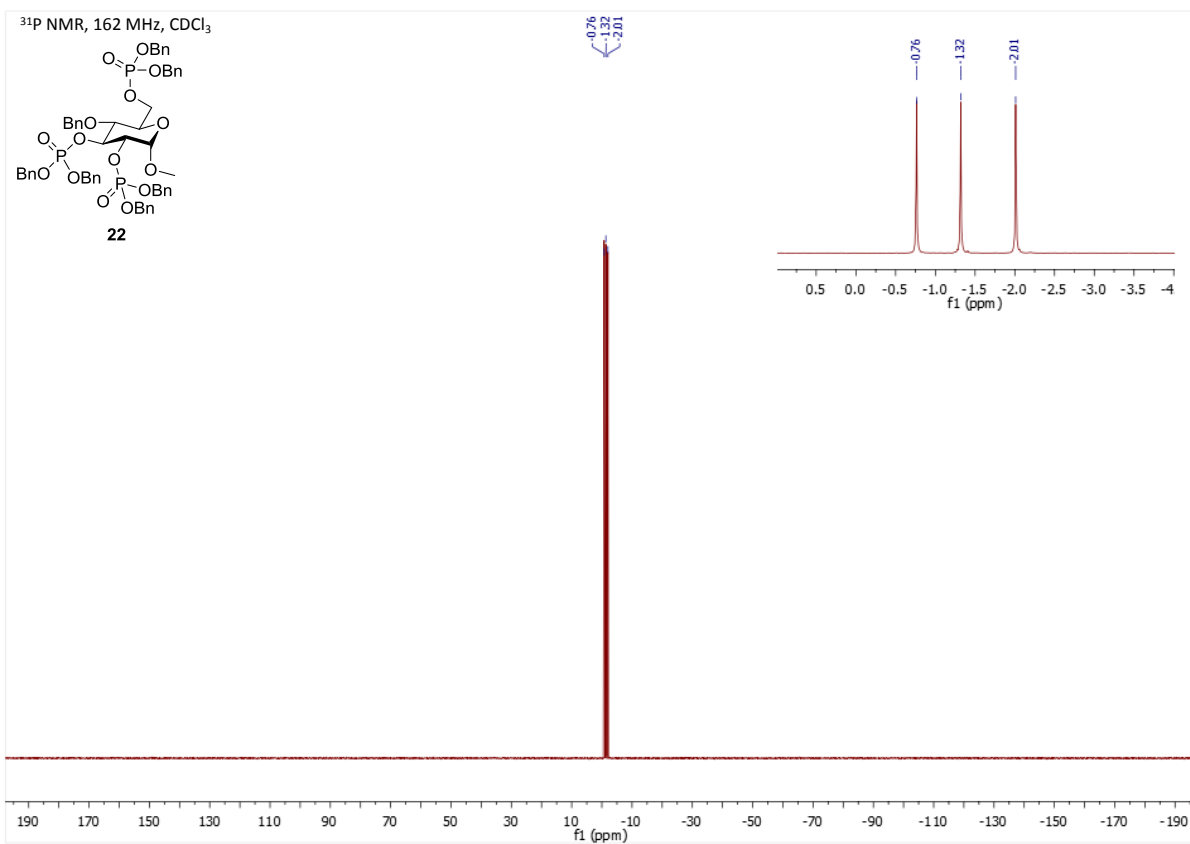
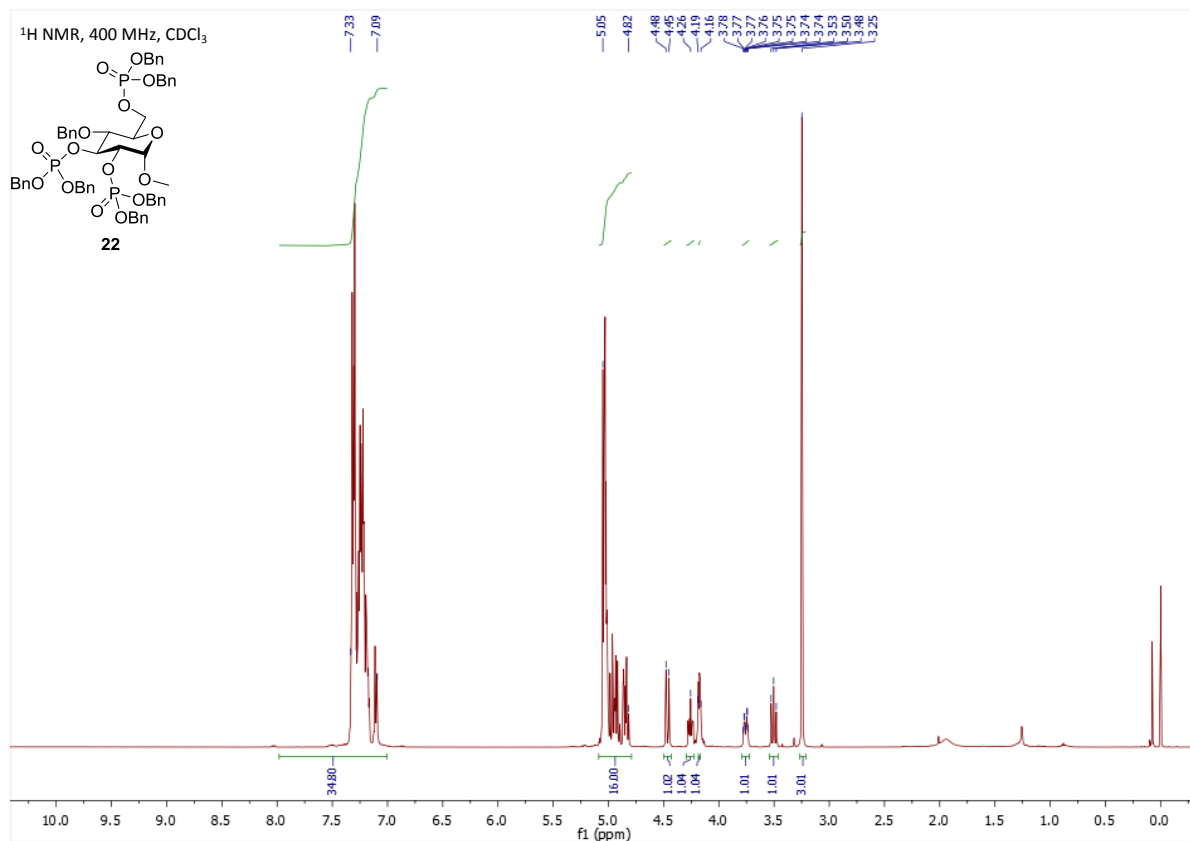


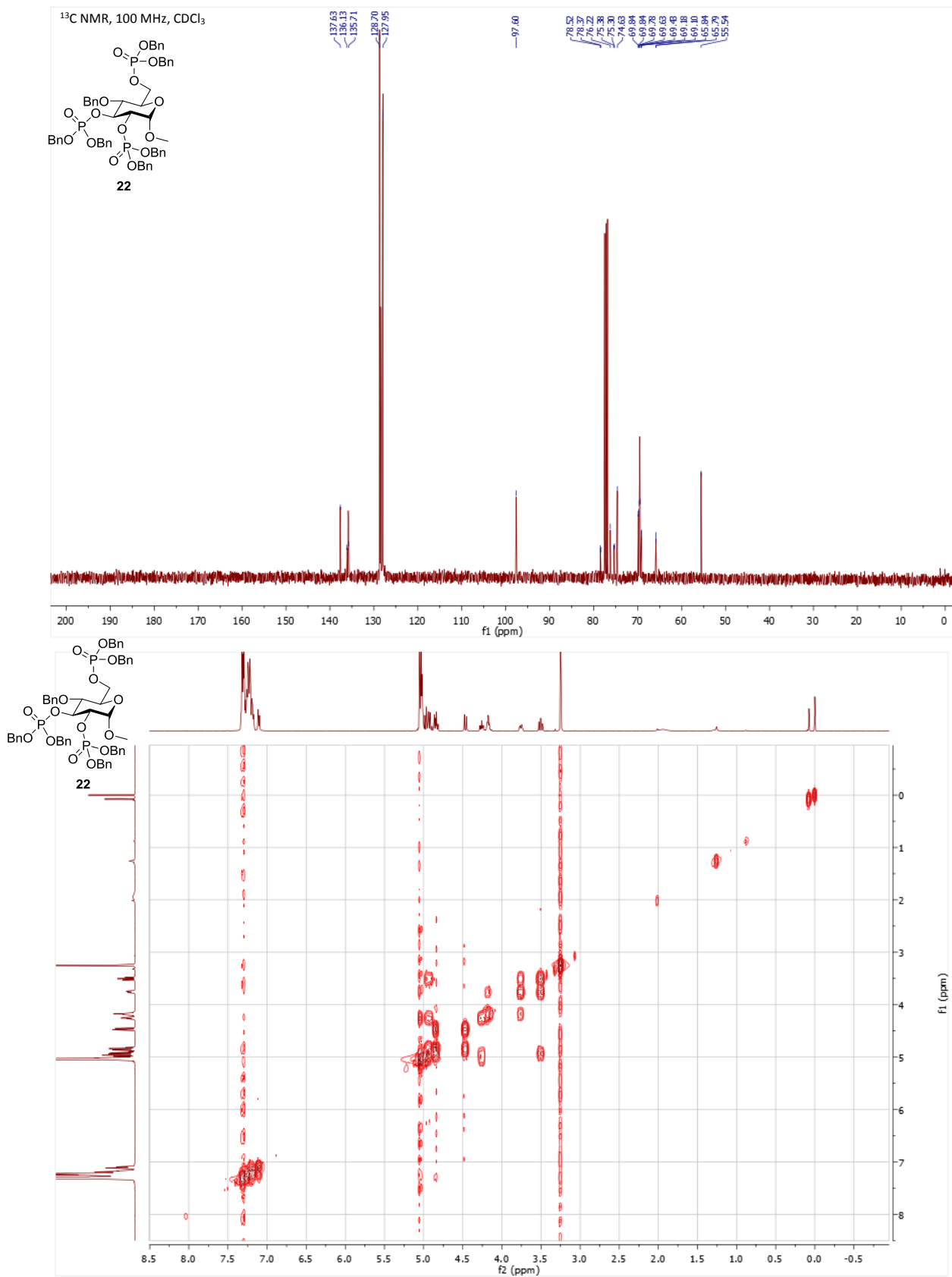


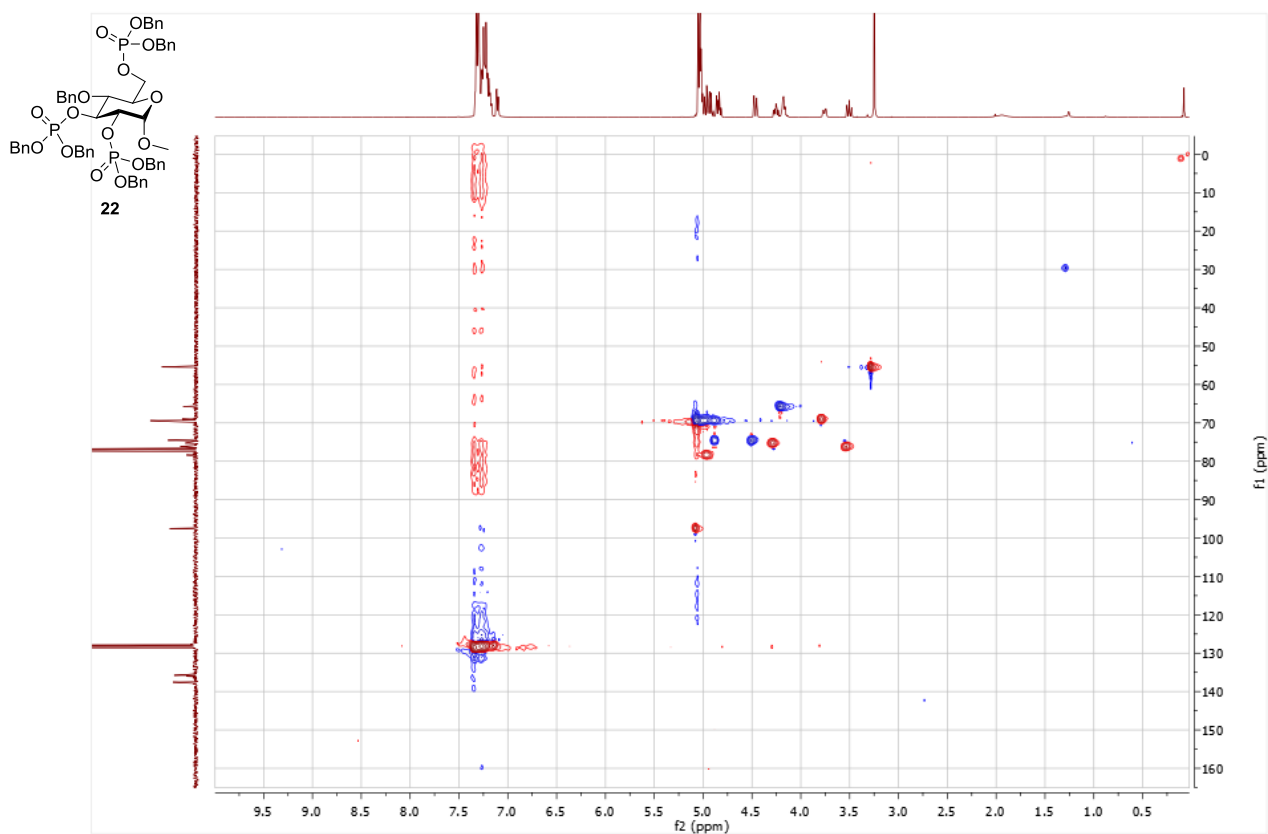


Methyl 4-O-benzyl- $\alpha$ -D-glucopyranoside (21)

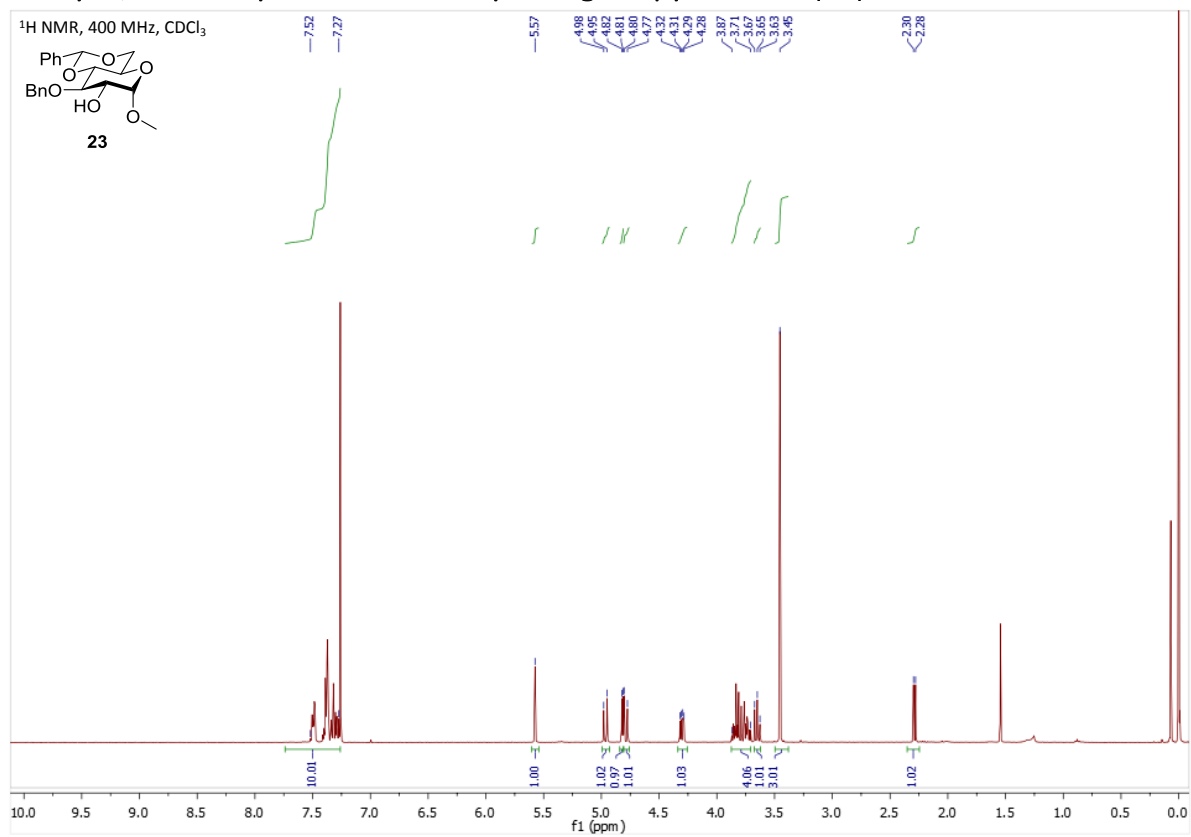


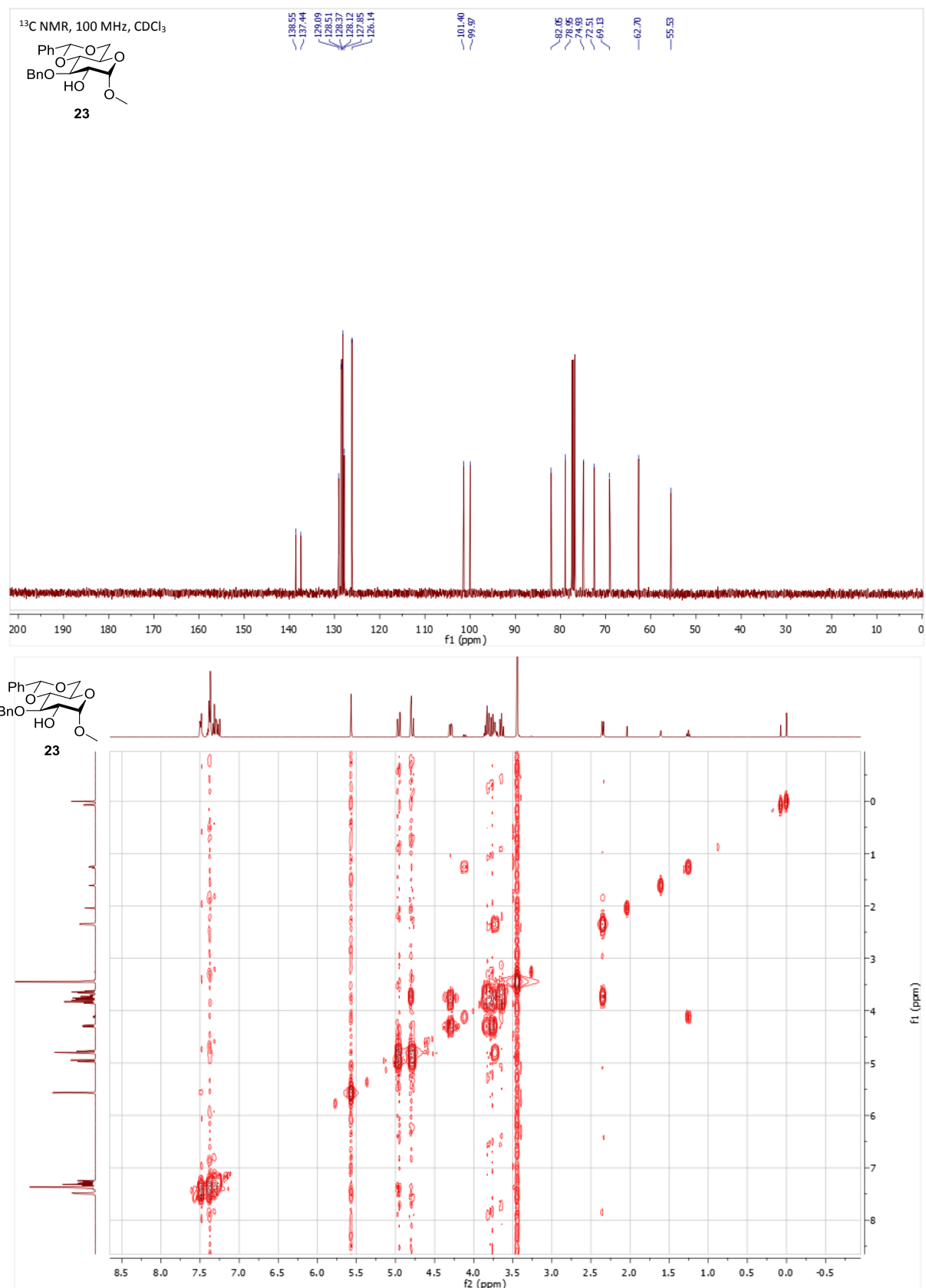
Methyl 4-O-benzyl- $\alpha$ -D-glucopyranoside 2,3,6-tris(dibenzyl phosphate) (22)

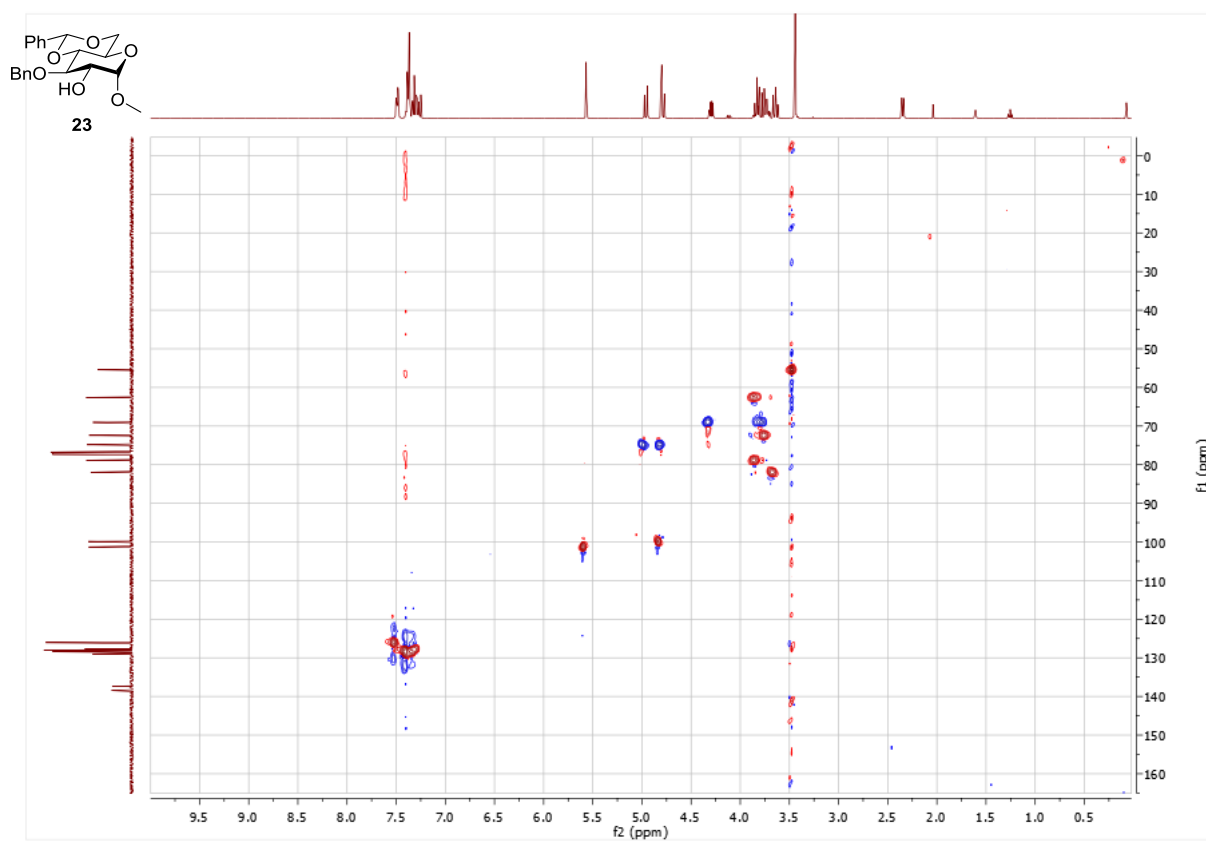




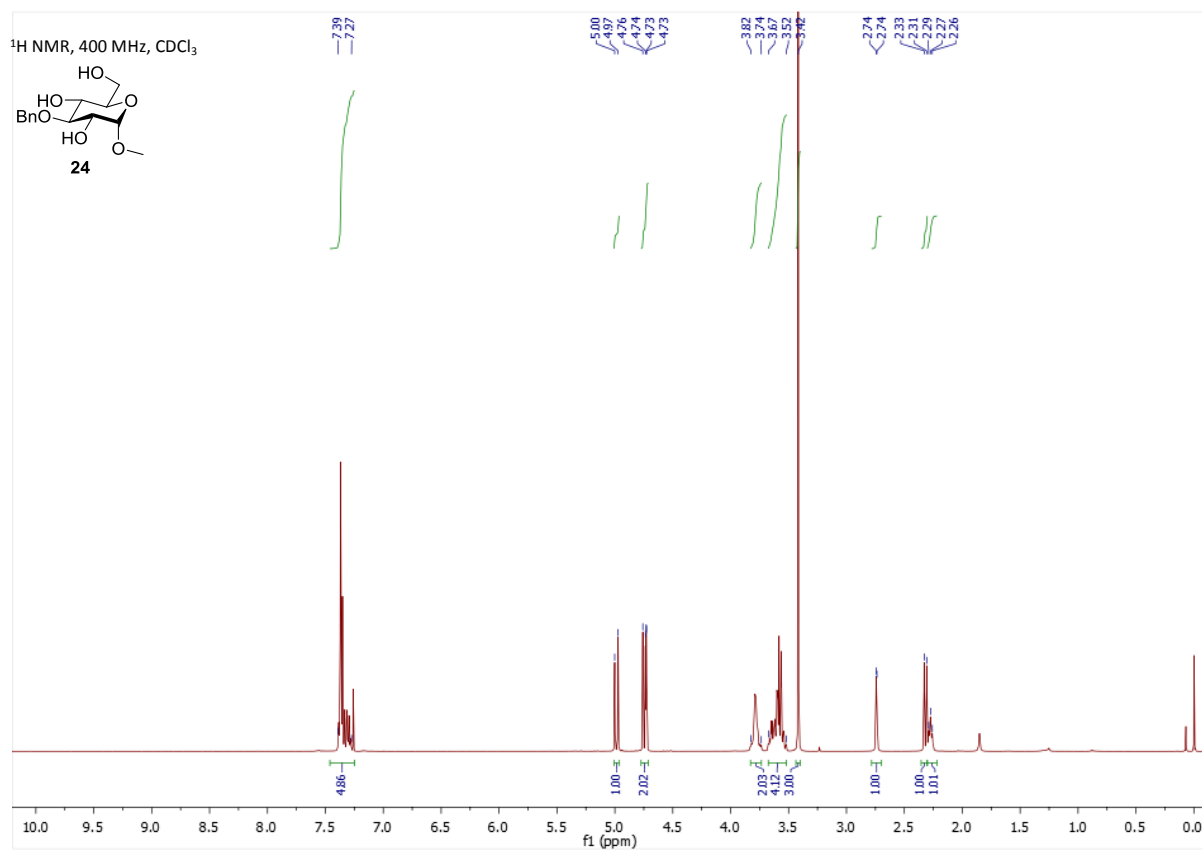
### Methyl 4,6-*O*-benzylidene-3-*O*-benzyl- $\alpha$ -D-glucopyranoside (**23**)

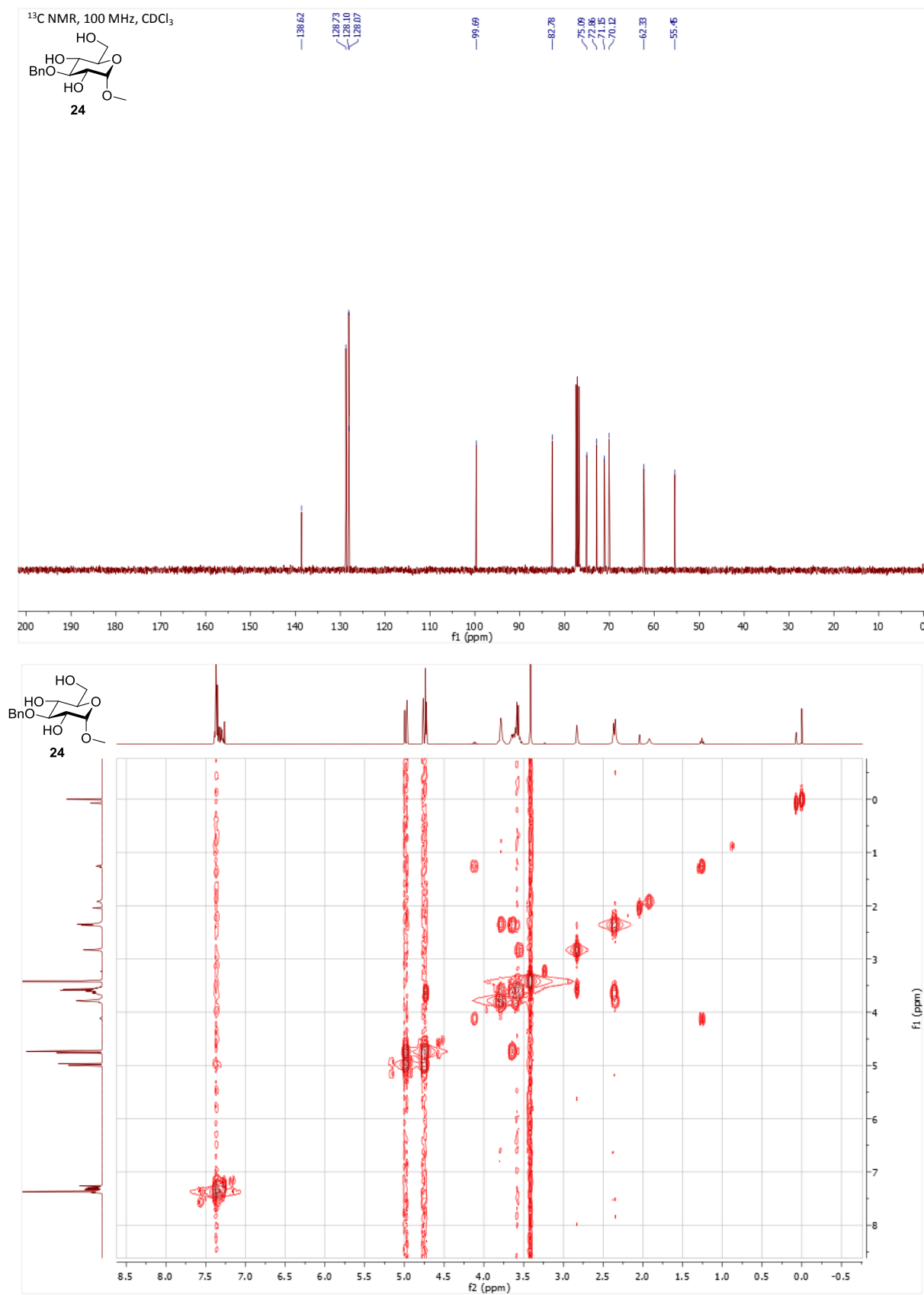




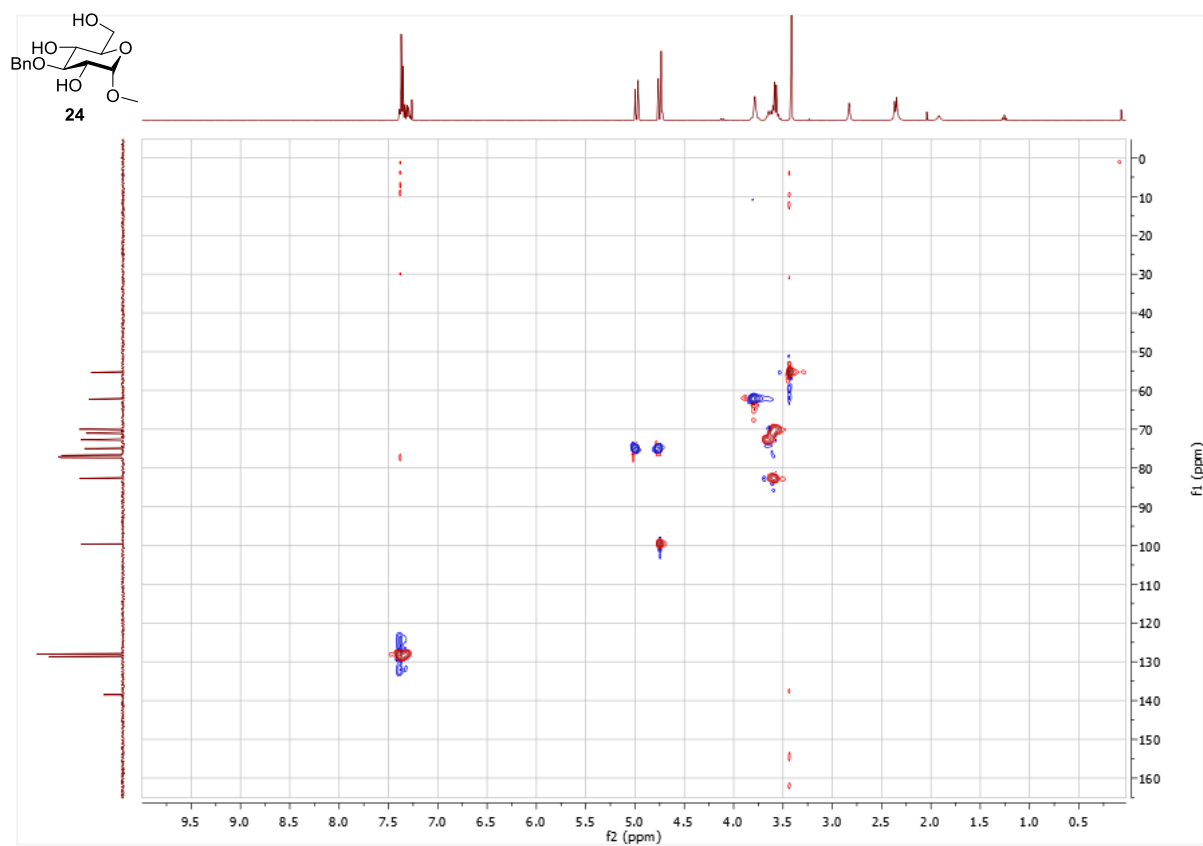


### Methyl 3-O-benzyl- $\alpha$ -D-glucopyranoside (24)









### Methyl 3-O-benzyl- $\alpha$ -D-glucopyranoside 2,4,6-tris(dibenzyl phosphate) (25)

