

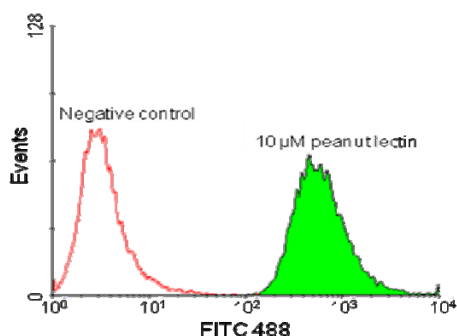
# Bishydrazide Glycoconjugates for Lectin Recognition and Capture of Bacterial Pathogens

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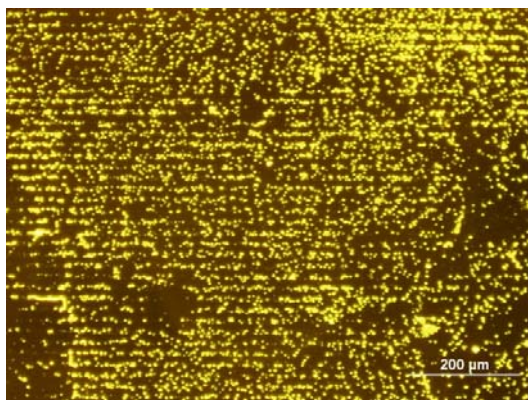
Kularatne, Philip S. Low, and Alexander Wei

## Supporting Information

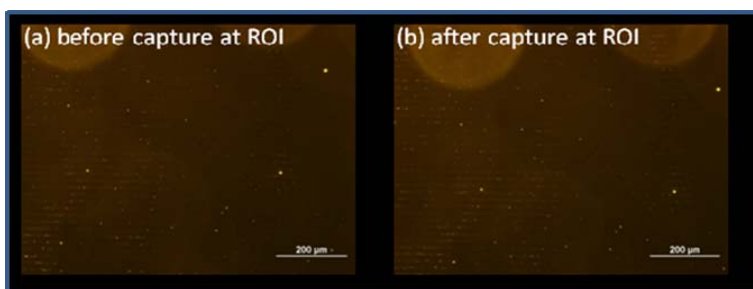
1. Figure S1 -----	S1
2. Figure S2-----	S2
3. Figure S3 -----	S2
4. Figure S4 -----	S2
5. Figure S5 -----	S3
6. Figure S6 -----	S3
7. NMR spectra of hexa(ethylene glycol)-linked diester -----	S4
8. NMR spectra of hexa(ethylene glycol)-linked bishydrazide ( <b>4</b> ) -----	S5
9. NMR spectra of heptanediol-linked diester -----	S6
10. NMR spectra of heptanediol-linked bishydrazide ( <b>5</b> ) -----	S7
11. NMR spectra of lactose–bishydrazide conjugate ( <b>6</b> ) -----	S8
12. NMR spectra of pulmonary trisaccharide–bishydrazide conjugate ( <b>7</b> ) --	S9
13. NMR spectra of heptanediol-linked lactose–bishydrazide conjugate ( <b>9</b> )	S10
14. NMR spectra of pulmonary trisaccharide intermediate ( <b>12</b> ) -----	S11
15. NMR spectra of pulmonary trisaccharide intermediate ( <b>13</b> ) -----	S12
16. NMR spectra of ( $\beta$ -GalNAc(1 $\rightarrow$ 4) $\beta$ -Gal(1 $\rightarrow$ 4) $\beta$ -Glc) ( <b>2</b> ) -----	S13



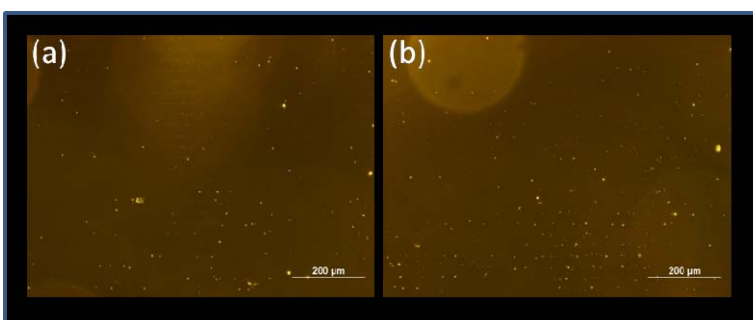
**Figure S1:** Representative data from flow immunocytometry demonstrating peanut lectin binding to microspheres conjugated with lactose–bishydrazide **6** (cf. Figure 3). Positive binding determined by degree of peak overlap between immunolabeled beads and negative control.



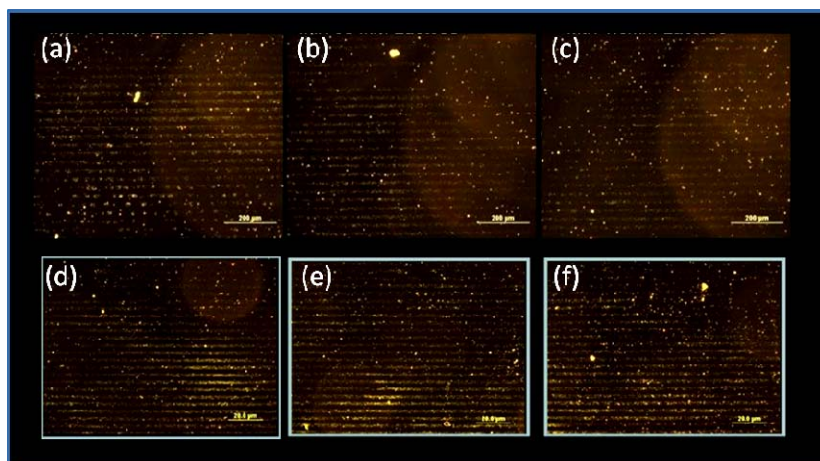
**Figure S2:** Capture of *Pseudomonas* on BSA-coated substrates with photopatterned glycan–bishydrazide–ANB conjugate, imaged by darkfield microscopy. Bacterial capture at  $10^6$  cfu/mL, using pulmonary trisaccharide conjugate **16**.



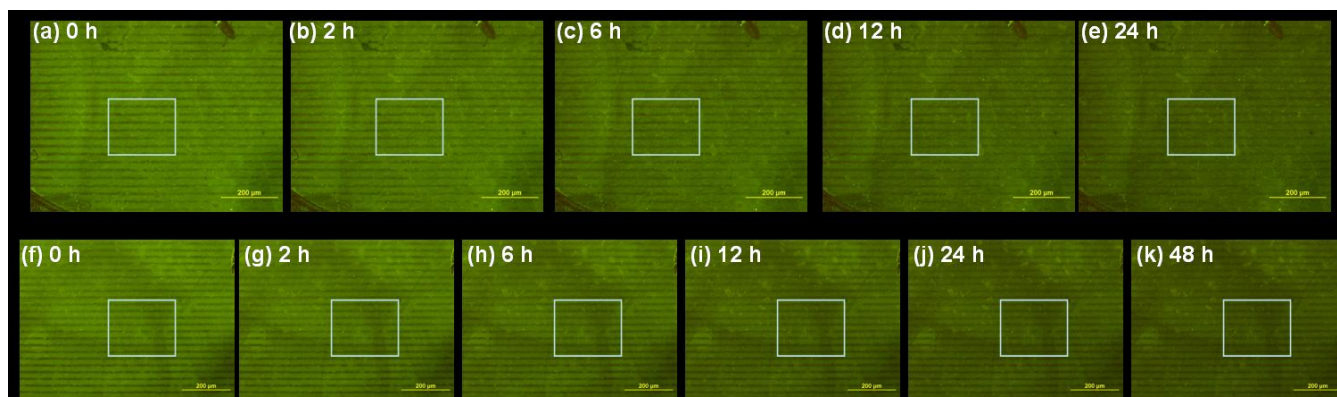
**Figure S3:** Control study showing no *Pseudomonas* capture by substrates patterned with lactose–bishydrazide conjugate. Darkfield images of patterned region of interest (ROI), (a) before and (b) after exposure to *Pseudomonas* for 1 hour at  $10^6$  cfu/mL.



**Figure S4:** Control study showing no capture of UV-irradiated *Pseudomonas* (2 hours,  $\lambda_{\text{max}} = 254$  nm) by substrate patterned with pulmonary trisaccharide–BSA conjugate (**7**–BSA). Darkfield images of patterned ROI, (a) before and (b) after exposure to UV-irradiated *Pseudomonas* ( $10^6$  cfu/mL).



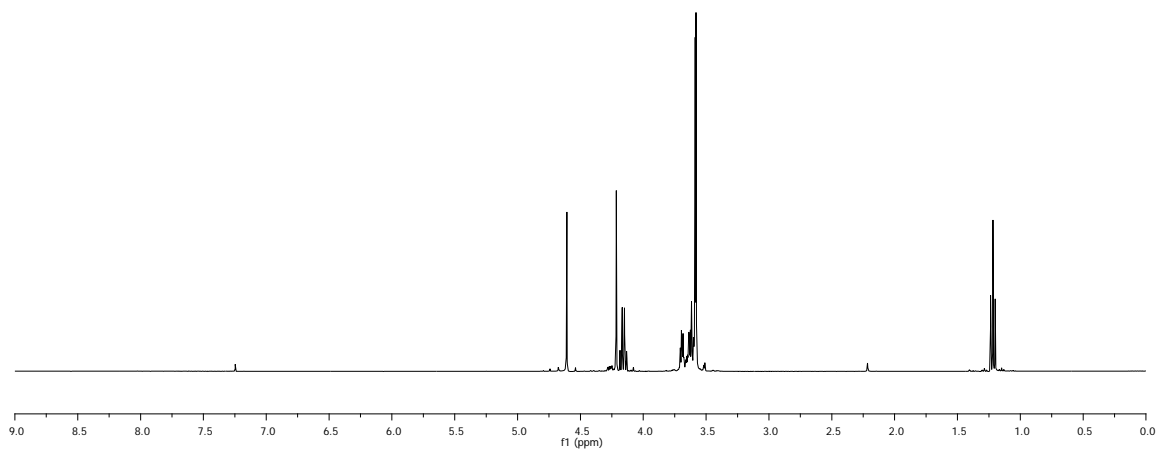
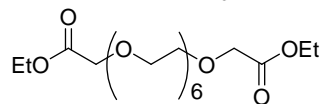
**Figure S5:** Control study showing capture of *Pseudomonas* by substrate patterned with 7-BSA, in the presence of excess lactose (a–c) or GalNAc (d–f). (a) 100 mM lactose; (b) 50 mM lactose; (c) 1 mM lactose; (d) 100 mM GalNAc; (e) 50 mM GalNAc; (f) 1 mM GalNAc.



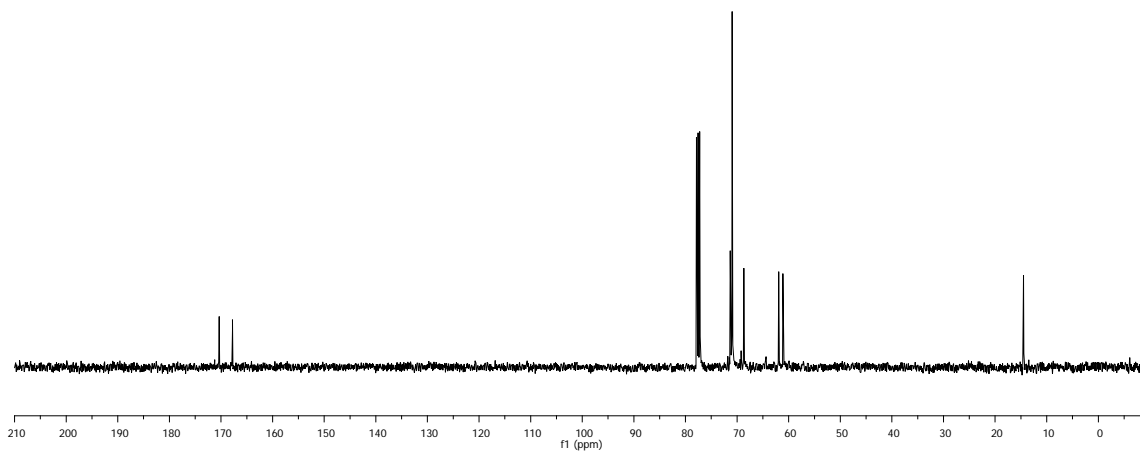
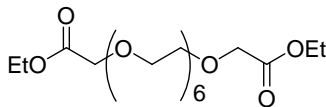
**Figure S6:** Fluorescence microscopy images of the immunocomplexes exposed to different concentration of ME. Top: (a–e) images exposed to 100  $\mu\text{M}$  ME for 2–24 h. Bottom: (f–k) images exposed to 10  $\mu\text{M}$  ME for 2–48h. Square regions (256x256 pixels) in each image were analyzed (by Adobe Photoshop) for changes in luminosities.

# Hexa(ethylene glycol)-linked bis-ethyl(carboxymethyl)ester

<sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>)

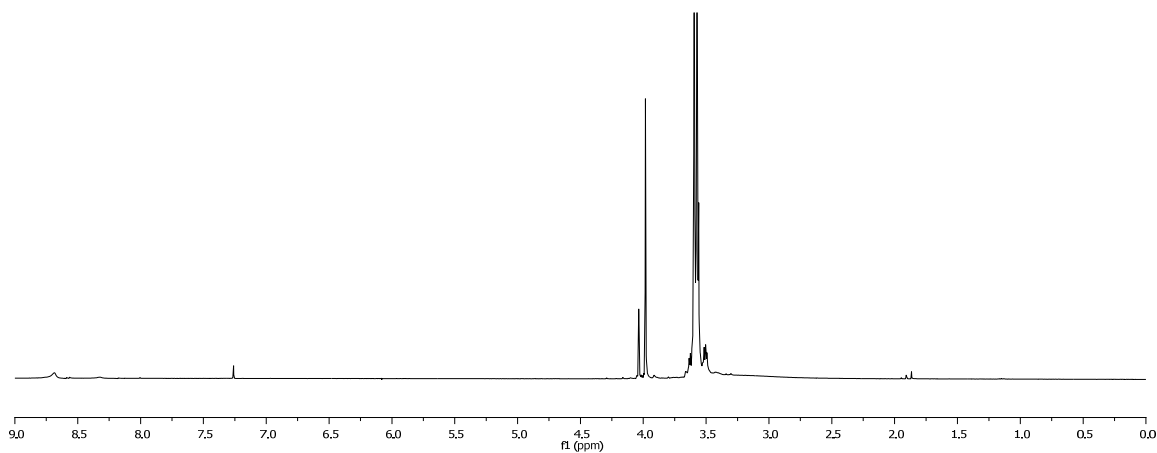
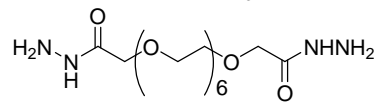


<sup>13</sup>C NMR (100 MHz, CD<sub>3</sub>OD)

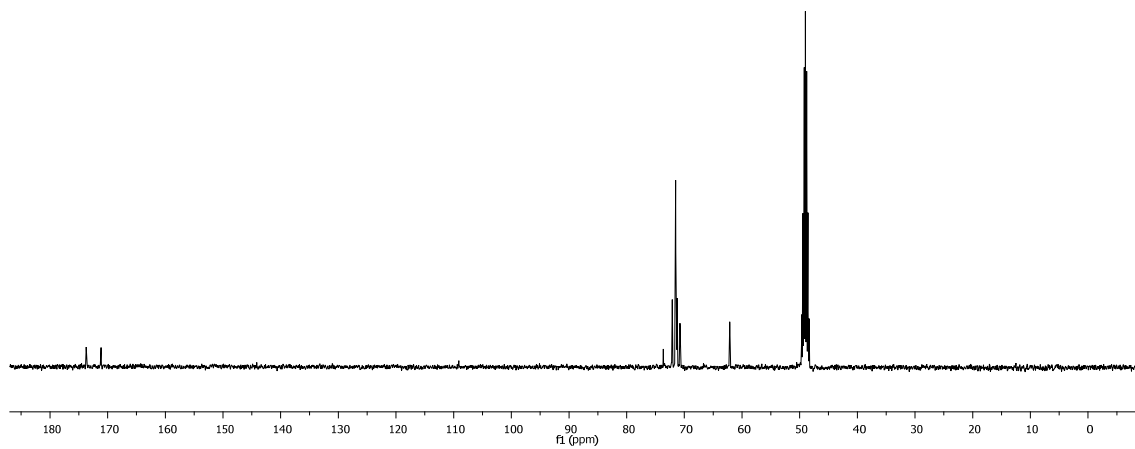
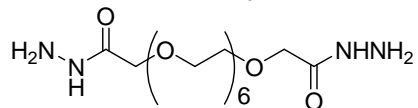


# Hexa(ethylene glycol)-linked bishydrazide (**4**)

<sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>)

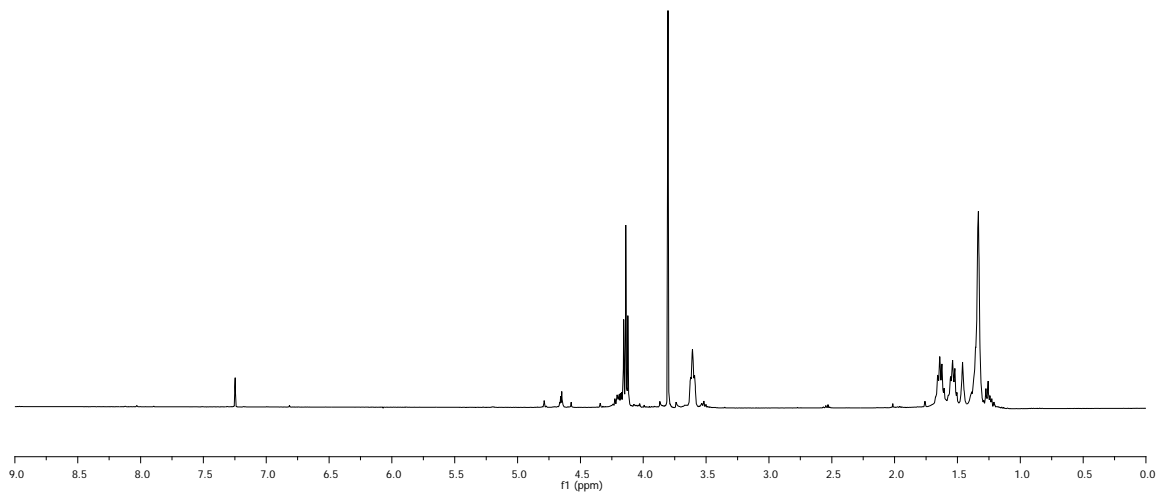
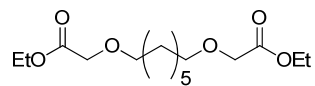


<sup>13</sup>C NMR (100 MHz, CD<sub>3</sub>OD)

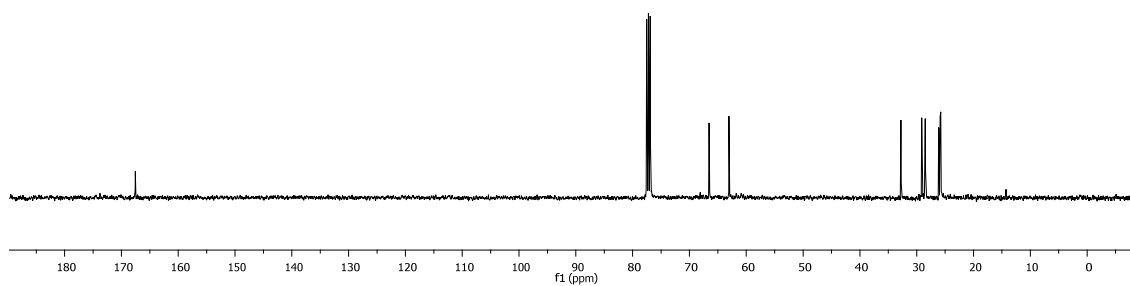
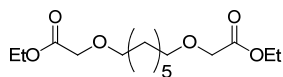


# Heptanediol-linked bis-ethyl(carboxymethyl)ester

<sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>)

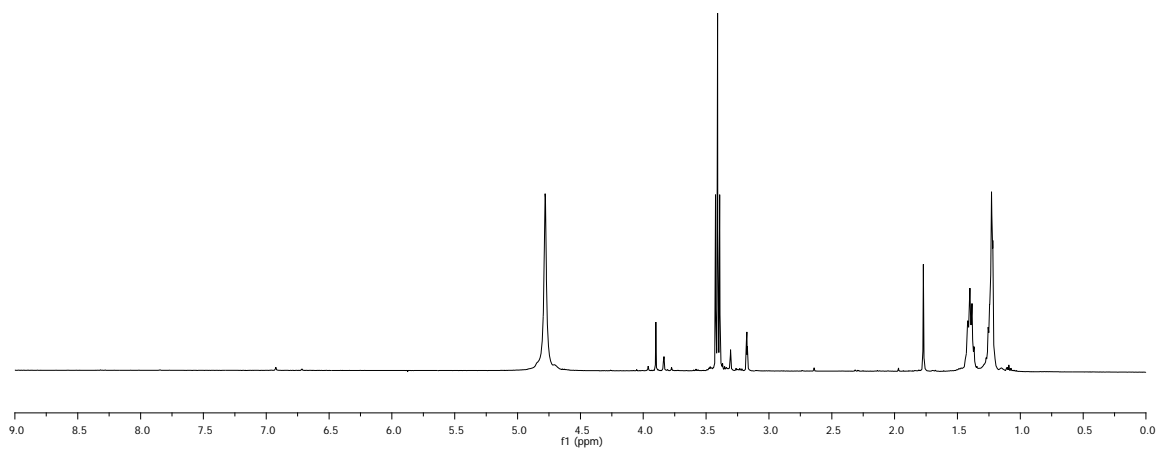
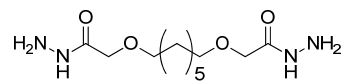


<sup>13</sup>C NMR (100 MHz, CDCl<sub>3</sub>)

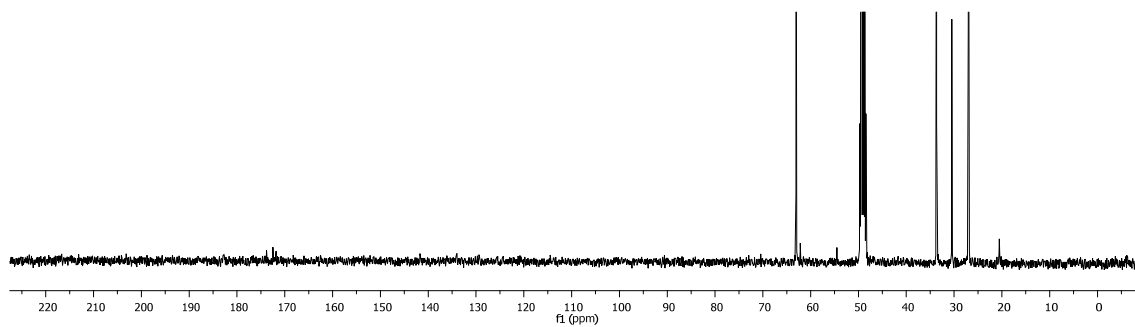
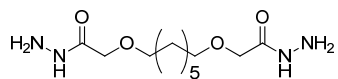


## Heptanediol-linked bishydrazide (**7**)

<sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>)

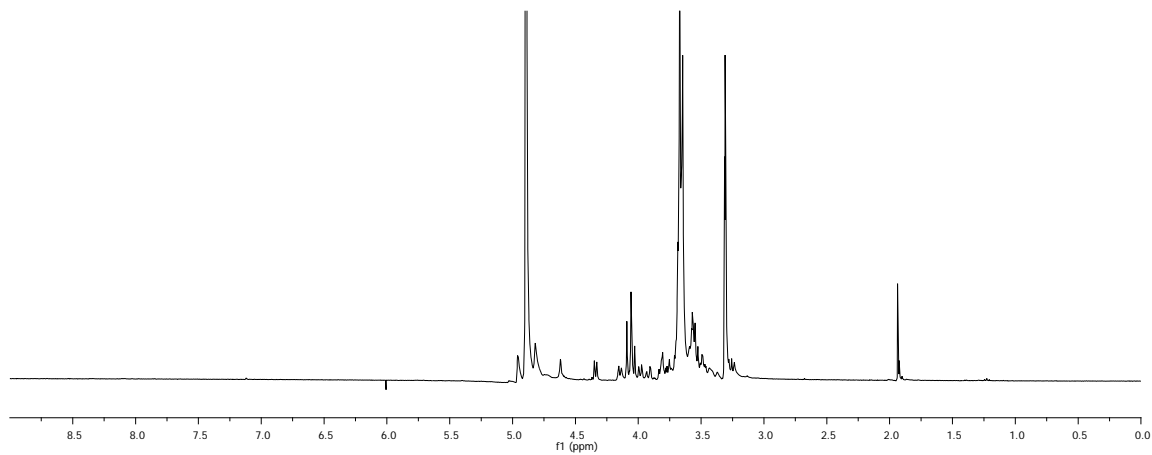
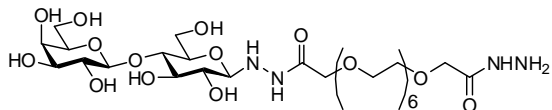


<sup>13</sup>C NMR (100 MHz, CDCl<sub>3</sub>)

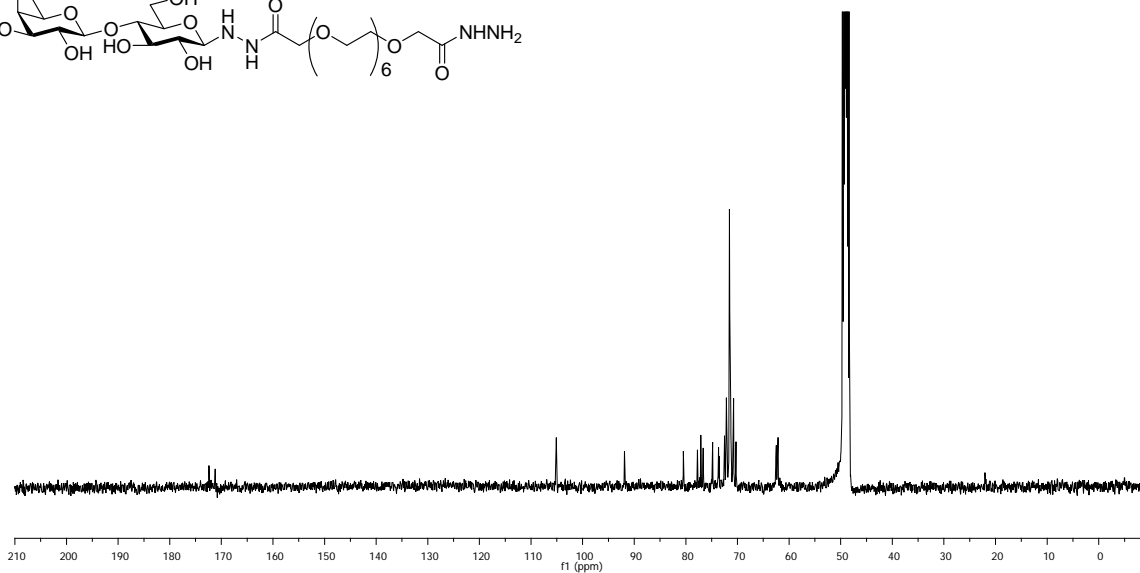
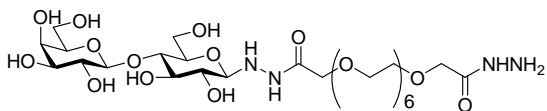


# Lactose–bishydrazide conjugate (6)

<sup>1</sup>H NMR (400 MHz, CD<sub>3</sub>OD)



<sup>13</sup>C NMR (100 MHz, CD<sub>3</sub>OD)

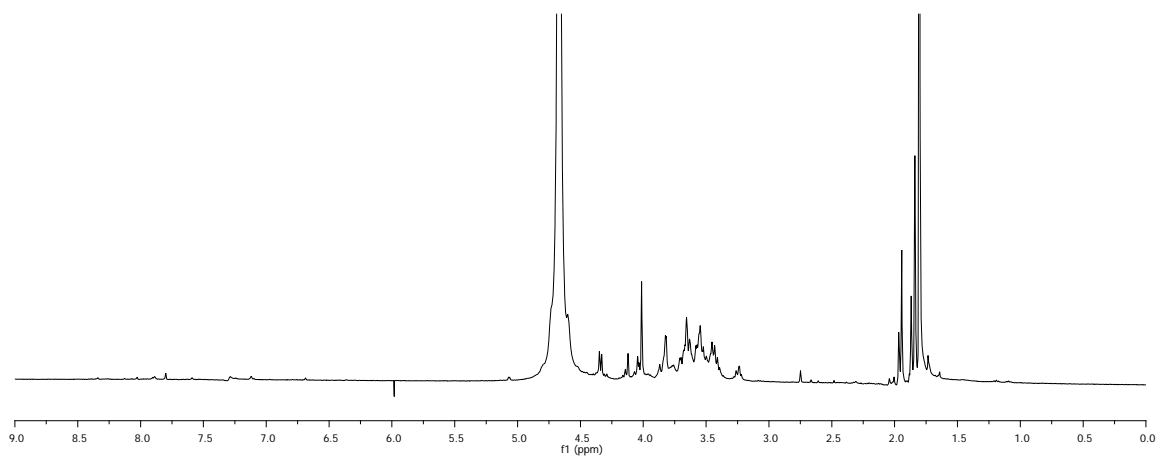
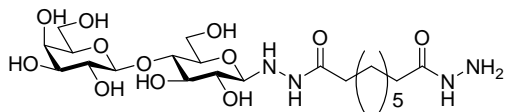




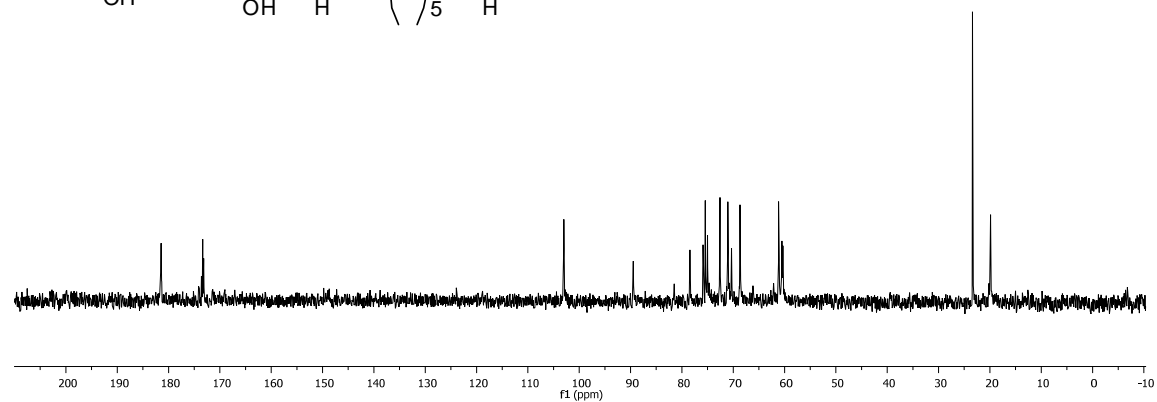
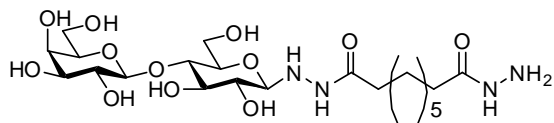


# Heptanediol-linked lactose-bishydrazide conjugate (9)

<sup>1</sup>H NMR (400 MHz, D<sub>2</sub>O)

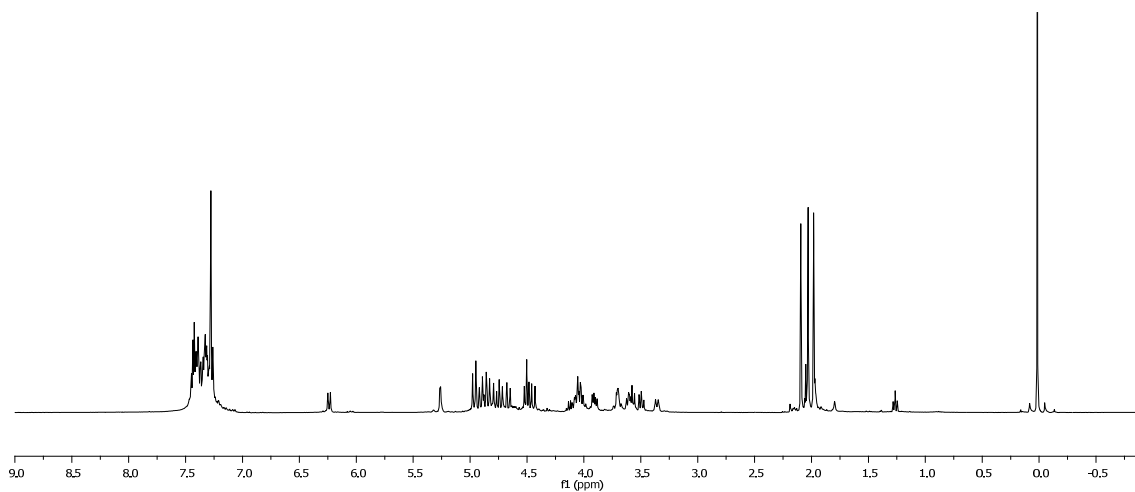
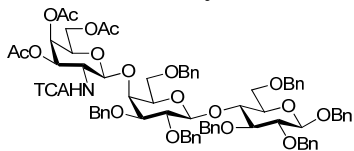


<sup>13</sup>C NMR (100 MHz, D<sub>2</sub>O)

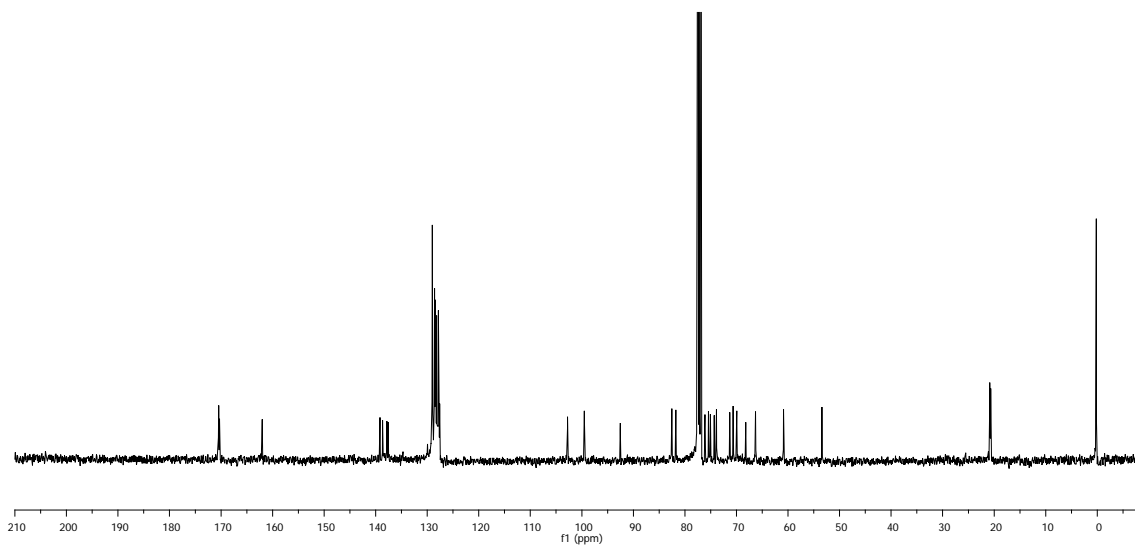
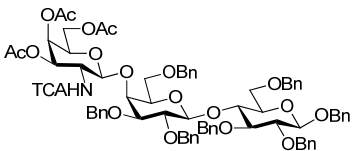


Pulmonary trisaccharide ( $\beta$ -GalNAc(1 $\rightarrow$ 4)  $\beta$ -Gal(1 $\rightarrow$ 4) $\beta$ -Glc), trichloroacetamide (**12**)

$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )

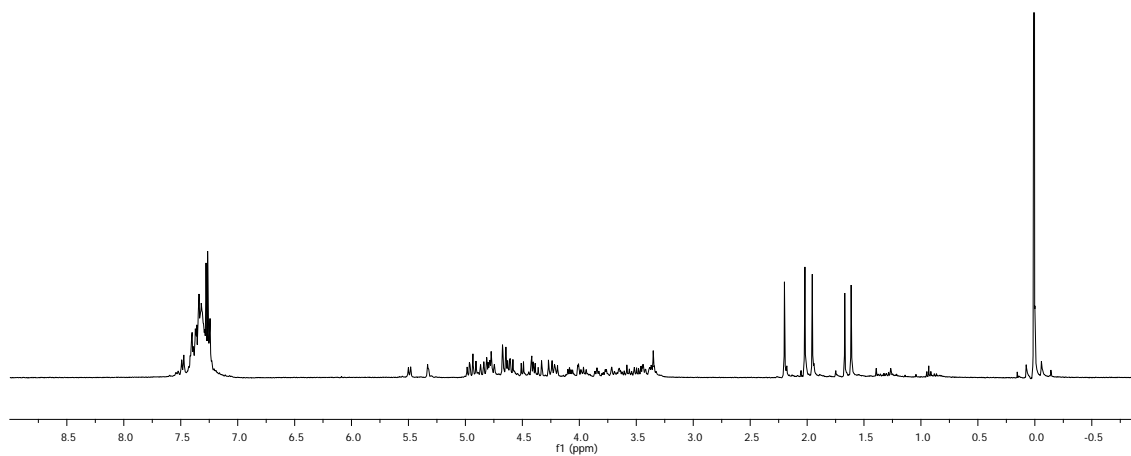
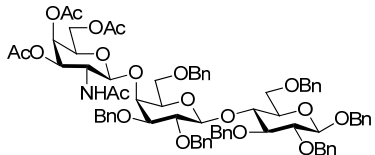


$^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ )

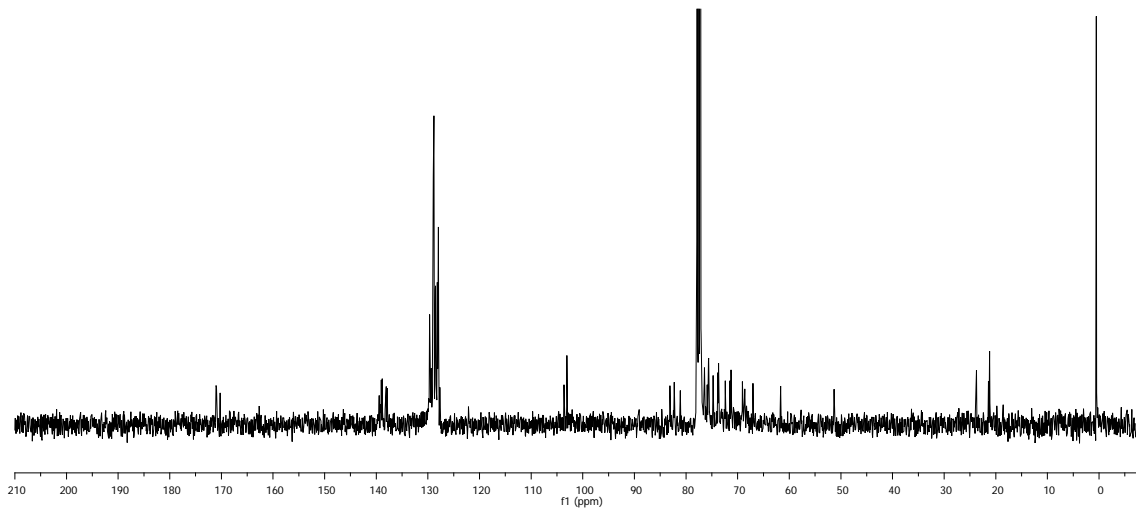
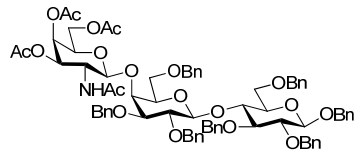


Pulmonary trisaccharide ( $\beta$ -GalNAc(1 $\rightarrow$ 4)  $\beta$ -Gal(1 $\rightarrow$ 4) $\beta$ -Glc), protected derivative (**13**)

$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )

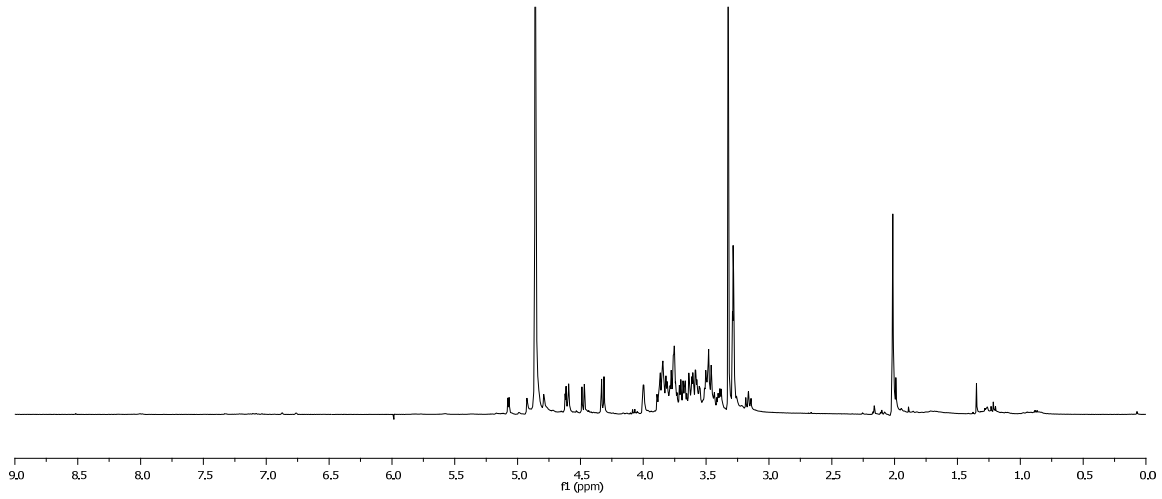
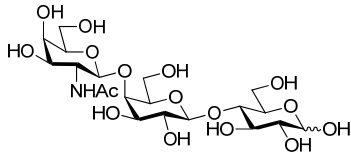


$^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ )



Pulmonary trisaccharide ( $\beta$ -GalNAc(1 $\rightarrow$ 4)  $\beta$ -Gal(1 $\rightarrow$ 4) $\beta$ -Glc) (2)

$^1\text{H}$  NMR (400 MHz,  $\text{CD}_3\text{OD}$ )



$^{13}\text{C}$  NMR (100 MHz,  $\text{CD}_3\text{OD}$ )

