

**Supplementary information for:**

**Development of a 1,2-difluorofucoside activity-based probe for profiling GH29 fucosidases**

Yvette. M.C.A. Luijkx <sup>a,b</sup>, Seino Jongkees <sup>a</sup>, Karin Strijbis <sup>b</sup>, Tom Wennekes <sup>a\*</sup>

<sup>a</sup> Department Chemical Biology and Drug Discovery, Utrecht Institute for Pharmaceutical Sciences and Bijvoet Center for Biomolecular Research, Utrecht University, Utrecht, The Netherlands.

<sup>b</sup> Department Biomolecular Health Sciences, Division Infectious diseases and Immunology, Faculty of Veterinary Medicine, Utrecht University, Utrecht, The Netherlands.

\*For correspondence: t.wennekes@uu.nl

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**Figure S1**

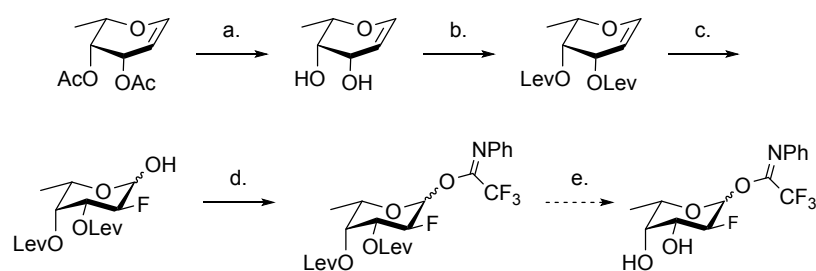


Figure S1. Unsuccessful attempt to synthesize the *N*-phenyl trifluoroacetimidate on our 2-fluoro-6-azido- $\alpha$ -L-fucosyl based ABP. *Reagents and conditions*: (a) NaOMe, MeOH: quant. yield; (b) levulinic acid, EDC, DMAP, dry DCM 76%; (c) Selectfluor®, acetone/H<sub>2</sub>O (7:1) 49%; (d) K<sub>2</sub>CO<sub>3</sub>, ClC(=NPh)CF<sub>3</sub>, acetone 68% (e) hydrazine acetate, DCM/MeOH (1:1) no detectable traces.

**Figure S2**

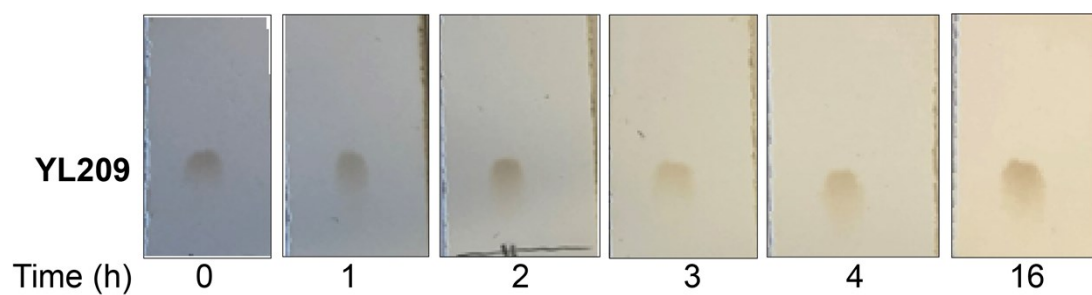
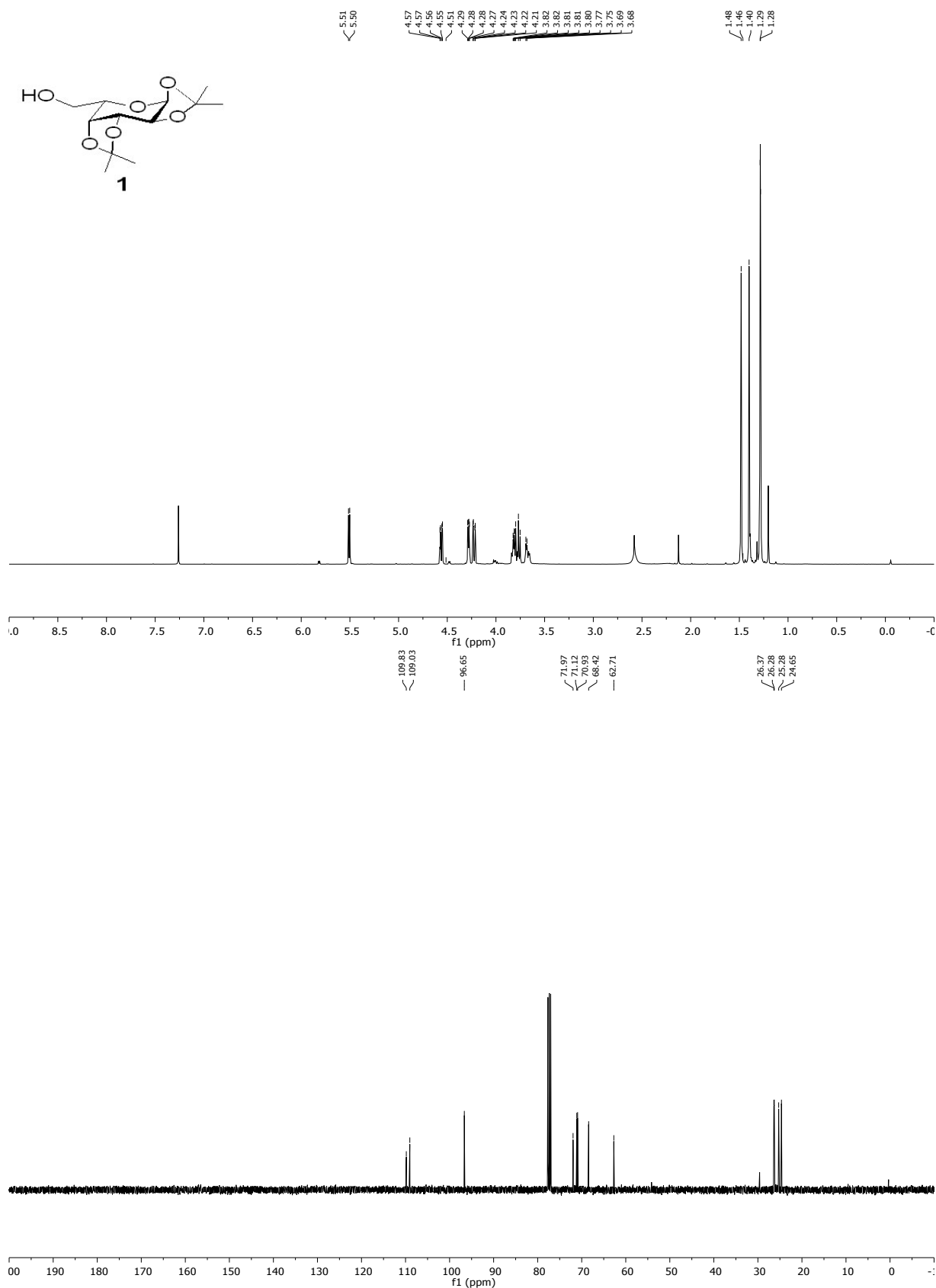


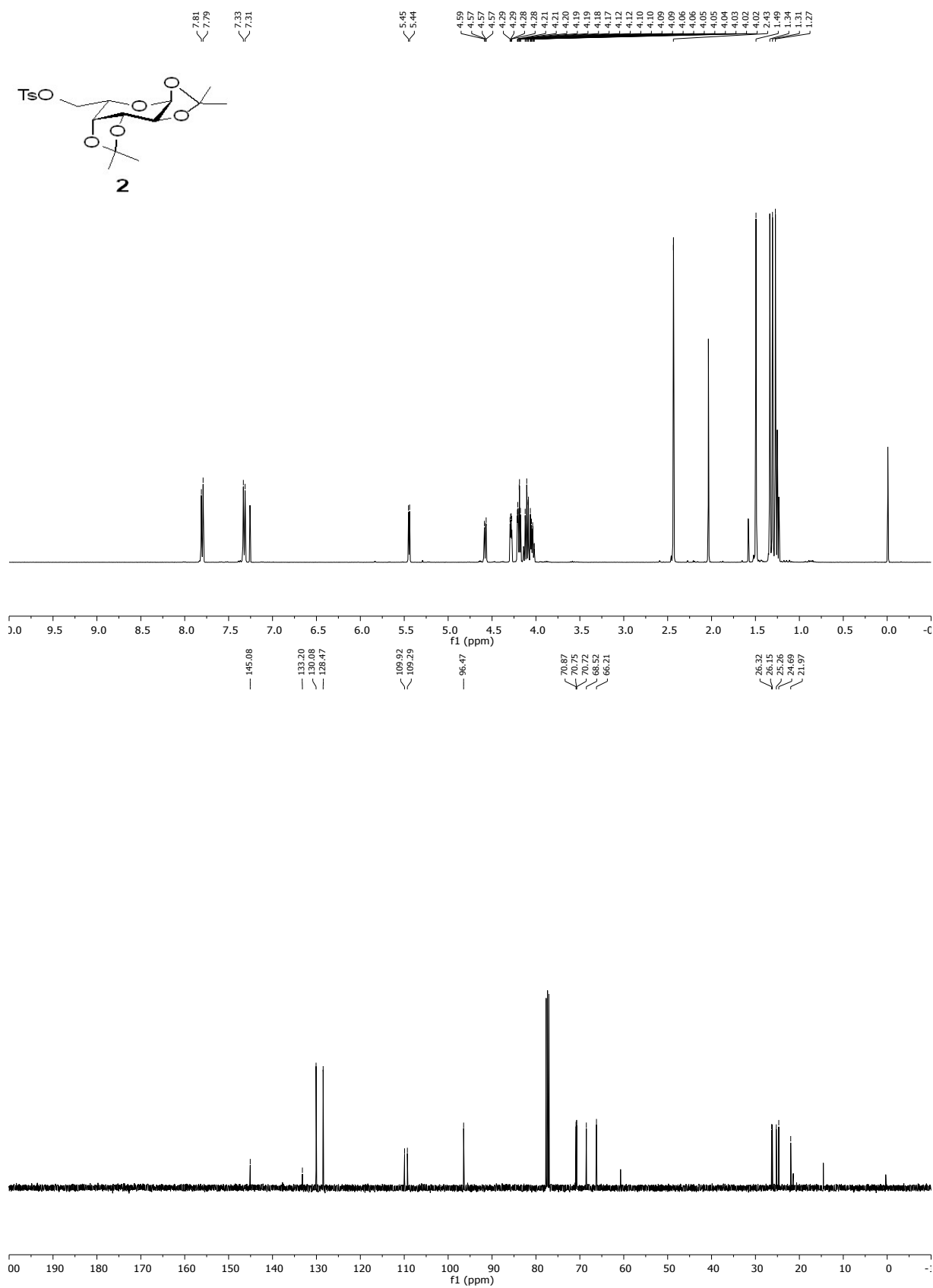
Figure S2. TLC stability study of **YL209** in PBS at room temperature. Followed over time, run in Hexane : diethyl ether (3:1), visualized with 5% sulfuric acid in ethanol followed by heating.

# Copies of <sup>1</sup>H- and <sup>13</sup>C-NMR spectra for synthesized compounds

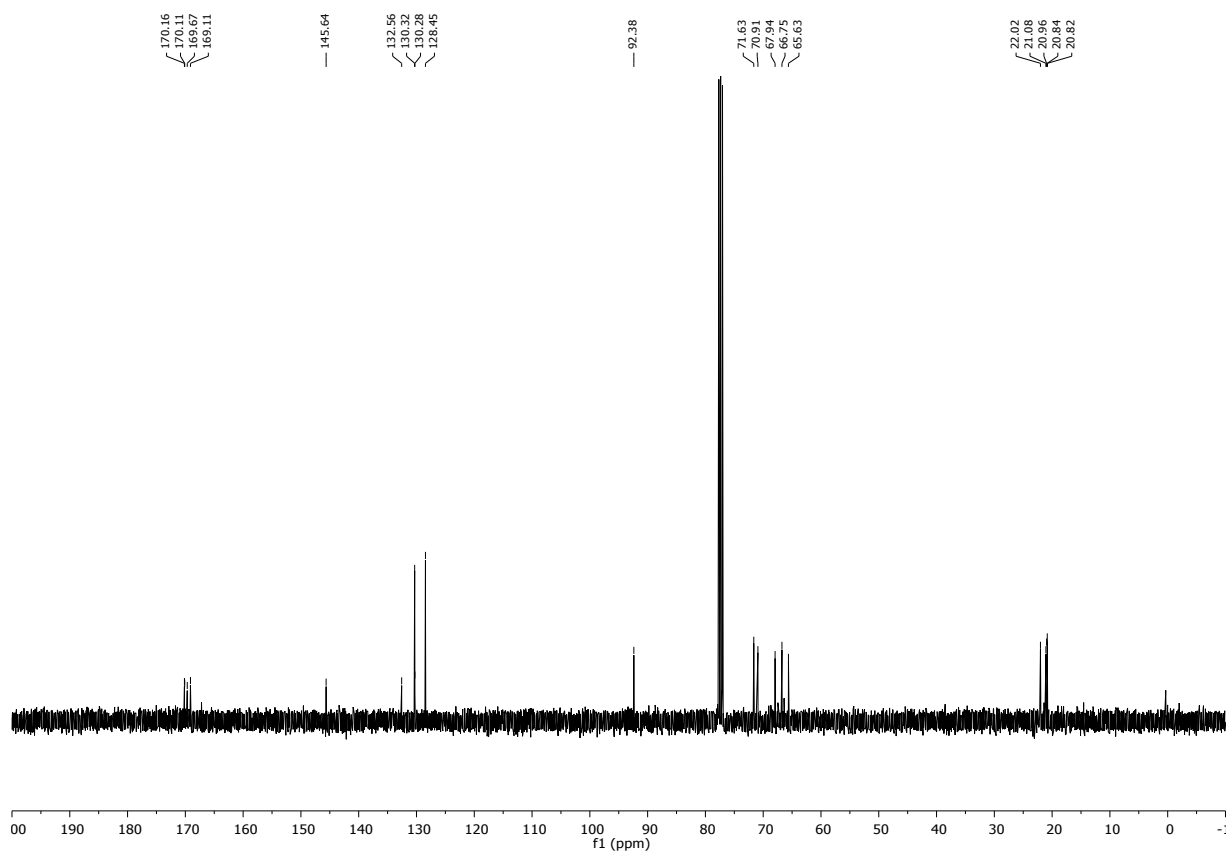
## 1,2,3,4-di-O-isopropylidene- $\alpha$ -L-galactopyranose



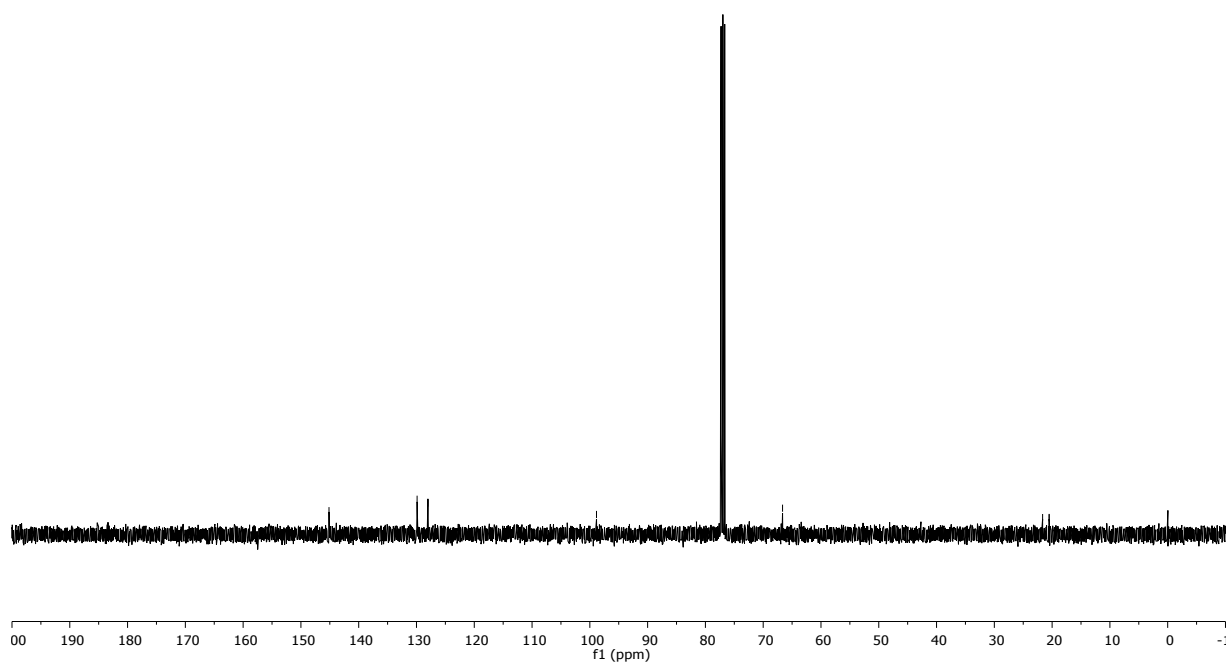
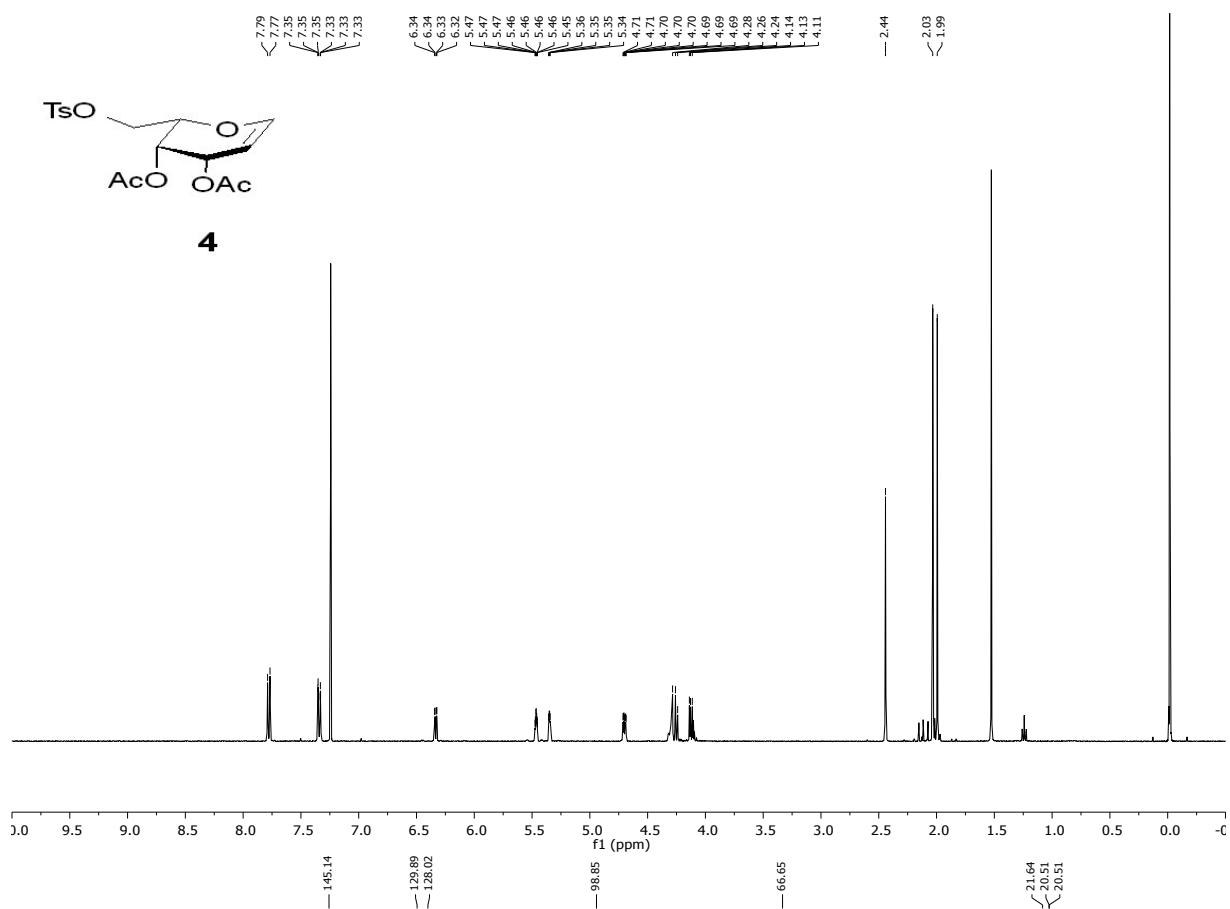
# 1,2,3,4-di-O-isopropylidene-6-O-(*p*-toluenesulfonyl)- $\alpha$ -L-galactopyranose



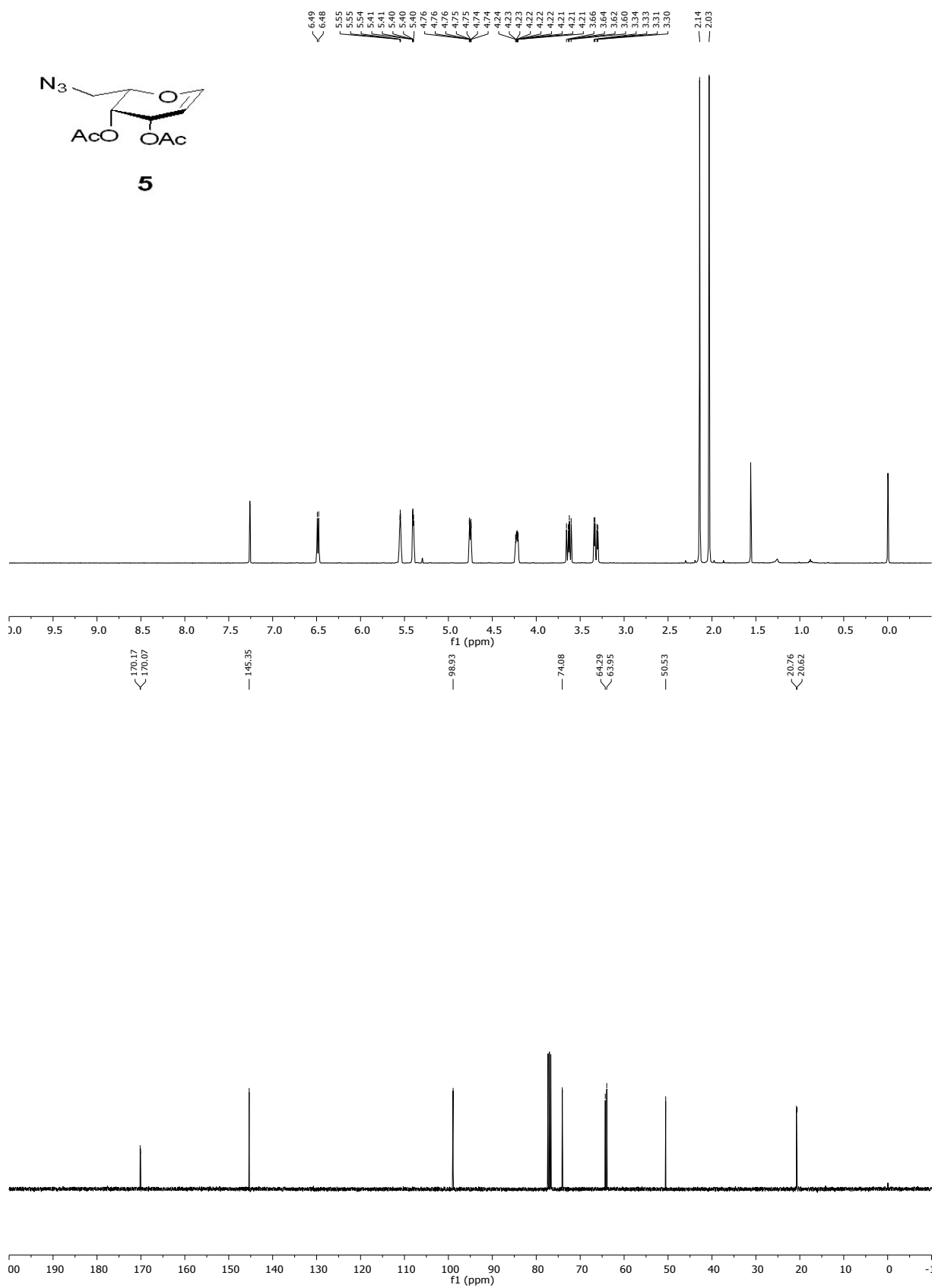
# 1,2,3,4-Tetra-O-acetyl-6-O-(p-toluenesulfonyl)- $\alpha$ -L-galactopyranose



### 3,4-Di-O-acetyl-6-O-(p-toluenesulfonyl)-L-galactal



### 3,4-Di-O-acetyl-6-azido- $\alpha$ -L-galactal







# 6-azido-2,6-dideoxy-2-fluoro- $\alpha$ -L-galactopyranosyl fluoride

