SUPPORTING INFORMATION

***N*-Acetyl Allolactosamine [Gal-(β1→6)-GlcNAc]:** Both spectra were concordant with reference literature. [a] ^{1}H-NMR (700 MHz, D_2O): 1.94 (s, 3H, Ac), 4.33 (d, 1H, H1', $J_{1',2'}$ = 7,91Hz), 4.61 (d, 0.56H, H1$_\beta$, $J_{1\beta,2}$ = 8,47Hz) 5.09 (d, 0.66H, H1$_\alpha$, $J_{1\alpha,2}$ = 3.58 Hz). ^{13}C-NMR: 21.81 (Me of Ac, α), 22.08 (Me of Ac, β), 53.95 (C-2α), 56.52 (C-2β), 60.94 (C-6'), 68.49 (C-4'), 68.57 (C-6β), 68.59 (C-6α), 69.62 (C-3α), 69.77 (C-5α), 70.52 (C-4β), 70.56 (C-4α), 70.56 (C-2'), 72.58 (C-3β) , 72.61 (C-3'), 74,85 (C-5β), 75.11 (C-5'), 90.81 (C-1α), 94.93 (C-1β), 103.26 (C-1'β), 103.27 (C-1'α),174.45 (C=O of Ac α), 174.70 (C=O of Ac β).

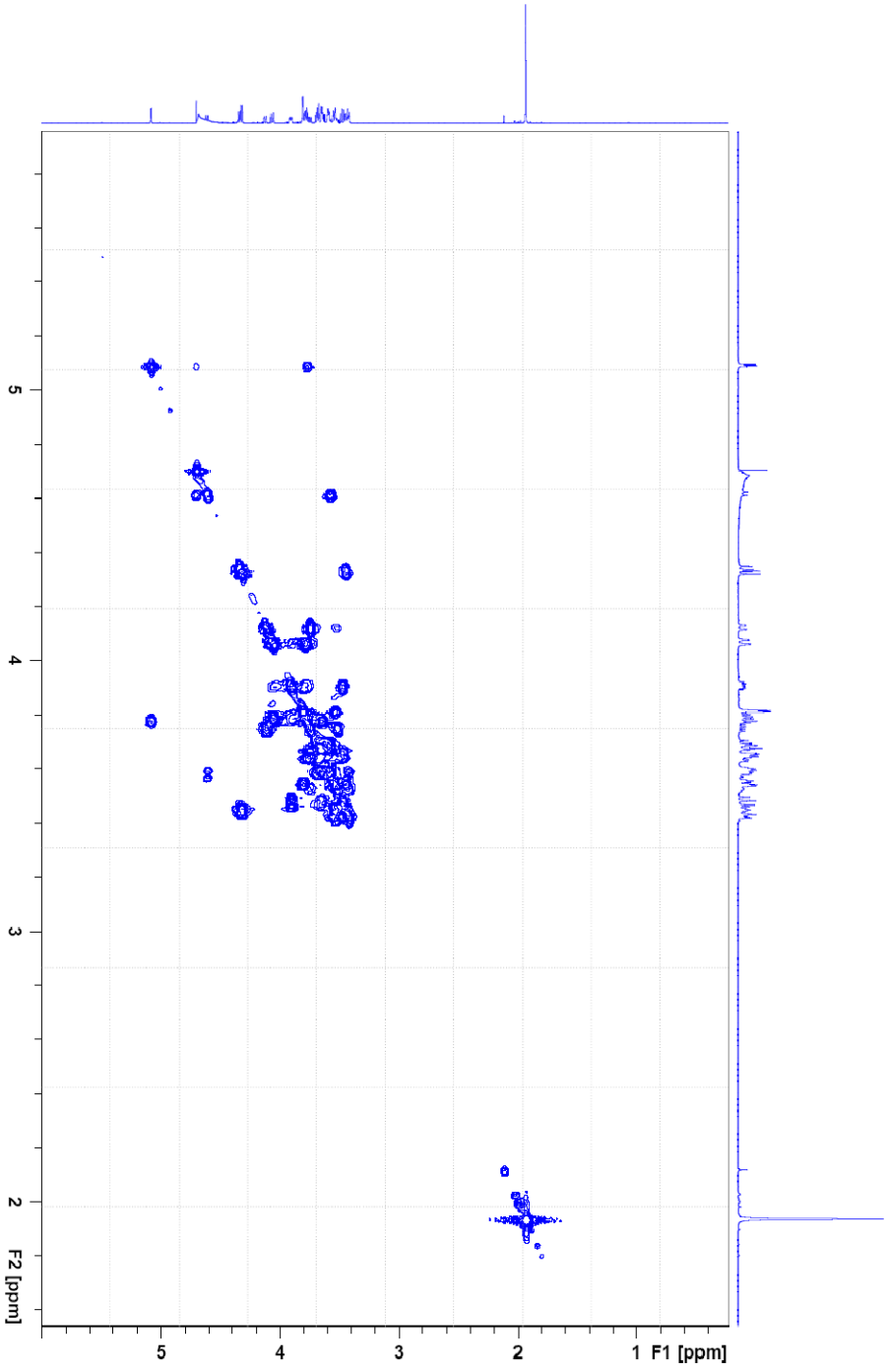

Figure 1: COSY experiment for Gal-(β1→6)-GlcNAc

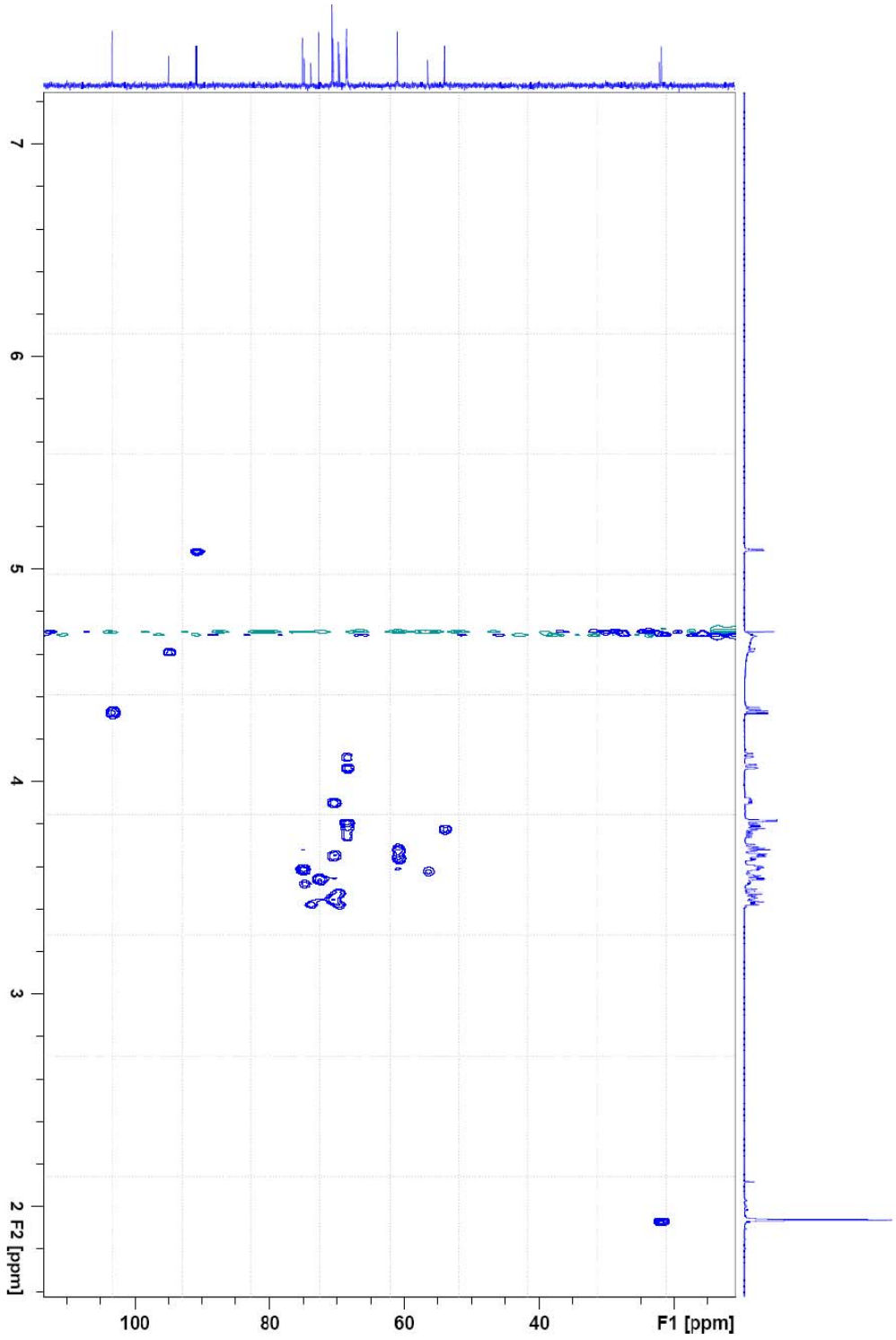

Figure 2: HSQC experiment for Gal-(β1→6)-GlcNAc

***N*-Acetyl Lactosamine [Gal-(β1→4)-GlcNAc]:** Both spectra were concordant with reference literature. [a] ^{1}H-NMR (700 MHz, D_2O): 1.93 (s, 3H, Ac), 4.37 (d, 1H, H1', $J_{1',2'}$ = 7,84 Hz), 4.62 (d, 0.37H, H1$_\beta$, $J_{1\beta,2}$ = 8.06 Hz) 5.10 (d, 0.57H, H1$_\alpha$, $J_{1\alpha,2}$ = 2.24 Hz). ^{13}C-NMR: 21,80 (Me of Ac, α), 22.10 (Me of Ac, β), 53.65 (C-2α), 56.13 (C-2β), 59.86 (C-6α), 59.99 (C-6β), 60.96 (C-6'), 68.48 (C-4'), 69.21 (C-3α), 70.20 (C-5α), 70.90 (C-2'), 72.43 (C-3β, C-3'), 74.79 (C-5β), 75.29 (C-5'), 78.24 (C-4β), 78.68 (C-4α), 90.46 (C-1α), 94.80 (C-1β), 102.80 (C-1'β), 102.86 (C-1'$_\alpha$),174.40 (C=O of Ac α), 174.66 (C=O of Ac β).

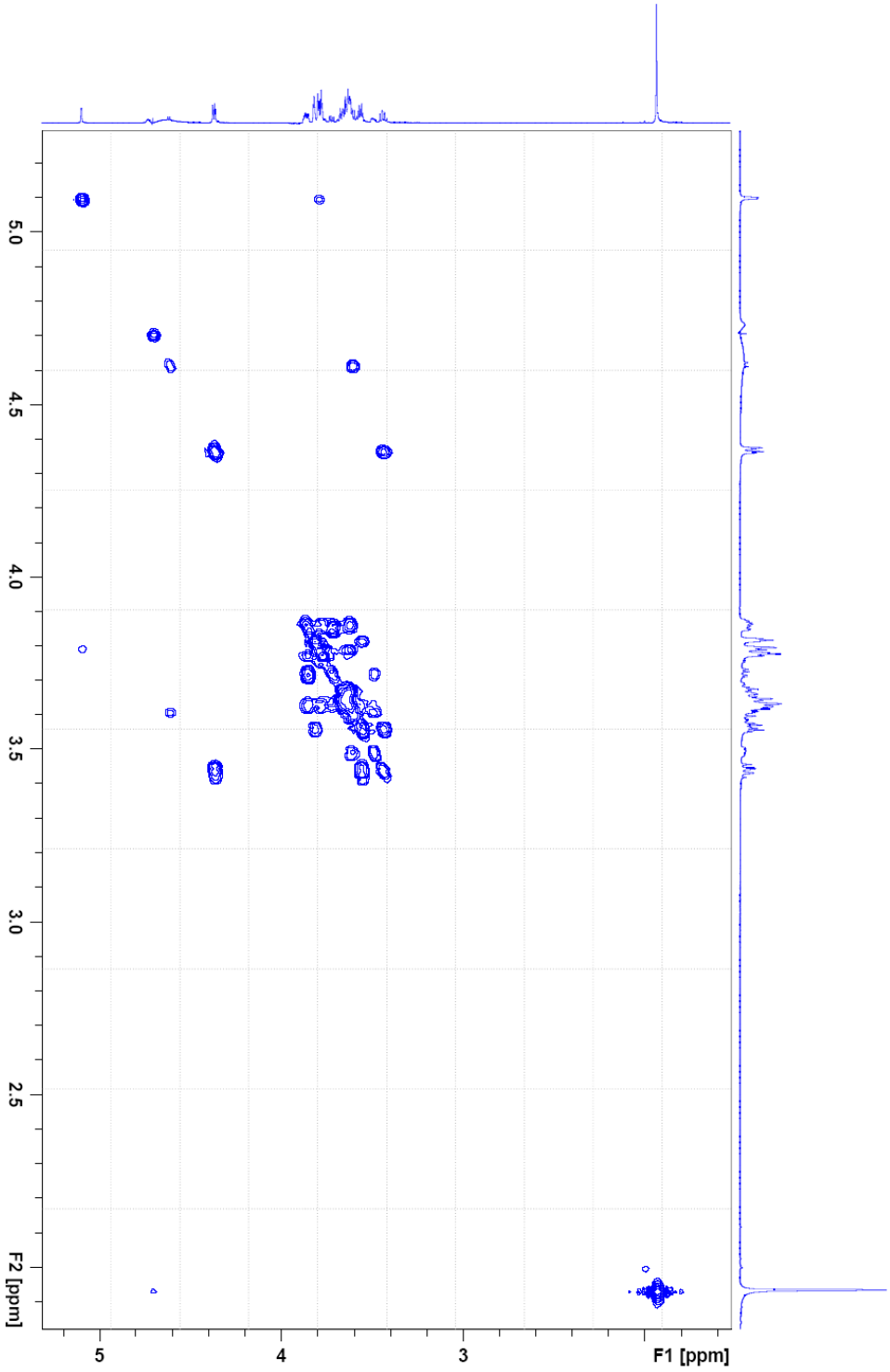

Figure 3: COSY experiment for Gal-(β1→4)-GlcNAc

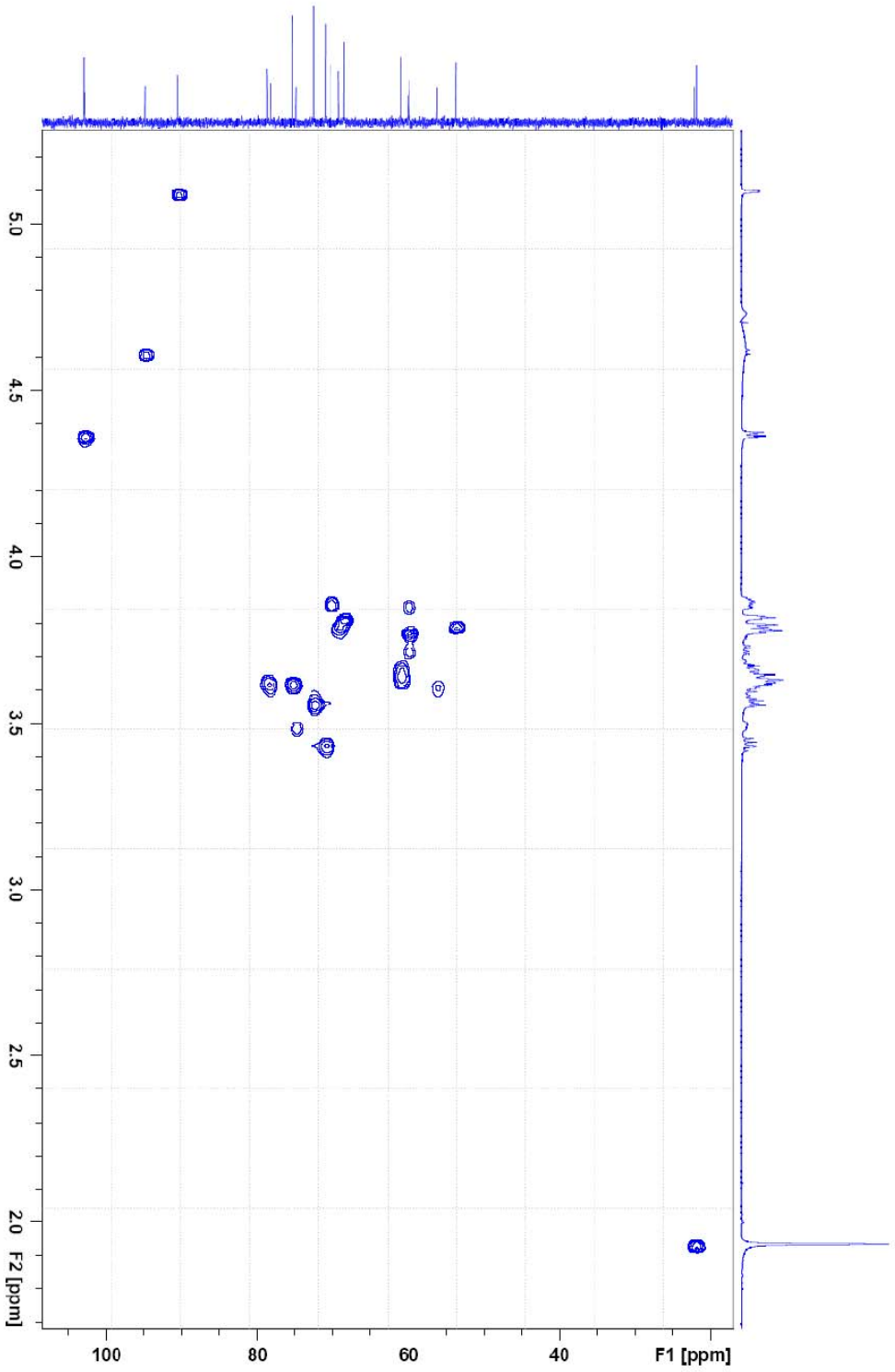

Figure 4: HSQC experiment for Gal-(β1→4)-GlcNAc

REFERENCES

[a] N. Bridiau, and T. Maugard, A comparative study of the regioselectivity of the β-galactosidases from *Kluyveromyces lactis* and *Bacillus circulans* in the enzymatic synthesis of *N*-acetyl-lactosamine in aqueous media. *Biotechnol. Prog.*, 2011, 27(2). 386-394.