Supporting Information

Bio-Based Palladium Catalyst in Cryogel for Cross-Coupling Reactions

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1. NMR Spectra of PheB (3) and PheBPd (4)

N-(4-vinylbenzyl)phenylalanine (Pheb) (3)

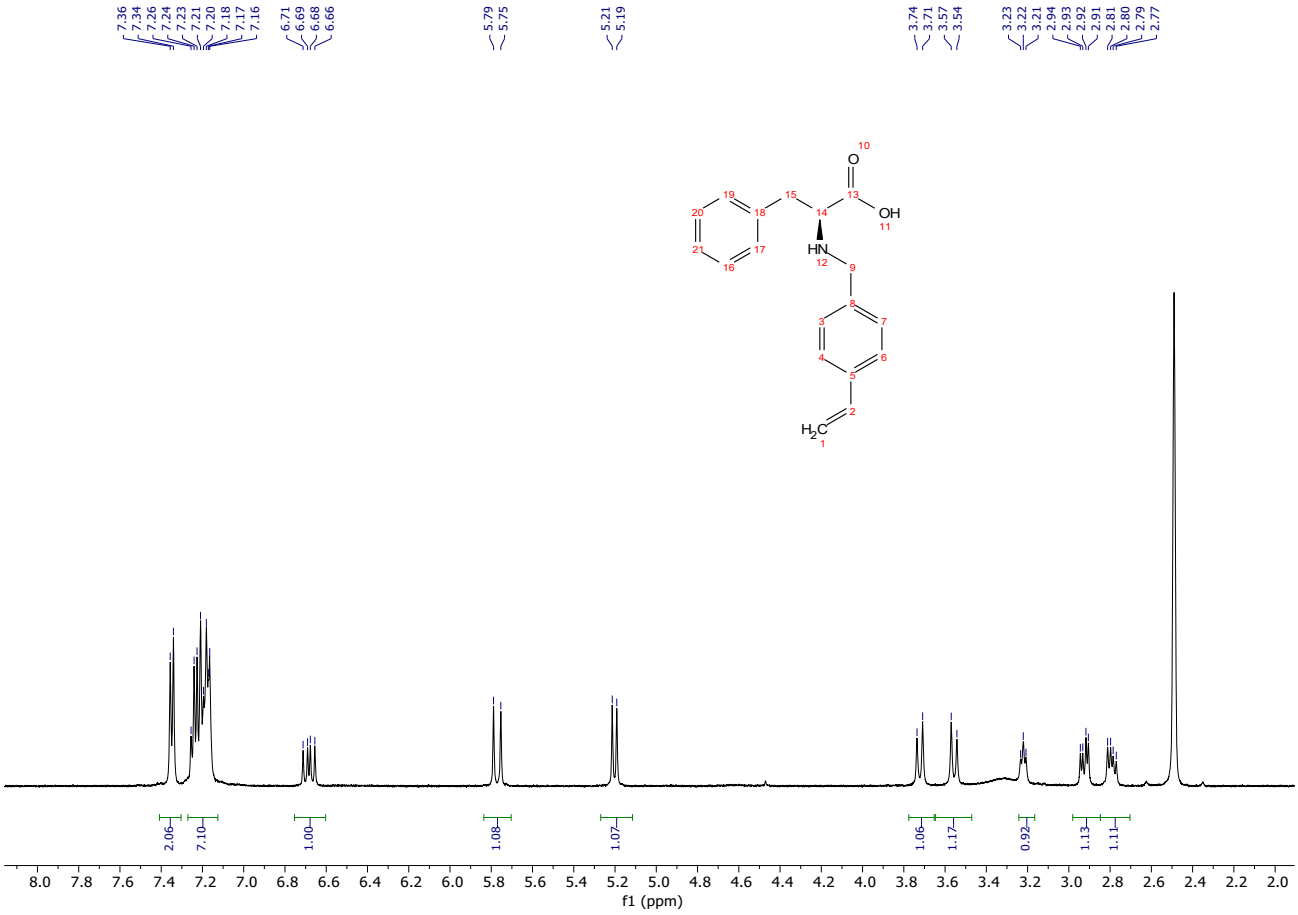

Figure S1. ^{1}H NMR spectrum of Pheb **3**.

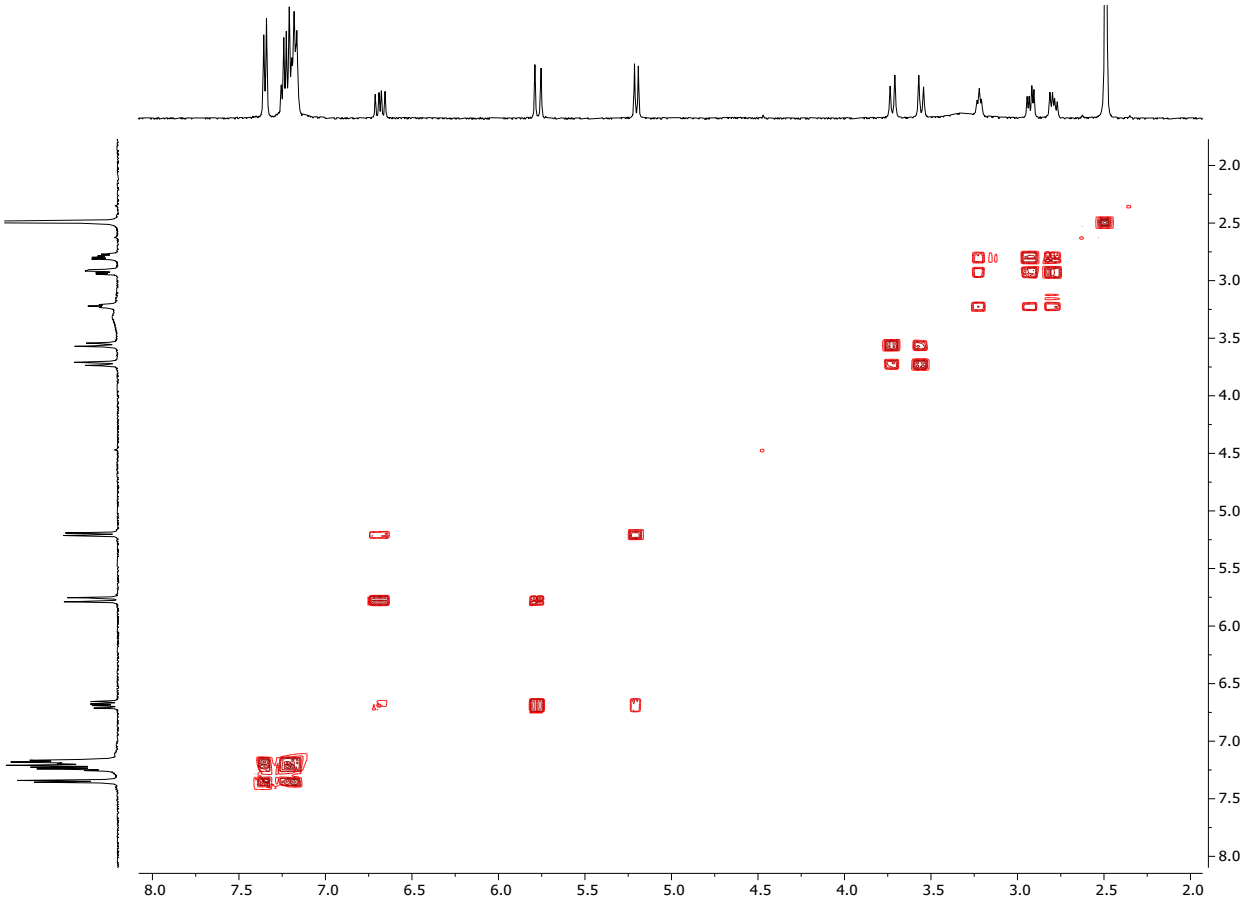

Figure S2. gCOSY spectrum of Pheb **3**.

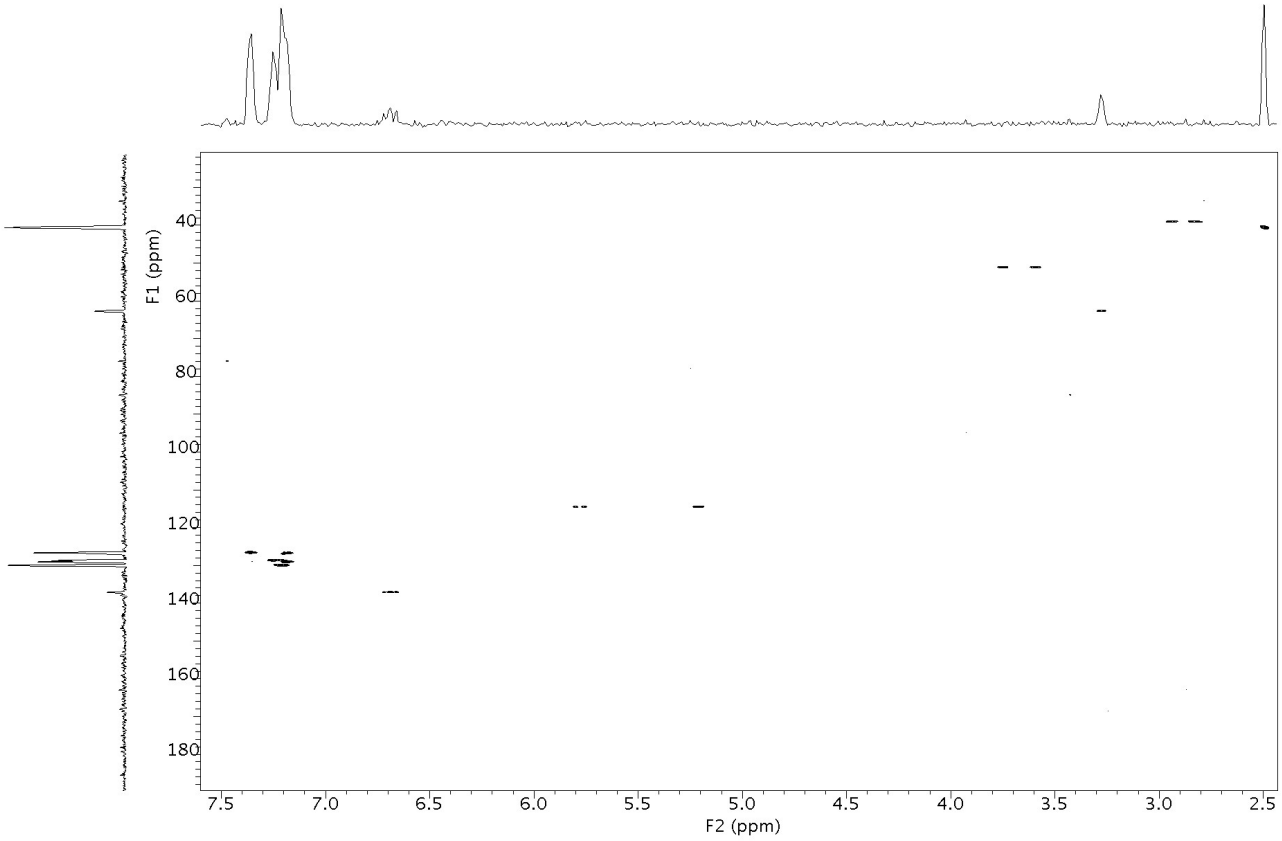

Figure S3. gHSQC spectrum of Pheb **3**

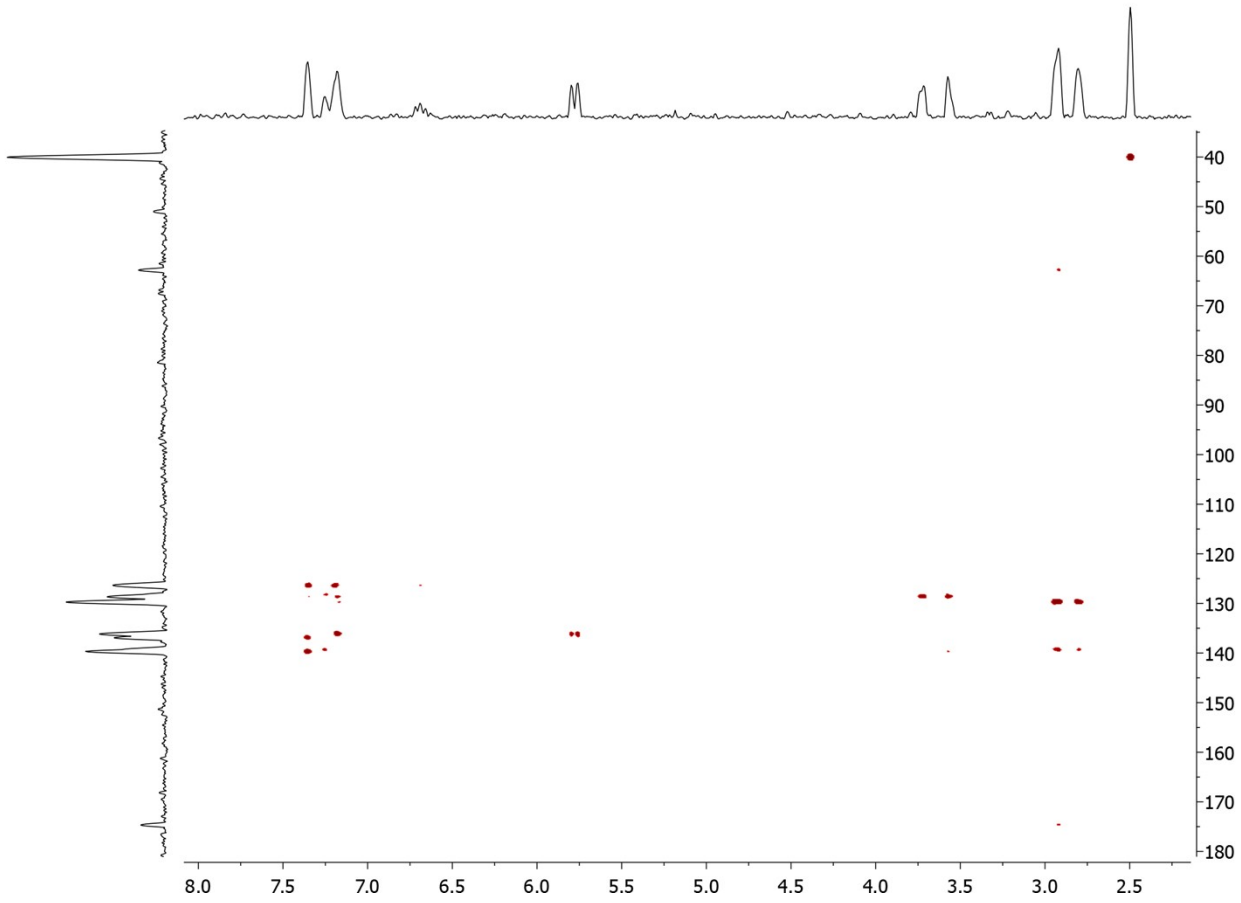

Figure S4. gHMBC spectrum of Pheb **3**

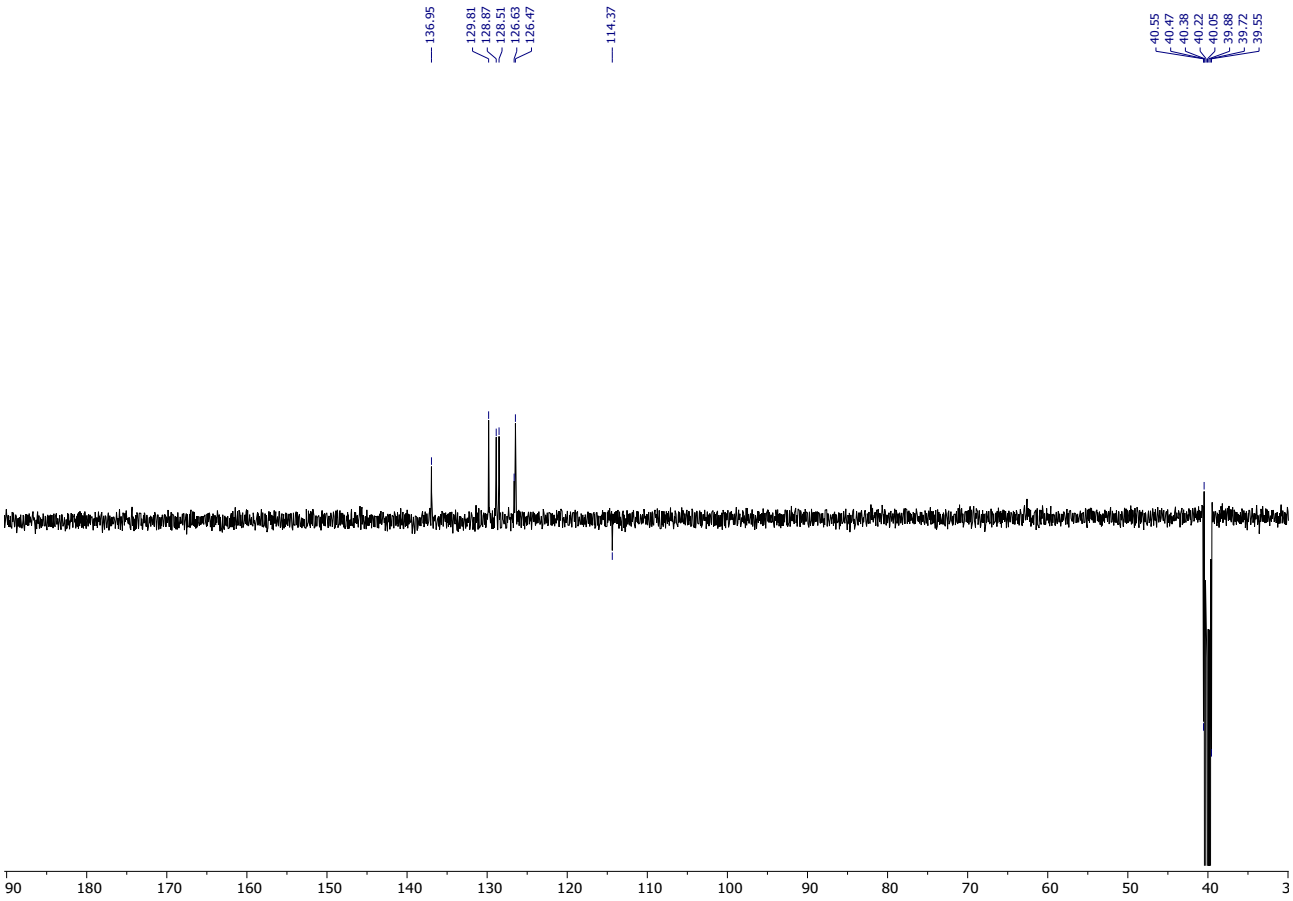

Figure S5. APT spectrum of Pheb **3**

Bis-[*N*-(4-vinylbenzyl)phenylalanine]palladium(II) complex (PhebPd) (4)

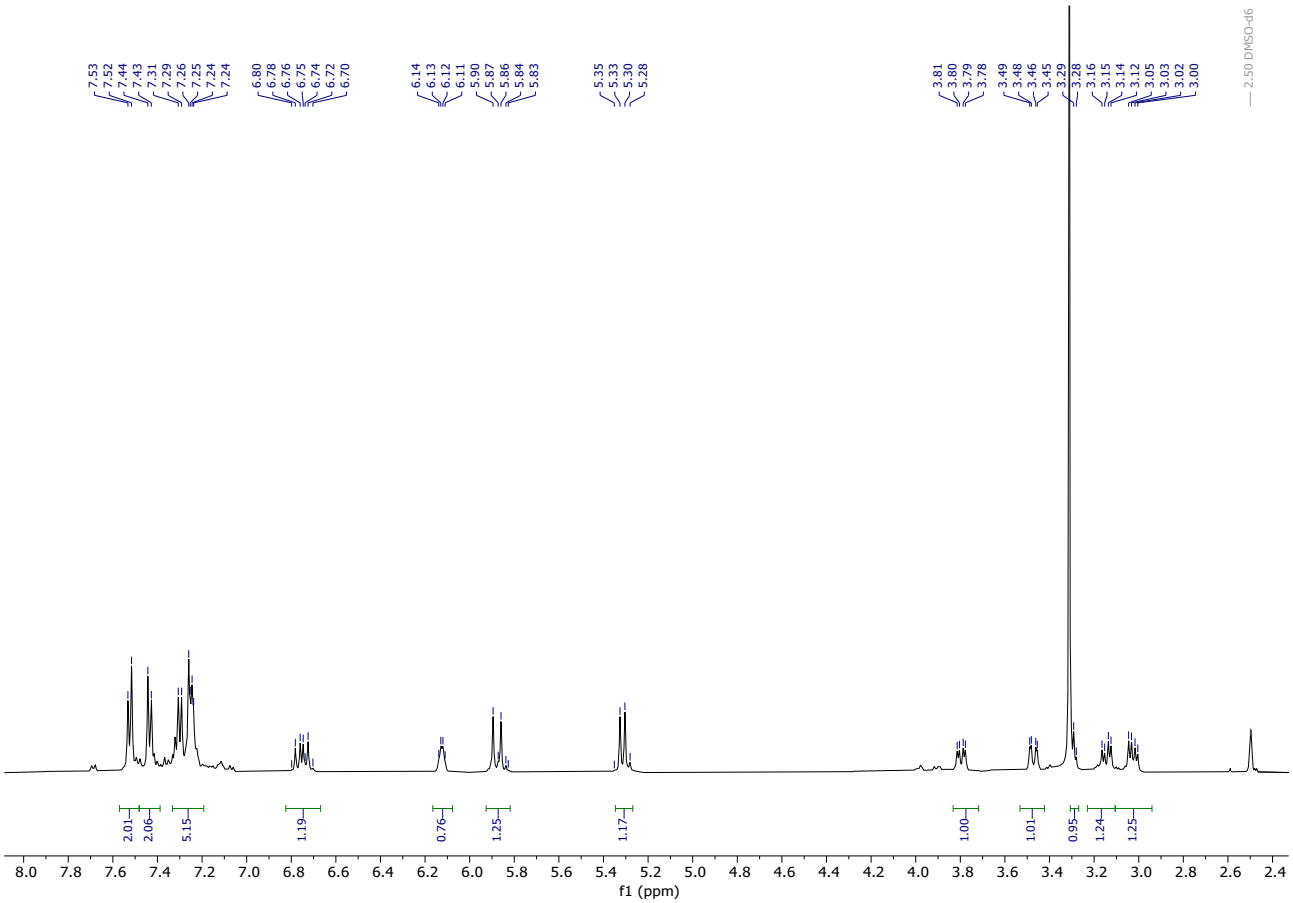

Figure S6. ^{1}H NMR spectrum of PhebPd **4**.

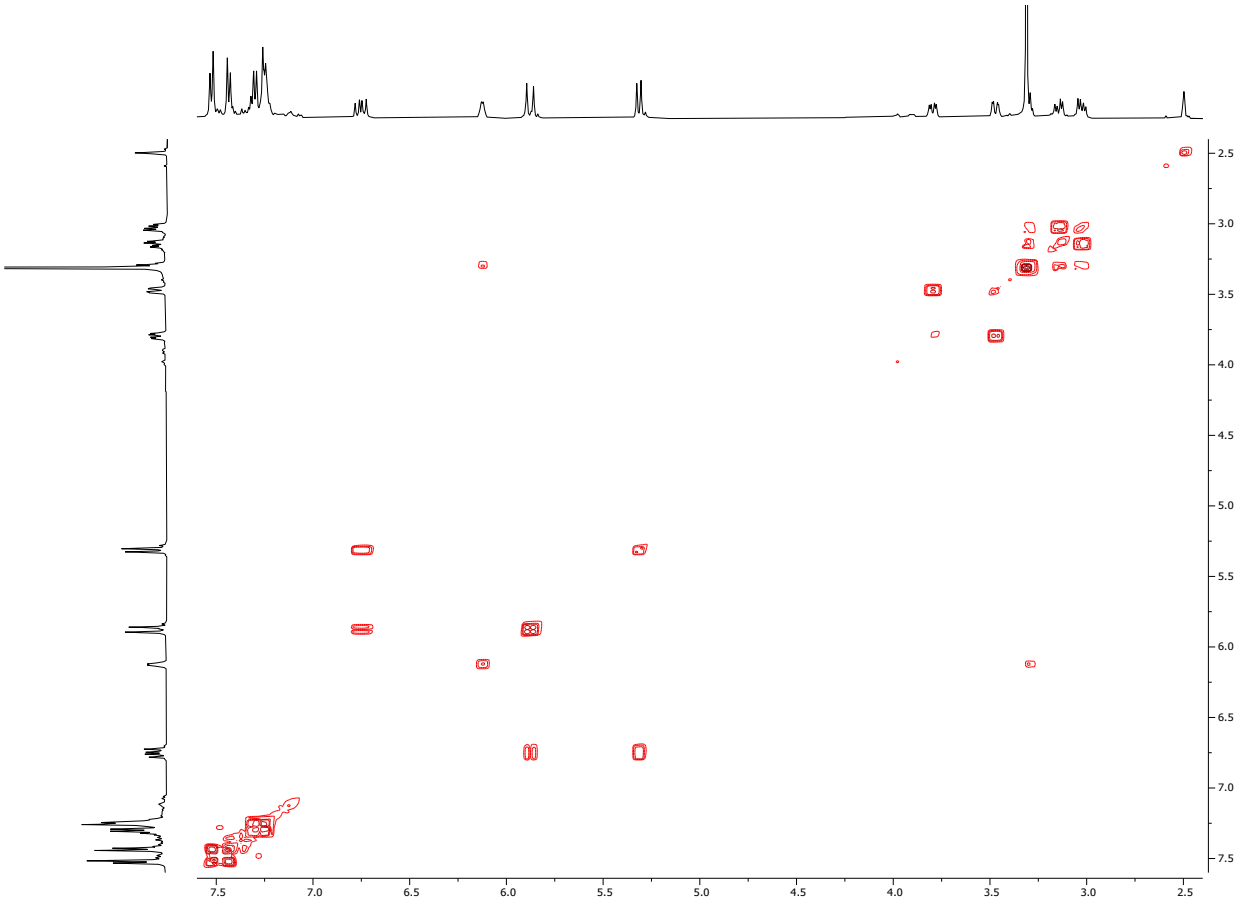

Figure S7. gCOSY spectrum of PhebPd **4**.

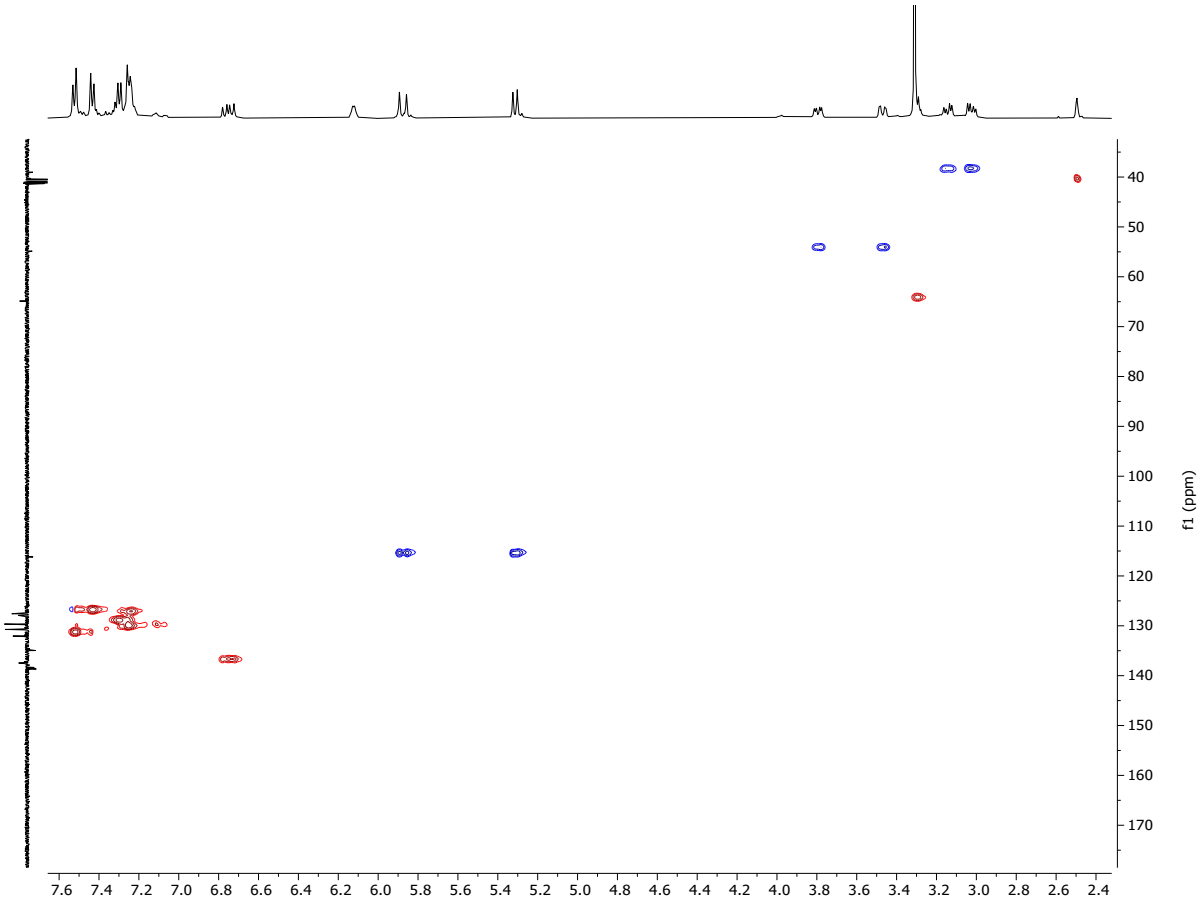

Figure S8. gHSQC spectrum of PhebPd **4**.

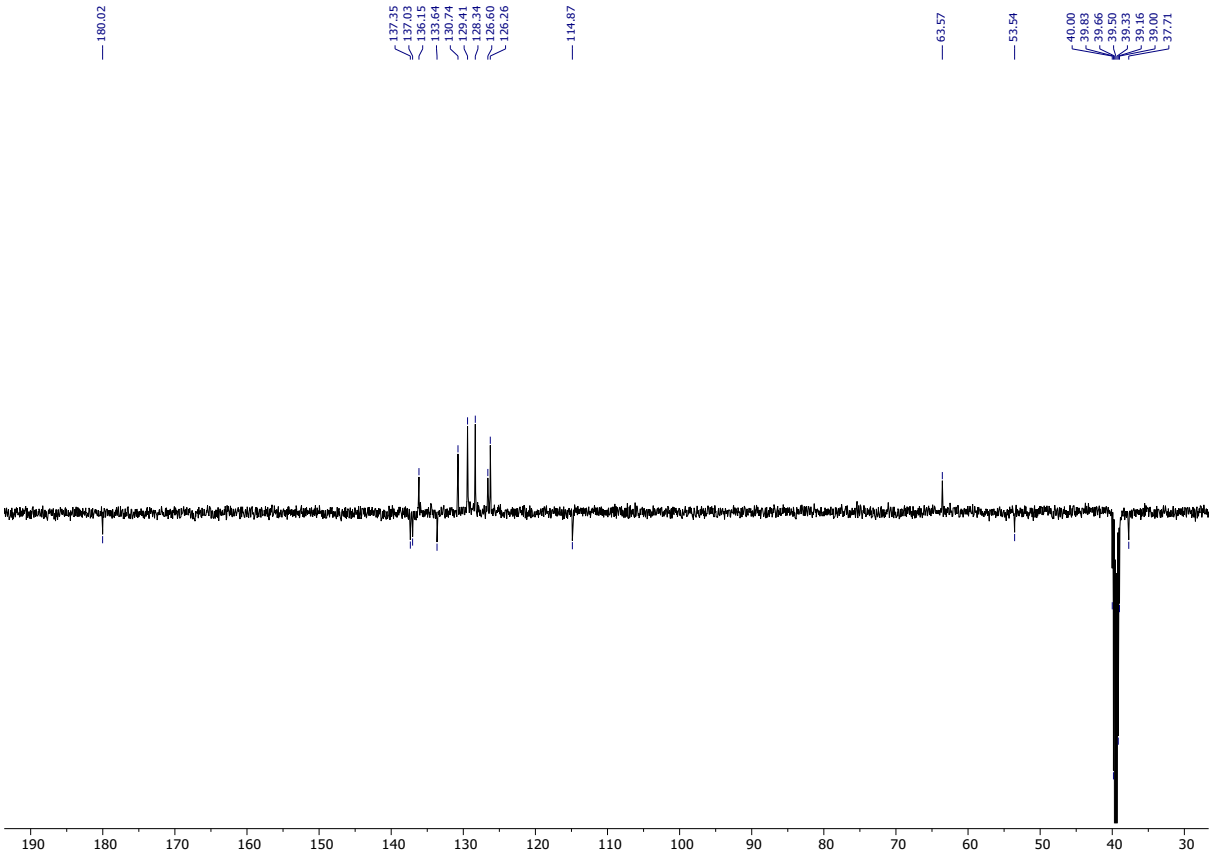

Figure S9. APT spectrum of PhebPd **4**.

2. Porosimetric analysis

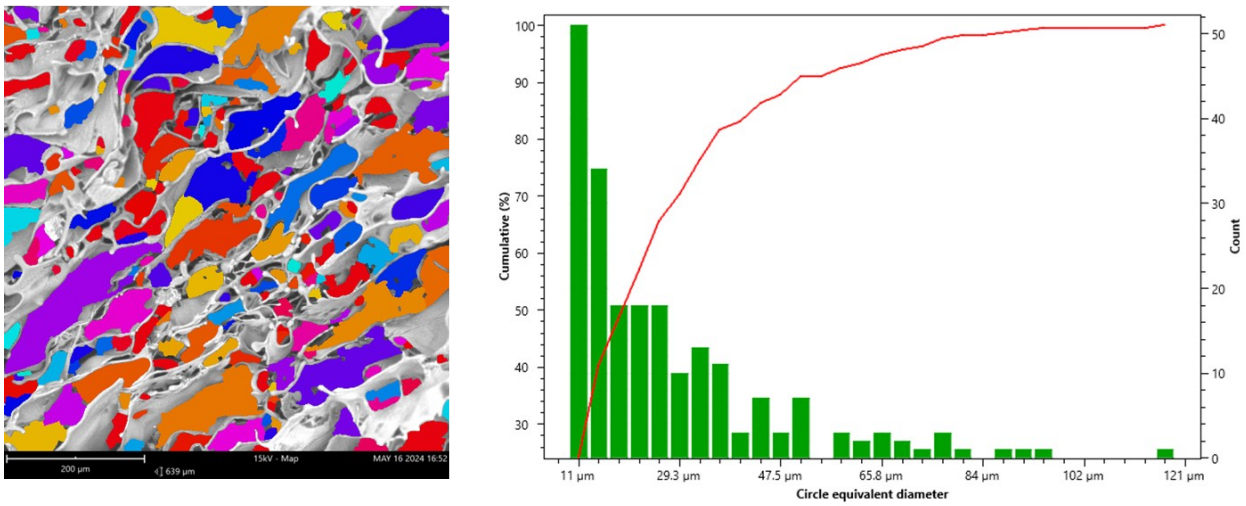

Figure S10. Porosimetric distribution of C-PhebPd.

Table S1.

Property	**Median**	**Average**
Circle equivalent diameter	22.7 µm	28.7 µm
Major axis	29.9 µm	41.6 µm
Minor axis	16 µm	20.4 µm
Circumference	88.5 µm	121 µm
Convex hull	85.1 µm	111 µm
Circumscribed circle diameter	34 µm	46.8 µm
Area	403 µm²	927 µm²
Volume by area	6.09×10^3 µm³	3.50×10^4 µm³

3. EDX analysis

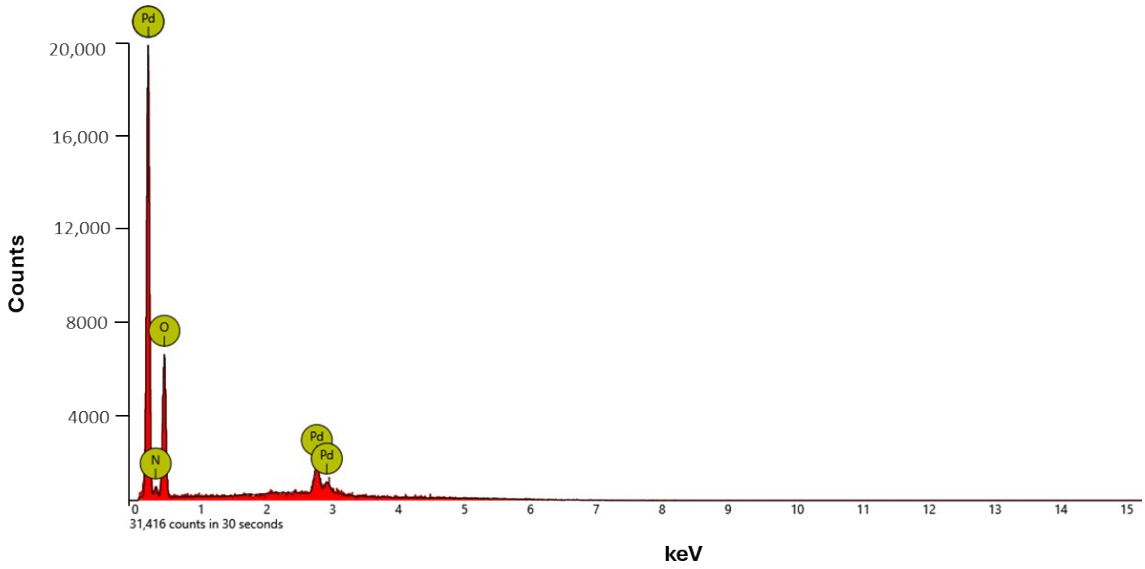

Figure S11. EDX of C-PhebPd.

4. Swelling ratio

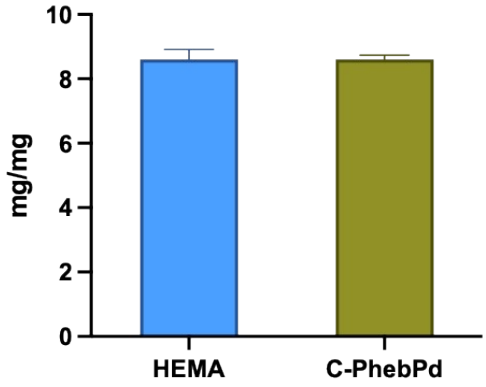

Figure S12. Swelling ratio of C-PhebPd compared with a cryogel of HEMA.

5. Characterization Data and ^{1}H NMR Spectra of Suzuki reaction products

[1,1'-biphenyl]-4-carbaldehyde

^{1}H NMR (500 MHz, $CDCl_3$) δ 9.91 (s, 1H), 7.81 (d, J = 7.8 Hz, 2H), 7.61 (d, J = 7.9 Hz, 2H), 7.49 (d, J = 7.5 Hz, 2H), 7.34 (t, J = 7.6 Hz, 2H), 7.31–7.26 (m, 1H).

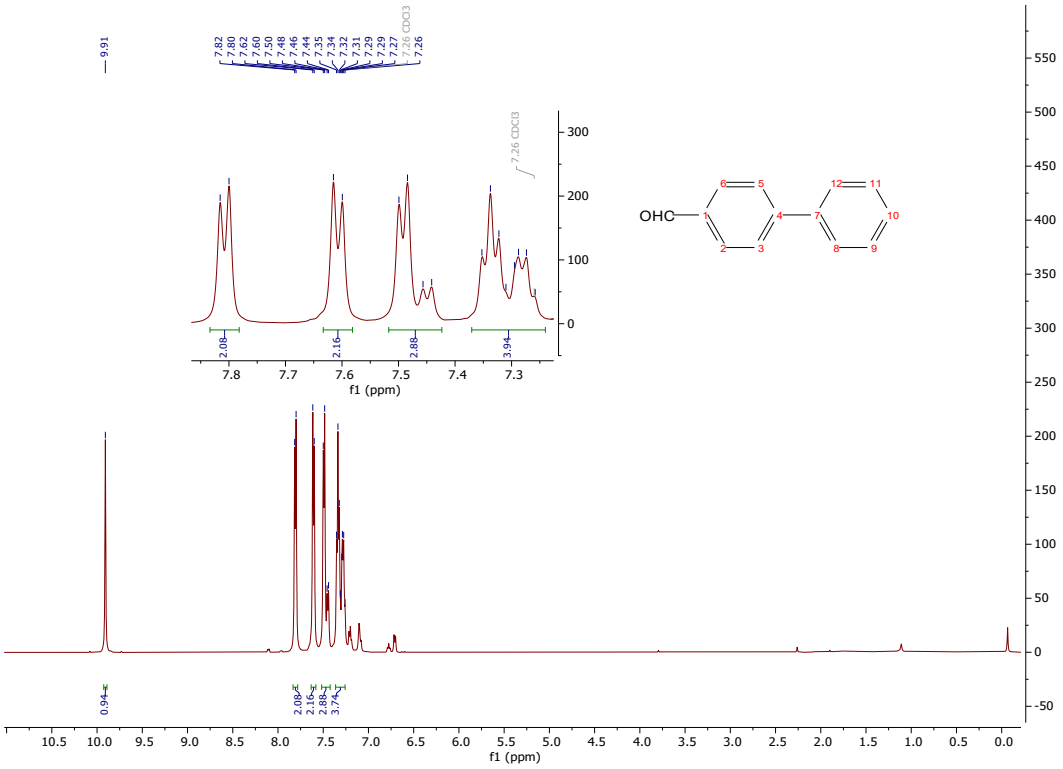

Figure S13. ^{1}H NMR of [1,1'-biphenyl]-4-carbaldehyde.

1,1′-biphenyl

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.60 (d, J = 7.5 Hz, 2H), 7.45 (t, J = 7.6 Hz, 2H), 7.35 (t, J = 7.4 Hz, 1H)

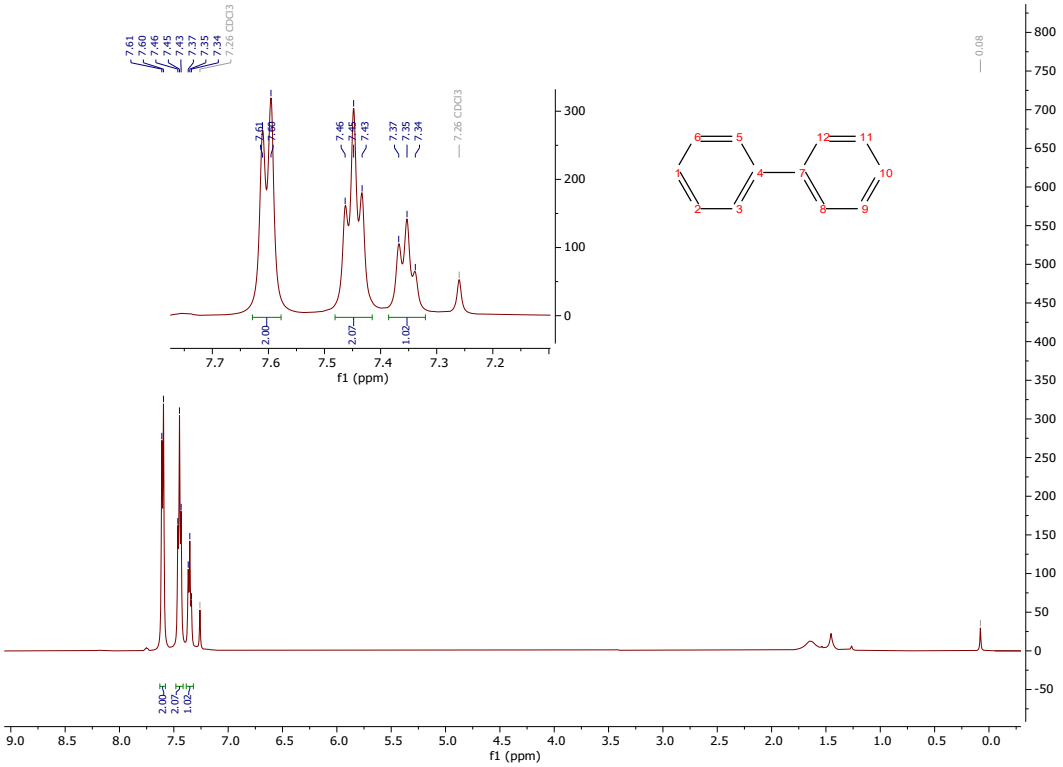

Figure S14. ^{1}H NMR of 1,1′-biphenyl.

2-(4-methoxyphenyl)furan

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.61 (d, J = 8.3 Hz, 2H), 7.43 (s, 1H), 6.92 (d, J = 8.3 Hz, 2H), 6.51 (d, J = 3.3 Hz, 1H), 6.45 (d, J = 3.3 Hz, 1H), 3.84 (s, 3H).

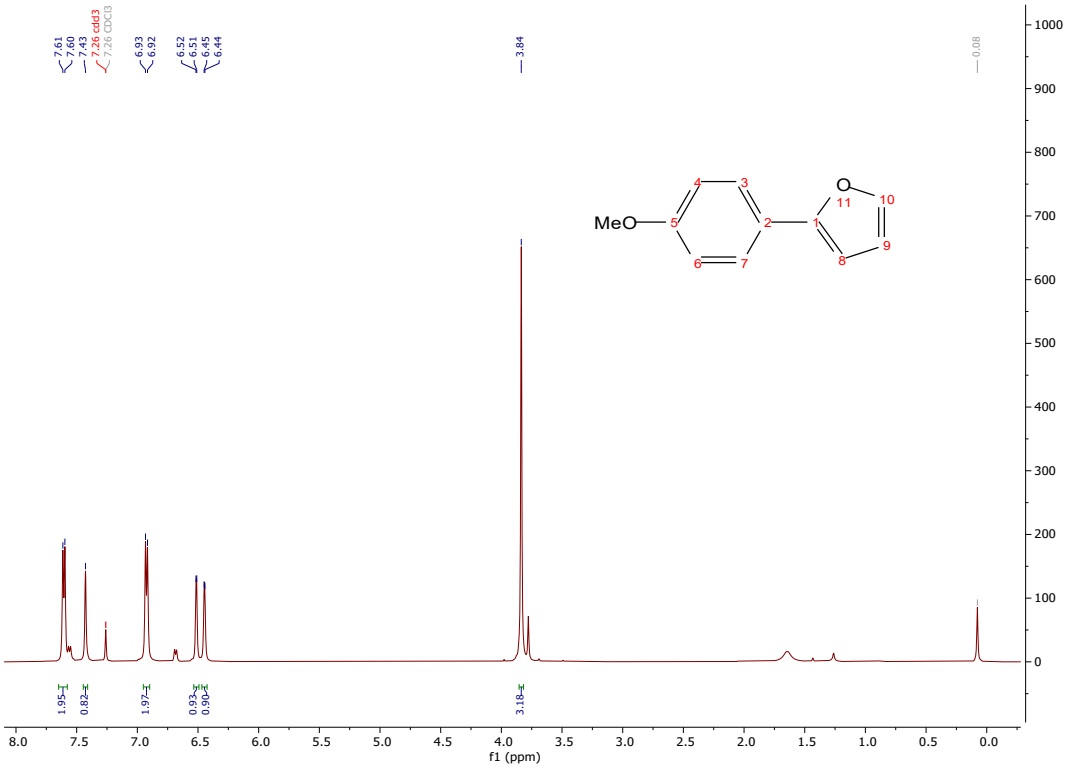

Figure S15. ^{1}H NMR of 2-(4-methoxyphenyl)furan.

2-(4-methoxyphenyl)thiophene

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.55 (d, J = 8.2 Hz, 2H), 7.21 (dd, J = 7.3, 4.3 Hz, 2H), 7.06 (t, J = 4.4 Hz, 1H), 6.92 (d, J = 8.2 Hz, 2H), 3.84 (s, 3H).

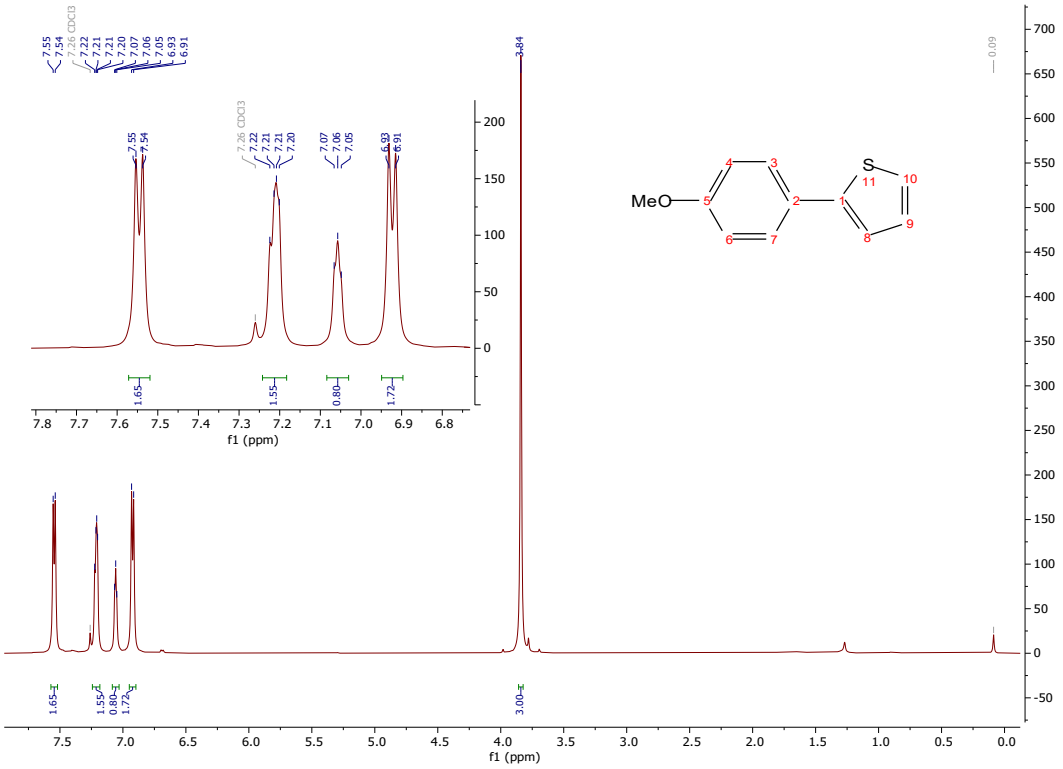

Figure S16. ^{1}H NMR of 2-(4-methoxyphenyl)thiophene.

2-phenylfuran

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.60–7.54 (m, 2H), 7.36 (d, J = 1.9 Hz, 1H), 7.28 (t, J = 7.6 Hz, 2H), 7.18–7.12 (m, 1H), 6.54 (d, J = 3.3 Hz, 1H), 6.37 (dd, J = 3.5, 1.8 Hz, 1H).

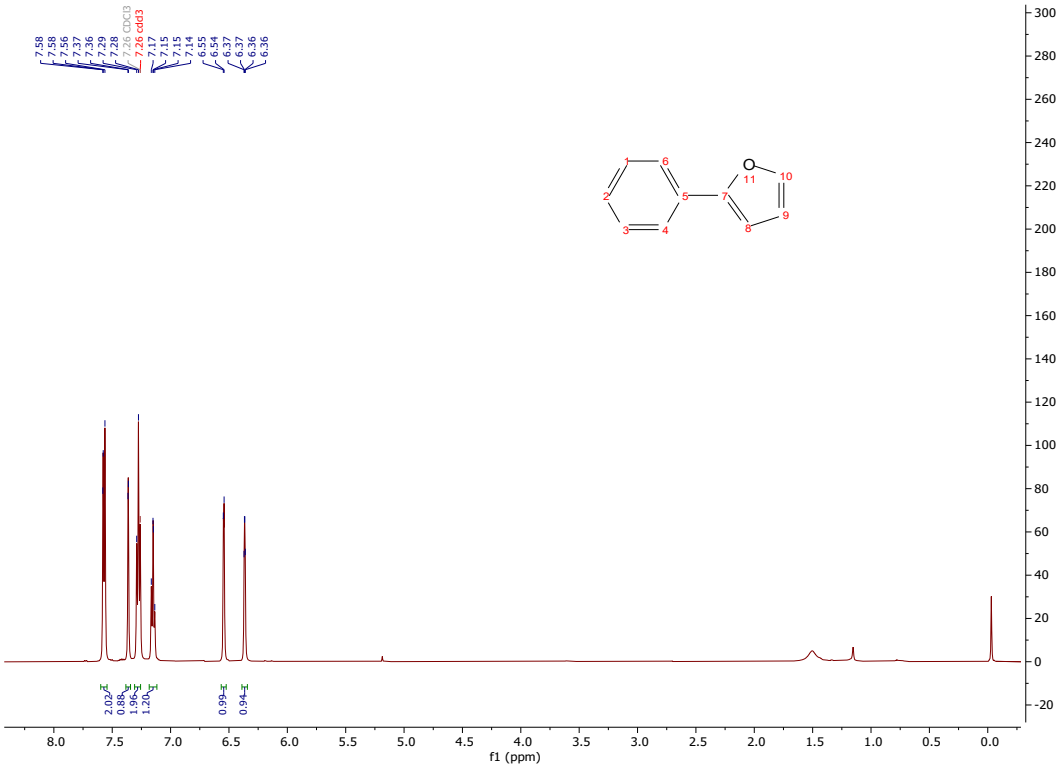

Figure S17. ^{1}H NMR of 2-phenylfuran.

2-phenylthiophene

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.54 (d, J = 7.7 Hz, 2H), 7.31 (t, J = 7.6 Hz, 2H), 7.26–7.17 (m, 3H), 7.01 (t, J = 4.3 Hz, 1H).

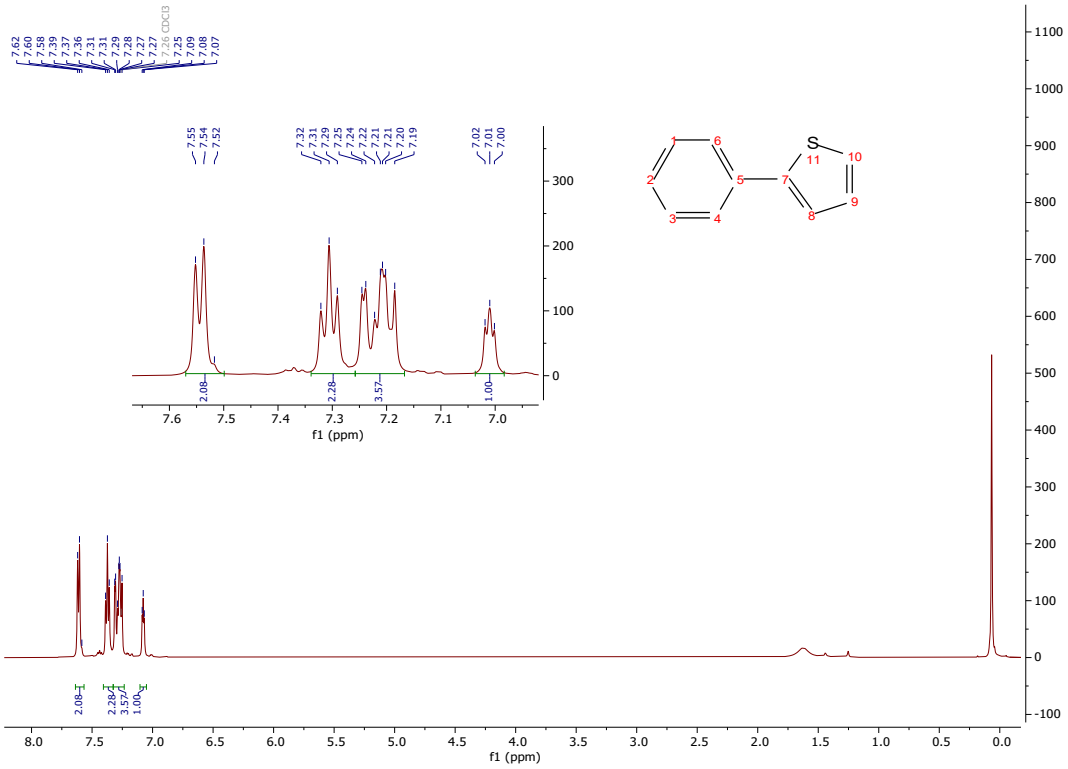

Figure S18. ^{1}H NMR of 2-phenylthiophene.

2,4-dimethoxy-5-phenylpyrimidine

^{1}H NMR (500 MHz, $CDCl_3$) δ 8.26 (s, 1H), 7.49 (d, J = 7.6 Hz, 2H), 7.43 (t, J = 7.6 Hz, 2H), 7.37 (d, J = 7.3 Hz, 1H), 4.04 (d, J = 9.1 Hz, 6H).

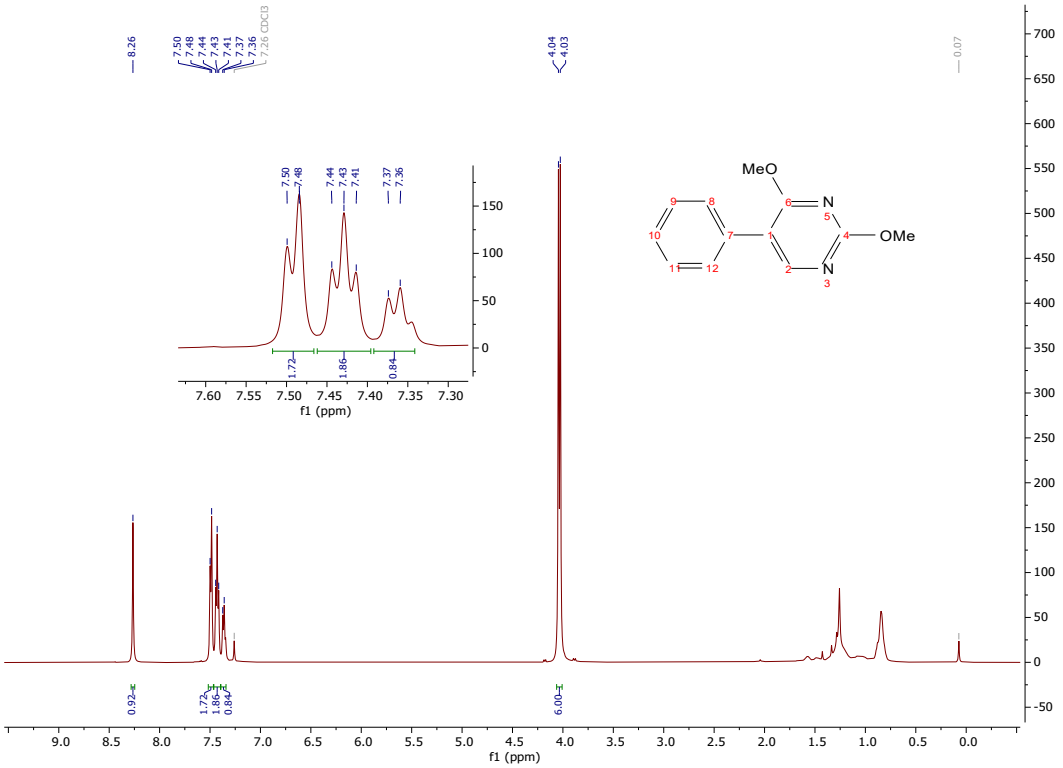

Figure S19. ^{1}H NMR of 2,4-dimethoxy-5-phenylpyrimidine.

4-(furan-2-yl)benzaldehyde

^{1}H NMR (500 MHz, $CDCl_3$) δ 9.99 (s, 1H), 7.90 (d, J = 8.0 Hz, 2H), 7.82 (d, J = 8.0 Hz, 2H), 7.55 (s, 1H), 6.85 (d, J = 3.5 Hz, 1H), 6.53 (d, J = 2.6 Hz, 1H).

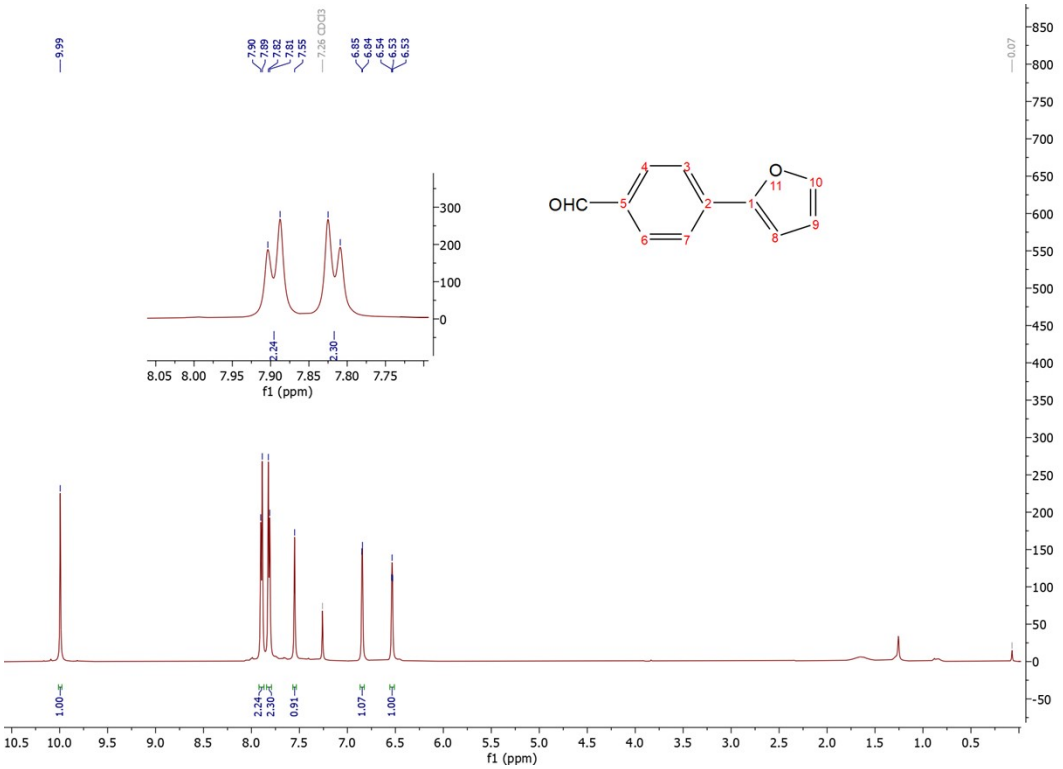

Figure S20. ^{1}H NMR of 4-(furan-2-yl)benzaldehyde.

4-(thiophen-2-yl)benzaldehyde

^{1}H NMR (400 MHz, $CDCl_3$) δ 10.00 (s, 1H), 7.93–7.85 (m, 2H), 7.81–7.72 (m, 2H), 7.47 (dd, *J* = 3.7, 1.1 Hz, 1H), 7.40 (dd, *J* = 5.1, 1.1 Hz, 1H), 7.14 (dd, *J* = 5.1, 3.7 Hz, 1H).

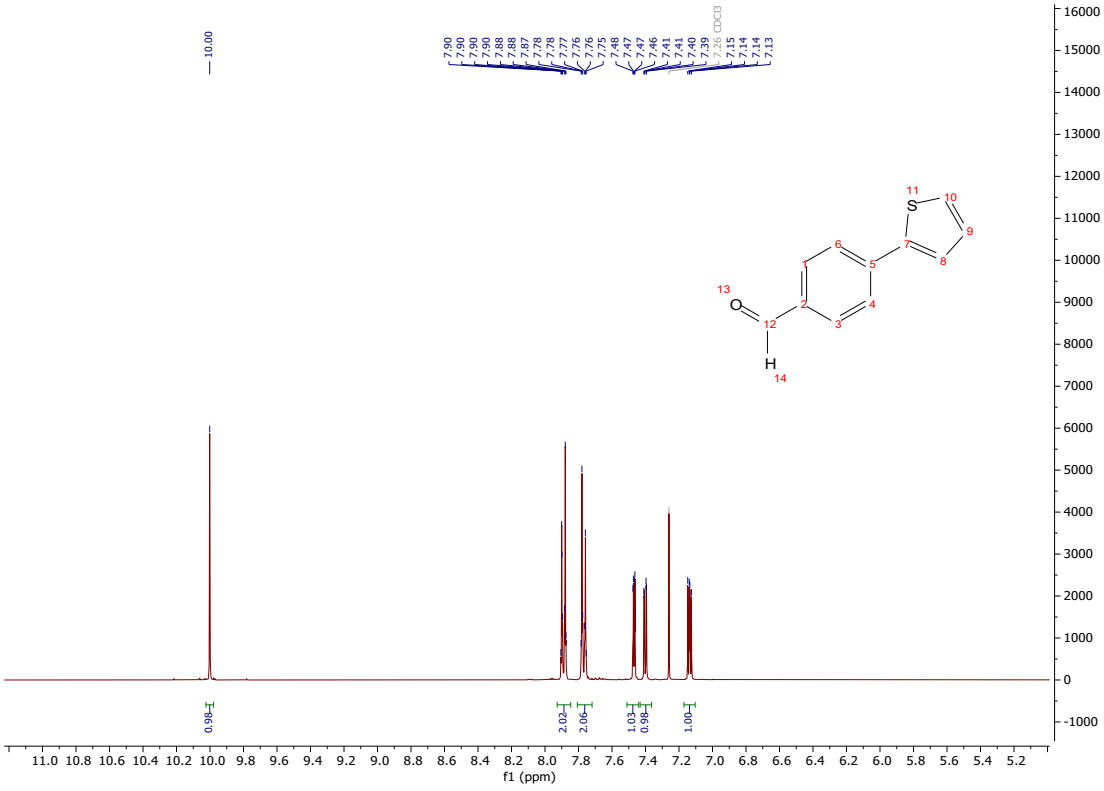

Figure S21. ^{1}H NMR of 4-(thiophen-2-yl)benzaldehyde.

4-methoxy-1,1'-biphenyl

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.58–7.51 (m, 4H), 7.42 (t, J = 7.5 Hz, 2H), 7.31 (d, J = 7.4 Hz, 1H), 6.99 (d, J = 8.2 Hz, 2H), 3.86 (s, 3H).

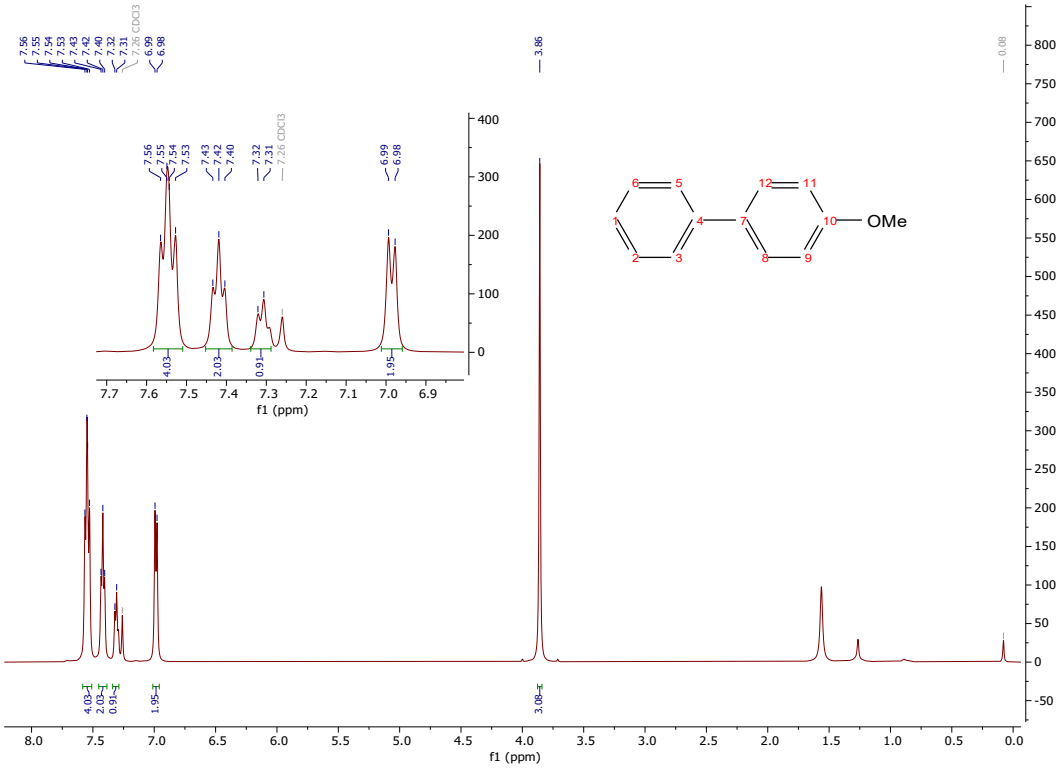

Figure S22. ^{1}H NMR of 4-methoxy-1,1'-biphenyl.

4-nitro-3-(trifluoromethyl)-1,1'-biphenyl

^{1}H NMR (500 MHz, $CDCl_3$) δ 8.00 (d, J = 11.4 Hz, 2H), 7.90 (d, J = 8.4 Hz, 1H), 7.62 (d, J = 7.7 Hz, 2H), 7.52 (dt, J = 13.8, 7.3 Hz, 3H).

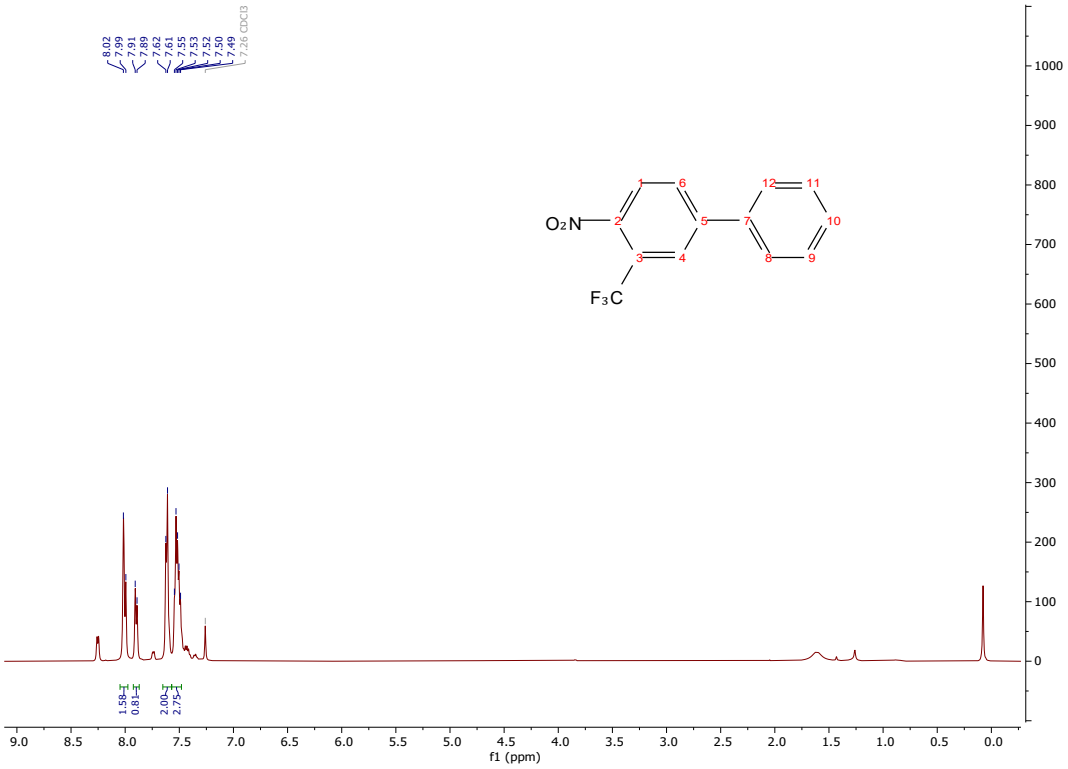

Figure S23. ^{1}H NMR of 4-nitro-3-(trifluoromethyl)-1,1'-biphenyl.