Supporting Information

In situ production of silver nanoparticles on an aldehyde-equipped conjugated porous polymer and subsequent heterogeneous reduction of aromatic nitro groups at room temperature

Jie Liu, a Jieshun Cui, a Filipe Vilela, b* Jun He, c Matthias Zeller, d Allen D. Hunter d and Zhengtao Xu a *

a Department of Biology and Chemistry, City University of Hong Kong, 83 Tat Chee Avenue, Kowloon, Hong Kong, China.
b School of Engineering and Physical Sciences, Heriot-Watt University, Edinburgh, EH14 4AS, UK.
c School of Chemical Engineering and Light Industry, Guangdong University of Technology Guangzhou 510006, Guangdong, China
d Youngstown State University, One University Plaza, Youngstown, Ohio 44555, USA
* Corresponding authors.
Experimental section

General procedure. Staring materials, reagents and solvents were purchased from commercial sources and used without further purification. Elemental analysis was obtained with a Vario EL III CHN elemental analyzer. FT-IR spectra were measured using a Nicolet Avatar 360 FT-IR spectrophotometer. FT-Raman spectra were obtained using a FT-IR, NIR-FT-Raman Perkin–Elmer Spectrum 2000 instrument equipped with a diode pumped Nd:YAG laser PSU and using the standard Spectrum v2.0 software. Solution $^1$H NMR and $^{13}$C NMR spectra were recorded on a 400 MHz Bruker superconducting-magnet high-field NMR spectrometer at room temperature, with tetramethylsilane (TMS) as the internal standard. Thermogravimetric analyses (TGA) were carried out in a nitrogen stream using PerkinElmer Thermal analysis equipment (STA 6000) with a heating rate of 5 °C/min, with an empty Al$_2$O$_3$ crucible being used as the reference. The porosity and surface area analysis was performed using a Quantachrome Autosorb iQ gas sorption analyzer. Each sample was outgassed at 0.03 torr with a 2 °C/min ramp to 100 °C and held at 100 °C for 12 hours. The sample was then held at vacuum until the analysis was run. Pore analysis was performed using N$_2$ at 77 K (P/P$_0$ range of 1×10$^{-5}$ to 0.995) and CO$_2$ at 273 K (P range of 8×10$^{-3}$ to 780 mmHg). The amounts of the metal ions were determined by using a PerkinElmer Optima™ 2100 DV ICP optical emission spectrometer. Scanning Electron Microscope (SEM) was carried out on Philips XL30 Esem-FEG, (FEI Company, the Netherlands) equipped with an energy-dispersive x-ray microanalysis (EDX) system (EDAX Phoenix system, EDAX Inc., Mahwah NJ, USA). Solid-state $^{13}$C NMR spectra were measured on a Bruker Advance 300 with carrier frequencies of 75.5 MHz. The 4 mm double-resonance probe was used throughout the experiments. The $^{13}$C chemical shift was calibrated externally based
on the methine peak of adamantane at 29.46 ppm. The MAS spinning rate is set as 12 kHz. For $^{13}$C CP/MAS, the rf field strength of both $^1$H and $^{13}$C channel is fixed at 62.5 kHz, whereas the CP contact time and the recycle delay time are set as 2 ms and 2 s respectively.

Single Crystal diffraction data were collected on a Bruker Quest CMOS diffractometer at 100 K using monochromatic Mo Kα radiation with the omega scan technique. Data were collected, the unit cell determined, and the data integrated and corrected for absorption and other systematic errors using the Apex2 suite of programs (Bruker, 2014). The space group was assigned and the structure was solved by direct methods using the SHELXTL suite of programs (Bruker, 2003) and refined by full matrix least squares against $F^2$ with all reflections using Shelx2014 (Sheldrick, 2014) and the graphical interface Shelxle (Hübschle et al., 2011). All non-hydrogen atoms were refined anisotropically. H atoms attached to carbon atoms were positioned geometrically and constrained to ride on their parent atoms, with carbon hydrogen bond distances of 0.95 Å and $U_{iso}(H)$ values were set to 1.2 times $U_{eq}(C)$. Complete crystallographic data, in CIF format, have been deposited with the Cambridge Crystallographic Data Centre. CCDC 1401125 contains the supplementary crystallographic data for this paper. These data can be obtained free of charge from The Cambridge Crystallographic Data Centre via www.ccdc.cam.ac.uk/data_request/cif.

Table S1. Single Crystal X-ray Diffraction Experimental Details

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H-atom treatment  H-atom parameters constrained
\[ \Delta \rho_{\text{max}}, \Delta \rho_{\text{min}} \text{ (e Å}^{-3}) \]  0.63, -0.30

Computer programs:


Scheme S1. Synthetic procedures of PHTT_CHO.

**Synthesis of PHTT_CHO polymer.** HBuTT (150 mg, 0.18 mmol) and a stir bar were loaded into a 50 mL two-neck round-bottom flask. The flask was fitted with a condenser and connected to a Schlenk line, evacuated and back-filled with N\textsubscript{2} (three times for purging). A methanol (10 mL) solution of NaOH (100.5 mg, 2.51 mmol), bubbled with N\textsubscript{2} for 5 min beforehand, was transferred into the flask via cannula. After the mixture was refluxed at 90 °C for 6 hours and cooled down to room temperature, 37% HCl solution (260 mg, HCl, 2.64 mmol) was injected into the solution. After the volatile fractions were evaporated by a N\textsubscript{2} stream at room temperature, 2,3,5,6-tetrafluoroterephthalaldehyde (TFTA, 55.5 mg, 0.27 mmol), dissolved in N,N' -dimethylacetamide (DMA, 10.0 mL) and then deaerated by N\textsubscript{2} for 5 min beforehand, was injected via cannula under N\textsubscript{2} protection. To this mixture was then added a deaerated N,N-diisopropylethylamine (DIPEA, 223.5 mg, 1.73 mmol)/DMA (5.0 mL) solution under N\textsubscript{2}. The
reaction mixture was stirred at 90 °C for 3 hours, and then heated at 140 °C without stirring for another 12 hours. To work up, the reaction mixture was cooled to room temperature, mixed with DI water (30 mL), and stirred for 30 minutes. The solid product therein was collected on a Buchner funnel, washed by deionized water (about 100 mL), EtOH (about 30 mL), and dried under air in a fume cupboard overnight to afford the as-made, crude product as a dark brown-red solid (122.4 mg). The crude product was purified by Soxhlet extraction in refluxing MeOH for 24 hours, and then evacuated by pump at 50 °C for 5 hours to provide an activated solid product (105.2 mg, yield: 96.8%). CHN elemental analyses on the activated sample found [C (50.82%), H (3.89%), N (1.53%)]; a fitting formula can be determined to be C$_{30}$H$_9$O$_3$S$_6$·6H$_2$O·DMA, which gives a calculated profile as [C (50.73%), H (3.76%), N (1.74%)].

Figure S1. Thermogravimetric analysis (TGA) of a sample of PHTT_CHO.
**Figure S2.** IR spectra of (a) a sample of TFTA and (b) a sample of PHTT_CHO. The asterisked peaks are ascribed to the aldehyde group.

**Figure S3.** Solid State $^{13}$C CP/MAS Spectrum of a sample of PHTT_CHO.
Gas sorption. Pore analysis of the activated PHTT_CHO sample was performed both using N\textsubscript{2} at 77 K (P/P\textsubscript{0} range of 1×10\textsuperscript{-5} to 0.995) and CO\textsubscript{2} at 273 K (P range of 8×10\textsuperscript{-3} to 780 mmHg). Initial data analysis was done using the AS1Win and QuadraWin 5.05 software (both of Quantachrome instruments). The activated sample displayed typical type-I gas adsorption isotherms (CO\textsubscript{2} gas, 273 K, Figure S4) with a BET surface area of 644 m\textsuperscript{2}/g and the sorption of N\textsubscript{2} showed the BET surface area to be 686 m\textsuperscript{2}/g. MC analysis (Pore Size Distribution and Pore Volume, Figure S5) of the CO\textsubscript{2} adsorption isotherm (273 K) was done using a commercialized model (CO\textsubscript{2} at 273 K on carbon; MC model). NLDFT analysis (Pore Size Distribution and Pore Volume, Figure S6) of the N\textsubscript{2} adsorption isotherm (77 K) was performed using a commercialized model (N\textsubscript{2} at 77 K on carbon; cylinder/sphere pores; QSDFT adsorption branch). The PSD and pore volume of CO\textsubscript{2} showed us an average pore width of 0.48 nm and a micropore volume of 0.245 cm\textsuperscript{3}/g; while the PSD and pore volume analysis of N\textsubscript{2} reveals that there are mesopores feature for PHTT_CHO polymer. (average pore width 1.030 nm, pore volume 0.374 cm\textsuperscript{3}/g).

Figure S4. CO\textsubscript{2} sorption isotherm at 273 K for an activated PHTT_CHO sample.
**Figure S5.** Pore size distribution and pore volume of an activated PHTT_CHO sample (CO$_2$ gas at 273 K; Monte-Carlo model).

**Figure S6.** Pore size distribution and pore volume of an activated PHTT_CHO sample (N$_2$ gas at 77 K; QSDFT model).
Scheme S2. Synthetic scheme for M1.

Synthesis of M1 molecule. 2,3,5,6-tetrafluoroterephthalaldehyde (TFTA, 70.7 mg, 0.34 mmol) and a stirring bar were loaded into a 25 mL two-neck round-bottom flask. The flask was fitted with a condenser and connected to a Schlenk line, evacuated and back-filled with N₂ (three times for purging). A DMA (6 mL) solution of 1,2-benzenedithiol (102.5 mg, 0.72 mmol), bubbled with N₂ for 5 min beforehand, was transferred into the flask via cannula. N,N-diisopropylethylamine (DIPEA, 300 mg, 2.32 mmol) in DMA (3 mL) was deaerated by N₂ for 2 min and transferred into the mixture. The reaction mixture was stirred at 120 °C for 24 hours, DI water (30 mL) was added into the reaction flask after cooled to room temperature and stirred for 30 minutes. The orange-red solid product therein was collected on a Buchner funnel, further washed by deionized water (about 100 mL), EtOH (about 30 mL), DCM (about 10 mL) and dried under vacuum to afford the product as an orange-red solid (123 mg, yield: 88%). The solid product is barely soluble in regular solvents, but it can be readily transformed in a soluble dithioacetal derivative for solution NMR measurements (see below). The characterization of the insoluble M1 per se was conducted by IR (Figure S7), solid state $^{13}$C NMR (powder sample; Figure S8) and the X-ray single crystallography (crystals; Figure S9).
**Figure S7.** IR spectra of (a) a sample of TFTA and (b) a sample of M1. The asterisked peaks are ascribed to the aldehyde group.

**Figure S8.** The $^{13}\text{C}$ NMR spectrum of a solid state sample of M1. Note that the peaks that are asterisked are side bands.
Scheme S3. Synthetic scheme for M2.

**Synthesis of M2 molecule.** M1 (18 mg, 0.044 mmol), 1-decanethiol (153.4 mg, 0.88 mmol), p-toluenesulfonic acid (2 mg, 0.011 mmol) and a stir bar were loaded into a 7.5-mL glass vial. Toluene (3 mL) was added into the vial and sealed with a cap (note: M1 did not dissolve). A clear reaction solution was formed after the reaction was stirred at 50 °C overnight. After removal of the solvent, the residue was purified by column chromatography (silica gel, 5:1 hexane/DCM as the eluent) to provide a light yellow oil (33.5 mg, yield 71.4%). $^1$H NMR (400 MHz, CD$_2$Cl$_2$): δ 7.67-7.70 (dd, 1H, CHAr), 7.62-7.65 (dd, 1H, CHAr), 7.57-7.60 (dd, 1H, CHAr), 7.51-7.54 (dd, 1H, CHAr), 7.26-7.35 (m, 4H, CHAr), 6.14 (s, 1H, CH), 6.10 (s, 1H, CH), 2.61-2.66 (t, 8H, CH$_2$), 1.61-1.68 (m, 8H, CH$_2$), 1.25-1.33 (m, 56H, CH$_2$), 0.85-0.89 (t, 12H, CH3).

**Crystallization of M1 molecule.** The X-ray quality crystals of M1 were obtained from the hydrolysis of the dithioacetal molecule M2 in the presence of HgCl$_2$. Specifically, M2 (1.8 mg, 1.7 µmol), HgCl$_2$ (3.9 mg, 14.4 µmol) and CHCl$_3$ (1.0 mL) were loaded into a Pyrex glass tube (OD: 10 mm, ID: 7.8 mm). The tube was then flame-sealed and heated at 80 °C in a programmable oven for 20 hours, followed by slow cooling (0.015 °C/min) down to room temperature (i.e., over 60 hours to go from 80 °C to 25 °C), during which orange red cube-shaped single crystals suitable for single-crystal X-ray diffraction were formed (see the cif file attached).
Figure S9. An ellipsoid plot (50% probability) of a molecule of M1 from the X-ray single crystal structure of M1 (CCDC 1401125). Atom colors: yellow = S; red = O; black = C; gray = H.

Silver mirror reaction. Tollens’ reagent was freshly prepared as follows: AgNO₃ (290 mg, 1.70 mmol) was first dissolved in DI water (3.0 mL), to which was then added a solution of NaOH (68.2 mg, 1.70 mmol) in DI water (1.0 mL): brown solid was formed immediately. Then ammonium hydroxide solution (10% NH₃ in H₂O) was added dropwise with stirring to form a clear solution. PHTT_CHO polymer (69 mg) was added to the freshly prepared Tollens’ reagent, stirred and heated at 50 °C for 2 hours in the dark. The black solid (PHTT_Ag) was then collected on a funnel by suction filtration, washed by a large amount of DI water (until there is no precipitate when Na₂S was added into the filtrate), MeOH (10 mL × 3) and dried under vacuum.
Figure S10. X-ray diffraction patterns (Cu Kα, λ= 1.5418 Å) of a) PHTT_CHO and b) PHTT_Ag at room temperature.

Figure S11. CO₂ sorption isotherms at 273 K for an activated PHTT_Ag sample (surface area: 220 m²/g).
Scheme S4. Synthetic scheme for 1-allyloxy-3-nitrobenzene.

**Synthesis of 1-allyloxy-3-nitrobenzene.** 3-nitrophenol (280 mg, 2.01 mmol), potassium carbonate (830 mg, 6.00 mmol), potassium iodide (66.2 mg, 0.40 mmol) and a stir bar were loaded into a 50 mL two-neck round-bottom flask. The flask was fitted with a condenser and connected to a Schlenk line, evacuated and back-filled with \( \text{N}_2 \) (three times for purging). An acetone solution (20 mL) of allyl bromide (365 mg, 3.02 mmol), bubbled with \( \text{N}_2 \) for 5 minutes beforehand, was transferred into the flask via cannula. The reaction mixture was stirred at 60 °C for 6 hours under \( \text{N}_2 \), and then cooled to room temperature. The solvent was removed on a rotary evaporator, and the residue was purified by column chromatography (silica gel, 3:1 hexane/DCM as the eluent) to provide a light yellow oil (277.2 mg, yield 77.4%). \(^1\)H NMR (400 MHz, CDCl\(_3\)): \(\delta/\text{ppm}\) 7.80-7.84 (d, 1H, CHAr), 7.73-7.74 (t, 1H, CHAr), 7.40-7.45 (t, 1H, CHAr), 7.22-7.26 (dd, 1H, CHAr), 5.99-6.12 (m, 1H, =CH), 5.42-5.48(dd, 1H, =CH\(_2\)), 5.32-5.36 (dd, 1H, =CH\(_2\)), 4.61-4.63 (d, 2H, CH\(_2\)). \(^{13}\)C NMR (100 MHz, CDCl\(_3\)): \(\delta/\text{ppm}\) 159.17, 149.27, 132.22, 130.05, 121.99, 118.63, 115.98, 109.15, 69.43.

Scheme S5. Synthetic scheme for 1-allyloxy-2-nitrobenzene.
Synthesis of 1-allyloxy-2-nitrobenzene. 2-nitrophenol (280 mg, 2.01 mmol), potassium carbonate (830 mg, 6.00 mmol), potassium iodide (66.2 mg, 0.40 mmol) and a stir bar were loaded into a 50 mL two-neck round-bottom flask. The flask was fitted with a condenser and connected to a Schlenk line, evacuated and back-filled with N₂ (three times for purging). An acetone solution (20 mL) of allyl bromide (365 mg, 3.02 mmol), bubbled with N₂ for 5 minutes beforehand, was transferred into the flask via cannula. The reaction mixture was stirred at 60 °C for 6 hours under N₂, and then cooled to room temperature. The solvent was removed on a rotary evaporator, and the residue was purified by column chromatography (silica gel, 2:1 hexane/DCM as the eluent) to provide a light yellow oil (289.7 mg, yield 80.8%). ¹H NMR (400 MHz, CDCl₃): δ/ppm 7.81-7.83 (dd, 1H, CHAr), 7.48-7.52 (t, 1H, CHAr), 7.06-7.08(d, 1H, CHAr), 7.00-7.03 (t, 1H, CHAr), 5.98-6.07 (m, 1H, =CH), 5.46-5.50(dd, 1H, =CH), 5.30-5.33 (dd, 1H, =CH), 4.67-4.68 (d, 2H, CH₂). ¹³C NMR (100 MHz, CDCl₃): δ/ppm 151.97, 140.11, 134.14, 131.79, 125.71, 120.55, 118.37, 114.95, 70.04.

Scheme S6. Synthetic scheme for 1-allyloxy-4-nitrobenzene.

Synthesis of 1-allyloxy-4-nitrobenzene. 4-nitrophenol (280 mg, 2.01 mmol), potassium carbonate (830 mg, 6.00 mmol), potassium iodide (66.2 mg, 0.40 mmol) and a stir bar were loaded into a 50 mL two-neck round-bottom flask. The flask was fitted with a condenser and connected to a Schlenk line, evacuated and back-filled with N₂ (three times for purging). An
acetone solution (20 mL) of allyl bromide (365 mg, 3.02 mmol), bubbled with N\textsubscript{2} for 5 minutes beforehand, was transferred into the flask via cannula. The reaction mixture was stirred at 60 °C for 6 hours under N\textsubscript{2}, and then cooled to room temperature. The solvent was removed on a rotary evaporator, and the residue was purified by column chromatography (silica gel, 2:1 hexane/DCM as the eluent) to provide a light yellow oil (301.8 mg, yield 84.2%). \textsuperscript{1}H NMR (400 MHz, CDCl\textsubscript{3}): \(\delta\)/ppm 8.15-7.18 (d, 2H, CHAr), 6.94-6.96 (d, 2H, CHAr), 5.98-6.07 (m, 1H, =CH), 5.40-5.54(dd, 1H, =CH), 5.31 -5.34 (dd, 1H, =CH), 4.61-4.63 (d, 2H, CH2). \textsuperscript{13}C NMR (100 MHz, CDCl\textsubscript{3}): \(\delta\)/ppm 163.75, 141.66, 132.04, 126.02, 118.80, 114.85, 69.54.

**Typical conditions for heterogeneous catalytic reactions for the reduction of aromatic nitro groups.** Substrate (0.084 mmol), NaBH\textsubscript{4} (25.4 mg, 0.672 mmol) and PHTT\textsubscript{Ag} (Ag/substrate molar ratio: 5%) were loaded into a 7.5-mL glass vial. Absolute ethanol (0.5 mL) was then added and the reaction mixture was stirred by a magnetic bar at room temperature for several hours. After the reaction was completed (monitored via TLC), PHTT\textsubscript{Ag} was removed by filtration, and washed with absolute ethanol (1 mL \times 3), the filtrate was collected and the solvent was evaporated under reduced pressure. The residue was purified by flash column (dropper as the column) chromatography on a silica gel to give the product. Conversion is determined via \textsuperscript{1}H NMR using 1,2,4,5-tetramethylbenzene as the internal standard.

**General procedure for recycling PHTT\textsubscript{Ag}**. After finishing the catalytic reaction, PHTT\textsubscript{Ag} was recovered by simple centrifugation and washed thoroughly with DI H\textsubscript{2}O, absolute ethanol. A new batch reactant and reagent were loaded to the vial for the next catalytic cycle. The recyclability of this PHTT\textsubscript{Ag} heterogeneous catalyst was tested at least 5 times without any obvious decreases in the catalytic activity.
Catalytic activity test of the reaction supernatant. After the catalytic reaction was completed (monitored via TLC; eluent: 2:1 hexane/DCM, RF: 0.15), the catalyst was removed by simple filtration. The supernatant was collected and a new batch of reactant (1-allyloxy-3-nitrobenzene) was added to the supernatant. 2 drops of this solution was added to 0.5 mL CDCl₃ for ¹H NMR measurement. The remaining solution was stirred at room temperature for 12 hours. 2 drops of this solution was taken out and added to another 0.5 mL CDCl₃ for ¹H NMR measurement. The ratio between 1-allyloxy-3-nitrobenzene and 3-allyloxyaniline was unchanged after stirring at room temperature for 12 hours, suggesting no catalytic activity for the isolated supernatant.

Figure S12. The ¹H NMR spectrum showing the reduction of 1-allyloxy-3-nitrobenzene, with 1,2,4,5-tetramethylbenzene used as the internal standard (95% conversion)—Procedure: in air, 1-allyloxy-3-nitrobenzene (14.6 mg, 0.081 mmol), NaBH₄ (24.5 mg, 0.65 mmol), and PHTT_Ag
(1.5 mg, 33.4% Ag content; Ag/substrate molar ratio: 5%) were loaded in a 7.5-mL glass vial. Absolute ethanol (0.5 mL) was then added and the reaction mixture was stirred by a magnetic bar at room temperature for 12 hours. The solvent was evaporated in vacuo, the residual solid was dissolved in CDCl₃ for ¹H NMR measurement, with 1,2,4,5-tetramethylbenzene (1.91 mg, 0.0142 mmol) added as the internal standard, and the 95% yield of 3-allyloxyaniline was thus found. The peaks that are asterisked are satellite peaks.

Figure S13. Solution ¹H NMR spectra indicate no loss in catalytic activity of PHTT_Ag for 3 cycles, (1,2,4,5-tetramethylbenzene was used as internal standard). a) cycle 1, conversion: 96%; b) cycle 2, conversion: 95%; c) cycle 3, conversion: 96%). The peaks that are asterisked are satellite peaks.
Figure S14. Solution $^1$H NMR spectra indicate no catalytic activity from the supernatant: (A) the isolated supernatant (containing the product) after the addition of a new batch of reactant of 1-allyloxy-3-nitrobenzene and NaBH$_4$; and (B) the sample of (A) after stirred at room temperature for 12 hours. Selected NMR peaks from the reactants/product are labelled.
Figure S15. Powder X-ray diffraction patterns (Cu Kα, λ = 1.5418 Å) of a) PHTT_Ag before catalysis, b) PHTT_Ag after 1st round catalysis, c) PHTT_Ag after 3rd round catalysis, d) PHTT_Ag after 5th round catalysis (the asterisked peaks are assigned to AgCl).
$^1$H NMR and $^{13}$C NMR spectra for the products listed in Table 1 of the main text

**Entry 1**

\[
\begin{align*}
\text{NO}_2 \quad \text{+} \quad \text{NaBH}_4 & \quad \text{EtOH, RT} \\
\quad & \quad \text{PHTT-Ag, 5 mol\%}
\end{align*}
\]
Entry 2

\[ \text{Cl} \text{NO}_2 + \text{NaBH}_4 \xrightarrow{\text{EtOH, RT}} \text{Cl} \text{NH}_2 \]

PHTT_Ag, 5 mol%

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**NMR Spectra**

**1H NMR**

- 7.83 ppm
- 7.78 ppm
- 7.20 ppm
- 6.94 ppm
- 6.94 ppm
- 6.89 ppm
- 6.89 ppm
- 6.84 ppm
- 6.84 ppm

**13C NMR**

- 161.2 ppm
- 143.6 ppm
- 129.4 ppm
- 129.4 ppm
- 128.2 ppm
- 128.2 ppm
- 118.7 ppm
- 118.7 ppm
- 111.2 ppm

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S24
Entry 3

\[
\text{NO}_2 + \text{NaBH}_4 \xrightarrow{\text{EtOH, RT}} \xrightarrow{\text{PHTT}_\text{Ag}, 5 \text{ mol}\%} \text{NH}_2
\]
Entry 4

$$\text{NO}_2$$
$$\text{NH}_2$$

$$+ \quad \text{NaBH}_4$$

$$\xrightarrow{\text{EtOH, RT}}$$

$$\xrightarrow{\text{PHTT-Ag, 5 mol\%}}$$

$$\text{NH}_2$$

![NMR spectrum of 1,2-phenylenediamine and NaBH₄ in DMSO](image)

- 7.36 ppm
- 6.87 ppm
- 3.31 ppm

![13C NMR spectrum of 1,2-phenylenediamine and NaBH₄ in DMSO](image)

- 138.69 ppm
- 110.33 ppm
- 77.14 ppm
- 76.54 ppm

S26
Entry 5

\[
\begin{align*}
\text{NO}_2 & \quad + \quad \text{NaBH}_4 \\
\text{OH} & \quad \xrightarrow{\text{EtOH, RT}} \quad \text{NH}_2 \\
\text{PHTT}_\text{Ag, 5 mol\%} & \quad \text{OH}
\end{align*}
\]
Entry 6

\[ \text{NO}_2 \text{O} \text{CH}_2 \text{CH} = \text{CH}_2 + \text{NaBH}_4 \xrightarrow{\text{EtOH, RT, PHTT-Ag, 5 mol\%}} \text{NH}_2 \text{O} \text{CH}_2 \text{CH} = \text{CH}_2 \]
Entry 8

\[
\begin{align*}
\text{NO}_2 \quad &+ \quad \text{NaBH}_4 \quad \xrightarrow{\text{EtOH, RT}} \quad \text{NH}_2 \\
\text{O} \quad &\quad \text{O} \quad \text{O} \\
\end{align*}
\]

20130119-1a-hexyloxywine

20130119-2-hexyloxy ahlone C13NMR