

Efficient Access to Azaindoles and Indoles

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Supporting Information

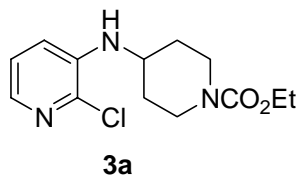
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General considerations: Screening reactions were conducted under a nitrogen atmosphere in 8 mL vials equipped with magnetic stir-bars and septa. Larger scale preparative reactions were conducted in standard RB-flasks under a nitrogen atmosphere. HPLC grade solvents were used with no additional purification/drying. NMR spectra were recorded using a Bruker DPX-400 spectrometer; ^1H NMR recorded at 400 MHz and ^{13}C recorded at 100 MHz. TLC was performed using 2.5 cm \times 7.5 cm EMD glass-backed plates (silica gel 60, F₂₅₄, 250 μm thickness). Flash column chromatography was performed using EMD silica gel 60, 230-400 mesh. HPLC was performed on an Agilent 1100 Series machine using an Agilent Zorbax (Eclipse XDB C8) column (4.6 mm \times 150 mm), 0.65 mL/min flowrate, 205 nm detection, 30 $^\circ\text{C}$ column temperature; mobile phase MeCN/0.1% aq. H_3PO_4 10/90 for 3 min then ramp to 60/40 over 10 min then ramp to 95/5 over 2 min then 95/5 for a further 4 min.

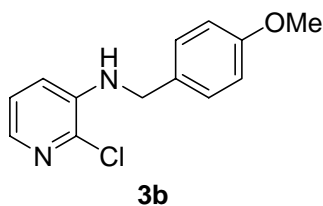
General procedure A

Reductive alkylation of arylamines: To a RB-flask equipped with magnetic stir-bar and temperature probe was charged the arylamine (100 mol%) and the carbonyl compound (110 mol%) followed by *i*-PrOAc (12 mL/g of arylamine) and trifluoroacetic acid (200 mol%). Sodium triacetoxyborohydride (120 mol%) was added as a solid over 1 min, normally accompanied by an increase in temperature to ~ 40 $^\circ\text{C}$. After 10 min agitation, the mixture was usually homogeneous and LC analysis indicated complete consumption of the arylamine. A solution of 10 wt% aqueous NaOH was added to the mixture until pH 8-9. The phases were allowed to separate and the organic phase washed with brine then dried over Na_2SO_4 , filtered and concentrated to afford the crude product. The crude product was normally used directly in the subsequent Sonogashira-indolization procedure. Analytical and isolated yield data given below refer to material purified by silica chromatography using an appropriate hexane : EtOAc gradient.

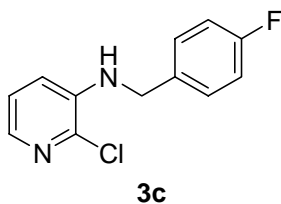


4-(2-Chloropyridin-3-ylamino)piperidine-1-carboxylic acid ethyl ester (3a):

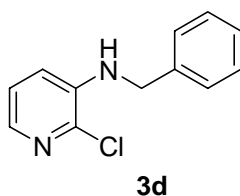
Following the general reductive alkylation procedure, **3a** was obtained as an off-white solid (92%): ^1H NMR (400 MHz, DMSO) δ 1.17 (t, J = 7.2 Hz, 3H), 1.36-1.48 (m, 2H), 1.81-1.89 (m, 2H), 2.81-2.99 (m, 2H), 3.46-3.59 (m, 1H), 3.88-4.10 (m, 4H), 5.13 (d, J = 8.0 Hz, 1H), 7.14-7.20 (m, 2H), 7.57-7.61 (m, 1H); ^{13}C $\{^1\text{H}\}$ NMR (100 MHz, DMSO) δ 15.0, 31.3, 42.9, 49.1, 61.0, 118.8, 124.2, 135.8, 136.4, 140.2, 155.0. HRMS calcd. for $\text{C}_{13}\text{H}_{18}\text{ClN}_3\text{O}_2$ $[\text{M}+\text{H}]^+$ 284.11603, found 284.11692.



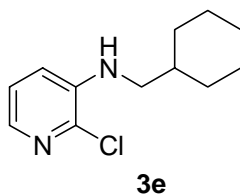
(2-Chloropyridin-3-yl)-(4-methoxybenzyl)amine (3b): Following general procedure A, **3b** was obtained as an off-white solid (97%): ^1H NMR (400 MHz, CDCl_3) δ 3.77 (s, 3H), 4.28 (s, 2H), 4.81 (br s, 1H), 6.82 (dd, J = 8.0, 1.6 Hz, 1H), 6.87 (d, J = 8.4 Hz, 2H), 7.00 (dd, J = 8.0, 4.8 Hz, 1H), 7.24 (d, J = 8.6 Hz, 2H), 7.68 (dd, J = 4.6, 1.6 Hz, 1H); ^{13}C $\{^1\text{H}\}$ NMR (100 MHz, CDCl_3) δ 46.8, 55.2, 114.2, 117.8, 123.3, 128.4, 129.6, 136.3, 136.9, 140.5, 159.0. HRMS calcd. for $\text{C}_{13}\text{H}_{13}\text{ClN}_2\text{O}$ $[\text{M}+\text{H}]^+$ 249.0795, found 249.0794.



(2-Chloropyridin-3-yl)-(4-fluorobenzyl)amine (3c): Following general procedure A, **3a** was obtained as an off-white solid (90%): ^1H NMR (400 MHz, DMSO) δ 4.40 (s, 2H), 6.43 (br s, 1H), 6.85 (d, $J = 7.6$ Hz, 1H), 7.05 (dd, $J = 7.6, 4.4$ Hz, 1H), 7.08-7.17 (m, 2H), 7.32-7.42 (m, 2H), 7.56 (d, $J = 4.4$ Hz, 1H); ^{13}C $\{^1\text{H}\}$ NMR (100 MHz, DMSO) δ 45.2, 115.4 (d, $J_{\text{CF}} = 20.1$ Hz), 118.4, 124.0, 129.1 (d, $J_{\text{CF}} = 10.1$ Hz), 135.4, 135.8, 136.3, 140.9, 161.6 (d, $J_{\text{CF}} = 240$ Hz). HRMS calcd. for $\text{C}_{12}\text{H}_{10}\text{ClFN}_2$ $[\text{M}+\text{H}]^+$ 237.05893, found 237.06003.



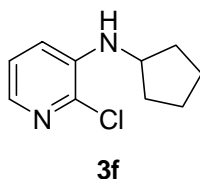
Benzyl-(2-chloropyridin-3-yl)amine (3d)¹: Following the general reductive alkylation procedure, **3d** was obtained as an off-white solid (94%): ^1H NMR (400 MHz, DMSO) δ 4.34 (s, 2H), 6.40 (br s, 1H), 6.85 (dd, $J = 8.0, 1.2$ Hz, 1H), 7.03 (dd, $J = 8.0, 4.4$ Hz, 1H), 7.17-7.24 (m, 1H), 7.26-7.38 (m, 4H), 7.57 (dd, $J = 4.8, 1.2$ Hz, 1H); ^{13}C $\{^1\text{H}\}$ NMR (100 MHz, DMSO) δ 46.0, 118.4, 124.0, 127.2 (2C), 128.8, 135.7, 136.3, 139.3, 141.1. HRMS calcd. for $\text{C}_{12}\text{H}_{11}\text{ClN}_2$ $[\text{M}+\text{H}]^+$ 219.06835, found 219.06897.



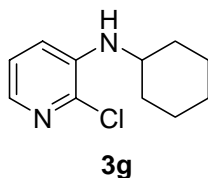
(2-Chloropyridin-3-yl)-cyclohexylmethylamine (3e): Following general procedure A, **3e** was obtained as an oil (89%): ^1H NMR (400 MHz, CDCl_3) δ 0.92-1.05 (m, 2H), 1.10-1.32 (m, 3H), 1.52-1.85 (m, 7H), 2.96 (d, $J = 7.6$ Hz, 2H), 6.84 (dd, $J = 8.0, 4.4$ Hz, 1H), 7.05 (dd, $J = 8.0, 4.4$ Hz, 1H), 7.65 (dd, $J = 4.4, 1.6$ Hz, 1H); ^{13}C $\{^1\text{H}\}$ NMR (100 MHz,

¹ Fuwa, H.; Kobayashi, T.; Tokitoh, T.; Torii, Y.; Natsugari, H. *Tetrahedron* **2005**, *61*, 4297-4312.

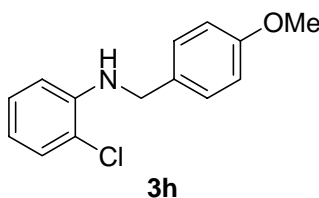
CDCl₃) δ 25.8, 26.3, 31.1, 37.1, 49.7, 117.1, 123.3, 135.7, 136.8, 140.9. HRMS calcd. for C₁₂H₁₇ClN₂ [M+H]⁺ 225.11530, found 225.11519.



(2-Chloropyridin-3-yl)cyclopentylamine (3f): Following general procedure A, **3f** was obtained as a pale yellow oil (88%): ¹H NMR (400 MHz, CDCl₃) δ 1.43-1.54 (m, 2H), 1.56-1.67 (m, 2H), 1.68-1.76 (m, 2H), 1.95-2.05 (m, 2H), 3.69-3.76 (m, 1H), 4.44 (br, 1H), 6.87 (dd, *J* = 8.0, 1.6 Hz, 1H), 7.04 (dd, *J* = 8.0, 4.4 Hz, 1H), 7.64 (dd, *J* = 4.4, 1.6 Hz, 1H); ¹³C {¹H} NMR (100 MHz, CDCl₃) δ 23.9, 33.2, 54.0, 117.9, 123.2, 135.6, 136.8, 140.4. HRMS calcd. for C₁₀H₁₃ClN₂ [M+H]⁺ 197.08400, found 197.08296.

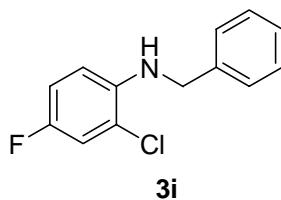


(2-Chloropyridin-3-yl)cyclohexylamine (3g)²: Following general procedure A, **3g** was obtained as an oil (91%): ¹H NMR (400 MHz, CDCl₃) δ 1.11-1.35 (m, 5H), 1.51-1.60 (m, 1H), 1.63-1.73 (m, 2H), 1.88-1.96 (m, 2H), 3.13-3.20 (m, 1H), 4.18 (br, 1H), 6.79 (dd, *J* = 8.0, 1.6 Hz, 1H), 6.96 (dd, *J* = 8.0, 4.4 Hz, 1H), 7.55 (dd, *J* = 4.4, 1.6 Hz, 1H); ¹³C {¹H} NMR (100 MHz, CDCl₃) δ 24.5, 25.5, 32.6, 51.0, 117.5, 123.2, 135.4, 136.7, 139.7. HRMS calcd. for C₁₁H₁₅ClN₂ [M+H]⁺ 211.09965, found 211.10019.

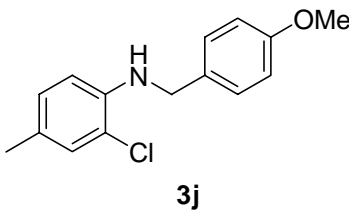


² Kuethe, J. T.; Wong, A.; Davies, I. W. *J. Org. Chem.* **2004**, 69, 7752-7754.

(2-Chlorophenyl)-(4-methoxybenzyl)amine (3h): Following general procedure A, **3h** was obtained as an off-white solid (94%): ^1H NMR (400 MHz, CDCl_3) δ 3.86 (s, 3H), 4.37 (s, 2H), 4.74 (br s, 1H), 6.71 (dt, $J = 8.4, 1.4$ Hz, 2H), 6.98 (d, $J = 8.4$ Hz, 2H), 7.18 (dt, $J = 8.4, 1.6$ Hz, 1H), 7.33-7.38 (m, 3H); ^{13}C $\{^1\text{H}\}$ NMR (100 MHz, CDCl_3) δ 47.3, 55.2, 111.5, 114.1, 117.3, 119.1, 127.8, 128.6, 129.1, 130.7, 143.9, 159.0. HRMS calcd. for $\text{C}_{14}\text{H}_{14}\text{ClNO}$ $[\text{M}+\text{H}]^+$ 248.0842, found 248.0845.

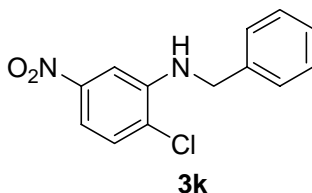


Benzyl-(2-chloro-4-fluorophenyl)amine (3i): Following general procedure A, **3i** was obtained as an off-white solid (85%): ^1H NMR (400 MHz, CDCl_3) δ 4.44 (d, $J = 5.6$ Hz, 2H), 4.71 (br s, 1H), 6.64 (dd, $J = 9.2, 5.2$ Hz, 1H), 6.93 (dt, $J = 9.2, 2.8$ Hz, 1H), 7.17 (dd, $J = 8.0, 2.8$ Hz, 1H), 7.36-7.43 (m, 1H), 7.44-7.49 (m, 4H); ^{13}C $\{^1\text{H}\}$ NMR (100 MHz, CDCl_3) δ 48.3, 111.7 (d, $J_{\text{CF}} = 10.1$ Hz), 114.4 (d, $J_{\text{CF}} = 20.1$ Hz), 116.5 (d, $J_{\text{CF}} = 30.2$ Hz), 119.9 (d, $J_{\text{CF}} = 10.1$ Hz), 127.3, 127.5, 128.8, 138.6, 140.7, 155.5 (d, $J_{\text{CF}} = 241$ Hz). HRMS calcd. for $\text{C}_{13}\text{H}_{11}\text{ClFN}$ $[\text{M}+\text{H}]^+$ 236.06423, found 236.06428.

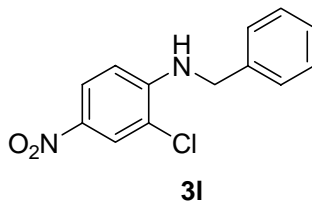


(2-Chloro-4-methylphenyl)-(4-methoxybenzyl)amine (3j): Following general procedure A, **3j** was obtained as an oil (84%): ^1H NMR (400 MHz, CDCl_3) δ 2.26 (s, 3H), 3.84 (s, 3H), 4.33 (s, 2H), 4.55 (br, 1H), 6.60 (d, $J = 8.0$ Hz, 1H), 6.89-6.97 (m, 3H), 7.14 (s, 1H), 7.32 (d, $J = 8.4$ Hz, 2H); ^{13}C $\{^1\text{H}\}$ NMR (100 MHz, CDCl_3) δ 20.1,

47.5, 55.2, 111.6, 114.0, 118.9, 126.8, 128.2, 128.5, 129.5, 130.9, 141.6, 158.8. HRMS calcd. for $C_{15}H_{16}ClNO$ $[M+H]^+$ 262.0999, found 262.0997.



Benzyl-(2-chloro-5-nitrophenyl)amine (3k): Following general procedure A, **3k** was obtained as a yellow solid (84%): 1H NMR (400 MHz, $CDCl_3$) δ 4.50 (d, J = 6.0 Hz, 2H), 6.83-6.90 (m, 1H), 7.19-7.27 (m, 2H), 7.29-7.39 (m, 5H), 7.50 (d, J = 8.8 Hz, 1H); ^{13}C $\{^1H\}$ NMR (100 MHz, $CDCl_3$) δ 46.2, 105.2, 111.1, 124.8, 127.1, 127.3, 128.9, 130.2, 139.0, 145.1, 147.7. HRMS calcd. for $C_{13}H_{11}ClN_2O_2$ $[M+H]^+$ 263.0587, found 263.0588.



Benzyl-(2-chloro-4-nitrophenyl)amine (3l): Following general procedure A, **3l** was obtained as a yellow solid (72%): 1H NMR (400 MHz, $CDCl_3$) δ 4.55 (d, J = 6.0 Hz, 2H), 6.65 (d, J = 9.2 Hz, 1H), 7.16-7.26 (m, 1H), 7.27-7.38 (m, 4H), 7.51-7.65 (m, 1H), 7.92 (d, J = 9.2 Hz, 1H), 8.07-8.16 (m, 1H); ^{13}C $\{^1H\}$ NMR (100 MHz, $CDCl_3$) δ 46.1, 110.3, 117.2, 125.1, 125.5, 127.1, 127.4, 128.9, 136.3, 138.6, 149.8. HRMS calcd. for $C_{13}H_{11}ClN_2O_2$ $[M+H]^+$ 263.0587, found 263.0586.

General procedure B

Azaindole synthesis with dppb: To a vial equipped with a stir-bar and septum was charged $Pd(OAc)_2$ (2 mol%), dppb (4 mol%), K_2CO_3 (300 mol%) and the chloropyridine

substrate (100 mol%). MeCN (< 50 ppm H₂O, 10 mL/g substrate) was added and the system was purged with N₂ for 10 min. The mixture was aged for a further 20 min before the alkyne (110 mol%) was added neat via syringe. The mixture was then heated at 80 °C using an aluminum reaction block. After 16 h, LC and TLC analysis confirmed complete conversion of the chloropyridine. The mixture was allowed to cool to rt and treated with 1M *t*-BuOK in THF (50 mol%), causing the mixture to become deep red in color. After 30 min, TLC and LC analysis confirmed complete indolization. Water and *i*-PrOAc were added and the separated organic phase was washed with brine, dried over Na₂SO₄, filtered and concentrated. The azaindole/indole product was isolated following silica chromatography using an appropriate hexane : EtOAc gradient elution.

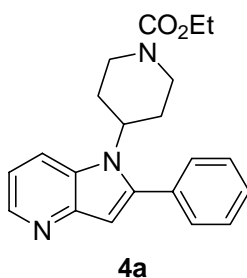
General procedure C

Azaindole synthesis with X-Phos: To a vial equipped with a stir-bar and septum was charged PdCl₂(MeCN)₂ (1 mol%), X-Phos (3 mol%), K₂CO₃ (300 mol%) and the chloropyridine substrate (100 mol%). MeCN (< 50 ppm H₂O, 10 mL/g substrate) was added and the system was purged with N₂ for 10 min. The mixture was aged for a further 20 min before the alkyne (105 mol%) was added neat via syringe. The mixture was then heated at 60 °C using an aluminum reaction block. After 16 h, LC and TLC analysis confirmed complete conversion of the chloropyridine. The mixture was allowed to cool to rt and treated with 1M *t*-BuOK in THF (50 mol%), causing the mixture to become deep red in color. After 30 min, TLC and LC analysis confirmed complete indolization. Water and *i*-PrOAc were added and the separated organic phase was washed with brine, dried over Na₂SO₄, filtered and concentrated. The azaindole/indole product was isolated following silica chromatography using an appropriate hexane : EtOAc gradient elution.

General procedure D

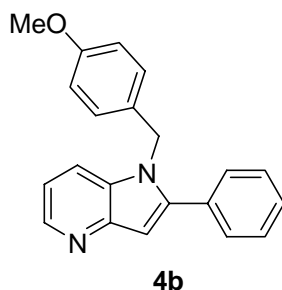
Indole synthesis with X-Phos: To a vial equipped with a stir-bar and septum was charged PdCl₂(MeCN)₂ (1 mol%), X-Phos (3 mol%), K₂CO₃ (300 mol%) and the chloropyridine substrate (100 mol%). MeCN (< 50 ppm H₂O, 10 mL/g substrate) was added and the system was purged with N₂ for 10 min. The mixture was aged for a further 20 min before the alkyne (110 mol%) was added neat via syringe. The mixture was then

heated at 80 °C using an aluminum reaction block. After 16 h, LC and TLC analysis confirmed complete conversion of the chloropyridine. The mixture was allowed to cool to rt and treated with 1M *t*-BuOK in THF (50 mol%), causing the mixture to become deep red in color. After 30 min, TLC and LC analysis confirmed complete indolization. Water and *i*-PrOAc were added and the separated organic phase was washed with brine, dried over Na₂SO₄, filtered and concentrated. The azaindole/indole product was isolated following silica chromatography using an appropriate hexane : EtOAc gradient elution.

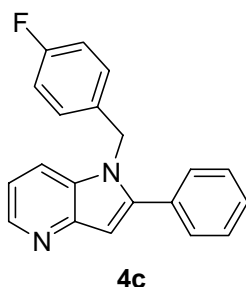


4-(2-Phenylpyrrolo[3,2-*b*]pyridin-1-yl)piperidine-1-carboxylic acid ethyl ester (4a):

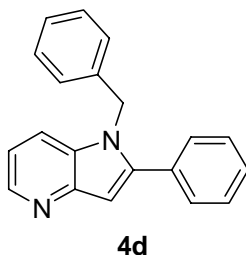
Following general procedure B, azaindole **4a** was obtained as a solid (88%): ¹H NMR (400 MHz, CDCl₃) δ 1.28 (t, *J* = 7.2 Hz, 3H), 1.81-2.50 (m, 2H), 2.36-2.50 (m, 2H), 2.65-2.77 (m, 2H), 4.17 (q, *J* = 7.2 Hz, 2H), 4.24-4.42 (m, 3H), 6.68 (s, 1H), 7.05 (dd, *J* = 8.0, 4.4, 1H), 7.40-7.52 (m, 5H), 7.81 (d, *J* = 8.0 Hz, 1H), 8.44 (d, *J* = 4.4 Hz, 1H); ¹³C {¹H} NMR (100 MHz, CDCl₃) δ 14.6, 30.7, 43.5, 54.5, 61.5, 103.8, 115.8, 119.0, 128.6, 128.7 (2C), 129.3, 132.4, 143.3, 144.5, 147.0, 155.3. HRMS calcd. for C₂₁H₂₃N₂O₂ [M+H]⁺ 350.18630, found 350.18748.



1-(4-Methoxybenzyl)-2-phenyl-1H-pyrrolo[3,2-*b*]pyridine (4b): Following general procedure B, azaindole **4b** was obtained as a solid (90%): ^1H NMR (400 MHz, CDCl_3) δ 3.76 (s, 3H), 5.31 (s, 2H), 6.77-6.86 (m, 3H), 6.88-6.93 (m, 2H), 7.01-7.07 (m, 1H), 7.37-7.51 (m, 6H), 8.48 (d, $J = 4.8$ Hz, 1H); ^{13}C $\{^1\text{H}\}$ NMR (100 MHz, CDCl_3) δ 47.1, 55.1, 103.3, 114.1, 116.5, 117.5, 127.1, 128.6 (2C), 129.2, 129.3, 130.8, 131.9, 143.7, 145.0, 146.7, 158.8. HRMS calcd. for $\text{C}_{21}\text{H}_{18}\text{N}_2\text{O}$ $[\text{M}+\text{H}]^+$ 315.1497, found 315.1494.

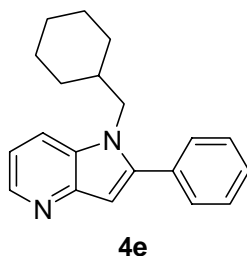


1-(4-Fluorobenzyl)-2-phenyl-1H-pyrrolo[3,2-*b*]pyridine (4c): Following general procedure B, azaindole **4c** was obtained as a solid (89%): ^1H NMR (400 MHz, CDCl_3) δ 5.29 (s, 2H), 6.84 (s, 1H), 6.86-6.95 (m, 4H), 7.01 (dd, $J = 8.0, 4.4$ Hz, 1H), 7.34-7.45 (m, 6H), 8.47 (4.4, 1.6 Hz, 1H); ^{13}C $\{^1\text{H}\}$ NMR (100 MHz, CDCl_3) δ 46.9, 103.5, 115.7 (d, $J_{\text{CF}} = 21.6$ Hz), 116.6, 117.4, 127.5, 127.6, 128.7, 129.1, 130.7, 131.6, 133.0, 143.8, 144.9, 146.7, 162.0 (d, $J_{\text{CF}} = 246.0$ Hz). HRMS calcd. for $\text{C}_{20}\text{H}_{15}\text{FN}_2$ $[\text{M}+\text{H}]^+$ 303.12920, found 303.13130.

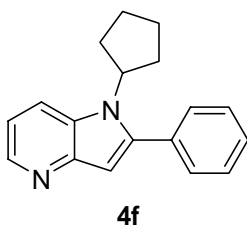


1-Benzyl-2-phenyl-1H-pyrrolo[3,2-*b*]pyridine (4d): Following general procedure B, azaindole **4d** was obtained as a solid (87%): ^1H NMR (400 MHz, CDCl_3) δ 5.31 (s, 2H), 6.89 (s, 1H), 6.92-7.00 (m, 3H), 7.17-7.26 (m, 3H), 7.33-7.41 (m, 4H), 7.43-7.47 (2H),

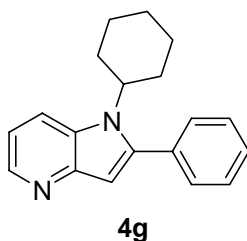
8.47 (d, $J = 4.4$ Hz, 1H); ^{13}C $\{^1\text{H}\}$ NMR (100 MHz, CDCl_3) δ 47.6, 103.3, 116.6, 117.5, 125.8, 127.4, 128.6 (2C), 128.8, 129.2, 130.9, 131.7, 137.4, 143.7, 145.0, 146.7. HRMS calcd. for $\text{C}_{20}\text{H}_{16}\text{N}_2$ $[\text{M}+\text{H}]^+$ 285.13862, found 285.13861.



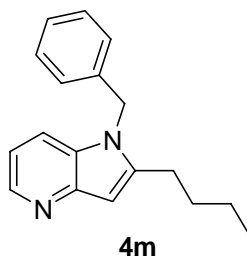
1-Cyclohexylmethyl-2-phenyl-1H-pyrrolo[3,2-*b*]pyridine (4e): Following general procedure B, azaindole **4e** was obtained as a solid (86%): ^1H NMR (400 MHz, CDCl_3) δ 0.58-0.75 (m, 2H), 0.90-1.05 (m, 3H), 1.24-1.35 (m, 2H), 1.44-1.66 (m, 4H), 4.01 (d, $J = 7.6$ Hz, 2H), 6.71 (s, 1H), 7.08 (dd, $J = 8.0, 4.4$ Hz, 1H), 7.37-7.50 (m, 5H), 7.63 (d, $J = 8.0$ Hz, 1H), 8.45 (dd, $J = 4.4, 1.2$ Hz, 1H); ^{13}C $\{^1\text{H}\}$ NMR (100 MHz, CDCl_3) δ 25.5, 26.0, 30.6, 38.4, 50.0, 103.1, 116.0, 117.3, 128.3, 128.5, 129.4, 130.7, 132.6, 143.2, 145.0, 146.4. HRMS calcd. for $\text{C}_{20}\text{H}_{22}\text{N}_2$ $[\text{M}+\text{H}]^+$ 291.18558, found 291.18645.



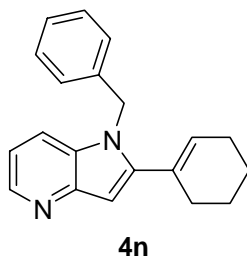
1-Cyclopentyl-2-phenyl-1H-pyrrolo[3,2-*b*]pyridine (4f): Following general procedure B, azaindole **4f** was obtained as a solid (83%): ^1H NMR (400 MHz, CDCl_3) δ 1.63-1.78 (m, 2H), 1.94-2.11 (m, 4H), 2.20-2.35 (m, 2H), 4.75-4.87 (m, 1H), 6.67 (s, 1H), 7.08 (dd, $J = 8.0, 4.4$ Hz, 1H), 7.43-7.54 (m, 5H), 7.77 (d, $J = 8.0$ Hz, 1H), 8.46 (dd, $J = 4.4, 1.2$ Hz, 1H); ^{13}C $\{^1\text{H}\}$ NMR (100 MHz, CDCl_3) δ 25.1, 30.5, 57.1, 102.9, 115.5, 118.6, 127.9, 128.4, 128.5, 129.4, 132.7, 143.0, 145.3, 147.2. HRMS calcd. for $\text{C}_{18}\text{H}_{18}\text{N}_2$ $[\text{M}+\text{H}]^+$ 263.15482, found 263.15493.



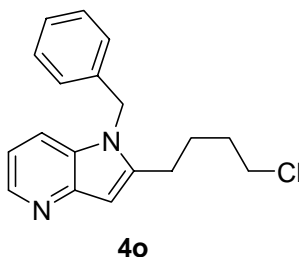
1-Cyclohexyl-2-phenyl-1H-pyrrolo[3,2-*b*]pyridine (4g): Following general procedure B, azaindole **4g** was obtained as a solid (88%): ^1H NMR (400 MHz, CDCl_3) δ 1.14-1.32 (m, 3H), 1.66-1.73 (m, 1H), 1.78-1.94 (m, 4H), 2.12-2.29 (m, 2H), 4.14-4.25 (m, 1H), 6.68 (s, 1H), 7.03 (dd, $J = 8.0, 4.4$ Hz, 1H), 7.36-7.48 (m, 5H), 7.89 (d, $J = 8.0$ Hz, 1H), 8.43 (dd, $J = 4.4, 1.2$ Hz, 1H); ^{13}C $\{^1\text{H}\}$ NMR (100 MHz, CDCl_3) δ 25.3, 26.0, 31.8, 56.4, 103.2, 115.5, 119.4, 128.4, 128.5, 128.7, 129.3, 132.8, 142.9, 144.7, 147.0. HRMS calcd. for $\text{C}_{19}\text{H}_{20}\text{N}_2$ $[\text{M}+\text{H}]^+$ 277.16993, found 277.17098.



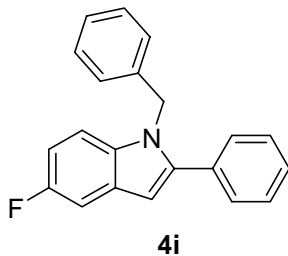
1-Benzyl-2-butyl-1H-pyrrolo[3,2-*b*]pyridine (4m): Following general procedure B, azaindole **4m** was obtained as a solid (91%): ^1H NMR (400 MHz, CDCl_3) δ 0.80 (t, $J = 7.6$ Hz, 3H), 1.23-1.33 (m, 2H), 1.51-1.66 (m, 2H), 2.54 (t, $J = 7.6$ Hz, 2H), 5.08 (s, 2H), 6.47 (s, 1H), 6.75-6.81 (m, 3H), 7.03-7.12 (m, 3H), 7.21 (d, $J = 8.4$ Hz, 1H), 8.29 (dd, $J = 4.8, 1.2$ Hz, 1H); ^{13}C $\{^1\text{H}\}$ NMR (100 MHz, CDCl_3) δ 13.7, 22.2, 26.3, 30.1, 46.1, 100.5, 115.4, 115.8, 125.6, 127.3, 128.6, 129.9, 137.1, 142.7, 145.2, 146.7. HRMS calcd. for $\text{C}_{18}\text{H}_{20}\text{N}_2$ $[\text{M}+\text{H}]^+$ 265.16993, found 265.17031.



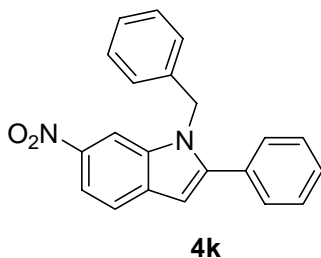
1-Benzyl-2-cyclohex-1-enyl-1H-pyrrolo[3,2-*b*]pyridine (4n): Following general procedure B, azaindole **4n** was obtained as a solid (90%): ^1H NMR (400 MHz, CDCl_3) δ 1.56-1.65 (m, 2H), 1.67-1.75 (m, 2H), 2.09-2.17 (m, 2H), 2.25-2.32 (m, 2H), 5.31 (s, 2H), 5.85-5.89 (m, 1H), 6.63 (s, 1H), 6.92 (dd, $J = 8.0, 4.8$ Hz, 1H), 6.96 (d, $J = 6.4$ Hz, 2H), 7.15-7.27 (m, 3H), 7.31 (d, $J = 8.4$ Hz, 1H), 8.39 (dd, $J = 4.4, 1.2$ Hz, 1H); ^{13}C $\{^1\text{H}\}$ NMR (100 MHz, CDCl_3) δ 21.7, 22.6, 25.5, 29.5, 47.6, 101.2, 116.0, 117.0, 125.9, 127.2, 128.7, 129.3, 130.3, 130.6, 137.7, 143.3, 146.7, 146.9. HRMS calcd. for $\text{C}_{20}\text{H}_{20}\text{N}_2$ $[\text{M}+\text{H}]^+$ 289.16993, found 289.17125.



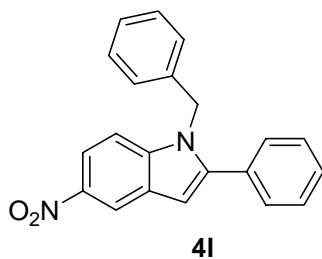
1-Benzyl-2-(4-chlorobutyl)-1H-pyrrolo[3,2-*b*]pyridine (4o): Following general procedure B, azaindole **4o** was obtained as a solid (86%): ^1H NMR (400 MHz, CDCl_3) δ 1.71-1.82 (m, 4H), 2.60-2.68 (m, 2H), 3.38-3.45 (m, 2H), 5.21 (s, 2H), 6.52 (s, 1H), 6.86 (d, $J = 8.0$ Hz, 2H), 6.91 (dd, $J = 8.0, 4.4$ Hz, 1H), 7.15-7.22 (m, 3H), 7.35 (d, $J = 8.0$ Hz, 1H), 8.36 (dd, $J = 4.4, 1.2$ Hz, 1H); ^{13}C $\{^1\text{H}\}$ NMR (100 MHz, CDCl_3) δ 25.2, 25.9, 31.8, 44.5, 46.2, 100.8, 115.7, 116.0, 125.7, 127.5, 128.8, 130.1, 137.0, 142.9, 144.2, 146.6. HRMS calcd. for $\text{C}_{18}\text{H}_{19}\text{ClN}_2$ $[\text{M}+\text{H}]^+$ 299.13095, found 299.13164.



1-Benzyl-5-fluoro-2-phenyl-1H-indole (4i): Following general procedure D, indole **4i** was obtained as a solid (84%): ^1H NMR (400 MHz, CDCl_3) δ 5.46 (s, 2H), 6.77 (s, 1H), 7.03 (dt, $J = 9.2, 2.8$ Hz, 1H), 7.14 (d, $J = 6.8$ Hz, 2H), 7.20 (dd, $J = 9.2, 4.4$ Hz, 1H), 7.34-7.43 (m, 3H), 7.45-7.54 (m, 4H), 7.56-7.61 (m, 2H); ^{13}C $\{^1\text{H}\}$ NMR (100 MHz, CDCl_3) δ 47.9, 102.4, 105.4 (d, $J_{\text{CF}} = 30.2$ Hz), 110.3 (d, $J_{\text{CF}} = 30.2$ Hz), 111.3 (d, $J_{\text{CF}} = 10.1$ Hz), 126.0, 127.4, 128.4, 128.6, 128.7, 128.9, 129.2, 132.5, 134.6, 138.0, 143.5, 158.1 (d, $J_{\text{CF}} = 231$ Hz). HRMS calcd. for $\text{C}_{21}\text{H}_{16}\text{FN}$ $[\text{M}+\text{H}]^+$ 302.13450, found 350.13482.



1-Benzyl-6-nitro-2-phenyl-1H-indole (4k): Following general procedure D, indole **4k** was obtained as a solid (78%): ^1H NMR (400 MHz, CDCl_3) δ 5.46 (s, 2H), 6.74 (s, 1H), 6.99 (d, $J = 8.0$ Hz, 2H), 7.24-7.33 (m, 3H), 7.42-7.48 (m, 5H), 7.70 (d, $J = 8.4$ Hz, 1H), 8.06 (dd, $J = 8.8, 2.0$, 1H), 8.17-8.19 (m, 1H); ^{13}C $\{^1\text{H}\}$ NMR (100 MHz, DMSO) δ 47.4, 103.8, 108.1, 115.6, 120.9, 126.2, 127.7, 129.1, 129.3, 129.4, 129.5, 131.3, 133.1, 136.5, 137.9, 142.6, 147.7. HRMS calcd. for $\text{C}_{21}\text{H}_{16}\text{N}_2\text{O}_2$ $[\text{M}+\text{H}]^+$ 329.1290, found 329.1285.

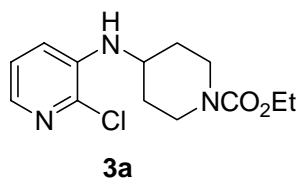


1-Benzyl-5-nitro-2-phenyl-1*H*-indole (4I): Following general procedure D, indole **4I** was obtained as a solid (72%): ^1H NMR (400 MHz, CDCl_3) δ 5.43 (s, 2H), 6.81 (s, 1H), 6.99 (d, $J = 7.2$ Hz, 2H), 7.22 (d, $J = 9.2$ Hz, 1H), 7.26-7.34 (m, 3H), 7.42-7.48 (m, 5H), 8.06 (dd, $J = 9.2, 2.4$ Hz, 1H), 8.63 (d, $J = 2.4$ Hz, 1H); ^{13}C $\{^1\text{H}\}$ NMR (100 MHz, CDCl_3) δ 48.0, 104.3, 110.4, 117.4, 117.5, 125.8, 127.4, 127.6, 128.7, 128.9, 129.0, 129.2, 131.3, 136.8, 140.5, 142.0, 145.0. HRMS calcd. for $\text{C}_{21}\text{H}_{16}\text{N}_2\text{O}_2$ $[\text{M}+\text{H}]^+$ 329.1290, found 329.128.

Current Data Parameters
NAME 224520-133-2
EXPNO 1
PROCNO 1

nmr400c h1

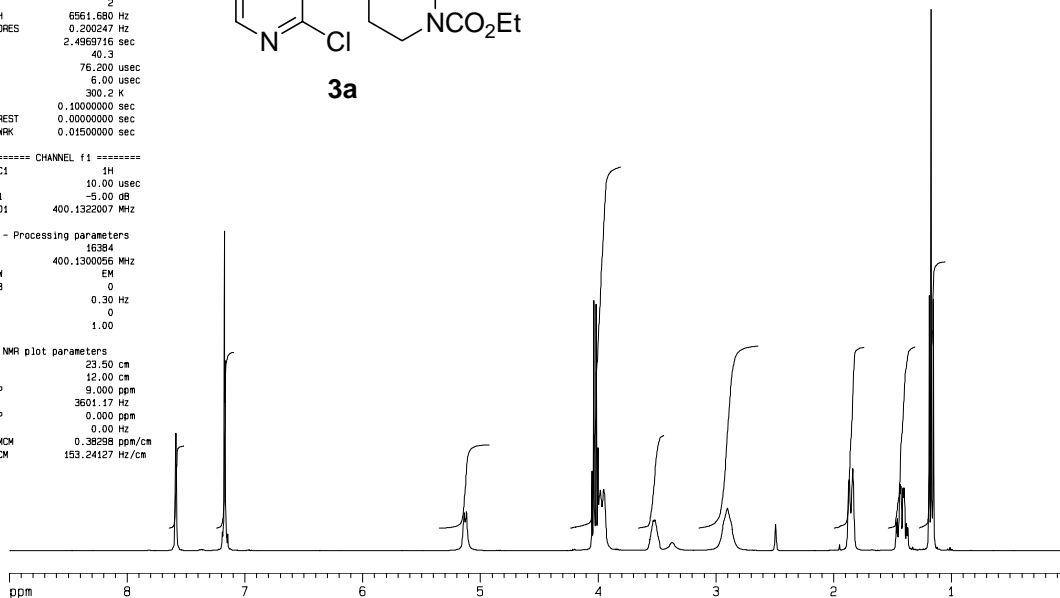
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NS 32
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FIDRES 0.200247 Hz
AQ 2.4969716 sec
RG 40.3
DM 76.200 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
MCREST 0.00000000 sec
MCMRK 0.01500000 sec



----- CHANNEL f1 -----
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P1 10.00 usec
PL1 -5.00 dB
SF01 400.132007 MHz

F2 - Processing parameters
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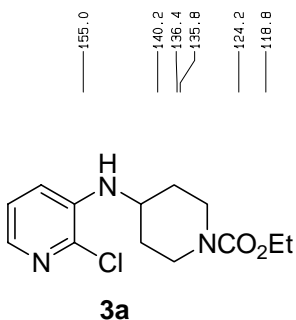
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CY 12.00 cm
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F2 0.00 Hz
PPHOM 0.38298 ppm/cm
H2OM 153.24127 Hz/cm



Current Data Parameters
NAME 224520-133-2
EXPNO 2
PROCNO 1

c-13 nmr400c

F2 - Acquisition Parameters
Date_ 20060306
Time 12.38
INSTRUM spect
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PULPROG zgdc
TD 65536
SOLVENT MeOH
NS 336
DS 0
SWH 26246.719 Hz
FIDRES 0.400493 Hz
AQ 1.2485108 sec
RG 8192
DM 19.050 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
d11 0.03000000 sec
MCREST 0.00000000 sec
MCMRK 0.01500000 sec

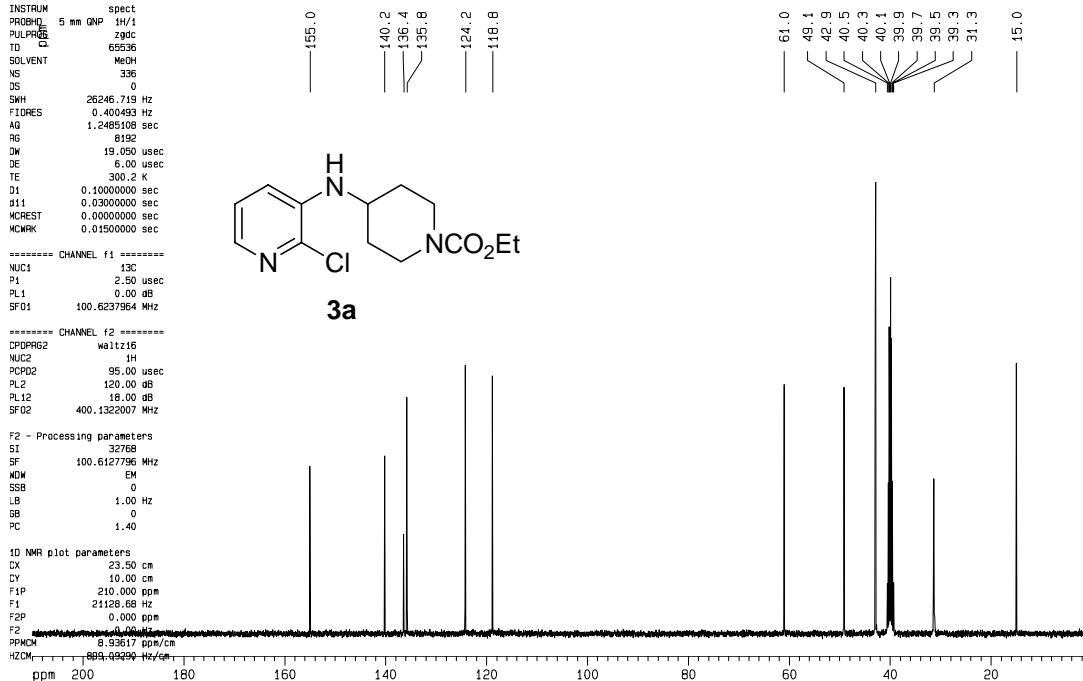


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PL1 0.00 dB
SF01 100.6237964 MHz

----- CHANNEL f2 -----
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NUC2 1H
PCPD2 95.00 usec
PL2 120.00 dB
PL12 18.00 dB
SF02 400.132007 MHz

F2 - Processing parameters
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SF 100.6127796 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
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CY 10.00 cm
F1P 210.000 ppm
F1 21128.68 Hz
F2P 0.000 ppm
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H2OM 809.89299 Hz/cm



Current Data Parameters
NAME 224591-011-2
EXPNO 1
PROCNO 1

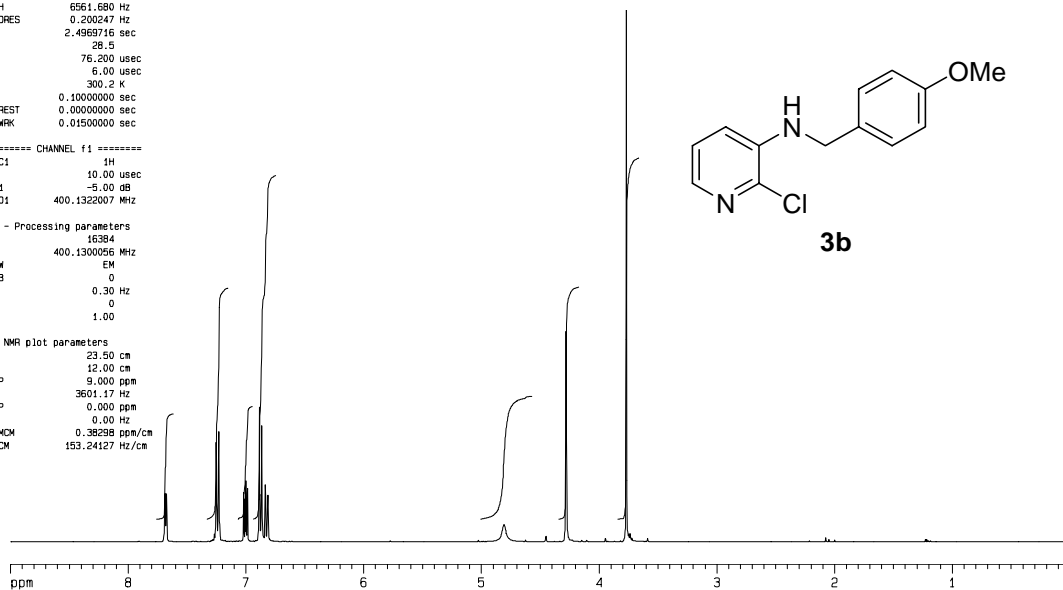
nmr400c h1

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PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 2
SWH 6561.680 Hz
FIDRES 0.200247 Hz
AQ 2.4969716 sec
RG 28.5
DM 76.200 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

***** CHANNEL f1 *****
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PL1 -5.00 dB
SFO1 400.132007 MHz

F2 - Processing parameters
SI 16384
SF 400.130056 MHz
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GB 0
PC 1.00

1D NMR plot parameters
CX 23.50 cm
CY 12.00 cm
F1P 9.000 ppm
F1 3601.17 Hz
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F2 0.00 Hz
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HZCM 153.24127 Hz/cm



Current Data Parameters
NAME 224591-011-2
EXPNO 2
PROCNO 1

c-13 nmr400c

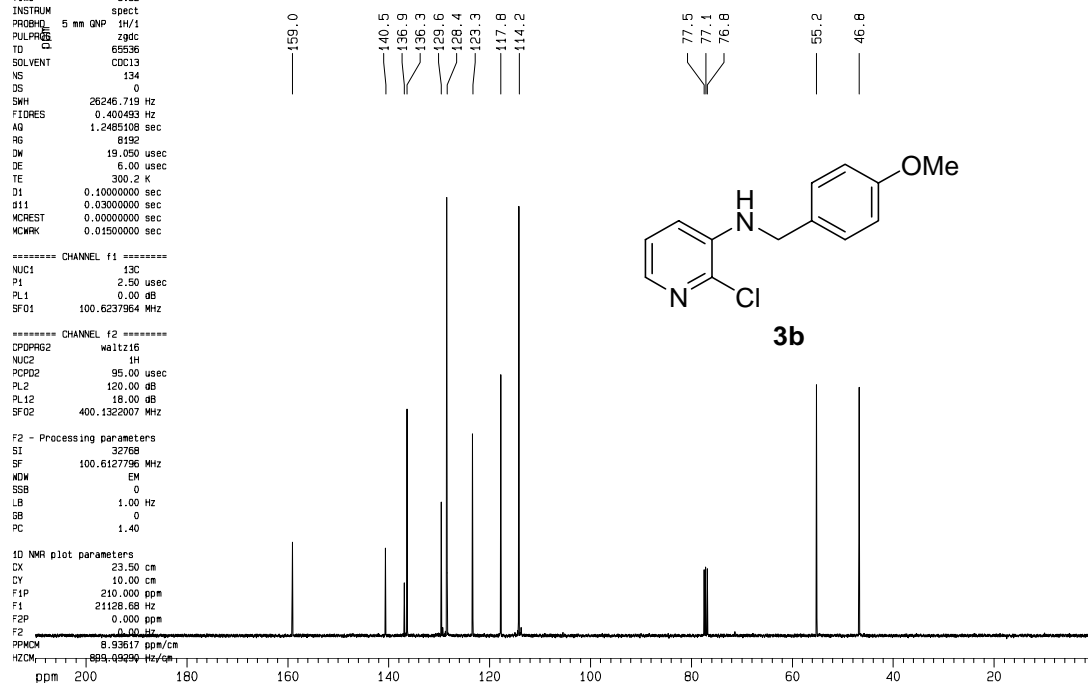
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FIDRES 0.400493 Hz
AQ 1.2485108 sec
RG 8192
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DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
d11 0.03000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

***** CHANNEL f1 *****
NUC1 13C
P1 2.50 usec
PL1 0.00 dB
SFO1 100.6237964 MHz

***** CHANNEL f2 *****
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NUC2 1H
PCPD2 95.00 usec
PL2 120.00 dB
PL12 18.00 dB
SFO2 400.132007 MHz

F2 - Processing parameters
SI 32768
SF 100.6127796 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
CX 23.50 cm
CY 10.00 cm
F1P 210.000 ppm
F1 21126.68 Hz
F2P 0.000 ppm
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HZCM 809.49959 Hz/cm



Current Data Parameters
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EXPNO 3
PROCNO 1

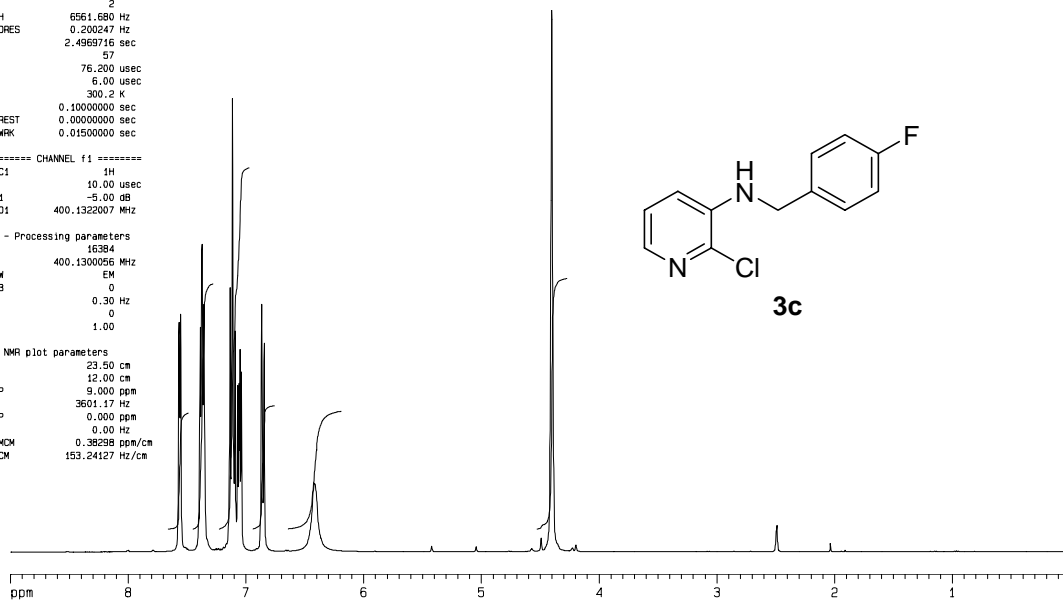
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PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 2
SWH 6561.680 Hz
FIDRES 0.200247 Hz
AQ 2.4969716 sec
RG 57
DM 76.200 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

===== CHANNEL f1 =====
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PL1 -5.00 dB
SF01 400.132007 MHz

F2 - Processing parameters
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WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
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CY 12.00 cm
F1P 9.000 ppm
F1 3601.17 Hz
F2P 0.000 ppm
F2 0.00 Hz
PPMCM 0.38298 ppm/cm
HZCM 153.24127 Hz/cm

nmr400c h1



Current Data Parameters
NAME 224591-010-1
EXPNO 2
PROCNO 1

F2 - Acquisition Parameters
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Time 9.22
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PULPROG zgpg30
TD 65536
SOLVENT DMSO
NS 152
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SWH 26246.719 Hz
FIDRES 0.400493 Hz
AQ 1.2485108 sec
RG 8192
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DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
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MCWRK 0.01500000 sec

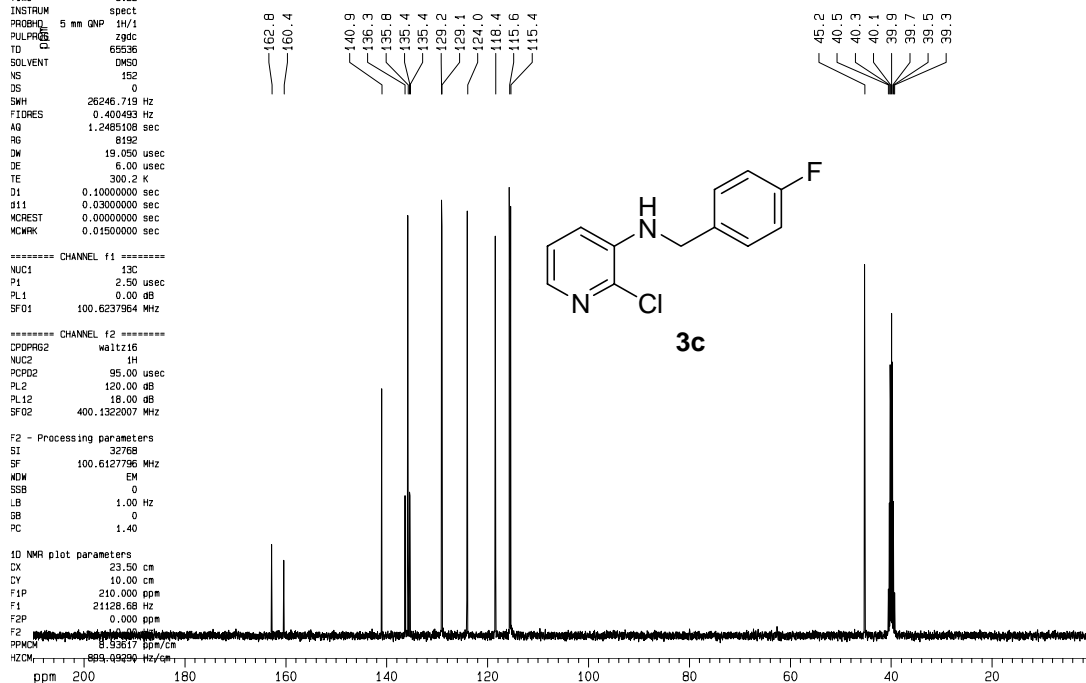
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NUC2 1H
PCPD2 95.00 usec
PL2 120.00 dB
PL12 18.00 dB
SF02 400.132007 MHz

F2 - Processing parameters
SI 32768
SF 100.6127796 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
CX 23.50 cm
CY 10.00 cm
F1P 210.000 ppm
F1 21126.68 Hz
F2P 0.000 ppm
F2 0.00 Hz
PPMCM 8.93617 ppm/cm
HZCM 809.49959 Hz/cm

c-13 nmr400c



Current Data Parameters
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EXPNO 1
PROCNO 1

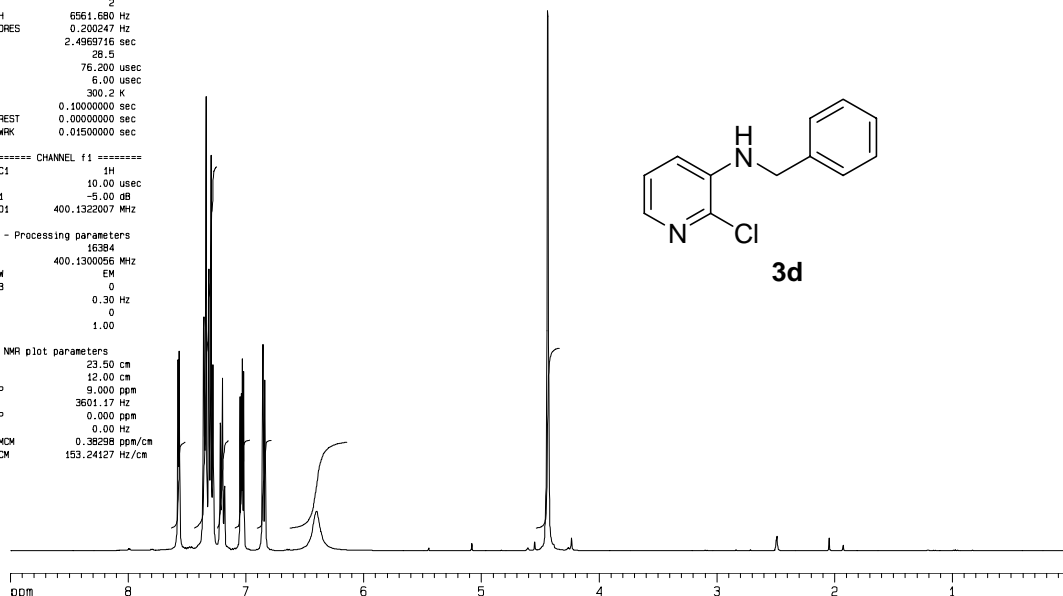
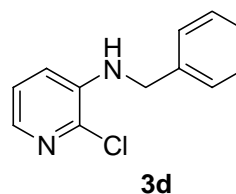
nmr400c h1

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PULPROG zg30
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SOLVENT DMSO
NS 32
DS 2
SWH 6561.680 Hz
FIDRES 0.200247 Hz
AQ 2.4969716 sec
RG 28.5
DM 76.200 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

***** CHANNEL f1 *****
NUC1 1H
P1 10.00 usec
PL1 -5.00 dB
SF01 400.132007 MHz

F2 - Processing parameters
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SF 400.130056 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 23.50 cm
CY 12.00 cm
FIP 9.000 ppm
F1 3601.17 Hz
F2P 0.000 ppm
F2 0.00 Hz
PPMCM 0.38298 ppm/cm
HZCM 153.24127 Hz/cm



Current Data Parameters
NAME 224591-006-4
EXPNO 2
PROCNO 1

c-13 nmr400c

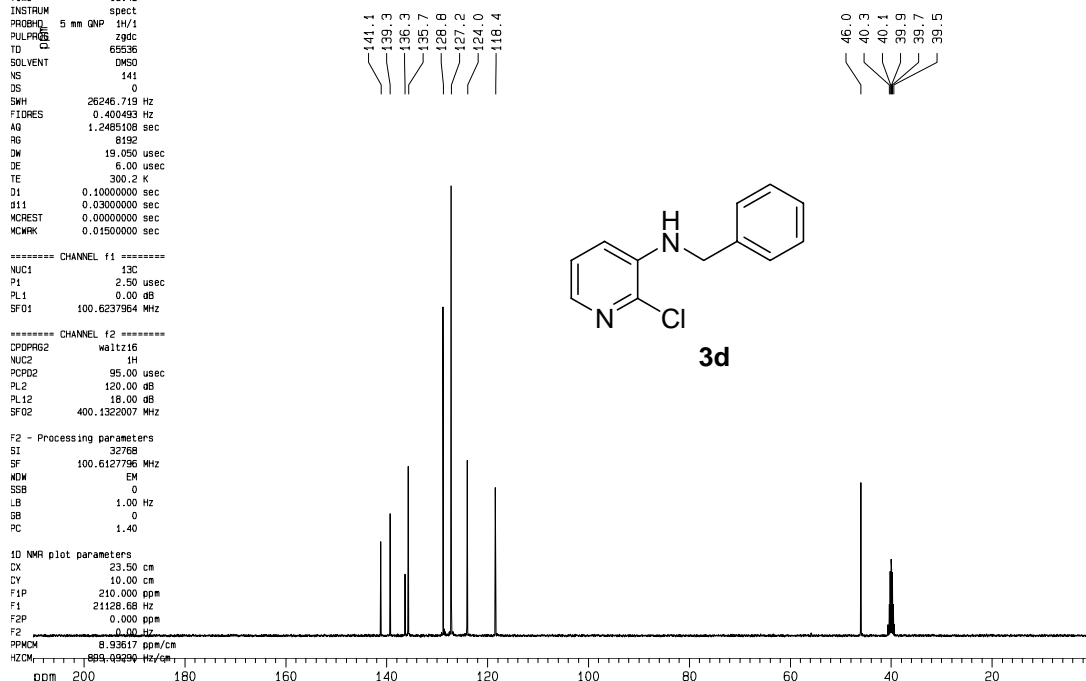
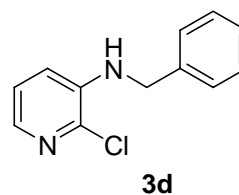
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SOLVENT DMSO
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DS 0
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FIDRES 0.400493 Hz
AQ 1.2485108 sec
RG 8192
DM 19.050 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
d11 0.03000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

***** CHANNEL f1 *****
NUC1 13C
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PL1 0.00 dB
SF01 100.6237964 MHz

***** CHANNEL f2 *****
CPDPRG2 waltz16
NUC2 1H
PCPD2 95.00 usec
PL2 120.00 dB
PL12 18.00 dB
SF02 400.132007 MHz

F2 - Processing parameters
SI 32768
SF 100.6127796 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
CX 23.50 cm
CY 10.00 cm
FIP 210.000 ppm
F1 21126.68 Hz
F2P 0.000 ppm
F2 0.00 Hz
PPMCM 8.93617 ppm/cm
HZCM 809.49959 Hz/cm



Current Data Parameters
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EXPNO 1
PROCNO 1

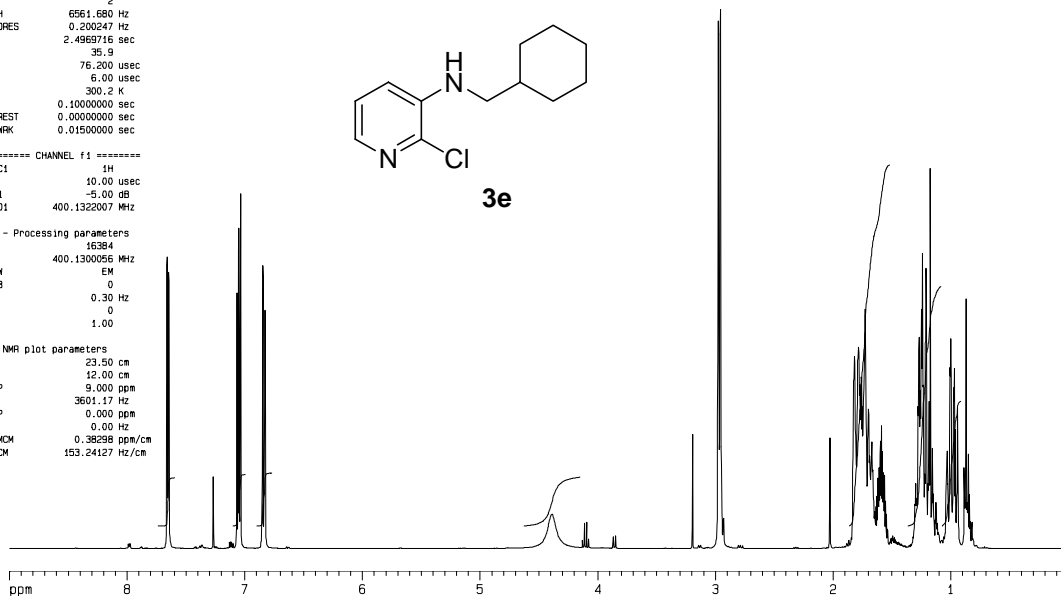
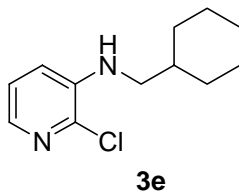
nmr400c h1

F2 - Acquisition Parameters
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Time 11.57
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PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 2
SWH 6561.680 Hz
FIDRES 0.200247 Hz
AQ 2.4969716 sec
RG 35.9
DM 76.200 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
MCREST 0.00000000 sec
MCMRK 0.01500000 sec

===== CHANNEL f1 =====
NUC1 1H
P1 10.00 usec
PL1 -5.00 dB
SF01 400.1322007 MHz

F2 - Processing parameters
SI 16384
SF 400.1300056 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 23.50 cm
CY 12.00 cm
FIP 9.000 ppm
F1 3601.17 Hz
F2 0.000 ppm
F2 0.00 Hz
PPHOM 0.38298 ppm/cm
HZCM 153.24127 Hz/cm



Current Data Parameters
NAME 224591-019-5
EXPNO 2
PROCNO 1

c-13 nmr400c

F2 - Acquisition Parameters
Date_ 20060518
Time 12.04
INSTRUM spect
PROBHD 5 mm GNP 1H/1
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 200
DS 0
SWH 26246.719 Hz
FIDRES 0.400493 Hz
AQ 1.2485108 sec
RG 8192
DM 19.050 usec
DE 5.00 usec
TE 300.2 K
D1 0.10000000 sec
d11 0.03000000 sec
MCREST 0.00000000 sec
MCMRK 0.01500000 sec

===== CHANNEL f1 =====
NUC1 13C
P1 2.50 usec
PL1 0.00 dB
SF01 100.6237964 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 95.00 usec
PL2 120.00 dB
PL12 18.00 dB
SF02 400.1322007 MHz

F2 - Processing parameters
SI 32768
SF 100.6127796 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
CX 23.50 cm
CY 10.00 cm
FIP 200.000 ppm
F1 20122.55 Hz
F2 -0.000 ppm
F2 0.00 Hz
PPHOM 8.51064 ppm/cm
HZCM 816.27889 Hz/cm

140.9
136.8
135.7

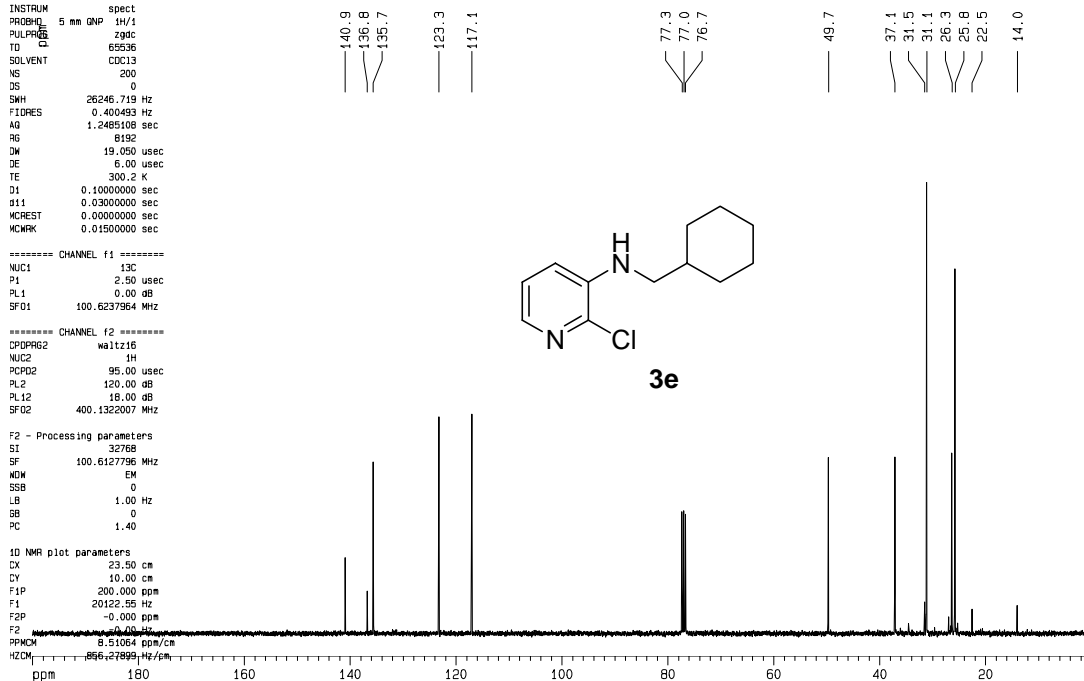
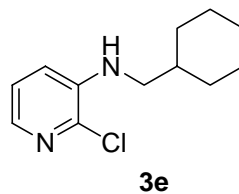
123.3
117.1

77.3
77.0
76.7

49.7

37.1
31.5
31.1
26.3
25.8
22.5

14.0



Current Data Parameters
NAME 224591-020-6
EXPNO 1
PROCNO 1

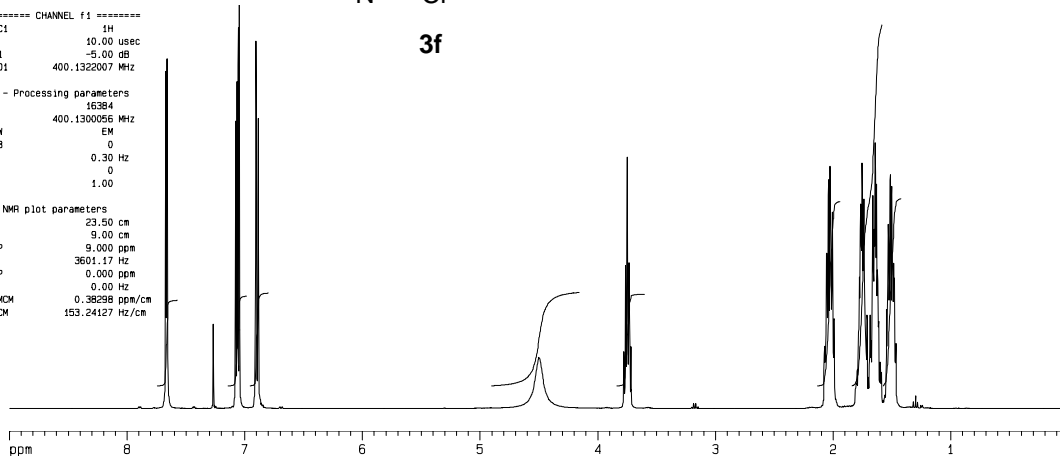
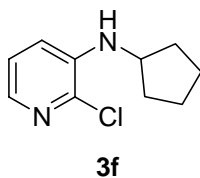
nmr400c h1

F2 - Acquisition Parameters
Date_ 20060518
Time 12.24
INSTRUM spect
PROBHD 5 mm GNP 1H/1
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 15
DS 2
SWH 6561.680 Hz
FIDRES 0.200247 Hz
AQ 2.4969716 sec
RG 71.8
DM 76.200 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

----- CHANNEL f1 -----
NUC1 1H
P1 10.00 usec
PL1 -5.00 dB
SF01 400.1322007 MHz

F2 - Processing parameters
SI 16384
SF 400.1300056 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 23.50 cm
CY 9.00 cm
F1P 9.000 ppm
F1 3601.17 Hz
F2P 0.000 ppm
F2 0.00 Hz
PPHOM 0.38298 ppm/cm
HZOM 153.24127 Hz/cm



Current Data Parameters
NAME 224591-020-5
EXPNO 2
PROCNO 1

c-13 nmr400c

F2 - Acquisition Parameters
Date_ 20060518
Time 11.52
INSTRUM spect
PROBHD 5 mm GNP 1H/1
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 101
DS 0
SWH 26246.719 Hz
FIDRES 0.400493 Hz
AQ 1.2485108 sec
RG 8192
DM 19.050 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
d11 0.03000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

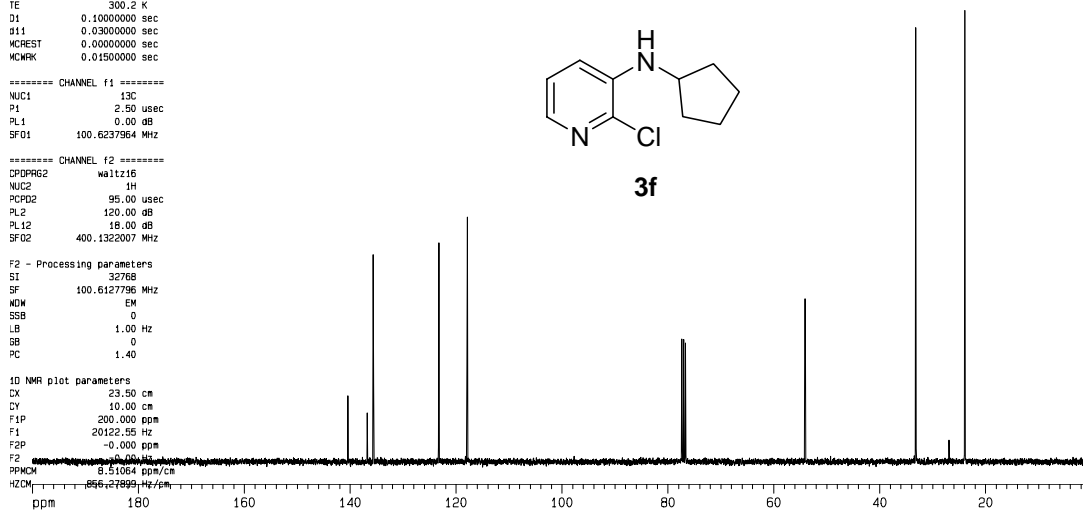
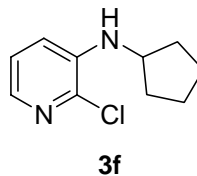
----- CHANNEL f1 -----
NUC1 13C
P1 2.50 usec
PL1 0.00 dB
SF01 100.6237964 MHz

----- CHANNEL f2 -----
DPPRG2 waltz16
NUC2 1H
PCPD2 95.00 usec
PL2 120.00 dB
PL12 18.00 dB
SF02 400.1322007 MHz

F2 - Processing parameters
SI 32768
SF 100.6127796 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
CX 23.50 cm
CY 10.00 cm
F1P 200.000 ppm
F1 20122.95 Hz
F2P -0.000 ppm
F2 -0.00 Hz
PPHOM 8.51064 ppm/cm
HZOM 866.27899 Hz/cm

140.4
136.8
135.6
123.2
117.9
77.3
77.0
76.7
54.0
33.2
23.9



Current Data Parameters
NAME 224591-010-3
EXPNO 1
PROCNO 1

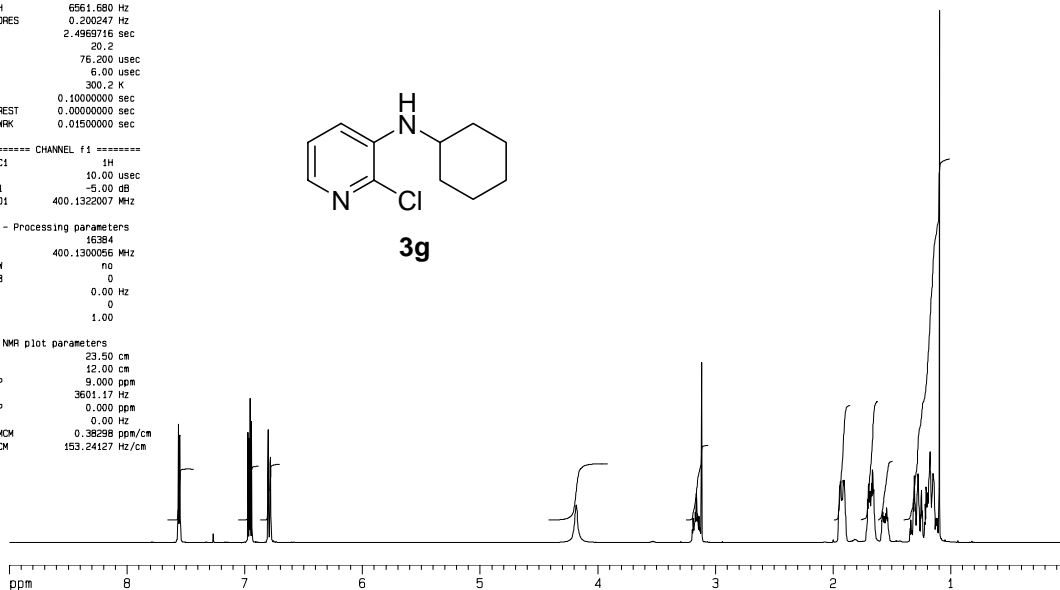
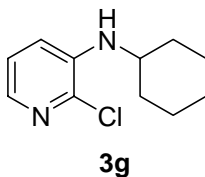
nmr400c h1

F2 - Acquisition Parameters
Date_ 20060314
Time 16.28
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 15
DS 2
SWH 6561.680 Hz
FIDRES 0.200247 Hz
AQ 2.4969716 sec
RG 20.2
DM 76.200 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
MCREST 0.00000000 sec
MCMRK 0.01500000 sec

----- CHANNEL f1 -----
NUC1 1H
P1 10.00 usec
PL1 -5.00 dB
SF01 400.132007 MHz

F2 - Processing parameters
SI 16384
SF 400.130056 MHz
WDW no
SSB 0
LB 0.00 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 23.50 cm
CY 12.00 cm
F1P 9.000 ppm
F1 3601.17 Hz
F2P 0.000 ppm
F2 0.00 Hz
PPHOM 0.38298 ppm/cm
H2OM 153.24127 Hz/cm



Current Data Parameters
NAME 224591-010-3
EXPNO 2
PROCNO 1

c-13 nmr400c

F2 - Acquisition Parameters
Date_ 20060314
Time 16.28
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 85
DS 0
SWH 26246.719 Hz
FIDRES 0.400493 Hz
AQ 1.2485108 sec
RG 8192
DM 19.050 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
d11 0.03000000 sec
MCREST 0.00000000 sec
MCMRK 0.01500000 sec

----- CHANNEL f1 -----
NUC1 13C
P1 2.50 usec
PL1 0.00 dB
SF01 100.6237964 MHz

----- CHANNEL f2 -----
DPPRG2 waltz16
NUC2 1H
PCPD2 95.00 usec
PL2 120.00 dB
PL12 18.00 dB
SF02 400.132007 MHz

F2 - Processing parameters
SI 32768
SF 100.6127796 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
CX 23.50 cm
CY 10.00 cm
F1P 200.000 ppm
F1 20122.55 Hz
F2P -0.000 ppm
F2 0.00 Hz
PPHOM 8.51064 ppm/cm
H2OM 866.27899 Hz/cm

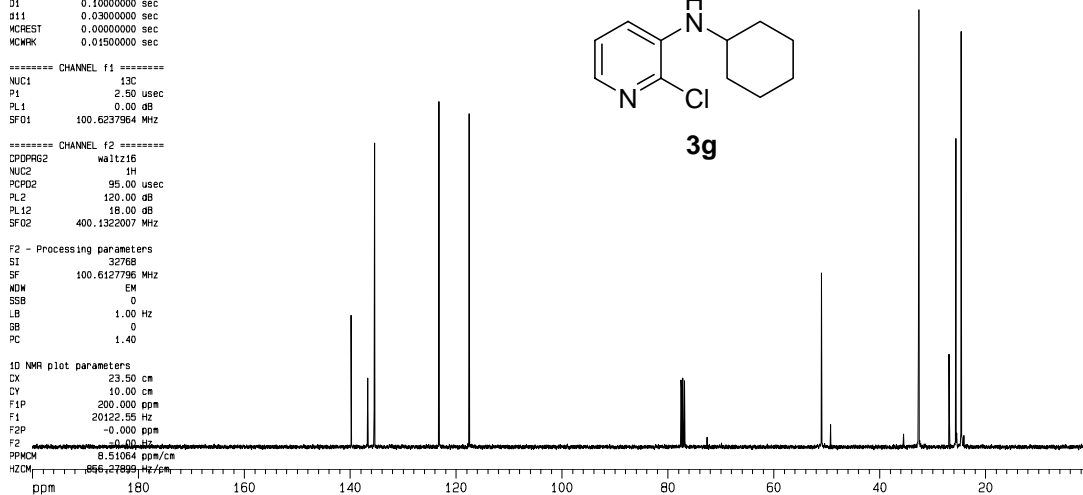
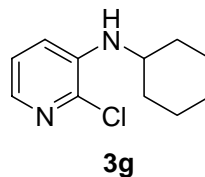
139.7
136.7
135.4

123.2
117.5

77.5
77.1
76.8

51.0

32.6
26.8
25.5
24.5



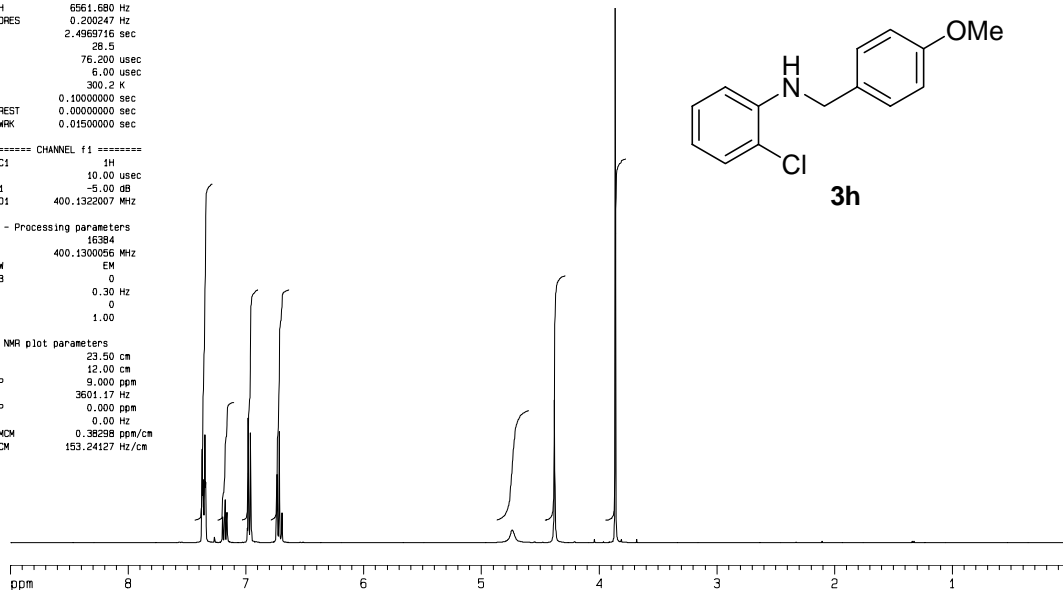
Current Data Parameters
 NAME 224591-036-1
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20060127
 Time 8.42
 INSTRUM spect
 PROBHD 5 mm GNP 1H/1
 PULPROG zg30
 TD 32768
 SOLVENT CDCl3
 NS 32
 DS 2
 SWH 6561.680 Hz
 FIDRES 0.200247 Hz
 AQ 2.4969716 sec
 RG 28.5
 DM 76.200 usec
 DE 6.00 usec
 TE 300.2 K
 D1 0.1000000 sec
 MCREST 0.0000000 sec
 MCWRR 0.0150000 sec

----- CHANNEL f1 -----
 NUC1 1H
 P1 10.00 usec
 PL1 -5.00 dB
 SF01 400.132007 MHz

F2 - Processing parameters
 SI 16384
 SF 400.1300056 MHz
 MDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 23.50 cm
 CY 12.00 cm
 F1P 9.000 ppm
 F1 3601.17 Hz
 F2P 0.000 ppm
 F2 0.00 Hz
 PPMCM 0.38298 ppm/cm
 HZCM 153.24127 Hz/cm



Current Data Parameters
 NAME 224591-036-1
 EXPNO 2
 PROCNO 1

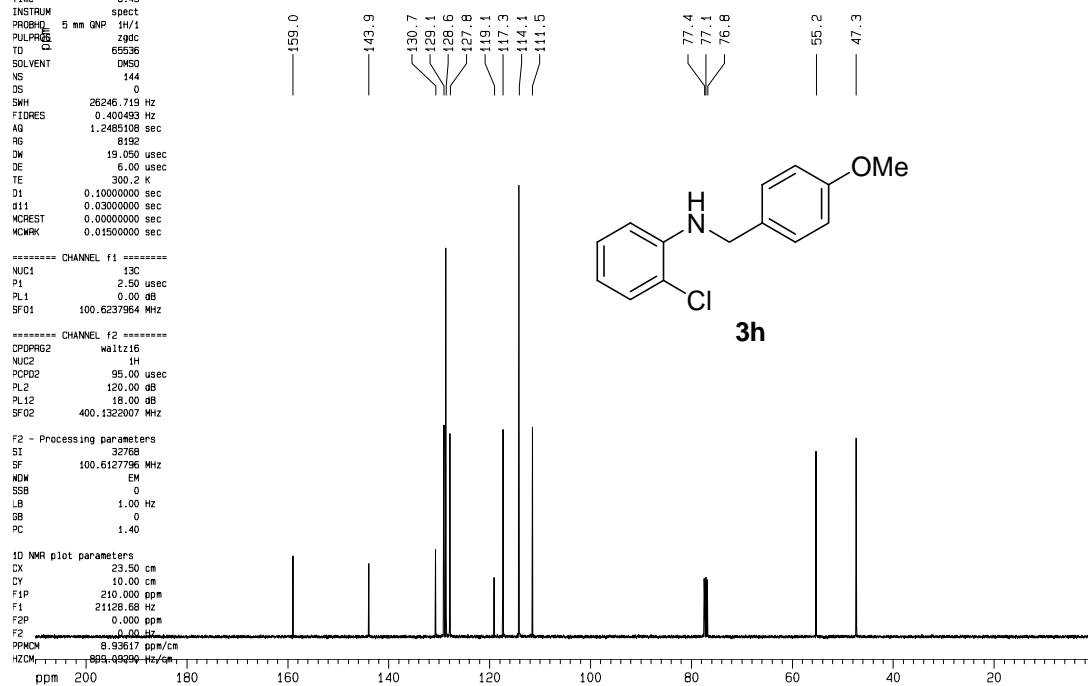
F2 - Acquisition Parameters
 Date_ 20060127
 Time 8.45
 INSTRUM spect
 PROBHD 5 mm GNP 1H/1
 PULPROG zgpg30
 TD 65536
 SOLVENT DMSO
 NS 144
 DS 0
 SWH 26346.719 Hz
 FIDRES 0.400493 Hz
 AQ 1.2485108 sec
 RG 8192
 DM 19.050 usec
 DE 6.00 usec
 TE 300.2 K
 D1 0.1000000 sec
 d11 0.0300000 sec
 MCREST 0.0000000 sec
 MCWRR 0.0150000 sec

----- CHANNEL f1 -----
 NUC1 13C
 P1 2.50 usec
 PL1 0.00 dB
 SF01 100.6237964 MHz

----- CHANNEL f2 -----
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 95.00 usec
 PL2 120.00 dB
 PL12 18.00 dB
 SF02 400.132007 MHz

F2 - Processing parameters
 SI 32768
 SF 100.6127796 MHz
 MDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40

1D NMR plot parameters
 CX 23.50 cm
 CY 10.00 cm
 F1P 210.000 ppm
 F1 21128.68 Hz
 F2P 0.000 ppm
 F2 0.00 Hz
 PPMCM 89.94959 ppm/cm
 HZCM 899.49590 Hz/cm



Current Data Parameters
NAME 224591-123-4
EXPNO 1
PROCNO 1

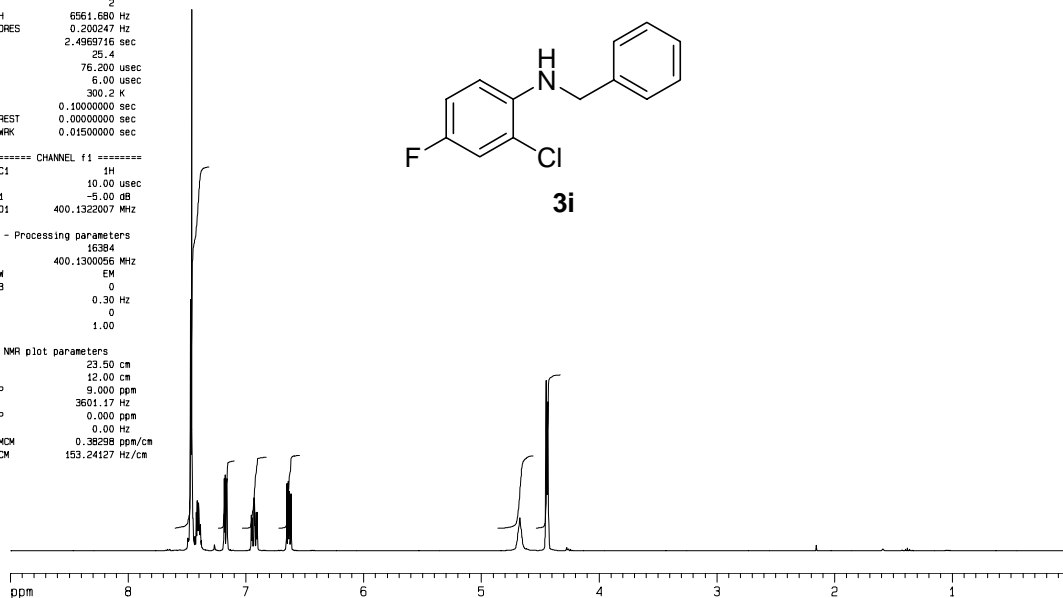
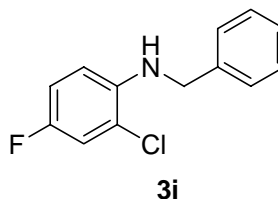
F2 - Acquisition Parameters
Date_ 20060210
Time 13.12
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 2
SWH 6561.680 Hz
FIDRES 0.200247 Hz
AQ 2.4969716 sec
RG 25.4
DM 76.200 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

===== CHANNEL f1 =====
NUC1 1H
P1 10.00 usec
PL1 -5.00 dB
SFO1 400.1322007 MHz

F2 - Processing parameters
SI 16384
SF 400.1300056 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 23.50 cm
CY 12.00 cm
F1P 9.000 ppm
F1 3601.17 Hz
F2P 0.000 ppm
F2 0.00 Hz
PPHOM 0.39298 ppm/cm
HZCM 153.24127 Hz/cm

nmr400c h1



Current Data Parameters
NAME 224591-123-4
EXPNO 2
PROCNO 1

F2 - Acquisition Parameters
Date_ 20060210
Time 13.14
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 251
DS 0
SWH 26246.719 Hz
FIDRES 0.400493 Hz
AQ 1.2485108 sec
RG 8192
DM 19.050 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
d11 0.03000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

===== CHANNEL f1 =====
NUC1 13C
P1 2.50 usec
PL1 0.00 dB
SFO1 100.6237964 MHz

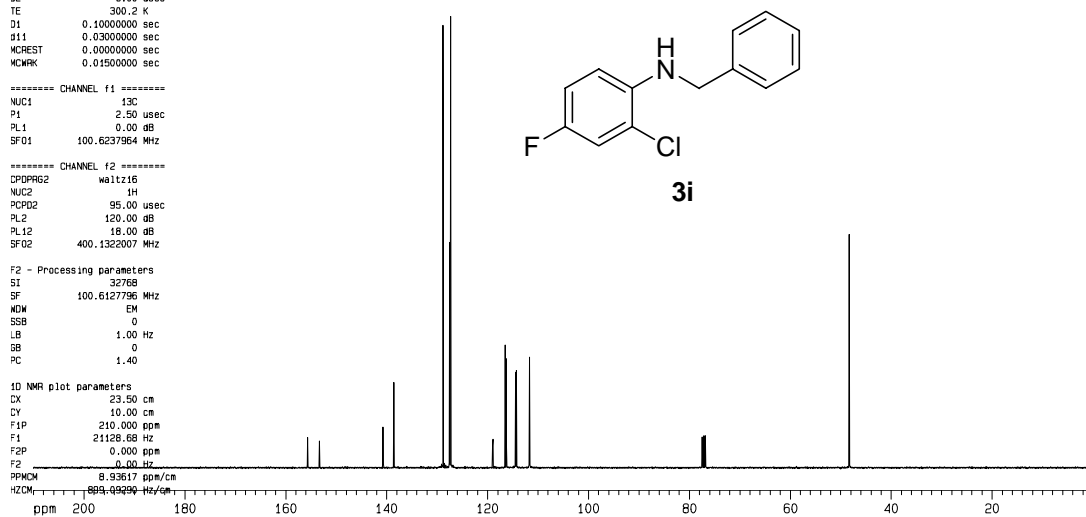
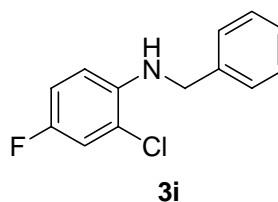
===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 95.00 usec
PL2 120.00 dB
PL12 18.00 dB
SFO2 400.1322007 MHz

F2 - Processing parameters
SI 32768
SF 100.6127796 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
CX 23.50 cm
CY 10.00 cm
F1P 210.000 ppm
F1 21128.68 Hz
F2P 0.000 ppm
F2 0.00 Hz
PPHOM 8.93617 ppm/cm
HZCM 899.49999 Hz/cm

c-13 nmr400c

155.7
153.3
140.7
140.7
138.6
128.8
127.5
127.3
119.0
118.9
116.6
116.3
114.5
114.3
111.7
111.6
77.5
77.1
76.8
48.3



Current Data Parameters
NAME 236963-019-2
EXPNO 1
PROCNO 1

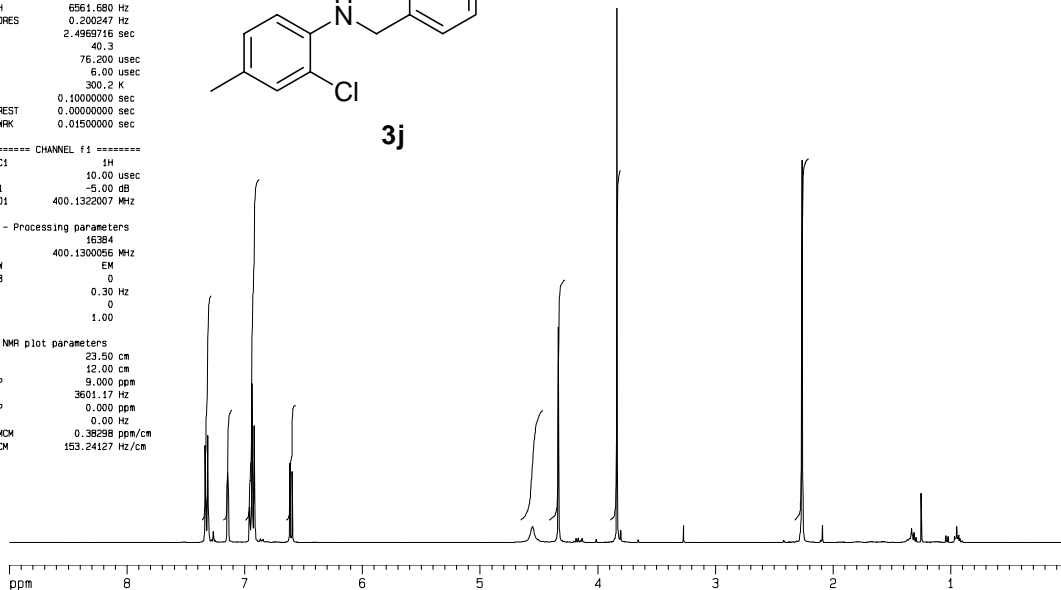
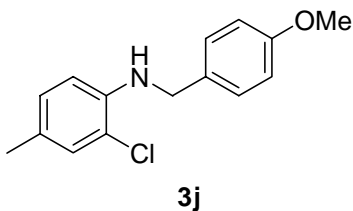
nmr400c h1

F2 - Acquisition Parameters
Date_ 20060518
Time 12.17
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 14
DS 2
SWH 6561.680 Hz
FIDRES 0.200247 Hz
AQ 2.4969716 sec
RG 40.3
DM 76.200 usec
DE 6.00 usec
TE 300.2 K
D1 0.1000000 sec
MCREST 0.0000000 sec
MCMRK 0.0150000 sec

----- CHANNEL f1 -----
NUC1 1H
P1 10.00 usec
PL1 -5.00 dB
SF01 400.132007 MHz

F2 - Processing parameters
SI 16384
SF 400.130056 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 23.50 cm
CY 12.00 cm
FIP 9.000 ppm
F1 3601.17 Hz
F2 0.000 ppm
F2 0.00 Hz
PPMCM 0.38298 ppm/cm
HZCM 153.24127 Hz/cm



Current Data Parameters
NAME 236963-019-2
EXPNO 2
PROCNO 1

c-13 nmr400c

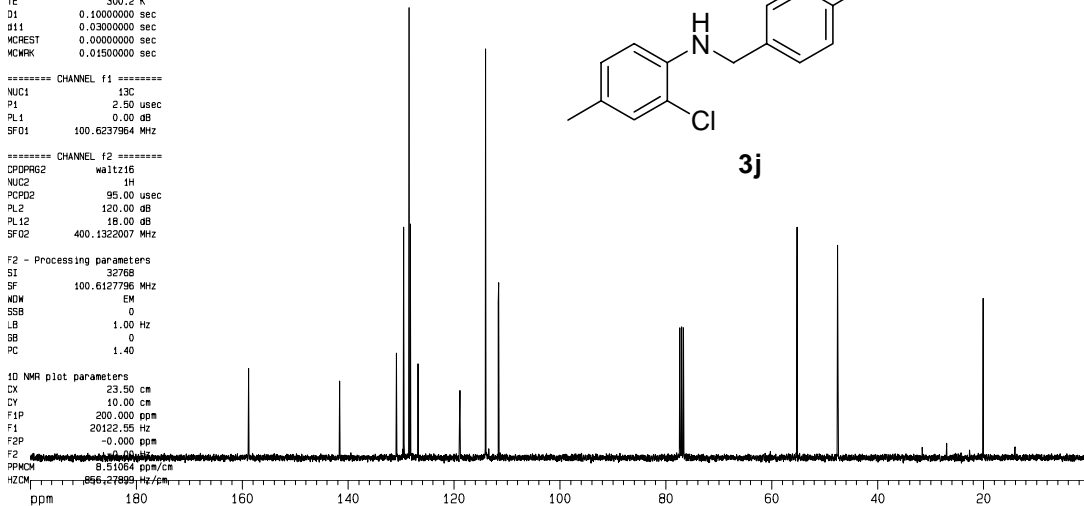
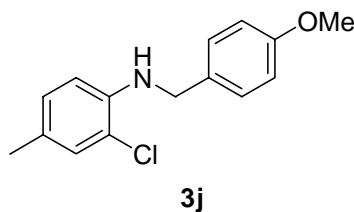
F2 - Acquisition Parameters
Date_ 20060518
Time 12.21
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 144
DS 0
SWH 26246.719 Hz
FIDRES 0.400493 Hz
AQ 1.2485108 sec
RG 8192
DM 19.050 usec
DE 6.00 usec
TE 300.2 K
D1 0.1000000 sec
d11 0.0300000 sec
MCREST 0.0000000 sec
MCMRK 0.0150000 sec

----- CHANNEL f1 -----
NUC1 13C
P1 2.50 usec
PL1 0.00 dB
SF01 100.6237964 MHz

----- CHANNEL f2 -----
DPPRG2 waltz16
NUC2 1H
PCPD2 95.00 usec
PL2 120.00 dB
PL12 18.00 dB
SF02 400.132007 MHz

F2 - Processing parameters
SI 32768
SF 100.6127796 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
CX 23.50 cm
CY 10.00 cm
FIP 200.000 ppm
F1 20122.55 Hz
F2 -0.000 ppm
F2 0.00 Hz
PPMCM 8.51064 ppm/cm
HZCM 866.27899 Hz/cm



Current Data Parameters
NAME 224591-109-2-1
EXPNO 1
PROCNO 1

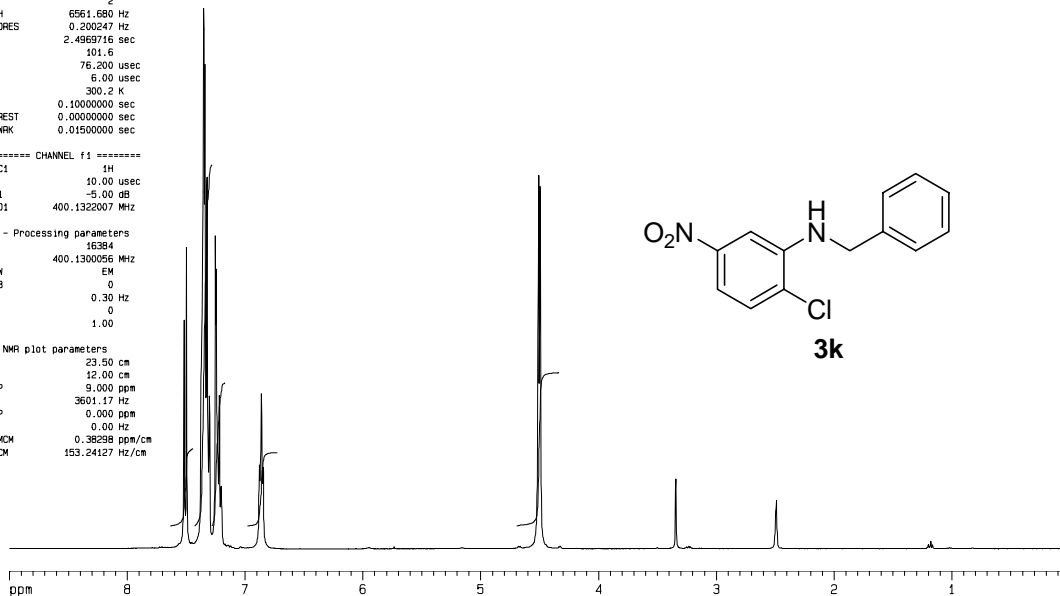
nmr400c h1

F2 - Acquisition Parameters
Date_ 20060201
Time 14.33
INSTRUM spect
PROBHD 5 mm GNP 1H/1
PULPROG zg30
TD 32768
SOLVENT DMSO
NS 32
DS 2
SWH 6561.680 Hz
FIDRES 0.200247 Hz
AQ 2.4969716 sec
RG 101.6
DM 76.200 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

----- CHANNEL f1 -----
NUC1 1H
P1 10.00 usec
PL1 -5.00 dB
SF01 400.1322007 MHz

F2 - Processing parameters
SI 16384
SF 400.1300056 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 23.50 cm
CY 12.00 cm
FIP 9.000 ppm
F1 3601.17 Hz
F2 0.000 ppm
F2 0.00 Hz
PPMCM 0.38298 ppm/cm
HZCM 153.24127 Hz/cm



Current Data Parameters
NAME 224591-109-2-1
EXPNO 2
PROCNO 1

c-13 nmr400c

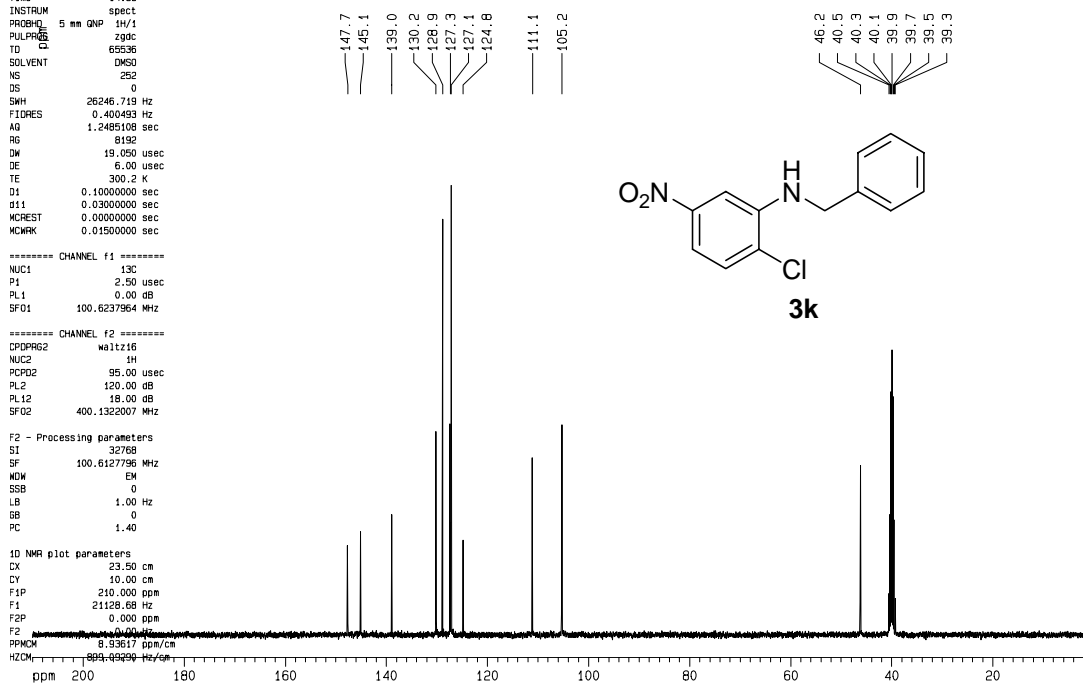
F2 - Acquisition Parameters
Date_ 20060201
Time 14.36
INSTRUM spect
PROBHD 5 mm GNP 1H/1
PULPROG zgpg30
TD 65536
SOLVENT DMSO
NS 252
DS 0
SWH 26246.719 Hz
FIDRES 0.400493 Hz
AQ 1.2485108 sec
RG 8192
DM 19.050 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
d11 0.03000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

----- CHANNEL f1 -----
NUC1 13C
P1 2.50 usec
PL1 0.00 dB
SF01 100.6237964 MHz

----- CHANNEL f2 -----
CPDPRG2 waltz16
NUC2 1H
PCPD2 95.00 usec
PL2 120.00 dB
PL12 18.00 dB
SF02 400.1322007 MHz

F2 - Processing parameters
SI 32768
SF 100.6127796 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
CX 23.50 cm
CY 10.00 cm
FIP 210.000 ppm
F1 21128.68 Hz
F2 0.000 ppm
F2 0.00 Hz
PPMCM 89.45599 ppm/cm
HZCM 89.45599 Hz/cm



Current Data Parameters
NAME 224591-110-1-1
EXPNO 1
PROCNO 1

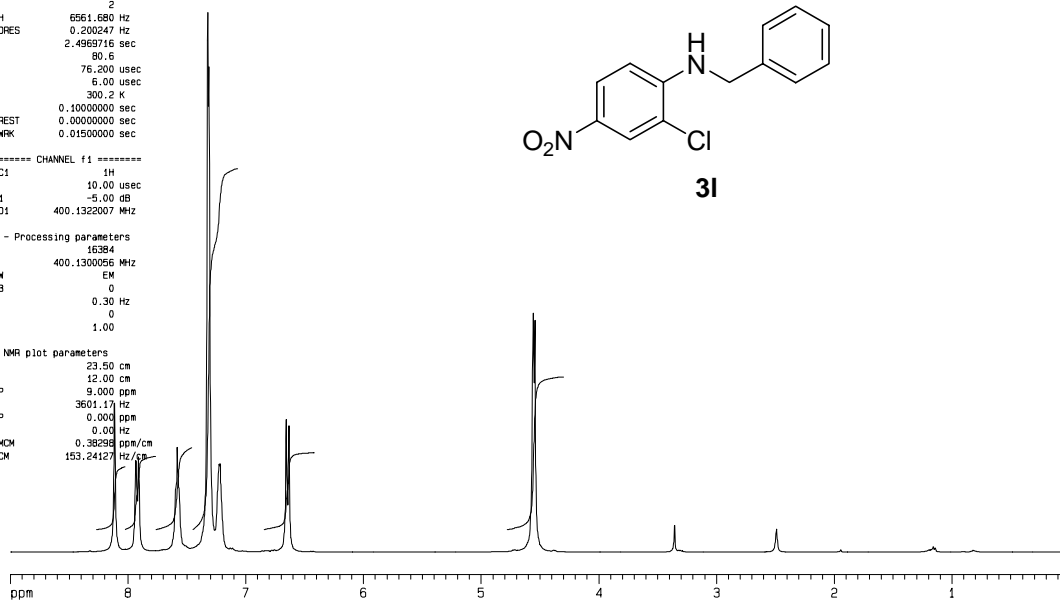
nmr400c h1

F2 - Acquisition Parameters
Date_ 20060202
Time 8.11
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zgpg30
TD 32768
SOLVENT DMSO
NS 32
DS 2
SWH 6561.680 Hz
FIDRES 0.200247 Hz
AQ 2.4969716 sec
RG 80.6
DM 76.200 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
WCREST 0.00000000 sec
MCWRR 0.01500000 sec

----- CHANNEL f1 -----
NUC1 1H
P1 10.00 usec
PL1 -5.00 dB
SF01 400.1322007 MHz

F2 - Processing parameters
SI 16384
SF 400.1300556 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

ID NMR plot parameters
CX 23.50 cm
CY 12.00 cm
F1P 9.000 ppm
F1 3601.17 Hz
F2P 0.000 ppm
F2 0.00 Hz
PPMCM 0.38296 ppm/cm
HZCM 153.24127 Hz/cm



Current Data Parameters
NAME 224591-110-1-1
EXPNO 2
PROCNO 1

c-13 nmr400c

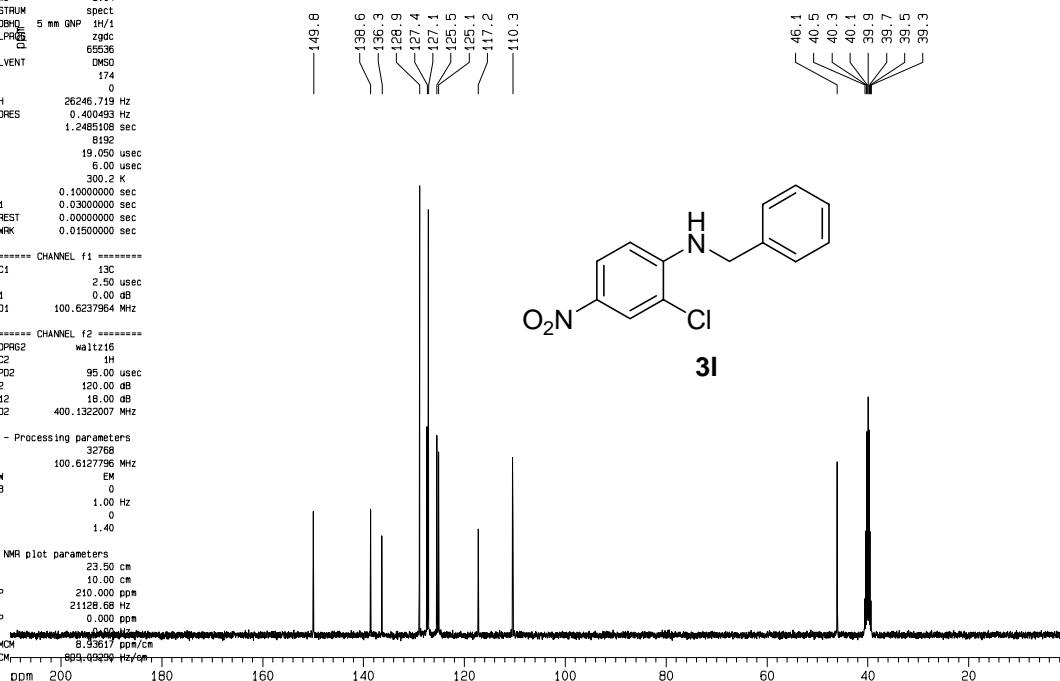
F2 - Acquisition Parameters
Date_ 20060202
Time 8.14
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zgpg30
TD 32768
SOLVENT DMSO
NS 174
DS 0
SWH 26246.719 Hz
FIDRES 0.400493 Hz
AQ 1.2485108 sec
RG 8192
DM 19.050 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
D11 0.03000000 sec
WCREST 0.00000000 sec
MCWRR 0.01500000 sec

----- CHANNEL f1 -----
NUC1 13C
P1 2.50 usec
PL1 0.00 dB
SF01 100.6237964 MHz

----- CHANNEL f2 -----
CPDPRG2 waltz16
NUC2 1H
PCPD2 95.00 usec
PL2 120.00 dB
PL12 18.00 dB
SF02 400.1322007 MHz

F2 - Processing parameters
SI 32768
SF 100.6127796 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

ID NMR plot parameters
CX 23.50 cm
CY 10.00 cm
F1P 210.000 ppm
F1 21128.68 Hz
F2P 0.000 ppm
F2 0.00 Hz
PPMCM 8.93517 ppm/cm
HZCM 893.43517 Hz/cm



Current Data Parameters
NAME 224591-139-2
EXPNO 1
PROCNO 1

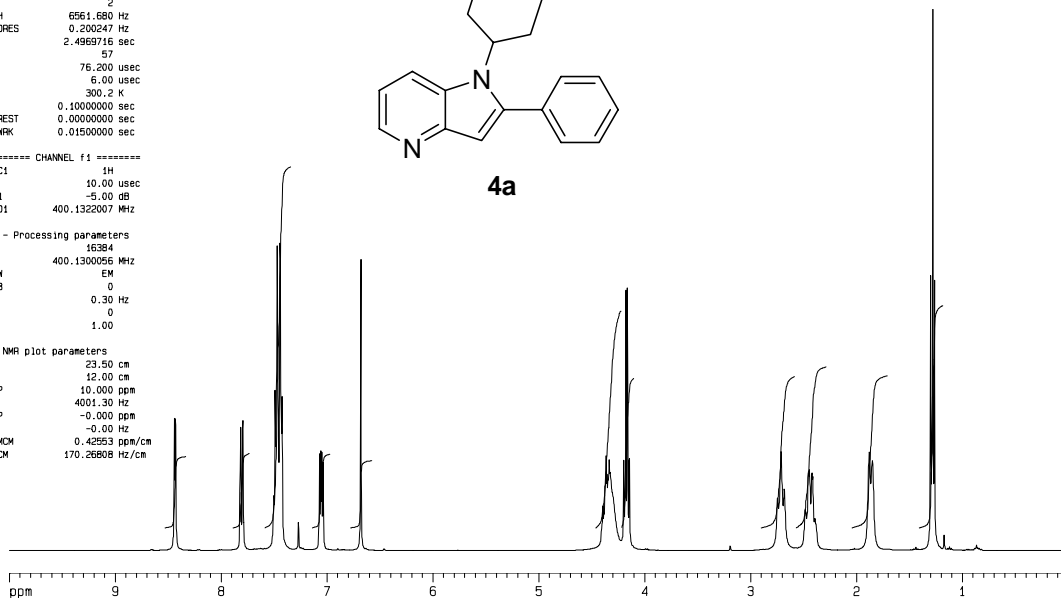
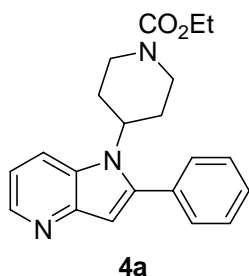
nmr400c h1

F2 - Acquisition Parameters
Date_ 20060224
Time 9.01
INSTRUM spect
PROBHD 5 mm GNP 1H/1
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 2
SWH 6561.680 Hz
FIDRES 0.200247 Hz
AQ 2.4969716 sec
RG 57
DM 76.200 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
MCREST 0.00000000 sec
MCMRK 0.01500000 sec

----- CHANNEL f1 -----
NUC1 1H
P1 10.00 usec
PL1 -5.00 dB
SF01 400.132007 MHz

F2 - Processing parameters
SI 16384
SF 400.1300056 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 23.50 cm
CY 12.00 cm
F1P 10.000 ppm
F1 4001.30 Hz
F2P -0.000 ppm
F2 -0.00 Hz
PPHOM 0.42553 ppm/cm
H2CM 170.26808 Hz/cm



Current Data Parameters
NAME 224591-139-2
EXPNO 2
PROCNO 1

c-13 nmr400c

F2 - Acquisition Parameters
Date_ 20060224
Time 9.04
INSTRUM spect
PROBHD 5 mm GNP 1H/1
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 342
DS 0
SWH 26246.719 Hz
FIDRES 0.400493 Hz
AQ 1.2485108 sec
RG 8192
DM 19.050 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
d11 0.03000000 sec
MCREST 0.00000000 sec
MCMRK 0.01500000 sec

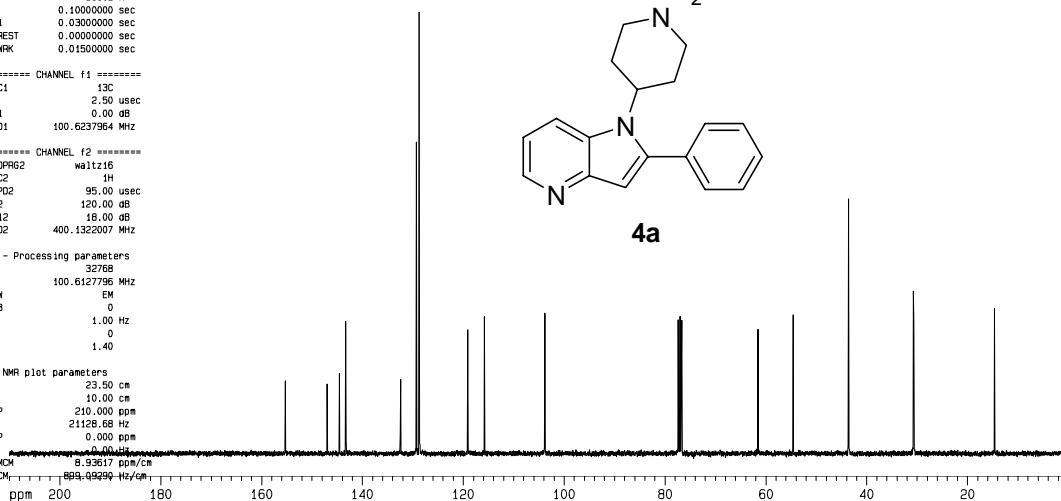
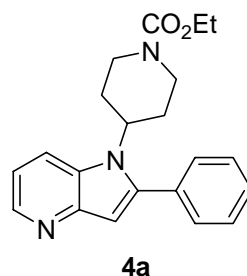
===== CHANNEL f1 =====
NUC1 13C
P1 2.50 usec
PL1 0.00 dB
SF01 100.6127796 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 95.00 usec
PL2 120.00 dB
PL12 18.00 dB
SF02 400.132007 MHz

F2 - Processing parameters
SI 32768
SF 100.6127796 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
CX 23.50 cm
CY 10.00 cm
F1P 210.000 ppm
F1 21128.68 Hz
F2P 0.000 ppm
F2 -0.000 Hz
PPHOM 8.93617 ppm/cm
H2CM 893.617 Hz/cm

155.3 147.0 144.5 143.3 132.4 129.3 128.7 128.6 119.0 115.8 103.8 77.3 77.0 76.7 61.5 54.5 43.5 30.7 14.6



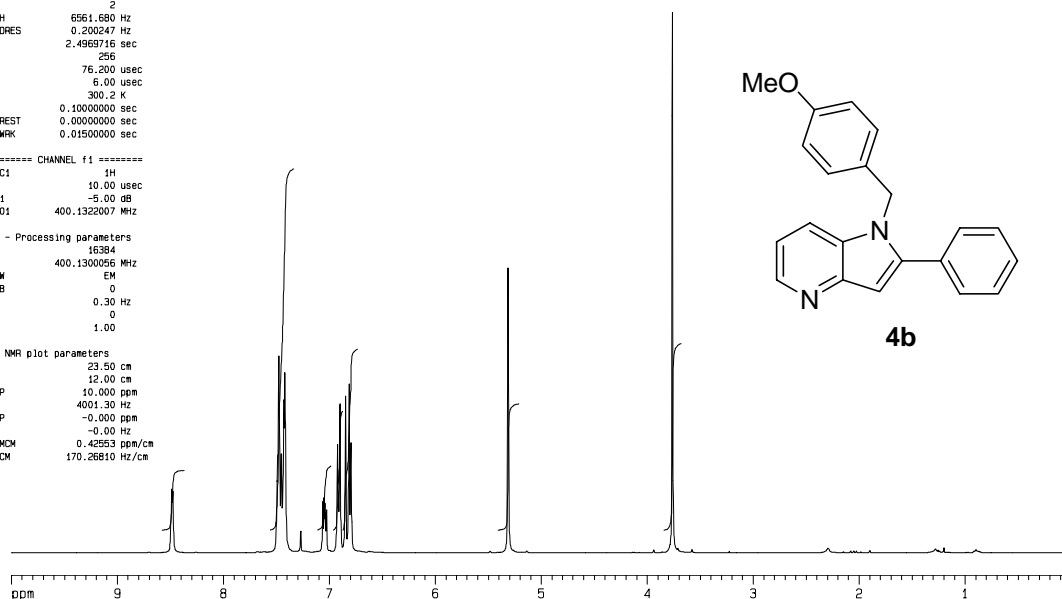
Current Data Parameters
NAME 224591-137-2
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20060221
Time 10.25
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 2
SWH 6561.680 Hz
FIDRES 0.200247 Hz
AQ 2.4969716 sec
RG 256
DM 76.200 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
WCREST 0.00000000 sec
MCWRK 0.01500000 sec

***** CHANNEL f1 *****
NUC1 1H
P1 10.00 usec
PL1 -5.00 dB
SFO1 400.132007 MHz

F2 - Processing parameters
SI 16384
SF 400.1300056 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 23.50 cm
CY 12.00 cm
F1P 10.000 ppm
F1 4001.30 Hz
F2P -0.000 ppm
F2 -0.00 Hz
PPMCK 0.42553 ppm/cm
HZCK 170.26810 Hz/cm



nmr400c h1

Current Data Parameters
NAME 224591-137-2
EXPNO 2
PROCNO 1

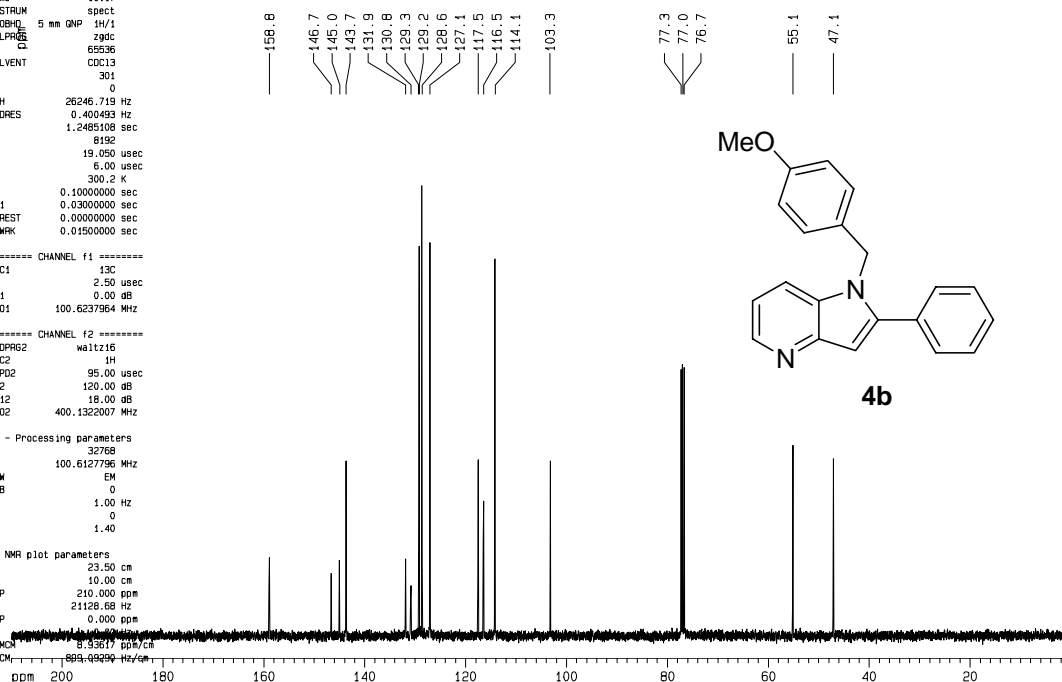
F2 - Acquisition Parameters
Date_ 20060221
Time 10.17
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 301
DS 0
SWH 26246.719 Hz
FIDRES 0.400493 Hz
AQ 1.2485108 sec
RG 8192
DM 19.050 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
D11 0.03000000 sec
WCREST 0.00000000 sec
MCWRK 0.01500000 sec

***** CHANNEL f1 *****
NUC1 13C
P1 2.50 usec
PL1 0.00 dB
SFO1 100.6237964 MHz

***** CHANNEL f2 *****
DPDPRG2 waltz16
NUC2 1H
PCPD2 95.00 usec
PL2 120.00 dB
PL12 18.00 dB
SFO2 400.132007 MHz

F2 - Processing parameters
SI 32768
SF 100.6127796 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
CX 23.50 cm
CY 10.00 cm
F1P 210.000 ppm
F1 21128.68 Hz
F2P 0.000 ppm
F2 -0.00 Hz
PPMCK 8.53617 ppm/cm
HZCK 809.49299 Hz/cm



c-13 nmr400c

Current Data Parameters
NAME 224591-136-1
EXPNO 1
PROCNO 1

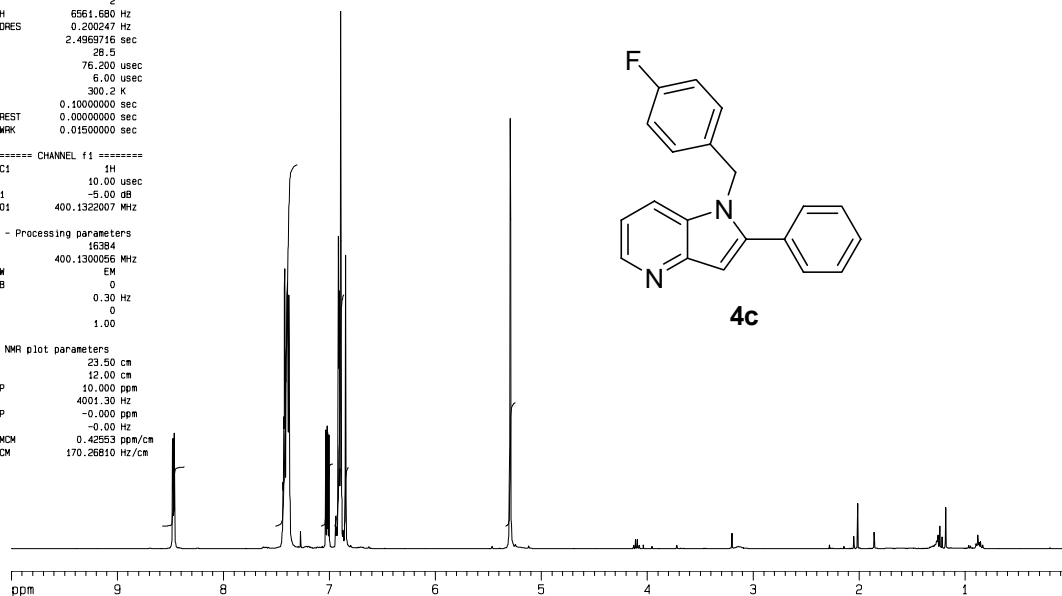
nmr400c h1

F2 - Acquisition Parameters
Date_ 20060217
Time 16.25
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 2
SWH 6561.680 Hz
FIDRES 0.200247 Hz
AQ 2.4969716 sec
RG 28.5
DM 76.200 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

===== CHANNEL f1 =====
NUC1 1H
P1 10.00 usec
PL1 -5.00 dB
SF01 400.1322007 MHz

F2 - Processing parameters
SI 16384
SF 400.1300056 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 23.50 cm
CY 12.00 cm
F1P 10.000 ppm
F1 4001.30 Hz
F2P -0.000 ppm
F2 -0.00 Hz
PPMCM 0.42553 ppm/cm
HZCM 170.26810 Hz/cm



Current Data Parameters
NAME 224591-136-1
EXPNO 2
PROCNO 1

c-13 nmr400c

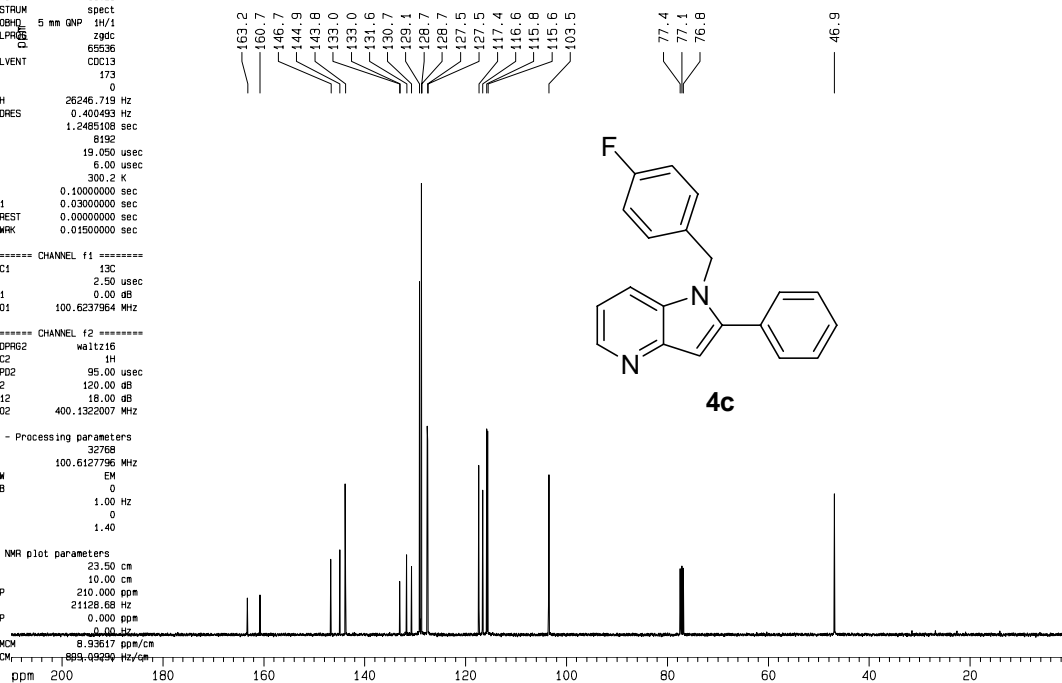
F2 - Acquisition Parameters
Date_ 20060217
Time 16.28
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 173
DS 0
SWH 26246.719 Hz
FIDRES 0.400493 Hz
AQ 1.2485108 sec
RG 6192
DM 19.050 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
S11 0.03000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

===== CHANNEL f1 =====
NUC1 13C
P1 2.50 usec
PL1 0.00 dB
SF01 100.6237964 MHz

===== CHANNEL f2 =====
PCPD2 waltz16
NUC2 1H
PCPD2 95.00 usec
PL2 120.00 dB
PL12 18.00 dB
SF02 400.1322007 MHz

F2 - Processing parameters
SI 32768
SF 100.6127796 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
CX 23.50 cm
CY 10.00 cm
F1P 210.000 ppm
F1 21128.68 Hz
F2P 0.000 ppm
F2 -0.00 Hz
PPMCM 8.93617 ppm/cm
HZCM 893.617 Hz/cm



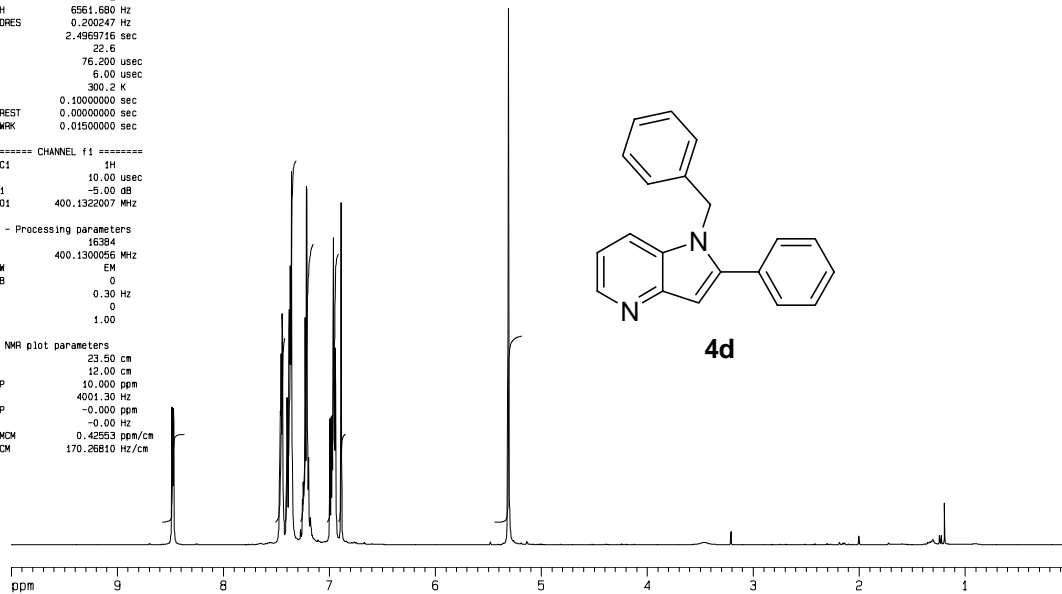
Current Data Parameters
 NAME 224591-024-4-2
 EXPNO 1
 PROCNO 1

nmr400c h1

F2 - Acquisition Parameters
 Date_ 20060216
 Time 16.35
 INSTRUM spect
 PROBHD 5 mm GNP 1H/1
 PULPROG zg30
 TD 32768
 SOLVENT CDCl3
 NS 32
 DS 2
 SWH 6561.680 Hz
 FIDRES 0.200247 Hz
 AQ 2.4969716 sec
 RG 22.6
 DM 76.200 usec
 DE 6.00 usec
 TE 300.2 K
 D1 0.1000000 sec
 MCREST 0.0000000 sec
 MCWRR 0.0150000 sec

***** CHANNEL f1 *****
 NUC1 1H
 P1 10.00 usec
 PL1 -5.00 dB
 SF01 400.132007 MHz
 F2 - Processing parameters
 SI 16384
 SF 400.130056 MHz
 KW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 23.50 cm
 CY 12.00 cm
 F1P 10.000 ppm
 F1 4001.30 Hz
 F2P -0.000 ppm
 F2 -0.00 Hz
 PPMCM 0.42553 ppm/cm
 HZCM 170.26810 Hz/cm



Current Data Parameters
 NAME 224591-024-4-2
 EXPNO 2
 PROCNO 1

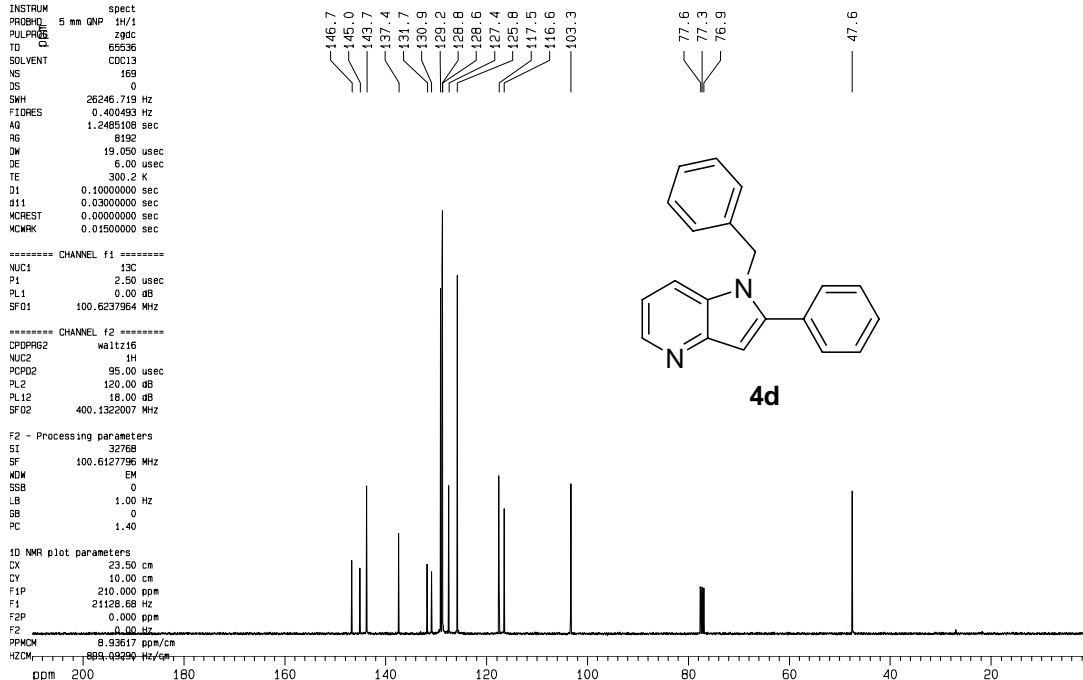
c-13 nmr400c

F2 - Acquisition Parameters
 Date_ 20060216
 Time 16.37
 INSTRUM spect
 PROBHD 5 mm GNP 1H/1
 PULPROG zgdc
 TD 65536
 SOLVENT CDCl3
 NS 169
 DS 0
 SWH 26246.719 Hz
 FIDRES 0.400493 Hz
 AQ 1.2485108 sec
 RG 6192
 DM 19.050 usec
 DE 6.00 usec
 TE 300.2 K
 D1 0.1000000 sec
 D11 0.0300000 sec
 MCREST 0.0000000 sec
 MCWRR 0.0150000 sec

***** CHANNEL f1 *****
 NUC1 13C
 P1 2.50 usec
 PL1 0.00 dB
 SF01 100.6237964 MHz
 ***** CHANNEL f2 *****
 DPMRG2 waltz16
 NUC2 1H
 PCPD2 95.00 usec
 PL2 120.00 dB
 PL12 18.00 dB
 SF02 400.132007 MHz

F2 - Processing parameters
 SI 32768
 SF 100.6127796 MHz
 KW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40

1D NMR plot parameters
 CX 23.50 cm
 CY 10.00 cm
 F1P 210.000 ppm
 F1 21128.68 Hz
 F2P 0.000 ppm
 F2 0.00 Hz
 PPMCM 8.93617 ppm/cm
 HZCM 893.617 Hz/cm



Current Data Parameters
NAME 224581-120-3
EXPNO 1
PROCNO 1

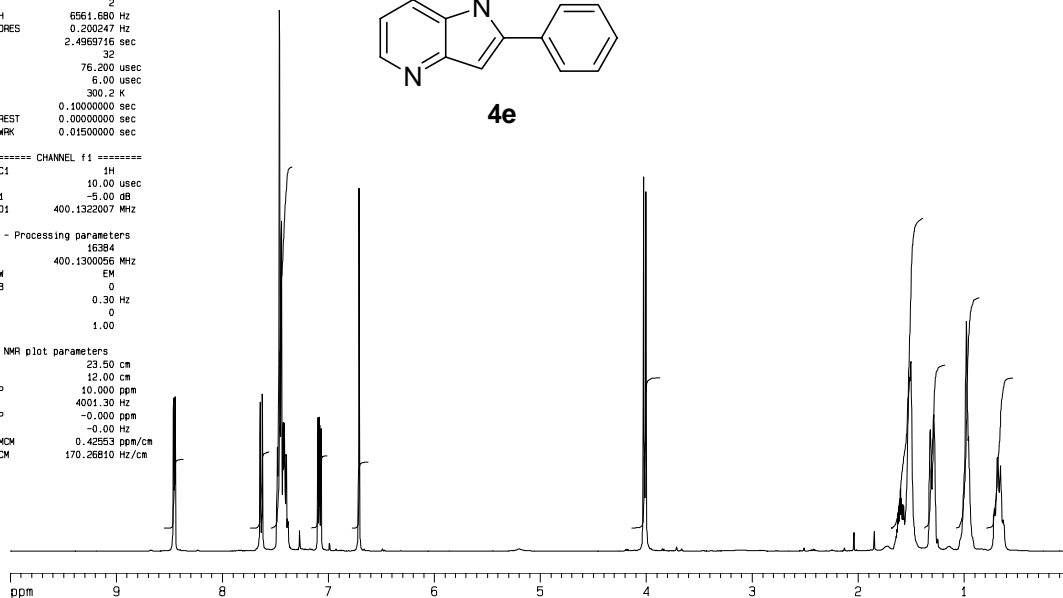
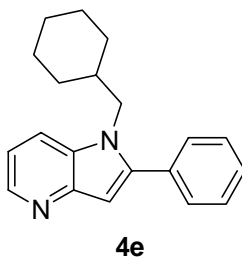
F2 - Acquisition Parameters
Date_ 20060207
Time 16.12
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 2
SWH 6561.680 Hz
FIDRES 0.200247 Hz
AQ 2.4969716 sec
RG 32
DM 76.200 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
MCREST 0.00000000 sec
MCMRK 0.01500000 sec

----- CHANNEL f1 -----
NUC1 1H
P1 10.00 usec
PL1 -5.00 dB
SF01 400.132007 MHz

F2 - Processing parameters
SI 16384
SF 400.130056 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 23.50 cm
CY 12.00 cm
FIP 10.000 ppm
F1 4001.30 Hz
F2P -0.000 ppm
F2 -0.00 Hz
PPHOM 0.42553 ppm/cm
HZCM 170.26810 Hz/cm

nmr400c h1



Current Data Parameters
NAME 224581-120-3
EXPNO 2
PROCNO 1

F2 - Acquisition Parameters
Date_ 20060207
Time 16.14
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zgpg30
TD 32768
SOLVENT DMSO
NS 203
DS 0
SWH 26246.719 Hz
FIDRES 0.400483 Hz
AQ 1.2485108 sec
RG 8192
DM 19.050 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
D11 0.03000000 sec
MCREST 0.00000000 sec
MCMRK 0.01500000 sec

----- CHANNEL f1 -----
NUC1 13C
P1 2.50 usec
PL1 0.00 dB
SF01 100.6237964 MHz

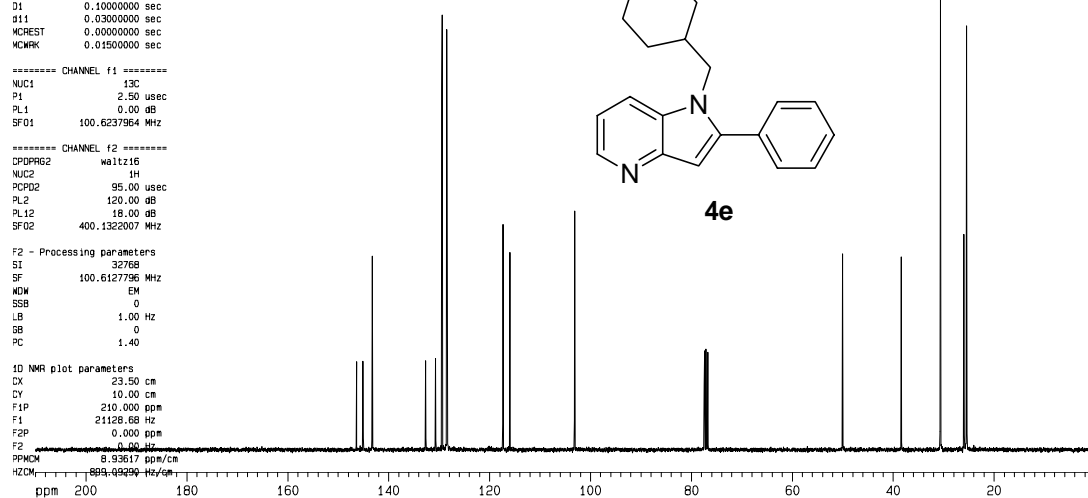
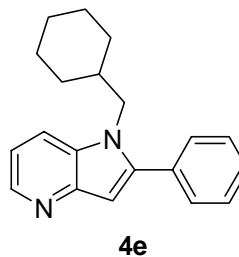
----- CHANNEL f2 -----
CPDPRG2 waltz16
NUC2 1H
PCPD2 95.00 usec
PL2 120.00 dB
PL12 18.00 dB
SF02 400.132007 MHz

F2 - Processing parameters
SI 32768
SF 100.6127796 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
CX 23.50 cm
CY 10.00 cm
FIP 210.000 ppm
F1 21128.68 Hz
F2P 0.000 ppm
F2 0.00 Hz
PPHOM 8.93617 ppm/cm
HZCM 893.69259 Hz/cm

c-13 nmr400c

146.4
145.0
143.2
132.6
130.7
129.4
128.5
128.3
117.3
116.0
103.1
77.4
77.1
76.8
50.0
38.4
30.6
26.0
26.5



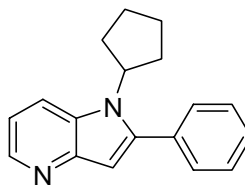
Current Data Parameters
NAME 224591-024-5-3
EXPNO 1
PROCNO 1

nmr400c h1

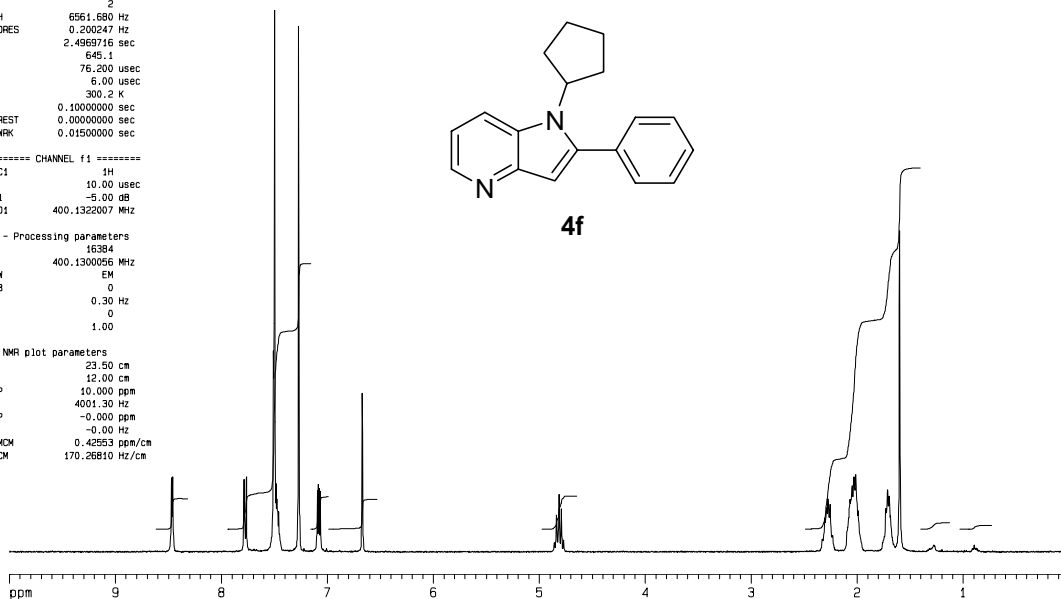
F2 - Acquisition Parameters
Date_ 20060222
Time 15.19
INSTRUM spect
PROBHD 5 mm GNP 1H/1
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 2
SWH 6561.680 Hz
FIDRES 0.200247 Hz
AQ 2.4969716 sec
RG 645.1
DM 76.200 usec
DE 6.00 usec
TE 300.2 K
D1 0.1000000 sec
MCREST 0.0000000 sec
MCWRK 0.01500000 sec

***** CHANNEL f1 *****
NUC1 1H
P1 10.00 usec
PL1 -5.00 dB
SFO1 400.132007 MHz
F2 - Processing parameters
SI 16384
SF 400.130056 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 23.50 cm
CY 12.00 cm
F1P 10.000 ppm
F1 4001.30 Hz
F2P -0.000 ppm
F2 -0.00 Hz
PPMCM 0.42553 ppm/cm
HZCM 170.26810 Hz/cm



4f



Current Data Parameters
NAME 224591-024-5-4
EXPNO 2
PROCNO 1

c-13 nmr400c

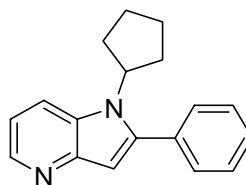
F2 - Acquisition Parameters
Date_ 20060222
Time 15.54
INSTRUM spect
PROBHD 5 mm GNP 1H/1
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 189
DS 0
SWH 26346.719 Hz
FIDRES 0.400493 Hz
AQ 1.2485108 sec
RG 8192
DM 19.050 usec
DE 6.00 usec
TE 300.2 K
D1 0.1000000 sec
d11 0.0300000 sec
MCREST 0.0000000 sec
MCWRK 0.01500000 sec

***** CHANNEL f1 *****
NUC1 13C
P1 2.50 usec
PL1 0.00 dB
SFO1 100.6237964 MHz
***** CHANNEL f2 *****
CPDPRG2 waltz16
NUC2 1H
PCPD2 95.00 usec
PL2 120.00 dB
PL12 18.00 dB
SFO2 400.132007 MHz

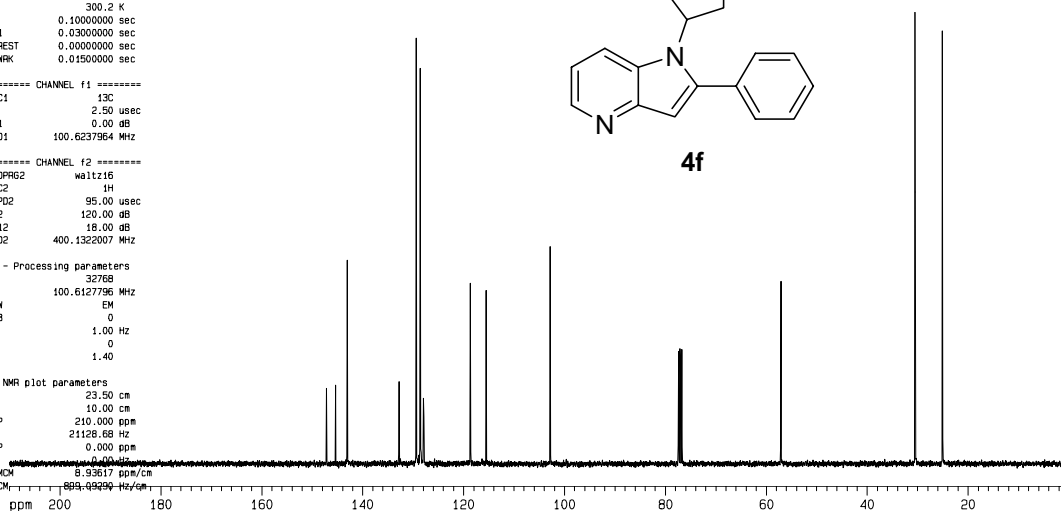
F2 - Processing parameters
SI 32768
SF 100.6127796 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
CX 23.50 cm
CY 10.00 cm
F1P 210.000 ppm
F1 21128.68 Hz
F2P 0.000 ppm
F2 899.49990 Hz/cm
PPMCM 899.49990 ppm/cm
HZCM 899.49990 Hz/cm

147.2
145.3
143.0
132.7
129.4
128.5
128.4
127.9
118.6
115.5
102.9
77.4
77.1
76.7
57.1
30.5
25.1



4f



Current Data Parameters
NAME 224591-121-2
EXPNO 1
PROCNO 1

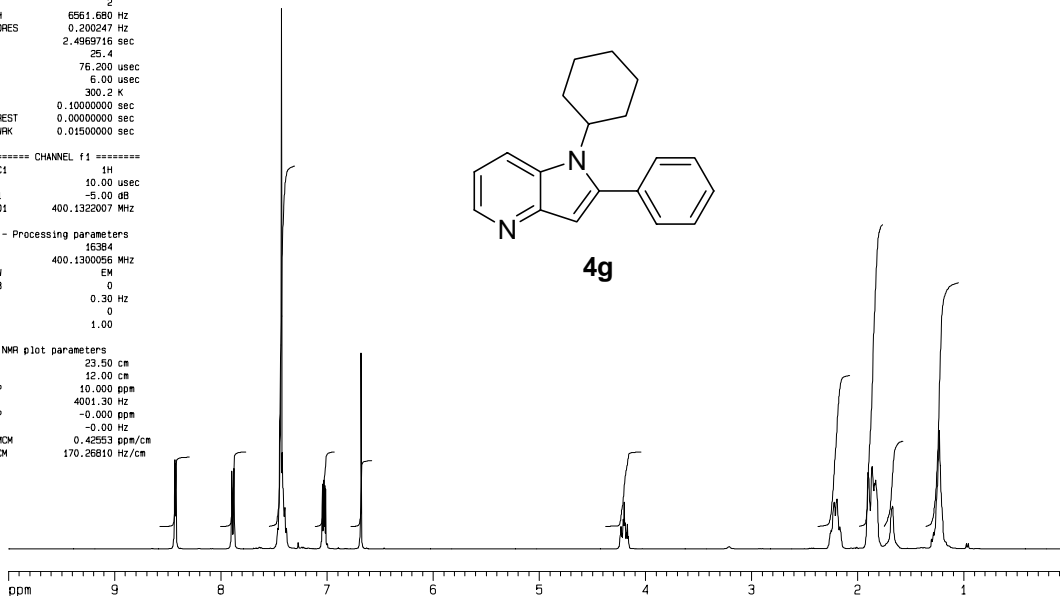
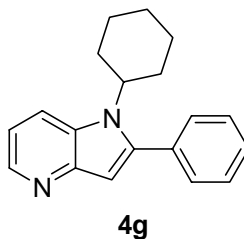
nmr400c h1

F2 - Acquisition Parameters
Date_ 20060207
Time 16.03
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 2
SWH 6561.680 Hz
FIDRES 0.200247 Hz
AQ 2.4969716 sec
RG 25.4
DM 76.200 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

===== CHANNEL f1 =====
NUC1 1H
P1 10.00 usec
PL1 -5.00 dB
SF01 400.1322007 MHz

F2 - Processing parameters
SI 16384
SF 400.1300056 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 23.50 cm
CY 12.00 cm
F1P 10.000 ppm
F1 4001.30 Hz
F2P -0.000 ppm
F2 -0.00 Hz
PPMCM 0.42553 ppm/cm
HZCM 170.26810 Hz/cm



Current Data Parameters
NAME 224591-121-2
EXPNO 2
PROCNO 1

c-13 nmr400c

F2 - Acquisition Parameters
Date_ 20060207
Time 16.07
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 183
DS 0
SWH 26246.719 Hz
FIDRES 0.400493 Hz
AQ 1.2485108 sec
RG 8192
DM 19.050 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
D11 0.03000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

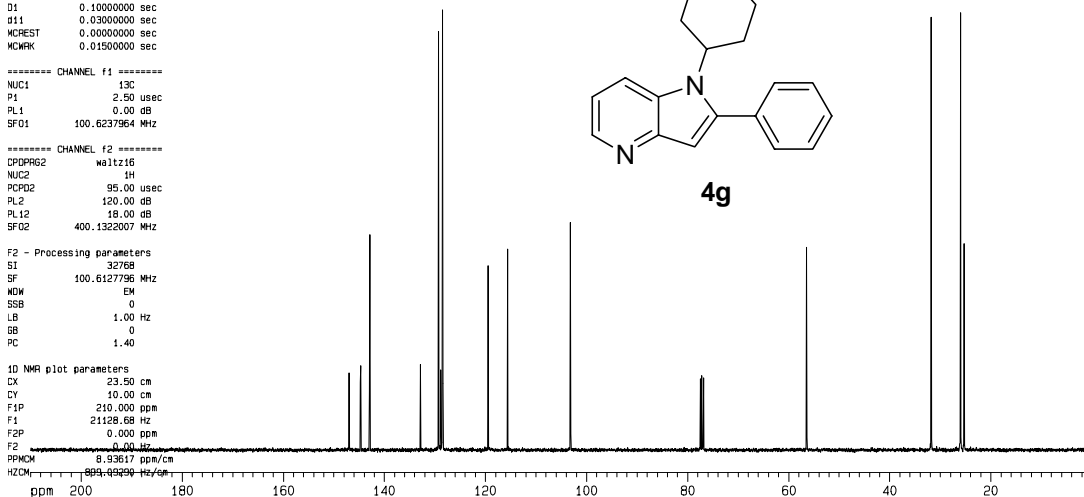
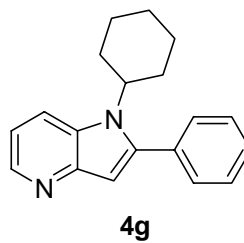
===== CHANNEL f1 =====
NUC1 13C
P1 2.50 usec
PL1 0.00 dB
SF01 100.6237964 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 95.00 usec
PL2 120.00 dB
PL12 18.00 dB
SF02 400.1322007 MHz

F2 - Processing parameters
SI 32768
SF 100.6127796 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
CX 23.50 cm
CY 10.00 cm
F1P 210.000 ppm
F1 21128.68 Hz
F2P 0.000 ppm
F2 -0.00 Hz
PPMCM 8.93617 ppm/cm
HZCM 899.45590 Hz/cm

147.0
144.7
142.9
132.8
129.3
128.7
128.5
128.4
119.4
116.5
103.2
77.5
77.2
76.8
56.4
31.8
26.0
25.3



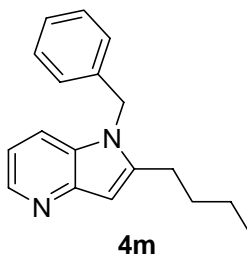
Current Data Parameters
NAME 224591-125-2
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20060213
Time 16.30
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 2
SWH 6561.680 Hz
FIDRES 0.200247 Hz
AQ 2.4969716 sec
RG 14.3
DM 76.200 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
WCREST 0.00000000 sec
WCMRK 0.01500000 sec

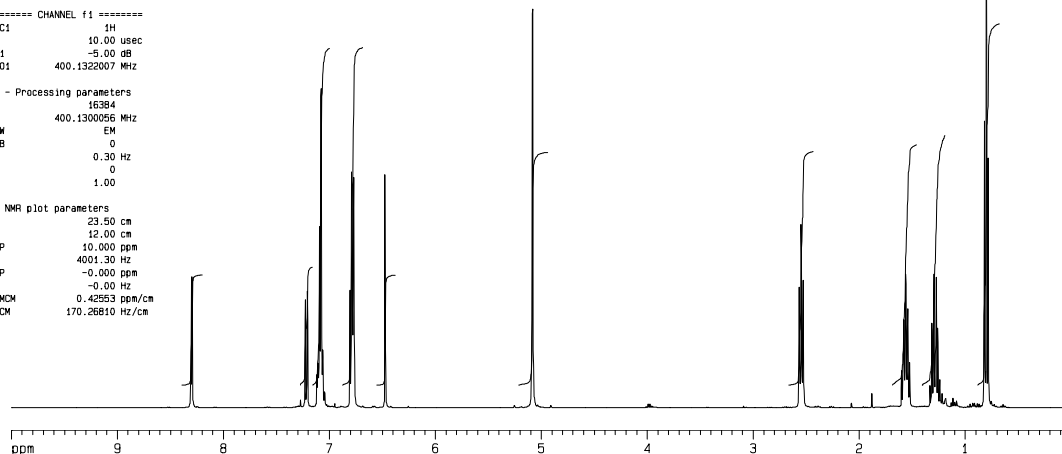
===== CHANNEL f1 =====
NUC1 1H
P1 10.00 usec
PL1 -5.00 dB
SF01 400.132007 MHz

F2 - Processing parameters
SI 16384
SF 400.1300056 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 23.50 cm
CY 12.00 cm
F1P 10.000 ppm
F1 4001.30 Hz
F2P -0.000 ppm
F2 -0.00 Hz
PPMCM 0.42553 ppm/cm
HZCM 170.26610 Hz/cm



nmr400c h1



Current Data Parameters
NAME 224591-125-2
EXPNO 2
PROCNO 1

F2 - Acquisition Parameters
Date_ 20060213
Time 16.33
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zgpg30
TD 65536
SOLVENT DMSO
NS 176
DS 0
SWH 26246.719 Hz
FIDRES 0.400493 Hz
AQ 1.2485108 sec
RG 8192
DM 19.050 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
D11 0.03000000 sec
WCREST 0.00000000 sec
WCMRK 0.01500000 sec

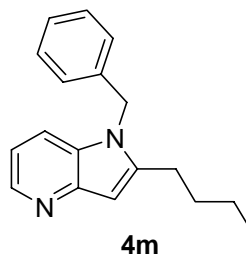
===== CHANNEL f1 =====
NUC1 13C
P1 2.50 usec
PL1 0.00 dB
SF01 100.6237964 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 95.00 usec
PL2 120.00 dB
PL12 18.00 dB
SF02 400.132007 MHz

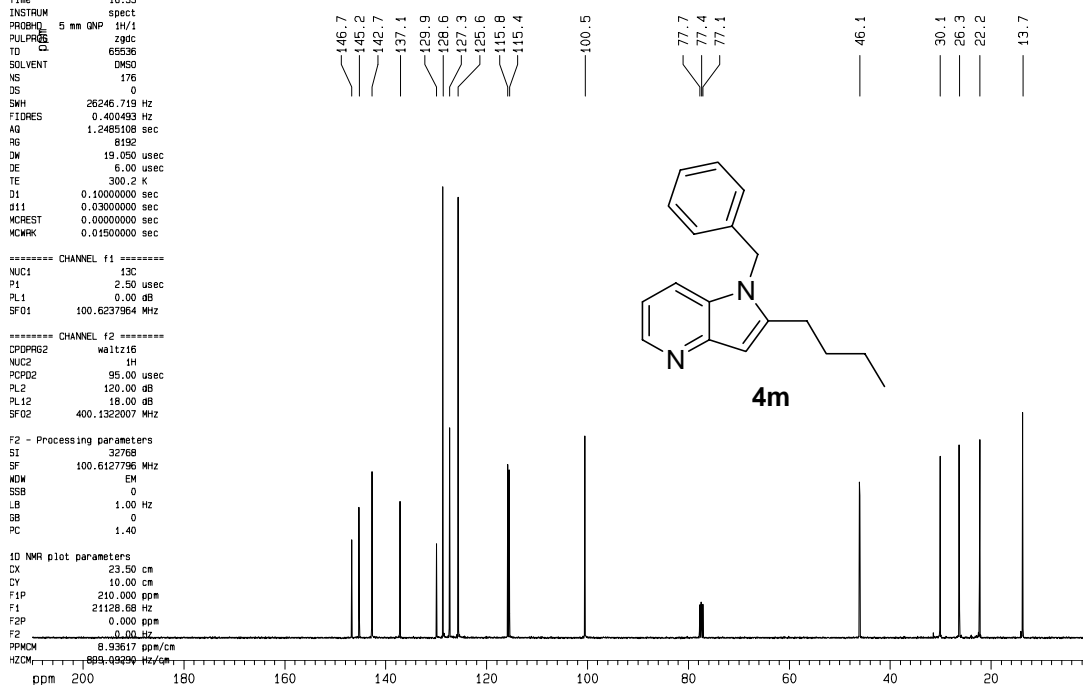
F2 - Processing parameters
SI 32768
SF 100.6127796 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
CX 23.50 cm
CY 10.00 cm
F1P 210.000 ppm
F1 21128.68 Hz
F2P 0.000 ppm
F2 0.00 Hz
PPMCM 8.93617 ppm/cm
HZCM 893.617 Hz/cm

146.7
145.2
142.7
137.1
129.9
128.6
127.3
125.6
115.8
115.4
100.5
77.7
77.4
77.1
46.1
30.1
26.3
22.2
13.7



c-13 nmr400c



Current Data Parameters
NAME 224591-129-1
EXPNO 1
PROCNO 1

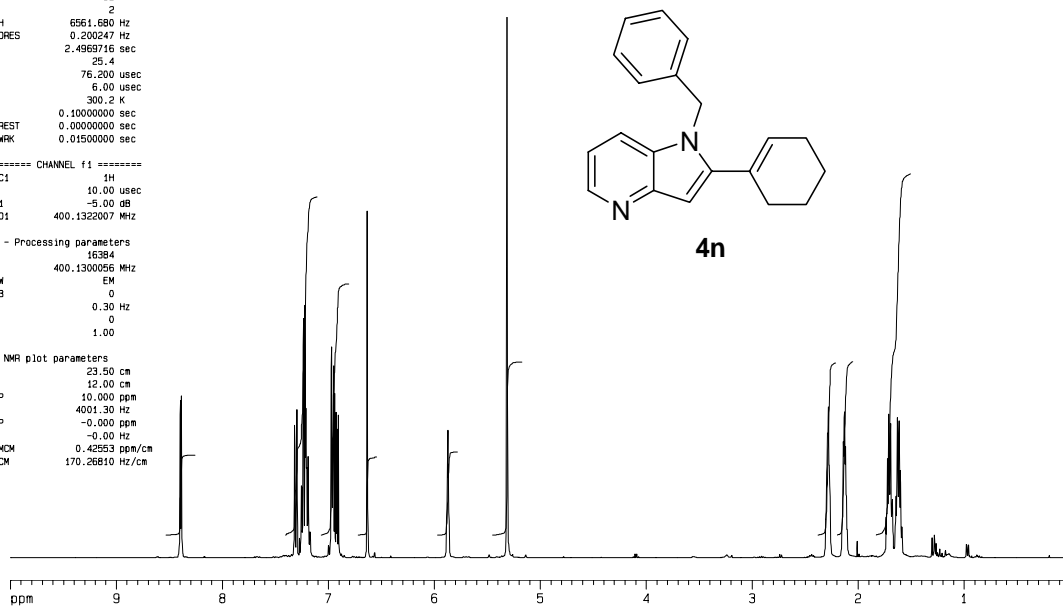
F2 - Acquisition Parameters
Date_ 20060215
Time 16.26
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 2
SWH 6561.680 Hz
FIDRES 0.200247 Hz
AQ 2.4969716 sec
RG 26.4
DM 76.200 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
WCREST 0.00000000 sec
WCMRK 0.01500000 sec

===== CHANNEL f1 =====
NUC1 1H
P1 10.00 usec
PL1 -5.00 dB
SF01 400.132007 MHz

F2 - Processing parameters
SI 16384
SF 400.1300956 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 23.50 cm
CY 12.00 cm
F1P 10.000 ppm
F1 4001.30 Hz
F2P -0.000 ppm
F2 -0.00 Hz
PPMCM 0.42553 ppm/cm
HZCM 170.26610 Hz/cm

nmr400c h1



Current Data Parameters
NAME 224591-129-1
EXPNO 2
PROCNO 1

F2 - Acquisition Parameters
Date_ 20060215
Time 16.29
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 242
DS 0
SWH 26246.719 Hz
FIDRES 0.400493 Hz
AQ 1.2485108 sec
RG 6192
DM 19.050 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
S11 0.03000000 sec
WCREST 0.00000000 sec
WCMRK 0.01500000 sec

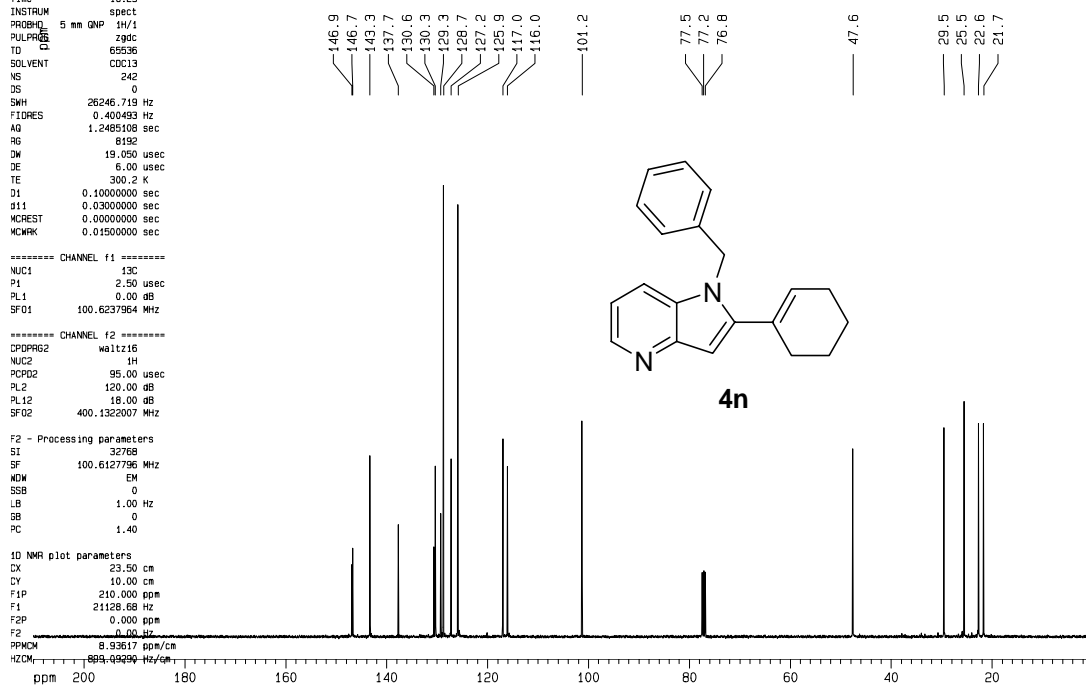
===== CHANNEL f1 =====
NUC1 13C
P1 2.50 usec
PL1 0.00 dB
SF01 100.6237964 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 95.00 usec
PL2 120.00 dB
PL12 18.00 dB
SF02 400.132007 MHz

F2 - Processing parameters
SI 32768
SF 100.6127796 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
CX 23.50 cm
CY 10.00 cm
F1P 210.000 ppm
F1 21128.68 Hz
F2P 0.000 ppm
F2 0.00 Hz
PPMCM 8.93617 ppm/cm
HZCM 893.617 Hz/cm

c-13 nmr400c



Current Data Parameters
NAME 224591-134-2
EXPNO 1
PROCNO 1

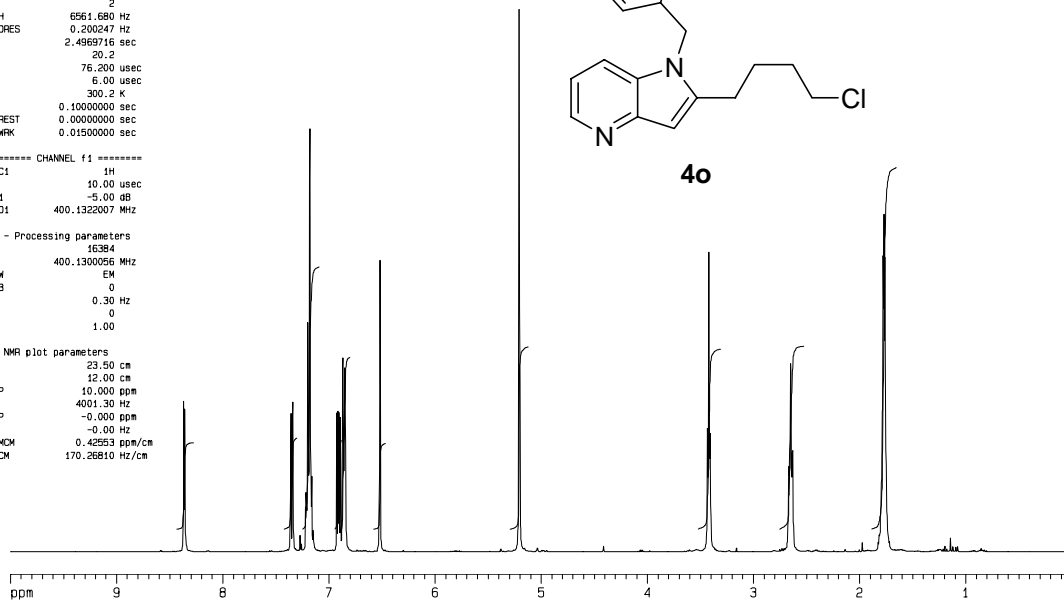
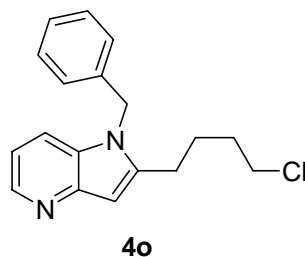
nmr400c h1

F2 - Acquisition Parameters
Date_ 20060217
Time 14.20
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 2
SWH 6561.680 Hz
FIDRES 0.200247 Hz
AQ 2.4969716 sec
RG 20.2
DM 76.200 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
MCREST 0.00000000 sec
MCWK 0.01500000 sec

===== CHANNEL f1 =====
NUC1 1H
P1 10.00 usec
PL1 -5.00 dB
SFO1 400.132007 MHz

F2 - Processing parameters
SI 16384
SF 400.130056 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 23.50 cm
CY 12.00 cm
F1 10.000 ppm
F1 4001.30 Hz
F2P -0.000 ppm
F2 -0.00 Hz
PPMCM 0.42553 ppm/cm
HZCM 170.26810 Hz/cm



Current Data Parameters
NAME 224591-134-2
EXPNO 2
PROCNO 1

c-13 nmr400c

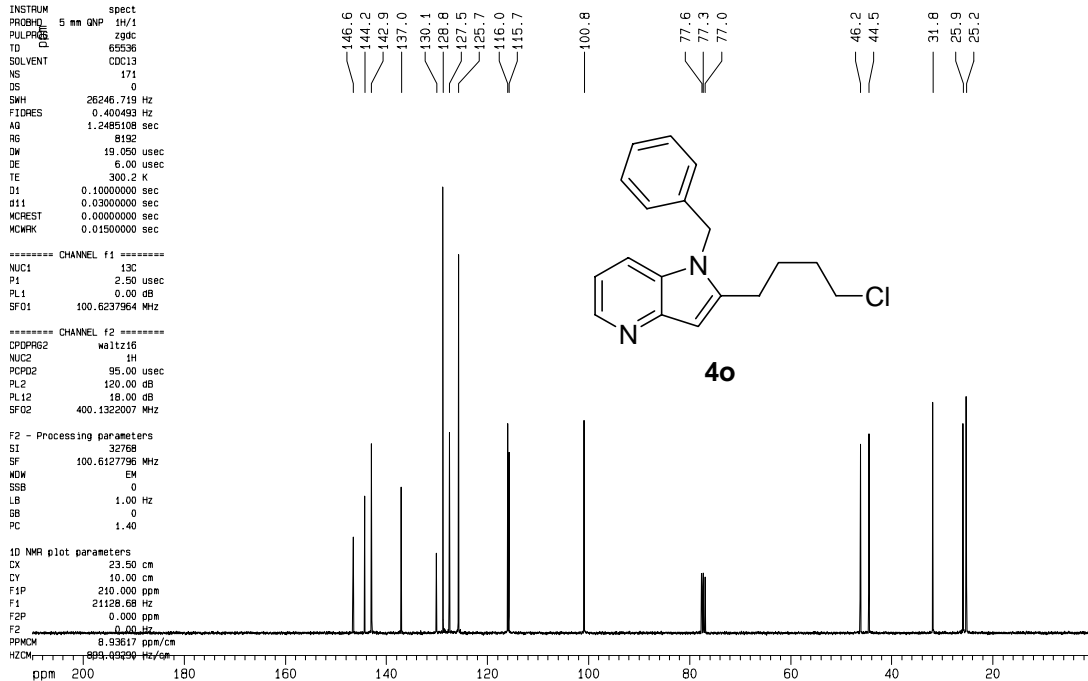
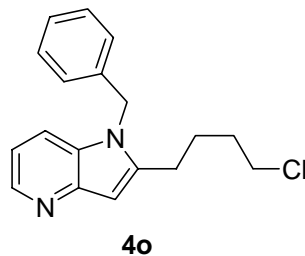
F2 - Acquisition Parameters
Date_ 20060217
Time 14.23
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 171
DS 0
SWH 26246.719 Hz
FIDRES 0.400493 Hz
AQ 1.2485108 sec
RG 8192
DM 18.050 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
d11 0.03000000 sec
MCREST 0.00000000 sec
MCWK 0.01500000 sec

===== CHANNEL f1 =====
NUC1 13C
P1 2.50 usec
PL1 0.00 dB
SFO1 100.6237964 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 95.00 usec
PL2 120.00 dB
PL12 18.00 dB
SFO2 400.132007 MHz

F2 - Processing parameters
SI 32768
SF 100.6127796 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
CX 23.50 cm
CY 10.00 cm
F1 210.000 ppm
F1 21128.68 Hz
F2 0.000 ppm
F2 0.00 Hz
PPMCM 8.93617 ppm/cm
HZCM 89361.7 Hz/cm



Current Data Parameters
 NAME 224591-127-4
 EXPNO 1
 PROCNO 1

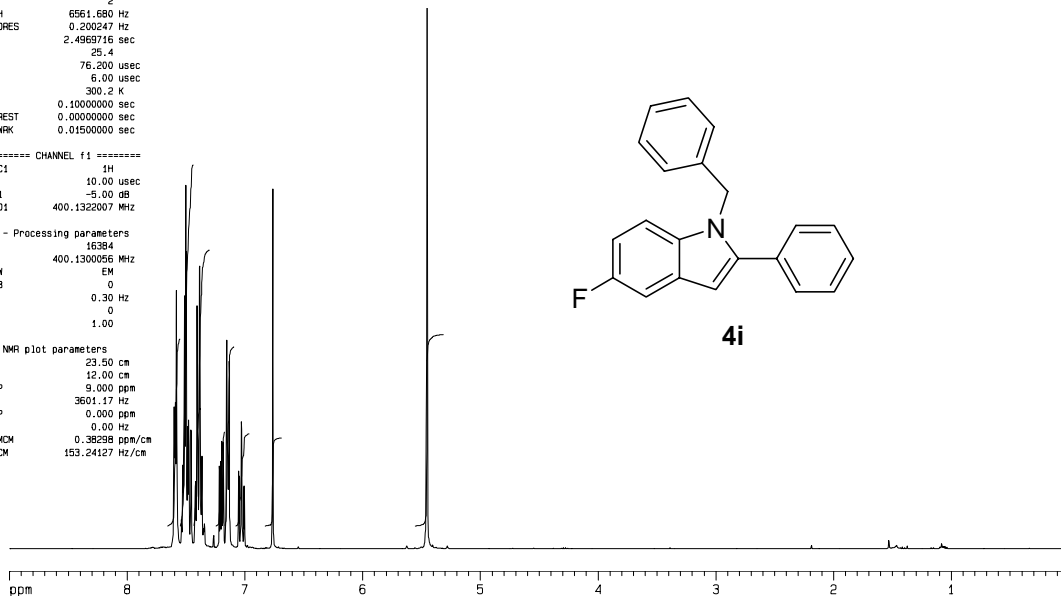
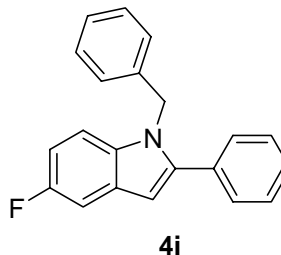
nmr400c h1

F2 - Acquisition Parameters
 Date_ 20060216
 Time 10.27
 INSTRUM spect
 PROBRD 5 mm QNP 1H/1
 PULPROG zg30
 ID 32768
 SOLVENT CDCl3
 NS 32
 DS 2
 SWH 6561.680 Hz
 FIDRES 0.200247 Hz
 AQ 2.4969716 sec
 RG 25.4
 DM 76.200 usec
 DE 6.00 usec
 TE 300.2 K
 D1 0.10000000 sec
 MCREST 0.00000000 sec
 MCMRK 0.01500000 sec

----- CHANNEL f1 -----
 NUC1 1H
 P1 10.00 usec
 PL1 -5.00 dB
 SF01 400.132007 MHz

F2 - Processing parameters
 SI 16384
 SF 400.1300056 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 23.50 cm
 CY 12.00 cm
 F1P 9.000 ppm
 F1 3601.17 Hz
 F2P 0.000 ppm
 F2 0.00 Hz
 PPMCM 0.38298 ppm/cm
 HZCM 153.24127 Hz/cm



Current Data Parameters
 NAME 224591-127-4
 EXPNO 2
 PROCNO 1

c-13 nmr400c

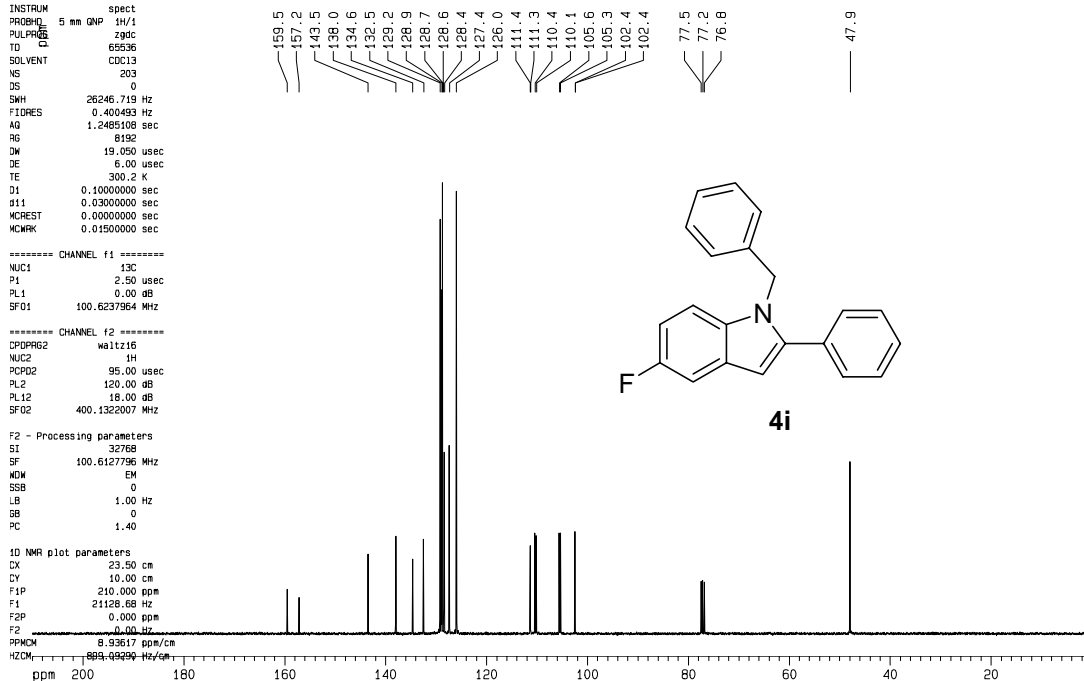
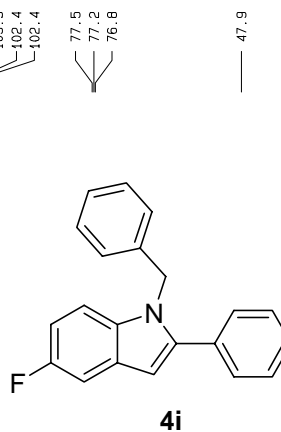
F2 - Acquisition Parameters
 Date_ 20060216
 Time 10.30
 INSTRUM spect
 PROBRD 5 mm QNP 1H/1
 PULPROG zgpg30
 ID 32768
 SOLVENT CDCl3
 NS 203
 DS 0
 SWH 26246.719 Hz
 FIDRES 0.400493 Hz
 AQ 1.2485108 sec
 RG 8192
 DM 19.050 usec
 DE 6.00 usec
 TE 300.2 K
 D1 0.10000000 sec
 d11 0.03000000 sec
 MCREST 0.00000000 sec
 MCMRK 0.01500000 sec

----- CHANNEL f1 -----
 NUC1 13C
 P1 2.50 usec
 PL1 0.00 dB
 SF01 100.6237964 MHz

----- CHANNEL f2 -----
 CPDPRG2 waltz16
 NUC2 1H
 PCDP2 95.00 usec
 PL2 120.00 dB
 PL12 18.00 dB
 SF02 400.132007 MHz

F2 - Processing parameters
 SI 32768
 SF 100.6127796 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40

1D NMR plot parameters
 CX 23.50 cm
 CY 10.00 cm
 F1P 210.000 ppm
 F1 21128.68 Hz
 F2P 0.000 ppm
 F2 0.00 Hz
 PPMCM 8.93617 ppm/cm
 HZCM 893.617 Hz/cm



Current Data Parameters
NAME 224591-117-1
EXPNO 1
PROCNO 1

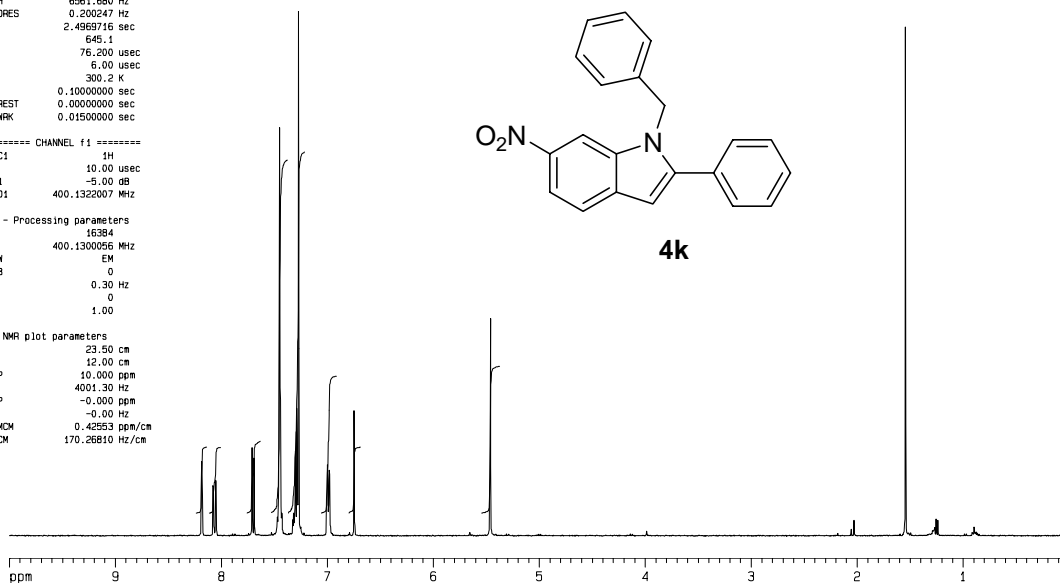
nmr400c h1

F2 - Acquisition Parameters
Date_ 20060206
Time 10.51
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zg30
TD 32768
SOLVENT DMSO
NS 32
DS 2
SWH 6561.680 Hz
FIDRES 0.200247 Hz
AQ 2.4969716 sec
RG 645.1
DM 76.200 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

----- CHANNEL f1 -----
NUC1 1H
P1 10.00 usec
PL1 -5.00 dB
SF01 400.1322007 MHz

F2 - Processing parameters
SI 16384
SF 400.1300056 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 23.50 cm
CY 12.00 cm
F1P 10.000 ppm
F1 4001.30 Hz
F2P -0.000 ppm
F2 -0.00 Hz
PPHOM 0.42553 ppm/cm
H2CM 170.26810 Hz/cm



Current Data Parameters
NAME 224591-117-2
EXPNO 2
PROCNO 1

c-13 nmr400c

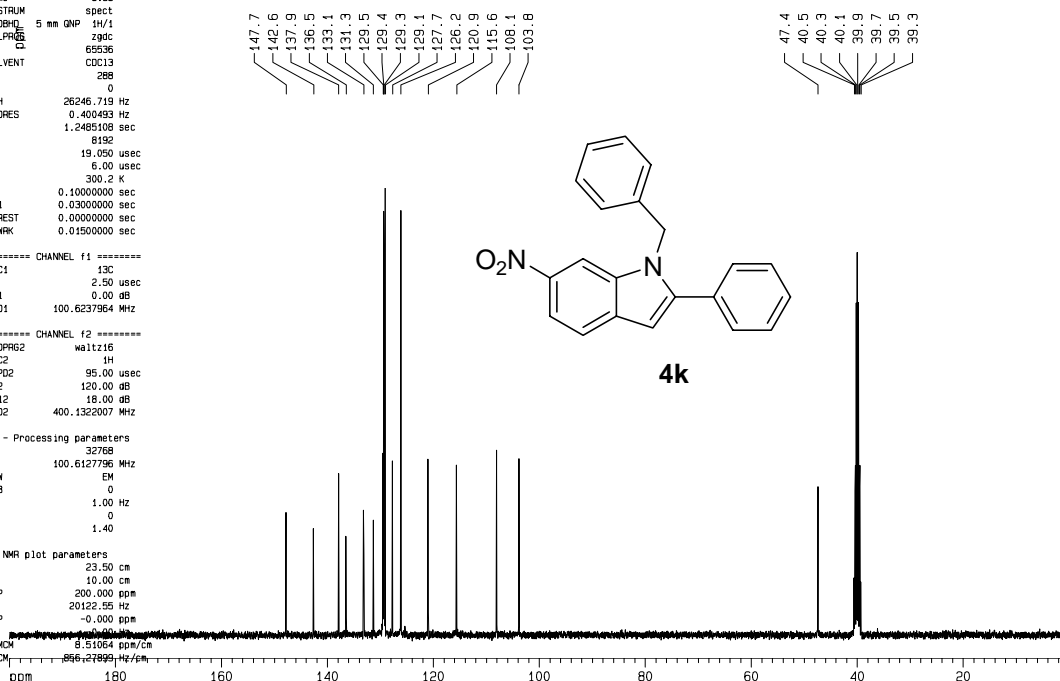
F2 - Acquisition Parameters
Date_ 20060207
Time 8.38
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 288
DS 0
SWH 26246.719 Hz
FIDRES 0.400493 Hz
AQ 1.2485108 sec
RG 8192
DM 19.050 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
d11 0.03000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

===== CHANNEL f1 =====
NUC1 13C
P1 2.50 usec
PL1 0.00 dB
SF01 100.6237964 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 95.00 usec
PL2 120.00 dB
PL12 18.00 dB
SF02 400.1322007 MHz

F2 - Processing parameters
SI 32768
SF 100.6127796 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
CX 23.50 cm
CY 20.00 cm
F1P 200.000 ppm
F1 20122.55 Hz
F2P -0.000 ppm
F2 -0.00 Hz
PPHOM 8.51064 ppm/cm
H2CM 816.27899 Hz/cm



Current Data Parameters
NAME 224591-118-3
EXPNO 1
PROCNO 1

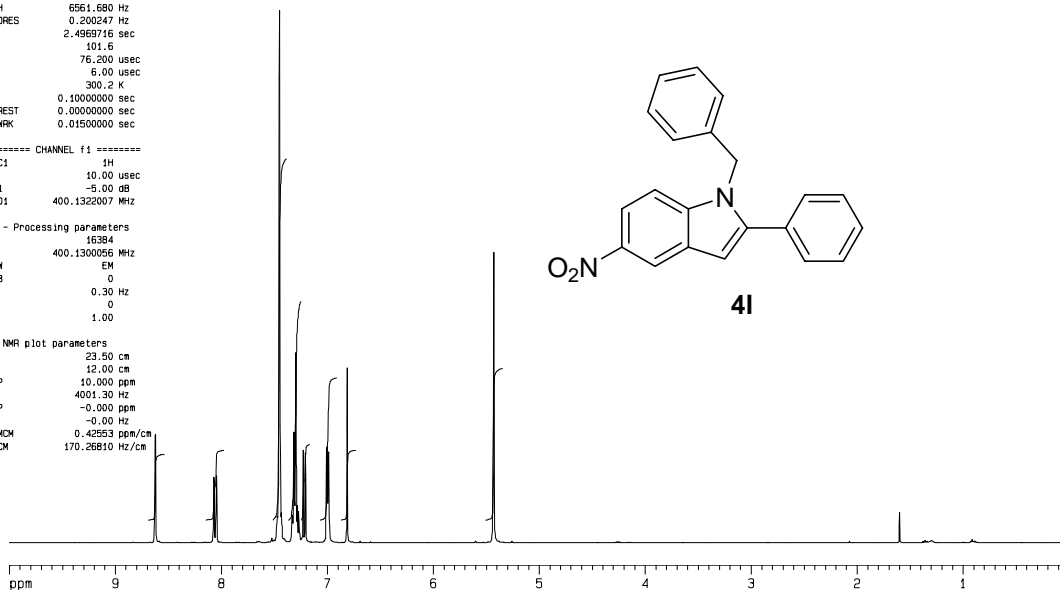
nmr400c h1

F2 - Acquisition Parameters
Date_ 20060208
Time 16.47
INSTRUM spect
PROBHD 5 mm GNP 1H/1
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 2
SWH 6561.680 Hz
FIDRES 0.200247 Hz
AQ 2.4969716 sec
RG 101.6
DM 76.200 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
MCREST 0.00000000 sec
MCMRK 0.01500000 sec

----- CHANNEL f1 -----
NUC1 1H
P1 10.00 usec
PL1 -5.00 dB
SF01 400.132007 MHz

F2 - Processing parameters
SI 16384
SF 400.1300056 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 23.50 cm
CY 12.00 cm
F1P 10.000 ppm
F1 4001.30 Hz
F2P -0.000 ppm
F2 -0.00 Hz
PPHOM 0.42553 ppm/cm
H2CM 170.26810 Hz/cm



Current Data Parameters
NAME 224591-118-3
EXPNO 2
PROCNO 1

c-13 nmr400c

F2 - Acquisition Parameters
Date_ 20060208
Time 16.50
INSTRUM spect
PROBHD 5 mm GNP 1H/1
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 375
DS 0
SWH 26246.719 Hz
FIDRES 0.400493 Hz
AQ 1.2485108 sec
RG 8192
DM 19.050 usec
DE 6.00 usec
TE 300.2 K
D1 0.10000000 sec
d11 0.03000000 sec
MCREST 0.00000000 sec
MCMRK 0.01500000 sec

***** CHANNEL f1 *****
NUC1 13C
P1 2.50 usec
PL1 0.00 dB
SF01 100.6237964 MHz

***** CHANNEL f2 *****
CPDPRG2 waltz16
NUC2 1H
PCPD2 95.00 usec
PL2 120.00 dB
PL12 18.00 dB
SF02 400.132007 MHz

F2 - Processing parameters
SI 32768
SF 100.6127796 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
CX 23.50 cm
CY 200.000 ppm
F1P 20122.55 Hz
F1 20122.55 Hz
F2P -0.000 ppm
F2 -0.000 Hz
PPHOM 8.51064 ppm/cm
H2CM 846.27899 Hz/cm

