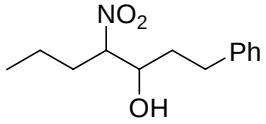
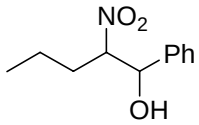
Supporting information

Henry adducts (diastereomeric mixture, except 3f):



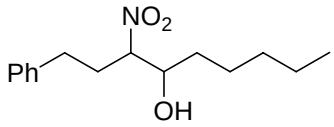
3a.

Oil; IR (neat) ν = 1378, 1562, 1605, 3030, 3448 cm^{-1}; ^{1}H NMR ($CDCl_3$, 400 MHz): δ = 0.90-0.97 (m, 3H), 1.25-1.42 (m, 2H), 1.65-1.92 (m, 3H), 1.95-2.18 (m, 1H), 2.33 (d, 0.65H, *J* = 8.1 Hz), 2.47 (d, 0.35H, *J* = 4.7 Hz), 2.64-2.79 (m, 1H), 2.83-2.94 (m, 1H), 3.81-3.93 (m, 0.5H), 3.97-4.06 (m, 0.5H), 4.41-4.52 (m, 1H), 7.16-7.24 (m, 3H), 7.27-7.33 (m, 2H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ = 13.6, 13.7, 19.2, 19.5, 30.1, 31.7, 32.0, 32.6, 34.9, 35.5, 71.4, 71.7, 92.2, 92.8, 126.4, 128.6, 128.8, 141.0; Anal. Calcd. for $C_{13}H_{19}NO_3$ (237.29): C, 65.80; H, 8.07; N, 5.90; Found: C, 66.23; H, 8.31; N, 5.76.



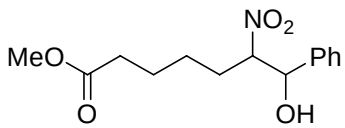
3b.

Oil; IR (neat) ν = 1368, 1573, 1611, 3022, 3439 cm^{-1}; ^{1}H NMR ($CDCl_3$, 400 MHz): δ = 0.81 (t, 2.4H, *J* = 7.3 Hz), 0.89 (t, 0.6H, *J* = 7.3 Hz), 1.15-1.34 (m, 3H), 1.73-1.91 (m, 1H), 2.54 (bs, 0.8H), 2.76 (bs, 0.2H), 4.62-4.75 (m, 1H), 5.01 (d, 0.8H, *J* = 9.0 Hz), 5.16 (d, 0.2H, *J* = 4.7 Hz), 7.31-7.45 (m, 5H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ = 13.4, 13.6, 19.1, 19.4, 29.9, 32.6, 74.6, 76.0, 93.2, 93.8, 126.4, 127.1, 128.9, 129.0, 129.3, 129.5, 138.7, 138.9; Anal. Calcd. for $C_{11}H_{15}NO_3$ (209.24): C, 63.14; H, 7.23; N, 6.69; Found: C, 63.40; H, 7.42 ; N, 6.49.



3c.

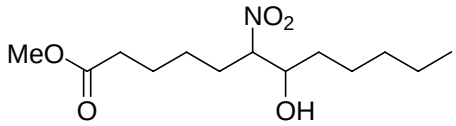
Oil; IR (neat) ν = 1377, 1559, 1600, 3026, 3444 cm^{-1}; ^{1}H NMR ($CDCl_3$, 400 MHz): δ = 0.82-0.93 (m, 3H), 1.16-1.55 (m, 8H), 2.02-2.14 (m, 1H), 2.17 (d, 0.5H, *J* = 7.7 Hz), 2.29 (d, 0.5H, *J* = 4.7 Hz), 2.34-2.82 (m, 3H), 3.81-3.92 (m, 0.5H), 3.98-4.06 (m, 0.5H), 4.37-4.51 (m, 1H), 7.14-7.26 (m, 3H), 7.27-7.35 (m, 2H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ = 14.2, 22.6, 25.1, 25.4, 29.8, 31.6, 31.7, 32.0, 32.2, 32.4, 33.3, 33.7, 72.3, 72.6, 91.2, 92.1, 126.7, 126.8, 128.6, 128.7, 128.8, 128.9, 139.8, 140.0; Anal. Calcd. for $C_{15}H_{23}NO_3$ (265.35): C, 67.90; H, 8.74; N, 5.28; Found: C, 68.31; H, 8.98 ; N, 5.08.



3d.

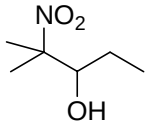
Oil; IR (neat) ν = 1370, 1561, 1605, 1729, 3028, 3496 cm^{-1}; ^{1}H NMR ($CDCl_3$, 400 MHz): δ = 1.20-1.38 (m, 2H), 1.41-1.72 (m, 2H), 1.78-1.92 (m, 1H), 1.99-2.08 (m, 0.5H), 2.12-2.28 (m, 2.5H), 3.42 (bs, 0.5H), 3.53 (bs, 0.5H), 3.61 (s, 1.5H), 3.65 (s, 1.5H), 4.60-4.69 (m, 1H), 4.95-5.01 (m, 0.5H), 5.12-5.18 (m, 0.5H), 7.27-7.42 (m, 5H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ = 24.2, 24.4, 25.3, 25.6,

27.8, 30.3, 33.6, 33.7, 51.7, 51.8, 74.5, 75.9, 93.3, 93.8, 126.4, 127.1, 128.8, 128.9, 129.2, 129.3, 139.0, 139.1, 173.8; Anal. Calcd. for $C_{14}H_{19}NO_5$ (281.30): C, 59.78; H, 6.81; N, 4.98; Found: C, 59.49; H, 6.59 ; N, 59.68.



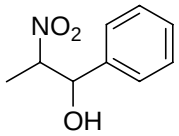
3e.

Oil; IR (neat) ν = 1371, 1557, 1733, 3500 cm^{-1}; ^1H NMR ($CDCl_3$, 400 MHz): δ = 0.82-0.97 (m, 3H), 1.21-1.91 (m, 12H), 1.93-2.22 (m, 2H), 2.27-2.39 (m, 2H), 2.43-2.52 (m, 0.5H), 2.58-2.63, (m, 0.5H), 3.65 (s, 3H), 3.77-3.91 (m, 0.5H), 3.92-4.02 (m, 0.5H), 4.32-4.49 (m,1H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ = 14.2, 22.7, 24.5, 25.2, 25.4, 25.7, 27.9, 30.2, 33.5, 33.7, 33.8, 51.7, 72.3, 72.5, 92.3, 92.9, 173.9, 174.0; Anal. Calcd. for $C_{13}H_{25}NO_5$ (275.34): C, 56.71; H, 9.15; N, 5.09; Found: C, 56.89; H, 9.35 ; N, 4.88.



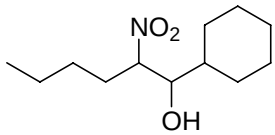
3f.

Oil; IR (neat) ν = 1367, 1561, 3456 cm^{-1}; ^1H NMR ($CDCl_3$, 400 MHz): δ = 1.04 (t, 3H, *J* = 7.3 Hz), 1.21-1.36 (m, 1H), 1.46-1.57 (m, 1H), 1.53 (s, 3H), 1.54 (s, 3H), 2.36-2.47 (m, 1H), 3.84-3.95 (m, 1H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ = 11.2, 20.4, 23.9, 24.6, 77.7, 92.4; Anal. Calcd. for $C_6H_{13}NO_3$ (147.17): C, 48.97; H, 8.90; N, 9.52; Found: C, 49.24; H, 9.11 ; N, 9.29.



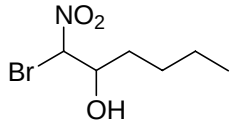
3g.

Oil; IR (neat) ν = 1357, 1563, 1622, 3056 cm^{-1}; ^1H NMR ($CDCl_3$, 400 MHz): δ = 1.31 (d, 1.95H, *J* = 6.8 Hz), 1.49 (d, 1.05H, *J* = 6.8 Hz), 2.66 (d, 0.65H, *J* = 3.8 Hz), 2.77 (d, 0.35H, *J* = 3.8 Hz), 4.64-4.81 (m, 1H), 5.02 (dd, 0.65H, *J* = 9.0, 3.8 Hz), 5.37-5.41 (m, 0.35H), 7.32-7.44 (m, 5H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ = 12.3, 16.7, 74.1, 76.5, 87.6, 88.6, 126.1, 127.1, 128.7, 128.9, 129.2, 129.4, 138.5, 138.6; Anal. Calcd. for $C_9H_{11}NO_3$ (181.19): C, 59.66; H, 6.12; N, 7.73; Found: C, 59.93; H, 6.28 ; N, 7.49.



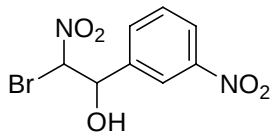
3h.

Oil; IR (neat) ν = 1379, 1563, 3445 cm^{-1}; ^1H NMR ($CDCl_3$, 400 MHz): δ = 0.90 (t, 3H, *J* = 7.3 Hz), 0.98-1.46 (m, 10H), 1.47-1.87 (m, 5H), 1.91-2.18 (m, 2H), 2.21 (d, 0.5H, *J* = 8.5 Hz), 2.34 (d, 0.5H, *J* = 4.7 Hz), 3.56-3.63 (m, 0.5H), 3.74-3.80 (m, 0.5H), 4.54-4.67 (m, 1H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ = 13.9, 14.0, 22.3, 22.4, 25.9, 26.0, 26.1, 26.2, 26.3, 27.1, 27.7, 28.0, 28.2, 28.3, 29.5, 30.0, 30.6, 40.4, 40.5, 76.4, 76.8, 90.2, 90.6; Anal. Calcd. for $C_{12}H_{23}NO_3$ (229.32): C, 62.85; H, 10.11; N, 6.11; Found: C, 62.65; H, 9.89 ; N, 6.28.



3i.

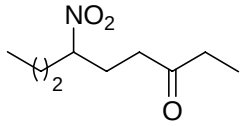
Yellow oil; IR (neat) ν = 1358, 1569, 3422 cm^{-1}; ^{1}H NMR ($CDCl_3$, 400 MHz): δ = 0.86-0.94 (m, 3H), 1.25-1.68 (m, 5.35H), 1.77-1.88 (m, 0.65H), 3.24 (bs, 1H), 4.15-4.22 (m, 1H), 5.72 (d, 0.65H, *J* = 8.5 Hz), 5.98 (d, 0.35H, *J* = 3.0 Hz); ^{13}C NMR ($CDCl_3$, 100 MHz): δ = 14.1, 22.5, 27.2, 27.6, 32.0, 33.7, 72.9, 73.4, 82.1, 86.8; Anal. Calcd. for $C_6H_{12}BrNO_3$ (226.07): C, 31.88; H, 5.35; N, 6.20; Found: C, 31.51; H, 5.16 ; N, 6.41.



3j.

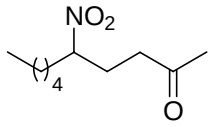
Oil; IR (neat) ν = 1353, 1567, 1615, 3090, 3498 cm^{-1}; ^{1}H NMR ($CDCl_3$, 400 MHz): δ = 3.83 (bs, 1H), 5.39 (d, 0.6H, *J* = 9.2 Hz), 5.53 (d, 0.4H, *J* = 4.1 Hz), 5.93 (d, 0.6H, *J* = 9.2 Hz), 6.16 (d, 0.4H, *J* = 4.3 Hz), 7.52-7.66 (m, 1H), 7.72-7.84 (m, 1H), 8.18-8.29 (m, 2H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ = 73.7, 75.3, 81.2, 86.1, 122.0, 122.9, 124.4, 124.7, 129.9, 130.0, 132.9, 134.1, 139.4, 139.5, 148.5, 148.6; Anal. Calcd. for $C_8H_7Br_2NO_5$ (291.06): C, 33.01; H, 2.42; N, 9.62; Found: C, 33.28; H, 2.52 ; N, 9.34.

Michael adducts:



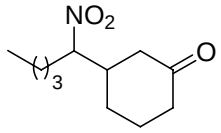
5a.

Oil; IR (neat) ν = 1363, 1550, 1715 cm^{-1}; ^{1}H NMR ($CDCl_3$, 400 MHz): δ = 0.91 (t, 3H, *J* = 7.7 Hz), 1.03 (t, 3H, *J* = 7.3 Hz), 1.27-1.38 (m, 2H), 1.61-1.72 (m, 1H), 1.88-2.15 (m, 3H), 2.35-2.51 (m, 4H), 4.44-4.53 (m, 1H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ = 7.94, 13.6, 19.3, 27.6, 36.1, 36.3, 37.9, 88.0, 209.6; EI-MS: *m/z* = 188, 157, 141, 127, 110, 83, 69, 57(100), 41; Anal. Calcd. for $C_9H_{17}NO_3$ (187.24): C, 57.33; H, 9.15; N, 7.48; Found: C, 57.5; H, 9.34 ; N, 8.99.



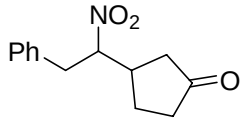
5b.

Oil; IR (neat) ν = 1367, 1554, 1717 cm^{-1}; ^{1}H NMR ($CDCl_3$, 400 MHz): δ = 0.80-0.89 (m, 3H), 1.16-1.35 (m, 6H), 1.61-1.75 (m, 1H), 1.86-2.10 (m, 3H), 2.12 (s, 3H), 2.42-2.50 (m, 2H), 4.41-4.52 (m, 1H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ =14.0, 22.5, 25.5, 27.5, 30.2, 31.2, 34.1, 39.2, 88.2, 206.7; EI-MS: *m/z* = 171, 155, 137, 95, 69, 55, 43 (100), 29; Anal. Calcd. for $C_{10}H_{19}NO_3$ (201.26): C, 59.68; H, 9.51; N, 6.96; Found: C, 59.83; H, 9.72 ; N, 6.77.



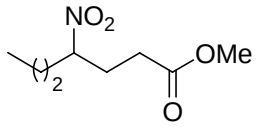
5c. (diastereomeric mixture)

Yellow oil; IR (neat) ν = 1362, 1558, 1721 cm^{-1}; ^1H NMR ($CDCl_3$, 400 MHz): δ = 0.83-0.90 (m, 3H), 1.14-1.53 (m, 5H), 1.54-1.77 (m, 2H), 1.79-2.15 (m, 4H), 2.17-2.32 (m, 2H), 2.34-2.51 (m, 2H), 4.30-4.44 (m, 1H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ = 13.8, 13.9, 22.1, 22.2, 24.4, 24.6, 27.6, 27.9, 28.0, 28.1, 30.6, 41.0, 41.1, 41.7, 41.9, 43.5, 44.1, 92.8, 92.9, 208.9; EI-MS: *m/z* = 213, 166, 149, 123, 110, 97, 81, 69, 55 (100), 41, 29; Anal. Calcd. for $C_{11}H_{19}NO_3$ (213.28): C, 61.95; H, 8.98; N, 6.57; Found: C, 62.19; H, 9.11 ; N, 6.39.



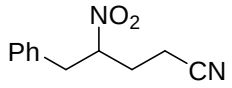
5d. (diastereomeric mixture)

White solid; IR (neat) ν = 1359, 1563, 1602, 1723, 3019 cm^{-1}; ^1H NMR ($CDCl_3$, 400 MHz): δ = 1.60-1.84 (m, 1H), 1.93-2.04 (m, 0.5H), 2.08-2.54 (m, 4.5H), 2.69-2.83 (m, 1H), 3.07 (dd, 0.5H, *J* = 14.1, 4.3 Hz), 3.16 (dd, 0.5H, *J* = 14.5, 4.3 Hz), 3.22-3.33 (m, 1H), 4.62-4.73 (m, 1H), 7.12-7.18 (m, 2H), 7.23-7.35 (m, 3H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ = 26.4, 26.5, 38.0, 38.1, 38.5, 38.9, 40.4, 40.5, 41.6, 41.7, 93.7, 93.9, 127.8, 128.8, 129.1, 135.0, 135.1, 215.2, 215.3; EI-MS: *m/z* = 233, 186, 169, 157, 142, 129, 115, 104, 91 (100), 77, 65, 55; Anal. Calcd. for $C_{13}H_{15}NO_3$ (233.27): C, 66.94; H, 6.48; N, 6.00; Found: C, 67.25; H, 6.71 ; N, 5.84.



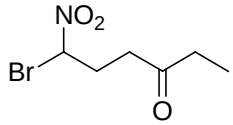
5e.

Oil; IR (neat) ν = 1364, 1558, 1741 cm^{-1}; ^1H NMR ($CDCl_3$, 400 MHz): δ = 0.93 (t, 3H, *J* = 7.3 Hz), 1.28-1.42 (m, 2H), 1.61-1.75 (m, 1H), 1.90-2.02 (m, 1H), 2.03-2.13 (m, 1H), 2.15-2.26 (m, 1H), 2.27-2.44 (m, 2H), 3.67 (s, 3H), 4.51-4.60 (m, 1H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ = 13.6, 19.2, 28.8, 30.1, 36.1, 52.1, 87.8, 172.6; EI-MS: *m/z* = 190, 172, 158, 143, 127, 111, 83, 69, 55(100), 41; Anal. Calcd. for $C_8H_{15}NO_4$ (189.21): C, 50.78; H, 7.99; N, 7.40; Found: C, 50.47; H, 7.78 ; N, 7.61.



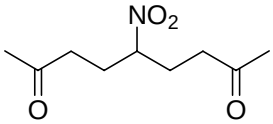
5f.

Yellow oil; IR (neat) ν = 1358, 1571, 1620, 2249, 3052 cm^{-1}; ^1H NMR ($CDCl_3$, 400 MHz): δ = 2.05-2.18 (m, 1H), 2.28-2.51 (m, 3H), 3.09 (dd, 1H, *J* = 14.1, 6.5 Hz), 3.32 (dd, 1H, *J* = 14.1, 8.1 Hz), 4.77-4.87 (m, 1H), 7.13-7.19 (m, 2H), 7.26-7.37 (m, 3H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ = 14.4, 28.6, 39.8, 87.7, 117.8, 128.0, 129.0, 129.2, 134.4; EI-MS: *m/z* = 204, 157, 117 (100), 91, 77, 65, 51, 39, 30; Anal. Calcd. for $C_{11}H_{12}N_2O_2$ (204.23): C, 64.69; H, 5.92; N, 13.72; Found: C, 64.93; H, 6.07 ; N, 13.39.



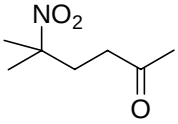
5g.

Oil; IR (neat) ν = 1356, 1562, 1716 cm^{-1}; ^1H NMR ($CDCl_3$, 400 MHz): δ = 1.05 (t, 3H, *J* = 7.3 Hz), 2.36-2.71 (m, 6H), 6.09 (t, 1H, *J* = 6.6 Hz); ^{13}C NMR ($CDCl_3$, 100 MHz): δ = 7.8, 31.3, 36.1, 37.7, 79.1, 208.4; EI-MS: *m/z* = 196, 194, 178, 176, 121, 119, 85, 57 (100), 39, 29; Anal. Calcd. for $C_6H_{10}BrNO_3$ (224.05): C, 32.16; H, 4.50; N, 6.25; Found: C, 32.38; H, 4.70 ; N, 6.04.



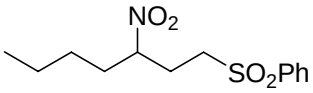
5h.

Oil; IR (neat) ν = 1363, 1557, 1718 cm^{-1}; ^{1}H NMR ($CDCl_3$, 400 MHz): δ = 2.05-2.15 (m, 4H), 2.13 (s, 6H), 2.46-2.51 (m, 4H), 4.46-4.55 (m, 1H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ = 27.6, 30.3, 39.2, 87.1, 206.5; EI-MS: *m/z* = 155, 113, 97, 95, 43 (100); Anal. Calcd. for $C_9H_{15}NO_4$ (201.22): C, 53.72; H, 7.51; N, 6.96; Found: C, 53.94; H, 7.74 ; N, 6.78.



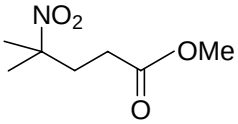
5i.

Oil; IR (neat) ν = 1358, 1560, 1717 cm^{-1}; ^{1}H NMR ($CDCl_3$, 400 MHz): δ = 1.56 (s, 6H), 2.12-2.29 (m, 2H), 2.14 (s, 3H), 2.40-2.46 (m, 2H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ = 26.1, 30.2, 34.2, 38.4, 87.6, 206.7; EI-MS: *m/z* = 113, 95, 69, 55, 43 (100); Anal. Calcd. for $C_7H_{13}NO_3$ (159.18): C, 52.82; H, 8.23; N, 8.80; Found: C, 53.11; H, 8.44 ; N, 8.62.



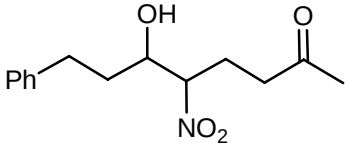
5j.

Oil; IR (neat) ν = 1148, 1308, 1551, cm^{-1}; ^{1}H NMR ($CDCl_3$, 400 MHz): δ = 0.88 (t, 3H, *J* = 6.8 Hz), 1.20-1.39 (m, 4H), 1.66-1.79 (m, 1H), 1.90-2.02 (m, 1H), 2.21-2.40 (m, 2H), 3.04-3.17 (m, 2H), 4.55-4.64 (m, 1H), 7.56-7.63 (m, 2H), 7.66-7.72 (m, 1H), 7.87-7.94 (m, 2H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ = 13.9, 22.2, 26.6, 27.8, 33.6, 52.6, 86.8, 128.2, 129.8, 134.4, 138.8; EI-MS: *m/z* = 285, 256, 239, 143, 97, 77, 55 (100); Anal. Calcd. for $C_{13}H_{19}NO_4S$ (285.36): C, 54.72; H, 6.71; N, 4.91; Found: C, 54.97; H, 7.14 ; N,5.62.



5k.

Yellow oil; ν = 1352, 1538, 1729 cm^{-1}; ^{1}H NMR ($CDCl_3$, 400 MHz): δ = 1.58 (s, 6H), 2.21-2.35 (m, 4H), 3.67 (s, 3H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ = 26.0, 29.3, 35.5, 52.2, 87.5, 172.9; EI-MS: *m/z* = 144, 129, 114, 69 (100), 55, 41; Anal. Calcd. for $C_7H_{13}NO_4$ (175.18): C, 47.99; H, 7.48; N, 8.00; Found: C, 48.05; H, 7.94 ; N, 8.42.



6.

Oil; IR (neat) ν = 1372, 1556, 1603, 1714, 3428 cm^{-1}; ^{1}H NMR ($CDCl_3$, 400 MHz): δ = 1.70-1.95 (m, 3H), 2.13-2.28 (m, 1H), 2.15 (s, 3H), 2.38-2.62 (m, 3H), 2.66-2.79 (m, 1H), 2.80-2.93 (m, 1H), 3.82-3.94 (m, 1H), 4.40-4.57 (m, 1H), 7.10-7.20 (m, 3H), 7.22-7.50 (m, 2H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ = 24.2, 30.2, 31.5, 35.2, 39.0, 71.4, 91.9, 126.4, 128.4, 128.9, 141.0, 206.8; Anal. Calcd. for $C_{14}H_{19}NO_4$ (265.31): C, 63.38; H, 7.22; N, 5.28; Found: C, 63.85; H, 7.78 ; N, 5.11.