

## ***Supporting Information***

### **Synthesis of tertiary propargylamines via a rational designed multicomponent reaction of primary amines, formaldehyde, arylboronic acids and alkynes**

**Jiayi Wang,<sup>a,b</sup> Qiaoying Shen,<sup>a</sup> Pinzhen Li,<sup>a</sup> Yanqing Peng<sup>a</sup> and Gonghua Song<sup>\*a</sup>**

<sup>a</sup> *Shanghai Key Laboratory of Chemical Biology, School of Pharmacy, East China University of Science and Technology, Shanghai, 200237, P.R. China. Email: ghsong@ecust.edu.cn; Tel: +86-21-64253140; Fax: +86-21-64252603.*

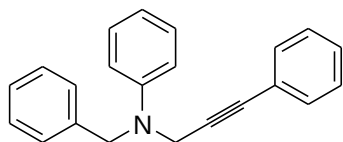
<sup>b</sup> *Shanghai Key Laboratory of Catalysis Technology for Polyolefins, Shanghai Research Institute of Chemical Industry, Shanghai, 200062, P. R. China.*

## General information

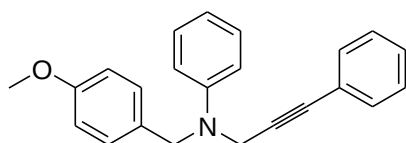
All chemicals and reagents were purchased from standard commercial suppliers, and used without further purification. Melting points were recorded on EZ-melt MPA120 (Stanford Research Systems, Inc., America) and are uncorrected. Analytical thin-layer chromatography (TLC) was carried out on precoated plates (silica gel 60 F254), and spots were visualized under ultraviolet light.  $^1\text{H}$  NMR and  $^{13}\text{C}$  NMR spectra were recorded on a Bruker AM-400 (400 MHz) spectrometer with  $\text{CDCl}_3$  as the solvent and TMS as the internal standard. Chemical shifts are reported in  $\delta$  (parts per million) values. Coupling constants  $J$  are reported in Hz. Proton coupling patterns were described as singlet (s), doublet (d), triplet (t), quartet (q), and multiple (m). High-resolution mass spectra (HRMS) were measured on spectrometer.

## General procedure

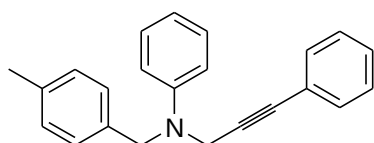
Unless otherwise noted, all the reactions were conducted as follow described. A mixture of aniline **1** (1 mmol), formaldehyde **2** (40% aqueous solution) (2.2 mmol), arylboronic acid **3** (1.05 mmol), alkyne **4** (1.2 mmol), catalyst (10 mol %) and 1, 2-dichloroethane (3 mL) was stirred in a sealed glass tube at 80 °C for 24. After completion of the reaction, the reaction solution was filtered. After evaporating the solvents in vacuum, the residue was purified by flash column chromatography to obtain the pure products.



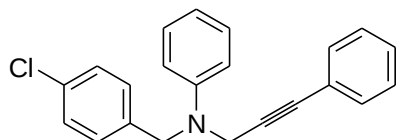
Yellow viscous liquid;  $^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )  $\delta$  7.54-7.36 (m, 6H), 7.38-7.28 (m, 6H), 7.01 (d,  $J = 7.9$  Hz, 2H), 6.87 (t,  $J = 7.3$  Hz, 1H), 4.69 (s, 2H), 4.31 (s, 2H);  $^{13}\text{C}$  NMR (101 MHz,  $\text{CDCl}_3$ )  $\delta$  149.0, 138.7, 131.7, 129.2, 128.6, 128.2, 128.1, 127.2, 127.1, 123.0, 118.2, 114.3, 85.3, 84.2, 55.2, 40.8; HRMS (EI) calcd for  $\text{C}_{22}\text{H}_{19}\text{N}$   $[\text{M}]^+$  297.1517, found 297.1522.



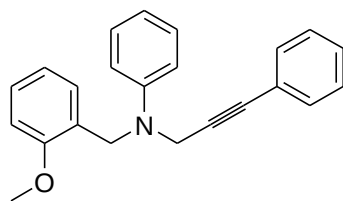
Yellow solid, m.p. 55.3  $^{\circ}\text{C}$ ;  $^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )  $\delta$  7.58-7.49 (m, 2H), 7.44-7.36 (m, 6H), 7.17-7.05 (m, 2H), 7.00 (d,  $J = 8.6$  Hz, 2H), 6.93 (td,  $J = 7.3, 0.8$  Hz, 1H), 4.67 (s, 2H), 4.33 (s, 2H), 3.88 (d,  $J = 4.3$  Hz, 3H);  $^{13}\text{C}$  NMR (101 MHz,  $\text{CDCl}_3$ )  $\delta$  158.9, 149.1, 131.8, 130.6, 129.2, 128.6, 128.3, 128.2, 123.2, 118.3, 114.64, 114.1, 85.5, 84.3, 55.3, 54.6, 40.6; HRMS (EI) calcd for  $\text{C}_{23}\text{H}_{21}\text{NO}$   $[\text{M}]^+$  327.1623, found 327.1625.



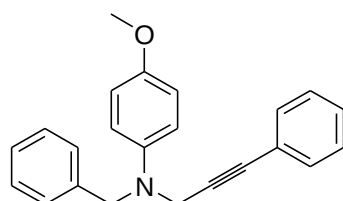
Yellow solid, m.p. 65.3  $^{\circ}\text{C}$ ;  $^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )  $\delta$  7.62-7.51 (m, 2H), 7.41 (d,  $J = 2.1$  Hz, 7H), 7.31 (d,  $J = 8.0$  Hz, 2H), 7.12 (d,  $J = 8.7$  Hz, 2H), 6.97 (t,  $J = 7.6$  Hz, 2H), 4.75 (s, 2H), 4.38 (s, 2H), 2.50 (s, 3H);  $^{13}\text{C}$  NMR (101 MHz,  $\text{CDCl}_3$ )  $\delta$  149.1, 136.8, 135.6, 131.9, 129.4, 129.3, 128.3, 128.3, 127.3, 123.2, 118.2, 114.4, 85.6, 84.3, 55.0, 40.7, 21.2; HRMS (EI) calcd for  $\text{C}_{23}\text{H}_{21}\text{N}$   $[\text{M}]^+$  311.1674, found 311.1678.



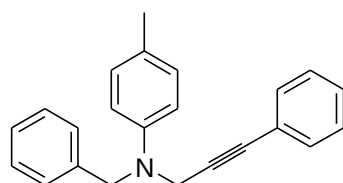
Yellow solid, m.p. 64.5  $^{\circ}\text{C}$ ;  $^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )  $\delta$  7.45 (dd,  $J = 6.6, 3.1$  Hz, 2H), 7.36 (d,  $J = 2.1$  Hz, 6H), 7.34 (dd,  $J = 6.7, 4.5$  Hz, 3H), 6.99 (d,  $J = 7.9$  Hz, 2H), 6.90 (t,  $J = 7.3$  Hz, 1H), 4.66 (s, 2H), 4.31 (s, 2H);  $^{13}\text{C}$  NMR (101 MHz,  $\text{CDCl}_3$ )  $\delta$  148.7, 137.2, 132.8, 131.7, 129.2, 128.7, 128.6, 128.3, 128.2, 122.9, 118.5, 114.4, 85.1, 84.4, 54.7, 41.0; HRMS (EI) calcd for  $\text{C}_{22}\text{H}_{18}^{35}\text{ClN}$   $[\text{M}]^+$  331.1128, found 331.1129; calcd for  $\text{C}_{22}\text{H}_{18}^{37}\text{ClN}$   $[\text{M}]^+$  333.1098, found 333.1111.



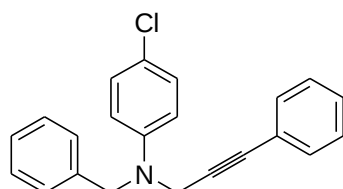
Yellow viscous liquid;  $^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )  $\delta$  7.45 (dd,  $J = 6.5, 2.8$  Hz, 2H), 7.32 (dq,  $J = 11.3, 3.8$  Hz, 7H), 7.05-6.94 (m, 4H), 6.83 (t,  $J = 7.2$  Hz, 1H), 4.70 (s, 2H), 4.36 (s, 2H), 3.93 (s, 3H);  $^{13}\text{C}$  NMR (101 MHz,  $\text{CDCl}_3$ )  $\delta$  157.3, 148.8, 131.7, 129.1, 128.2, 128.1, 128.0, 127.8, 126.3, 123.1, 120.4, 117.5, 113.5, 110.6, 109.9, 85.7, 83.8, 55.2, 50.7, 40.8; HRMS (EI) calcd for  $\text{C}_{23}\text{H}_{21}\text{NO}$   $[\text{M}]^+$  327.1623, found 327.1626.



Yellow solid, m.p.  $87.9^\circ\text{C}$ ;  $^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )  $\delta$  7.46 (dt,  $J = 14.9, 6.5$  Hz, 6H), 7.41--7.30 (m, 4H), 7.06 (t,  $J = 6.3$  Hz, 2H), 7.02 – 6.85 (m, 2H), 4.60 (s, 2H), 4.22 (s, 2H), 3.84 (s, 3H);  $^{13}\text{C}$  NMR (101 MHz,  $\text{CDCl}_3$ )  $\delta$  153.1, 143.8, 138.8, 131.8, 128.6, 128.3, 128.1, 127.8, 127.2, 123.2, 117.4, 114.6, 85.5, 84.7, 56.1, 55.7, 41.7; HRMS (EI) calcd for  $\text{C}_{23}\text{H}_{21}\text{NO}$   $[\text{M}]^+$  327.1623, found 327.1624.

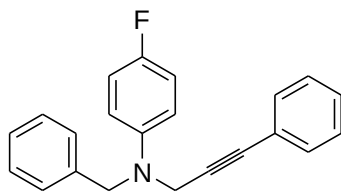


Yellow solid, m.p.  $75.7^\circ\text{C}$ ;  $^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )  $\delta$  7.48-7.37 (m, 6H), 7.37-7.32 (m, 4H), 7.13 (t,  $J = 7.5$  Hz, 2H), 6.95 (d,  $J = 8.5$  Hz, 2H), 4.65 (s, 2H), 4.27 (s, 2H), 2.34 (s, 3H);  $^{13}\text{C}$  NMR (101 MHz,  $\text{CDCl}_3$ )  $\delta$  147.0, 138.9, 131.7, 129.7, 128.5, 128.2, 128.1, 127.6, 127.4, 127.0, 123.1, 114.8, 85.5, 84.3, 55.4, 41.0, 20.40; HRMS (EI) calcd for  $\text{C}_{23}\text{H}_{21}\text{N}$   $[\text{M}]^+$  311.1674, found 311.1673.

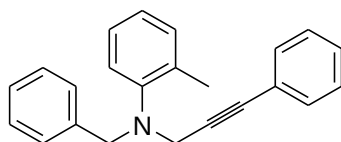


Green solid, m.p.  $80.1^\circ\text{C}$ ;  $^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )  $\delta$  7.40 (tdd,  $J = 7.0, 5.3, 1.8$  Hz, 10H), 7.29-7.23 (m, 2H), 6.97-6.82 (m, 2H), 4.66 (s, 2H), 4.29 (s, 2H);  $^{13}\text{C}$  NMR (101 MHz,  $\text{CDCl}_3$ )  $\delta$  147.4, 138.2, 131.8, 129.0, 128.7, 128.3, 127.3, 127.1, 123.0,

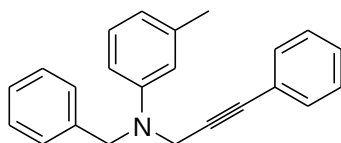
122.8, 115.4, 84.8, 84.5, 55.4, 41.1; HRMS (EI) calcd for  $C_{22}H_{18}^{35}ClN$   $[M]^+$  331.1128, found 331.1127; calcd for  $C_{22}H_{18}^{37}ClN$   $[M]^+$  333.1098, found 333.1099.



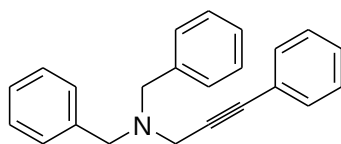
Yellow solid, m.p. 75.4 °C;  $^1H$  NMR (400 MHz,  $CDCl_3$ )  $\delta$  7.52-7.38 (m, 6H), 7.39-7.28 (m, 4H), 7.13-6.87 (m, 4H), 4.61 (s, 2H), 4.24 (s, 2H);  $^{13}C$  NMR (101 MHz,  $CDCl_3$ )  $\delta$  157.7, 155.3, 145.7, 138.4, 131.7, 128.6, 128.2, 127.3, 122.9, 116.3, 115.6, 115.4, 85.0, 84.6, 55.9, 41.5; HRMS (EI) calcd for  $C_{22}H_{18}FN$   $[M]^+$  315.1423, found 315.1424.



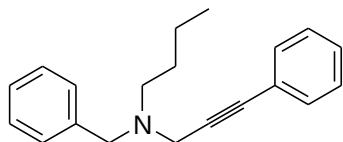
Yellow solid, m.p. 67.7 °C;  $^1H$  NMR (400 MHz,  $CDCl_3$ )  $\delta$  7.54 (d,  $J$  = 7.5 Hz, 1H), 7.50-7.23 (m, 6H), 7.12 (t,  $J$  = 7.4 Hz, 1H), 4.39 (s, 2H), 3.91 (s, 2H), 2.50 (d,  $J$  = 6.0 Hz, 2H);  $^{13}C$  NMR (101 MHz,  $CDCl_3$ )  $\delta$  150.0, 138.6, 133.7, 131.7, 131.0, 128.9, 128.4, 128.3, 128.0, 127.2, 126.3, 124.1, 123.4, 122.8, 85.6, 85.2, 56.2, 42.6, 18.2; HRMS (EI) calcd for  $C_{23}H_{21}N$   $[M]^+$  311.1674, found 311.1675.



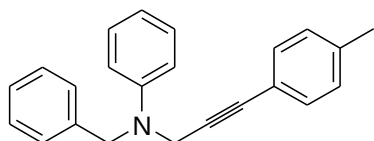
Yellow viscous liquid;  $^1H$  NMR (400 MHz,  $CDCl_3$ )  $\delta$  7.51-7.37 (m, 6H), 7.34 (dd,  $J$  = 8.7, 4.7 Hz, 4H), 7.22 (t,  $J$  = 7.7 Hz, 1H), 6.84 (d,  $J$  = 8.9 Hz, 2H), 6.71 (d,  $J$  = 7.4 Hz, 1H), 4.69 (s, 2H), 4.30 (s, 2H), 2.39 (s, 3H);  $^{13}C$  NMR (101 MHz,  $CDCl_3$ )  $\delta$  149.1, 138.8, 138.9, 131.8, 129.1, 128.6, 128.2, 128.1, 127.2, 127.1, 123.1, 119.2, 115.0, 111.5, 85.5, 84.2, 55.1, 40.7, 21.9; HRMS (EI) calcd for  $C_{23}H_{21}N$   $[M]^+$  311.1674, found 311.1676.



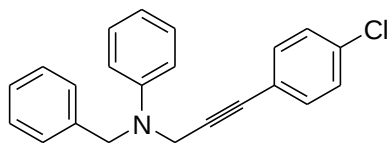
White solid, m.p. 68.9 °C;  $^1H$  NMR (400 MHz,  $CDCl_3$ )  $\delta$  7.61-7.55 (m, 2H), 7.51 (d,  $J$  = 7.1 Hz, 4H), 7.45-7.35 (m, 7H), 7.32 (t,  $J$  = 7.3 Hz, 2H), 3.83 (s, 4H), 3.54 (s, 2H);  $^{13}C$  NMR (101 MHz,  $CDCl_3$ )  $\delta$  138.9, 131.8, 129.1, 128.3, 128.0, 127.1, 123.4, 85.9, 84.4, 57.7, 42.0; HRMS (EI) calcd for  $C_{23}H_{21}N$   $[M]^+$  311.1674, found 311.1675.



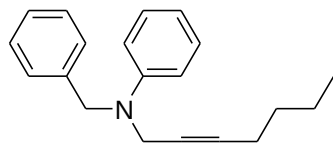
Yellow viscous liquid;  $^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )  $\delta$  7.61-7.52 (m, 2H), 7.49 (d,  $J$  = 7.7 Hz, 2H), 7.47-7.29 (m, 6H), 3.79 (s, 2H), 3.62 (s, 2H), 2.86-2.58 (m, 2H), 1.77-1.53 (m, 2H), 1.54-1.37 (m, 2H), 1.03 (t,  $J$  = 7.3 Hz, 3H);  $^{13}\text{C}$  NMR (101 MHz,  $\text{CDCl}_3$ )  $\delta$  139.0, 131.8, 129.2, 128.3, 128.0, 127.1, 123.5, 85.5, 84.6, 77.4, 77.1, 76.8, 58.0, 53.4, 42.2, 29.8, 20.6, 14.1; HRMS (EI) calcd for  $\text{C}_{20}\text{H}_{23}\text{N}$   $[\text{M}]^+$  277.1830, found 277.1831.



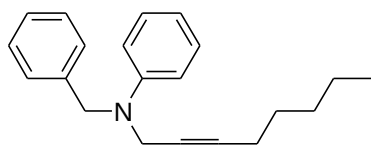
White solid, m.p. 63.3  $^{\circ}\text{C}$ ;  $^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )  $\delta$  7.40 (q,  $J$  = 7.9 Hz, 4H), 7.36-7.28 (m, 5H), 7.14 (d,  $J$  = 7.9 Hz, 2H), 7.01 (d,  $J$  = 8.3 Hz, 2H), 6.86 (t,  $J$  = 7.3 Hz, 1H), 4.69 (s, 2H), 4.30 (s, 2H), 2.38 (s, 3H);  $^{13}\text{C}$  NMR (101 MHz,  $\text{CDCl}_3$ )  $\delta$  149.0, 138.7, 138.2, 131.6, 129.1, 129.0, 128.6, 127.2, 127.0, 119.9, 118.1, 114.2, 84.5, 84.3, 55.2, 40.8, 21.4; HRMS (EI) calcd for  $\text{C}_{23}\text{H}_{21}\text{N}$   $[\text{M}]^+$  311.1674, found 311.1676.



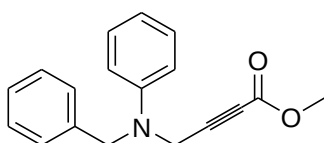
Yellow solid, m.p. 63.5  $^{\circ}\text{C}$ ;  $^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )  $\delta$  7.46-7.37 (m, 4H), 7.37-7.26 (m, 7H), 6.99 (d,  $J$  = 8.0 Hz, 2H), 6.87 (t,  $J$  = 7.3 Hz, 1H), 4.68 (s, 2H), 4.30 (s, 2H);  $^{13}\text{C}$  NMR (101 MHz,  $\text{CDCl}_3$ )  $\delta$  148.9, 138.6, 134.1, 133.0, 129.2, 128.7, 128.6, 127.1, 121.5, 118.2, 114.2, 86.4, 83.1, 55.2, 40.7; HRMS (EI) calcd for  $\text{C}_{22}\text{H}_{18}^{35}\text{ClN}$   $[\text{M}]^+$  331.1128, found 331.1130; calcd for  $\text{C}_{22}\text{H}_{18}^{37}\text{ClN}$   $[\text{M}]^+$  333.1098, found 333.1107.



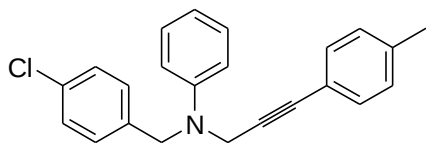
Yellow viscous liquid;  $^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )  $\delta$  7.40 (t,  $J$  = 6.2 Hz, 4H), 7.37 – 7.29 (m, 3H), 6.97 (d,  $J$  = 8.3 Hz, 2H), 6.87 (t,  $J$  = 7.3 Hz, 1H), 4.65 (s, 2H), 4.10 (s, 2H), 2.26 (t,  $J$  = 6.9 Hz, 2H), 1.60 – 1.38 (m, 4H), 0.98 (t,  $J$  = 7.2 Hz, 3H);  $^{13}\text{C}$  NMR (101 MHz,  $\text{CDCl}_3$ )  $\delta$  149.0, 138.9, 129.1, 128.6, 127.2, 127.0, 117.8, 114.1, 84.5, 75.7, 55.1, 40.4, 30.9, 21.9, 18.5, 13.6; HRMS (EI) calcd For  $\text{C}_{20}\text{H}_{23}\text{N}$   $[\text{M}]^+$  277.1830, found 277.1829.



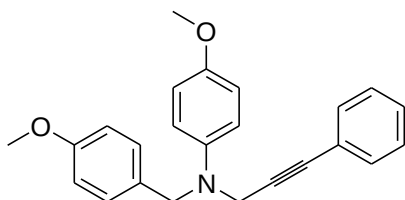
Yellow viscous liquid;  $^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )  $\delta$  7.40 (t,  $J$  = 6.3 Hz, 2H), 7.35 – 7.27 (m, 1H), 6.97 (d,  $J$  = 8.3 Hz, 1H), 6.86 (t,  $J$  = 7.3 Hz, 1H), 4.64 (s, 2H), 4.09 (s, 2H), 2.25 (t,  $J$  = 7.0 Hz, 2H), 1.65 – 1.50 (m, 1H), 1.46 – 1.34 (m, 2H), 0.97 (t,  $J$  = 6.9 Hz, 2H);  $^{13}\text{C}$  NMR (101 MHz,  $\text{CDCl}_3$ )  $\delta$  149.0, 138.9, 129.1, 128.5, 127.1, 127.0, 117.9, 114.1, 84.6, 75.7, 55.1, 40.3, 31.0, 28.5, 22.2, 18.7, 14.0; HRMS (EI) calcd for  $\text{C}_{21}\text{H}_{25}\text{N}$  [ $\text{M}^+$ ] 291.1987, found 291.1989.



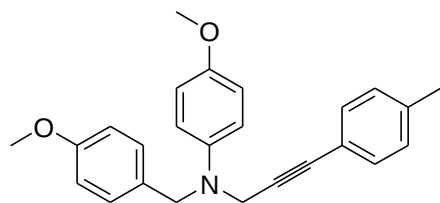
Green viscous liquid;  $^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )  $\delta$  7.45-7.28 (m, 7H), 6.98-6.78 (m, 3H), 4.59 (s, 2H), 4.17 (s, 2H), 3.79 (s, 3H);  $^{13}\text{C}$  NMR (101 MHz,  $\text{CDCl}_3$ )  $\delta$  153.7, 148.4, 137.9, 129.3, 128.7, 127.3, 127.2, 119.0, 114.4, 84.1, 75.8, 55.2, 52.7, 39.9; HRMS (EI) calcd for  $\text{C}_{18}\text{H}_{17}\text{NO}_2$  [ $\text{M}^+$ ] 279.1259, found 279.1260.



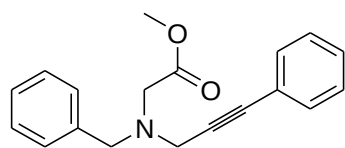
Yellow solid, m.p. 72.1  $^\circ\text{C}$ ;  $^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )  $\delta$  7.33 (dd,  $J$  = 14.6, 6.7 Hz, 8H), 7.15 (d,  $J$  = 7.9 Hz, 2H), 6.98 (d,  $J$  = 8.4 Hz, 2H), 6.89 (t,  $J$  = 7.2 Hz, 1H), 4.65 (s, 2H), 4.29 (s, 2H), 2.39 (s, 3H);  $^{13}\text{C}$  NMR (101 MHz,  $\text{CDCl}_3$ )  $\delta$  148.7, 138.3, 137.3, 132.8, 131.6, 129.2, 129.0, 128.7, 128.6, 119.8, 118.4, 114.4, 84.4, 54.7, 41.0, 21.5; HRMS (EI) calcd for  $\text{C}_{23}\text{H}_{20}^{35}\text{ClN}$  [ $\text{M}^+$ ] 345.1284, found 345.1272; calcd for  $\text{C}_{23}\text{H}_{20}^{37}\text{ClN}$  [ $\text{M}^+$ ] 347.1255, found 347.1272.



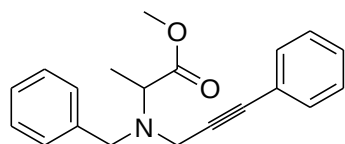
Yellow solid, m.p. 68.9  $^\circ\text{C}$ ;  $^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )  $\delta$  7.47 (dd,  $J$  = 6.3, 2.8 Hz, 2H), 7.42-7.29 (m, 5H), 7.06 (d,  $J$  = 9.0 Hz, 2H), 6.93 (t,  $J$  = 9.3 Hz, 4H), 4.50 (s, 2H), 4.16 (s, 2H), 3.86 (s, 3H), 3.83 (s, 3H);  $^{13}\text{C}$  NMR (101 MHz,  $\text{CDCl}_3$ )  $\delta$  158.8, 153.2, 143.8, 131.7, 130.6, 129.1, 128.2, 128.1, 123.2, 117.8, 114.5, 113.9, 85.5, 84.7, 55.6, 55.4, 55.3, 41.5; HRMS (EI) calcd for  $\text{C}_{24}\text{H}_{23}\text{NO}_2$  [ $\text{M}^+$ ] 357.1729, found 357.1930.



Yellow solid, m.p. 68.9 °C;  $^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )  $\delta$  7.35 (dd,  $J = 8.2, 2.2$  Hz, 24H), 7.14 (d,  $J = 7.8$  Hz, 2H), 7.04 (d,  $J = 8.9$  Hz, 2H), 6.92 (t,  $J = 9.6$  Hz, 4H), 4.48 (s, 2H), 4.14 (s, 2H), 3.85 (s, 3H), 3.82 (s, 3H), 2.39 (s, 3H);  $^{13}\text{C}$  NMR (101 MHz,  $\text{CDCl}_3$ )  $\delta$  158.8, 153.1, 143.9, 138.1, 131.6, 130.6, 129.1, 129.0, 120.1, 117.7, 114.5, 113.9, 84.7, 55.6, 55.4, 55.2, 41.5, 21.4; HRMS (EI) calcd for  $\text{C}_{25}\text{H}_{24}\text{NO}_2$   $[\text{M}]^+$  371.1885, found 371.1895.



Yellow solid, m.p. 80.7 °C;  $^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )  $\delta$  7.47-7.32 (m, 4H), 7.30-7.09 (m, 6H), 3.74 (s, 2H), 3.69 – 3.48 (m, 5H), 3.41 (s, 2H);  $^{13}\text{C}$  NMR (101 MHz,  $\text{CDCl}_3$ )  $\delta$  171.4, 137.8, 131.7, 129.3, 128.5, 128.1, 127.4, 123.0, 85.9, 83.9, 57.9, 54.2, 51.7, 43.2. HRMS (EI) calcd. for  $\text{C}_{19}\text{H}_{19}\text{NO}_2$   $[\text{M}]^+$  297.1416, found 297.1415.



Yellow solid, m.p. 84.8 °C;  $^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )  $\delta$  7.40-7.31 (m, 4H), 7.28-7.17 (m, 6H), 3.85 (d,  $J = 13.5$  Hz, 1H), 3.72 (d,  $J = 13.5$  Hz, 1H), 3.68-3.59 (m, 4H), 3.53 (t,  $J = 10.9$  Hz, 2H), 1.37 (d,  $J = 7.1$  Hz, 3H);  $^{13}\text{C}$  NMR (101 MHz,  $\text{CDCl}_3$ )  $\delta$  174.3, 138.7, 131.7, 129.0, 128.3, 128.2, 128.0, 127.2, 123.2, 85.0, 59.3, 54.4, 51.6, 40.2, 15.8. HRMS (EI) calcd for  $\text{C}_{20}\text{H}_{21}\text{NO}_2$   $[\text{M}]^+$  307.1572, found 307.1574.



