

## Selective Carbonyl Propargylation Mediated by SnCl<sub>2</sub>/NiCl<sub>2</sub>–KI in Water

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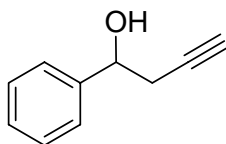
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### Supporting Information

#### Spectroscopic Characterization:

<sup>1</sup>H NMR and <sup>13</sup>C NMR spectra were recorded with a Varian HY–300 machine.

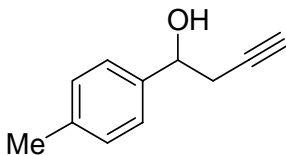
#### Compound 1:



<sup>1</sup>H NMR (300 MHz, CDCl<sub>3</sub>):  $\delta$  7.36–7.25 (m, 5H), 4.80 (t, *J* 6.3 Hz, 1H), 2.75 (br, 1H), 2.58 (dd, *J* 2.7 Hz, 6.3 Hz, 2H), 2.03 (t, *J* 2.7 Hz, 1H).

<sup>13</sup>C NMR (75 MHz, CDCl<sub>3</sub>):  $\delta$  142.37, 128.30, 127.81, 125.66, 80.64, 72.15, 70.84, 29.16.

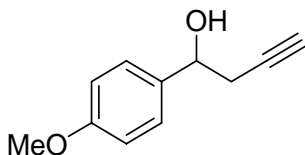
#### Compound 2:



<sup>1</sup>H NMR (300 MHz, CDCl<sub>3</sub>):  $\delta$  7.26 (d, *J* 8.1 Hz, 2H), 7.16 (d, *J* 8.3 Hz, 2H), 4.82 (t, *J* 6.3 Hz, 1H), 2.61 (dd, *J* 2.5 Hz, 6.4 Hz, 2H), 2.41 (br, 1H), 2.34 (s, 3H), 2.05 (t, *J* 2.7 Hz, 1H).

<sup>13</sup>C NMR (75 MHz, CDCl<sub>3</sub>):  $\delta$  139.45, 137.62, 129.07, 125.64, 80.76, 72.13, 70.79, 29.25, 21.07.

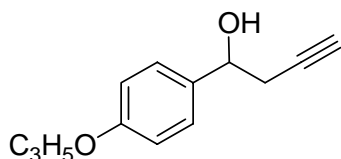
**Compound 3:**



$^1\text{H NMR}$  (300 MHz,  $\text{CDCl}_3$ ):  $\delta$  7.30 (d,  $J$  8.7 Hz, 2H), 6.88 (d,  $J$  8.4 Hz, 2H), 4.82 (t,  $J$  6.3 Hz, 1H), 3.80 (s, 3H), 2.63–2.60 (m, 2H), 2.41 (br, 1H), 2.06 (t,  $J$  2.6 Hz, 1H).

$^{13}\text{C NMR}$  (75 MHz,  $\text{CDCl}_3$ ):  $\delta$  159.26, 134.62, 126.99, 113.78, 80.80, 71.93, 70.82, 55.22, 29.31.

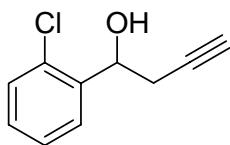
**Compound 4:**



$^1\text{H NMR}$  (300 MHz,  $\text{CDCl}_3$ ):  $\delta$  7.29 (d,  $J$  9.0 Hz, 2H), 6.90 (d,  $J$  9.0 Hz, 2H), 6.10–6.00 (m, 1H), 5.44–5.26 (m, 2H), 4.80 (t,  $J$  6.3 Hz, 1H), 4.54–4.51 (m, 2H), 2.62–2.60 (m, 2H), 2.34 (br, 1H), 2.05 (t,  $J$  2.7 Hz, 1H).

$^{13}\text{C NMR}$  (75 MHz,  $\text{CDCl}_3$ ):  $\delta$  158.23, 134.79, 133.13, 126.96, 117.63, 114.57, 80.81, 71.88, 70.78, 68.74, 29.23.

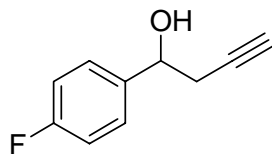
**Compound 5:**



$^1\text{H NMR}$  (300 MHz,  $\text{CDCl}_3$ ):  $\delta$  7.62 (d,  $J$  7.5 Hz, 1H), 7.35–7.20 (m, 3H), 5.28 (q,  $J$  3.9 Hz, 1H), 2.84–2.76 (m, 1H), 2.62 (br, 1H), 2.59–2.50 (m, 1H), 2.10 (t,  $J$  2.6 Hz, 1H).

$^{13}\text{C NMR}$  (75 MHz,  $\text{CDCl}_3$ ):  $\delta$  139.62, 131.62, 129.35, 128.88, 127.04, 127.00, 80.25, 71.17, 68.65, 27.63.

**Compound 6:**

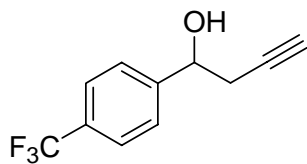


$^1\text{H NMR}$  (300 MHz,  $\text{CDCl}_3$ ):  $\delta$  7.39 – 7.34 (m, 2H), 7.08 – 7.01 (m, 2H), 4.85 (t,  $J$  6.3

Hz, 1H), 2.61 (dd, *J* 2.6 Hz, 6.5 Hz, 2H), 2.07 (t, *J* 2.7 Hz, 1H).

<sup>13</sup>C NMR (75 MHz, CDCl<sub>3</sub>): δ 163.97, 160.71, 138.15, 127.50, 127.39, 115.40, 115.12, 80.35, 71.64, 71.16, 29.44.

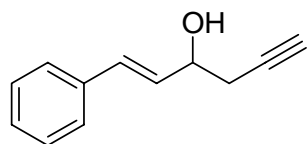
**Compound 7:**



<sup>1</sup>H NMR (300 MHz, CDCl<sub>3</sub>): δ 7.62 (d, *J* 8.1 Hz, 2H), 7.50 (d, *J* 8.4 Hz, 2H), 4.92 (t, *J* 6.3 Hz, 1H), 2.66–2.62 (m, 2H), 2.09 (t, *J* 2.7 Hz, 1H).

<sup>13</sup>C NMR (75 MHz, CDCl<sub>3</sub>): δ 146.22, 126.08, 125.45, 125.40, 125.35, 125.30, 79.87, 71.59, 71.52, 29.41.

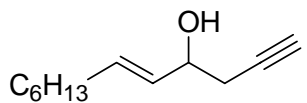
**Compound 8:**



<sup>1</sup>H NMR (300 MHz, CDCl<sub>3</sub>): δ 7.40–7.22 (m, 5H), 6.65 (d, *J* 15.9 Hz, 1H), 6.27 (dd, *J* 6.3 Hz, 15.9 Hz, 1H), 4.49–4.43 (m, 1H), 2.57–2.52 (m, 2H), 2.30 (br, 1H), 2.08 (t, *J* 2.7 Hz, 1H).

<sup>13</sup>C NMR (75 MHz, CDCl<sub>3</sub>): δ 136.27, 131.24, 129.94, 128.53, 127.82, 126.54, 80.21, 71.06, 70.64, 27.65.

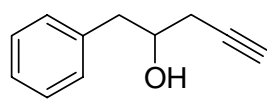
**Compound 9:**



<sup>1</sup>H NMR (300 MHz, CDCl<sub>3</sub>): δ 5.77–5.72 (m, 1H), 5.53 (dd, *J* 6.6 Hz, 15.3 Hz, 1H), 4.28–4.24 (m, 1H), 2.52–2.49 (m, 2H), 2.08–2.01 (m, 2H), 1.38–1.28 (m, 10H), 0.88 (t, *J* 6.6 Hz, 3H).

<sup>13</sup>C NMR (75 MHz, CDCl<sub>3</sub>): δ 133.43, 130.49, 80.58, 70.76, 70.64, 32.10, 31.63, 28.94, 28.74, 27.62, 22.56, 14.04.

**Compound 10:**

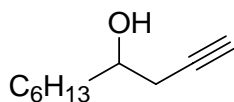


<sup>1</sup>H NMR (300 MHz, CDCl<sub>3</sub>): δ 7.35–7.21 (m, 5H), 4.01–3.97 (m, 1H), 2.95–2.79 (m,

2H), 2.42–2.37 (m, 2H), 2.09 (t, *J* 2.7 Hz, 1H), 1.96 (br, 1H).

<sup>13</sup>C NMR (75 MHz, CDCl<sub>3</sub>): δ 137.64, 129.37, 128.57, 126.63, 80.60, 71.08, 70.76, 42.42, 26.35.

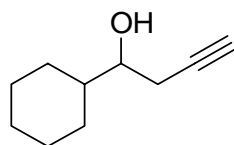
**Compound 11:**



<sup>1</sup>H NMR (300 MHz, CDCl<sub>3</sub>): δ 3.80–3.72 (m, 1H), 2.48–2.25 (m, 2H), 2.06 (t, *J* 2.7 Hz, 1H), 1.91 (br, 1H), 1.56–1.51 (m, 2H), 1.42–1.29 (m, 8H), 0.89 (t, *J* 6.7 Hz, 3H).

<sup>13</sup>C NMR (75 MHz, CDCl<sub>3</sub>): δ 80.93, 70.73, 69.87, 36.21, 31.73, 29.16, 27.31, 25.53, 22.56, 14.04.

**Compound 12:**



<sup>1</sup>H NMR (300 MHz, CDCl<sub>3</sub>): δ 3.53–3.47 (m, 1H), 2.44–2.36 (m, 2H), 2.05 (t, *J* 2.7 Hz, 1H), 2.02 (br, 1H), 1.94–1.88 (m, 1H), 1.80–1.02 (m, 10H).

<sup>13</sup>C NMR (75 MHz, CDCl<sub>3</sub>): δ 81.30, 73.92, 70.59, 42.40, 28.95, 28.08, 26.30, 26.05, 25.89, 24.54.