Supporting Information

Iodine-Promoted Meyer-Schuster Rearrangement for the Synthesis
of α-Iodo Unsaturated Ketones

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General Remarks

Column chromatography was carried out on silica gel (200-300 meshes). Conversion was monitored by thin layer chromatography (TLC). $^1$H NMR spectra were recorded on 400 MHz in chloroform-d and $^{13}$C NMR spectra were recorded on 100 MHz in chloroform-d solution. IR spectra were recorded on a FT-IR spectrometer and only major peaks are reported in cm$^{-1}$. All products were further characterized by high resolution mass spectra (HRMS); copies of their $^1$H NMR and $^{13}$C NMR spectra are provided in the Supporting Information. Room temperature is 18–20°C. Dry THF were distilled over CaH$_2$, and other commercial solvents were used without further purification.

Synthetic Procedures and Spectral Data

All starting materials were prepared according to previously reported procedures.$^{S1}$

Synthesis of $\alpha$-iodo unsaturated ketones:

$$ \begin{align*} \text{To a solution of propargyl alcohol derivatives 1 (0.20 mmol) in THF or CH$_3$CN (4.0 mL) was added I}_2 \text{ or IBr (2.0 equiv, 0.4 mmol) at room temperature. When the reaction was completed, the reaction mixture was quenched by addition of saturated aqueous sodium thiosulfate and extracted with ethyl acetate (3 x 15 mL), washed with water, saturated brine, dried over Na$_2$SO$_4$ and evaporated under reduced pressure. The residue was purified by chromatography on silica gel to afford corresponding $\alpha$-iodo unsaturated ketenes 2.} \end{align*}$$

General procedure for reduction of $\alpha$-iodo unsaturated ketones 2a and 2x:$^{S2}$

$$ \begin{align*} \text{To a stirred solution of 2a or 2x (0.5 mmol) in dioxane : H}_2\text{O (2 mL : 2 mL), was} \end{align*}$$
added NaBH$_4$ (4.0 equiv or 1.0 equiv) in batches at ice-bath. After stirring for 0.5 h, the reaction was carried out at room temperature. When the reaction was considered to be complete as determined by TLC analysis, the reaction mixture was quenched by water and extracted with ethyl acetate (3 x 15 mL), washed with water, saturated brine, dried over Na$_2$SO$_4$ and evaporated under reduced pressure. The residue was purified by chromatography on silica gel to afford 3-(2,2-diphenylvinyl)isobenzofuran-1-(3H)-one 4a and (Z)-3-(1-iodo-2-phenylvinyl)isobenzofuran-1-(3H)-one 4x in 79% and 40% yield, respectively.

**General procedure for Suzuki coupling of α-iodo unsaturated ketones 2a:**

![Suzuki coupling reaction](image)

To a solution of 2a (234 mg, 0.50 mmol) in anhydrous THF (6 mL) was added (4-methoxyphenyl)boronic acid (91.2 mg, 1.2 equiv), Cs$_2$CO$_3$ (326 mg, 2.0 equiv), Pd(PPh$_3$)$_4$ (29 mg, 0.05 equiv). The reaction vial was flushed with Ar and the reaction mixture was stirred for 12 h at 40°C. When the reaction was considered to be complete as determined by TLC analysis, the mixture was quenched by water (5 mL) and extracted with ethyl acetate (3 x 20 mL). The combined organic layers were washed with water, brine, dried over Na$_2$SO$_4$, and concentrated under reduced pressure. The crude material was purified by flash column chromatography to give 3a in 45% yield.

Reference:


Methyl-2-(2-iodo-3,3-diphenylacryloyl)benzoate 2a  
$^1$H NMR (400 MHz, CDCl$_3$)  δ ppm 7.33 (d, $J = 7.6$ Hz, 2H), 7.32-7.26 (m, 3H), 7.19-7.12 (m, 4H), 6.95-6.91 (m, 5H), 3.90 (s, 3H). $^{13}$C NMR (100 MHz, CDCl$_3$)  δ ppm 193.3, 168.5, 158.6, 144.8, 139.7, 136.7, 132.1, 131.0, 130.4, 129.7, 128.8, 128.7, 128.6, 128.2, 127.9, 101.3, 53.0. IR (neat, cm$^{-1}$): 2921, 1734, 1654, 1234, 1097, 763. HRMS (ESI) Calcd for C$_{23}$H$_{17}$INO$_3$: M+Na = 491.0115. Found: 491.0121.

Ethyl-2-(2-iodo-3,3-diphenylacryloyl)benzoate 2b  
$^1$H NMR (400 MHz, CDCl$_3$)  δ ppm 7.39 (d, $J = 7.6$ Hz, 1H), 7.34 (t, $J = 7.6$ Hz, 1H), 7.31-7.28 (m, 3H), 7.24-7.13 (m, 4H), 6.97-6.90 (m, 5H), 4.38 (q, $J = 7.6$ Hz, 2H), 1.33 (t, $J = 7.6$ Hz, 3H). $^{13}$C NMR (100 MHz, CDCl$_3$)  δ ppm 193.0, 168.1, 158.2, 144.8, 139.6, 136.3, 132.9, 131.1, 130.1, 129.9, 129.7, 128.8, 128.7, 128.6, 128.5, 128.2, 128.0, 101.0, 61.9, 14.1. IR (neat, cm$^{-1}$): 2922, 1725, 1663, 1258, 1258, 1096, 769. HRMS (ESI) Calcd for C$_{24}$H$_{19}$INO$_3$: M+Na = 505.0271. Found: 505.0281.

Benzyl-2-(2-iodo-3,3-diphenylacryloyl)benzoate 2c  
$^1$H NMR (400 MHz, CDCl$_3$)  δ ppm 7.43-7.37 (m, 4H), 7.33-7.25 (m, 6H), 7.21-7.13 (m, 4H), 6.89 (dd, $J = 11.2$, 7.6 Hz, 3H), 6.79 (t, $J = 7.6$ Hz, 2H), 5.35 (s, 2H). $^{13}$C NMR (100 MHz, CDCl$_3$)  δ ppm
193.0, 168.0, 158.2, 144.8, 139.6, 136.3, 135.5, 132.6, 131.2, 130.3, 129.9, 129.7, 129.0, 128.7, 128.6, 128.5, 128.4, 128.3, 128.2, 128.1, 128.0, 100.7, 67.8. IR (neat, cm$^{-1}$): 2972, 1725, 1649, 1249, 1014, 754. HRMS (ESI) Calcd for C$_{29}$H$_{21}$INaO$_3$: M+Na = 567.0428. Found: 567.0441.

2-(2-iodo-3,3-diphenylacryloyl)benzaldehyde 2d $^1$H NMR (400M Hz, CDCl$_3$) $\delta$ ppm 10.17 (s, 1H), 7.76-7.69 (m, 2H), 7.46-7.26 (m, 7H), 7.08-6.98 (m, 5H). $^{13}$C NMR (100M Hz, CDCl$_3$) $\delta$ ppm 194.1, 191.3, 157.6, 143.2, 139.9, 138.9, 136.2, 132.3, 132.0, 129.6, 129.3, 129.1, 129.0, 128.9, 128.4, 128.3, 128.1, 98.3. IR (neat, cm$^{-1}$): 1689, 1663, 1589, 1234, 1192, 767. HRMS (ESI) Calcd for C$_{22}$H$_{15}$InO$_2$: M+Na = 461.0009. Found: 461.0014.

2-Iodo-1-(2-methoxyphenyl)-3,3-diphenylprop-2-en-1-one 2e $^1$H NMR (400M Hz, CDCl$_3$) $\delta$ ppm 7.56 (dd, $J = 8.0$, 1.2 Hz, 1H), 7.43-7.39 (m, 2H), 7.36-7.31 (m, 4H), 7.07 (s, 5H), 6.86-6.80 (m, 2H), 3.93 (s, 3H). $^{13}$C NMR (100M Hz, CDCl$_3$) $\delta$ ppm 193.0, 158.2, 151.4, 144.2, 139.9, 133.9, 131.5, 129.2, 128.9, 128.2, 128.1, 128.0, 127.8, 125.9, 120.3, 111.3, 101.3, 55.6. IR (neat, cm$^{-1}$): 2849, 1649, 1483, 1289, 1013, 753. HRMS (ESI) Calcd for C$_{22}$H$_{17}$InO$_2$: M+Na = 463.0165. Found: 463.0175.
Methyl-2-(2-(2-iodo-3,3-diphenylacryloyl)phenyl)acetate 2f $^1$H NMR (400 MHz, CDCl$_3$) δ ppm 7.90 (dd, $J = 7.6, 1.2$ Hz, 1H), 7.43-7.33 (m, 6H), 7.25-7.23 (m, 1H), 7.12 (d, $J = 7.6$ Hz, 1H), 7.07-7.01 (m, 5H), 3.71 (s, 2H), 3.09 (s, 3H). $^{13}$C NMR (100 MHz, CDCl$_3$) δ ppm 194.5, 171.4, 153.9, 143.5, 139.5, 135.9, 133.9, 132.6, 132.5, 131.2, 129.1, 128.9, 128.5, 128.4, 128.2, 128.0, 126.9, 98.3, 51.9, 40.1. IR (neat, cm$^{-1}$): 2943, 1718, 1658, 1230, 1086, 760. HRMS (ESI) Calcd for C$_{24}$H$_{19}$INaO$_3$: M+Na = 505.0271. Found: 505.0279.

1-(4-ethylphenyl)-2-iodo-3,3-diphenylprop-2-en-1-one 2g $^1$H NMR (400 MHz, CDCl$_3$) δ ppm 7.77 (d, $J = 8.0$ Hz, 2H), 7.73 (d, $J = 8.0$ Hz, 1H), 7.41 (d, $J = 7.6$ Hz, 1H), 7.39-7.28 (m, 4H), 7.10-7.05 (m, 2H), 7.04-6.99 (m, 4H), 2.56 (q, $J = 8.0$ Hz, 2H), 1.13 (t, $J = 8.0$ Hz, 3H). $^{13}$C NMR (100 MHz, CDCl$_3$) δ ppm 193.2, 152.0, 150.4, 143.8, 139.2, 132.4, 130.1, 130.0, 129.4, 129.1, 128.3, 128.2, 128.1, 128.0, 96.3, 28.9, 14.9. IR (neat, cm$^{-1}$): 2931, 1653, 1441, 1239, 1073, 755. HRMS (ESI) Calcd for C$_{23}$H$_{19}$INaO: M+Na = 461.0373. Found: 461.0379.

2-iodo-1-(4-methoxyphenyl)-3,3-diphenylprop-2-en-1-one 2h $^1$H NMR (400 MHz, CDCl$_3$) δ ppm 7.92 (d, $J = 8.8$ Hz, 2H), 7.45-7.36 (m, 5H), 7.15-7.08 (m, 5H), 6.84 (d, $J = 9.2$ Hz, 2H), 3.82 (s, 3H). $^{13}$C NMR (400 MHz, CDCl$_3$) δ ppm 192.2, 163.7, 151.7, 143.8, 139.2, 129.3, 129.1, 128.4, 128.3, 128.1, 126.5, 113.8, 96.3, 55.4. IR (neat, cm$^{-1}$): 2931, 1638, 1595, 1252, 1159, 850. HRMS (ESI) Calcd for C$_{22}$H$_{18}$IO$_2$: M+H = 441.0346. Found: 441.0342.
2-iodo-1,3,3-triphenylprop-2-en-1-one 2i. $^1$H NMR (400 MHz, CDCl$_3$) $\delta$ ppm 7.92 (d, $J = 8.0$ Hz, 2H), 7.46-7.39 (m, 6H), 7.35-7.32 (m, 2H), 7.12-7.06 (m, 5H).$^{13}$C NMR (400 MHz, CDCl$_3$) $\delta$ ppm 193.6, 152.7, 143.6, 139.2, 133.9, 133.3, 129.7, 129.4, 129.1, 128.5, 128.4, 128.3, 128.1, 96.0. IR (neat, cm$^{-1}$): 1663, 1443, 1234, 1165, 932, 756. HRMS (ESI) Calcd for C$_{21}$H$_{15}$INaO: M+Na = 433.0060. Found: 433.0058.

Methyl-3-(2-iodo-3,3-diphenylacryloyl)benzoate 2j. $^1$H NMR (400 MHz, CDCl$_3$) $\delta$ ppm 8.54 (s, 1H), 8.09 (d, $J = 7.6$ Hz, 1H), 8.05 (d, $J = 8.0$ Hz, 1H), 7.45-7.38 (m, 6H), 7.09-7.04 (m, 5H), 3.93 (s, 3H).$^{13}$CNMR (400 MHz, CDCl$_3$) $\delta$ ppm 192.8, 166.0, 153.9, 143.4, 139.2, 134.3, 133.9, 133.6, 130.9, 130.5, 129.4, 129.0, 128.7, 128.6, 128.4, 128.2, 95.4, 52.4. IR (neat, cm$^{-1}$): 2922, 1725, 1660, 1442, 1218, 761. HRMS (ESI) Calcd for C$_{23}$H$_{17}$INaO$_3$: M+Na = 491.0115. Found: 491.0124.

Methyl-4-(2-iodo-3,3-diphenylacryloyl)benzoate 2k. $^1$H NMR (400 MHz, CDCl$_3$) $\delta$ ppm 7.97 (d, $J = 8.4$ Hz, 2H), 7.91 (d, $J = 8.8$ Hz, 2H) 7.46-7.38 (m, 5H), 7.09-7.03 (m, 5H), 3.9 (s, 3H).$^{13}$C NMR (400 MHz, CDCl$_3$) $\delta$ ppm 193.1, 166.0, 154.0, 143.3, 139.2, 137.6, 133.8, 129.6, 129.5, 129.4, 129.0, 128.8, 128.7, 128.4, 128.2, 95.4, 52.4. IR (neat, cm$^{-1}$): 2954, 1720, 1653, 1279, 1107, 790. HRMS (ESI) Calcd for C$_{23}$H$_{17}$INaO$_3$: M+Na = 491.0115. Found: 491.0123.
Methyl-2-(2-iodo-3,3-diphenylacryloyl)-5-nitrobenzoate 2l

$^1$H NMR (400 MHz, CDCl$_3$) $\delta$ ppm 8.30 (d, $J = 2.4$ Hz, 1H), 7.99 (dd, $J = 8.4$, 2.4 Hz, 1H), 7.41-7.37 (m, 4H), 7.25-7.23 (m, 2H), 7.09-7.05 (m, 1H), 6.99 (t, $J = 7.6$ Hz, 2H), 6.93-6.91 (m, 2H), 4.07 (s, 3H).

$^{13}$C NMR (400 MHz, CDCl$_3$) $\delta$ ppm 192.0, 165.7, 161.7, 147.8, 144.4, 143.4, 139.9, 132.1, 131.2, 129.3, 129.2, 128.5, 128.3, 128.2, 125.1, 124.0, 102.0, 53.7. IR (neat, cm$^{-1}$): 2919, 1735, 1645, 1218, 997, 750. HRMS (ESI) Calcd for C$_{23}$H$_{17}$INO$_5$: M+H = 514.0146. Found: 514.0154.

Methyl-5-chloro-2-(2-iodo-3,3-diphenylacryloyl)benzoate 2m

$^1$H NMR (400 MHz, CDCl$_3$) $\delta$ ppm 7.41-7.33 (m, 5H), 7.27 (dd, $J = 8.4$, 1.2 Hz, 2H), 7.17 (dd, $J = 8.4$, 2.0 Hz, 1H), 7.11-7.07 (m, 1H), 7.03 (t, $J = 7.6$ Hz, 2H), 6.97-6.95 (m, 2H), 3.99 (s, 3H).

$^{13}$C NMR (400 MHz, CDCl$_3$) $\delta$ ppm 192.4, 167.2, 159.0, 144.4, 139.7, 137.2, 135.0, 133.6, 131.4, 130.3, 129.7, 128.9, 128.8, 128.7, 128.6, 128.2, 128.1, 100.8, 53.3. IR (neat, cm$^{-1}$): 2924, 1733, 1658, 1232, 1089, 768. HRMS (ESI) Calcd for C$_{23}$H$_{16}$ClINO$_3$: M+Na = 524.9725. Found: 524.9734.

Methyl-5-fluoro-2-(2-iodo-3,3-diphenylacryloyl)benzoate 2n

$^1$H NMR (400 MHz, CDCl$_3$) $\delta$ ppm 7.48-7.41 (m, 1H), 7.39-7.33 (m, 3H), 7.28-7.27 (m, 2H), 7.13-7.09 (m,
1H), 7.08-7.01 (m, 3H), 6.99-6.91 (m, 2H), 6.88 (dd, J = 8.0, 2.0 Hz, 1H), 3.99 (s, 3H). $^{13}$C NMR (400 MHz, CDCl$_3$) δ ppm 192.1, 167.3 (d, J = 2 Hz), 164.7, 162.2, 158.6, 144.5, 139.6, 134.8 (d, J = 8 Hz), 132.8, 132.6 (d, J = 4 Hz), 129.7, 128.8 (d, J = 3 Hz), 128.6, 128.2 (d, J = 18 Hz), 117.1 (d, J = 22 Hz), 116.2 (d, J = 24 Hz), 100.6, 53.3. IR (neat, cm$^{-1}$): 2922, 1727, 1647, 1226, 1007, 752. HRMS (ESI) Calcd for C$_{23}$H$_{16}$FINaO$_3$: M+Na = 509.0020. Found: 509.0030.

![Structural formula of 2o](image)

Methyl-2-chloro-6-(2-iodo-3,3-diphenylacryloyl)benzoate 2o $^1$H NMR (400 MHz, CDCl$_3$) δ ppm 7.63 (d, J = 7.6 Hz, 1H), 7.44-7.35 (m, 6H), 7.19 (t, J = 8.0, 1H), 7.10-7.04 (m, 5H), 4.00 (s, 3H). $^{13}$C NMR (400 MHz, CDCl$_3$) δ ppm 191.7, 166.8, 156.6, 143.7, 139.0, 133.9, 133.8, 133.6, 132.2, 129.7, 129.0, 128.9, 128.8, 128.5, 128.4, 128.3, 96.0, 53.0. IR (neat, cm$^{-1}$): 2926, 1730, 1655, 1229, 1090, 764. HRMS (ESI) Calcd for C$_{23}$H$_{16}$ClINaO$_3$: M+Na = 524.9725. Found: 524.9731.

![Structural formula of 2p](image)

2p. $^1$H NMR (400 MHz, CDCl$_3$) δ ppm 7.41-7.35 (m, 4H), 7.24 (dd, J = 8.0, 2.0 Hz, 2H), 7.16-7.11 (m, 2H), 7.10-7.07 (m, 1H), 7.02 (t, J = 7.6 Hz, 2H), 6.93-6.90 (m, 2H), 4.01 (s, 3H). $^{13}$C NMR (400 MHz, CDCl$_3$) δ ppm 192.5, 167.1, 160.6, 144.7, 139.8, 139.6, 137.1, 130.5, 129.7, 129.1, 129.0, 128.9, 128.5, 128.3, 128.0, 102.2, 53.4. IR (neat, cm$^{-1}$): 2923, 1737, 1657, 1235, 1092, 776. HRMS (ESI) Calcd for C$_{23}$H$_{16}$ClINaO$_3$: M+Na = 524.9725. Found: 524.9736.
Methyl-4-fluoro-2-(2-iodo-3,3-diphenylacryloyl)benzoate 2q. $^1$H NMR (400 MHz, CDCl$_3$) $\delta$ ppm 7.47 (dd, $J = 8.4$, 5.2 Hz, 1H), 7.40-7.32 (m, 3H), 7.24 (dd, $J = 8.0$, 1.2 Hz, 2H), 7.09-7.07 (m, 2H), 6.93-6.86(m, 4H), 4.00(s, 3H). $^{13}$C NMR (400 MHz, CDCl$_3$) $\delta$ ppm 192.4 (d, $J = 2$ Hz), 167.0, 163.2 (d, $J = 252$ Hz), 160.3, 144.7, 140.5 (d, $J = 8$ Hz), 139.8, 131.4 (d, $J = 8$ Hz), 129.7, 128.8 (d, $J = 3$ Hz), 128.5, 128.2, 128.0, 127.2 (d, $J = 3$ Hz), 117.3 (d, $J = 22$ Hz), 102.0, 53.3 (d, $J = 3$ Hz). IR (neat, cm$^{-1}$): 2919, 1724, 1643, 1221, 998, 750. HRMS (ESI) Calcd for C$_{23}$H$_{16}$FINaO$_3$: M+Na = 509.0020. Found: 509.0027.

Methyl-2-(2-iodo-3,3-diphenylacryloyl)-5-methylbenzoate 2r. $^1$H NMR (400 MHz, CDCl$_3$) $\delta$ ppm 7.44-7.35 (m, 4H), 7.31-7.29 (m, 2H), 7.23 (s, 1H), 7.06-7.01 (m, 6H), 3.96 (s, 3H), 2.27 (s, 3H). $^{13}$C NMR (100 MHz, CDCl$_3$) $\delta$ ppm 193.0, 169.0, 157.3, 144.6, 142.3, 139.5, 133.2, 132.9, 130.7, 130.4, 129.6, 129.5, 128.7, 128.6, 128.5, 128.3, 127.9, 100.4, 53.0, 21.2. IR (neat, cm$^{-1}$): 2948, 2923, 1738, 1660, 1219, 770. HRMS (ESI) Calcd for C$_{24}$H$_{19}$INaO$_3$: M+Na = 505.0271. Found: 505.0279.

Methyl-2-(2-iodo-3,3-di-p-tolylacryloyl)benzoate 2s. $^1$H NMR (400 MHz, CDCl$_3$) $\delta$
ppm 7.44-7.41 (m, 2H), 7.28-7.23 (m, 2H), 7.21-7.18 (m, 4H), 6.85 (d, J = 8.0 Hz, 2H), 6.78 (d, J = 8.0 Hz, 2H), 3.98 (s, 3H), 2.38 (s, 3H), 2.13 (s, 3H). 13C NMR (100 MHz, CDCl3) δ ppm 193.5, 168.6, 159.1, 141.9, 138.8, 137.2, 136.9, 132.1, 130.7, 130.3, 130.2, 129.8, 128.8, 128.7, 128.6, 100.2, 53.0, 21.4, 21.1. IR (neat, cm⁻¹): 2941, 2922, 1735, 1652, 1245, 788. HRMS (ESI) Calcd for C25H21INaO3: M+Na = 519.0428. Found: 519.0439.

Methyl-2-(3,3-bis(4-chlorophenyl)-2-iodoacryloyl)benzoate 2t. 1H NMR (400 MHz, CDCl3) δ ppm 7.48 (dd, J = 7.6, 0.8 Hz, 1H), 7.42 (dd, J = 7.6, 1.2 Hz, 1H), 7.39-7.27 (m, 4H), 7.23-7.20 (m, 2H), 6.99 (dd, J = 6.8, 2.0 Hz, 2H), 6.91 (dd, J = 6.8, 2.0 Hz, 2H), 3.97 (s, 3H). 13C NMR (100 MHz, CDCl3) δ ppm 193.0, 168.3, 155.8, 142.5, 137.6, 136.4, 135.0, 134.9, 132.3, 131.4, 130.9, 130.1, 130.2, 130.0, 129.0, 128.7, 128.3, 102.4, 53.1. IR (neat, cm⁻¹): 2919, 1735, 1657, 1228, 1086, 750. HRMS (ESI) Calcd for C23H15Cl2INaO3: M+Na = 558.9335. Found: 558.9332.

Methyl-2-(3,3-bis(4-fluorophenyl)-2-iodoacryloyl)benzoate 2u. 1H NMR (400 MHz, CDCl3) δ ppm 7.47-7.41 (m, 2H), 7.34-7.25 (m, 4H), 7.11-7.07 (m, 2H ), 6.98-6.94 (m, 2H), 6.72-6.68 (m, 2H ), 3.98 (s, 3H). 13C NMR (100 MHz, CDCl3) δ ppm 193.2, 168.4, 162.7 (dd, J = 249, 6 Hz), 156.5, 140.3 (d, J = 3 Hz), 136.5, 135.6 (d, J = 4 Hz), 132.1, 131.7 (d, J = 9 Hz), 131.3, 130.8 (d, J = 9 Hz), 130.5, 129.9, 128.9, 115.2 (dd, J = 27, 22 Hz), 101.8, 53.1. IR (neat, cm⁻¹): 2917, 1731, 1652, 1223, 1079, 746.
HRMS (ESI) Calcd for C_{23}H_{15}F_{2}INaO_3: M+Na = 526.9926. Found: 526.9932.

**Methyl-2-(2-iodo-3,3-bis(4-methoxyphenyl)acryloyl)benzoate 2v.** $^1$H NMR (400 MHz, CDCl$_3$) δ ppm 7.43-7.38 (m, 2H), 7.27-7.21 (m, 4H), 6.91-6.87 (m, 4H), 6.50 (d, $J$ = 8.4 Hz, 2H), 3.99 (s, 3H), 3.84 (s, 3H), 3.66 (s, 3H). $^{13}$C NMR (100 MHz, CDCl$_3$) δ ppm 193.7, 168.6, 160.1, 160.0, 159.2, 137.4, 137.1, 133.1, 131.9, 130.9, 130.6, 130.3, 130.1, 128.7, 113.4, 110.3, 99.3, 55.2, 55.2, 53.1. IR (neat, cm$^{-1}$): 2926, 1734, 1661, 1241, 1103, 775. HRMS (ESI) Calcd for C$_{25}$H$_{22}$IO$_5$: M+H = 529.0506. Found: 529.0515.

**2-iodo-1,1-diphenyloct-1-en-3-one 2w.** $^1$H NMR (400 MHz, CDCl$_3$) δ ppm 7.32-7.28 (m, 3H), 7.23-7.17 (m, 5H), 7.06 (d, $J$ = 7.6 Hz, 2H), 2.20 (t, $J$ = 7.2 Hz, 2H), 1.41-1.34 (m, 2H), 1.12-1.04 (m, 2H), 1.03-0.97 (m, 2H), 0.73 (t, $J$ = 7.2 Hz, 3H). $^{13}$C NMR (100 MHz, CDCl$_3$) δ ppm 203.9, 152.2, 143.7, 139.5, 129.4, 128.9, 128.8, 128.5, 128.4, 128.2, 100.1, 41.0, 31.1, 24.1, 22.2, 13.8. IR (neat, cm$^{-1}$): 2921, 1726, 1649, 1290, 1013, 755. HRMS (ESI) Calcd for C$_{20}$H$_{21}$INO: M+Na = 427.0529. Found: 427.0540.

**_(Z)_-methyl-2-(2-iodo-3-phenylacryloyl)benzoate 2x.** $^1$H NMR (400 MHz, CDCl$_3$) δ
ppm 7.96 (d, J = 7.6 Hz, 1H), 7.62-7.60 (m, 2H), 7.55 (t, J = 7.6 Hz, 1H), 7.47 (t, J = 7.6 Hz, 1H), 7.40 (s, 1H), 7.32-7.29 (m, 4H), 3.74 (s, 3H). ¹³C NMR (100 MHz, CDCl₃) δ ppm 192.9, 165.7, 150.3, 139.5, 135.0, 132.4, 130.3, 129.8, 129.5, 129.0, 128.2, 127.8, 108.3, 52.8. IR (neat, cm⁻¹): 2922, 1733, 1646, 1230, 1094, 758. HRMS (ESI) Calcd for C₁₇H₁₃INaO₃: M+Na = 414.9802. Found: 414.9810.

(Z)-ethyl-2-(2-iodo-3-phenylacryloyl)benzoate 2y. ¹H NMR (400 MHz, CDCl₃) δ ppm 7.98 (d, J = 8.0 Hz, 1H), 7.63-7.61 (m, 2H), 7.55 (t, J = 7.6 Hz, 1H), 7.49 (d, J = 7.6 Hz, 1H), 7.45 (s, 1H), 7.31-7.29 (m, 4H), 4.20 (q, J = 7.2 Hz, 2H), 1.22 (t, J = 7.2 Hz, 3H). ¹³C NMR (100 MHz, CDCl₃) δ ppm 192.8, 165.3, 150.8, 139.5, 135.1, 132.3, 130.4, 129.8, 129.6, 129.4, 128.2, 127.8, 108.6, 61.8, 14.1. IR (neat, cm⁻¹): 2924, 1735, 1645, 1224, 1090, 761. HRMS (ESI) Calcd for C₁₈H₁₅INaO₃: M+Na = 428.9958. Found: 428.9962.

(Z)-methyl-2-(2-iodo-3-phenylbut-2-enoyl)benzoate 2z. ¹H NMR (400 MHz, CDCl₃) δ ppm 7.40 (d, J = 6.8 Hz, 1H), 7.29 (dd, J = 7.6, 0.8 Hz, 1H), 7.25-7.18 (m, 2H), 7.02 (s, 5H), 3.89 (s, 3H), 2.53 (s, 3H). ¹³C NMR (100 MHz, CDCl₃) δ ppm 192.9, 168.4, 154.9, 140.1, 137.0, 131.9, 130.8, 130.3, 129.7, 128.8, 128.2, 128.0, 127.9, 102.0, 52.9, 32.9. IR (neat, cm⁻¹): 2943, 2921, 1732, 1651, 1242, 755. HRMS (ESI) Calcd for C₁₈H₁₅INaO₃: M+Na = 428.9958. Found: 428.9965.
**Methyl-2-(2-(4-methoxyphenyl)-3,3-diphenylacryloyl)benzoate 3a**

$^1$H NMR (400 MHz, CDCl$_3$) $\delta$ ppm 7.70 (d, $J$ = 7.6 Hz, 1H), 7.41 (d, $J$ = 6.8 Hz, 1H), 7.32-7.28 (m, 2H), 7.17 (d, $J$ = 5.2 Hz, 3H), 7.10-7.08 (m, 9H), 6.67 (d, $J$ = 8.4 Hz, 2H), 3.89 (s, 3H), 3.72 (s, 3H).

$^{13}$C NMR (400 MHz, CDCl$_3$) $\delta$ ppm 198.2, 169.3, 158.6, 148.4, 141.9, 141.8, 139.2, 139.1, 133.0, 132.3, 131.9, 131.1, 130.9, 130.5, 130.0, 128.6, 128.1, 128.0, 127.9, 127.7, 113.6, 55.1, 52.6. IR (neat, cm$^{-1}$): 2970, 1728, 1654, 1489, 1240, 1165, 850, 754. HRMS (ESI) Calcd for C$_{30}$H$_{24}$NaO$_4$: M+Na = 471.1567. Found: 471.1568.

**3-(2,2-diphenylvinyl)isobenzofuran-1(3$H$)-one 4a**

$^1$H NMR (400 MHz, CDCl$_3$) $\delta$ ppm 7.83 (d, $J$ = 7.6 Hz, 1H), 7.60 (t, $J$ = 7.6 Hz, 1H), 7.46 (t, $J$ = 7.6 Hz, 1H), 7.41-7.32 (m, 6H), 7.21-7.18 (m, 5H), 5.89 (d, $J$ = 10.0 Hz, 1H), 5.81 (d, $J$ = 10.0 Hz, 1H). $^{13}$C NMR (100 MHz, CDCl$_3$) $\delta$ ppm 170.5, 149.5, 149.4, 140.6, 138.1, 134.1, 129.9, 129.3, 128.6, 128.5, 128.3, 128.2, 127.8, 126.0, 125.7, 122.6, 122.5, 79.4. IR (neat, cm$^{-1}$): 1773, 1645, 1450, 1258, 1019, 754. HRMS (ESI) Calcd for C$_{22}$H$_{17}$O$_2$: M+H = 313.1223. Found: 313.1230.
(Z)-3-(1-iodo-2-phenylvinyl)isobenzofuran-1(3H)-one 4x  

$^1$H NMR (400 MHz, CDCl$_3$) δ ppm 7.96 (d, $J$ = 7.6 Hz, 1H), 7.72 (t, $J$ = 7.6 Hz, 1H), 7.63-7.59 (m, 3H), 7.53 (s, 1H), 7.50 (d, $J$ = 6.4 Hz, 1H), 7.39-7.35 (m, 3H), 5.87 (s, 1H).  

$^{13}$C NMR (100 MHz, CDCl$_3$) δ ppm 169.6, 148.2, 139.5, 135.9, 134.4, 129.9, 129.0, 128.8, 128.2, 126.8, 125.6, 122.5, 102.3, 86.5.  

IR (neat, cm$^{-1}$): 1778, 1640, 1465, 1231, 1097, 760.  

HRMS (ESI) Calcd for C$_{18}$H$_{11}$INaO$_2$: M+Na = 384.9696. Found: 384.9699.

### Crystallographic data of 2a

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