**Electrophile-Promoted Cyclization of Propargylic Amides**

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**The Supporting Information**

**General Information**

IR spectra were run in KBr discs. $^1$H and $^{13}$C NMR spectra were recorded at 400 MHz in chloroform-d, using residual solvent signal as internal standard. High resolution mass spectra were recorded on a mass spectrometer Dual-ESI Q-TOF 6520 by electrospray ionization. All reactions and purity of the synthesized compounds monitored by TLC using Silica gel 60 F$_{254}$ aluminum plates. Visualization was accomplished by UV light and by treating the plates with vanillin stain followed by heating.

**General procedure for the synthesis of starting \( N\)-(3-substitutedprop-2-ynyl)benzamides 1.**

To the mixture of the corresponding aryl iodide (2 mmol), PdCl$_2$(PPh$_3$)$_2$ (0.28 g, 0.4 mmol) and triethylamine (6 mmol) in tetrahydrofuran (5 mL) \( N\)-(prop-2-ynyl)benzamide 1g (0.33 g, 2.1 mmol) was added under argon atmosphere. After stirring of resulting mixture for 5 min at room temperature, copper (I) iodide (38 mg, 0.2 mmol) was added. The mixture was stirred under argon at room temperature for 2 – 4 h. When the completion of the reaction was observed by TLC, solvent was evaporated under reduced pressure, and crude residue was purified by Flash Column chromatography eluting with hexane – ethylacetate mixtures.

**\( N\)-(3-(4-methoxyphenyl)prop-2-ynyl)benzamide (1a)**

Yellow solid, m.p. 123 – 124 °C. Yield 71 %

IR (KBr): \( \nu_{\text{max}} = 3319 \text{ (NH) cm}^{-1} \).
N-(3-p-toly1prop-2-ynyl)benzamide (1b)
Yellow solid, m.p. 149 – 150 °C. Yield 62 %
IR (KBr): \( \nu_{\text{max}} = 3297 \text{ (NH) cm}^{-1} \).
\(^1{H}\) NMR (400 MHz, CDCl\(_3\)) \( \delta \): 3.80 (3H, s, OCH\(_3\)), 4.47 (2H, d, \( ^3{J} = 4.8 \text{ Hz, CH}_2 \)), 6.41 (1H, brs, NH), 6.83 (2H, d, \( ^3{J} = 8.8 \text{ Hz, ArH} \)), 7.37 (2H, d, \( ^3{J} = 8.8 \text{ Hz, ArH} \)), 7.43 (2H, t, \( ^3{J} = 7.6 \text{ Hz, ArH} \)), 7.51 (1H, tt, \( ^3{J} = 7.6 \text{ Hz, } ^4{J} = 2.4 \text{ Hz, ArH} \)), 7.80 – 7.82 (2H, m, ArH) ppm. \(^{13}{C}\) NMR (100 MHz, CDCl\(_3\)) \( \delta \): 30.8 (CH\(_2\)), 55.4 (OCH\(_3\)), 83.3 (C-sp), 83.7 (C-sp), 114.0 (ArC), 114.6 (ArC), 121.1 (ArC), 128.7 (ArC), 131.8 (ArC), 133.3 (ArC), 134.0 (ArC), 159.8 (ArC), 167.1 (NHCO) ppm. HRMS (ES): MNa+, found 288.0994. C\(_{17}\)H\(_{15}\)NNaO requires 288.0995.

N-(3-(4-ethoxyphenyl)prop-2-ynyl)benzamide (1c)
Yellow solid, m.p. 134 – 135 °C. Yield 65 %
IR (KBr): \( \nu_{\text{max}} = 3322 \text{ (NH) cm}^{-1} \).
\(^1{H}\) NMR (400 MHz, CDCl\(_3\)) \( \delta \): 1.40 (3H, t, \( ^3{J} = 7.2 \text{ Hz, OCH}_2\text{CH}_3 \)), 4.02 (2H, q, \( ^3{J} = 7.2 \text{ Hz, OCH}_2\text{CH}_3 \)), 4.46 (2H, d, \( ^3{J} = 4.8 \text{ Hz, CH}_2 \)), 6.37 (1H, brs, NH), 6.81 (2H, d, \( ^3{J} = 8.8 \text{ Hz, ArH} \)), 7.36 (2H, d, \( ^3{J} = 8.8 \text{ Hz, ArH} \)), 7.43 (2H, t, \( ^3{J} = 7.6 \text{ Hz, ArH} \)), 7.51 (1H, tt, \( ^3{J} = 7.6 \text{ Hz, } ^4{J} = 1.6 \text{ Hz, ArH} \)), 7.79 – 7.82 (2H, m, ArH) ppm. \(^{13}{C}\) NMR (100 MHz, CDCl\(_3\)) \( \delta \): 14.8 (OCH\(_2\text{CH}_3\)), 30.9 (CH\(_2\)), 63.3 (OCH\(_2\text{CH}_3\)), 83.2 (C-sp), 83.9 (C-sp), 114.4 (ArC), 114.6 (ArC), 127.1 (ArC), 128.7 (ArC), 131.8 (ArC), 133.3 (ArC), 134.1 (ArC), 159.3 (ArC), 167.1 (NHCO) ppm. HRMS (ES): MNa+, found 302.1153. C\(_{18}\)H\(_{17}\)NNaO requires 302.1151.

N-(3-(3,4-dimethoxyphenyl)prop-2-ynyl)benzamide (1d)
Yellow solid, m.p. 139 – 140 °C. Yield 59%
IR (KBr): \( \nu_{\text{max}} = 3297 \text{ (NH) cm}^{-1} \).
\(^1{H}\) NMR (400 MHz, CDCl\(_3\)) \( \delta \): 3.85 (3H, s, OCH\(_3\)), 3.87 (3H, s, OCH\(_3\)), 4.47 (2H, d, \( ^3{J} = 5.2 \text{ Hz, CH}_2 \)), 6.44 (1H, brs, NH), 6.78 (1H, d, \( ^3{J} = 8.4 \text{ Hz, ArH} \)), 6.71 (1H, d, \( ^3{J} = 1.6 \text{ Hz, ArH} \)), 7.03 (1H, dd, \( ^3{J} = 8.4 \text{ Hz, } ^4{J} = 2.0 \text{ Hz, ArH} \)), 7.43 (2H, t, \( ^3{J} = 8.0 \text{ Hz, ArH} \)), 7.51 (1H, tt, \( ^3{J} = 7.6 \text{ Hz, } ^4{J} = 2.4 \text{ Hz, ArH} \)), 7.80 – 7.82 (2H, m, ArH) ppm. \(^{13}{C}\) NMR (100 MHz, CDCl\(_3\)) \( \delta \): 30.8 (CH\(_2\)), 56.00 (OCH\(_3\)), 56.01 (OCH\(_3\)), 83.3 (C-sp), 83.8 (C-sp), 111.0 (ArC), 114.6 (ArC), 114.7 (ArC), 125.1 (ArC), 127.1 (ArC), 128.7 (ArC), 131.8 (ArC), 134.4 (ArC), 148.7 (ArC), 149.7 (ArC), 167.1 (NHCO) ppm. HRMS (ES): MNa+, found 318.1098. C\(_{18}\)H\(_{17}\)NNaO requires 318.1101.

N-(3-(3,4,5-trimethoxyphenyl)prop-2-ynyl)benzamide (1e)
Yellow solid, m.p. 139 – 140 °C. Yield 59%
IR (KBr): \( \nu_{\text{max}} = 3214 \text{ (NH) cm}^{-1} \).
N-(3-(4-chlorophenyl)prop-2-ynyl)benzamide (1f)

Yellow solid, m.p. 177 – 178 °C, Yield 85%

IR (KBr): $\nu_{\text{max}}$ = 3292 (NH) cm$^{-1}$.

$^1$H NMR (400 MHz, CDCl$_3$) $\delta$: 3.83 (6H, s, 2xOCH$_3$), 3.84 (3H, s, OCH$_3$), 4.48 (2H, d, $^3J = 5.2$ Hz, CH$_2$), 6.39 (1H, br.s, NH), 6.67 (2H, s, ArH), 7.44 (2H, t, $^3J = 7.6$ Hz, ArH), 7.52 (1H, tt, $^3J = 7.6$ Hz, $^4J = 2.4$ Hz, ArH), 7.80 – 7.82 (2H, m, ArH) ppm. $^{13}$C NMR (100 MHz, CDCl$_3$) $\delta$: 30.7 (CH$_2$), 56.2 (2xOCH$_3$), 61.0 (OCH$_3$), 83.8 (C-sp), 83.9 (C-sp), 109.1 (ArC), 117.1 (ArC), 127.1 (ArC), 128.7 (ArC), 131.9 (ArC), 134.0 (ArC), 139.1 (ArC), 153.2 (2xArC), 167.1 (NHCO) ppm. HRMS (ES): MNa+, found 348.1212. C$_{19}$H$_{19}$NaO$_4$ requires 348.1206.

General procedure for the synthesis of 6-aryl-5-iodo-2-phenyl-4H-1,3-oxazines 2xa

To the solution of the corresponding N-(3-substitutedprop-2-ynyl)benzamide 1 (1 mmol) in dichloromethane (5 mL) N-iodosuccinimide (0.23 g, 1 mmol) was added. The mixture was stirred at room temperature. When the completion of the reaction was observed by TLC, the solution was quenched with aqueous sodium thiosulphate. The organic layer was separated, washed with aqueous sodium thiosulphate (2*20 mL), and then with water (2*20 mL), dried over anhydrous Na$_2$SO$_4$. After the evaporation of solvent under reduced pressure, the residue was purified by Flash Column chromatography eluting with hexane – ethylacetate mixtures.

5-iodo-6-(4-methoxyphenyl)-2-phenyl-4H-1,3-oxazine (2aa)

White solid, m.p. 119 – 120 °C. Yield 72%

$^1$H NMR (400 MHz, CDCl$_3$) $\delta$: 3.86 (3H, s, OCH$_3$), 4.56 (2H, s, CH$_2$), 6.96 (2H, d, $^3J = 8.8$ Hz, ArH), 7.40 (2H, t, $^3J = 7.6$ Hz, ArH), 7.48 (1H, tt, $^3J = 7.6$ Hz, $^4J = 2.4$ Hz, ArH), 7.63 (2H, d, $^3J = 8.8$ Hz, ArH), 7.95 – 7.97 (2H, m, ArH) ppm. $^{13}$C NMR (100 MHz, CDCl$_3$) $\delta$: 55.2 (CH$_2$), 55.4 (OCH$_3$), 69.8 (Cl), 113.6 (ArC), 126.6 (ArC), 127.4 (ArC), 128.4 (ArC), 130.5 (ArC), 131.1 (ArC), 131.7 (ArC), 147.7 (Csp$^2$), 153.7 (Csp$^2$), 160.6 (ArC) ppm. HRMS (ES): MH+, found 392.0188. C$_{17}$H$_{15}$IN$_2$O$_4$ requires 392.0142.

5-iodo-2-phenyl-6-p-tolyl-4H-1,3-oxazine (2ba)

White solid, m.p. 125 – 126 °C. Yield 58%

$^1$H NMR (400 MHz, CDCl$_3$) $\delta$: 2.41 (3H, s, CH$_3$), 4.57 (2H, s, CH$_2$), 7.26 (2H, d, $^3J = 8.0$ Hz, ArH), 7.40 (2H, t, $^3J = 8.0$ Hz, ArH), 7.49 (1H, t, $^3J = 7.6$ Hz, ArH), 7.57 (2H, d, $^3J = 8.0$ Hz, ArH), 7.95 – 7.97 (2H, m, ArH) ppm. $^{13}$C
NMR (100 MHz, CDCl₃) δ: 21.6 (CH₃), 55.1 (CH₂), 70.3 (Cl), 127.5 (ArC), 128.4 (ArC), 129.0 (ArC), 131.0 (ArC), 131.3 (ArC), 131.7 (ArC), 140.0 (ArC), 147.9 (Csp³), 153.8 (Csp²) ppm. HRMS (ES): MH+, found 376.0189. C₁₇H₁₃INO requires 376.0193.

6-(4-ethoxyphenyl)-5-iodo-2-phenyl-4H-1,3-oxazine (2ca)

White solid, m.p. 108 – 109 °C. Yield 58%

¹H NMR (400 MHz, CDCl₃) δ: 1.44 (3H, t, ³J = 7.2 Hz, OCH₂CH₃), 4.08 (2H, q, ³J = 7.2 Hz, OCH₂CH₃), 4.55 (2H, s, CH₂), 6.94 (2H, d, ³J = 8.8 Hz, ArH), 7.39 (2H, t, ³J = 8.0 Hz, ArH), 7.46 (1H, tt, ³J = 7.6 Hz, ⁴J = 2.4 Hz, ArH), 7.61 (2H, d, ³J = 8.8 Hz, ArH), 7.92 – 7.94 (2H, m, ArH) ppm. ¹³C NMR (100 MHz, CDCl₃) δ: 14.9 (CH₃), 55.5 (CH₂), 63.6 (OCH₂CH₃), 69.9 (Cl), 114.0 (ArC), 126.6 (ArC), 127.3 (ArC), 128.4 (ArC), 130.5 (ArC), 131.3 (ArC), 131.7 (ArC), 147.8 (Csp³), 153.0 (Csp²), 159.9 (ArC) ppm. HRMS (ES): MH+, found 406.0294. C₁₈H₁₇INO₂ requires 406.0298.

6-(3,4-dimethoxyphenyl)-5-iodo-2-phenyl-4H-1,3-oxazine (2da)

White solid, m.p. 147 – 148 °C. Yield 52%

¹H NMR (400 MHz, CDCl₃) δ: 3.93 (3H, s, OCH₃), 3.93 (3H, s, OCH₃), 4.56 (2H, s, CH₂), 6.92 (1H, d, ³J = 8.4 Hz, ArH), 7.21 (1H, d, ³J = 2.0 Hz, ArH), 7.27 (1H, dd, ³J = 8.6 Hz, ⁴J = 2.0 Hz, ArH), 7.40 (2H, t, ³J = 7.6 Hz, ArH), 7.48 (1H, tt, ³J = 7.6 Hz, ⁴J = 2.4 Hz, ArH), 7.94 – 7.96 (2H, m, ArH) ppm. ¹³C NMR (100 MHz, CDCl₃) δ: 55.1 (CH₂), 56.0 (CH₂), 56.1 (CH₃), 70.0 (Cl), 110.6 (ArC), 112.2 (ArC), 122.1 (ArC), 126.7 (ArC), 127.3 (ArC), 128.4 (ArC), 131.3 (ArC), 131.5 (ArC), 147.7 (Csp²), 148.4 (ArC), 150.1 (ArC), 153.4 (Csp²) ppm. HRMS (ES): MNa+, found 444.0060. C₁₉H₁₇NINaO₃ requires 444.0067.

5-iodo-2-phenyl-6-(3,4,5-trimethoxyphenyl)-4H-1,3-oxazine (2ea)

White solid, m.p. 184 – 185 °C. Yield 60%

¹H NMR (400 MHz, CDCl₃) δ: 3.90 (6H, s, 2xOCH₃), 3.91 (3H, s, OCH₃), 4.56 (2H, s, CH₂), 6.90 (2H, s, ArH), 7.40 (2H, t, ³J = 8.0 Hz, ArH), 7.49 (1H, tt, ³J = 7.6 Hz, ⁴J = 2.4 Hz, ArH), 7.92 – 7.94 (2H, m, ArH) ppm. ¹³C NMR (100 MHz, CDCl₃) δ: 55.4 (CH₃), 56.4 (2xOCH₃), 61.0 (OCH₃), 70.7 (Cl), 106.6 (ArC), 127.2 (ArC), 128.4 (ArC), 129.6 (ArC), 131.4 (ArC), 131.6 (ArC), 139.2 (ArC), 147.8 (Csp³), 152.8 (Csp²), 159.9 (2xArC) ppm. HRMS (ES): MH+, found 452.0347. C₁₉H₁₉INO₄ requires 452.0353.

6-(4-chlorophenyl)-5-iodo-2-phenyl-4H-1,3-oxazine (2fa)

White solid, m.p. 135 – 136 °C. Yield 16%

¹H NMR (400 MHz, CDCl₃) δ: 4.60 (2H, s, CH₂), 7.42 – 7.46 (4H, m, ArH), 7.52 (1H, tt, ³J = 8.0 Hz, ArH), 7.65 (2H, d, ³J = 8.0 Hz, ArH), 7.96 – 7.98 (2H, m, ArH) ppm. ¹³C NMR (100 MHz, CDCl₃) δ: 54.9 (CH₂), 71.2 (Cl), 127.3 (ArC), 128.4(ArC), 128.5(ArC), 130.4 (ArC), 130.7 (ArC), 131.7 (ArC), 132.5 (ArC), 135.7 (ArC), 146.8 (Csp³), 153.4 (Csp²) ppm. HRMS (ES): MH+, found 395.9655. C₁₆H₁₂ClINO requires 395.9652.
(4-chlorophenyl)(2-phenyloxazol-5-yl)methanone (10fa)
White solid, m.p. 142–143 °C. Yield 37%
IR (KBr): \( \nu_{\text{max}} = 1654 \) (C=O) cm\(^{-1}\).
\(^1\)H NMR (400 MHz, CDCl\(_3\)) \( \delta \): 7.50 – 7.56 (5H, m, ArH), 7.89 (1H, s, CH), 7.96 – 7.98 (2H, m, ArH), 8.19 (1H, dd, \( ^3J = 8.1 \) Hz, \( ^4J = 1.6 \) Hz, ArH) ppm. \(^{13}\)C NMR (100 MHz, CDCl\(_3\)) \( \delta \): 126.1 (ArC), 127.5 (ArC), 129.0 (ArC), 129.1 (ArC), 130.4 (ArC), 132.0 (ArC), 135.1 (ArC), 137.7 (ArC), 139.8 (ArC), 148.8 (ArC), 164.9 (ArC), 180.0 (C=O) ppm. HRMS (ES): MNa\(^+\), found 306.0299. \( \text{C}_{16}\text{H}_{10}\text{ClNaO}_2 \) requires 306.0298.

2-phenyloxazole-5-carbaldehyde (10ga)
Colorless wax. Yield 16%
IR (KBr): \( \nu_{\text{max}} = 1668 \) (C=O) cm\(^{-1}\).
\(^1\)H NMR (400 MHz, CDCl\(_3\)) \( \delta \): 7.48 – 7.58 (3H, m, ArH), 7.95 (1H, s, CH), 8.16 – 8.19 (2H, m, ArH), 9.81 (1H, s, CHO) ppm. \(^{13}\)C NMR (100 MHz, CDCl\(_3\)) \( \delta \): 126.0 (ArC), 127.8 (ArC), 129.2 (ArC), 132.4 (ArC), 139.2 (ArC), 149.7 (ArC), 165.6 (ArC), 176.4 (CHO) ppm. HRMS (ES): MNa\(^+\), found 196.0368. \( \text{C}_{16}\text{H}_{10}\text{NaO}_2 \) requires 196.0369.

\((E)-N-(2,3-diiodoallyl)benzamide \) (11)
Yellowish oil. Yield 41%
\(^1\)H NMR (400 MHz, CDCl\(_3\)) \( \delta \): 4.62 (2H, d, \( ^3J = 3.2 \) Hz, CH\(_2\)), 5.79 (1H, t, \( ^3J = 3.2 \) Hz, CH), 7.44 (2H, t, \( ^3J = 7.6 \) Hz, ArH), 7.53 (1H, t, \( ^3J = 7.6 \) Hz, ArH), 7.94 – 7.97 (2H, m, ArH) ppm. \(^{13}\)C NMR (100 MHz, CDCl\(_3\)) \( \delta \): 47.5 (CH\(_2\)), 61.1 (CH\(_2\)), 126.4 (ArC), 128.2 (ArC), 128.7 (ArC), 132.3 (ArC), 157.8 (Cl), 164.2 (NHC\(_2\)) ppm. HRMS (ES): MNa\(^+\), found 451.8628. \( \text{C}_{10}\text{H}_{12}\text{NaO}_2 \) requires 451.8621.

General procedure for the synthesis of 6-aryl-2-phenyl-5-(phenylselanyl)-4H-1,3-oxazines 2xb and \((E)-N-(3-aryl-3-chloro-2-(phenylselanyl)allyl)benzamides 7xb.
To the solution of the corresponding \(N\)-(3-substitutedprop-2-ynyl)benzamide 1 (0.5 mmol) in dry dichloromethane (5 mL), phenyl hypochloroselenoic (95.96 mg, 0.5 mmol) together with potassium tert-butanoate (0.5 mmol) were added. The reaction mixture stirred at room temperature. When the completion of the reaction was observed by TLC, the solution was evaporated under reduced pressure and the residue was purified by Flash Column chromatography eluting with hexane – ethylacetate mixtures.

\(6-(4\text{-methoxyphenyl})\text{-2-phenyl-5-(phenylselanyl)-4H-1,3-oxazine} \) (2ab)
Yellowish oil. Yield 66%
\(^1\)H NMR (400 MHz, DMSO d\(_6\)) \( \delta \): 2.87 (3H, s, OCH\(_3\)), 3.29 (2H, s, CH\(_2\)), 6.10 (2H, d, \( ^3J = 8.8 \) Hz, ArH), 6.34 – 6.43 (3H, m, ArH), 6.51 – 6.57 (4H, m, ArH), 6.62 (2H, t, \( ^3J = 7.6 \) Hz, ArH), 6.68 (2H, d, \( ^3J = 8.8 \) Hz, ArH), 6.98 – 7.00 (2H, m, ArH) ppm. \(^{13}\)C NMR (100 MHz, DMSO d\(_6\)) \( \delta \): 49.2 (CH\(_2\)), 55.3 (OCH\(_3\)), 98.7 (Csp\(^2\)), 113.6 (ArC), 125.3 (ArC), 126.9 (ArC), 127.3 (ArC), 128.4 (ArC), 128.6 (ArC), 129.7 (ArC), 130.1
(ArC), 130.8 (ArC), 131.1 (ArC), 131.4 (ArC), 150.2 (Csp²), 151.8 (Csp²), 160.2 (ArC) ppm. HRMS (ES): MH+, found 422.0647. C₁₂H₂₀NO₂Se requires 422.0655.

(E)-N-(3-chloro-3-(4-methoxyphenyl)-2-(phenylselenyl)allyl)-benzamide (7ab)

Yellowish oil. Yield 13%

$^1$H NMR (400 MHz, CDCl₃) δ: 3.82 (3H, s, OCH₃), 4.56 (2H, d, $^3$J = 5.6 Hz, CH₂), 6.34 (br.s. NH), 6.89 (2H, d, $^3$J = 8.8 Hz, ArH), 7.24 – 7.26 (3H, m, ArH), 7.37 (2H, d, $^3$J = 8.8 Hz, ArH), 7.40 – 7.43 (4H, m, ArH), 7.49 (2H, t, $^3$J = 7.2 Hz, ArH), 7.64 – 7.66 (2H, m, ArH) ppm. $^{13}$C NMR (100 MHz, CDCl₃) δ: 43.8 (CH₃), 55.4 (OCH₃), 113.5 (ArC), 125.9 (ArC), 127.4 (ArC), 128.1 (ArC), 128.6 (ArC), 129.4 (ArC), 129.6 (Csp²), 130.6 (ArC), 131.52 (ArC), 131.59 (ArC), 133.0 (ArC), 134.4 (Csp²), 135.2 (ArC), 160.2 (ArC), 166.9 (NHCO) ppm. HRMS (ES): MNa+, found 480.0230. C₂₃H₂₀ClNNO₂Se requires 480.0238.

2-phenyl-5-(phenylselenyl)-6-p-tolyl-1H,1,3-oxazine (2bb)

Yellowish oil. Yield 80%

$^1$H NMR (400 MHz, CDCl₃) δ: 2.42 (3H, s, CH₃), 4.32 (2H, s, CH₂), 7.25 – 7.29 (5H, m, ArH), 7.41 (2H, t, $^3$J = 8.0 Hz, ArH), 7.46 – 7.50 (3H, m, ArH), 7.58 (2H, d, $^3$J = 8.0 Hz, ArH), 7.98 – 8.00 (2H, m, ArH) ppm. $^{13}$C NMR (100 MHz, CDCl₃) δ: 21.5 (CH₃), 49.9 (CH₂), 100.3 (Csp²), 127.3 (ArC), 127.4 (ArC), 128.3 (ArC), 128.5 (ArC), 128.7 (ArC), 128.8 (ArC), 129.4 (ArC), 130.8 (ArC), 131.1 (ArC), 131.9 (ArC), 132.0 (ArC), 139.7 (ArC), 150.0 (Csp²), 152.9 (Csp²) ppm. HRMS (ES): MH+, found 406.0707. C₂₃H₂₀ClNaOSe requires 406.0706.

(E)-N-(3-chloro-2-(phenylselenyl)-3-p-tolylallyl)benzamide (7bb)

Yellowish oil. Yield 19%

$^1$H NMR (400 MHz, CDCl₃) δ: 2.38 (3H, s, CH₃), 4.56 (2H, d, $^3$J = 5.2 Hz, CH₂), 6.35 (br.s. NH), 7.19 (2H, d, $^3$J = 8.0 Hz, ArH), 7.24 – 7.26 (3H, m, ArH), 7.33 (2H, d, $^3$J = 8.4 Hz, ArH), 7.39 – 7.44 (4H, m, ArH), 7.49 (2H, t, $^3$J = 7.2 Hz, $^4$J = 2.0 Hz, ArH), 7.64 – 7.66 (2H, m, ArH) ppm. $^{13}$C NMR (100 MHz, CDCl₃) δ: 21.5 (CH₃), 43.6 (CH₂), 126.3 (ArC), 127.0 (ArC), 128.1 (ArC), 128.6 (ArC), 128.9 (2xArC), 129.4 (Csp²), 129.6 (ArC), 131.5 (ArC), 133.1 (ArC), 134.4 (Csp²), 135.3 (ArC), 136.3 (ArC), 139.4 (ArC), 166.9 (NHCO) ppm. HRMS (ES): MNa+, found 464.0290. C₂₃H₂₀ClNaOSe requires 464.0289.

6-(4-ethoxyphenyl)-2-phenyl-5-(phenylselenyl)-4H,1,3-oxazine (2cb)

Yellowish oil. Yield 65%

$^1$H NMR (400 MHz, CDCl₃) δ: 1.44 (3H, t, $^3$J = 6.8 Hz, OCH₂CH₃), 4.08 (2H, q, $^3$J = 6.8 Hz, OCH₂CH₃), 4.30 (2H, s, CH₂), 6.94 (2H, d, $^3$J = 9.2 Hz, ArH), 7.26 – 7.28 (3H, m, ArH), 7.41 (2H, t, $^3$J = 7.6 Hz, ArH), 7.45 – 7.49 (3H, m, ArH), 7.62 (2H, d, $^3$J = 8.8 Hz, ArH), 7.97 – 7.99 (2H, m, ArH) ppm. $^{13}$C NMR (100 MHz, CDCl₃) δ: 14.9 (OCH₂CH₃), 50.0 (CH₂), 63.6 (OCH₂CH₃), 99.5 (Csp²), 113.9 (ArC),
125.9 (ArC), 127.33 (ArC), 127.36 (ArC), 128.3 (ArC), 128.7 (ArC), 129.4 (ArC), 130.2 (ArC), 131.1 (ArC), 131.90 (ArC), 131.96 (ArC), 150.0 (Csp²), 152.9 (Csp²), 159.9 (ArC) ppm. **HRMS (ES):** MH+, found 436.0802. C₂₄H₂₂NO₂Se requires 436.0811.

**(E)-N-(3-chloro-3-(4-ethoxyphenyl)-2-(phenylselanyl)allyl)-benzamide (7eb)**

Yellowish oil. Yield 12%

**¹H NMR (400 MHz, CDCl₃)** δ: 1.42 (3H, t, ³J = 6.8 Hz, OCH₃CH₂), 4.05 (2H, q, ³J = 6.8 Hz, OCH₃CH₂), 4.55 (2H, d, ³J = 5.6 Hz, CH₂), 6.33 (br.s. NH), 6.87 (2H, d, ³J = 8.8 Hz, ArH), 7.14 – 7.26 (3H, m, ArH), 7.36 (2H, d, ³J = 8.8 Hz, ArH), 7.38 – 7.43 (4H, m, ArH), 7.49 (2H, t, ³J = 7.2 Hz, ⁴J = 2.0 Hz, ArH), 7.63 – 7.66 (2H, m, ArH) ppm. **¹³C NMR (100 MHz, CDCl₃)** δ: 14.9 (OCH₃CH₂), 43.8 (CH₂), 63.6 (OCH₃CH₂), 114.0 (ArC), 125.8 (ArC), 127.0 (ArC), 128.1 (ArC), 128.6 (ArC), 129.5 (ArC), 129.6 (Csp²), 130.6 (ArC), 131.3 (ArC), 131.5 (ArC), 133.1 (ArC), 134.4 (Csp²), 135.3 (ArC), 159.7 (ArC), 166.9 (NHCO) ppm. **HRMS (ES):** MNa+, found 494.0406. C₂₄H₂₂ClNNaO₃Se requires 494.0395.

**6-(3,4-dimethoxyphenyl)-2-phenyl-5-(phenylselanyl)-4H-1,3-oxazine (2db)**

Yellowish oil. Yield 68%

**¹H NMR (400 MHz, CDCl₃)** δ: 3.85 (3H, s, OCH₃), 3.92 (3H, s, OCH₃), 4.31 (2H, s, CH₂), 6.92 (1H, d, ³J = 8.0 Hz, ArH), 7.21 (1H, d, ³J = 2.0 Hz, ArH), 7.24 – 7.29 (4H, m, ArH), 7.40 (2H, t, ³J = 7.6 Hz, ArH), 7.45 – 7.49 (3H, m, ArH), 7.97 – 7.99 (2H, m, ArH) ppm. **¹³C NMR (100 MHz, CDCl₃)** δ: 50.0 (CH₂), 56.00 (OCH₃), 56.01 (OCH₂), 99.7 (Csp²), 114.0 (ArC), 111.9 (ArC), 121.7 (ArC), 126.2 (ArC), 127.2 (ArC), 127.3 (ArC), 128.3 (ArC), 128.8 (ArC), 129.5 (ArC), 131.2 (ArC), 131.84 (ArC), 131.88 (ArC), 148.3 (Csp²), 149.8 (ArC), 150.0 (ArC), 159.9 (Csp²) ppm. **HRMS (ES):** MH+, found 452.0756. C₂₄H₂₂NO₂Se requires 452.0761.

**(E)-N-(3-chloro-3-(3,4-dimethoxyphenyl)-2-(phenylselanyl)allyl)-benzamide (7db)**

Yellowish oil. Yield 19%

**¹H NMR (400 MHz, CDCl₃)** δ: 3.84 (3H, s, OCH₃), 3.89 (3H, s, OCH₃), 4.56 (2H, d, ³J = 5.6 Hz, CH₂), 6.37 (br.s. NH), 6.83 (1H, d, ³J = 8.4 Hz, ArH), 6.93 (1H, d, ³J = 2.0 Hz, ArH), 7.00 (1H, dd, ³J = 8.4 Hz, ⁴J = 2.0 Hz, ArH), 7.24 – 7.26 (3H, m, ArH), 7.38 – 7.43 (4H, m, ArH), 7.48 (1H, tt, ³J = 7.6 Hz, ⁴J = 2.4 Hz, ArH), 7.65 – 7.67 (2H, m, ArH) ppm. **¹³C NMR (100 MHz, CDCl₃)** δ: 43.7 (CH₂), 56.00 (OCH₃), 56.03 (OCH₃), 114.0 (ArC), 112.1 (ArC), 122.0 (ArC), 126.1 (ArC), 127.0 (ArC), 128.1 (ArC), 128.6 (ArC), 129.5 (Csp²), 129.6 (ArC), 131.6 (ArC), 133.0 (ArC), 134.3(Csp²), 139.4 (ArC), 148.4 (ArC), 148.8 (ArC), 166.9 (NHCO) ppm. **HRMS (ES):** MNa+, found 510.0343. C₂₄H₂₂ClNNaO₃Se requires 510.0344.

**2-phenyl-5-(phenylselanyl)-6-(3,4,5-trimethoxyphenyl)-4H-1,3-oxazine (2eb)**

Yellowish oil. Yield 63%

**¹H NMR (400 MHz, CDCl₃)** δ: 3.84 (6H, s, 2xOCH₃), 3.90 (3H, s, OCH₃), 4.30 (2H, s, CH₂), 6.89 (2H, s, ArH), 7.26 – 7.29 (3H, m, ArH),
7.41 (2H, t, \(^3J = 7.6\) Hz, ArH), 7.45 – 7.50 (3H, m, ArH), 7.96 – 7.99 (2H, m, ArH) ppm. \(^{13}\)C NMR (100 MHz, CDCl\(_3\)) δ: 50.0 (CH\(_2\)), 56.2 (2xOCH\(_3\)), 61.0 (OCH\(_3\)), 106.1 (ArC), 127.2 (ArC), 127.5 (ArC), 128.4 (ArC), 128.6 (ArC), 128.8 (ArC), 129.5 (ArC), 131.2 (ArC), 131.7 (ArC), 132.0 (ArC), 139.1 (ArC), 149.4 (Csp\(^2\)), 152.81 (Csp\(^2\)), 152.85 (ArC) ppm. HRMS (ES): MNa+, found 504.0687. C\(_{25}\)H\(_{23}\)NNaO\(_4\)Se requires 504.0686.

General procedure for preparation of 6-aryl-5-(isochroman-1-y1)-2-phenyl-4H-1,3-oxazines 2xc.

To the mixture of the corresponding N-(3-substitutedprop-2-ynyl)benzamide 1 (0.5 mmol) and 1-methoxyisochromane (90.2 mg, 0.55 mmol) in dry dichloromethane (5 mL) trimethylsilyl triflate was (0.09 mL, 0.5 mmol) added. When the completion of the reaction was observed by TLC, the solution was quenched with aqueous sodium bicarbonate solution. The organic layer was separated, washed with water (2×20 mL), dried over anhydrous Na\(_2\)SO\(_4\). After the evaporation of solvent under reduced pressure, the residue was purified by Flash Column chromatography eluting with hexane – ethylacetate mixtures.

5-(isochroman-1-y1)-6-(4-methoxyphenyl)-2-phenyl-4H-1,3-oxazine (2ac)
Yellowish oil. Yield 78%

\(^1\)H NMR (400 MHz, CDCl\(_3\)) δ: 2.63 (1H, d, \(^3J = 16.4\) Hz, CH\(_2\)), 3.09 – 3.17 (1H, m, CH\(_2\)), 3.76 – 3.83 (1H, m, CH\(_2\)), 3.84 (1H, d, \(^3J = 18.8\) Hz, CH\(_2\)), 3.85 (3H, s, OCH\(_3\)), 4.20 (1H, d, \(^3J = 18.8\) Hz CH\(_2\)), 4.21 – 4.26 (1H, m, CH\(_2\)), 5.62 (1H, s, CH), 7.00 (2H, d, \(^3J = 9.2\) Hz, ArH), 7.10 – 7.15 (2H, m, ArH), 7.17 – 7.19 (2H, m, ArH), 7.40 (2H, t, \(^3J = 7.6\) Hz, ArH), 7.46 (1H, tt, \(^3J = 7.2\), \(^4J = 2.8\) Hz, ArH), 7.64 (2H, d, \(^3J = 8.8\) Hz, ArH), 8.00 – 8.03 (2H, m, ArH) ppm. \(^{13}\)C NMR (100 MHz, CDCl\(_3\)) δ: 28.8 (CH\(_2\)), 42.7 (CH\(_2\)), 55.4 (OCH\(_3\)), 64.9 (CH\(_2\)), 75.2 (CH), 109.4 (Csp\(^2\)), 114.0 (ArC), 125.2 (ArC), 126.6 (ArC), 127.0 (ArC), 127.3 (ArC), 128.3 (ArC), 129.0 (ArC), 130.0 (ArC), 131.0 (ArC), 131.9 (ArC), 134.6 (ArC), 135.1 (ArC), 147.4 (Csp\(^2\)), 153.7 (Csp\(^2\)), 160.4 (ArC) ppm. HRMS (ES): MNa+, found 438.1674. C\(_{26}\)H\(_{23}\)NNaO\(_4\) requires 438.1676.

5-(isochroman-1-y1)-2-phenyl-6-p-tolyl-4H-1,3-oxazine (2bc)
Yellowish oil. Yield 81%

\(^1\)H NMR (400 MHz, CDCl\(_3\)) δ: 2.42 (3H, s, CH\(_3\)), 2.63 (1H, d, \(^3J = 16.4\) Hz, CH\(_2\)), 3.09 – 3.17 (1H, m, CH\(_2\)), 3.75 – 3.81 (1H, m, CH\(_2\)), 3.83 (1H, d, \(^3J = 18.8\) Hz, CH\(_2\)), 4.21 (1H, d, \(^3J = 18.8\) Hz CH\(_2\)), 4.21 – 4.25 (1H, m, CH\(_2\)), 5.61 (1H, s, CH), 7.10 – 7.15 (2H, m, ArH), 7.16 – 7.19 (2H, m, ArH), 7.28 (2H, d, \(^3J = 7.6\) Hz, ArH), 7.40 (2H, t, \(^3J = 7.6\) Hz, ArH), 7.46 (1H, tt, \(^3J = 7.2\), \(^4J = 2.4\) Hz, ArH), 7.58 (2H, d, \(^3J = 8.0\) Hz, ArH), 8.00 – 8.02 (2H, m, ArH) ppm. \(^{13}\)C NMR (100 MHz, CDCl\(_3\)) δ: 21.5 (CH\(_3\)), 28.8 (CH\(_2\)), 42.7 (CH\(_2\)), 64.9 (CH\(_2\)), 75.2 (CH), 109.9 (Csp\(^2\)), 125.2 (ArC), 126.7 (ArC), 127.0 (ArC), 127.4 (ArC), 128.3 (ArC), 128.5 (ArC), 129.0 (ArC), 129.3 (ArC), 129.9 (ArC), 131.1 (ArC), 134.7 (ArC), 135.1 (ArC), 139.5 (Csp\(^2\)), 148.6 (Csp\(^3\)) ppm. HRMS (ES): MNa+, found 382.1796. C\(_{26}\)H\(_{24}\)NO\(_2\) requires 382.1802.
6-(4-ethoxyphenyl)-5-(isochroman-1-yl)-2-phenyl-4H-1,3-oxazine (2cc)

Yellowish oil. Yield 53%

$^1$H NMR (400 MHz, CDCl$_3$) $\delta$: 1.44 (3H, t, $^3$J = 7.2 Hz, OCH$_2$CH$_3$), 2.63 (1H, d, $^3$J = 16.4 Hz, CH$_2$), 3.09 – 3.17 (1H, m, CH$_2$), 3.76 – 3.82 (1H, m, CH$_2$), 3.82 (1H, d, $^3$J = 18.4 Hz, CH$_2$), 4.08 (2H, q, $^3$J = 7.2 Hz, OCH$_2$CH$_3$), 4.18 (1H, d, $^3$J = 19.2 Hz CH$_2$), 4.21 – 4.25 (1H, m, CH$_2$), 5.61 (1H, s, CH), 6.97 (2H, d, $^3$J = 8.8 Hz, ArH), 7.10 – 7.15 (2H, m, ArH), 7.16 – 7.19 (2H, m, ArH), 7.39 (2H, t, $^3$J = 7.6 Hz, ArH), 7.46 (1H, tt, $^3$J = 7.2 Hz, $^4$J = 2.8 Hz, ArH), 7.61 (2H, d, $^3$J = 8.8 Hz, ArH), 7.98 – 8.03 (2H, m, ArH) ppm. $^{13}$C NMR (100 MHz, CDCl$_3$) $\delta$: 14.9 (OCH$_2$CH$_3$), 28.8 (CH$_2$), 42.9 (CH$_2$), 63.6 (OCH$_2$CH$_3$), 64.9 (CH$_2$), 75.3 (CH), 109.3 (Csp$^2$), 114.5 (ArC), 125.1 (ArC), 125.3 (ArC), 126.7 (ArC), 127.0 (ArC), 127.3 (ArC), 128.3 (ArC), 129.0 (ArC), 130.0 (ArC), 130.9 (ArC), 132.2 (ArC), 134.7 (ArC), 135.3 (ArC), 148.6 (Csp$^2$), 153.4 (Csp$^3$), 169.8 (ArC) ppm. HRMS (ES): MNa+, found 412.1914. C$_{27}$H$_{28}$NO$_3$ requires 412.1907.

6-(3,4-dimethoxyphenyl)-5-(isochroman-1-yl)-2-phenyl-4H-1,3-oxazine (2de)

Yellowish oil. Yield 70%

$^1$H NMR (400 MHz, CDCl$_3$) $\delta$: 2.62 (1H, d, $^3$J = 16.4 Hz, CH$_2$), 3.08 – 3.17 (1H, m, CH$_2$), 3.76 – 3.82 (1H, m, CH$_2$), 3.83 (1H, d, $^3$J = 19.2 Hz, CH$_2$), 3.92 (6H, s,2xOCH$_3$), 4.17 (1H, d, $^3$J = 19.2 Hz CH$_2$), 4.21 – 4.26 (1H, m, CH$_2$), 5.62 (1H, s, CH), 6.94 (2H, d, $^3$J = 8.0 Hz, ArH), 7.08 – 7.14 (2H, m, ArH), 7.15 – 7.18 (2H, m, ArH), 7.23 – 7.28 (2H, m, ArH), 7.39 (2H, t, $^3$J = 7.6 Hz, ArH), 7.46 (1H, t, $^3$J = 7.2 Hz, ArH), 7.99 – 8.01 (2H, m, ArH) ppm. $^{13}$C NMR (100 MHz, CDCl$_3$) $\delta$: 28.8 (CH$_2$), 42.8 (CH$_2$), 56.04 (OCH$_3$), 56.07 (OCH$_3$), 64.9 (CH$_2$), 75.3 (CH), 109.4 (Csp$^2$), 110.9 (ArH), 111.7 (ArC), 125.2 (ArC), 125.4 (ArC), 126.6 (ArC), 127.0 (ArC), 127.3 (ArC), 128.3 (ArC), 129.0 (ArC), 130.9 (ArC), 132.1 (ArC), 134.6 (ArC), 135.1 (ArC), 148.7 (Csp$^3$), 148.9 (ArC), 150.0(ArC), 153.4 (Csp$^2$) ppm. HRMS (ES): Mh+, found 428.1859. C$_{28}$H$_{26}$NO$_3$ requires 428.1856.

5-(isochroman-1-yl)-2-phenyl-6-(3,4,5-trimethoxyphenyl)-4H-1,3-oxazine (2ee)

Yellowish oil. Yield 54%

$^1$H NMR (400 MHz, CDCl$_3$) $\delta$: 2.63 (1H, d, $^3$J = 16.4 Hz, CH$_2$), 3.10 – 3.18 (1H, m, CH$_2$), 3.78 – 3.84 (1H, m, CH$_2$), 3.83 (1H, d, $^3$J = 19.2 Hz, CH$_2$), 3.90 (6H, s, 2xOCH$_3$), 3.90 (3H, s, OCH$_3$), 4.16 (1H, d, $^3$J = 19.2 Hz CH$_2$), 4.23 – 4.28 (1H, m, CH$_2$), 5.64 (1H, s, CH), 6.94 (2H, s, ArH), 7.06 – 7.14 (2H, m, ArH), 7.15 – 7.18 (2H, m, ArH), 7.40 (2H, t, $^3$J = 7.6 Hz, ArH), 7.46 (1H, tt, $^3$J = 7.2, $^4$J = 2.8 Hz, ArH), 7.97 – 8.00 (2H, m, ArH) ppm. $^{13}$C NMR (100 MHz, CDCl$_3$) $\delta$: 28.8 (CH$_2$), 42.9 (CH$_2$), 56.3 (2xOCH$_3$), 61.0 (OCH$_3$), 64.9 (CH$_2$), 75.3 (CH), 105.9 (ArC), 109.8 (Csp$^2$), 125.1 (ArC), 126.7 (ArC), 127.0 (ArC), 127.3 (ArC), 128.1 (ArC), 128.3 (ArC), 129.1 (ArC), 131.0 (ArC), 132.0 (ArC), 134.5 (ArC), 134.9 (ArC), 139.0 (ArC), 148.9 (Csp$^3$), 153.25 (Csp$^3$), 159.29 (ArC) ppm. HRMS (ES): MNa+, found 480.1779. C$_{28}$H$_{27}$NNaO$_5$ requires 480.1781.
Synthesis of 6-(4-methoxyphenyl)-2-phenyl-5-(phenylethynyl)-4H,1,3-oxazine (9)

To the mixture of compound 2aa (0.28 g, 0.72 mmol), PdCl₂(PPh₃) (0.015 g, 0.021 mmol) and triethylamine (0.145 g, 1.44 mmol) in dimethylformamide (5 mL) phenylacetylene (0.086 ml, 0.79 mmol) was added under argon atmosphere. After stirring of resulting mixture for 5 min at room temperature, copper (I) iodide (20 mg, 0.105 mmol) was added. The mixture was stirred under argon at room temperature for 18 h. When the completion of the reaction was observed by TLC, solvent was evaporated under reduced pressure, and crude residue was purified by Flash Column chromatography eluting with hexane – ethylacetate mixtures.

Yellowish solid, m.p. 130–131 °C. Yield 60%

\[ \text{IR (KBr): } \nu_{\text{max}} = 2195 \text{ (C=C) cm}^{-1}. \]

\[ \text{\textsuperscript{1}H NMR (400 MHz, CDCl₃): } \delta: 3.87 (3H, s, OCH₃), 4.43 (2H, s, CH₂), 6.99 (2H, d, \textsuperscript{3}J = 9.2 Hz, ArH), 7.32 – 7.34 (3H, m, ArH), 7.43 – 7.52 (5H, m, ArH), 8.03 – 8.06 (2H, m, ArH), 8.08 (2H, d, \textsuperscript{3}J = 9.2 Hz, ArH) ppm. \]

\[ \text{\textsuperscript{13}C NMR (100 MHz, CDCl₃): } \delta: 47.8 (CH₂), 55.5 (OCH₃), 86.5 (Csp²), 92.3 (Csp²), 94.4 (Csp³), 113.6 (ArC), 123.5 (ArC), 125.4 (ArC), 127.3 (ArC), 128.3 (ArC), 128.4 (ArC), 128.5 (ArC), 128.7 (ArC), 131.2 (ArC), 131.4 (ArC), 132.0 (ArC), 151.1 (Csp²), 152.5 (Csp²), 160.5 (ArC) ppm. \]

\[ \text{HRMS (ES): } \text{MNa}^+, \text{found 388.1309}. \]

\[ \text{C}_{22}\text{H}_{19}\text{N}\text{NaO}_2 \text{ requires 388.1308.} \]

\[ \text{Data of isolated side-products: } \]

\[ (E \text{ or } Z)-N-(2-iodo-3-(4-methoxyphenyl)-3-oxoprop-1-ethyl)-benzamide (3) \]

Yellowish wax. Yield 41%

\[ \text{\textsuperscript{1}H NMR (400 MHz, CDCl₃): } \delta: 3.87 (3H, s, OCH₃), 6.96 (2H, d, \textsuperscript{3}J = 8.8 Hz, ArH), 7.55 (2H, t, \textsuperscript{3}J = 8.0 Hz, ArH), 7.65 (1H, t, \textsuperscript{3}J = 7.6 Hz, ArH), 7.68 (2H, d, \textsuperscript{3}J = 8.8 Hz, ArH), 7.89 – 7.91 (2H, m, ArH), 8.03 (1H, d, \textsuperscript{3}J = 11.6 Hz, CH), 8.59 (1H, d, \textsuperscript{3}J = 11.6 Hz, NH) ppm. \]

\[ \text{\textsuperscript{13}C NMR (100 MHz, CDCl₃): } \delta: 55.6 (OCH₃), 90.5 (Csp²), 114.1 (ArC), 127.6 (ArC), 128.7 (ArC), 129.3 (ArC), 131.6 (ArC), 133.6 (ArC), 142.2 (ArC), 163.0 (Csp³), 164.3 (NHCO), 189.3 (CO) ppm. \]

\[ \text{HRMS (ES): } \text{MNa}^+, \text{found 429.9911}. \]

\[ \text{C}_{17}\text{H}_{14}\text{INNaO}_3 \text{ requires 429.9911.} \]

\[ 5,5\text{-diiodo-6-(4-methoxyphenyl)-2-phenyl-5,6-dihydro-4H,1,3-oxazin-6-yl acetate (4) } \]

Yellowish wax. Yield 37%

\[ \text{\textsuperscript{1}H NMR (400 MHz, CDCl₃): } \delta: 2.11 (3H, s, CH₃), 3.86 (3H, s, OCH₃), 4.60 (1H, d, \textsuperscript{3}J = 18.4 Hz, CH₂), 5.18 (1H, d, \textsuperscript{3}J = 18.4 Hz, CH₂), 6.95 (2H, d, \textsuperscript{3}J = 9.2 Hz, ArH), 7.42 (2H, t, \textsuperscript{3}J = 7.6 Hz, ArH), 7.50 (1H, tt, \textsuperscript{3}J = 7.6 Hz, \textsuperscript{4}J = 2.4 ArH), 7.76 (2H, d, \textsuperscript{3}J = 8.8 Hz, ArH), 8.02 – 8.04 (2H, m, ArH) ppm. \]

\[ \text{\textsuperscript{13}C NMR (100 MHz, CDCl₃): } \delta: 8.0 (Cl₂), 21.6 (CH₃), 55.3 (OCH₃), 65.4 (CH₂), 98.2 (C), 112.7 (ArC), 127.8 (ArC), 127.5 (ArC), 130.3 (ArC), 131.6 (ArC), 131.8 (ArC), 132.3 (ArC), 151.9 (Csp²), 160.5 (ArC), 166.5 (CO) ppm. \]

\[ \text{HRMS (ES): } \text{MNa}^+, \text{found 599.9150}. \]

\[ \text{C}_{19}\text{H}_{17}\text{I}_2\text{N}\text{NaO}_4 \text{ requires 599.9145.} \]
3-benzamido-1-(4-methoxyphenyl)-1-oxopropan-2-yl acetate (5)

Yellowish wax. Yield 67%

$^1$H NMR (400 MHz, CDC$_3$) $\delta$: 3.55 – 3.61 (1H, m, CH$_2$), 3.83 (3H, s, OCH$_3$), 4.11 – 4.17 (1H, m, CH$_2$), 6.13 – 6.15 (1H, m, CH), 6.90 (1H, t, $^3$J = 5.6 Hz, NH), 6.94 (2H, d, $^3$J = 9.2 Hz, ArH), 7.39 (2H, t, $^3$J = 8.0 Hz, ArH), 7.48 (1H, tt, $^3$J = 7.6 Hz, $^4$J = 2.4 Hz, ArH), 7.74 – 7.76 (2H, m, ArH), 8.09 (2H, d, $^3$J = 9.2 Hz, ArH) ppm. $^{13}$C NMR (100 MHz, CDC$_3$) $\delta$: 20.6 (CH$_3$), 41.1 (CH$_2$), 55.5 (OCH$_3$), 73.6 (CH), 114.2 (ArC), 127.0 (ArC), 127.2 (ArC), 128.6 (ArC), 131.1 (ArC), 133.8 (ArC), 164.3 (ArC), 168.0 (NHCO), 170.0 (CO), 198.3 (CO) ppm. HRMS (ES): MNa+, found 364.1162.

C$_{10}$H$_{19}$NNaO$_3$ requires 364.1155.

N-(3-(4-methoxyphenyl)-3-oxopropyl)benzamide (6)

Yellowish wax. Yield 64%

$^1$H NMR (400 MHz, CDC$_3$) $\delta$: 3.26 (2H, t, $^3$J = 6.0 Hz, CH$_2$), 3.84 (3H, s, OCH$_3$), 3.86 (2H, t, $^3$J = 6.0 Hz, CH$_2$), 6.91 (2H, d, $^3$J = 8.8 Hz, ArH), 7.06 (1H, br.s, NH), 7.38 (2H, t, $^3$J = 7.6 Hz, ArH), 7.45 (1H, tt, $^3$J = 7.2 Hz, $^4$J = 2.4 Hz, ArH), 7.73 – 7.76 (2H, m, ArH), 7.92 (2H, d, $^3$J = 8.8 Hz, ArH) ppm. $^{13}$C NMR (100 MHz, CDC$_3$) $\delta$: 35.0 (CH$_3$), 37.8 (CH$_2$), 55.5 (OCH$_3$), 113.9 (ArC), 127.0 (ArC), 128.5 (ArC), 129.6 (ArC), 130.4 (ArC), 131.4 (ArC), 134.5 (ArC), 163.9 (ArC), 167.4 (NHCO), 198.3 (CO) ppm. HRMS (ES): MNa+, found 306.1096. C$_{17}$H$_{17}$NNaO$_3$ requires 306.1101.

N-(2-benzhydryl-3-(4-methoxyphenyl)-3-oxopropyl)benzamide (8)

Yellowish wax. Yield 31%

$^1$H NMR (400 MHz, CDC$_3$) $\delta$: 3.55 – 3.60 (1H, m, CH$_2$), 3.70 – 3.76 (1H, m, CH$_2$), 3.78 (3H, s, OCH$_3$), 4.49 (1H, d, $^3$J = 10.8 Hz, CH), 4.92 – 4.98 (1H, m, CH), 6.31 (1H, br.s, NH), 6.80 (2H, d, $^3$J = 8.8 Hz, ArH), 6.99 (1H, t, $^3$J = 7.6 Hz, ArH), 7.09 (1H, t, $^3$J = 7.2 Hz, ArH), 7.20 – 7.23 (3H, m, ArH), 7.29 – 7.35 (4H, m, ArH), 7.40 – 7.49 (5H, m, ArH), 7.89 (2H, d, $^3$J = 9.2 Hz, ArH) ppm. $^{13}$C NMR (100 MHz, CDC$_3$) $\delta$: 42.3 (CH$_3$), 48.6 (CH), 53.0 (CH), 55.5 (OCH$_3$), 113.9 (ArC), 126.5 (ArC), 126.8 (ArC), 127.0 (ArC), 128.0 (ArC), 128.52 (2xArC), 128.56 (ArC), 129.1 (ArC), 130.7 (ArC), 130.9 (ArC), 131.5 (ArC), 134.2 (ArC), 142.0 (ArC), 142.4 (ArC), 163.8 (ArC), 167.8 (NHCO), 201.8 (CO) ppm. HRMS (ES): MNa+, found 472.1893. C$_{30}$H$_{27}$NNaO$_3$ requires 472.1889.