Supporting Information for:

Cu(II)-Catalyzed cyclization of \( \alpha \)-diazo-\( \beta \)-oxoamides with amines leading to pyrrol-3(2\( H \))-ones

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I. General Information

All reagents were purchased from commercial sources and used without treatment, unless otherwise indicated. The products were purified by column chromatography over silica gel. $^1$H NMR and $^{13}$C NMR spectra were recorded at 25 °C at 300MHz or 400MHz and 100MHz, respectively, with TMS as internal standard. Mass spectra were recorded on BRUKER AutoflexIII Smartbeam MS-spectrometer. High resolution mass spectra (HRMS) were recorded on Bruck microTof by using ESI method.

II. Synthesis and analytical data for compounds 2aa-2aj, 2ba-2bh and 2ca-2cb.

**Synthesis of Pyrrol-3(2H)-ones 2aa-2aj and 2ba-2bh (with 2aa as an example):** To a solution of the 1a (2 mmol) and aniline (1 mmol) dissolved in DMF (6 mL) was added 0.1 equiv of CuBr$_2$ (0.2 mmol). The mixture was warmed to 90 °C and stirred for 4 h. When 1a disappeared (monitored by TLC), the reaction mixture was then treated with 50 mL brine, and extracted with dichloromethane (2 × 50 mL). The combined organic layer was washed with brine (3 × 50 mL), dried over MgSO$_4$ and filtered. The filtrate was concentrated in vacuum, and then purified by silica gel column chromatography to give 2aa as a yellowish solid.

2,5-dimethyl-3-oxo-$N^2,N^4$-triphenyl-2,3-dihydro-1H-pyrrole-2,4-dicarboxamide

(2aa) Yellowish solid; mp 197-200 °C. $^1$H-NMR (CDCl$_3$, 300 MHz) δ 10.12 (s, 1H), 8.86 (s, 1H), 7.64-7.67 (m, 2H), 7.43-7.46 (m, 1H), 7.33 (t, $J = 9.0$Hz, 5H), 7.06-7.16 (m, 2H), 2.59 (s, 3H), 1.78 (s, 3H). $^{13}$C-NMR (CDCl$_3$, 100Hz) δ 195.3, 182.5, 163.2, 161.5, 138.4, 137.0, 135.6, 129.6, 129.5, 128.9, 128.8, 124.8, 123.5, 120.4, 120.0, 103.5, 76.7, 22.1, 16.4. HRMS Caled for C$_{26}$H$_{24}$N$_3$O$_3$ ([M + H]$^+$) 426.1818; Found 426.1819.

2,5-dimethyl-3-oxo-$N^2$-1-phenyl-$N^4$-di-o-tolyl-2,3-dihydro-1H-pyrrole-2,4-dicarboxamide
(2ab) White solid; mp 168-170 °C. \(^{1}H\)-NMR (CDCl\(_3\), 300 MHz) \(\delta 10.08\) (s, 1H), 8.92 (s, 1H), 8.22-8.25 (m, 1H), 7.78-7.81 (m, 1H), 7.46-7.52 (m, 5H), 7.16-7.22 (m, 4H), 7.00-7.10 (m, 2H), 2.60 (s, 3H), 2.41 (s, 3H), 2.32 (s, 3H), 1.83 (s, 3H). \(^{13}C\)-NMR (CDCl\(_3\), 100Hz) \(\delta 195.7, 182.5, 163.5, 161.4, 136.9, 135.8, 134.9, 130.5, 130.2, 129.8, 129.4, 129.3, 129.2, 127.4, 126.6, 126.4, 125.3, 123.5, 122.4, 121.4, 103.8, 76.5, 22.5, 18.0, 17.5, 16.3. HRMS Calcd for C\(_{28}\)H\(_{28}\)N\(_3\)O\(_3\) ([M + H]\(^{+}\)] 454.2131; Found 454.2130.

2,5-dimethyl-3-oxo-1-phenyl-N\(^{2},N^{4}\)-di-p-tolyl-2,3-dihydro-1H-pyrrole-2,4-dicarboxamide

(2ac) White solid; mp 178-180 °C. \(^{1}H\)-NMR (CDCl\(_3\), 300 MHz) \(\delta 10.05\) (s, 1H), 8.76 (s, 1H), 7.47-7.55 (m, 5H), 7.38-7.44 (m, 4H), 7.12 (d, \(J = 9.0\) Hz, 4H), 2.58 (s, 3H), 2.32 (s, 3H), 2.31 (s, 3H), 1.76 (s, 3H). \(^{13}C\)-NMR (CDCl\(_3\), 100Hz) \(\delta 195.3, 182.3, 163.1, 161.4, 135.8, 135.7, 134.5, 134.4, 132.9, 129.6, 129.4, 129.3, 120.4, 120.0, 103.6, 76.7, 22.0, 20.8, 16.3. HRMS Calcd for C\(_{28}\)H\(_{28}\)N\(_3\)O\(_3\) ([M + H]\(^{+}\)] 454.2131; Found 454.2117.

\(N^{2},N^{4}\)-bis(2-methoxyphenyl)-2,5-dimethyl-3-oxo-1-phenyl-2,3-dihydro-1H-pyrrole-2,4-dicarboxamide

(2ad) White solid; mp 173-176 °C. \(^{1}H\)-NMR (CDCl\(_3\), 300 MHz) \(\delta 10.55\) (s, 1H), 9.00 (s, 1H), 8.50 (dd, \(J = 8.0\) Hz, 1.5 Hz, 1H), 8.20 (dd, \(J = 8.0\) Hz, 1.5 Hz, 1H), 7.38-7.50 (m, 5H), 6.98-7.10 (m, 2H), 6.85-6.98 (m, 4H), 3.97 (s, 3H), 3.91 (s, 3H), 2.64 (s, 3H), 1.74 (s, 3H). \(^{13}C\)-NMR (CDCl\(_3\), 100Hz) \(\delta 195.0, 182.0, 162.8, 161.6, 148.5, 135.8, 129.6, 129.4, 128.6, 126.8, 124.5, 122.9, 121.0, 120.8, 120.1, 110.2, \) 110.1, 104.1, 77.3, 55.94, 55.90, 20.9, 16.3. HRMS Calcd for C\(_{28}\)H\(_{28}\)N\(_3\)O\(_5\) ([M + H]\(^{+}\)] 486.2029; Found 486.2013.
$N^2,N^4$-bis(4-methoxyphenyl)-2,5-dimethyl-3-oxo-1-phenyl-2,3-dihydro-1$H$-pyrrole-2,4-dicarboxamide (2ae) White solid; mp 156-158 °C. $^1$$H$-NMR (CDCl$_3$, 300 MHz) $\delta$ 10.00 (s, 1H), 8.72 (s, 1H), 7.53-7.56 (m, 2H), 7.46-7.50 (m, 3H), 7.39-7.43 (m, 4H), 6.84-6.88 (m, 4H), 3.80 (s, 3H), 3.79 (s, 3H), 2.58 (s, 3H), 1.75 (s, 3H). $^{13}C$-NMR (CDCl$_3$, 100Hz) $\delta$ 195.3, 182.0, 163.0, 161.4, 156.6, 155.8, 135.4, 131.4, 130.2, 129.4, 129.2, 122.3, 121.6, 113.9, 103.4, 76.9, 55.3, 21.3, 16.2. HRMS Calcd for C$_{28}$H$_{28}$N$_3$O$_5$ ([M + H]$^+$) 486.2029; Found 486.2019.

$N^2,N^4$-bis(2-chlorophenyl)-2,5-dimethyl-3-oxo-1-phenyl-2,3-dihydro-1$H$-pyrrole-2,4-dicarboxamide (2af) Yellow solid; mp 159-161 °C. $^1$$H$-NMR (CDCl$_3$, 300 MHz) $\delta$ 10.58 (s, 1H), 9.22 (s, 1H), 8.51 (dd, $J$ = 1.2Hz, 8.1Hz, 1H), 8.18 (dd, $J$ = 1.2Hz, 8.1Hz, 1H), 7.47-7.54 (m, 3H), 7.35-7.46 (m, 4H), 7.22-7.27 (m, 2H), 6.98-7.09 (m, 2H), 2.62 (s, 3H), 1.82 (s, 3H). $^{13}C$-NMR (CDCl$_3$, 100Hz) $\delta$ 194.9, 182.6, 163.5, 161.6, 135.8, 135.7, 133.8, 129.7, 129.6, 129.5, 129.3, 129.2, 127.5, 127.2, 125.4, 124.2, 123.8, 123.3, 122.0, 121.9, 103.7, 76.9, 21.8, 16.5. HRMS Calcd for C$_{26}$H$_{22}$Cl$_2$N$_3$O$_3$ ([M + H]$^+$) 494.1028; Found 494.1038.

$N^2,N^4$-bis(4-chlorophenyl)-2,5-dimethyl-3-oxo-1-phenyl-2,3-dihydro-1$H$-pyrrole-2,4-dicarboxamide (2ag) Yellowish solid; mp 150-152 °C. $^1$$H$-NMR (CDCl$_3$, 300 MHz) $\delta$ 10.12 (s, 1H), 8.91 (s, 1H), 7.60-7.63 (m, 2H), 7.47-7.53 (m, 4H), 7.41-7.47 (m, 3H) 7.27-7.30 (m, 4H), 2.58 (s, 3H), 1.79 (s,
$^{13}\text{C-NMR}$ (CDCl$_3$, 100Hz) $\delta$ 195.2, 182.7, 163.2, 137.0, 135.6, 135.5, 129.9, 129.7, 129.6, 129.5, 129.0, 128.8, 128.4, 121.5, 121.2, 103.4, 76.6, 22.3, 16.4. **HRMS** Calcd for C$_{26}$H$_{22}$Cl$_2$N$_3$O$_3$ ([M + H]$^+$) 494.1038; Found 494.1027.

![Chemical Structure Image]

$N^2,N^4$-bis(2,4-dimethylphenyl)-2,5-dimethyl-3-oxo-1-phenyl-2,3-dihydro-$1\text{H}$-pyrrole-2,4-dicarboxamide

(2ah) Red solid; mp 184-186 °C. **$^1\text{H-NMR}$** (CDCl$_3$, 300 MHz) $\delta$ 10.01 (s, 1H), 8.79 (s, 1H), 8.05-8.08 (m, 1H), 7.60-7.63 (m, 1H), 7.45-7.51 (m, 5H), 6.97-7.02 (m, 4H), 2.59 (s, 3H), 2.37 (s, 3H), 2.30 (s, 3H), 2.27 (s, 3H), 1.81 (s, 3H). **$^{13}\text{C-NMR}$** (CDCl$_3$, 100Hz) $\delta$ 195.7, 182.3, 163.5, 161.4, 135.8, 135.0, 134.2, 133.0, 132.3, 131.1, 130.8, 129.8, 129.5, 129.3, 127.5, 127.0, 126.9, 122.7, 121.5, 103.8, 76.5, 22.2, 20.7, 17.9, 17.4, 16.2. **HRMS** Calcd for C$_{30}$H$_{32}$N$_3$O$_3$ ([M + H]$^+$) 482.2444; Found 482.2443.

![Chemical Structure Image]

2,5-dimethyl-3-oxo-1-phenyl-$N^2,N^4$-bis(4-(trifluoromethyl)phenyl)-2,3-dihydro-$1\text{H}$-pyrrole-2,4-dicarboxamide

(2ai) Yellow solid; mp 209-211 °C. **$^1\text{H-NMR}$** (CDCl$_3$, 300 MHz) $\delta$ 10.28 (s, 1H), 9.11 (s, 1H), 7.76-7.79 (m, 2H), 7.65-7.68 (m, 2H), 7.53-7.60 (m, 7H), 7.44-7.47 (m, 2H), 2.59 (s, 3H), 1.82 (s, 3H). **$^{13}\text{C-NMR}$** (CDCl$_3$, 100Hz) $\delta$ 195.0, 183.0, 163.4, 161.6, 141.6, 140.1, 135.3, 129.8, 129.5, 129.3, 127.5, 127.0, 126.9, 126.2, 126.1, 120.0, 119.5, 103.3, 76.8, 22.3, 16.4. **HRMS** Calcd for C$_{28}$H$_{22}$F$_6$N$_3$O$_3$ ([M + H]$^+$) 562.1565; Found 562.1552.

![Chemical Structure Image]

3-oxo-$N^2,N^4$-1-triphenyl-2,5-dipropyl-2,3-dihydro-$1\text{H}$-pyrrole-2,4-dicarboxamide

(2aj) Yellow solid; mp: 138-141 °C. **$^1\text{H-NMR}$** (CDCl$_3$, 300 MHz) $\delta$ 10.27 (s, 1H), 8.98 (s, 1H), 7.65-7.68 (m, 2H), 7.41-7.51 (m, 7H), 7.30-7.36 (m, 4H), 7.05-7.10 (m, 2H), 3.00-3.09 (m, 1H), S5
2.82-2.91 (m, 1H), 2.08-2.22 (m, 2H), 1.63-1.70 (m, 2H), 1.12-1.32 (m, 2H), 0.81-0.98 (m, 6H). $^{13}$C-NMR (CDCl$_3$, 100Hz) δ 195.3, 186.7, 163.0, 161.0, 138.6, 137.0, 136.0, 129.9, 129.5, 129.3, 129.0, 128.8, 125.6, 124.8, 123.4, 120.2, 119.8, 104.0, 80.5, 37.5, 30.5, 22.1, 16.6, 14.3, 13.7. HRMS Calcd for C$_{30}$H$_{32}$N$_3$O$_3$ ([M + H]$^+$) 482.2444; Found 482.2438.

2,5-dimethyl-3-oxo-$N^2,N^4$-diphenyl-1-(m-tolyl)-2,3-dihydro-1$H$-pyrrole-2,4-dicarboxamide

(2ba) White solid; mp 178-180 °C. $^1$H-NMR (CDCl$_3$, 300 MHz) δ 10.11 (s, 1H), 8.77 (s, 1H), 7.64-7.67 (m, 2H), 7.50-7.52 (m, 2H), 7.30-7.40 (m, 6H), 7.21-7.24 (m, 2H), 7.05-7.15 (m, 2H), 2.59 (s, 3H), 2.42 (s, 3H), 1.77 (s, 3H). $^{13}$C-NMR (CDCl$_3$, 100Hz) δ 195.3, 182.6, 163.3, 161.6, 139.6, 138.5, 137.0, 135.6, 130.3, 130.0, 129.2, 129.0, 128.8, 126.6, 124.8, 123.5, 120.3, 120.0, 103.5, 76.7, 22.1, 21.3, 16.4. HRMS Calcd for C$_{27}$H$_{26}$N$_3$O$_3$ ([M + H]$^+$) 440.1968; Found 440.1974.

2,5-dimethyl-3-oxo-$N^2,N^4$-diphenyl-1-(p-tolyl)-2,3-dihydro-1$H$-pyrrole-2,4-dicarboxamide

(2bb) Yellow solid; mp 171-173 °C. $^1$H-NMR (CDCl$_3$, 300 MHz) δ 10.14 (s, 1H), 8.86 (s, 1H), 7.64-7.67 (m, 2H), 7.51-7.54 (m, 2H), 7.30-7.35 (m, 8H), 7.06-7.15 (m, 2H), 2.58 (s, 3H), 2.42 (s, 3H), 1.77 (s, 3H). $^{13}$C-NMR (CDCl$_3$, 100Hz) δ 195.2, 182.5, 163.2, 161.6, 139.6, 138.4, 137.0, 132.7, 130.0, 129.3, 129.1, 128.8, 128.7, 124.8, 123.4, 120.4, 120.0, 119.4, 103.3, 76.7, 21.8, 21.0, 16.2. HRMS Calcd for C$_{27}$H$_{26}$N$_3$O$_3$ ([M + H]$^+$) 440.1974; Found 440.1970.

1-(4-methoxyphenyl)-2,5-dimethyl-3-oxo-$N^2,N^4$-diphenyl-2,3-dihydro-1$H$-pyrrole-2,4-dicarboxamide

(2bc) Yellow solid; mp 178-181 °C. $^1$H-NMR (CDCl$_3$, 300 MHz) δ 10.12 (s, 1H), 8.85 (s, 1H), 7.64-7.66 (m, 2H), 7.50-7.53 (m, 2H), 7.30-7.37 (m, 6H), 7.05-7.15 (m, 2H), 6.97-7.00 (m, 2H), 3.86 (s, 3H), 2.58 (s, 3H), 1.76 (s, 3H). $^{13}$C-NMR (CDCl$_3$, 100Hz) δ 195.3, 182.8, 163.3, 161.6, 160.1, 138.4, 137.0, 130.8, S6
128.9, 128.8, 127.9, 124.8, 123.5, 120.3, 120.0, 114.5, 103.3, 76.6, 55.4, 22.1, 16.3. HRMS Calcd for C_{27}H_{26}N_{3}O_{4} ([M + H]^+) 456.1923; Found 456.1931.

1-(4-chlorophenyl)-2,5-dimethyl-3-oxo-N,N'-diphenyl-2,3-dihydro-1H-pyrrole-2,4-dicarboxamide (2bd) Yellow solid; mp 190-192 °C. $^1{H}$-NMR (CDCl$_3$, 300 MHz) δ 10.07 (s, 1H), 8.93 (s, 1H), 7.63-7.67 (m, 2H), 7.47-7.52 (m, 4H), 7.40-7.43 (m, 2H), 7.33 (t, J = 8.1Hz, 4H), 7.09-7.17 (m, 2H), 2.59 (s, 3H), 1.78 (s, 3H). $^{13}$C-NMR (CDCl$_3$, 100Hz) δ 195.2, 182.4, 163.2, 161.3, 138.3, 136.9, 135.6, 134.1, 131.1, 129.6, 128.9, 128.8, 124.9, 123.6, 120.3, 120.0, 103.7, 76.5, 22.3, 16.3. HRMS Calcd for C$_{26}$H$_{23}$ClN$_{3}$O$_{3}$ ([M + H]$^+$) 460.1428; Found 460.1416.

1-butyl-2,5-dimethyl-3-oxo-N,N'-diphenyl-2,3-dihydro-1H-pyrrole-2,4-dicarboxamide (2be) Yellow solid; mp 193-195 °C. $^1{H}$-NMR (CDCl$_3$, 400 MHz) δ 10.08 (s, 1H), 9.22 (s, 1H), 7.63 (d, J = 8.0Hz, 2H), 7.53 (d, J = 8.0Hz, 2H), 7.29-7.36 (m, 4H), 7.14 (t, J = 7.2Hz, 1H), 7.06 (t, J = 7.2Hz, 1H), 3.82-4.05 (m, 2H), 2.85 (s, 3H), 1.58-1.88 (m, 2H), 1.80 (s, 3H), 1.41-1.49 (m, 2H), 1.01 (t, J = 7.2Hz, 3H). $^{13}$C-NMR (CDCl$_3$, 100Hz) δ 194.3, 180.9, 163.7, 161.3, 138.7, 137.0, 129.0, 128.8, 124.8, 123.3, 120.1, 120.0, 102.5, 74.6, 45.4, 32.3, 22.8, 20.3, 15.0, 13.5. HRMS Calcd for C$_{24}$H$_{28}$N$_{3}$O$_{3}$ ([M + H]$^+$) 406.2131; Found 406.2118.

1-cyclopropyl-2,5-dimethyl-3-oxo-N,N'-diphenyl-2,3-dihydro-1H-pyrrole-2,4-dicarboxamide (2bf) Yellow solid; mp 191-194 °C. $^1{H}$-NMR (CDCl$_3$, 400 MHz) δ 10.03 (s, 1H), 8.40 (s, 1H), 7.60 (d, J = 8.0Hz, 2H), 7.50 (d, J = 8.0Hz, 2H), 7.27-7.35 (m, 4H), 7.13 (t, J = 7.2Hz, 1H), 7.05 (t, J = 7.2Hz, 1H), 2.98 (s, 3H), 2.90-2.94 (m, 1H), 1.85 (s, 3H), 1.26-1.33 (m, 1H), 1.01-1.15 (m, 2H), 0.91-1.00 (m, 1H). $^{13}$C-NMR (CDCl$_3$, 100Hz) δ 194.5, 185.2, 164.0, 161.5, 138.5, 137.1, 129.0, 128.8, 124.8, 123.5, 120.3, 120.2, 103.5, 76.7, 27.5, 21.1, 15.7, 7.6, 6.1. HRMS Calcd for C$_{23}$H$_{24}$N$_{3}$O$_{3}$ ([M + H]$^+$) 390.1818; Found 390.1798.
1-allyl-2,5-dimethyl-3-oxo-N2,N4-diphenyl-2,3-dihydro-1H-pyrrole-2,4-dicarboxamide

(2bg) Yellow solid; mp 136-139 °C. \(^1\)H-NMR (CDCl\(_3\), 300 MHz) δ 10.08 (s, 1H), 9.25 (s, 1H), 7.63 (d, \(J = 8.1\)Hz, 2H), 7.53 (d, \(J = 8.1\)Hz, 2H), 7.29-7.37 (m, 4H), 7.14 (t, \(J = 7.2\)Hz, 1H), 7.06 (t, \(J = 7.2\)Hz, 1H), 5.88-6.00 (m, 1H), 5.21-5.34 (m, 2H), 4.54-4.76 (m, 2H), 2.83 (s, 3H), 1.78 (s, 3H).

13C-NMR (CDCl\(_3\), 100Hz) δ 194.4, 181.9, 163.8, 161.6, 138.5, 136.9, 132.8, 129.0, 128.8, 124.8, 123.3, 120.0, 119.9, 118.2, 102.6, 74.4, 47.8, 22.6, 15.0. HRMS Calcd for C\(_{23}\)H\(_{24}\)N\(_3\)O\(_3\) (\([M + H]^{+}\)) 390.1818; Found 390.1845.

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2,5-dimethyl-3-oxo-N\(^2\),N\(^4\)-diphenyl-1-(prop-2-yn-1-yl)-2,3-dihydro-1H-pyrrole-2,4-dicarboxamide

(2bh) Yellowish solid; mp: 155-157 °C. \(^1\)H-NMR (CDCl\(_3\), 300 MHz) δ 10.01 (s, 1H), 9.28 (s, 1H), 7.62-7.64 (m, 2H), 7.52-7.55 (m, 2H), 7.32-7.37 (m, 4H), 7.05-7.15 (m, 4H), 5.02-5.09 (m, 1H), 4.57-4.64 (m, 1H), 2.97 (s, 3H), 2.40-2.41 (m, 1H), 1.89 (s, 3H).

13C-NMR (CDCl\(_3\), 100Hz) δ 195.0, 181.8, 164.0, 161.4, 138.5, 136.8, 129.5, 129.1, 128.8, 125.0, 123.6, 120.1, 103.5, 77.3, 73.8, 65.8, 34.2, 23.0, 14.8. HRMS Calcd for C\(_{23}\)H\(_{22}\)N\(_3\)O\(_3\) (\([M + H]^{+}\)) 388.1661; Found 388.1668.

Synthesis and analytical data for compounds 2ca and 2cb. (with 2ca as an example): To a solution of the 1a (2 mmol) and NH\(_4\)OAc (1.2 mmol) dissolved in DMF (6 mL) was added 0.1 equiv of CuBr\(_2\) (0.2 mmol) and 0.5 equiv of 4-methylbenzenesulfonic acid (1 mmol). The mixture was warmed to 100 °C and stirred for 6 h. When 1a disappeared (monitored by TLC), the reaction mixture was then treated with 50 mL brine, and extracted with dichloromethane (2 × 50 mL). The combined organic layer was washed with brine (3 × 50 mL), dried over MgSO\(_4\) and filtered. The filtrate was concentrated in vacuum, and then purified by silica gel column chromatography to give 2ca as a red solid.

2,5-dimethyl-3-oxo-N\(^2\),N\(^4\)-diphenyl-2,3-dihydro-1H-pyrrole-2,4-dicarboxamide

(2ca) Red solid; mp 202-205 °C. \(^1\)H-NMR (CDCl\(_3\), 300 MHz) δ 9.87 (s, 1H), 9.32 (s, 1H), 8.06 (s, 1H), 7.64 (d, \(J = 8.4\)Hz, 2H), 7.58 (d, \(J = 8.1\)Hz, 2H), 7.30-7.39 (m, 4H), 7.18 (t, \(J = 7.2\)Hz, 1H), 7.08 (t, \(J = 7.2\)Hz, 1H), 2.77 (s, 3H), 1.77 (s, 3H). 13C-NMR (CDCl\(_3\), 100Hz) δ 195.9, 181.7, 164.8, 161.6, 138.3, 136.4, 129.0, 128.8, 125.3, 123.5, 120.2, 120.0, 102.5, 70.3, 25.0, 17.4. HRMS Calcd for C\(_{20}\)H\(_{20}\)N\(_3\)O\(_3\) (\([M + H]^{+}\)) 350.1505; Found 350.1551.
$N^2,N^4$-bis(4-methoxyphenyl)-2,5-dimethyl-3-oxo-2,3-dihydro-1H-pyrrole-2,4-dicarboxamide (2cb) Red solid; mp 113-115 °C. $^1$H-NMR (DMSO, 300 MHz) δ 10.77 (s, 1H), 10.40 (s, 1H), 9.63 (s, 1H), 8.39 (d, $J = 7.8$Hz, 1H), 8.08 (d, $J = 7.8$Hz, 1H), 6.86-7.09 (m, 6H), 3.91 (s, 6H), 2.64 (s, 3H), 1.63 (s, 3H). $^{13}$C-NMR (DMSO, 100Hz) δ 195.1, 181.0, 163.8, 161.3, 148.8, 147.7, 128.4, 126.4, 124.7, 122.5, 120.6, 120.5, 119.8, 119.0, 111.2, 110.7, 100.9, 70.9, 56.0, 55.9, 23.4, 16.8. HRMS Calcd for C$_{22}$H$_{24}$N$_3$O$_5$ ([M + H]$^+$) 410.1716; Found 410.1788.

III. $^1$H- and $^{13}$C-NMR Spectra Copies