Microwave-Assisted Synthesis of Thiazolidinedione Compound Library

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SUPPORTING INFORMATION

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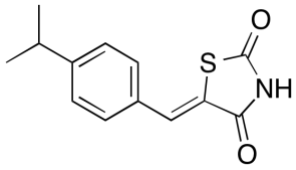
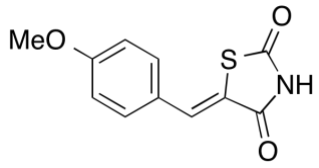
EXPERIMENTAL



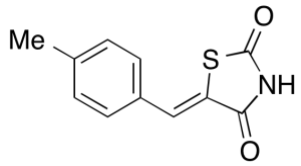
1-(4-isopropylbenzylidene)-3-thialidine-2,4-dione (7A)

Synthesized as a white solid in 75% yield by following general procedure A: m.p. 144 – 145 °C; IR (diamond) ν (cm^{-1}): 3139 (br), 3025 (br), 1744 (m), 1679 (s), 1594 (s), 1337 (s), 823 (s), 682 (s); ^{1}H NMR (300 MHz, $CDCl_3$) δ 9.06 (br, 1H), 7.79 (s, 1H), 7.37 (d, J = 8.1, 2H), 7.27 (d, J = 8.1, 2H), 2.89 (sp, J = 6.8, 1H), 1.2 (d, J = 6.9, 6H); ^{13}C NMR (75 MHz, DMSO) δ 173.1, 172.7, 156.4, 136.9, 135.8, 135.3, 132.5, 127.6, 38.5, 28.6; HRMS (ELI) calcd for $C_{13}H_{14}NO_2S$ 248.07452 $(M + H)^+$, found 248.07472.



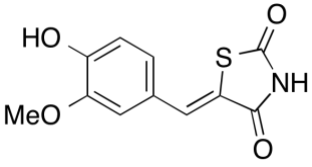
1-(4-methoxybenzylidene)-3-thiazolidine-2,4-dione (7B)

Synthesized as a yellow solid in 55% yield by following general procedure A: m.p. 205 – 206 °C; IR (diamond) ν (cm^{-1}): 3090 (br), 2995 (br), 1732 (s), 1681 (m), 1593 (s), 1256 (s), 824 (s), 688 (s); ^{1}H NMR (300 MHz, DMSO) δ 12.43 (br, 1H), 7.68 (s, 1H), 7.48 (d, J = 8.9, 2H), 7.03 (d, J = 8.9, 2H), 3.75 (s, 3H); ^{13}C NMR (75 MHz, DMSO) δ 173.1, 172.6, 166.1, 137.2, 137.0, 130.6, 125.4, 120.0, 60.6; HRMS (ELI) calculated for $C_{11}H_{10}NO_3S$ 236.03814 $(M + H)^+$, found 236.03799.



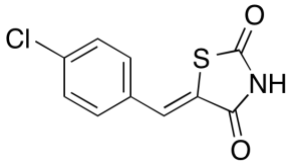
1-(4-methylbenzylidene)-3-thialidine-2,4-dione (7C)

Synthesized as a white solid in 52% yield by following general procedure for A: m.p. 214 – 215 °C; IR (diamond) ν (cm^{-1}): 3170 (br), 3047 (br), 1736 (m), 1684 (s), 1596 (m), 1329 (m), 807 (s); ^{1}H NMR (300 MHz, DMSO) δ 12.5 (br, 1H), 7.74 (s, 1H), 7.49 (d, J = 8.1, 2H), 7.34 (d, J = 7.8, 2H), 2.36 (s, 3H); ^{13}C NMR (75 MHz, DMSO) δ 173.1, 172.7, 145.8, 136.9, 135.4, 135.2, 135.1, 127.6, 26.2; HRMS (ELI) calculated for $C_{11}H_{10}NO_2S$ 220.04322 $(M + H)^+$, found 220.04304.



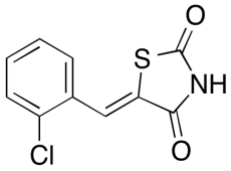
1-(3-methoxy-4-hydroxybenzylidene)-3-thialidine-2,4-dione (7D)

Synthesized as a bright yellow solid in 60% yield by following general procedure A: m.p. 214 – 215 °C; IR (diamond) ν (cm^{-1}): 3367 (br), 3162 (br), 3038 (br), 1729 (m), 1674 (s), 1578 (s), 1515 (s), 1281 (s), 1017 (s), 687 (m); ^{1}H NMR (300 MHz, DMSO) δ 9.50 (s, 1H), 7.64 (s, 1H), 7.08 (s, 2H), 7.02 (s, 2H), 3.83 (s, 3H); ^{13}C NMR (75 MHz, DMSO) δ 173.2, 172.6, 155.1, 152.0, 137.4, 130.8, 128.6, 125.1, 121.0, 117.5, 60.8; HRMS (ELI) calculated for $C_{11}H_{10}NO_4S$ 252.03305 $(M + H)^+$, found 252.03308.



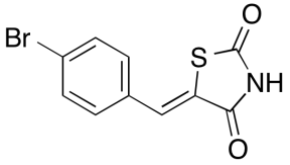
1-(4-chlorobenzylidene)-3-thiazolidine-2,4-dione (7E)

Synthesized as an off white solid in 75% yield by following general procedure A: m.p. 212 – 213 °C; IR (diamond) ν (cm^{-1}): 3152 (br), 3054 (br), 1720 (s), 1609 (m), 1488 (m), 701 (s); ^{1}H NMR (300 MHz, DMSO) δ 12.58 (br, 1H), 7.70 (s, 1H), 7.61 (d J = 1.5, 4H); ^{13}C NMR (5 MHz, DMSO) δ 172.8, 172.5, 140.1, 137.1, 136.7, 135.4, 134.5, 129.6; HRMS (ELI) calculated for $C_{10}H_7ClNO_2S$ 239.98860 $(M + H)^+$, found 239.98952.



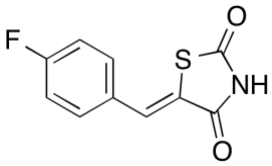
1-(2-chlorobenzylidene)-3-thiazolidine-2,4-dione (7F)

Synthesized as a pale yellow solid in 71% yield by following general procedure A: m.p. 167 – 168 °C; IR (diamond) ν (cm^{-1}): 3143 (br), 3052 (br), 1733 (s), 1709 (s), 1604 (m), 1432 (m), 1161 (s), 750 (s); ^{1}H NMR (300 MHz, DMSO) δ 12.68 (br, 1H), 7.84 (s, 1H), 7.25 – 7.57 (m, 4H); ^{13}C NMR (75 MHz, DMSO) δ 168.1, 167.5, 134.9, 132.3, 131.5, 130.8, 129.4, 128.6, 127.8, 127.2; HRMS (ELI) calculated for $C_{10}H_7ClNO_2S$ 239.98860 $(M + H)^+$, found 239.98792.



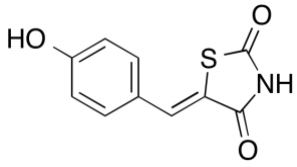
1-(4-bromobenzylidene)-3-thiazolidine-2,4-dione (7G)

Synthesized as a pale yellow solid in 70% yield by following general procedure A: m.p. 225 – 226 °C; IR (diamond) ν (cm^{-1}): 3128 (br), 3054 (br), 1753 (m), 1718 (s), 1611 (s), 1165 (s), 689 (s); ^{1}H NMR (300 MHz, DMSO) δ 12.59 (br, 1H), 7.68 (s, 1H), 7.56 (d, J = 8.4, 2H), 7.46 (d, J = 8.4, 2H); ^{13}C NMR (75 MHz, DMSO) δ 168.1, 167.8, 132.8, 132.7, 132.3, 131.0, 125.0, 124.4; HRMS (ELI) calculated for $C_{10}H_7BrNO_2S$ 283.93809 $(M + H)^+$, found 283.93772.



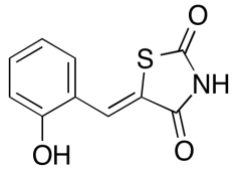
1-(4-fluorobenzylidene)-3-thiazolidine-2,4dione (7H)

Synthesized as a light orange solid in 57% yield by following general procedure A: m.p. 203 – 204 °C; IR (diamond) ν (cm^{-1}): 3180 (br), 3035 (br), 1754 (m), 1695 (s), 1511 (s), 1237 (s), 1163 (s), 832 (m); ^{1}H NMR (300 MHz DMSO) δ 12.54 (br, 1H), 7.73 (s, 1H), 7.59 (d, J = 6.6, 2H) 7.30 (d, J = 8.6, 2H); ^{13}C NMR (75 MHz, DMSO) δ 168.2, 167.8, 133.0, 132.9, 131.2, 130.2, 130.1, 123.7, 117.1, 116.8 (8 peaks are expected, 10 are observed due to aromatic symmetrical peaks).



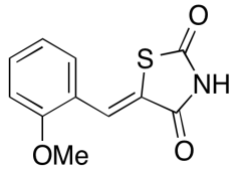
1-(4-hydroxybenzylidene)-3-thiazolidine-2,4-dione (7I)

Synthesized as a dark yellow solid in 72% yield by following general procedure A: m.p. 280 – 281 °C; IR (diamond) ν (cm^{-1}): 3117 (br), 2995 (br), 1724 (m), 1673 (s), 1573 (s), 1154 (s), 824 (s); ^{1}H NMR (300 MHz, DMSO) δ 12.36 (br, 1H), 10.22 (br, 1H), 7.62 (dd, J = 6.2, 13.7, 1H), 7.37 (t, J = 7.8, 2H), 6.83 (t, J = 7.8, 2H); ^{13}C NMR (75 MHz, DMSO) δ 168.6, 168.0, 160.4, 132.9, 132.7, 124.4, 119.5, 116.8.



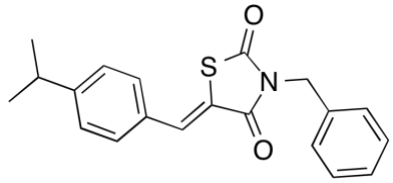
1-(2-hydroxybenzylidene)-3-thiazolidine-2,4-dione (7J)

Synthesized as a yellow solid in 51% yield by following general procedure A: m.p. 223 – 224 °C; IR (diamond) ν (cm^{-1}): 3146 (br), 3038 (br), 1727 (w), 1674 (s), 1594 (m), 1456 (m), 750 (s); ^{1}H NMR (300 MHz DMSO) δ 12.34 (br, 1H), 10.36 (br, 1H), 7.94 (s, 1H), 6.86 (m, 2H), 7.26 (m, 2H); ^{13}C NMR (75 MHz, DMSO) δ 168.6, 168.0, 157.8, 132.7, 128.8, 127.6, 122.4, 120.5, 120.2, 116.6.



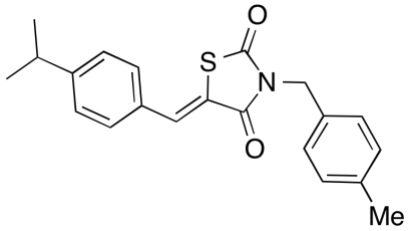
1-(2-methoxybenzylidene)-3-thiazolidine-2,4-dione (7K)

Synthesized as a bright yellow solid in 35% yield by following general procedure A: m.p. 226 – 228 °C; IR (diamond) ν (cm^{-1}): 3130 (br), 3005 (br), 1740 (m), 1677 (s), 1583 (s), 1252 (s), 754 (s), 682 (s); ^{1}H NMR (300 MHz, DMSO) δ 12.47 (br, 1H), 7.89 (s, 1H), 7.03 – 7.37 (m, 4H), 3.20 (s, 3H); ^{13}C NMR (75 MHz, DMSO) δ 168.6, 167.9, 158.5, 132.9, 129.0, 126.9, 123.9, 121.9, 121.4, 112.4, 56.3.

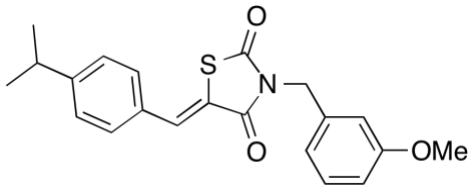


3-benzyl-1-(4-isopropylbenzylidene)thiazolidine-2,4-dione (8A-1)

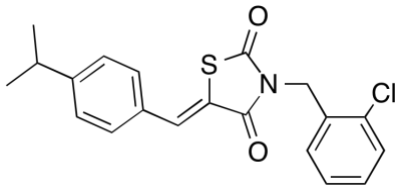
Synthesized as a light yellow solid in 83% yield by following general procedure B: m.p. 112 – 113 °C; IR (diamond) ν (cm^{-1}): 2954 (m), 1732 (m), 1667 (s), 1594 (m), 1383 (m), 1149 (s), 720 (s); ^{1}H NMR (300 MHz, DMSO) δ 7.84 (s, 1H), 7.47 (d, J = 7.8, 2H), 7.33 (d, J = 7.8, 2H), 7.09 (m, J = 5H), 4.69 (s, 2H), 2.85 (sp, J = 6.8, 1H), 1.12 (d, J = 6.9, 6 H); ^{13}C NMR (75 MHz, DMSO) δ 172.5, 170.7, 156.8, 140.6, 138.6, 135.7, 135.5, 133.8, 132.9, 132.8, 132.5, 125.1, 49.8, 38.6, 28.6; HRMS (ELI) calculated for $C_{21}H_{22}NO_2S$ 352.13712 $(M + H)^+$, found 352.13778.



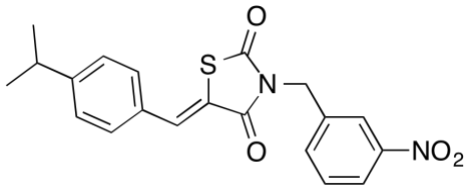
3-[4-methylbenzl]-1-(4-isopropylbenzylidene)thiazolidine-2,4-dione (8A-2)
Synthesized as a yellow solid in 67% yield by following general procedure B: m.p. 113 – 114 °C; IR (diamond) ν (cm^{-1}): 2959 (m), 1744 (m), 1668 (s), 1600 (m), 1387 (m), 1154 (s), 691 (m); ^{1}H NMR (300 MHz, DMSO) δ 7.91 (s, 1H), 7.53 (d J = 5.1, 2H), 7.39 (d, J = 4.8, 2H), 7.17 (d, J = 5.0, 2H), 7.12 (d, J = 5.0, 2H), 4.76 (s, 2H), 2.92 (sp, J = 3.6, 1H), 1.19 (d, J = 3.9, 6H); ^{13}C NMR (75 MHz, DMSO) δ 172.5, 170.7, 156.8, 142.2, 138.6, 137.7, 135.7, 135.5, 134.3, 132.8, 132.6, 125.1, 49.6, 38.6, 28.6, 25.8.



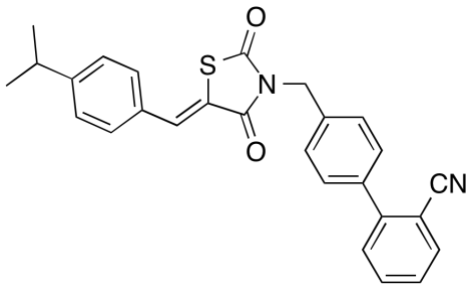
3-[3-methoxybenzyl]-1-(4-isopropylbenzylidene)thiazolidine-2,4-dione (8A-3)
Synthesized as a white solid in 76% yield by following general procedure B: m.p. 81 – 82 °C; IR (diamond) ν (cm^{-1}): 3004 (w), 1734 (m), 1670 (s), 1598 (s), 1377 (s), 1146 (s), 775 (m); ^{1}H NMR (300 MHz, DMSO) δ 7.85 (s, 1H), 7.47 (d, J = 7.8, 2H), 7.33 (d, J = 7.8, 2H), 7.17 (t, J = 7.2, 1H), 6.86 (t, J = 6.6, 3H), 4.71 (s, 2H), 3.64 (s, 3H), 2.85 (sp, J = 6.8, 1H), 1.12 (d, J = 6.9, 6H); ^{13}C NMR (75 MHz, DMSO) δ 172.5, 170.7, 164.5, 156.8, 142.1, 138.6, 135.7, 135.5, 135.0, 132.5, 125.0, 124.7, 118.6, 118.2, 60.2, 49.7, 38.6, 28.6.



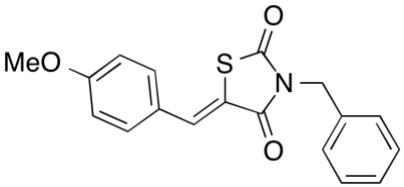
3-[2-chlorobenzyl]-1-(4-isopropylbenzylidene)thiazolidine-2,4-dione (8A-4)
Synthesized as a light yellow solid in 82% yield by following general procedure B: m.p. 133 – 134 °C; IR (diamond) ν (cm^{-1}): 2963 (m), 1738 (m), 1683 (s), 1597 (s), 1382 (s), 1148 (m), 752 (s); ^{1}H NMR (300 MHz, DMSO) δ 7.87 (s, 1H), 7.50 (d, J = 8.1, 2H), 7.40 – 7.42 (m, 1H), 7.36 (d, J = 8.1, 2H), 7.31 – 7.37 (m, 2H), 7.17 – 7.26 (m, 3H), 4.82 (s, 2H), 2.85 (sp, J = 6.0, 1H), 1.13 (d, J = 6.0, 6H); ^{13}C NMR (75 MHz, DMSO) δ 172.4, 170.6, 156.9, 138.7, 137.4, 136.8, 135.7, 135.6, 134.6, 134.5, 133.5, 132.7, 132.6, 125.0, 47.8, 38.6, 28.6.



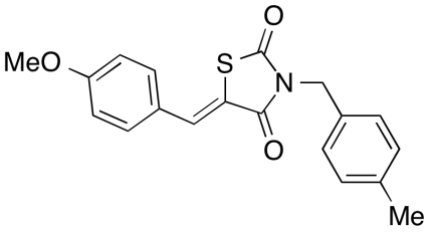
3-[3-nitrobenzyl]-1-(4-isopropylbenzylidene)thiazolidine-2,4-dione (8A-5)
Synthesized as a light yellow solid in 71% yield by following general procedure B: m.p. 151 – 152 °C; IR (diamond) ν (cm^{-1}): 2958 (m), 1740 (m), 1681 (s), 1601 (s), 1522 (s), 1341 (s), 1148 (m), 696 (m); ^{1}H NMR (300 MHz, DMSO) δ 8.10 (d, J = 9.9, 2H), 7.87 (s, 1H), 7.70 (d, J = 7.5, 1H), 7.57 (t, J = 8.1, 1H), 7.49 (d, J = 8.1, 2H), 7.34 (d, J = 8.1, 2H), 4.89 (s, 2H), 2.86 (sp, J = 6.0, 1H), 1.127 (d, J = 6.0, 6H); ^{13}C NMR (75 MHz, DMSO) δ 172.7, 170.7, 156.9, 153.0, 142.7, 139.6, 138.8, 135.7, 135.5, 135.4, 132.6, 127.9, 127.8, 125.1, 49.0, 38.6, 28.6.



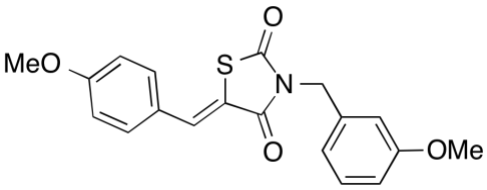
3-[2-cyanobiphenyl]-1-(4-isopropylbenzylidene)thiazolidine-2,4-dione (8A-6)
Synthesized as a light yellow solid in 86% yield by following general procedure B: m.p. 120 – 121 °C; IR (diamond) ν (cm^{-1}): 2961 (w), 2219 (w), 1734 (m), 1677 (s), 1602 (m), 1379 (m), 1338 (m), 762 (s); ^{1}H NMR (300 MHz, $CDCl_3$) δ 7.84 (s, 1H), 7.67 (d, J = 7.8, 1H), 7.56 (t, J = 6.6, 1H), 7.47 (d, J = 5.7, 3H), 7.40 – 7.45 (m, 2H), 7.37 (d, J = 7.8, 3H), 7.25 (d, J = 8.4, 2H), 4.89 (s, 2H), 2.88 (sp, J = 6.0, 1H), 1.19 (d, J = 6.0, 6H); ^{13}C NMR (75 MHz, DMSO) δ 172.6, 170.8, 156.8, 149.1, 142.4, 141.2, 140.0, 138.7, 138.6, 135.7, 135.6, 135.2, 134.2, 133.4, 133.1, 132.6, 125.1, 123.7, 115.2, 49.4, 38.6, 28.6.



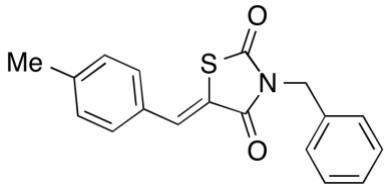
3-benzyl-1-(4-methoxybenzylidene)thiazolidine-2,4-dione (8B-1)
Synthesized as a bright yellow solid in 82% yield by following general procedure B: m.p. 130 – 132 °C; IR (diamond) ν (cm^{-1}): 2930 (m), 1734 (m), 1669 (s), 1508 (s), 1253 (s), 1173 (s), 1025 (s), 828 (s); ^{1}H NMR (300 MHz, DMSO) δ 7.85 (s, 1H), 7.53 (d, J = 8.4, 2H), 7.21 – 7.30 (m, 5H), 7.03 (d, J = 8.4, 2H), 4.75 (s, 2H), 3.75 (s, 3H); ^{13}C NMR (75 MHz, DMSO) δ 167.8, 166.1, 161.7, 136.0, 134.0, 132.8, 129.0, 128.3, 128.1, 125.9, 118.2, 115.5, 56.0, 45.1.



3-[4-methylbenzyl]-1-(4-methoxybenzylidene)thiazolidine-2,4-dione (8B-2)
Synthesized as a bright yellow solid in 55% yield by following general procedure B: m.p. 120 – 122 °C; IR (diamond) ν (cm^{-1}): 2919 (m), 1735 (m), 1681 (s), 1593 (s), 1511 (s), 1371 (s), 1266 (s), 1022 (s), 824 (s); ^{1}H NMR (300 MHz, DMSO) δ 7.84 (s, 1H), 7.52 (d, J = 9.0, 2H), 7.02 – 7.13 (m, 6H), 4.70 (s, 2H), 3.75 (s, 3H), 2.19 (s, 3H); ^{13}C NMR (75 MHz, DMSO) δ 167.8, 166.1, 161.7, 133.1, 132.8, 129.7, 129.1, 128.2, 126.9, 125.8, 118.2, 115.5, 63.2, 44.8, 21.2.

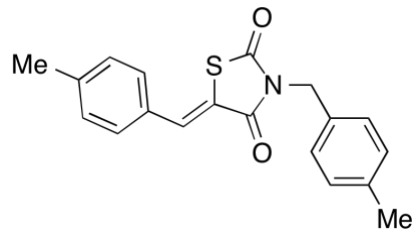


3-[3-methyoxybenzyl]-1-(4-methoxybenzylidene)thiazolidine-2,4-dione (8B-3)
Synthesized as a dark yellow solid in 58% yield by following general procedure B: m.p. 118 – 119 °C; IR (diamond) ν (cm^{-1}): 2946 (m), 1734 (m), 1668 (s), 1508 (s), 1254 (s), 1173 (s), 1028 (s), 831 (s); ^{1}H NMR (300 MHz, DMSO) δ 7.85 (s, 1H), 7.53 (d, J = 8.4, 2H), 7.15 – 7.21 (m, 1H), 7.03(d, J = 8.4, 2H), 6.75 – 6.80 (m, 3H), 4.72 (s, 2H), 3.75 (s, 3H), 3.65 (s, 3H); ^{13}C NMR (75 MHz, DMSO) δ 167.8, 166.1, 161.7, 159.8, 137.5, 134.0, 132.8, 130.3, 125.8, 120.0, 118.2, 115.5, 113.9, 113.5, 56.0, 55.5, 45.0; HRMS (ELI) calculated for $C_{19}H_{18}NO_4S$ 356.09565 $(M + H)^+$, found 356.09587.



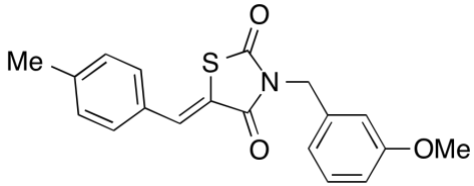
3-benzyl-1-(4-methylbenzylidene)thiazolidine-2,4-dione (8C-1)

Synthesized as a yellow solid in 97% yield by following general procedure B: m.p. 117 – 118 °C; IR (diamond) ν (cm^{-1}): 3026 (w), 1731 (m), 1670 (s), 1594 (m), 1379 (m), 1148 (s), 696 (s); ^{1}H NMR (500 MHz, $CDCl_3$) δ 7.94 (s, 1H), 7.55 (d, J = 6.0, 2H), 7.38 (d, J = 6.0, 2H), 7.29 – 7.35 (m, 5H), 4.83 (s, 2H), 2.37 (s, 3H); ^{13}C NMR (75 MHz, DMSO) δ 172.5, 170.7, 146.3, 140.6, 138.7, 135.4, 135.3, 135.2, 133.8, 132.9, 132.7, 125.0, 49.7, 26.2.



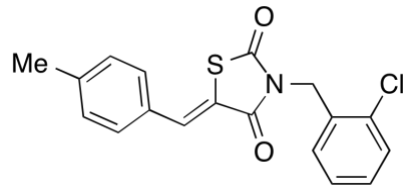
3-[4-methylbenzyl]-1-(4-methylbenzylidene)thiazolidine-2,4-dione (8C-2)

Synthesized as a white solid in 87% yield by following general procedure B: m.p. 128 – 130 °C; IR (diamond) ν (cm^{-1}): 2945 (w), 1737 (m), 1677 (s), 1601 (s), 1375 (m), 1327 (m), 1141 (m), 806 (s); ^{1}H NMR (300 MHz, DMSO) δ 7.92 (s, 1H), 7.52 (d, J = 7.8, 2H), 7.38 (d, J = 7.8, 2H), 7.18 (q, J = 7.5, 4H), 4.79 (s, 2H), 2.35 (s, 3H), 2.22 (s, 3H); ^{13}C NMR (75 MHz, DMSO) δ 172.4, 170.7, 146.2, 142.2, 138.6, 137.6, 135.4, 135.2, 135.1, 134.3, 132.8, 125.0, 49.5, 26.2, 25.8.



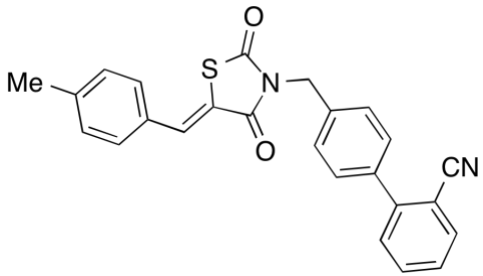
3-[3-methoxybenzyl]-1-(4-methylbenzylidene)thiazolidine-2,4-dione (8C-3)

Synthesized as an off white solid in 77% yield by following general procedure B: m.p. 117 – 118 °C; IR (diamond) ν (cm^{-1}): 3001 (w), 1737 (m), 1671 (s), 1595 (m), 1379 (m), 1255 (m), 1148 (s), 1035 (m), 816 (s); ^{1}H NMR (300 MHz, DMSO) δ 7.95 (s, 1H), 7.56 (d, J = 7.5, 2H), 7.40 (d, J = 7.2, 2H), 7.22 – 7.31 (m, 1H), 6.86 (t, J = 8.1, 3H), 4.80 (s, 2H), 3.72 (s, 3H), 2.39 (s, 3H); ^{13}C NMR (75 MHz, DMSO) δ 172.5, 170.7, 164.5, 146.2, 142.1, 138.7, 135.4, 135.3, 135.2, 135.0, 125.0, 124.6, 118.6, 118.2, 60.2, 49.7, 26.2; HRMS (ELI) calculated for $C_{19}H_{18}NO_3S$ 340.10074 $(M + H)^+$, found 340.10108.



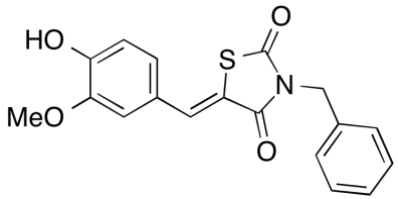
3-[2-chlorobenzyl]-1-(4-methylbenzylidene)thiazolidine-2,4-dione (8C-4)

Synthesized as a white solid in 56% yield by following general procedure B: m.p. 155 – 157 °C; IR (diamond) ν (cm^{-1}): 2962 (w), 1741 (m), 1667 (s), 1597 (m), 1382 (m), 1146 (s), 813 (s), 750 (s); ^{1}H NMR (300 MHz, DMSO) δ 7.97 (s, 1H), 7.57 (d, J = 8.1, 2H), 7.50 – 7.53 (m, 1H), 7.32 – 7.40 (m, 4H), 7.20 – 7.25 (m, 1H), 4.91 (s, 2H), 2.39 (s, 3H); ^{13}C NMR (75 MHz, DMSO) δ 167.7, 165.9, 141.6, 134.1, 132.8, 132.2, 130.8, 130.6, 130.5, 130.0, 129.9, 128.9, 128.0, 120.3, 43.1, 21.6.



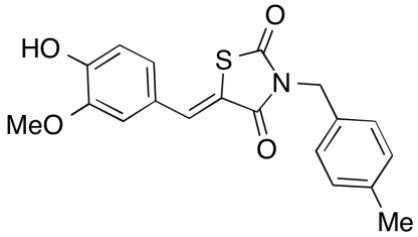
3-[2-cyanobiphenyl]-1-(4-methylbenzylidene)thiazolidine-2,4-dione (8C-5)

Synthesized as an off white solid in 37% yield by following general procedure B: m.p. 173 – 174 °C; IR (diamond) ν (cm^{-1}): 3065 (w), 2225 (w), 1745 (m), 1673 (s), 1597 (m), 1417 (s), 1340 (m), 1158 (m), 757 (s); ^{1}H NMR (300 MHz, DMSO) δ 7.86 (d, J = 8.1, 2H), 7.70 (t, J = 7.7, 1H), 7.45 – 7.54 (m, 6H), 7.38 (d, J = 8.4, 2H), 7.28 (d, J = 7.8, 2H), 4.84 (s, 2H), 2.28 (s, 3H); ^{13}C NMR (75 MHz, DMSO) δ 172.6, 170.8, 149.1, 146.3, 142.4, 141.2, 139.0, 138.8, 138.7, 135.4, 135.2, 135.1, 134.2, 133.4, 133.0, 125.0, 123.6, 115.2, 49.4, 26.2 (21 ^{13}C peaks are expected, 20 observed due to high number of aromatic carbons)



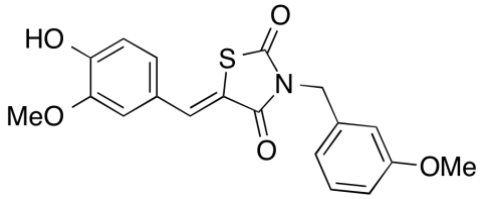
3-benzyl-1-(3-methoxy-4-hydroxybenzylidene)thiazolidine-2,4-dione (8D-1)

Synthesized as a yellow solid in 76% yield by following general procedure B: m.p. 124 – 126 °C; IR (diamond) ν (cm^{-1}): 2935 (w), 1728 (m), 1667 (s), 1576 (s), 1510 (s), 1269 (s), 1139 (s), 1025 (m), 694 (m); ^{1}H NMR (300 MHz, $CDCl_3$) δ 9.53 (s, 1H), 7.72 (s, 1H), 7.17 – 7.31 (m, 5H), 6.95 – 7.07 (m, 3H), 4.73 (s, 2H), 3.74 (s, 3H); ^{13}C NMR (75 MHz, DMSO) δ 172.6, 170.8, 155.5, 152.1, 140.7, 139.1, 133.8, 132.9, 132.7, 130.7, 129.0, 122.6, 121.1, 117.6, 60.8, 49.7.



3-[4-methylbenzyl]-1-(3-methoxy-4-hydroxybenzylidene)thiazolidine-2,4-dione (8D-2)

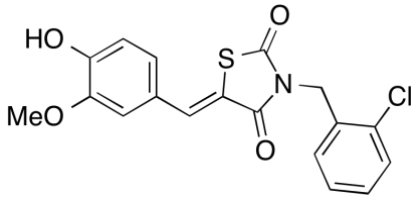
Synthesized as a yellow solid in 81% yield by following general procedure B: m.p. 95 – 97 °C; IR (diamond) ν (cm^{-1}): 3024 (w), 1734 (m), 1677 (s), 1513 (m), 1343 (m), 1280 (m), 1242 (m), 1140 (s), 678 (m); ^{1}H NMR (300 MHz, DMSO) δ 9.55 (s, 1H), 7.78 (s, 1H), 7.04 – 7.23 (m, 7H), 4.78 (s, 2H), 3.84 (s, 3H), 2.17 (s, 3H); ^{13}C NMR (75 MHz, DMSO) δ 172.5, 170.7, 155.4, 152.1, 142.2, 139.0, 137.7, 134.3, 132.8, 130.7, 129.0, 123.6, 121.0, 117.6, 60.8, 49.5, 25.8.



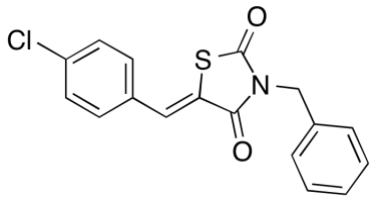
3-[3-methoxybenzyl]-1-(3-methoxy-4-hydroxybenzylidene)thiazolidine-2,4-dione (8D-3)

Synthesized as a yellow solid in 70% yield by following general procedure B: m.p. 132 – 133 °C; IR (diamond) ν (cm^{-1}): 3001 (w), 1725 (m), 1656 (s), 1592 (s), 1439 (m), 1376 (m), 1245 (m), 1132(s), 1026 (m), 752 (s); ^{1}H NMR (500 MHz, $CDCl_3$) δ 9.54 (s, 1H), 7.81 (s, 1H), 7.23 (t, J = 4.8, 1H), 7.05 – 7.10 (m, J = 3H), 6.83 – 6.95 (m, 3H), 4.86 (s, 2H), 3.95 (s, 3H), 3.80 (s,

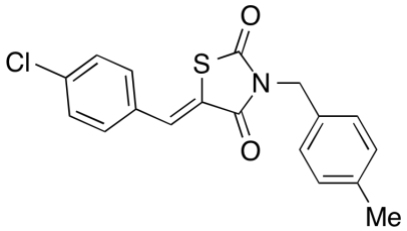
3H); ^{13}C NMR (75 MHz, DMSO) δ 172.6, 170.7, 164.5, 155.5, 152.1, 142.2, 139.1, 135.0, 130.7, 129.0, 124.6, 122.5, 121.1, 118.6, 118.1, 117.6, 60.8, 60.2, 49.6; HRMS (ELI) calculated for $C_{19}H_{18}NO_5S$ 372.09057 $(M + H)^+$, found 372.09047.



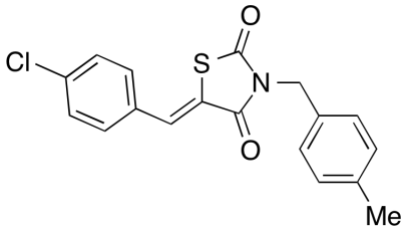
3-[2-chlorobenzyl]-1-(3-methoxy-4-hydroxybenzylidene)thiazolidine-2,4-dione (8D-4)
Synthesized as a yellow solid in 57% yield by following general procedure B: m.p. 172 – 173 °C; IR (diamond) ν (cm^{-1}): 3020 (w), 1731 (m), 1674 (s), 1595 (m), 1509 (s), 1377 (m), 1274 (s), 1144 (s), 762 (s); ^{1}H NMR (300 MHz, DMSO) δ 9.79 (s, 1H), 7.83 (s, 1H), 7.49 – 7.53 (m, 1H), 7.33 – 7.37 (m, 2H), 7.09 – 7.28 (m, 4H), 4.90 (s, 2H), 3.89 (s, 3H); ^{13}C NMR (75 MHz, DMSO) δ 172.5, 170.6, 155.5, 152.1, 139.2, 137.5, 136.8, 134.6, 134.5, 133.4, 132.7, 130.7, 129.0, 122.5, 121.1, 117.6, 60.8, 47.6.



3-benzyl-1-(4-chlorobenzylidene)thiazolidine-2,4-dione (8E-1)
Synthesized as a dark yellow solid in 71% yield by following general procedure B: m.p. 134 – 135 °C; IR (diamond) ν (cm^{-1}): 3031 (w), 1730 (m), 1676 (s), 1601 (s), 1488 (s), 1336 (m), 825 (s), 694 (s); ^{1}H NMR (500 MHz, DMSO) δ 7.95 (s, 1H), 7.63 (d, J = 8.5, 2H), 7.58 (d, J = 5.1, 2H), 7.35 – 7.28 (m, 5H), 4.82 (s, 2H); ^{13}C NMR (75 MHz, DMSO) δ 172.23, 170.6, 140.5, 140.4, 137.3, 136.9, 134.6, 133.8, 133.0, 132.7, 127.0, 104.6, 49.8.

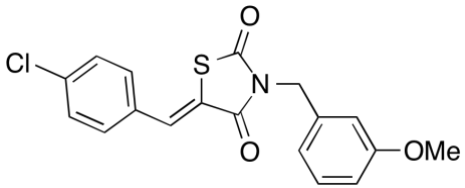


3-[4-methylbenzyl]-1-(4-chlorobenzylidene)thiazolidine-2,4-dione (8E-2)
Synthesized as a light yellow solid in 57% yield by following general procedure B: m.p. 163 – 165 °C; IR (diamond) ν (cm^{-1}): 2961 (w), 1747 (m), 1689 (s), 1379 (s), 1152 (m), 1052 (m), 755 (s); ^{1}H NMR (300 MHz, DMSO) δ 7.97 (s, 1H), 7.66 (d, J = 8.4, 2H), 7.62 (d, J = 8.4, 2H), 7.20 (d, J = 7.5, 2H), 7.16 (d, J = 7.5, 2H), 4.79 (s, 2H), 2.27 (s, 3H); ^{13}C NMR (75 MHz, DMSO) δ 167.4, 166.0, 138.2, 136.6, 132.4, 132.1, 131.7, 131.3, 129.6, 129.4, 128.9, 122.2, 45.2, 21.2 (13 ^{13}C peaks are expected, 14 peaks are observed).

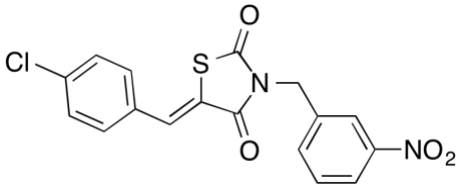


3-[3-methoxybenzyl]-1-(4-chlorobenzylidene)thiazolidine-2,4-dione (8E-3)
Synthesized as a light yellow solid in 75% yield by following general procedure B: m.p. 145 – 146 °C; IR (diamond) ν (cm^{-1}): 3018 (w), 1737 (m), 1674 (s), 1604 (s), 1488 (m), 1336 (m), 1256 (m), 1146 (s), 828 (s); ^{1}H NMR (300 MHz, DMSO) δ 7.98 (s, 1H), 7.67 (d, J = 8.7, 2H), 7.62 (d, J = 8.7, 2H), 7.27 (t, J = 7.5, 1H), 6.87 (t, J = 7.2, 3H), 4.81 (s, 2H), 3.74

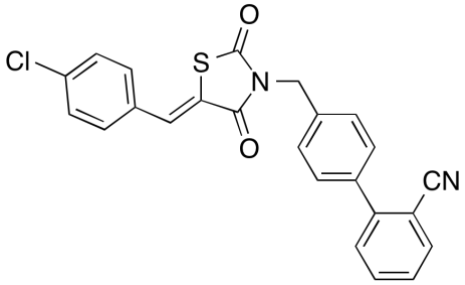
(s, 3H); ^{13}C NMR (75 MHz, DMSO) δ 172.2, 170.6, 164.5, 142.0, 140.4, 137.2, 136.9, 135.0, 134.6, 127.0, 126.0, 124.7, 118.6, 118.2, 60.2, 49.8



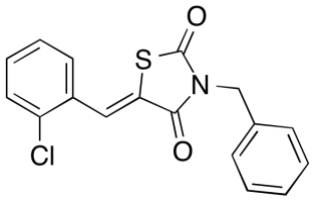
3-[2-chlorobenzyl]-1-(4-chlorobenzylidene)thiazolidine-2,4-dione (8E-4)
Synthesized as a yellow solid in 72% yield by following general procedure B: m.p. 167 – 169 °C; IR (diamond) ν (cm^{-1}): 3065 (w), 1732 (m), 1673 (s), 1605 (m), 1488 (m), 1385 (m), 1146 (s), 1084 (s), 751 (s); ^{1}H NMR (300 MHz, $CDCl_3$) δ 7.90 (s, 1H), 7.49 (s, 4H), 7.40 – 7.42 (m, 1H), 7.18 – 7.25 (m, 3H), 5.09 (s, 2H); ^{13}C NMR (75 MHz, DMSO) δ 167.6, 165.9, 135.8, 135.4, 132.7, 132.6, 132.3, 131.0, 130.1, 129.2, 129.0, 128.0, 122.6, 121.3, 43.2.



3-[3-nitrobenzyl]-1-(4-chlorobenzylidene)thiazolidine-2,4-dione (8E-5)
Synthesized as a dark yellow solid in 64% yield by following general procedure B: m.p. 156 – 157 °C; IR (diamond) ν (cm^{-1}): 3071 (w), 1724 (m), 1675 (s), 1527 (s), 1344 (s), 1145 (m), 698 (m); ^{1}H NMR (300 MHz, $CDCl_3$) δ 8.29 (t, J = 2.0, 1H), 8.19 (dd, J = 1.5, 8.3, 1H), 7.88 (s, 1H), 7.77 (t, J = 4.0, 1H), 7.54 (t, J = 8.0, 2H), 7.45 (td, J = 4.0, 9.0, 3H), 4.99 (s, 2H);^{13}C NMR (75 MHz, DMSO) δ 167.3, 165.8, 137.0, 136.8, 135.0, 133.4, 131.5, 131.4, 131.3, 129.9, 129.8, 123.9, 123.5, 121.5, 44.4.

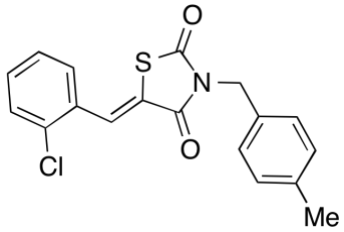


3-[2-cyanobiphenyl]-1-(4-chlorobenzylidene)thiazolidine-2,4-dione (8E-6)
Synthesized as a yellow solid in 46% yield by following general procedure B: m.p. 180 – 181 °C; IR (diamond) ν (cm^{-1}): 3061 (w), 2227 (m), 1747 (m), 1686 (s), 1378 (m), 1324 (m), 1139 (m), 767 (s); ^{1}H NMR (500 MHz, $CDCl_3$) δ 7.98 (s, 1H), 7.93 (d, 8.0, 1H), 7.77 (t, J = 7.5, 1H), 7.66 (d, J = 9.0, 2H), 7.54 – 7.62 (m, 6H), 7.45 (d, J = 9.0, 2H), 4.91 (s, 2H); ^{13}C NMR (75 MHz, DMSO) δ 172.2, 170.5, 142.3, 140.4, 137.7, 137.5, 137.2, 137.0, 136.9, 135.4, 134.6, 134.3, 133.3, 132.8, 131.1, 127.1, 125.1, 125.0, 115.2, 49.7; HRMS (ELI) calculated for $C_{24}H_{16}ClN_2O_2S$ 431.06210 $(M + H)^+$, found 431.06173.

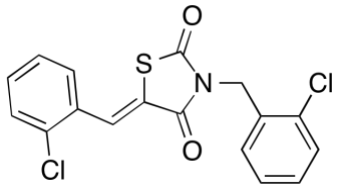


3-benzyl-1-(2-chlorobenzylidene)thiazolidine-2,4-dione (8F-1)
Synthesized as a dark yellow solid in 86% yield by following general procedure B: m.p. 132 – 134 °C; IR (diamond) ν (cm^{-1}): 2943 (w), 1744 (m), 1683 (s), 1603 (m), 1371 (s), 1321 (s), 1128 (s), 1082 (s), 763 (s), 696 (s); ^{1}H NMR (300 MHz, DMSO) δ 7.98 (s, 1H), 7.42 – 7.58 (m, 4H), 7.20 – 7.31 (m, 5H), 4.76 (s, 2H); ^{13}C NMR (75 MHz, DMSO) δ 167.6, 165.6, 135.8, 135.0, 132.6, 131.4,

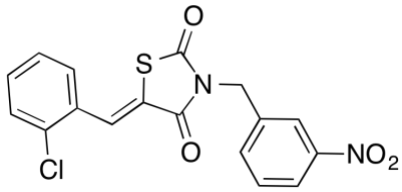
130.9, 129.5, 129.2, 128.9, 128.6, 128.3, 128.2, 125.4, 45.3.



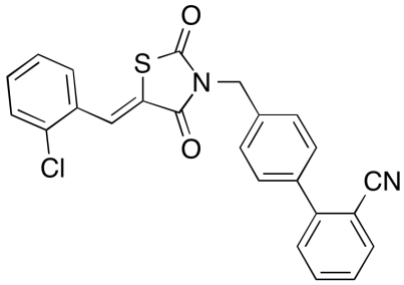
3-[4-methylbenzyl]-1-(2-chlorobenzylidene)thiazolidine-2,4-dione (8F-2)
Synthesized as a yellow solid in 75% yield by following general procedure B: m.p. 107 – 108 °C; IR (diamond) ν (cm^{-1}): 2949 (w), 1742 (s), 1682 (s), 1428 (s), 1366 (s), 1326 (s), 1065 (m), 758 (s); ^{1}H NMR (300 MHz, DMSO) δ 8.06 (s, 1H), 7.58 – 7.63 (m, 2H), 7.47 – 7.55 (m, 2H), 7.22 (d, J = 8.4, 2H), 7.18 (d, J = 8.4, 2H), 4.78 (s, 2H), 2.28 (s, 3H); ^{13}C NMR (75 MHz, DMSO) δ 172.2, 170.3, 142.3, 139.6, 137.5, 137.2, 136.1, 135.5, 134.3, 134.2, 133.5, 133.3, 132.9, 130.1, 49.8, 25.8.



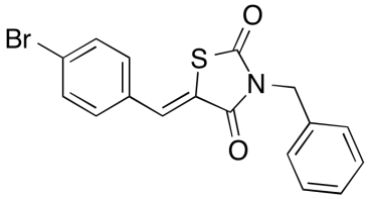
3-[2-chlorobenzyl]-1-(2-chlorobenzylidene)thiazolidine-2,4-dione (8F-3)
Synthesized as a light yellow solid in 86% yield by following general procedure B: m.p. 133 – 134 °C; IR (diamond) ν (cm^{-1}): 2959 (w), 1739 (m), 1685 (s), 1602 (m), 1378 (m), 1333 (m), 1154 (m), 1075 (m), 755 (s); ^{1}H NMR (300 MHz, DMSO) δ 8.00 (s, 1H), 7.55 – 7.61 (m, 2H), 7.41 – 7.48 (m, 3H), 7.22 – 7.28 (m, 3H), 4.83 (s, 2H); ^{13}C NMR (75 MHz, DMSO) δ 167.5, 165.6, 135.0, 132.6, 132.3, 131.4, 130.9, 130.0, 129.5, 129.2, 128.9, 128.8, 128.7, 128.0, 125.4, 43.3 (17 peaks expected, 16 peaks observed due to aromatic overlap); HRMS (ELI) calculated for $C_{17}H_{12}Cl_2NO_2S$ 363.99658 $(M + H)^+$, found 363.99537.



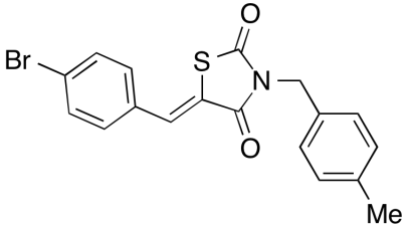
3-[3-nitrobenzyl]-1-(2-chlorobenzylidene)thiazolidine-2,4-dione (8F-4)
Synthesized as a yellow solid in 85% yield by following general procedure B: m.p. 107 – 108 °C; IR (diamond) ν (cm^{-1}): 3094 (w), 1734 (m), 1681 (s), 1526 (s), 1332 (s), 754 (s), 696 (s); ^{1}H NMR (300 MHz, DMSO) δ 8.08 – 8.13 (m, 2H), 7.98 (s, 1H), 7.72 (d, J = 7.8, 1H), 7.45 – 7.60 (m, 5H), 4.90 (s, 2H); ^{13}C NMR (75 MHz, DMSO) δ 167.8, 165.7, 148.3, 137.8, 135.1, 135.0, 132.6, 131.3, 130.9, 130.7, 129.5, 128.8, 128.7, 125.5, 123.3, 44.6 (17 peaks expected, 16 peaks observed due to aromatic overlap)



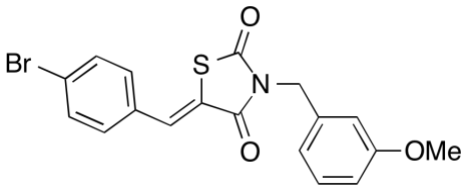
3-[2-cyanobiphenyl]-1-(2-chlorobenzylidene)thiazolidine-2,4-dione (8F-5)
Synthesized as a light yellow solid in 67% yield by following general procedure B: m.p. 151 – 152 °C; IR (diamond) ν (cm^{-1}): 3035 (w), 2226 (m), 1737 (m), 1686 (s), 1597 (m), 1382 (m), 1154 (m), 1079 (m), 758 (s); ^{1}H NMR (300 MHz, DMSO) δ 8.01 (s, 1H), 7.87 (d, J = 7.8, 1H), 7.69 (t, J = 6.6, 1H), 7.39 – 7.59 (m, 10H), 4.85 (s, 2H); ^{13}C NMR (75 MHz, DMSO) δ 167.7, 165.7, 144.5, 137.8, 136.3, 135.0, 134.3, 134.0, 132.6, 131.4, 130.9, 130.6, 128.9, 128.9, 128.8, 128.7, 128.5, 125.5, 119.0, 110.6, 45.0 (22 peaks expected, 21 peaks observed due to high number of aromatic carbons)



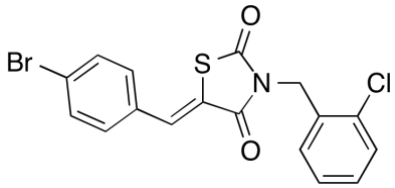
3-benzyl-1-(4-bromobenzylidene)thiazolidine-2,4-dione (8G-1)
Synthesized as a yellow solid in 63% yield by following general procedure B: m.p. 145 – 146 °C; IR (diamond) ν (cm^{-1}): 3038 (w), 1728 (m), 1671 (s), 1599 (m), 1487 (m), 1337 (m), 1074 (s), 692 (s); ^{1}H NMR (300 MHz, DMSO) δ 7.95 (s, 1H), 7.75 (d, J = 8.4, 2H), 7.57 (d, J = 8.7, 2H), 7.29 – 7.35 (m, 5H), 4.83 (s, 2H); ^{13}C NMR (75 MHz, DMSO) δ 172.2, 170.6, 140.5, 137.5, 137.3, 137.2, 137.1, 133.8, 132.9, 132.7, 129.4, 127.1, 49.8.



3-[4-methylbenzyl]-1-(4-bromobenzylidene)thiazolidine-2,4-dione (8G-2)
Synthesized as a yellow solid in 55% yield by following general procedure B: m.p. 160 – 161 °C; IR (diamond) ν (cm^{-1}): 2922 (w), 1735 (m), 1673 (s), 1605 (m), 1486 (m), 1378 (m), 1337 (m), 1070 (m), 754 (m); ^{1}H NMR (300 MHz, DMSO) δ 7.85 (s, 1H), 7.66 (d, J = 8.4, 2H), 7.49 (d, J = 8.7, 2H), 7.05 – 7.12 (m, 4H), 4.70 (s, 2H), 2.18 (s, 3H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 167.3, 166.0, 138.2, 132.5, 132.4, 132.1, 132.0, 131.4, 129.4, 128.9, 125.1, 122.4, 45.2, 21.2.

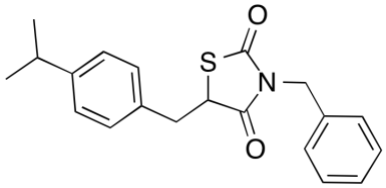


3-[3-methoxybenzyl]-1-(4-bromobenzylidene)thiazolidine-2,4-dione (8G-3)
Synthesized as a light yellow solid in 65% yield by following general procedure B: m.p. 132 – 133 °C; IR (diamond) ν (cm^{-1}): 3014 (w), 1735 (m), 1673 (s), 1603 (s), 1487 (m), 1255 (s), 1146 (s), 1035 (m), 690 (m); ^{1}H NMR (300 MHz, DMSO) δ 7.87 (s, 1H), 7.67 (d, J = 8.4, 2H), 7.50 (d, J = 8.4, 2H), 7.18 (dd, J = 1.8, 7.2, 1H), 6.78 (t, J = 7.1, 3H), 4.72 (s, 2H), 3.56 (s, 3H); ^{13}C NMR (75 MHz, DMSO) δ 167.6, 165.9, 159.8, 137.3, 132.9, 132.7, 132.6, 132.4, 130.3, 124.7, 122.5, 120.0, 114.0, 113.6, 55.5, 45.2.



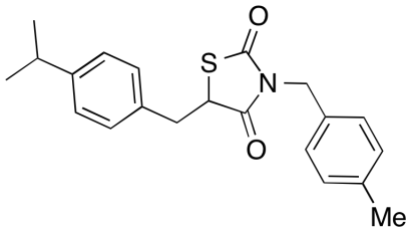
3-[2-chlorobenzyl]-1-(4-bromobenzylidene)thiazolidine-2,4-dione (8G-4)

Synthesized as a yellow solid in 41% yield by following general procedure B: m.p. 177 – 178 °C; IR (diamond) ν (cm^{-1}): 3020 (w), 1735 (m), 1667 (s), 1603 (m), 1485 (m), 1380 (m), 1148 (s), 1073 (s), 749 (s), 690 (m); ^{1}H NMR (300 MHz, DMSO) δ 7.89 (s, 1H), 7.70 (d, J = 7.5, 2H), 7.52 (d, J = 8.1, 2H), 7.42 (d, J = 6.9, 1H), 7.19 – 7.27 (m, 3H), 4.82 (s, 2H); ^{13}C NMR (75 MHz, DMSO) δ 167.0, 165.8, 133.2, 132.9, 132.6, 132.1, 131.5, 129.9, 129.2, 128.6, 127.0, 125.3, 121.9, 43.0 (15 ^{13}C peaks are expected, 14 observed); HRMS (ELI) calculated for $C_{17}H_{12}BrClNO_2S$ 407.94606 $(M + H)^+$, found 407.94579.



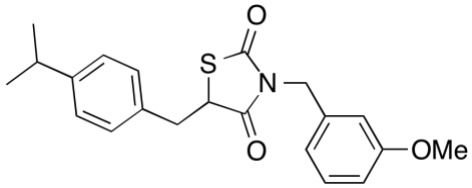
3-benzyl-1-(4-isopropylbenzyl)thiazolidine-2,4-dione (9A-1)

Synthesized as a dark yellow oil in 98% yield by following general procedure C: IR (diamond) ν (cm^{-1}): 2958(w), 1748 (m), 1674 (s), 1380 (m), 1267 (m), 1147 (m), 701 (s); ^{1}H NMR (300 MHz, DMSO) δ 7.30 (d, J = 6.3, 4H), 7.11 – 7.18 (m, 5H), 5.05 (dd, J = 4.2, 8.4, 1H), 4.64 (dd, J = 6.3, 10.5, 2H), 3.39 (dd, J = 4.2, 8.4, 1H), 3.16 (dd, J = 8.7, 14.1, 1H), 2.85 (sp, J = 6.6, 1H), 1.17 (d, J = 6.6, 6H), ^{13}C NMR (75 MHz, DMSO) δ 179.0, 176.3, 152.2, 140.5, 138.7, 134.4, 133.6, 132.7, 132.6, 131.4, 56.0, 49.5, 41.6, 38.1, 28.9.



3-[4-methylbenzyl]-1-(4-isopropylbenzyl)thiazolidine-2,4-dione (9A-2)

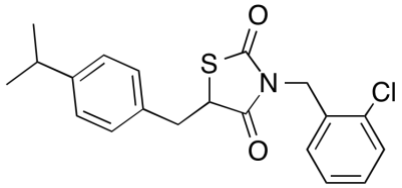
Synthesized as a white solid in 87% yield by following general procedure C: m.p. 59 – 60 °C; IR (diamond) ν (cm^{-1}): 2958 (w), 1740 (m), 1682 (s), 1423 (m), 1379 (m), 1326 (m), 1155 (m), 803 (m); ^{1}H NMR (300 MHz, DMSO) δ 7.12 (s, 4H), 7.04 (d, J = 7.5, 4H), 5.02 (dd, J = 4.2, 8.4, 1H), 4.60 (dd, J = 6.3, 10.5, 2H), 3.29 (dd, J = 4.8, 8.4, 1H), 3.14 (dd, J = 8.6, 13.9, 1H), 2.82 (sp, J = 7.2, 1H), 2.25 (s, 3H), 1.98 (s, 6H); ^{13}C NMR (75 MHz, DMSO) δ 179.0, 176.1, 152.2, 142.0, 138.6, 137.6, 134.4, 134.2, 132.7, 131.4, 55.9, 49.2, 41.6, 38.1, 28.9, 25.8.



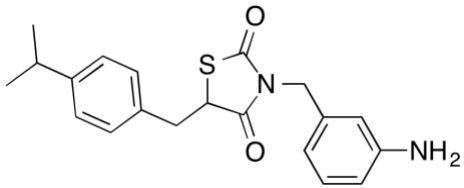
3-[3-methoxybenzyl]-1-(4-isopropylbenzyl)thiazolidine-2,4-dione (9A-3)

Synthesized as a dark yellow oil in 82% yield by following general procedure C: IR (diamond) ν (cm^{-1}): 2960 (w), 1748 (m), 1677 (s), 1382 (m), 1262 (m), 1147 (m), 700 (m); ^{1}H NMR (300 MHz, DMSO) δ 7.23 (t, J = 8.7, 1H), 7.11 (s, 4H), 6.87 (dd, J = 2.1, 7.5, 1H), 6.77 (s, 1H), 6.68 (d, J = 8.1, 1H), 5.05 (dd, J = 4.2, 8.4, 1H), 4.61 (dd, J = 6.3, 10.5, 2H), 3.72 (s, 3H), 3.43 (dd, J = 4.8, 8.4, 1H), 3.14 (dd, J = 8.6, 13.9, 1H), 2.80 (sp, J = 7.2, 1H), 1.15 (d, J = 6.6, 6H); ^{13}C NMR (75 MHz, DMSO) δ 179.0, 176.2, 164.4, 152.2, 142.0, 138.7, 134.8, 134.3, 131.4, 124.5, 118.5, 118.0,

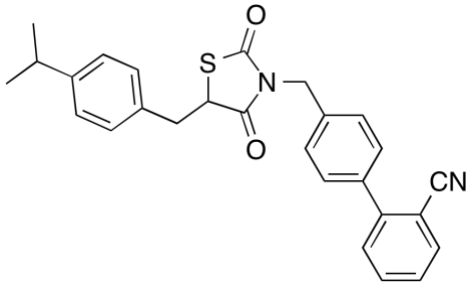
60.1, 56.0, 49.4, 41.6, 38.1, 28.9.



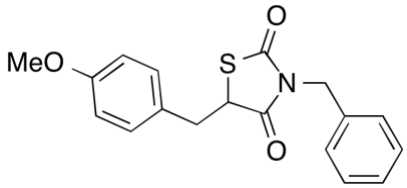
3-[2-chlorobenzyl]-1-(4-isopropylbenzyl)thiazolidine-2,4-dione (9A-4)
Synthesized as an off white solid in 91% yield by following general procedure C: m.p. 58 – 60 °C; IR (diamond) ν (cm^{-1}): 2957 (w), 1742 (w), 1674 (s), 1384 (m), 1335 (m), 1156 (m), 979 (m), 746 (s); ^{1}H NMR (300 MHz, DMSO) δ 7.45 (d, J = 7.8, 1H), 7.34 (t, J = 7.5, 1H), 7.23 (t, J = 7.8, 1H), 7.18 (s, 4H), 6.86 (d, J = 7.5, 1H), 5.19 (dd, J = 3.9, 8.4, 1H), 4.71 (s, 2H), 3.41 (dd, J = 4.8, 7.9, 1H), 3.18 (dd, J = 8.4, 14.4, 1H), 2.83 (sp, J = 6.6, 1H), 1.19 (d, J = 6.6, 6H); ^{13}C NMR (75 MHz, DMSO) δ 178.8, 176.0, 152.3, 138.7, 137.3, 136.8, 134.6, 134.5, 134.4, 132.9, 132.4, 131.5, 56.1, 47.4, 41.5, 38.2, 29.1.



3-[3-nitrobenzyl]-1-(4-isopropylbenzyl)thiazolidine-2,4-dione (9A-5)
Synthesized as a dark orange oil in 71% yield by following general procedure C: IR (diamond) ν (cm^{-1}): 2960 (m), 1750 (w), 1676 (s), 1610 (m), 1381 (m), 1329 (m), 1149 (m), 694 (m); ^{1}H NMR (300 MHz, DMSO) δ 7.17 (s, 4H), 6.94 (t, J = 7.8, 1H), 6.43 (dd, J = 3.6, 7.5, 2H), 6.29 (d, J = 8.1, 1H), 5.16 (s, 2H), 5.03 (dd, J = 4.4, 8.4, 1H), 4.55 (dd, J = 6.3, 10.5, 2H), 3.42 (dd, J = 4.8, 7.9, 1H), 3.09 (dd, J = 8.4, 13.9, 1H), 2.82 (sp, J = 6.9, 1H), 1.16 (d, J = 6.6, 6H); ^{13}C NMR (75 MHz, DMSO) δ 172.7, 170.7, 156.9, 153.0, 142.7, 139.6, 138.7, 135.7, 135.5, 135.4, 132.6, 127.9, 127.8, 125.1, 49.0, 38.6, 28.6; HRMS (ELI) calculated for $C_{20}H_{23}N_2O_2S$ 355.14802 $(M + H)^+$, found 355.14847.

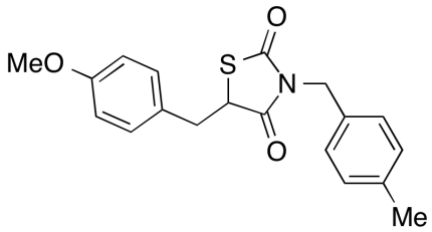


3-[2-cyanobiphenyl]-1-(4-isopropylbenzyl)thiazolidine-2,4-dione (9A-6)
Synthesized as a dark yellow oil in 95% yield by following general procedure C: IR (diamond) ν (cm^{-1}): 2958 (w), 2224 (w), 1748 (w), 1683 (s), 1381 (m), 1331 (m), 1147 (m), 765 (s), 730 (s); ^{1}H NMR (300 MHz, DMSO) δ 7.94 (d, J = 8.0, 1H), 7.80 (t, J = 7.8, 1H), 7.56 – 7.61 (m, 2H), 7.55 (d, J = 8.0, 2H), 7.28 (d, J = 8.0, 2H), 7.17 (s, 4H), 5.07 (dd, J = 4.5, 8.4, 1H), 4.72 (dd, J = 6.3, 10.5, 2H), 3.40 (dd, J = 4.0, 7.9, 1H), 3.17 (dd, J = 8.8, 14.3, 1H), 2.82 (sp, J = 6.5, 1H), 1.17 (d, J = 3.5, 6H); ^{13}C NMR (75 MHz, DMSO) δ 179.0, 176.3, 152.3, 149.1, 142.2, 141.1, 139.0, 138.7, 135.2, 134.5, 134.0, 133.4, 132.8, 131.5, 123.7, 115.2, 56.1, 49.2, 41.5, 38.1, 28.9 (22 ^{13}C peaks are expected, 21 observed due to high number of aromatic carbons)



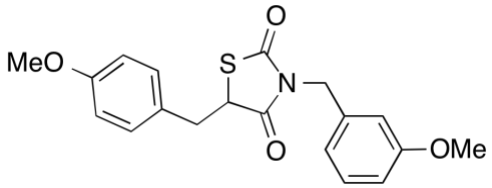
3-benzyl-1-(3-methoxybenzyl)thiazolidine-2,4-dione (9B-1)

Synthesized as a light yellow oil in 66% yield by following general procedure C: IR (diamond) ν (cm^{-1}): 2938 (w), 1748 (w), 1676 (s), 1511 (s), 1245 (s), 1147 (m), 1032 (m), 704 (m); ^{1}H NMR (300 MHz, DMSO) 7.16 – 7.22 (m, 4H), 7.03 (d, J = 8.4, 2H), 6.95 – 7.00 (m, 1H), 6.72 (d, J = 8.7, 2H), 4.93 (dd, J = 4.1, 8.0, 1H), 4.54 (dd, J = 9.3, 15.0, 2H), 3.63 (s, 3H), 3.25 (dd, J = 4.4, 14.3, 1H), 3.07 (dd, J = 8.1, 14.1, 1H); ^{13}C NMR (75 MHz, DMSO) δ 174.3, 171.5, 158.8, 135.8, 131.1, 128.9, 128.2, 128.2, 127.8, 114.2, 55.4, 51.5, 44.8, 36.3.



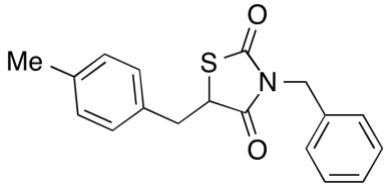
3-[4-methylbenzyl]-1-(3-methoxybenzyl)thiazolidine-2,4-dione (9B-2)

Synthesized as a white solid in 49% yield by following general procedure C: m.p. 65 – 67 °C; IR (diamond) ν (cm^{-1}): 3294 (w), 1747 (m), 1677 (s), 1509 (s), 1381 (m), 1300 (m), 1246 (s), 1141 (m), 963 (m), 822 (m); ^{1}H NMR (300 MHz, DMSO) δ 6.99 – 7.03 (m, 4H), 6.88 (d, J = 8.1, 2H), 6.71 (d, J = 8.1, 2H), 4.91 (dd, J = 3.8, 7.9, 1H), 4.48 (dd, J = 9.3, 15.0, 2H), 3.64 (s, 3H), 3.21 (dd, J = 4.2, 14.3, 1H), 3.04 (dd, J = 7.9, 14.3, 1H), 2.18 (s, 3H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 173.8, 171.1, 158.9, 137.9, 132.1, 130.4, 129.3, 128.7, 127.5, 114.1, 55.2, 51.7, 44.9, 37.6, 21.2.



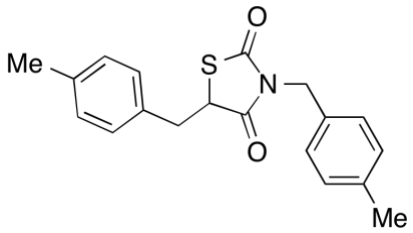
3-[3-methoxybenzyl]-1-(3-methoxybenzyl)thiazolidine-2,4-dione (9B-3)

Synthesized as a light yellow oil in 83% yield by following general procedure C: IR (diamond) ν (cm^{-1}): 2936 (w), 1745 (m), 1674 (s), 1513 (s), 1250 (s), 1147 (m), 1029 (s), 699 (m); ^{1}H NMR (300 MHz, DMSO) δ 7.11 (t, J = 7.9, 1H), 7.02 (d, J = 8.4, 2H), 6.76 (d, J = 6.9, 1H), 6.71 (d, J = 8.4, 2H), 6.67 (s, 1H), 6.51 (d, J = 6.9, 1H), 4.93 (dd, J = 4.2, 6.6, 1H), 4.51 (dd, J = 4.5, 15.0, 2H), 3.64 (s, 6H), 3.24 (dd, J = 4.4, 14.3, 1H), 3.05 (dd, J = 8.3, 13.9, 1H); ^{13}C NMR (75 MHz, DMSO) δ 174.3, 171.5, 159.7, 158.8, 137.3, 131.0, 130.0, 128.3, 119.8, 114.2, 114.1, 113.8, 113.4, 55.4, 51.5, 44.7, 36.3.



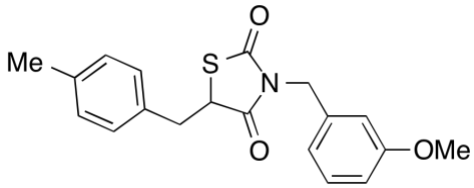
3--benzyl-1-(4-methylbenzyl)thiazolidine-2,4-dione (9C-1)

Synthesized as an off white solid in 88% yield by following general procedure C: m.p. 68 – 70 °C; IR (diamond) ν (cm^{-1}): 2952 (w), 1740 (w), 1674 (s), 1378 (m), 1337 (m), 1139 (m), 964 (m), 694(s); ^{1}H NMR (300 MHz, DMSO) δ 7.29 (m, 4H), 7.18 (m, 5H), 5.05 (dd, J = 4.2, 7.8, 1H), 4.62 (dd, J = 4.6, 14.4, 2H), 3.36 (dd, J = 8.7, 14.1, 1H), 3.17 (dd, J = 8.6, 13.9, 1H), 2.27 (s, 3H); ^{13}C NMR (75 MHz, DMSO) δ 178.9, 176.2, 141.3, 140.5, 138.1, 134.4, 134.1, 133.6, 132.7, 132.5, 55.9, 49.4, 41.4, 25.8



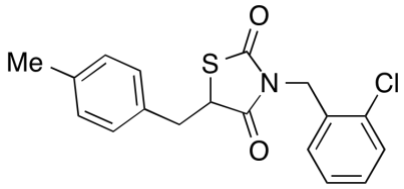
3-[4-methylbenzyl]-1-(4-methylbenzyl)thiazolidine-2,4-dione (9C-2)

Synthesized as a white solid in 82% yield by following general procedure C: m.p. 91 – 92 °C; IR (diamond) ν (cm^{-1}): 3028 (w), 1746 (m), 1690 (s), 1380 (m), 1333 (m), 1141 (m), 807 (m); ^{1}H NMR (500 MHz, $CDCl_3$) δ 7.19 (d, J = 8.0, 2H), 7.10 (d, J = 8.0, 2H), 7.05 (s, 4H), 4.67 (dd, J = 9, 14.0, 2H), 4.42 (dd, J = 4.0, 9.0, 1H), 3.45 (dd, J = 3.5, 14.0, 1H), 3.06 (dd, J = 5.0, 9.0, 1H), 2.33 (s, 3H), 2.31 (s, 3H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 173.8, 171.0, 137.9, 137.2, 132.5, 132.1, 129.4, 129.3, 129.1, 128.8, 51.6, 45.0, 38.1, 21.2, 21.1; HRMS (ELI) calculated for $C_{19}H_{20}NO_2S$ 326.12147 $(M + H)^+$, found 326.12204.



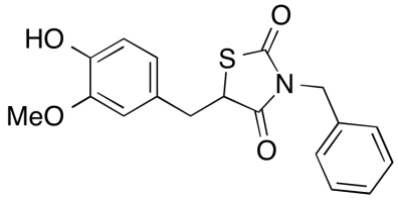
3-[3-methoxybenzyl]-1-(4-methylbenzyl)thiazolidine-2,4-dione (9C-3)

Synthesized as a yellow oil in 49% yield by following general procedure C: IR (diamond) ν (cm^{-1}): 2920 (w), 1751 (w), 1684 (s), 1380 (m), 1329 (m), 1261 (m), 1150 (m), 1043 (m), 696 (m); ^{1}H NMR (300 MHz, DMSO) δ 7.12 (t, J = 7.9, 1H), 6.98 (s, 4H), 6.76 (d, J = 7.5, 1H), 6.65 (t, J = 1.9, 1H), 6.53 (d, J = 7.5, 1H), 4.95 (dd, J = 4.2, 8.4, 1H), 4.50 (dd, J = 6.3, 15, 2H), 3.64 (s, 3H), 3.05 (dd, J = 8.1, 14.1, 1H), 2.17 (s, 3H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 173.7, 171.0, 159.8, 137.2, 136.5, 132.5, 129.7, 129.4, 129.1, 120.9, 114.2, 113.8, 55.2, 51.5, 45.1, 38.1, 21.1 (dd at 3.22 ppm for 1H overlapped by water peak)



3-[2-chlorobenzyl]-1-(4-methylbenzyl)thiazolidine-2,4-dione (9C-4)

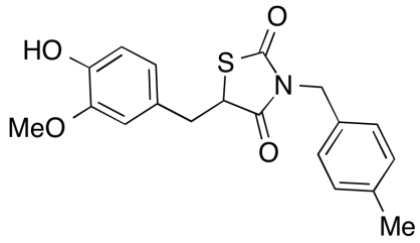
Synthesized as a white solid in 64% yield by following general procedure C: m.p. 63 – 64 °C; IR (diamond) ν (cm^{-1}): 2961 (w), 1745 (w), 1679 (s), 1387 (m), 1332 (m), 1155 (s), 979 (m), 745 (s); ^{1}H NMR (300 MHz, $CDCl_3$) δ 7.36 (d, J = 5.4, 1H), 7.21 (t, J = 2.1, 1H), 7.17 (t, J = 2.1, 1H), 7.12 (s, 4H), 6.78 (d, J = 5.4, 1H), 4.85 (dd, J = 5.1, 16.1, 2H), 4.55 (dd, J = 4.4, 8.7, 1H), 3.46 (dd, J = 3.9, 15.3, 1H), 3.19 (dd, J = 8.7, 14.1, 1H), 2.35 (s, 3H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 173.4, 170.7, 137.3, 133.0, 132.3, 129.7, 129.5, 129.4, 129.3, 128.9, 128.1, 126.9, 51.5, 42.9, 37.9, 21.1.



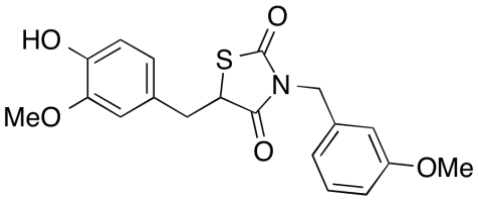
3-benzyl-1-(3-methoxy-4-hydroxybenzyl)thiazolidine-2,4-dione (9D-1)

Synthesized as an off white solid in 83% yield by following general procedure C: m.p. 69 – 70 °C; IR (diamond) ν (cm^{-1}): 3300 (br), 2965 (w), 1751 (w), 1672 (s), 1067 (s), 606 (s); ^{1}H NMR (300 MHz, DMSO) δ 8.97 (s, 1H), 7.23 – 7.33 (m, 5H), 7.07 – 7.14 (m, 1H), 6.79 (d, J = 8.1, 1H), 6.64 (s, 1H), 6.58 (d, J = 8.1, 1H), 5.01 (dd, J = 4.2, 8.4, 1H), 4.63 (dd, J = 9.0,

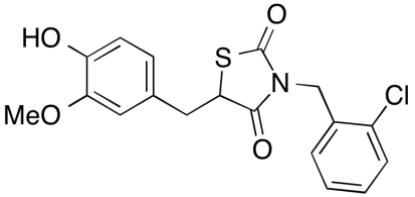
15.0, 1H), 3.77 (s, 3H), 3.29 (dd, J = 5.4, 8.7, 1H), 3.07 (dd, J = 4.5, 8.4, 1H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 168.2, 166.5, 152.0, 148.4, 146.4, 136.5, 135.5, 134.5, 128.9, 128.0, 127.4, 115.6, 111.0, 71.2, 56.3, 45.4; HRMS (ELI) calculated for $C_{18}H_{18}NO_4S$ 344.09565 $(M + H)^+$, found 344.09509.



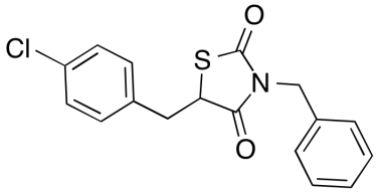
3-[4-methylbenzyl]-1-(3-methoxy-4-hydroxybenzyl)thiazolidine-2,4-dione (9D-2)
Synthesized as an off white solid in 74% yield by following general procedure C: m.p. 89 – 90 °C; IR (diamond) ν (cm^{-1}): 3400 (br), 2963 (w), 1739 (m), 1688 (s), 1279 (m), 755 (m); ^{1}H NMR (300 MHz, DMSO) δ 8.89 (s, 1H), 7.12, (d, J = 7.8, 2H), 6.99 (d, J = 7.5, 2H), 6.77 (d, J = 8.1, 1H), 6.66 (s, 1H), 6.57 (d, J = 8.1, 1H), 4.96 (dd, J = 3.6, 8.0, 1H), 4.59 (dd, J = 9.0, 15.2, 2H), 3.74 (s, 3H), 3.28 (dd, J = 4.2, 8.7, 1H), 2.93 (dd, J = 8.7, 14.4, 1H), 2.17 (s, 3H); ^{13}C NMR (75 MHz, DMSO), 178.9, 176.2, 151.9, 151.3, 141.9, 137.5, 134.1, 133.6, 132.5, 125.1, 121.9, 117.1, 60.6, 56.2, 49.2, 41.3, 25.8.



3-[3-methoxybenzyl]-1-(3-methoxy-4-hydroxybenzyl)thiazolidine-2,4-dione (9D-3)
Synthesized as a dark oil in 93% yield by following general procedure C: IR (diamond) ν (cm^{-1}): 3400 (br), 2938 (w), 1748 (w), 1676 (s), 1262 (s), 1147 (s), 1032 (s), 733 (s); ^{1}H NMR (300 MHz, $CDCl_3$) δ 9.03 (s, 1H), 7.21 (t, J = 6.3, 1H), 6.84 (d, J = 4.8, 1H), 6.74 – 6.80 (m, 2H), 6.68 (s, 1H), 6.56 – 6.63 (m, 2H), 4.97 (dd, J = 4.1, 8.4, 1H), 4.61 (dd, 3.8, 15.1, 2H), 3.74 (s, 6H), 3.28 (dd, J = 2.7, 14.1, 1H), 3.02 (dd, J = 4.4, 13.9, 1H); ^{13}C NMR (75 MHz, DMSO) δ 178.9, 176.3, 164.4, 151.9, 151.4, 142.0, 134.8, 133.7, 124.9, 124.3, 121.8, 118.4, 118.0, 117.1, 60.6, 60.1, 56.3, 49.4, 41.4.

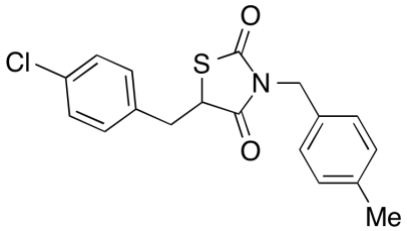


3-[2-chlorobenzyl]-1-(3-methoxy-4-hydroxybenzyl)thiazolidine-2,4-dione (9D-4)
Synthesized as an off white solid in 43% yield by following general procedure C: m.p. 91 – 93 °C; IR (diamond) ν (cm^{-1}): 3424 (br), 2943 (w), 1746 (w), 1679 (s), 1278 (m), 1124 (m), 1018 (m), 762 (m); ^{1}H NMR (300 MHz, DMSO) δ 9.02 (s, 1H), 7.46 (d, J = 7.8, 1H), 7.34 (t, J = 7.2, 1H), 7.19 (t, J = 7.2, 1H), 6.84 (d, J = 8.1, 1H), 6.68 (s, 1H), 6.63 (d, J = 8.4, 2H), 5.06 (dd, J = 4.1, 8.4, 1H), 4.69 (dd, J = 3.9, 15.6, 2H), 3.78 (s, 3H), 3.35 (dd, J = 3.5, 14.3, 1H), 3.11 (dd, J = 9.0, 14.1, 1H); ^{13}C NMR (75 MHz, DMSO) δ 178.7, 176.2, 152.0, 151.4, 137.2, 136.6, 134.5, 134.3, 133.5, 132.4, 125.4, 121.9, 117.1, 60.6, 56.4, 47.2, 41.1 (18 ^{13}C peaks are expected, 17 are observed due to aromatic overlap)



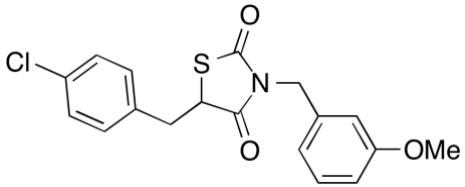
3-benzyl-1-(4-chlorobenzyl)thiazolidine-2,4-dione (9E-1)

Synthesized as a white solid in 83% yield by following general procedure C: m.p. 90 °C (decomposed); IR (diamond) ν (cm^{-1}): 3034 (w), 1748 (m), 1685 (s), 1383 (m), 1141 (m), 696 (s); ^{1}H NMR (300 MHz, DMSO) δ 7.29 – 7.36 (m, 6H), 7.20 (d, J = 8.0, 2H), 7.02 – 7.04 (m, 1H), 5.05 (dd, J = 4.5, 8.1, 1H), 4.60 (dd, J = 9.0, 15.0, 2H), 3.38 (dd, J = 4.7, 13.9, J = 1H), 3.23 (dd, J = 7.8, 13.8, 1H); ^{13}C NMR (75 MHz, DMSO) δ 178.8, 176.3, 140.4, 140.0, 137.0, 136.6, 133.6, 133.4, 132.7, 132.4, 55.4, 49.5, 40.8.



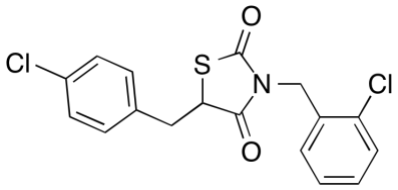
3-[4-methylbenzyl]-1-(4-chlorobenzyl)thiazolidine-2,4-dione (9E-2)

Synthesized as a white solid in 87% yield by following general procedure C: m.p. 100 °C (decomposed); IR (diamond) ν (cm^{-1}): 2920 (w), 1752 (m), 1683 (s), 1382 (m), 1141 (s), 1092 (m), 599 (s); ^{1}H NMR (300 MHz, DMSO) δ 7.26 (d, J = 8.5, 2H), 7.19 (d, J = 8.5, 2H), 7.10 (d, J = 8.0, 2H), 6.93 (d, J = 8.0, 2H), 5.03 (dd, J = 4.5, 8.1, 1H), 4.54 (dd, J = 9.0, 15.0, 2H), 3.40 (dd, J = 4.3, 9.8, 1H), 3.25 (dd, J = 7.5, 14.3, 1H), 2.07 (s, 3H); ^{13}C NMR (75 MHz, DMSO) δ 178.7, 176.0, 142.0, 140.0, 137.5, 137.0, 136.6, 134.1, 133.4, 132.6, 55.4, 49.2, 40.9, 25.8 .



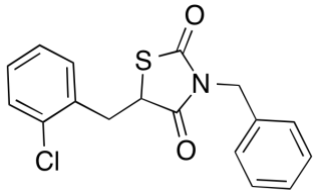
3-[3-methoxybenzyl]-1-(4-chlorobenzyl)thiazolidine-2,4-dione (9E-3)

Synthesized as a white solid in 82% yield by following general procedure C: m.p. 78 – 80 °C; IR (diamond) ν (cm^{-1}): 2958 (w), 1753 (w), 1685 (s), 1288 (m), 1144 (m), 1049 (m), 701 (s); ^{1}H NMR (300 MHz, DMSO) δ 7.30 (d, J = 8.5, 2H), 7.17 – 7.19 (m, 3H), 6.84 (d, J = 7.8, 1H), 6.70 (s, 1H), 6.55 (d, J = 7.8, 1H), 5.05 (dd, J = 4.5, 8.1, 1H), 4.57 (dd, J = 9.0, 15.0, 2H), 3.71 (s, 3H), 3.37 (dd, J = 4.3, 9.8, 1H), 3.21 (dd, J = 7.5, 14.0, 1H); ^{13}C NMR (75 MHz, DMSO) δ 178.8, 176.0, 164.4, 141.9, 140.1, 137.0, 136.5, 134.7, 133.4, 124.4, 118.5, 117.9, 60.1, 55.5, 49.4, 40.9.



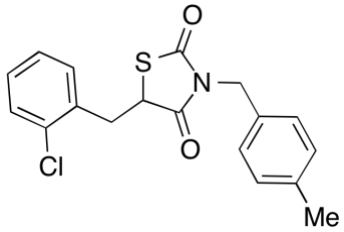
3-[2-chlorobenzyl]-1-(4-chlorobenzyl)thiazolidine-2,4-dione (9E-4)

Synthesized as an off white solid in 76% yield by following general procedure C: m.p. 110 – 111 °C; IR (diamond) ν (cm^{-1}): 2959 (w), 1732 (m), 1673 (s), 1384 (m), 1146 (s), 1083 (m), 751 (s); ^{1}H NMR (300 MHz, DMSO) δ 7.37 (d, J = 8.1, 1H), 7.11 – 7.30 (m, 6H), 6.55 (d, J = 6.9, 1H), 5.03 (dd, J = 4.8, 7.8, 1H), 4.59 (dd, J = 2.1, 16.2, 2H), 3.33 (dd, J = 4.7, 13.9 1H), 3.17 (dd, J = 7.1, 13.9, 1H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 173.1, 170.2, 133.7, 133.4, 133.0, 131.7, 131.2, 129.7, 129.1, 128.9, 128.1, 126.9, 50.8, 42.9, 37.3.



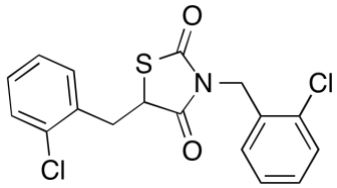
3-benzyl-1-(2-chlorobenzyl)thiazolidine-2,4-dione (9F-1)

Synthesized as a white solid in 66% yield by following general procedure C: m.p. 75 – 76 °C; IR (diamond) ν (cm^{-1}): 2926 (w), 1745 (m), 1681 (s), 1385 (m), 1336 (m), 1149 (m), 967 (m), 701 (s); ^{1}H NMR (300 MHz, DMSO) δ 7.38 (d, J = 7.5, 1H), 7.14 – 7.25 (m, 8H), 4.98 (dd, J = 3.9, 5.4, 1H), 4.61 (dd, J = 2.1, 13.8, 2H), 3.56 (dd, J = 3.8, 14.0, 1H), 3.19 (dd, J = 3.9, 9.6, 1H); ^{13}C NMR (75 MHz, DMSO) δ 174.1, 171.3, 135.9, 134.8, 134.0, 131.7, 130.0, 129.7, 129.0, 128.1, 128.0, 49.7, 45.0, 35.3 (15 ^{13}C peaks are expected, 14 observed due to aromatic overlap)



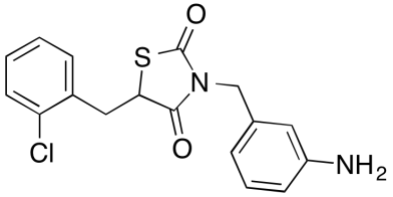
3-[4-methylbenzyl]-1-(2-chlorobenzyl)thiazolidine-2,4-dione (9F-2)

Synthesized as an off white solid in 93% yield by following general procedure C: m.p. 91 – 92 °C; IR (diamond) ν (cm^{-1}): 2922 (w), 1750 (m), 1690 (s), 1376 (m), 1328 (m), 1144 (m), 753 (s); ^{1}H NMR (300 MHz, DMSO) δ 7.38 (d, J = 9.6, 1H), 7.15 – 7.26 (m, 3H), 7.04 (s, 4H), 4.83 (dd, J = 4.8, 9.5, 1H), 4.55 (s, 2H), 3.54 (dd, J = 4.8, 14.4, 1H), 3.16 (dd, J = 8.8, 14.9, 1H), 2.19 (s, 3H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 173.6, 170.9, 138.1, 134.3, 134.0, 132.2, 131.2, 129.9, 129.4, 129.1, 128.9, 127.1, 49.4, 45.1, 36.8, 21.1; HRMS (ELI) calculated for $C_{18}H_{17}ClNO_2S$ 346.06685 $(M + H)^+$, found 346.06657.



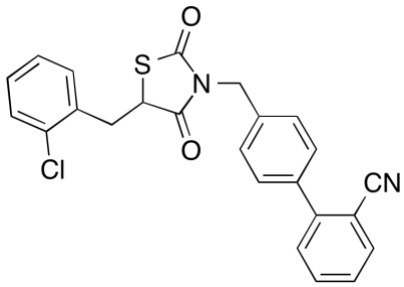
3-[2-chlorobenzyl]-1-(2-chlorobenzyl)thiazolidine-2,4-dione (9F-3)

Synthesized as an off white solid in 76% yield by following general procedure C: m.p. 93 – 94 °C; IR (diamond) ν (cm^{-1}): 2966 (w), 1750 (m), 1666 (s), 1381 (m), 1326 (m), 1151 (m), 1055 (m), 755 (s); ^{1}H NMR (300 MHz, DMSO) δ 7.39 (d, J = 6.3, 2H), 7.21 – 7.29 (m, 5H), 7.01 (d, J = 6.9, 1H), 5.03 (dd, 4.8, 9.5, 1H), 4.67 (s, 2H), 3.57 (dd, J = 4.8, 14.1, 1H), 3.22 (dd, J = 4.8, 9.3, 1H); ^{13}C NMR (75 MHz, $CDCl_3$) 173.4, 170.6, 134.4, 133.9, 133.2, 132.1, 131.3, 130.0, 129.8, 129.2, 129.2, 128.7, 127.2, 127.0, 49.5, 43.0, 36.8.



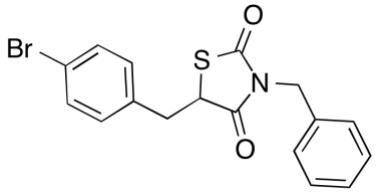
3-[3-nitrobenzyl]-1-(2-chlorobenzyl)thiazolidine-2,4-dione (9F-4)

Synthesized as a brown solid in 61% yield by following general procedure C: m.p. 96 – 97 °C; IR (diamond) ν (cm^{-1}): 3365 (m), 1741 (m), 1677 (s), 1385 (m), 1334 (m), 1147 (m), 970 (m), 761 (s); ^{1}H NMR (300 MHz, DMSO) δ 7.38 (d, J = 6.3, 1H), 7.22 (d, J = 7.2, 3H), 6.86 (t, J = 8.9, 1H), 6.38 (d, J = 6.9, 2H), 6.27 (d, J = 7.2, 1H), 5.04 (s, 2H), 4.94 (dd, J = 4.8, 9.5, 1H), 4.44 (s, 2H), 3.57 (dd, J = 4.5, 14.1, 1H), 3.15 (dd, J = 9.8, 14.3, 1H); ^{13}C NMR (75 MHz, DMSO) δ 174.1, 171.2, 149.4, 136.4, 134.8, 133.9, 131.7, 130.0, 129.7, 129.5, 127.9, 115.3, 113.7, 113.3, 49.6, 45.3, 35.5.



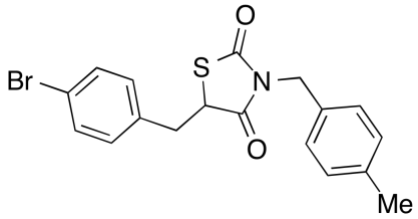
3-[2-cyanobiphenyl]-1-(2-chlorobenzyl)thiazolidine-2,4-dione (9F-5)

Synthesized as an off yellow oil in 72% yield by following general procedure C: IR (diamond) ν (cm^{-1}): 2925 (w), 2222 (w), 1752 (m), 1677 (s), 1380 (m), 1332 (m), 1149 (m), 759 (s); ^{1}H NMR (500 MHz, $CDCl_3$) δ 7.76 (d, J = 8.0, 1H), 7.64 (t, J = 7.5, 1H), 7.44 – 7.544 (m, 4H), 7.37 (d, J = 7.0, 2H), 7.15 – 7.30 (m, 4H), 4.82 (dd, J = 6.0, 14, 2H), 4.67 (dd, J = 4.5, 10.0, 1H), 3.86 (dd, J = 4.5, 14.0, 1H), 3.10 (dd, J = 9.8, 14.3, 1H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 173.6, 170.9, 144.8, 138.1, 135.6, 134.4, 133.9, 133.8, 132.9, 131.3, 130.1, 129.9, 129.2, 128.6, 127.8, 127.2, 118.6, 111.2, 49.5, 44.9, 36.6 (22 ^{13}C peaks are expected, 21 observed due to high number of aromatic carbons)



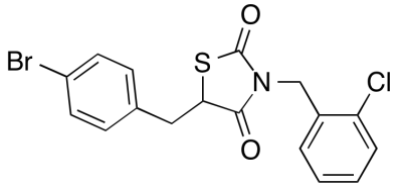
3-benzyl-1-(4-bromobenzyl)thiazolidine-2,4-dione (9G-1)

Synthesized as a light dark orange oil in 85% yield by following general procedure C: IR (diamond) ν (cm^{-1}): 3030 (w), 1752 (m), 1675 (s), 1382 (m), 1329 (m), 1148 (m), 698 (s); ^{1}H NMR (300 MHz, DMSO) δ 7.10 – 7.22 (m, 8H), 6.99 – 7.02 (m, 1H), 4.99 (dd, J = 4.2, 8.3, 1H), 4.55 (dd, J = 6.3, 15.0, 2H), 3.34 (dd, J = 4.5, 13.8, 1H), 3.12 (dd, J = 8.3, 13.9, 1H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 173.7, 171.0, 135.6, 135.0, 129.4, 128.9, 128.8, 128.7, 128.2, 127.6, 51.5, 45.4, 38.6.



3-[4-methylbenzyl]-1-(4-bromobenzyl)thiazolidine-2,4-dione (9G-2)

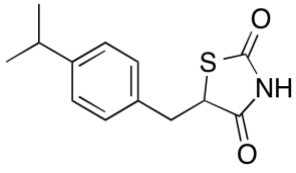
Synthesized as a red solid in 70% yield by following general procedure C: m.p. 64 – 65 °C; IR (diamond) ν (cm^{-1}): 3030 (w), 1739 (m), 1675 (s), 1380 (m), 1329 (m), 1144 (m), 696 (s); ^{1}H NMR (500 MHz, $CDCl_3$) δ 7.16 – 7.22 (m, 4H), 7.10 – 7.14 (m, 4H), 4.67 (dd, J = 9.5, 14, 2H), 4.44 (dd, J = 3.5, 9.3, 1H), 3.51 (dd, J = 3.5, 14.3, 1H), 3.09 (dd, J = 4.5, 9.5, 1H), 2.33 (s, 3H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 173.7, 170.9, 137.9, 132.1, 131.8, 131.3, 129.4, 128.2, 128.8, 127.6, 51.5, 45.1, 38.7, 21.2; HRMS (ELI) calculated for $C_{18}H_{17}BrNO_2S$ 390.01634 $(M + H)^+$, found 390.01587.



3-[2-chlorobenzyl]-1-(4-bromobenzyl)thiazolidine-2,4-dione (9G-3)

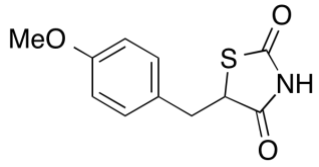
Synthesized as an orange oil in 90% yield by following general procedure C: IR (diamond) ν (cm^{-1}): 2924 (w), 1752 (m), 1678 (s), 1380 (m), 1331 (m), 1155 (m), 745 (s); ^{1}H NMR (500 MHz, $CDCl_3$) δ 7.35 (d, J = 6.5, 2H), 7.19 – 7.27 (m, 4H), 7.12 (t, J = 7.5, 1H), 6.75 (d, J = 7.0, 1H), 4.85 (dd, J = 12, 15.5, 2H), 4.58 (dd, J = 5.0, 6.5, 1H), 3.51 (dd, J = 4.0, 14.0, 1H), 3.22 (dd, J = 8.5, 14.0, 1H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 173.4, 170.5, 135.4, 133.0, 131.9, 129.7, 129.6, 129.0, 128.9, 128.1, 127.7, 127.0, 51.4,

42.9, 38.4



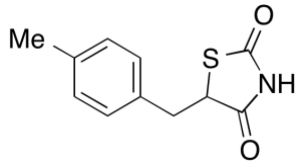
1-(4-isopropylbenzyl)-3-thiazolidine-2,4-dione (10A)

Synthesized as an off white residue in 95% yield by following general procedure C: IR (diamond) ν (cm^{-1}): 3175 (br), 3052 (br), 1754 (m), 1672 (s), 1337 (m), 1156 (m), 819 (m); ^{1}H NMR (300 MHz, DMSO) δ 7.03 – 7.11 (m, 4H), 4.75 (dd, J = 4.2, 9.6, 1H), 3.27 (dd, J = 4.2, 14.1, 1H), 2.94 (dd, J = 9.6, 14.1, 1H), 2.75 (sp, J = 6.9, 1H), 1.09 (d J = 6.9, 6H); ^{13}C NMR (75 MHz, DMSO) δ 177.3, 172.9, 147.4, 135.0, 129.5, 126.8, 53.7, 37.5, 33.5, 24.3.



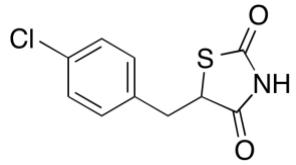
1-(4-methoxybenzyl)-3-thiazolidine-2,4-dione (10B)

Synthesized as an off white solid in 80% yield by following general procedure C: m.p. 96 – 97 °C; IR (diamond) ν (cm^{-1}): 3176 (br), 3077 (br), 1742 (m), 1691 (s), 1612 (m), 1516 (s), 1238 (s), 1147 (s), 712 (s); ^{1}H NMR (300 MHz, DMSO) δ 7.06 (d, J = 8.4, 2H), 6.77 (d, J = 8.7, 2H), 4.70 (dd, J = 4.2, 9.0, 1H), 3.62 (s, 3H), 3.21 (dd, J = 4.2, 14.1, 1H), 2.92 (dd, J = 9.2, 13.9, 1H); ^{13}C NMR (75 MHz, DMSO) δ 177.5, 173.0, 158.7, 130.8, 129.3, 114.2, 55.5, 54.1, 37.0; HRMS (ELI) calculated for $C_{11}H_{12}NO_3S$ 238.05379 $(M + H)^+$, found 238.05313.



1-(4-methylbenzyl)-3-thiazolidine-2,4-dione (10C)

Synthesized as an off white solid in 88% yield by following general procedure C: m.p. 80 – 81 °C; IR (diamond) ν (cm^{-1}): 3174 (br), 3050 (br), 1742 (m), 1689 (s), 1333 (m), 1149 (m), 707 (m), 648 (m); ^{1}H NMR (300 MHz, DMSO) δ 7.02 (s, 4H), 4.69 (dd, J = 4.2, 9.3, 1H), 3.24 (dd, J = 4.2, 14.1, 1H), 2.92 (dd, J = 9.3, 14.1, 1H), 2.17 (s, 3H); ^{13}C NMR (75 MHz, DMSO) δ 178.2, 173.5, 136.5, 134.6, 129.5, 129.4, 54.1, 37.6, 21.1.



1-(4-chlorobenzyl)-3-thiazolidine-2,4-dione (10E)

Synthesized as an off white solid in 89% yield by following general procedure C: m.p. 93 – 94 °C; IR (diamond) ν (cm^{-1}): 3152 (br), 3055 (br), 1746 (m), 1692 (s), 1493(m), 1332 (m), 1163 (m), 669 (s); ^{1}H NMR (300 MHz, DMSO) δ 7.29 (d, J = 8.1, 2H), 7.17 (d, J = 8.1, 2H), 4.77 (dd, J = 4.5, 9.0, 1H), 3.27 (dd, J = 4.4, 14.3, 1H), 3.02 (dd, J = 8.9, 13.9, 1H); ^{13}C NMR (75 MHz, DMSO) δ 182.2, 177.6, 141.3, 136.8, 136.3, 133.4, 58.0, 41.7; HRMS (ELI) calculated for $C_{10}H_9NO_2S$ 242.00425 $(M + H)^+$, found 242.00375.