Supplementary Information

Synthesis and anticancer activity evaluation of Resveratrol-Chalcone conjugates

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Experimental section

All the chemicals were purchased from Sigma-Aldrich. Solvents used for the chemical synthesis were of analytical grade and used without further purification. Thin layer chromatography (Merck Kiesel 60 F254, 0.2 mm thickness) was used to monitor the progress of the reactions and the compounds were purified by silica gel (60-120 mesh) column chromatography. IR spectra were recorded on Perkin-elmer FT-IR spectrophotometer using KBr pellets or as film in chloroform and the values were expressed in cm^{-1}. ^{1}H NMR (400 MHz) and ^{13}C NMR (100 MHz) spectra were recorded on Jeol ECX spectrospin instrument using $CDCl_3$ or DMSO-d_6 as solvent and TMS as internal reference. The chemical shift values were expressed on δ scale and the coupling constant (*J*) in Hz. Melting points were recorded on EZ-Melt automated melting point apparatus, Stanford Research Systems and are uncorrected. Mass data were recorded in Jeol-Accu TOF JMS-T100LC mass spectrometer.

Typical procedure for the synthesis of (*E*)-1-phenyl-3-(*p*-tolyl)prop-2-en-1-one (5) and related compounds (6, 7): To a stirred solution of acetophenone (**5**, 5 g, 0.04 mol) in ethanol, 40% solution of NaOH was added dropwise at 0 ^{o}C. The mixture was stirred for 5 minutes and *p*-tolualdehyde (**4**, 5 g, 0.04 mol) was added to it and stirred for next 4-5 h. The yellow solid thus obtained was filtrated and crystallized with cold ethanol and dried under vacuum.

Typical procedure for the synthesis of (*E*)-3-(4-(bromomethyl)phenyl)-1-phenylprop-2-en-1-one (8) and related compounds (9, 10): To a solution of compound **5** (8 g, 0.036 mol) and NBS (7.68 g, 0.043 mol) in carbon tetrachloride (CCl_4), benzoyl peroxide (1.74 g, 0.007 mol) was added. The mixture was refluxed for 3-5 h. After completion of reaction as observed by TLC, excess solvent was removed under vacuum. Product was extracted using chloroform, combined organic layer was dried over sodium sulphate and excess solvent was removed. The crude compound was purified by column chromatography using EtOAc/Hexane as eluent to get the pure product.

Typical procedure for the synthesis of (*E*)-(4-(3-oxo-3-phenylprop-1-en-1-yl) benzyl)triphenyl phosphonium bromide (11) and related compounds (12, 13): To a stirred solution of compound **8** (8 g, 0.026 mol) in benzene, triphenylphosphene (7.6 g, 0.029 mol) was added and the reaction mixture was refluxed for 6-8 h. A solid was precipitated out which was filtered, washed with benzene and dried in vacuum oven.

Typical procedure for the synthesis of (*E*)-1-phenyl-3-(4-((*E*)-styryl)phenyl)prop-2-en-1-one (14) and related compounds (15-70): To a stirred solution of wittig salt (**11**, 500 mg, 0.88 mmol) in dichloromethane, 5% solution of NaOH was added dropwise at 0 ^{o}C. The mixture was allowed to stir for 10 minutes and benzaldehyde (100 mg, 0.88 mmol) was added to the solution and stirred for another 2-5 h. After completion of reaction, excess solvent was removed under vacuum and crude product was purified by column chromatography using EtOAc/Hexane as eluent to obtain pure *trans*-isomer (**14**).

(*E*)-1-Phenyl-3-(4-styrylphenyl)prop-2-en-1-one (14): Yield 80%; mp 168-170 ^{o}C; IR (film, cm^{-1}): 3051, 3027, 1657, 1601, 1446, 1336, 1220, 1022, 972, 824, 768; ^{1}H NMR (400 MHz, $CDCl_3$): δ 7.12 (d, *J* = 16.1 Hz, 1H), 7.20 (d, *J* = 16.1 Hz, 1H), 7.29 (t, *J* = 7.3 Hz, 1H), 7.38 (t, *J* = 7.3 Hz, 2H), 7.52-7.53 (m, 4H), 7.55-7.56 (m, 2H), 7.58 (d, *J* = 8.0 Hz, 2H), 7.65 (d, *J* = 8.0 Hz, 2H), 7.82 (d, *J* = 15.3 Hz, 1H), 8.03 (d, *J* = 7.3 Hz, 2H); ESI-MS (*m/z*) calculated for $C_{23}H_{18}O$: 310.13, found: 311.17 $(M + H)^{+}$.

(*E*)-3-(4-(3-Fluorostyryl)phenyl)-1-phenylprop-2-en-1-one (15): Yield 50%; mp 149-151 ^{o}C; IR (film, cm^{-1}): 3022, 2906, 2802, 1656, 1601, 1435, 1334, 1220, 968, 858, 783; ^{1}H NMR (400 MHz, $CDCl_3$): δ 6.97 (t, *J* = 7.3 Hz, 1H), 7.10 (d, *J* = 16.1 Hz, 1H), 7.15 (d, *J* = 16.1 Hz, 1H), 7.22-7.24 (m, 1H), 7.28 (d, *J* = 8.0 Hz, 1H), 7.30-7.34 (m, 1H) 7.50 (d, *J* = 7.3 Hz, 2H), 7.52-7.53 (m, 1H), 7.55 (d, *J* = 8.0 Hz, 2H), 7.59 (t, *J* = 7.3 Hz, 1H), 7.65 (d, *J* = 8.0 Hz, 2H), 7.81 (d, *J* = 15.3 Hz, 1H), 8.03 (d, *J* = 7.3 Hz, 2H).

(*E*)-3-(4-(4-Fluorostyryl)phenyl)-1-phenylprop-2-en-1-one (16): Yield 60%; mp 180-183 ^{o}C; IR (film, cm^{-1}): 3049, 3023, 1656, 1595, 1509, 1333, 1219, 1017, 971, 833, 773; ^{1}H NMR (400 MHz, $CDCl_3$): δ 7.01-7.09 (m, 3H), 7.15 (d, *J* = 16.1 Hz, 1H), 7.48-7.50 (m, 2H), 7.51-7.53 (m, 3H), 7.55-7.56 (m, 2H), 7.57-7.59 (m, 1H), 7.64 (d, *J* = 8.7 Hz, 2H), 7.81 (d, *J* = 16.1 Hz, 1H), 8.03 (d, *J* = 8.7 Hz, 2H); ESI-MS (*m/z*) calculated for $C_{23}H_{17}FO$: 328.12, found: 329.23 $(M + H)^{+}$.

(*E*)-3-(4-(3-Chlorostyryl)phenyl)-1-phenylprop-2-en-1-one (17): Yield 65%; mp 162-163 ^{o}C; IR (film, cm^{-1}): 3049, 3017, 1655, 1598, 1417, 1332, 1218, 1017, 969, 822, 782; ^{1}H NMR (400 MHz, $CDCl_3$): δ 7.11 (s, 2H), 7.27 (d, *J* = 8.0 Hz, 1H), 7.31 (d, *J* = 8.0 Hz, 1H), 7.38-7.50 (m, 1H), 7.51-7.53 (m, 2H), 7.53-7.54 (m, 2H), 7.57 (s, 2H), 7.57-7.60 (m, 1H), 7.65 (d, *J* = 8.0 Hz, 2H), 7.81 (d, *J* = 16.1 Hz, 1H), 8.02-8.04 (m, 2H); ESI-MS (*m/z*) calculated for $C_{23}H_{17}ClO$: 344.09, found: 345.12 $(M + H)^{+}$, 347.17 $(M + 2H)^{+}$.

(*E*)-3-(4-(4-Chlorostyryl)phenyl)-1-phenylprop-2-en-1-one (18): Yield 70%; mp 162-163 ^{o}C; IR (film, cm^{-1}): 3045, 2921, 1655, 1600, 1487, 1334, 1219, 1092, 1017, 971, 830, 772; ^{1}H NMR (400 MHz, $CDCl_3$): δ 7.08 (d, *J* = 16.1 Hz, 1H), 7.14 (d, *J* = 16.1 Hz, 1H), 7.34 (d, *J* = 8.0 Hz, 2H), 7.46 (d, *J* = 8.7 Hz, 2H), 7.49-7.52 (m, 2H), 7.54-7.56 (m, 3H), 7.58-7.59 (m, 1H), 7.65 (d, *J* = 8.0 Hz, 2H), 7.81 (d, *J* = 16.1 Hz, 1H), 8.03 (d, *J* = 8.0 Hz, 2H); ESI-MS (*m/z*) calculated for $C_{23}H_{17}ClO$: 344.09, found: 345.13 $(M + H)^{+}$, 347.15 $(M + 2H)^{+}$.

(*E*)-3-(4-(3-Bromostyryl)phenyl)-1-phenylprop-2-en-1-one (19): Yield 55%; mp 166-168 ^{o}C; IR (film, cm^{-1}): 3051, 1657, 1598, 1418, 1334, 1219, 1017, 970, 823, 780; ^{1}H NMR (400 MHz, $CDCl_3$): δ 7.10 (s, 2H), 7.23 (d, *J* = 7.3 Hz, 1H), 7.39-7.44 (m, 2H), 7.50-7.54 (m, 3H), 7.56-7.57 (m, 2H), 7.58-7.60 (m, 1H), 7.65 (d, *J* = 8.0 Hz, 2H), 7.68-

7.69 (m, 1H), 7.81 (d, J = 15.3 Hz, 1H), 8.03 (d, J = 8.0 Hz, 2H); ESI-MS (*m/z*) calculated for $C_{23}H_{17}BrO$: 388.04, found: 389.11 $(M + H)^+$, 391.13 $(M + 2H)^+$.

(*E*)-3-(4-(4-Bromostyryl)phenyl)-1-phenylprop-2-en-1-one (20): Yield 65%; mp 225-227 °C; IR (film, cm^{-1}): 3023, 2881, 1652, 1598, 1480, 1411, 1329, 1215, 1070, 969, 827, 771; ^1H NMR (400 MHz, $CDCl_3$): δ 7.11 (s, 2H), 7.40 (d, J = 8.0 Hz, 2H), 7.48-7.50 (m, 2H), 7.51-7.53 (m, 2H), 7.54-7.56 (m, 3H), 7.58-7.60 (m, 1H), 7.69 (d, J = 8.0 Hz, 2H), 7.81 (d, J = 15.3 Hz, 1H), 8.03 (d, J = 7.3 Hz, 2H).

(*E*)-3-(4-(3-Nitrostyryl)phenyl)-1-phenylprop-2-en-1-one (21): Yield 80%; mp 172-173 °C; IR (film, cm^{-1}): 3061, 3029, 1658, 1591, 1527, 1346, 1216, 1015, 967, 814, 771; ^1H NMR (400 MHz, $CDCl_3$): δ 7.20 (d, J = 16.1 Hz, 1H), 7.26 (d, J = 16.1 Hz, 1H), 7.50-7.54 (m, 3H), 7.57 (d, J = 7.3 Hz, 2H), 7.61 (d, J = 7.3 Hz, 2H), 7.68 (d, J = 8.0 Hz, 2H), 7.80-7.84 (m, 2H), 8.04 (d, J = 7.3 Hz, 2H), 8.11-8.13 (m, 1H), 8.39 (brs, 1H).

(*E*)-3-(4-(4-Nitrostyryl)phenyl)-1-phenylprop-2-en-1-one (22): Yield 85%; mp 199-200 °C; IR (film, cm^{-1}): 3072, 3027, 1654, 1594, 1512, 1414, 1338, 1216, 1108, 974, 845, 778; ^1H NMR (400 MHz, $CDCl_3$): δ 7.22 (d, J = 16.1 Hz, 1H), 7.29 (d, J = 16.1 Hz, 1H), 7.50-7.55 (m, 3H), 7.59-7.62 (m, 3H), 7.65-7.69 (m, 4H), 7.82 (d, J = 16.1 Hz, 1H), 8.02-8.04 (m, 2H), 8.24 (d, J = 8.7 Hz, 2H); ESI-MS (*m/z*) calculated for $C_{23}H_{17}NO_3$: 355.12, found: 356.17 $(M + H)^+$

(*E*)-3-(4-(3-Methylstyryl)phenyl)-1-phenylprop-2-en-1-one (23): Yield 70%; mp 210-212 °C; IR (film, cm^{-1}): 3019, 2908, 1655, 1597, 1443, 1331, 1214, 1015, 970, 822, 781; ^1H NMR (400 MHz, $CDCl_3$): δ 2.38 (s, 3H, CH_3), 7.10 (d, J = 16.1 Hz, 1H), 7.17 (d, J = 16.1 Hz, 1H), 7.24-7.28 (m, 1H), 7.34 (d, J = 8.7 Hz, 2H), 7.49-7.51 (m, 2H), 7.53-7.54 (m, 2H), 7.55-7.56 (m, 2H), 7.57-7.59 (m, 1H), 7.64 (d, J = 8.0 Hz, 2H), 7.81 (d, J = 16.1 Hz, 1H), 8.03 (d, J = 8.0 Hz, 2H).

(*E*)-3-(4-(4-Methylstyryl)phenyl)-1-phenylprop-2-en-1-one (24): Yield 80%; mp 156-158 °C; IR (film, cm^{-1}): 3021, 2906, 1654, 1592, 1419, 1335, 1019, 973, 828; ^1H NMR (400 MHz, $CDCl_3$): δ 2.30 (s, 3H, CH_3), 7.0 (d, J = 16.1 Hz, 1H), 7.08-7.12 (m, 3H), 7.36 (d, J = 8.0 Hz, 2H), 7.42-7.44 (m, 2H), 7.46-7.48 (m, 3H), 7.50-7.52 (m, 1H), 7.57 (d, J = 8.0 Hz, 2H), 7.74 (d, J = 16.1 Hz, 1H), 7.96 (d, J = 6.5 Hz, 2H); ESI-MS (*m/z*) calculated for $C_{24}H_{20}O$: 324.15, found: 325.21 $(M + H)^+$.

(*E*)-3-(4-(4-Ethylstyryl)phenyl)-1-phenylprop-2-en-1-one (25): Yield 75%; mp 182-184 °C; IR (film, cm^{-1}): 3019, 2963, 2925, 2866, 1652, 1590, 1418, 1332, 1216, 1016, 971, 832, 775; ^1H NMR (400 MHz, $CDCl_3$): δ 1.25 (t, J = 7.3 Hz, 3H, CH_2CH_3), 2.67 (q, J = 7.3 Hz, 2H, CH_2CH_3), 7.08 (d, J = 16.1 Hz, 1H), 7.16-7.22 (m, 3H), 7.46 (d, J = 8.0 Hz, 2H), 7.49-7.51 (m, 2H), 7.53-7.56 (m, 3H), 7.57-7.59 (m, 1H), 7.64 (d, J = 8.7 Hz, 2H), 7.81 (d, J = 16.1 Hz, 1H), 8.03 (d, J = 8.7 Hz, 2H); ^{13}C NMR (100 MHz, $CDCl_3$): δ 15.47, 28.65, 121.42, 126.70, 126.79, 126.84, 128.27, 128.45, 128.59, 128.91, 130.22, 132.70, 133.81, 134.36, 138.30, 139.90, 144.42, 144.47; ESI-MS (*m/z*) calculated for $C_{25}H_{22}O$: 338.16, found: 339.24 $(M + H)^+$.

(*E*)-1-Phenyl-3-(4-(4-propylstyryl)phenyl)prop-2-en-1-one (26): Yield 75%; mp 196-198 °C; IR (film, cm^{-1}): 3022, 2951, 2864, 1653, 1583, 1418, 1329, 1214, 1174, 1017, 972, 827, 774; ^1H NMR (400 MHz, $CDCl_3$): δ 0.95 (t, J = 7.3 Hz, 3H, $CH_2CH_2CH_3$), 1.65 (sextet, J = 7.3 Hz, 2H, $CH_2CH_2CH_3$), 2.60 (t, J = 7.3 Hz, 2H, $CH_2CH_2CH_3$), 7.07

(d, *J* = 16.1 Hz, 1H), 7.16-7.20 (m, 3H), 7.45 (d, *J* = 8.0 Hz, 2H), 7.50 (d, *J* = 7.3 Hz, 2H), 7.54 (d, *J* = 7.3 Hz, 3H), 7.58 (d, *J* = 6.5 Hz, 1H), 7.64 (d, *J* = 8.0 Hz, 2H), 7.81 (d, *J* = 16.1 Hz, 1H), 8.03 (d, *J* = 6.5 Hz, 2H); ESI-MS (*m/z*) calculated for $C_{26}H_{24}O$: 352.18, found: 353.21 $(M + H)^+$.

(*E*)-3-(4-(4-*iso*-Propylstyryl)phenyl)-1-phenylprop-2-en-1-one (27): Yield 75%; mp 185-186 °C; IR (film, cm^{-1}): 3022, 2958, 2869, 1653, 1584, 1512, 1416, 1329, 1212, 1014, 972, 832, 752; ^1H NMR (400 MHz, $CDCl_3$): δ 1.27 (d, *J* = 7.3 Hz, 6H, $CH(CH_3)_2$), 2.92 (septet, *J* = 7.3 Hz, 1H, $CH(CH_3)_2$), 7.07 (d, *J* = 16.1 Hz, 1H), 7.18 (d, *J* = 16.1 Hz, 1H), 7.24 (d, *J* = 8.0 Hz, 2H), 7.47 (d, *J* = 8.0 Hz, 2H), 7.49-7.51 (m, 2H), 7.53-7.56 (m, 3H), 7.56-7.59 (m, 1H), 7.64 (d, *J* = 8.0 Hz, 2H), 7.81 (d, *J* = 16.1 Hz, 1H), 8.02-8.04 (m, 2H); ESI-MS (*m/z*) calculated for $C_{26}H_{24}O$: 352.18, found: 353.27 $(M + H)^+$.

(*E*)-3-(4-(4-Butylstyryl)phenyl)-1-phenylprop-2-en-1-one (28): Yield 70%; mp 192-194 °C; ^1H NMR (400 MHz, $CDCl_3$): δ 0.93 (t, *J* = 7.3 Hz, 3H, $CH_2CH_2CH_2CH_3$), 1.36 (sextet, *J* = 7.3 Hz, 2H, $CH_2CH_2CH_2CH_3$), 1.57-1.62 (m, 2H, $CH_2CH_2CH_2CH_3$), 2.62 (t, *J* = 7.3 Hz, 2H, $CH_2CH_2CH_2CH_3$), 7.07 (d, *J* = 16.8 Hz, 1H), 7.15-7.19 (m, 3H), 7.45 (d, *J* = 8.0 Hz, 2H), 7.50 (d, *J* = 7.3 Hz, 2H), 7.54 (d, *J* = 8.0 Hz, 3H), 7.58 (d, *J* = 7.3 Hz, 1H), 7.63 (d, *J* = 8.0 Hz, 2H), 7.81 (d, *J* = 15.3 Hz, 1H), 8.03 (d, *J* = 7.3 Hz, 2H); ^{13}C NMR (100 MHz, $CDCl_3$): δ 13.11, 15.41, 15.43, 28.63, 121.32, 126.69, 126.81, 126.91, 128.24, 128.60, 128.89, 130.19, 132.71, 134.23, 138.33, 139.91, 144.39, 144.44.

(*E*)-3-(4-(4-*tert*-Butylstyryl)phenyl)-1-phenylprop-2-en-1-one (29): Yield 70%; mp 195-197 °C; IR (film, cm^{-1}): 3025, 2956, 2868, 1655, 1590, 1415, 1332, 1216, 1111, 973, 832, 770; ^1H NMR (400 MHz, $CDCl_3$): δ 1.34 (s, 9H, $CH(CH_3)_3$), 7.08 (d, *J* = 16.1 Hz, 1H), 7.19 (d, *J* = 16.1 Hz, 1H), 7.40 (d, *J* = 8.0 Hz, 2H), 7.48 (d, *J* = 8.7 Hz, 2H), 7.51 (d, *J* = 8.0 Hz, 2H), 7.53-7.56 (m, 3H), 7.57-7.59 (m, 1H), 7.64 (d, *J* = 8.0 Hz, 2H), 7.81 (d, *J* = 15.3 Hz, 1H), 8.03 (d, *J* = 7.3 Hz, 2H); ESI-MS (*m/z*) calculated for $C_{27}H_{26}O$: 366.19, found: 367.17 $(M + H)^+$.

(*E*)-3-(4-(4-Methoxystyryl)phenyl)-1-phenylprop-2-en-1-one (30): Yield 60%; mp 192-195 °C; IR (film, cm^{-1}): 3022, 2960, 2838, 1653, 1598, 1513, 1450, 1256, 1177, 1030, 971, 833; ^1H NMR (400 MHz, $CDCl_3$): δ 3.84 (s, 3H, OCH_3), 6.91 (d, *J* = 8.7 Hz, 2H), 6.99 (d, *J* = 16.1 Hz, 1H), 7.15 (d, *J* = 16.1 Hz, 1H), 7.48 (d, *J* = 8.7 Hz, 2H), 7.51-7.53 (m, 3H), 7.54-7.55 (m, 2H), 7.57-7.59 (m, 1H), 7.63 (d, *J* = 8.0 Hz, 2H), 7.81 (d, *J* = 15.3 Hz, 1H), 8.03 (d, *J* = 8.7 Hz, 2H); ESI-MS (*m/z*) calculated for $C_{24}H_{20}O_2$: 340.14, found: 341.19 $(M + H)^+$.

(*E*)-3-(4-(3,4-Dimethoxystyryl)phenyl)-1-phenylprop-2-en-1-one (31): Yield 55%; mp 142-145 °C; IR (film, cm^{-1}): 3020, 2942, 2840, 1657, 1592, 1514, 1454, 1333, 1219, 1140, 1021, 968, 821, 749; ^1H NMR (400 MHz, $CDCl_3$): δ 3.91 (s, 3H, OCH_3), 3.96 (s, 3H, OCH_3), 6.88 (d, *J* = 8.7 Hz, 1H), 6.98 (d, *J* = 16.1 Hz, 1H), 7.08 (d, *J* = 8.7 Hz, 2H), 7.14 (d, *J* = 16.1 Hz, 1H), 7.50 (d, *J* = 7.3 Hz, 2H), 7.54 (d, *J* = 8.7 Hz, 3H), 7.58 (d, *J* = 7.6 Hz, 1H), 7.64 (d, *J* = 8.7 Hz, 2H), 7.81 (d, *J* = 15.3 Hz, 1H), 8.02 (d, *J* = 7.3 Hz, 2H); ESI-MS (*m/z*) calculated for $C_{25}H_{22}O_3$: 370.15, found: 371.22 $(M + H)^+$.

(*E*)-1-Phenyl-3-(4-(3,4,5-trimethoxystyryl)phenyl)prop-2-en-1-one (32): Yield 50%; mp 138-140 °C; IR (film, cm^{-1}): 3000, 2938, 2834, 1658, 1586, 1506, 1456, 1333, 1220, 1125, 1010, 830, 778; ^1H NMR (400 MHz, $CDCl_3$): δ 3.88 (s, 3H, OCH_3), 3.93 (s, 6H, $2OCH_3$), 6.76 (s, 2H), 7.02 (d, *J* = 16.1 Hz, 1H), 7.13 (d, *J* = 16.1 Hz, 1H), 7.50-7.52 (m, 2H), 7.54-7.56 (m, 3H), 7.58-7.60 (m, 1H), 7.65 (d, *J* = 8.7 Hz, 2H), 7.82 (d, *J* = 16.1 Hz, 1H),

8.03 (d, *J* = 8.7 Hz, 2H); ^{13}C NMR (100 MHz, $CDCl_3$): δ 56.12, 60.97, 103.75, 121.55, 126.87, 127.20, 128.45, 128.61, 128.95, 130.18, 132.62, 132.74, 134.01, 138.25, 138.30, 139.54, 144.31, 153.41, 190.46; ESI-MS (*m/z*) calculated for $C_{26}H_{24}O_4$: 400.16, found: 401.25 $(M + H)^+$.

(*E*)-1-(4-Chlorophenyl)-3-(4-styrylphenyl)prop-2-en-1-one (33): Yield 70%; mp 215-218 °C; IR (film, cm^{-1}): 3019, 2949, 1653, 1591, 1485, 1411, 1332, 1216, 1089, 1008, 972, 819, 781; ^{1}H NMR (400 MHz, $CDCl_3$): δ 7.11 (d, *J* = 16.1 Hz, 1H), 7.20 (d, *J* = 16.1 Hz, 1H), 7.29-7.31 (m, 1H), 7.38 (t, *J* = 8.0 Hz, 2H), 7.46-7.48 (m, 1H), 7.49-7.50 (m, 2H), 7.53 (s, 1H), 7.54-7.57 (m, 3H), 7.64 (d, *J* = 8.0 Hz, 2H), 7.81 (d, *J* = 15.3 Hz, 1H), 7.97 (d, *J* = 8.7 Hz, 2H).

(*E*)-1-(4-Chlorophenyl)-3-(4-(3-fluorostyryl)phenyl)prop-2-en-1-one (34): Yield 55%; mp 179-181 °C; IR (film, cm^{-1}): 3020, 2922, 1655, 1599, 1486, 1408, 1332, 1283, 1217, 1094, 1014, 970, 816; ^{1}H NMR (400 MHz, $CDCl_3$): δ 6.96-7.0 (m, 1H), 7.10 (d, *J* = 16.1 Hz, 1H), 7.16 (d, *J* = 16.1 Hz, 1H), 7.22-7.25 (m, 1H), 7.28-7.34 (m, 2H), 7.48-7.52 (m, 3H), 7.56 (d, *J* = 8.7 Hz, 2H), 7.65 (d, *J* = 8.7 Hz, 2H), 7.82 (d, *J* = 16.1 Hz, 1H), 7.96-7.99 (m, 2H); ESI-MS (*m/z*) calculated for $C_{23}H_{16}ClFO$: 362.08, found: 363.12 $(M + H)^+$, 365.11 $(M + 2H)^+$.

(*E*)-1-(4-Chlorophenyl)-3-(4-(4-fluorostyryl)phenyl)prop-2-en-1-one (35): Yield 60%; mp 215-218 °C; IR (film, cm^{-1}): 3044, 3017, 1654, 1591, 1509, 1331, 1238, 1095, 971, 829; ^{1}H NMR (400 MHz, $CDCl_3$): δ 7.03 (d, *J* = 16.1 Hz, 1H), 7.08 (d, *J* = 8.0 Hz, 2H), 7.15 (d, *J* = 16.1 Hz, 1H), 7.47-7.48 (m, 2H), 7.49-7.52 (m, 3H), 7.54 (d, *J* = 8.0 Hz, 2H), 7.64 (d, *J* = 8.7 Hz, 2H), 7.81 (d, *J* = 15.3 Hz, 1H), 7.97 (d, *J* = 8.7 Hz, 2H).

(*E*)-1-(4-Chlorophenyl)-3-(4-(3-chlorostyryl)phenyl)prop-2-en-1-one (36): Yield 68%; mp 185-187 °C; IR (film, cm^{-1}): 3011, 2888, 1651, 1591, 1472, 1408, 1324, 1210, 1085, 968, 873, 814; ^{1}H NMR (400 MHz, $CDCl_3$): δ 7.11 (s, 2H), 7.27 (d, *J* = 8.0 Hz, 1H), 7.31 (d, *J* = 7.3 Hz, 1H), 7.39 (d, *J* = 7.3 Hz, 1H), 7.47-7.52 (m, 4H), 7.55 (d, *J* = 8.0 Hz, 2H), 7.65 (d, *J* = 8.7 Hz, 2H), 7.81 (d, *J* = 15.3 Hz, 1H), 7.97 (d, *J* = 8.0 Hz, 2H).

(*E*)-1-(4-Chlorophenyl)-3-(4-(4-chlorostyryl)phenyl)prop-2-en-1-one (37): Yield 70%; mp 240-242 °C, IR (film, cm^{-1}): 3006, 2883, 1647, 1586, 1474, 1399, 1318, 1279, 1203, 1077, 963, 815, 742; ^{1}H NMR (400 MHz, $CDCl_3$): δ 7.08 (d, *J* = 16.1 Hz, 1H), 7.14 (d, *J* = 16.1 Hz, 1H), 7.34 (d, *J* = 8.7 Hz, 2H), 7.45-7.48 (m, 3H), 7.49-7.51 (m, 2H), 7.55 (d, *J* = 8.0 Hz, 2H), 7.64 (d, *J* = 8.0 Hz, 2H), 7.81 (d, *J* = 15.3 Hz, 1H), 7.98 (d, *J* = 8.7 Hz, 2H); ESI-MS (*m/z*) calculated for $C_{23}H_{16}Cl_2O$: 378.05, found: 379.11 $(M + H)^+$, 381.13 $(M + 2H)^+$.

(*E*)-3-(4-(3-Bromostyryl)phenyl)-1-(4-chlorophenyl)prop-2-en-1-one (38): Yield 65%; mp 188-190 °C IR (film, cm^{-1}): 3013, 2909, 1649, 1590, 1475, 1405, 1319, 1283, 1206, 1078, 966, 814, 746; ^{1}H NMR (400 MHz, $CDCl_3$): δ 7.11 (s, 2H), 7.23 (d, *J* = 8.0 Hz, 1H), 7.39-7.44 (m, 2H), 7.47 (s, 1H), 7.50 (d, *J* = 6.5 Hz, 2H), 7.55 (d, *J* = 8.7 Hz, 2H), 7.65 (d, *J* = 8.7 Hz, 2H), 7.68-7.69 (m, 1H), 7.81 (d, *J* = 16.1 Hz, 1H), 7.97 (dd, *J* = 2.2, 6.5 Hz, 2H).

(*E*)-3-(4-(4-Bromostyryl)phenyl)-1-(4-chlorophenyl)prop-2-en-1-one (39): Yield 70%; mp 245-248 °C; IR (film, cm^{-1}): 3010, 2896, 1653, 1590, 1478, 1397, 1323, 1287, 1207, 1075, 968, 876, 809, 741; ^{1}H NMR (400 MHz, $CDCl_3$): δ 6.59 (d, *J* = 12.4 Hz, 1H), 6.63 (d, *J* = 12.4 Hz, 1H), 7.12 (d, *J* = 8.7 Hz, 2H), 7.27 (d, *J* = 8.0 Hz, 2H), 7.37 (d, *J* = 8.7 Hz, 2H), 7.46-7.49 (m, 3H), 7.51 (d, *J* = 8.7 Hz, 2H), 7.77 (d, *J* = 15.3 Hz, 1H), 7.96 (d, *J* = 8.0 Hz, 2H); ESI-MS (*m/z*) calculated for $C_{23}H_{16}BrClO$: 422.0, found: 323.11 $(M + H)^+$.

(*E*)-1-(4-Chlorophenyl)-3-(4-(3-nitrostyryl)phenyl)prop-2-en-1-one (40): Yield 78%; mp 188-191 ^{o}C; IR (film, cm^{-1}): 3068, 3027, 1656, 1592, 1526, 1411, 1344, 1215, 1174, 1092, 1012, 963, 901, 808, 732; ^{1}H NMR (400 MHz, $CDCl_3$): δ 7.21 (d, *J* = 16.1 Hz, 1H), 7.26 (d, *J* = 16.1 Hz, 1H), 7.48-7.50 (m, 3H), 7.53-7.57 (m, 2H), 7.59 (d, *J* = 8.7 Hz, 2H), 7.67 (d, *J* = 8.0 Hz, 2H), 7.82 (d, *J* = 16.1 Hz, 1H), 7.98 (d, *J* = 8.7 Hz, 2H), 8.13 (dd, *J* = 1.4, 8.0 Hz, 1H), 8.39 (brs, 1H); ESI-MS (*m/z*) calculated for $C_{23}H_{16}ClNO_3$: 389.08, found: 390.13 $(M + H)^+$, 392.11 $(M + 2H)^+$.

(*E*)-1-(4-Chlorophenyl)-3-(4-(4-nitrostyryl)phenyl)prop-2-en-1-one (41): Yield 80%; mp 190-193 ^{o}C; IR (film, cm^{-1}): 3011, 2906, 2829, 1656, 1586, 1502, 1401, 1329, 1207, 1086, 1006, 887, 808, 745; ^{1}H NMR (400 MHz, $CDCl_3$): δ 7.22 (d, *J* = 16.1 Hz, 1H), 7.28 (d, *J* = 16.1 Hz, 1H), 7.48-7.54 (m, 3H), 7.60 (d, *J* = 8.7 Hz, 2H), 7.66 (d, *J* = 7.3 Hz, 2H), 7.68 (d, *J* = 6.5 Hz, 2H), 7.82 (d, *J* = 15.3 Hz, 1H), 7.98 (d, *J* = 8.0 Hz, 2H), 8.24 (d, *J* = 8.7 Hz, 2H); ESI-MS (*m/z*) calculated for $C_{23}H_{16}ClNO_3$: 389.08, found: 390.11 $(M + H)^+$, 392.12 $(M + 2H)^+$.

(*E*)-1-(4-Chlorophenyl)-3-(4-(3-methylstyryl)phenyl)prop-2-en-1-one (42): Yield 70%; mp 204-207 ^{o}C; IR (film, cm^{-1}): 3010, 2896, 1647, 1583, 1478, 1399, 1320, 1203, 1169, 1078, 965, 812; ^{1}H NMR (400 MHz, $CDCl_3$): δ 2.39 (s, 3H, CH_3), 7.08-7.12 (m, 2H), 7.17 (d, *J* = 16.1 Hz, 1H), 7.28 (d, *J* = 7.3 Hz, 1H), 7.33-7.36 (m, 2H), 7.46-7.50 (m, 3H), 7.55 (d, *J* = 8.7 Hz, 2H), 7.64 (d, *J* = 8.0 Hz, 2H), 7.81 (d, *J* = 15.3 Hz, 1H), 7.97 (dd, *J* = 2.2, 6.5 Hz, 2H); ESI-MS (*m/z*) calculated for $C_{24}H_{19}ClO$: 358.11, found: 359.14 $(M + H)^+$, 360.17 $(M + 2H)^+$.

(*E*)-1-(4-Chlorophenyl)-3-(4-(4-methylstyryl)phenyl)prop-2-en-1-one (43): Yield 70%; mp 244-248 ^{o}C; IR (film, cm^{-1}): 3020, 2931, 1655, 1595, 1516, 1409, 1330, 1214, 1091, 975, 818; ^{1}H NMR (400 MHz, $CDCl_3$): δ 2.37 (s, 3H, CH_3), 7.07 (d, *J* = 16.1 Hz, 1H), 7.16-7.20 (m, 3H), 7.44 (d, *J* = 8.0 Hz, 2H), 7.46-7.50 (m, 3H), 7.55 (d, *J* = 8.0 Hz, 2H), 7.64 (d, *J* = 8.0 Hz, 2H), 7.82 (d, *J* = 15.3 Hz, 1H), 7.98 (d, *J* = 8.7 Hz, 2H).

(*E*)-1-(4-Chlorophenyl)-3-(4-(4-ethylstyryl)phenyl)prop-2-en-1-one (44): Yield 70%; mp 211-214 ^{o}C; IR (film, cm^{-1}): 2960, 2904, 1652, 1591, 1414, 1331, 1289, 1215, 1088, 1014, 972, 827, 742; ^{1}H NMR (400 MHz, $CDCl_3$): δ 1.25 (t, *J* = 7.3 Hz, 3H, CH_2CH_3), 2.66 (q, *J* = 7.3 Hz, 2H, CH_2CH_3), 7.07 (d, *J* = 16.1 Hz, 1H), 7.16-7.22 (m, 3H), 7.45-7.47 (m, 3H), 7.49-7.50 (m, 2H), 7.55 (d, *J* = 8.0 Hz, 2H), 7.63 (d, *J* = 8.0 Hz, 2H), 7.81 (d, *J* = 16.1 Hz, 1H), 7.97 (d, *J* = 8.7 Hz, 2H); ESI-MS (*m/z*) calculated for $C_{25}H_{21}ClO$: 372.12, found: 373.17 $(M + H)^+$, 375.16 $(M + 2H)^+$.

(*E*)-1-(4-Chlorophenyl)-3-(4-(4-propylstyryl)phenyl)prop-2-en-1-one (45): Yield 65%; mp 197-200 ^{o}C; IR (film, cm^{-1}): 3015, 2951, 2867, 1652, 1593, 1417, 1331, 1217, 1177, 1090, 971, 822, 744; ^{1}H NMR (400 MHz, $CDCl_3$): δ 0.95 (t, *J* = 7.3 Hz, 3H, $CH_2CH_2CH_3$), 1.65 (sextet, *J* = 7.3 Hz, 2H, $CH_2CH_2CH_3$), 2.60 (t, *J* = 7.3 Hz, 2H, $CH_2CH_2CH_3$), 7.07 (d, *J* = 16.1 Hz, 1H), 7.16-7.20 (m, 3H), 7.45 (d, *J* = 7.3 Hz, 2H), 7.47-7.50 (m, 3H), 7.55 (d, *J* = 8.0 Hz, 2H), 7.63 (d, *J* = 8.0 Hz, 2H), 7.81 (d, *J* = 16.1 Hz, 1H), 7.97 (d, *J* = 8.7 Hz, 2H); ESI-MS (*m/z*) calculated for $C_{26}H_{23}ClO$: 386.14, found: 387.18 $(M + H)^+$, 389.21 $(M + 2H)^+$.

(*E*)-1-(4-Chlorophenyl)-3-(4-(4-*iso*propylstyryl)phenyl)prop-2-en-1-one (46): Yield 65%; mp 193-195 ^{o}C; IR (film, cm^{-1}): 3022, 2869, 1653, 1592, 1512,1415, 1332, 1217, 1092, 1015, 971, 826, 748; ^{1}H NMR (400 MHz, $CDCl_3$): δ 1.27 (d, *J* = 6.5 Hz, 6H, $CH(CH_3)_2$), 2.92 (septet, *J* = 6.5 Hz, 1H, $CH(CH_3)_2$), 7.07 (d, *J* = 16.1 Hz, 1H),

7.18 (d, J = 16.1 Hz, 1H), 7.24 (d, J = 8.0 Hz, 2H), 7.46-7.47 (m, 2H), 7.48-7.51 (m, 3H), 7.55 (d, J = 8.0 Hz, 2H), 7.63 (d, J = 8.0 Hz, 2H), 7.81 (d, J = 15.3 Hz, 1H), 7.97 (d, J = 8.0 Hz, 2H).

(*E*)-3-(4-(4-Butylstyryl)phenyl)-1-(4-chlorophenyl)prop-2-en-1-one (47): Yield 58%; mp 206-209 ^{o}C; IR (film, cm^{-1}): 2957, 2911, 2855, 1652, 1595, 1515, 1409, 1332, 1217, 1090, 972, 826; ^{1}H NMR (400 MHz, $CDCl_3$): δ 0.93 (t, J = 7.3 Hz, 3H, $CH_2CH_2CH_2CH_3$), 1.32-1.41 (m, 2H, $CH_2CH_2CH_2CH_3$), 1.61-1.65 (m, 2H, $CH_2CH_2CH_2CH_3$), 2.62 (t, J = 7.3 Hz, 2H, $CH_2CH_2CH_2CH_3$), 7.07 (d, J = 16.1 Hz, 1H), 7.16-7.20 (m, 3H), 7.45 (d, J = 8.0 Hz, 2H), 7.47-7.49 (m, 3H), 7.54 (d, J = 8.0 Hz, 2H), 7.63 (d, J = 8.0 Hz, 2H), 7.81 (d, J = 15.3 Hz, 1H), 7.97 (d, J = 8.7 Hz, 2H); ESI-MS (*m/z*) calculated for $C_{27}H_{25}ClO$: 400.15, found: 401.21 $(M + H)^+$, 403.23 $(M + 2H)^+$.

(*E*)-3-(4-(4-*tert*-Butylstyryl)phenyl)-1-(4-chlorophenyl)prop-2-en-1-one (48): Yield 60%; mp 168-172 ^{o}C; IR (film, cm^{-1}): 3024, 2958, 2867, 1655, 1592, 1511, 1407, 1329, 1212, 1092, 972, 880, 822, 751; ^{1}H NMR (400 MHz, $CDCl_3$): δ 1.34 (s, 9H, $CH(CH_3)_3$), 7.08 (d, J = 16.1 Hz, 1H), 7.19 (d, J = 16.1 Hz, 1H), 7.40 (d, J = 8.0 Hz, 2H), 7.46-7.47 (m, 3H), 7.48-7.50 (m, 2H), 7.55 (d, J = 8.0 Hz, 2H), 7.63 (d, J = 8.7 Hz, 2H), 7.81 (d, J = 15.3 Hz, 1H), 7.97 (d, J = 8.0 Hz, 2H).

(*E*)-1-(4-Chlorophenyl)-3-(4-(4-methoxystyryl)phenyl)prop-2-en-1-one (49): Yield 65%; mp 202-205 ^{o}C; IR (film, cm^{-1}): 3014, 2958, 2893, 1656, 1594, 1506, 1406, 1327, 1254, 1213, 1172, 1087, 978, 810; ^{1}H NMR (400 MHz, $CDCl_3$): δ 3.84 (s, 3H, OCH_3), 6.91 (d, J = 8.7 Hz, 2H), 6.99 (d, J = 16.1 Hz, 1H), 7.16 (d, J = 16.1 Hz, 1H), 7.46-7.47 (m, 2H), 7.48-7.50 (m, 3H), 7.53 (d, J = 8.7 Hz, 2H), 7.63 (d, J = 8.0 Hz, 2H), 7.81 (d, J = 16.1 Hz, 1H), 7.97 (d, J = 8.0 Hz, 2H); ESI-MS (*m/z*) calculated for $C_{24}H_{19}ClO_2$: 374.10, found: 375.16 $(M + H)^+$, 377.18 $(M + 2)^+$.

(*E*)-1-(4-Chlorophenyl)-3-(4-(3,4-dimethoxystyryl)phenyl)prop-2-en-1-one (50): Yield 65%; mp 166-169 ^{o}C; IR (film, cm^{-1}): 3019, 2940, 2838, 165, 1590, 1514, 1457, 1413, 1332, 1220, 1138, 1091, 1023, 969, 813, 750; ^{1}H NMR (400 MHz, $CDCl_3$): δ 3.91 (s, 3H, OCH_3), 3.96 (s, 3H, OCH_3), 6.88 (d, J = 8.7 Hz, 1H), 6.98 (d, J = 16.8 Hz, 1H), 7.07-7.09 (m, 2H), 7.15 (d, J = 16.1 Hz, 1H), 7.46-7.50 (m, 3H), 7.54 (d, J = 8.7 Hz, 2H), 7.63 (d, J = 8.7 Hz, 2H), 7.82 (d, J = 16.1 Hz, 1H), 7.97 (d, J = 8.0 Hz, 2H); ESI-MS (*m/z*) calculated for $C_{25}H_{21}ClO_3$: 404.12, found: 405.23 $(M + H)^+$, 407.24 $(M + 2)^+$.

(*E*)-1-(4-Chlorophenyl)-3-(4-(3,4,5-trimethoxystyryl)phenyl)prop-2-en-1-one (51): Yield 55%; mp 155-157 ^{o}C; IR (film, cm^{-1}): 3007, 2939, 2833, 1657, 1586, 1505, 1416, 1331, 1223, 1126, 1002, 821, 751; ^{1}H NMR (400 MHz, $CDCl_3$): δ 3.88 (s, 3H, OCH_3), 3.93 (s, 6H, $2OCH_3$), 6.76 (s, 2H), 7.02 (d, J = 16.1 Hz, 1H), 7.13 (d, J = 16.1 Hz, 1H), 7.47-7.51 (m, 3H), 7.55 (d, J = 8.0 Hz, 2H), 7.64 (d, J = 8.0 Hz, 2H), 7.82 (d, J = 15.3 Hz, 1H), 7.97 (d, J = 8.7 Hz, 2H); ESI-MS (*m/z*) calculated for $C_{26}H_{23}ClO_4$: 434.12, found: 435.17 $(M + H)^+$, 437.21 $(M + 2H)^+$.

(*E*)-1-(4-Methoxyphenyl)-3-(4-styrylphenyl)prop-2-en-1-one (52): Yield 70%; mp 190-192 ^{o}C; IR (film, cm^{-1}): 3009, 2956, 2839, 1655, 1601, 1507, 1451, 1415, 1332, 1251, 1175, 1113, 1029, 972, 818, 753; ^{1}H NMR (400 MHz, $CDCl_3$): δ 3.89 (s, 3H, OCH_3), 6.99 (d, J = 8.7 Hz, 2H), 7.11 (d, J = 16.1 Hz, 1H), 7.19 (d, J = 16.1 Hz, 1H), 7.28 (t, J = 7.3 Hz, 1H), 7.37 (t, J = 7.3 Hz, 2H), 7.52-7.54 (m, 3H), 7.56-7.57 (m, 2H), 7.64 (d, J = 8.0 Hz, 2H), 7.80 (d, J = 15.3 Hz, 1H), 8.05 (d, J = 8.7 Hz, 2H).

(*E*)-3-(4-(3-Fluorostyryl)phenyl)-1-(4-methoxyphenyl)prop-2-en-1-one (53): Yield 50%; mp 180-183 ^{o}C; IR (film, cm^{-1}): 2957, 2889, 2706, 2621, 1653, 1606, 1332, 1086, 1033, 887; ^{1}H NMR (400 MHz, $CDCl_3$): δ 3.89 (s, 3H, O*CH*$_3$), 6.99 (d, *J* = 8.7 Hz, 2H), 7.10 (s, 2H), 7.23-7.25 (m, 1H), 7.29 (t, *J* = 7.3 Hz, 1H), 7.38 (d, *J* = 7.3 Hz, 1H), 7.52-7.53 (m, 2H), 7.56 (d, *J* = 8.7 Hz, 2H), 7.64 (d, *J* = 8.0 Hz, 2H), 7.80 (d, *J* = 16.1 Hz, 1H), 8.05 (d, *J* = 8.7 Hz, 2H).

(*E*)-3-(4-(4-Fluorostyryl)phenyl)-1-(4-methoxyphenyl)prop-2-en-1-one (54): Yield 55%; mp 205-207 ^{o}C; IR (film, cm^{-1}): 3013, 2956, 2921, 2842, 1653, 1596, 1505, 1414, 1329, 1243, 1170, 1107, 1025, 971, 829; ^{1}H NMR (400 MHz, $CDCl_3$): δ 3.90 (s, 3H, O*CH*$_3$), 6.99 (d, *J* = 8.7 Hz, 2H), 7.05-7.09 (m, 3H), 7.15 (d, *J* = 16.1 Hz, 1H), 7.48-7.53 (m, 3H), 7.55-7.57 (m, 2H), 7.64 (d, *J* = 8.7 Hz, 2H), 7.80 (d, *J* = 15.3 Hz, 1H), 8.05 (d, *J* = 8.7 Hz, 2H); ESI-MS (*m/z*) calculated for $C_{24}H_{19}FO_2$: 358.13, found: 359.15 $(M + H)^+$.

(*E*)-3-(4-(3-Chlorostyryl)phenyl)-1-(4-methoxyphenyl)prop-2-en-1-one (55): Yield 62%; mp 171-173 ^{o}C; IR (film, cm^{-1}): 3011, 2911, 2841, 1656, 1598, 1505, 1415, 1330, 1298, 1252, 1174, 1025, 969, 811; ^{1}H NMR (400 MHz, $CDCl_3$): δ 3.90 (s, 3H, O*CH*$_3$), 6.99 (d, *J* = 8.7 Hz, 2H), 7.08 (d, *J* = 16.1 Hz, 1H), 7.14 (d, *J* = 16.1 Hz, 1H), 7.34 (d, *J* = 8.0 Hz, 2H), 7.46 (d, *J* = 8.0 Hz, 2H), 7.54-7.57 (m, 3H), 7.64 (d, *J* = 8.0 Hz, 2H), 7.80 (d, *J* = 16.1 Hz, 1H), 8.05 (d, *J* = 8.7 Hz, 2H).

(E)-3-(4-(4-Chlorostyryl)phenyl)-1-(4-methoxyphenyl)prop-2-en-1-one (56): Yield 65%; mp 227-229 ^{o}C; IR (film, cm^{-1}): 3013, 2958, 2903, 1652, 1596, 1502, 1412, 1328, 1247, 1171, 1093, 1022, 970, 823; ^{1}H NMR (400 MHz, $CDCl_3$): δ 3.90 (s, 3H, O*CH*$_3$), 6.99 (d, *J* = 8.7 Hz, 2H), 7.08 (d, *J* = 16.1 Hz, 1H), 7.14 (d, *J* = 16.1 Hz, 1H), 7.34 (d, *J* = 8.0 Hz, 2H), 7.46 (d, *J* = 8.0 Hz, 2H), 7.54-7.57 (m, 3H), 7.64 (d, *J* = 8.0 Hz, 2H), 7.80 (d, *J* = 16.1 Hz, 1H), 8.05 (d, *J* = 8.7 Hz, 2H); ESI-MS (*m/z*) calculated for $C_{24}H_{19}ClO_2$: 374.10, found: 375.20 $(M + H)^+$, 377.21 $(M + 2)^+$.

(*E*)-3-(4-(3-Bromostyryl)phenyl)-1-(4-methoxyphenyl)prop-2-en-1-one (57): Yield 60%; mp 196-198 ^{o}C; IR (film, cm^{-1}): 3011, 2964, 2831, 1652, 1597, 1509, 1414, 1324, 1252, 1170, 1110, 1024, 968, 812; ^{1}H NMR (400 MHz, $CDCl_3$): δ 3.90 (s, 3H, O*CH*$_3$), 6.97-7.01 (m, 2H), 7.08 (d, *J* = 17.5 Hz, 1H), 7.12 (d, *J* = 16.8 Hz, 1H), 7.23 (d, *J* = 8.0 Hz, 1H), 7.39-7.44 (m, 2H), 7.54-7.58 (m, 3H), 7.65 (d, *J* = 8.7 Hz, 2H), 7.68-7.69 (m, 1H), 7.80 (d, *J* = 15.3 Hz, 1H), 8.04-8.06 (m, 2H).

(*E*)-3-(4-(4-Bromostyryl)phenyl)-1-(4-methoxyphenyl)prop-2-en-1-one (58): Yield 65%; mp 135-138 ^{o}C; IR (film, cm^{-1}): 3011, 2963, 2838, 1653, 1594, 1504, 1414, 1327, 1219, 1167, 1110, 1070, 1016, 878, 815; ^{1}H NMR (400 MHz, $CDCl_3$): δ 3.89 (s, 3H, O*CH*$_3$), 6.57 (d, *J* = 12.4 Hz, 1H), 6.62 (d, *J* = 11.7 Hz, 1H), 6.97-6.98 (m, 2H), 7.10-7.13 (m, 2H), 7.25-7.27 (m, 2H), 7.35-7.37 (m, 2H), 7.49-7.54 (m, 3H), 7.75 (d, *J* = 15.3 Hz, 1H), 8.02-8.04 (m, 2H); ESI-MS (*m/z*) calculated for $C_{24}H_{19}BrO_2$: 418.05, found: 419.11 $(M + H)^+$, 421.13 $(M + 2)^+$.

(*E*)-1-(4-Methoxyphenyl)-3-(4-(3-nitrostyryl)phenyl)prop-2-en-1-one (59): Yield 72%; mp 171-173 ^{o}C; IR (film, cm^{-1}): 3019, 2935, 2841, 1654, 1593, 1517, 1340, 1258, 1219, 1165, 1017, 965, 808; ^{1}H NMR (400 MHz, $CDCl_3$): δ 3.90 (s, 3H, O*CH*$_3$), 6.99 (d, *J* = 8.7 Hz, 2H), 7.19 (d, *J* = 16.1 Hz, 1H), 7.25 (d, *J* = 16.1 Hz, 1H), 7.52-7.57 (m, 2H), 7.59 (s, 2H), 7.67 (d, *J* = 8.7 Hz, 2H), 7.78-7.82 (m, 2H), 8.05 (d, *J* = 8.7 Hz, 2H), 8.12 (d, *J* = 8.0 Hz, 1H), 8.38-8.39 (m, 1H).

(*E*)-1-(4-Methoxyphenyl)-3-(4-(4-nitrostyryl)phenyl)prop-2-en-1-one (60): Yield 75%; mp 206-208 ^{o}C; IR (film, cm^{-1}): 3024, 2924, 2841, 1649, 1594, 1511, 1421, 1339, 1269, 1224, 1168, 1110, 1018, 969, 826; ^{1}H NMR (400 MHz, $CDCl_3$): δ 3.90 (s, 3H, O*CH*$_3$), 7.0 (d, *J* = 8.7 Hz, 2H), 7.21 (d, *J* = 16.1 Hz, 1H), 7.28 (d, *J* = 16.1 Hz, 1H), 7.56-7.61 (m, 3H), 7.65-7.69 (m, 4H), 7.81 (d, *J* = 15.3 Hz, 1H), 8.05 (d, *J* = 8.7 Hz, 2H), 8.24 (d, *J* = 8.7 Hz, 2H); ESI-MS (*m/z*) calculated for $C_{24}H_{19}NO_4$: 385.13, found: 386.16 $(M + H)^+$.

(*E*)-1-(4-Methoxyphenyl)-3-(4-(3-methylstyryl)phenyl)prop-2-en-1-one (61): Yield 70%; mp 177-178 ^{o}C; IR (film, cm^{-1}): 3012, 2959, 2902, 2835, 1653, 1598, 1506, 1414, 1330, 1249, 1172, 1112, 1025, 970, 815; ^{1}H NMR (400 MHz, $CDCl_3$): δ 2.39 (s, 3H, *CH*$_3$), 3.90 (s, 3H, O*CH*$_3$), 6.99 (dd, *J* = 2.2, 6.5 Hz, 2H), 7.10 (d, *J* = 16.1 Hz, 1H), 7.17 (d, *J* = 16.1 Hz, 1H), 7.24-7.28 (m, 2H), 7.33-7.35 (m, 2H), 7.53-7.57 (m, 3H), 7.64 (d, *J* = 8.0 Hz, 2H), 7.80 (d, *J* = 15.3 Hz, 1H), 8.05 (dd, *J* = 2.2, 6.5 Hz, 2H).

(*E*)-1-(4-Methoxyphenyl)-3-(4-(4-methylstyryl)phenyl)prop-2-en-1-one (62): Yield 70%; mp 231-233 ^{o}C; IR (film, cm^{-1}): 3012, 2908, 2804, 1653, 1600, 1509, 1416, 1332, 1251, 1175, 1112, 1027, 972, 826; ^{1}H NMR (400 MHz, $CDCl_3$): δ 2.37 (s, 3H, *CH*$_3$), 3.90 (s, 3H, O*CH*$_3$), 6.99 (d, *J* = 8.7 Hz, 2H), 7.07 (d, *J* = 16.1 Hz, 1H), 7.15-7.19 (m, 3H), 7.43 (d, *J* = 8.0 Hz, 2H), 7.53-7.56 (m, 3H), 7.63 (d, *J* = 8.0 Hz, 2H), 7.80 (d, *J* = 15.3 Hz, 1H), 8.05 (d, *J* = 8.7 Hz, 2H); ESI-MS (*m/z*) calculated for $C_{25}H_{22}O_2$: 354.16, found: 355.21 $(M + H)^+$; ^{13}C NMR (100 MHz, $CDCl_3$): δ 21.29, 55.50, 113.84, 121.28, 126.61, 126.82, 128.83, 129.48, 130.08, 130.79, 134.08, 134.19, 138.05, 139.59, 143.57, 163.39, 188.58.

(*E*)-3-(4-(4-Ethylstyryl)phenyl)-1-(4-methoxyphenyl)prop-2-en-1-one (63): Yield 70%; mp 193-195 ^{o}C; IR (film, cm^{-1}): 3016, 2958, 2840, 1654, 1598, 1507, 1416, 1329, 1247, 1172, 1026, 972, 827; ^{1}H NMR (400 MHz, $CDCl_3$): δ 1.25 (t, *J* = 7.3 Hz, 3H, CH_2*CH*$_3$), 2.67 (q, *J* = 7.3 Hz, 2H, *CH*$_2$$CH_3$), 3.89 (s, 3H, O*CH*$_3$), 6.99 (dd, *J* = 2.2, 6.5 Hz, 2H), 7.07 (d, *J* = 16.1 Hz, 1H), 7.15-7.22 (m, 3H), 7.46 (d, *J* = 8.0 Hz, 2H), 7.52-7.56 (m, 3H), 7.63 (d, *J* = 8.7 Hz, 2H), 7.80 (d, *J* = 15.3 Hz, 1H), 8.05 (dd, *J* = 2.2, 6.5 Hz, 2H); ^{13}C NMR (100 MHz, $CDCl_3$): δ 15.46, 28.64, 55.45, 113.80, 121.20, 126.67, 126.80, 128.25, 128.81, 130.05, 130.75, 131.16, 134.01, 134.39, 139.67, 143.54, 144.40, 163.35, 188.63; ESI-MS (m/z) calculated for $C_{26}H_{24}O_2$: 368.17, found: 369.23 $(M + H)^+$.

(*E*)-1-(4-Methoxyphenyl)-3-(4-(4-propylstyryl)phenyl)prop-2-en-1-one (64): Yield 65%; mp 195-198 ^{o}C; IR (film, cm^{-1}): 3018, 2955, 1653, 1597, 1509, 1417, 1332, 1254, 1215, 1172, 1024, 972, 821; ^{1}H NMR (400 MHz, $CDCl_3$): δ 0.95 (t, *J* = 7.3 Hz, 3H, CH_2CH_2*CH*$_3$), 1.65 (sextet, *J* = 7.3 Hz, 2H, CH_2*CH*$_2$$CH_3$), 2.60 (t, *J* = 7.3 Hz, 2H, *CH*$_2$$CH_2CH_3$), 3.89 (s, 3H, O*CH*$_3$), 6.98 (dd, *J* = 2.2, 6.5 Hz, 2H), 7.07 (d, *J* = 16.1 Hz, 1H), 7.15-7.19 (m, 3H), 7.45 (d, *J* = 8.0 Hz, 2H), 7.53-7.56 (m, 3H), 7.63 (d, *J* = 8.0 Hz, 2H), 7.80 (d, *J* = 16.1 Hz, 1H), 8.05 (dd, *J* = 2.2, 6.5 Hz, 2H).

(*E*)-3-(4-(4-*iso*-Propylstyryl)phenyl)-1-(4-methoxyphenyl)prop-2-en-1-one (65): Yield 65%; mp 170-174 ^{o}C; IR (film, cm^{-1}): 3015, 2955, 2839, 1649, 1590, 1506, 1459, 1416, 1330, 1261, 1215, 1162, 1017, 970, 823; ^{1}H NMR (400 MHz, $CDCl_3$): δ 1.27 (d, *J* = 6.5 Hz, 6H, CH(*CH*$_3$)$_2$), 2.92 (septet, *J* = 6.5 Hz, 1H, *CH*$(CH_3)_2$), 3.89 (s, 3H, O*CH*$_3$), 6.99 (dd, *J* = 2.20, 6.5 Hz, 2H), 7.07 (d, *J* = 16.8 Hz, 1H), 7.18 (d, *J* = 16.1 Hz, 1H), 7.24 (d, *J* = 8.0 Hz, 2H), 7.47 (d, *J* = 8.7 Hz, 2H), 7.53-7.57 (m, 3H), 7.63 (d, *J* = 8.0 Hz, 2H), 7.80 (d, *J* = 15.3 Hz, 1H), 8.05 (dd, *J* = 2.2, 6.5 Hz, 2H); ^{13}C NMR (100 MHz, $CDCl_3$): δ 24.0, 34.03, 55.58, 113.93, 121.33, 126.82, 126.95, 127.02,

128.93, 130.17, 130.89, 131.31, 134.16, 134.69, 139.80, 143.64, 149.16, 163.49, 188.71; ESI-MS (m/z) calculated for $C_{27}H_{26}O_2$: 382.19, found: 383.21 $(M + H)^+$.

(*E*)-3-(4-(4-Butylstyryl)phenyl)-1-(4-methoxyphenyl)prop-2-en-1-one (66): Yield 62%; mp 193-196 ^oC; IR (film, cm^{-1}): 3016, 2953, 2919, 2861, 1653, 1596, 1506, 1416, 1327, 1244, 1171, 1025, 971, 824; ^1H NMR (400 MHz, $CDCl_3$): δ 0.93 (t, *J* = 7.3 Hz, 3H, $CH_2CH_2CH_2CH_3$), 1.36 (sextet, *J* = 7.3 Hz, 2H, $CH_2CH_2CH_2CH_3$), 1.56-1.65 (m, 2H, $CH_2CH_2CH_2CH_3$), 2.62 (t, *J* = 7.3 Hz, 2H, $CH_2CH_2CH_2CH_3$), 3.90 (s, 3H, OCH_3), 6.99 (d, *J* = 8.7 Hz, 2H), 7.07 (d, *J* = 16.1 Hz, 1H), 7.15-7.20 (m, 3H), 7.45 (d, *J* = 8.0 Hz, 2H), 7.53-7.56 (m, 3H), 7.63 (d, *J* = 8.0 Hz, 2H), 7.80 (d, *J* = 16.1 Hz, 1H), 8.05 (d, *J* = 8.7 Hz, 2H).

(*E*)-3-(4-(4-*tert*-Butylstyryl)phenyl)-1-(4-methoxyphenyl)prop-2-en-1-one (67): Yield 62%; mp 189-190 ^oC; IR (film, cm^{-1}): 3016, 2953, 2869, 1651, 1592, 1506, 1415, 1327, 1260, 1217, 1173, 1111, 1022, 972, 826; ^1H NMR (400 MHz, $CDCl_3$): δ 1.34 (s, 9H, $C(CH_3)_3$), 3.89 (s, 3H, OCH_3), 6.99 (dd, *J* = 2.2, 7.3 Hz, 2H), 7.08 (d, *J* = 16.8 Hz, 1H), 7.18 (d, *J* = 16.1 Hz, 1H), 7.40 (d, *J* = 8.7 Hz, 2H), 7.47 (d, *J* = 8.7 Hz, 2H), 7.53-7.56 (m, 3H), 7.63 (d, *J* = 8.0 Hz, 2H), 7.80 (d, *J* = 15.3 Hz, 1H), 8.05 (dd, *J* = 2.2, 7.3 Hz, 2H); ^{13}C NMR (100 MHz, $CDCl_3$): δ 31.22, 34.63, 55.44, 113.79, 121.19, 125.66, 126.40, 126.81, 126.98, 128.80, 129.91, 130.75, 131.15, 134.02, 134.14, 139.67, 143.53, 151.25, 163.34, 188.61; ESI-MS (m/z) calculated for $C_{28}H_{28}O_2$: 396.21, found: 397.26 $(M + H)^+$.

(*E*)-1-(4-Methoxyphenyl)-3-(4-(4-methoxystyryl)phenyl)prop-2-en-1-one (68): Yield 65%; mp 221-223 ^oC; IR (film, cm^{-1}): 3008, 2959, 2839, 1599, 1507, 1414, 1299, 1252, 1172, 1021, 801; ^1H NMR (400 MHz, $CDCl_3$): δ 3.77 (s, 3H, OCH_3), 3.82 (s, 3H, OCH_3), 6.84 (d, *J* = 8.7 Hz, 2H), 6.89-6.93 (m, 3H), 7.07(d, *J* = 16.1 Hz, 1H), 7.40 (d, *J* = 8.0 Hz, 2H), 7.44-7.49 (m, 3H), 7.55 (d, *J* = 8.0 Hz, 2H), 7.73 (d, *J* = 15.3 Hz, 1H), 7.98 (d, *J* = 8.7 Hz, 2H); ESI-MS (m/z) calculated for $C_{25}H_{22}O_3$: 370.15, found: 371.23 $(M + H)^+$; ^{13}C NMR (100 MHz, $CDCl_3$): δ 55.33, 55.49, 113.82, 114.21, 121.15, 125.70, 126.66, 127.96, 128.83, 129.69, 129.76, 130.77, 131.23, 133.86, 139.86, 143.60, 159.63, 163.37, 188.67.

(*E*)-3-(4-(3,4-Dimethoxystyryl)phenyl)-1-(4-methoxyphenyl)prop-2-en-1-one (69): Yield 62%; mp 158-161 ^oC; IR (film, cm^{-1}): 3019, 2941, 2839, 1652, 1595, 1511, 1457, 1331, 1223, 1169, 1022, 967, 814, 749; ^1H NMR (400 MHz, $CDCl_3$): δ 3.90 (s, 3H, OCH_3), 3.91 (s, 3H, OCH_3), 3.96 (s, 3H, OCH_3), 6.88 (d, *J* = 8.7 Hz, 1H), 6.96-7.0 (m, 3H), 7.07-7.09 (m, 2H) 7.14 (d, *J* = 16.1 Hz, 1H), 7.53-7.57 (m, 3H), 7.63 (d, *J* = 8.0 Hz, 2H), 7.80 (d, *J* = 16.1 Hz, 1H), 8.04-8.06 (m, 2H).

(*E*)-1-(4-Methoxyphenyl)-3-(4-(3,4,5-trimethoxystyryl)phenyl)prop-2-en-1-one (70): Yield 55%; mp 162-165 ^oC; IR (film, cm^{-1}): 3005, 2937, 2835, 1654, 1587, 1503, 1416, 1326, 1220, 1114, 1006, 818, 750; ^1H NMR (400 MHz, $CDCl_3$): δ 3.88 (s, 3H, OCH_3), 3.90 (s, 3H, OCH_3) 3.93 (s, 6H, $2OCH_3$), 6.76 (s, 2H), 6.97-7.04 (m, 3H), 7.12 (d, *J* = 16.1 Hz, 1H), 7.53-7.57 (m, 3H), 7.64 (d, *J* = 8.0 Hz, 2H), 7.80 (d, *J* = 15.3 Hz, 1H), 8.04-8.06 (m, 2H); ^{13}C NMR (100 MHz, $CDCl_3$): δ 55.43, 56.07, 60.92, 103.67, 105.93, 113.78, 121.27, 126.79, 127.20, 128.18, 128.81, 129.51, 129.98, 130.72, 131.08, 132.62, 134.16, 138.21, 139.27, 143.36, 153.37, 163.35, 188.50; ESI-MS (m/z) calculated for $C_{27}H_{26}O_5$: 430.17, found: 431.19 $(M + H)^+$.

Biological Activity

Five dose testing results of compound 70 against sixty cancer cell lines

National Cancer Institute Developmental Therapeutics Program
In-Vitro Testing Results

NSC : 768600 / 1	Experiment ID : 1303NS48	Test Type : 08	Units : Molar
Report Date : June 13, 2013	Test Date : March 25, 2013	QNS :	MC :
COMI : DKG380 (121828)	Stain Reagent : SRB Dual-Pass Related	SSPL : 0YPD	

		Log10 Concentration												
	Time	Mean Optical Densities						Percent Growth						
Panel/Cell Line	Zero	Ctrl	-8.0	-7.0	-6.0	-5.0	-4.0	-8.0	-7.0	-6.0	-5.0	-4.0	GI50	TGI	LC50
Leukemia															
CCRF-CEM	0.579	2.980	2.896	2.928	2.732	1.191	0.738	97	98	90	25	7	4.15E-6	> 1.00E-4	> 1.00E-4
HL-60(TB)	0.781	2.858	2.995	2.837	2.705	1.348	1.083	107	99	93	27	14	4.49E-6	> 1.00E-4	> 1.00E-4
K-562	0.198	1.913	1.952	1.895	1.857	0.404	0.288	102	97	95	12	5	3.03E-6	> 1.00E-4	> 1.00E-4
MOLT-4	0.844	2.752	2.737	2.880	2.528	0.999	0.839	99	97	89	17	9	3.49E-6	> 1.00E-4	> 1.00E-4
RPMI-8226	0.649	2.351	2.313	2.384	2.188	0.807	0.530	98	102	89	-7	-18	2.57E-6	8.54E-6	> 1.00E-4
SR	0.572	2.888	2.554	2.428	1.977	0.803	0.888	94	88	68	11	5	1.98E-6	> 1.00E-4	> 1.00E-4
Non-Small Cell Lung Cancer															
A549/ATCC	0.411	1.781	1.744	1.805	1.580	0.858	0.398	97	102	85	32	-3	4.87E-6	8.09E-5	> 1.00E-4
HOP-62	0.473	1.579	1.542	1.529	1.549	1.111	0.407	97	95	97	58	-14	1.28E-5	6.38E-5	> 1.00E-4
NCI-H226	1.151	2.190	2.289	2.225	2.126	1.301	0.854	108	103	94	14	-26	3.57E-6	2.28E-5	> 1.00E-4
NCI-H23	0.848	2.557	2.486	2.518	2.437	1.432	0.782	96	98	93	34	-8	5.39E-6	6.59E-5	> 1.00E-4
NCI-H322M	0.617	1.808	1.593	1.571	1.534	1.204	0.896	98	96	93	59	28	1.98E-5	> 1.00E-4	> 1.00E-4
NCI-H460	0.348	3.112	3.150	3.177	3.058	1.640	0.606	101	102	98	47	9	8.85E-6	> 1.00E-4	> 1.00E-4
NCI-H522	1.084	2.277	2.197	2.052	2.056	1.332	0.848	93	81	81	21	-22	3.30E-6	3.07E-5	> 1.00E-4
Colon Cancer															
COLO 205	0.442	1.798	1.804	1.795	1.855	1.194	0.848	101	100	104	58	15	1.37E-5	> 1.00E-4	> 1.00E-4
HCC-2998	0.860	2.907	2.899	2.930	2.923	2.422	1.527	100	101	101	78	32	3.84E-5	> 1.00E-4	> 1.00E-4
HCT-116	0.215	1.855	1.857	1.783	1.472	0.427	0.322	100	96	77	13	6	2.82E-6	> 1.00E-4	> 1.00E-4
HCT-15	0.271	1.852	1.889	1.701	1.419	0.490	0.397	88	90	73	14	8	2.42E-6	> 1.00E-4	> 1.00E-4
HT29	0.343	1.828	1.812	1.711	1.556	0.797	0.392	99	92	82	31	3	4.17E-6	> 1.00E-4	> 1.00E-4
KM12	0.477	2.440	2.357	2.328	2.211	0.900	0.469	96	94	88	22	-2	3.75E-6	8.39E-5	> 1.00E-4
SW-620	0.374	2.888	2.805	2.583	2.484	1.007	0.410	97	96	92	28	2	4.50E-6	> 1.00E-4	> 1.00E-4
CNS Cancer															
SF-268	0.680	2.202	2.060	2.085	2.206	1.230	0.668	91	92	100	38	-2	6.08E-6	8.83E-5	> 1.00E-4
SF-295	0.777	2.589	2.445	2.434	2.337	1.652	0.825	92	91	86	48	3	9.01E-6	> 1.00E-4	> 1.00E-4
SF-539	0.730	2.145	2.111	2.021	2.127	1.513	0.882	98	91	99	55	-7	1.22E-5	7.83E-5	> 1.00E-4
SNB-19	0.955	2.837	2.538	2.589	2.506	1.938	1.499	94	97	92	58	32	2.11E-5	> 1.00E-4	> 1.00E-4
SNB-75	0.833	1.874	1.575	1.538	1.522	1.160	0.880	88	84	82	39	-18	5.50E-6	4.77E-5	> 1.00E-4
U251	0.440	1.708	1.654	1.645	1.561	0.870	0.387	96	95	89	34	-12	5.09E-6	5.47E-5	> 1.00E-4
Melanoma															
LOX IMVI	0.271	1.928	1.870	1.858	1.739	0.828	0.255	97	96	89	22	-6	3.76E-6	8.09E-5	> 1.00E-4
MALME-3M	0.778	1.809	1.548	1.456	1.493	1.222	0.982	93	82	86	54	25	1.32E-5	> 1.00E-4	> 1.00E-4
M14	0.533	1.953	1.945	2.006	1.885	1.232	0.887	99	104	95	49	25	9.81E-6	> 1.00E-4	> 1.00E-4
MDA-MB-435	0.519	2.150	2.088	2.074	1.915	0.997	0.447	95	95	88	29	-14	4.28E-6	4.77E-5	> 1.00E-4
SK-MEL-2	0.698	1.188	1.183	1.108	1.132	1.034	0.703	99	84	89	69	1	1.89E-5	> 1.00E-4	> 1.00E-4
SK-MEL-28	0.813	1.394	1.398	1.380	1.282	1.075	0.762	101	98	86	59	19	1.89E-5	> 1.00E-4	> 1.00E-4
SK-MEL-5	0.851	2.679	2.585	2.679	2.405	1.197	0.442	95	100	85	19	-48	3.39E-6	1.92E-5	> 1.00E-4
UACC-257	1.039	1.980	1.929	1.883	1.912	1.490	1.062	95	90	93	48	2	9.00E-6	> 1.00E-4	> 1.00E-4
UACC-62	0.819	2.887	2.806	2.820	2.388	1.638	0.917	97	97	84	44	5	7.13E-6	> 1.00E-4	> 1.00E-4
Ovarian Cancer															
IGROV1	0.555	1.884	1.951	1.874	1.883	1.197	0.520	105	99	98	48	-6	9.24E-6	7.64E-5	> 1.00E-4
OVCAR-3	0.423	1.395	1.408	1.453	1.464	0.529	0.174	101	106	107	11	-59	3.92E-6	1.43E-5	7.44E-5
OVCAR-4	0.821	1.201	1.168	1.203	1.102	0.883	0.496	94	100	83	42	-20	6.31E-6	4.73E-5	> 1.00E-4
OVCAR-5	0.557	1.291	1.215	1.133	1.174	1.154	0.723	90	78	84	81	23	3.41E-5	> 1.00E-4	> 1.00E-4
OVCAR-8	0.420	1.849	1.834	1.859	1.646	0.758	0.393	99	101	86	24	-6	3.76E-6	6.11E-5	> 1.00E-4
NCI/ADR-RES	0.729	2.484	2.472	2.383	2.488	1.301	0.841	99	94	99	33	6	5.48E-6	> 1.00E-4	> 1.00E-4
SK-OV-3	0.614	1.275	1.245	1.289	1.348	1.049	0.519	95	102	111	68	-15	1.56E-5	6.45E-5	> 1.00E-4
Renal Cancer															
786-0	0.609	2.414	2.434	2.449	2.308	1.530	0.555	101	102	94	51	-9	1.04E-5	7.11E-5	> 1.00E-4
A498	1.396	2.303	2.306	2.232	2.281	1.930	1.633	100	92	95	59	28	1.88E-5	> 1.00E-4	> 1.00E-4
ACHN	0.329	1.326	1.334	1.259	1.306	0.858	0.388	101	93	98	53	6	1.18E-5	> 1.00E-4	> 1.00E-4
CAKI-1	0.882	2.593	2.541	2.577	2.592	1.748	1.078	97	99	100	58	21	1.48E-5	> 1.00E-4	> 1.00E-4
RXF 393	1.077	1.819	1.591	1.583	1.588	1.325	0.800	95	93	91	48	-28	8.01E-6	4.38E-5	> 1.00E-4
SN12C	0.755	2.849	2.843	2.889	2.721	1.788	1.378	100	101	94	49	30	9.81E-6	> 1.00E-4	> 1.00E-4
UO-31	0.540	1.871	1.721	1.878	1.730	0.944	0.669	89	85	89	30	10	4.84E-6	> 1.00E-4	> 1.00E-4
Prostate Cancer															
PC-3	0.471	1.479	1.421	1.410	1.374	0.844	0.553	94	93	90	37	8	5.85E-6	> 1.00E-4	> 1.00E-4
DU-145	0.387	1.532	1.539	1.603	1.579	0.964	0.488	101	106	104	50	9	1.02E-5	> 1.00E-4	> 1.00E-4
Breast Cancer															
MCF7	0.433	2.053	1.938	1.905	1.564	0.819	0.395	93	91	70	11	-9	2.18E-6	3.68E-5	> 1.00E-4
MDA-MB-231/ATCC	0.631	1.552	1.591	1.556	1.520	1.064	0.718	104	100	97	50	9	1.02E-5	> 1.00E-4	> 1.00E-4
HS 578T	1.058	2.170	2.115	2.039	2.101	1.594	1.138	95	88	94	48	7	9.11E-6	> 1.00E-4	> 1.00E-4
BT-549	1.049	1.918	1.939	1.888	1.873	1.134	0.898	102	97	95	10	-34	3.39E-6	1.68E-5	> 1.00E-4
T-47D	0.456	1.138	1.083	1.099	1.071	0.725	0.555	92	94	90	39	14	8.19E-6	> 1.00E-4	> 1.00E-4
MDA-MB-468	0.788	1.449	1.404	1.450	1.320	0.941	0.705	93	100	80	23	-11	3.39E-6	4.87E-5	> 1.00E-4

National Cancer Institute Developmental Therapeutics Program

Mean Graphs

NSC :768600/1	Units :Molar	SSPL :0YPD	EXP. ID :1303NS48
Report Date :June 13, 2013		Test Date :March 25, 2013