Supplemental Experimental Procedures

Chemistry. General: All reactions were carried out under open-air condition unless otherwise specified. Chemicals and solvents were used as received (mostly purchased from Sigma-Aldrich, Alfa Aesar, or TCI in ≥95% purity), some solvents or reagents were purified according to literature procedures if necessary. ^{1}H NMR spectra were recorded on a Bruker spectrometer at 500 MHz and are reported relative to deuterated solvent signals ($CDCl_3$ δ 7.26; DMSO-d_6 δ 2.48 ppm). Data for ^{1}H NMR spectra are reported as follows: chemical shift (ppm, δ), multiplicity, coupling constant (Hz) and integration. Splitting patterns are designated as follows: s, singlet; d, doublet; dd, doublet of doublets; t, triplet; td, triplet of doublets; m, multiplet. ^{13}C NMR spectra were recorded on a Bruker spectrometer at 125 MHz and are reported relative to deuterated solvent signals ($CHCl_3$ δ 77.0; DMSO-d_6 δ 40.0 ppm). ^{19}F NMR spectra were recorded on a Bruker spectrometer at 376.3 MHz and are reported relative to external Freon-113 in benzene (δ -73.75 ppm). The chemical shift data for ^{13}C and ^{19}F NMR spectra are reported in parts per million (ppm, δ). Melting points were obtained using Buchi B-545 melting point apparatus and are uncorrected. The reactions were monitored with a silica gel TLC plate under UV light (254 and 365 nm) followed by visualization with a ninhydrin or phospho-molybdic acid staining solution. Column chromatography was performed on silica gel 60, 230-400 mesh. DART-HRMS spectra were collected on a Thermo Exactive Plus MSD (Thermo Scientific) equipped with an ID-CUBE ion source and a Vapur Interface (IonSense). Both the source and MSD were controlled by Excalibur, version 3.0. The purity of the compounds was assayed by high field proton and carbon NMR and was ≥95%.

Synthetic procedures and characterization data.

Representative procedure for syntheses of IRES-J000, J001, J002 and J007.[1]

1-((2,4-Dimethoxyphenyl)methyl)-1*H*-pyrrole-2,5-dione (IRES-J000). To an acetic acid (10 mL) solution of maleic anhydride (118 mg, 1.2 mmol, 1.2 eq) was added 2,4-dimethoxybenzylamine (0.15 mL, 1.0 mmol, 1.0 eq) at room temperature. The reaction mixture was refluxed for 24 h until the starting material was completely consumed and then the mixture was concentrated in vacuo. The residue was diluted with ethyl acetate (80 mL) and washed with water (2 X 20 mL) and brine (20 mL). The organic layer was dried with $MgSO_4$, filtered and concentrated in vacuo. The residue was purified by flash column chromatography over silica gel (hexane/ethyl acetate, 10:1, v/v) to afford the desired product IRES-J000 (43 mg, 15%) as a pale yellow solid: Rf = 0.5 (hexane/ethyl acetate, 2:1, v/v); mp 69-71 °C; ^{1}H NMR ($CDCl_3$, 500 MHz) δ7.10 (d, *J* = 9.0 Hz, 1H), 6.68 (s, 2H), 6.42 (s, 1H), 6.41 (dd, *J* = 7.5, 2.5 Hz, 1H), 4.65 (s, 2H), 3.79 (s, 3H), 3.77 (s, 3H) ppm; ^{13}C NMR ($CDCl_3$, 125 MHz) δ 170.6, 160.6, 158.2, 134.1, 130.0, 116.6, 103.9, 98.5, 55.42, 55.37, 36.5 ppm; HRMS-ESI (m/z): $[M+H]^+$ calcd for $C_{13}H_{13}NO_4$ 248.09228; found, 248.09164.

1-Phenylmethyl-1*H*-pyrrole-2,5-dione (IRES-J001). Yellow solid (27% yield): Rf = 0.4 (hexane/ethyl acetate, 5:1, v/v); mp 70-72 °C; ^{1}H NMR (DMSO-d_6, 500 MHz) δ 7.31 (t, *J* = 7.5 Hz, 2H), 7.24 (t, *J* = 7.5 Hz, 1H), 7.20 (d, *J* = 7.0 Hz, 2H), 7.06 (s, 2H), 4.57 (s, 2H) ppm; ^{13}C NMR (DMSO-d_6, 125 MHz) δ 171.3, 137.2, 135.2, 129.0, 127.9, 127.7, 40.9 ppm; HRMS-ESI (m/z): $[M+H]^+$ calcd for $C_{11}H_{10}NO_2$ 188.07115; found, 188.0705. These data are in agreement with those previously reported.[1]

1-((4-Methoxyphenyl)methyl)-1*H*-pyrrole-2,5-dione (IRES-J002). White powder (46% yield): Rf = 0.15 (hexane/ethyl acetate, 5:1, v/v); mp 105-106 °C; ^{1}H NMR (DMSO-d_6, 500 MHz) δ 7.14 (d, *J* = 8.5 Hz, 2H), 7.03 (s, 2H), 6.85 (d, *J* = 8.5 Hz, 2H), 4.49 (s, 2H), 3.70 (s, 3H) ppm; ^{13}C NMR (DMSO-d_6, 125 MHz) δ 171.3, 159.1, 135.1, 129.3, 129.2, 114.4, 55.5, 40.5 ppm; HRMS-ESI (m/z): $[M+H]^+$ calcd for $C_{12}H_{12}NO_3$ 218.08172; found, 218.08125. These data are in agreement with those previously reported.[1]

2-((2,4-Dimethoxyphenyl)methyl)isoindoline-

1,3-dione (IRES-J007).[2] White solid (84% yield): Rf = 0.3 (hexane/ethyl acetate, 5:1, v/v); mp 149-151 °C; ^{1}H NMR (DMSO-d$_6$, 500 MHz) δ 7.89-7.85 (m, 2H), 7.85-7.52 (m, 2H), 6.95 (d, *J* = 8.5 Hz, 1H), 6.54 (d, *J* = 2.5 Hz, 1H), 6.41 (dd, *J* = 8.5, 2.5 Hz, 1H), 4.64 (s, 2H), 3.76, (s, 3H), 3.70 (s, 3H) ppm; ^{13}C NMR (DMSO-d$_6$, 125 MHz) δ 168.2, 160.4, 157.9, 135.0, 132.1, 128.8, 123.6, 116.6, 105.0, 98.8, 56.0, 55.7, 36.5 ppm; HRMS-ESI (m/z): $[M+H]^+$ calcd for $C_{17}H_{16}NO_4$ 298.10793; found, 298.10669.

Representative procedure for syntheses of IRES-J003, J006 and J008.[3]

1-((4-Fluorophenyl)methyl)-1*H*-pyrrole-2,5-dione (IRES-J003). To a solution of maleic anhydride (98 mg, 1.0 mmol, 1.0 eq) in tetrahydrofuran (10 mL) was added 4-fluorobenzylamine (0.12 mL, 1.0 mmol, 1.0 eq) at room temperature and the mixture was refluxed for 3 h. After evaporation of the excess solvent, the residue was dissolved in acetic anhydride (5 mL) and sodium acetate (16 mg, 0.2 mmol, 0.2 eq) was added to the mixture. The reaction mixture was refluxed for 3 h and then concentrated in vacuo. The residue was diluted with ethyl acetate (80 mL) and washed with water (2 X 20 mL) and brine (20 mL). The organic layer was dried with $MgSO_4$, filtered and concentrated in vacuo. The residue was purified by flash column chromatography over silica gel (hexane/ethyl acetate, 10:1, v/v) to afford the desired product IRES-J003 (80 mg, 39%) as white solid: Rf = 0.5 (hexane/ethyl acetate, 3:1, v/v); mp 93-95 °C; ^{1}H NMR ($CDCl_3$, 500 MHz) δ 7.32 (dd, *J* = 7.5, 4.5 Hz, 2H), 7.00 (t, *J* = 8.5 Hz, 2H), 6.70 (s, 2H), 4.63 (s, 2H) ppm; ^{13}C NMR (DMSO, 125 MHz) δ 170.3, 162.4 (d, *J* = 245.0 Hz, 1C), 134.3, 132.0 (d, *J* = 3.25 Hz, 1C), 130.4 (d, *J* = 8.1 Hz, 1C), 115.6 (d, *J* = 21.4 Hz, 1C), 40.7 ppm; ^{19}F NMR ($CDCl_3$, 376 MHz, ^{1}H decoupled) δ -114.20 ppm; HRMS-ESI (m/z): $[M+H]^+$ calcd for $C_{11}H_9FNO_2$ 206.06173; found, 206.0611. These data are in agreement with those previously reported.[3]

1-((2,4-Dimethoxyphenyl)methyl)pyrrolidine-2,5-dione (IRES-J006). Pale yellow solid (49% yield): Rf = 0.5 (hexane/ethyl acetate, 2:1, v/v); mp 80-82 °C; ^{1}H NMR (DMSO-d$_6$, 500 MHz) δ 7.85 (d, *J* = 8.5 Hz, 1H), 6.53 (d, *J* = 2.5 Hz, 1H), 6.40 (dd, *J* = 8.5, 2.5 Hz, 1H), 4.40 (s, 2H), 3.76 (s, 3H), 3.71 (s, 3H), 2.67 (s, 4H) ppm; ^{13}C NMR (DMSO-d$_6$, 125 MHz) δ 178.0, 160.3, 157.9, 128.2, 116.1, 104.9, 98.7, 56.0, 55.7, 36.6, 28.6 ppm; HRMS-ESI (m/z): $[M+H]^+$ calcd for $C_{13}H_{16}NO_4$ 250.10793; found, 250.10706. These data are in agreement with those previously reported.[4]

1-(4-Methoxyphenyl)-1*H*-pyrrole-2,5-dione (IRES-J008). Yellow solid (65% yield): Rf = 0.2 (hexane/ethyl acetate, 3:1, v/v); mp 152-155 °C; ^{1}H NMR (DMSO-d$_6$, 500 MHz) δ 7.21 (d, *J* = 9.0 Hz, 2H), 7.13 (s, 2H), 7.01 (d, *J* = 9.0 Hz, 2H), 3.77 (s, 3H) ppm; ^{13}C NMR (DMSO-d$_6$, 125 MHz) δ 170.7, 159.1, 135.1, 128.8, 124.5, 114.6, 55.8 ppm; HRMS-ESI (m/z): $[M]^+$ calcd for $C_{11}H_9NO_3$ 203.05824; found, 203.05650. These data are in agreement with those previously reported.[3]

Representative procedure for syntheses of IRES-J004 and J005

1-((2,4-Dimethoxyphenyl)methyl)-3,4-dimethyl-1*H*-pyrrole-2,5-dione (IRES-J004). To a solution of 2,3-dimethylmaleic anhydride (126 mg, 1.0 mmol, 1.0 eq) in tetrahydrofuran (10 mL) was added 2,4-dimethoxybenzylamine (0.15 mL, 1.0 mmol, 1.0 eq) at 0 °C. The reaction mixture was refluxed for 2 h until the starting material was completely consumed and then concentrated in vacuo. The residue was purified by flash column chromatography over silica gel (hexane/ethyl acetate, 10:1, v/v) to afford the desired product IRES-J004 (153 mg, 56%) as a white powder: Rf = 0.3 (hexane/ethyl acetate, 5:1, v/v); mp 105-107 °C; ^{1}H NMR ($CDCl_3$, 500 MHz) δ 7.08 (d, *J* = 8.0 Hz, 1H), 6.41 (bs, 1H), 6.40 (dd, *J* = 8.0, 2.0 Hz, 1H), 4.62 (s, 2H), 3.80 (s, 3H), 3.77 (s, 3H), 1.95 (s, 6H) ppm; ^{13}C NMR ($CDCl_3$, 125 MHz) δ 172.0, 160.4, 158.1, 137.1, 129.8, 117.2, 103.9, 98.5, 55.5, 55.4, 36.3, 8.7 ppm; HRMS-ESI (m/z): $[M+H]^+$ calcd for $C_{15}H_{18}NO_4$ 276.12358; found, 276.12216.

1-((2,4-Dimethoxyphenyl)methyl)-3,4-diphenyl-

1*H*-pyrrole-2,5-dione (IRES-J005). Yellow solid (40% yield): Rf = 0.4 (hexane/ethyl acetate, 5:1, v/v); mp 97-99 °C; ^{1}H NMR ($CDCl_3$, 500 MHz) δ 7.48-7.46 (m, 4H), 7.38-7.34 (m, 6H), 7.25 (d, *J* = 9.0 Hz, 1H), 6.45 (s, 1H), 6.44 (dd, *J* = 9.0, 2.5 Hz, 1H), 4.80 (s, 2H), 3.83 (s, 3H), 3.78 (s, 3H) ppm; ^{13}C NMR ($CDCl_3$, 125 MHz) δ 170.5, 160.6, 158.3, 136.1, 130.5, 130.0, 129.7, 128.8, 128.5, 116.9, 104.0, 98.5, 55.5, 55.4, 36.8 ppm; HRMS-ESI (m/z): $[M+H]^+$ calcd for $C_{25}H_{22}NO_4$ 400.15488; found, 400.15234.

1-Methyl-3-(phenylmethyl)pyrimidine-2,4(1*H*,3*H*)-dione (IRES-J009). To a suspension of uracil (1.12 g, 10.0 mmol, 1.0 eq) in 1,2-dichloroethane (20 mL), were added hexamethyldisilazane (8.4 mL, 40.0 mmol, 4.0 eq) and chlorotrimethylsilane (0.67 mL, 5.3 mmol, 0.53 eq) and the mixture refluxed for 4 h. The resulting mixture was cooled to room temperature, the solvent was removed under reduced pressure and 1,2-dichloroethane (10 mL) was added. To the reaction mixture were added iodomethane (2.49 mL, 40.0 mmol, 4.0 eq) and iodine (25.4 mg, 0.1 mmol, 0.01 eq), and the mixture was refluxed for 24 h. The excess solvent was removed in vacuo and the residue was purified by flash column chromatography over silica gel (dichloromethane/methanol, 30:1, v/v) to afford the desired product (1-methylpyrimidine-2,4(1*H*,3*H*)-dione, 645 mg, 51%) as brown solid: Rf = 0.5 (dichloromethane/methanol, 10:1, v/v); ^{1}H NMR (DMSO-d_6, 500 MHz) δ 11.20 (s, 1H), 7.59 (d, *J* = 7.5 Hz, 1H), 5.49 (d, *J* = 8.0 Hz, 1H), 3.20 (s, 3H) ppm; ^{13}C NMR (DMSO-d_6, 125 MHz) δ 164.4, 151.7, 146.9, 101.0, 35.7 ppm. These data are in agreement with those previously reported.[5] To a solution of 1-methylpyrimidine-2,4(1*H*,3*H*)-dione (63 mg, 0.5 mmol, 1.0 eq) in ethanol (5 mL) was added sodium hydroxide (40 mg, 1.0 mmol, 2.0 eq) and benzyl bromide (0.12 mL, 1.0 mmol, 2.0 eq) at room temperature. The mixture was stirred for 72 h at room temperature and then concentrated in vacuo. The residue was diluted with ethyl acetate (80 mL) and washed with water (2 X 20 mL) and brine (20 mL). The organic layer was dried with $MgSO_4$, filtered and concentrated in vacuo. The residue was purified by flash column chromatography over silica gel (hexane/ethyl acetate, 3:1, v/v) to afford the desired product IRES-J009 (60 mg, 56%) as white solid: mp 108-110 °C; ^{1}H NMR (DMSO-d_6, 500 MHz) δ 7.69 (d, *J* = 7.5 Hz, 1H), 7.29-7.22 (m, 5H), 5.69 (d, *J* = 7.5 Hz, 1H), 4.95 (s, 2H), 3.27 (s, 3H) ppm; ^{13}C NMR (DMSO-d_6, 125 MHz) δ 163.1, 151.9, 145.7, 137.7, 128.8, 128.1, 127.6, 100.2, 43.8, 36.9 ppm; HRMS-ESI (m/z): $[M+H]^+$ calcd for $C_{12}H_{13}N_2O_2$ 217.09770; found, 217.09686.

Representative procedure for syntheses of IRES-J010 and J013-J015.[6]

2-(Phenylmethyl)isoindoline-1,3-dione (IRES-J010). To a solution of phthalic anhydride (444 mg, 3.0 mmol, 1.0 eq) in toluene (15 mL) was added benzylamine (0.36 mL, 3.3 mmol, 1.1 eq) at room temperature. The reaction mixture was refluxed for 5 h until the starting material was completely consumed and then the mixture was concentrated in vacuo. The residue was purified by flash column chromatography over silica gel (hexane/ethyl acetate, 5:1, v/v) to afford the desired product IRES-J010 (565 mg, 79%) as white powder: Rf = 0.6 (hexane/ethyl acetate, 5:1, v/v); mp 108-110 °C; ^{1}H NMR (DMSO-d_6, 500 MHz) δ 7.89-7.86 (m, 2H), 7.85-7.83 (m, 2H), 7.33-7.24 (m, 5H), 4.75 (s, 2H) ppm; ^{13}C NMR (DMSO-d_6, 125 MHz) δ 168.2, 137.1, 135.1, 132.0, 129.1, 127.9, 127.8, 123.7, 41.3 ppm; HRMS-ESI (m/z): $[M+H]^+$ calcd for $C_{12}H_{12}NO_2$ 238.08680; found, 238.08607. These data are in agreement with those previously reported.[7]

2-(4-Methoxyphenyl)isoindoline-1,3-dione (IRES-J013). Yellow solid (73% yield): Rf = 0.2 (hexane/ethyl acetate, 5:1, v/v); mp 157-159 °C; ^{1}H NMR (DMSO-d_6, 500 MHz) δ 7.94-7.93 (m, 2H), 7.89-7.87 (m, 2H), 7.33 (d, *J* = 9.0 Hz, 2H), 7.05 (d, *J* = 9.0 Hz, 2H), 3.79 (s, 3H) ppm; ^{13}C NMR (DMSO-d_6, 125 MHz) δ 167.8, 159.3, 135.1, 132.1, 129.3, 124.9, 123.8, 114.6, 55.9 ppm; HRMS-ESI (m/z): $[M+H]^+$ calcd for $C_{15}H_{127}NO_3$ 254.08172; found, 254.08066. These data are in agreement with those previously reported.[8]

2-(4-(Dimethylamino)phenyl)isoindoline-1,3-dione (IRES-J014). Yellow solid (73% yield): Rf

= 0.4 (hexane/ethyl acetate, 5:1, v/v); mp 264-267 °C; ^{1}H NMR (DMSO-d_6, 500 MHz) δ 7.92-7.90 (m, 2H), 7.87-7.86 (m, 2H), 7.18 (d, *J* = 8.5 Hz, 2H), 6.78 (d, *J* = 9.0 Hz, 2H), 2.93 (s, 6H) ppm; ^{13}C NMR (DMSO-d_6, 125 MHz) δ 168.0, 150.5, 135.0, 132.1, 128.6, 123.7, 120.6, 112.5, 40.6 ppm HRMS-ESI (m/z): $[M+H]^+$ calcd for $C_{16}H_{15}N_2O_2$ 267.11335; found, 267.11206. These data are in agreement with those previously reported.[9]

2-(3-Methoxypropyl)isoindoline-1,3-dione (IRES-J015). White solid (68% yield): Rf = 0.4 (hexane/ethyl acetate, 5:1, v/v); mp 50-52 °C; ^{1}H NMR (DMSO-d_6, 500 MHz) δ 7.86-7.83 (m, 2H), 7.82-7.80 (m, 2H), 3.61 (t, *J* = 7.0 Hz, 2H), 3.32 (t, *J* = 6.0 Hz, 2H), 3.16 (s, 3H), 1.79 (tt, *J* = 6.5, 6.0 Hz, 2H) ppm; ^{13}C NMR (DMSO-d_6, 125 MHz) δ 168.4, 134.8, 132.2, 123.4, 70.0, 58.4, 35.6, 28.5 ppm; HRMS-ESI (m/z): $[M+H]^+$ calcd for $C_{12}H_{14}NO_3$ 220.09737; found, 220.09663. These data are in agreement with those previously reported.[10]

2-(Phenylamino)isoindoline-1,3-dione (IRES-J011). To a solution of *N*-hydroxyphthalimide (489 mg, 3.0 mmol, 1.0 eq) in pH 7.0 phosphate buffer (30 mL) was added phenylhydrazine (0.293 mL, 3.0 mmol, 1.0 eq) at room temperature. The mixture was stirred for 15 h at room temperature and then the mixture was filtered and washed with water. The filtered solid was diluted with ethyl acetate (150 mL) and washed with 5% aq. HCl (30 mL X 2) and the organic phase was dried with brine and MgSO4, filtered and concentrated in vacuo. No further purification was needed to afford the desired product IRES-J011 (620 mg, 87%) as a bright yellow solid: Rf = 0.5 (hexane/ethyl acetate, 2:1, v/v); mp 182-184 °C; ^{1}H NMR (DMSO-d_6, 500 MHz) δ 8.54 (s, 1H), 7.94-7.92 (m, 2H), 7.91-7.89 (m, 2H), 7.15 (t, *J* = 7.5 Hz, 2H), 6.77 (t, *J* = 7.5 Hz, 1H), 6.71 (d, *J* = 7.5 Hz, 2H) ppm; ^{13}C NMR (DMSO-d_6, 125 MHz) δ 167.1, 147.3, 135.5, 130.1, 129.5, 124.0, 120.2, 112.6 ppm; HRMS-ESI (m/z): $[M+H]^+$ calcd for $C_{14}H_{11}N_2O_2$ 239.08205; found, 239.08113. These data are in agreement with those previously reported.[11]

2-(Diphenylamino)isoindoline-1,3-dione (IRES-J012). To a solution of *N*-hydroxyphthalimide (489 mg, 3.0 mmol, 1.0 eq) in pH 7.0 phosphate buffer (30 mL) was added *N*,*N*-diphenyl-hydrazine HCl (662 mg, 3.0 mmol, 1.0 eq) at room temperature. The mixture was refluxed for 3 h and then the mixture was filtered and washed with water. The filtered solid was diluted with ethyl acetate (150 mL) and washed with 5% aq. HCl (50 mL X 3) and the organic phase was dried with brine and $MgSO_4$, filtered and concentrated in vacuo. No further purification was needed to afford the desired product IRES-J012 (200 mg, 21%) as a pale green solid: Rf = 0.4 (hexane/ethyl acetate, 5:1, v/v); mp 159-161 °C; ^{1}H NMR (DMSO-d_6, 500 MHz) δ 7.97-7.92 (m, 4H), 7.31 (t, *J* = 8.0 Hz, 4H), 7.10 (d, *J* = 8.0 Hz, 4H), 7.06 (t, *J* = 7.5 Hz, 2H) ppm; ^{13}C NMR (DMSO-d_6, 125 MHz) δ 166.5, 144.4, 135.9, 130.0, 129.6, 124.4, 124.1, 119.7 ppm; HRMS-ESI (m/z): $[M]^+$ calcd for $C_{20}H_{14}N_2O_2$ 314.10553; found, 314.10420. These data are in agreement with those previously reported.[12]

2-(Phenylmethyl)isoquinoline-1,3(2*H*,4*H*)-dione (IRES-J016). To a solution of homophthalic anhydride (162 mg, 1.0 mmol, 1.0 eq) in toluene (10 mL) was added benzylamine (0.12 mL, 1.1 mmol, 1.1 eq) at room temperature. The reaction mixture was refluxed for 3 h then cooled to room temperature. The resulting solid (unreacted homophthalic anhydride) was filtered and washed with ethyl acetate/hexane mixture, and the organic phase was concentrated in vacuo. The residue was purified by flash column chromatography over silica gel (hexane/ethyl acetate, 3:1, v/v) to afford the desired product IRES-J012 (53 mg, 21%) as a yellow solid: Rf = 0.2 (hexane/ethyl acetate, 3:1, v/v); mp 124-126 °C; ^{1}H NMR ($CDCl_3$, 500 MHz) δ 8.21 (d, *J* = 8.0 Hz, 1H), 7.57 (t, *J* = 7.5 Hz, 1H), 7.46 (d, *J* = 7.5 Hz, 2H), 7.43 (t, *J* = 7.5 Hz, 1H), 7.29 (t, *J* = 7.5 Hz, 2H), 7.26-7.22 (m, 2H), 5.18 (s, 2H), 4.06 (s, 2H) ppm; ^{13}C NMR ($CDCl_3$, 125 MHz) δ 169.9, 164.9, 137.1, 134.1, 133.7, 129.3, 129.0, 128.4, 127.8, 127.6, 127.1, 125.4, 43.3, 36.5 ppm; HRMS-ESI (m/z): $[M+H]^+$ calcd for $C_{16}H_{14}NO_2$ 252.10245; found, 252.10184. These data are in agreement with those previously reported.[13]

3-(Phenylmethyl)quinazoline-2,4(1*H*,3*H*)-dione (IRES-J017). A mixture of anthranilic acid (822 mg, 6.0 mmol, 1.0 eq) and triphosgene (605 mg, 2.04 mmol, 0.34 eq) in dry tetrahydrofuran (30 mL) was stirred for 4 h at 40-50 °C under an argon atmosphere. The mixture was concentrated in vacuo and the resulting solid was filtered and washed with hexane. No further purification was needed to afford the desired product (2H-benzo[*d*][1,3]oxazine-2,4(1*H*)-dione, 930 mg, 95%) as a dark green solid: ^{1}H NMR (DMSO-d_6, 500 MHz) δ 11.71 (s, 1H), 7.89 (d, *J* = 7.5 Hz, 1H), 7.72 (t, *J* = 7.5 Hz, 1H), 7.23 (t, *J* = 7.5 Hz, 1H), 7.13 (d, *J* = 8.0 Hz, 1H) ppm; ^{13}C NMR (DMSO-d_6, 125 MHz) δ 160.4, 147.6, 141.9, 137.4, 129.4, 124.0, 115.8, 110.8 ppm. These data are in agreement with those previously reported.[14]; To a dimethylacetamide (2 mL) solution of 2H-benzo[*d*][1,3]oxazine-2,4(1*H*)-dione (408 mg, 2.5 mmol, 1.0 eq) and urea (150 mg, 2.5 mmol, 1.0 eq) was added benzylamine (0.33 mL, 3.0 mmol, 1.2 eq) at room temperature. The reaction mixture was irradiated in a microwave reactor at 250W for 5 min at 160 °C with vigorous stirring. The reaction mixture was cooled to room temperature and added water (3 mL) and then the resulting solid was filtered and washed with methanol and hexane. No further purification was needed to afford the desired product IRES-J017 (405 mg, 64%) as a white solid: Rf = 0.3 (hexane/ethyl acetate, 2:1, v/v); mp 228-229 °C; ^{1}H NMR ($CDCl_3$, 500 MHz) δ 9.42 (s, 1H), 8.14 (d, *J* = 8.0 Hz, 1H), 7.60 (t, *J* = 7.5 Hz, 1H), 7.52 (d, *J* = 7.5 Hz, 2H), 7.32-7.29 (m, 2H), 7.26-7.21 (m, 2H), 7.03 (d, *J* = 8.0 Hz, 1H), 5.27 (s, 2H) ppm; ^{13}C NMR ($CDCl_3$, 125 MHz) δ 162.3, 151.6, 138.4, 136.8, 135.1, 128.9, 128.7, 128.5, 127.7, 123.5, 114.8, 114.7, 44.2 ppm; HRMS-ESI (m/z): $[M+H]^+$ calcd for $C_{15}H_{13}N_2O_2$ 253.09770; found, 253.09610. These data are in agreement with those previously reported.[15]

1-Methyl-3-(phenylmethyl)quinazoline-2,4(1*H*,3*H*)-dione (IRES-J018). To a solution of 3-benzylquinazoline-2,4(1*H*,3*H*)-dione (IRES-J017, 126 mg, 0.5 mmol, 1.0 eq) and potassium carbonate (207 mg, 1.5 mmol, 3.0 eq) in dimethylformamide (5 mL) was added iodomethane (0.15 mL, 2.5 mmol, 5.0 eq) at 0 °C. The reaction mixture was warmed to room temperature and stirred for 3 h, and then concentrated in vacuo. The residue was diluted with ethyl acetate (80 mL) and washed with water (2 X 20 mL) and brine (20 mL). The organic layer was dried with $MgSO_4$, filtered and concentrated in vacuo. The residue was purified by flash column chromatography over silica gel (hexane/ethyl acetate, 2:1, v/v) to afford the desired product IRES-J018 (120 mg, 90%) as a white powder: mp 131-133 °C; $_{1}$H NMR (DMSO-d_6, 500 MHz) δ 8.05 (dd, *J* = 8.0, 1.5 Hz, 1H), 7.78 (td, *J* = 8.5, 1.5 Hz, 1H), 7.45 (d, *J* = 8.5 Hz, 1H), 7.32-7.22 (m, 6H), 5.12 (s, 2H), 3.51 (s, 3H) ppm; ^{13}C NMR (DMSO-d_6, 125 MHz) δ 161.6, 150.9, 141.0, 137.7, 136.0, 128.8, 128.3, 128.1, 127.6, 123.3, 115.23, 115.17, 44.7, 31.2 ppm; HRMS-ESI (m/z): $[M+H]^+$ calcd for $C_{16}H_{15}N_2O_2$ 267.11335; found, 267.11230. These data are in agreement with those previously reported.[16]

2-Phenyl-2,3-dihydrophthalazine-1,4-dione (IRES-J019). To a solution of phthalic anhydride (444 mg, 3.0 mmol, 1.0 eq) in 10% aq. HCl (30 mL) was added phenylhydrazine (0.35 mL, 3.6 mmol, 1.2 eq) dropwise and the reaction mixture was refluxed for 15 h. The resulting solid in reaction mixture was filtered off and washed with water and dried in vacuo. No further purification was needed to afford the desired product IRES-J019 (665 mg, 93%) as a pale peach solid: Rf = 0.25 (hexane/ethyl acetate, 2:1, v/v); mp 216-218 °C; ^{1}H NMR (DMSO-d_6, 500 MHz) δ 11.82 (s, 1H), 8.28 (dd, *J* = 7.5, 1.0 Hz, 1H), 8.00 (dd, *J* = 7.5, 1.0, 1H), 7.95 (td, *J* = 7.5, 1.0 Hz, 1H), 7.90 (td, *J* = 7.5, 1.0 Hz, 1H), 7.62 (d, *J* = 7.0 Hz, 2H), 7.47 (t, *J* = 7.5 Hz, 2H), 7.35 (t, *J* = 7.5 Hz, 1H) ppm; ^{13}C NMR (DMSO-d_6, 125 MHz) δ 157.8, 150.9, 142.2, 134.1, 133.0, 129.7, 128.9, 127.6, 127.3, 126.4, 125.1, 124.7 ppm; HRMS-ESI (m/z): $[M+H]^+$ calcd for $C_{14}H_{11}N_2O_2$ 239.08205; found, 239.08102. These data are in agreement with those previously reported.[17]

2-Methyl-3-phenyl-2,3-dihydrophthalazine-1,4-dione (IRES-J020). To a solution of 2-phenyl-2,3-dihydrophthalazine-1,4-dione (IRES-J019, 119 mg, 0.5 mmol, 1.0 eq) and potassium carbonate (207 mg, 1.5 mmol, 3.0 eq) in dimethylformamide (5 mL) was added

iodomethane (0.15 mL, 2.5 mmol, 5.0 eq) at 0 °C. The reaction mixture was warmed to room temperature and stirred for 4 h, and then concentrated in vacuo. The residue was diluted with ethyl acetate (80 mL) and washed with water (2 X 20 mL) and brine (20 mL). The organic layer was dried with $MgSO_4$, filtered and concentrated in vacuo. The residue was purified by flash column chromatography over silica gel (hexane/ethyl acetate, 2:1, v/v) to afford the desired product IRES-J020 (80 mg, 63%) as a pale yellow powder: mp 115-117 °C; ^{1}H NMR (DMSO-d_6, 500 MHz) δ 8.31 (d, *J* = 8.0 Hz, 1H), 8.01 (dd, *J* = 7.5, 1.5 Hz, 1H), 7.97 (td, *J* = 8.0, 1.5 Hz, 1H), 7.93 (td, *J* = 7.5, 1.5 Hz, 1H), 7.70 (d, *J* = 7.5 Hz, 2H), 7.48 (t, *J* = 7.5 Hz, 2H), 7.36 (t, *J* = 7.5 Hz, 1H), 3.96 (s, 3H) ppm; ^{13}C NMR (DMSO-d_6, 125 MHz) δ 157.9, 150.2, 142.3, 134.4, 133.2, 129.3, 128.9, 127.6, 127.5, 126.0, 124.5, 123.9, 54.8 ppm; HRMS-ESI (m/z): $[M+H]^+$ calcd for $C_{15}H_{13}N_2O_2$ 253.09770; found, 253.09662.

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