Supporting Information
for
Aryl Iodide-Mediated Aziridination of Alkenes

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General Experimental Section. *N*-aminophthalimide and aryl iodides **1-9** were used as received. Aryl iodide **10** was prepared following literature procedure.^{S1} Solvents were purified according to standard procedures.^{S2} K₂CO₃ was dried to constant weight at 250°C for 12 h prior to use. ¹H NMR spectra were measured at either 300 or 400 MHz with CDCl₃ as solvent and TMS as internal standard.

Typical Procedure for Aziridination of Alkenes. A solution of CH₂Cl₂ (6 mL) was added to a vigorously stirred Schlenk tube containing alkene **11** (2.92 mmol), aryl iodide **1-10** (4.09 mmol), *N*-aminophthalimide (4.09 mmol), *m*-CPBA (5.84 mmol) and K₂CO₃ (8.76 mmol) under an Ar atmosphere at 25°C and stirred for 12 h. Alternatively, for

alkenes **11** that are liquids at room temperature, solutions of CH₂Cl₂ (6 mL) containing **11** (2.92 mmol) were prepared and added to a vigorously stirred Schlenk tube containing aryl iodide **1-10** (4.09 mmol), *N*-aminophthalimide (4.09 mmol), *m*-CPBA (5.84 mmol) and K₂CO₃ (8.76 mmol) under an Ar atmosphere at 25°C and stirred for 12 h. On completion, the reaction mixture was quenched with sat. NaHCO₃ (6 mL). The organic phase was separated and washed with sat. NaHCO₃ (15 mL). Removal of the solvent under reduced pressure and purification by flash column chromatography (5: 1 EtOAc: *n*-hexane as eluent) gave the aziridine product **12**. ¹H NMR spectral analysis of **12a-l** showed that the aziridine products obtained are consistent with those reported in the literature.^{S3-S6}

2-(2-Phenyl-aziridin-1-yl)-isoindole-1,3-dione 12a.^{S3} ¹H NMR (300 MHz, CDCl₃): δ 7.69-7.81 (m, 4H), 7.26-7.48 (m, 5H), 3.62 (dd, 1H, *J* = 7.9, 5.9 Hz), 2.90 (dd, 1H, *J* = 8.0, 2.4 Hz), 2.80 (dd, 1H, *J* = 5.9, 2.4 Hz).

2-(2-*p*-Trifluoromethyl-aziridin-1-yl)-isoindole-1,3-dione 12b.^{S3} ¹H NMR (300 MHz, CDCl₃): δ 7.71-7.79 (m, 4H), 7.43-7.45 (m, 2H), 7.07-7.09 (m, 2H), 2.89 (dd, 1H, *J* = 7.9, 2.4 Hz), 2.76 (dd, 1H, *J* = 5.8, 2.4).

2-[2-(4-Fluoro-phenyl)-aziridin-1-yl]-isoindole-1,3-dione 12c.^{S3} ¹H NMR (400 MHz, CDCl₃): δ 7.71-7.79 (m, 4H), 7.43-7.45 (m, 2H), 7.07-7.09 (m, 2H), 2.89 (dd, 1H, *J* = 7.9, 2.4 Hz), 2.77 (dd, 1H, *J* = 5.8, 2.4 Hz).

2-[2-(4-Chloro-phenyl)-aziridin-1-yl]-isoindole-1,3-dione 12d.^{S3} ¹H NMR (300 MHz, CDCl₃): δ 7.72-7.80 (m, 4H), 7.36-7.39 (m, 4H), 3.57 (dd, 1H, J = 7.9, 5.8 Hz), 2.91 (dd, 1H, J = 7.9, 2.5 Hz), 2.75 (dd, 1H, J = 5.8, 2.5 Hz).

2-(2-*p*-Tolyl-aziridin-1-yl)-isoindole-1,3-dione 12e.^{S3} ¹H NMR (CDCl₃, 300 MHz): δ 7.77-7.86 (m, 4H), 7.18-7.34 (m, 4H), 3.58 (dd, 1H, J = 7.9, 6.0 Hz), 2.38 (3H, s), 2.87 (dd, 1H, J = 8.0, 2.5 Hz), 2.79 (dd, 1H, J = 5.9, 2.5 Hz).

***Trans*-1-phthalimido-3-methyl-2-phenylaziridine 12f.**^{S3} ¹H-NMR (300 MHz, CDCl₃): δ 7.32-7.76 (m, 9H), 3.92 (m, 1H), 3.46 (d, 1H, J = 5.9 Hz), 1.43-1.59 (m, 3H).

***Trans*-2,3-diphenyl-1-phthalimidoaziridine 12g.**^{S4} ¹H NMR (CDCl₃, 300 MHz): δ 7.25-7.66 (m, 14H), 4.95 (d, 1H, J = 6.0 Hz), 3.98 (d, 1H, J = 6.0 Hz).

2-(2-Benzoyl-3-phenyl-aziridin-1-yl)-isoindole-1,3-dione 12h.^{S3} ¹H NMR (CDCl₃, 400 MHz): δ 7.71-7.80 (m, 2H), 7.60-7.69 (m, 2H), 7.48-7.56 (m, 2H), 7.24-7.43 (m, 2H), 4.68 (d, 1H, J = 6.4 Hz), 4.39 (d, 1H, J = 6.4 Hz).

2-(2-Methyl-2-phenyl-aziridin-1-yl)-isoindole-1,3-dione 12i.^{S4} ¹H NMR (CDCl₃, 300 MHz): δ 7.57-7.84 (m, 9H), 3.12 (d, 1H, J = 2.7 Hz), 2.87 (d, 1H, J = 1.8 Hz), 1.63 (s, 3H).

2-[2-(3-Chloro-phenyl)-aziridin-1-yl]-isoindole-1,3-dione 12j.^{S5} ¹H NMR (CDCl₃, 300 MHz): δ 7.70-7.83 (m, 4H), 7.27-7.36 (m, 3H), 7.45-7.46 (m, 1H), 3.55-3.60 (m, 1H), 2.89-2.94 (m, 1H), 2.74-2.78 (m, 1H).

2-(2,2-Dimethyl-1a,7b-dihydro-2H-3-oxa-1-aza-cyclopropa[a]naphthalen-1-yl)-isoindole-1,3-dione 12k.^{S3} ¹H-NMR (300 MHz, CDCl₃): δ 7.56-7.78 (m, 4H), 7.23 (m, 1H), 6.99 (d, 1H, J = 1.0 Hz), 6.83 (d, 1H, J = 8.1 Hz), 3.63 (d, 1H, J = 8.0 Hz), 3.31 (d, 1H, J = 8.0), 1.86 (d, 1H, J = 7.4 Hz), 1.31 (d, 1H, J = 7.4 Hz).

2-(6,6a-Dihydro-1aH-1-aza-cyclopropa[a]inden-1-yl)-isoindole-1,3-dione 12l.^{S6} ¹H NMR (CDCl₃, 300 MHz): δ 7.86-7.91 (m, 8H), 4.17 (d, 1H, J = 7.2 Hz), 3.80 (t, 1H, J = 6.8 Hz), 3.47-3.57 (m, 1H), 3.24-3.35 (m, 1H).

Procedure for Recycling of Aryl Iodide 10 for Alkene Aziridination. A solution of CH₂Cl₂ (6 mL) was added to a vigorously stirred Schlenk tube containing **11g** (2.92 mmol), **10** (4.09 mmol), *N*-aminophthalimide (4.09 mmol), *m*-CPBA (5.84 mmol) and K₂CO₃ (8.76 mmol) under an Ar atmosphere at 25°C and stirred for 12 h. On completion, the reaction mixture was filtered through Celite[®] (1 cm) with CH₂Cl₂ (3 x 15 mL) and concentrated to ca. 5-6 mL under reduced pressure. A solution of MeOH was added until no further precipitation was observed. The suspension was filtered and washed with MeOH (2 x 10 mL). Excess solvent was removed under reduced pressure and **12g** was purified by flash column chromatography (5: 1 EtOAc: *n*-hexane as eluent). After each reaction, aryl iodide **10** was recovered as a pale yellow powder by filtration and dried

under reduced pressure. The aziridination of **11g** was repeated a further five times using recovered aryl iodide **10** under the same reaction conditions.

References:

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Figure S1. ^1H NMR of 2-(2-Phenyl-aziridin-1-yl)-isoindole-1,3-dione 12a.^{S3}

Figure S2. ^1H NMR of 2-(2-*p*-Trifluoromethyl-aziridin-1-yl)-isoindole-1,3-dione
12b.^{S3}

Figure S3. ^1H NMR of 2-[2-(4-Fluoro-phenyl)-aziridin-1-yl]-isoindole-1,3-dione **12c**.^{S3}

Figure S4. ^1H NMR of 2-[2-(4-Chloro-phenyl)-aziridin-1-yl]-isoindole-1,3-dione
12d.^{S3}

Figure S5. ^1H NMR of 2-(2-*p*-Tolyl-aziridin-1-yl)-isoindole-1,3-dione 12e.^{S3}

Figure S6. ^1H NMR of *trans*-1-Phthalimido-3-methyl-2-phenylaziridine 12f.^{S3}

Figure S7. ^1H NMR of *trans*-2,3-Diphenyl-1-phthalimidoaziridine 12g.^{S4}

Figure S8. ^1H NMR of 2-(2-Benzoyl-3-phenyl-aziridin-1-yl)-isoindole-1,3-dione
12h.^{S3}

Figure S9. ^1H NMR of 2-(2-Methyl-2-phenyl-aziridin-1-yl)-isoindole-1,3-dione 12i.^{S4}

Figure S10. ^1H NMR of 2-[2-(3-Chloro-phenyl)-aziridin-1-yl]-isoindole-1,3-dione
12j.^{S5}

Figure S11. ^1H NMR of 2-(2,2-Dimethyl-1a,7b-dihydro-2*H*-3-oxa-1-azacyclopropa[*a*]naphthalen-1-yl)-isoindole-1,3-dione 12k.^{S3}

Figure S12. ^1H NMR of 2-(6,6a-Dihydro-1a*H*-1-aza-cyclopropa[*a*]inden-1-yl)-isoindole-1,3-dione **12l**.^{S6}

Figure S13. ^1H NMR of Styrene Oxide.