

Supporting Information

Kinetic measurements used to determine the electrophilicity of δ -functionalized *para*-quinone methides (δ -FG-*p*QMs)

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Data storage system:

Folder and file names CGxxx refer to individual experiments and are identical to those in this Supporting Information.

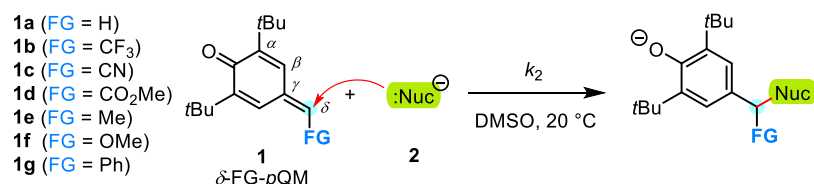
The folders contain

- txt files with absorbance vs. time data [raw data]
- exp files used for the k_{obs} determination [evaluated data]
- pdf files with results of the k_{obs} determination [evaluated data].

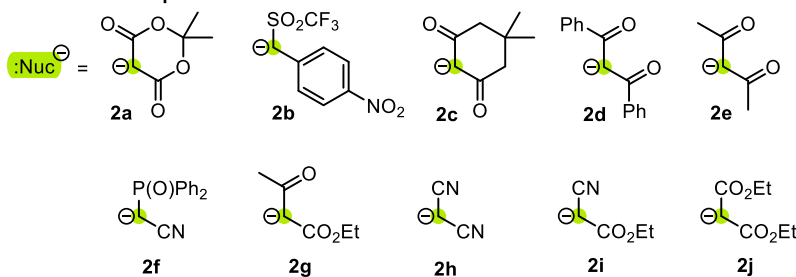
Kinetics of the Reactions of δ -FG-*p*QMs with Carbanions

Kinetic measurements were performed by using UV/Vis photometry on AppliedPhotophysics SX.20 stopped-flow instruments as well as on a conventional J&M TIDAS diode array spectrophotometer, which was controlled by TIDASDAQ3 (v3) software and connected to a Hellma 661.502-QX quartz Suprasil immersion probe (light path $d = 5$ mm) via fiber optic cables and standard SMA connectors. The temperature (20.0 ± 0.2 °C) was maintained constant by using circulating bath cryostats.

All solutions were prepared by using dry DMSO (ThermoScientific, DMSO 99.7+%, extra dry, over molecular sieve, AcroSeal) and kept under an atmosphere of dry nitrogen. The kinetic measurements for each δ -FG-*p*QM/nucleophile combination **1** + **2** were performed with or without added 18-crown-6 ether (18-c-6) and in some cases with addition of the corresponding CH-acid (**2**-H).

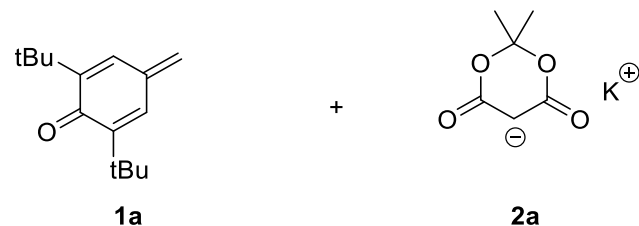


Reference nucleophiles:

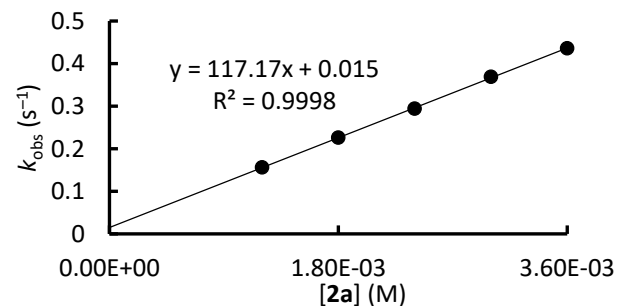


counterion: K⁺

1a + **2a** in DMSO (stopped-flow, detection at 310 nm) CG544

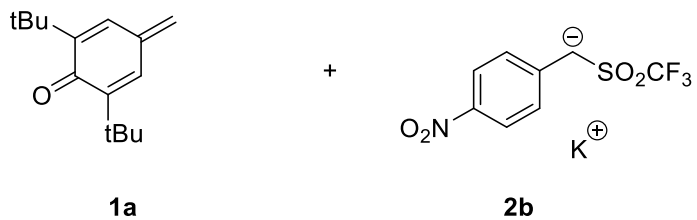


[1a] ₀ (M)	[2a] ₀ (M)	[2a -H] ₀ (M)	[18-c-6] ₀ (M)	<i>k</i> _{obs} (s ⁻¹)
2.50 × 10 ⁻⁵	1.20 × 10 ⁻³	1.20 × 10 ⁻³		1.56 × 10 ⁻¹
2.50 × 10 ⁻⁵	1.80 × 10 ⁻³	1.80 × 10 ⁻³	1.98 × 10 ⁻³	2.26 × 10 ⁻¹
2.50 × 10 ⁻⁵	2.40 × 10 ⁻³	2.40 × 10 ⁻³		2.94 × 10 ⁻¹
2.50 × 10 ⁻⁵	3.00 × 10 ⁻³	3.00 × 10 ⁻³	3.30 × 10 ⁻³	3.69 × 10 ⁻¹
2.50 × 10 ⁻⁵	3.60 × 10 ⁻³	3.60 × 10 ⁻³		4.36 × 10 ⁻¹

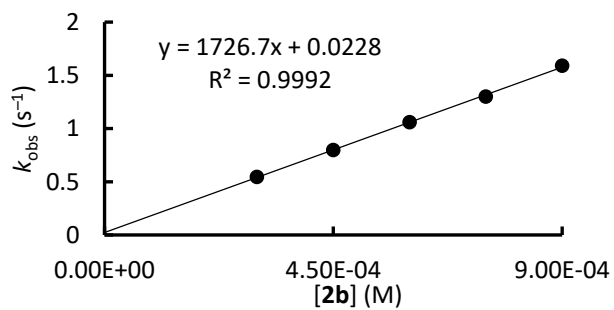


$$k_2 = (1.17 \pm 0.01) \times 10^2 \text{ M}^{-1} \text{ s}^{-1}$$

1a + 2b in DMSO (stopped-flow, detection at 320 nm) CG708



[1a]₀ (M)	[2b]₀ (M)	[18-c-6]₀ (M)	k_{obs} (s ⁻¹)
5.50 × 10 ⁻⁵	3.00 × 10 ⁻⁴		5.46 × 10 ⁻¹
5.50 × 10 ⁻⁵	4.50 × 10 ⁻⁴	4.95 × 10 ⁻⁴	7.98 × 10 ⁻¹
5.50 × 10 ⁻⁵	6.00 × 10 ⁻⁴		1.06
5.50 × 10 ⁻⁵	7.50 × 10 ⁻⁴	8.25 × 10 ⁻⁴	1.30
5.50 × 10 ⁻⁵	9.00 × 10 ⁻⁴		1.59

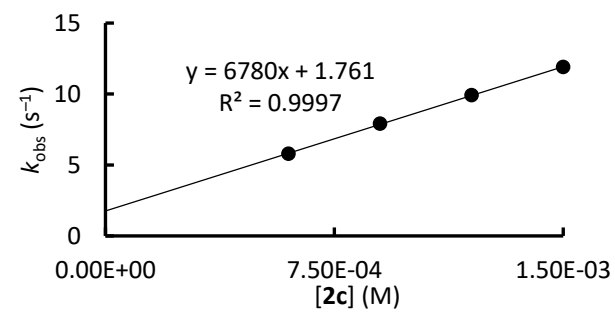


$$k_2 = (1.73 \pm 0.03) \times 10^3 \text{ M}^{-1} \text{ s}^{-1}$$

1a+ 2c in DMSO (stopped-flow, detection at 310 nm) CG541

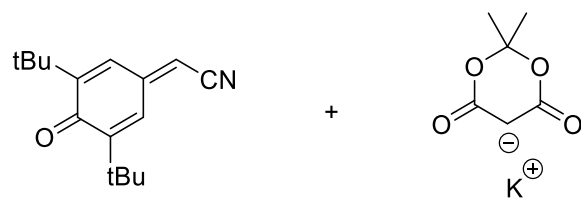


$[1\mathbf{a}]_0$ (M)	$[2\mathbf{c}]_0$ (M)	$[2\mathbf{c}\text{-H}]_0$ (M)	$[18\text{-c-}6]_0$ (M)	k_{obs} (s ⁻¹)
2.18×10^{-5}	6.00×10^{-4}	6.00×10^{-4}		5.79
2.18×10^{-5}	9.00×10^{-4}	9.00×10^{-4}	9.90×10^{-4}	7.91
2.18×10^{-5}	1.20×10^{-3}	1.20×10^{-3}		9.92
2.18×10^{-5}	1.50×10^{-3}	1.50×10^{-3}	1.65×10^{-3}	11.9



$$k_2 = (6.78 \pm 0.08) \times 10^3 \text{ M}^{-1} \text{ s}^{-1}$$

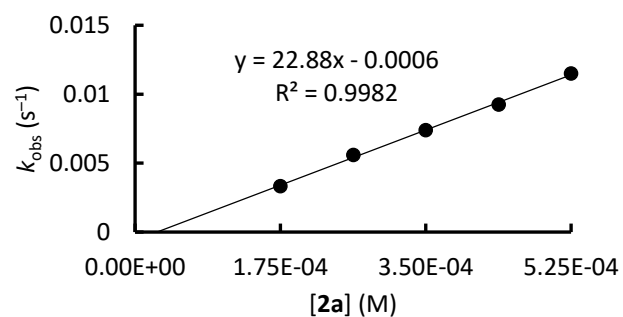
1c + 2a in DMSO (stopped-flow, detection at 318 nm) CG081



1c

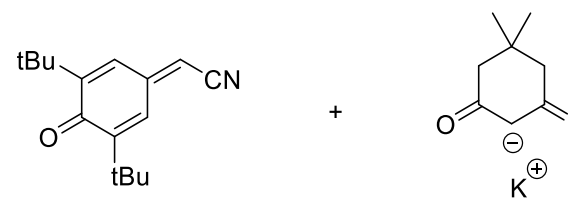
2a

[1c] ₀ (M)	[2a] ₀ (M)	[18-c-6] ₀ (M)	<i>k</i> _{obs} (s ⁻¹)
1.90 × 10 ⁻⁵	1.75 × 10 ⁻⁴		3.32 × 10 ⁻³
1.90 × 10 ⁻⁵	2.63 × 10 ⁻⁴	2.89 × 10 ⁻⁴	5.59 × 10 ⁻³
1.90 × 10 ⁻⁵	3.50 × 10 ⁻⁴		7.39 × 10 ⁻³
1.90 × 10 ⁻⁵	4.38 × 10 ⁻⁴	4.82 × 10 ⁻⁴	9.25 × 10 ⁻³
1.90 × 10 ⁻⁵	5.25 × 10 ⁻⁴		1.15 × 10 ⁻²



$$k_2 = (2.29 \pm 0.06) \times 10^4 \text{ M}^{-1} \text{ s}^{-1}$$

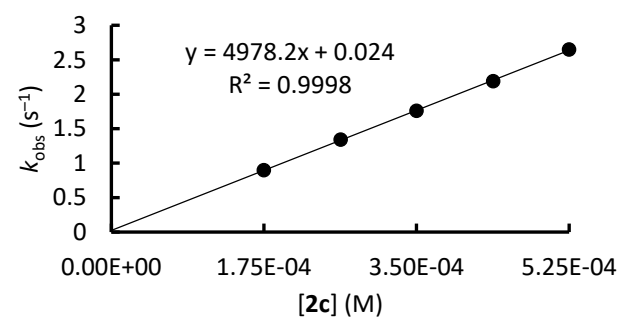
1c + 2c in DMSO (stopped-flow, detection at 318 nm) CG071



1c

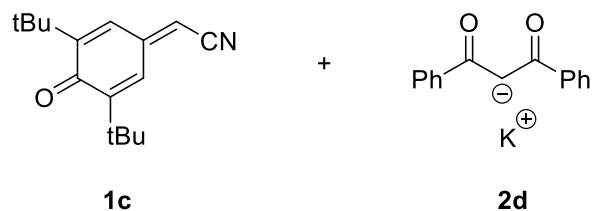
2c

[1c] ₀ (M)	[2c] ₀ (M)	[2c-H] ₀ (M)	[18-c-6] ₀ (M)	<i>k</i> _{obs} (s ⁻¹)
1.90 × 10 ⁻⁵	1.75 × 10 ⁻⁴	1.75 × 10 ⁻⁴		8.97 × 10 ⁻¹
1.90 × 10 ⁻⁵	2.63 × 10 ⁻⁴	2.63 × 10 ⁻⁴	2.89 × 10 ⁻⁴	1.34
1.90 × 10 ⁻⁵	3.50 × 10 ⁻⁴	3.50 × 10 ⁻⁴		1.76
1.90 × 10 ⁻⁵	4.38 × 10 ⁻⁴	4.38 × 10 ⁻⁴	4.82 × 10 ⁻⁴	2.19
1.90 × 10 ⁻⁵	5.25 × 10 ⁻⁴	5.25 × 10 ⁻⁴		2.65

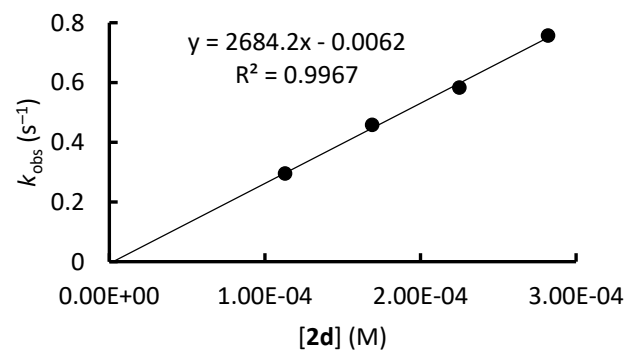


$$k_2 = (4.98 \pm 0.04) \times 10^3 \text{ M}^{-1} \text{ s}^{-1}$$

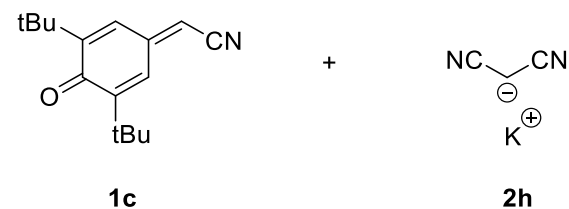
1c + 2d in DMSO (stopped-flow, detection at 318 nm) CG083



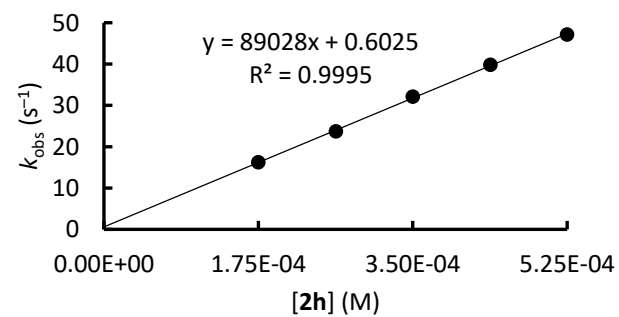
[1c] ₀ (M)	[2d] ₀ (M)	[18-c-6] ₀ (M)	<i>k</i> _{obs} (s ⁻¹)
1.13 × 10 ⁻⁵	1.13 × 10 ⁻⁴		2.95 × 10 ⁻¹
1.13 × 10 ⁻⁵	1.69 × 10 ⁻⁴	1.86 × 10 ⁻⁴	4.58 × 10 ⁻¹
1.13 × 10 ⁻⁵	2.25 × 10 ⁻⁴		5.83 × 10 ⁻¹
1.13 × 10 ⁻⁵	2.82 × 10 ⁻⁴	3.10 × 10 ⁻⁴	7.57 × 10 ⁻¹



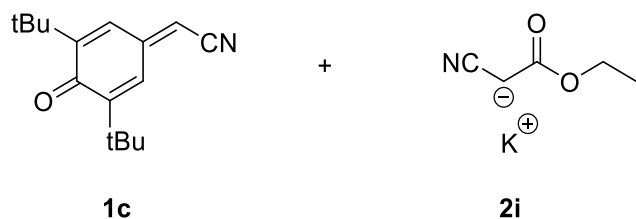
1c + 2h in DMSO (stopped-flow, detection at 318 nm) CG074



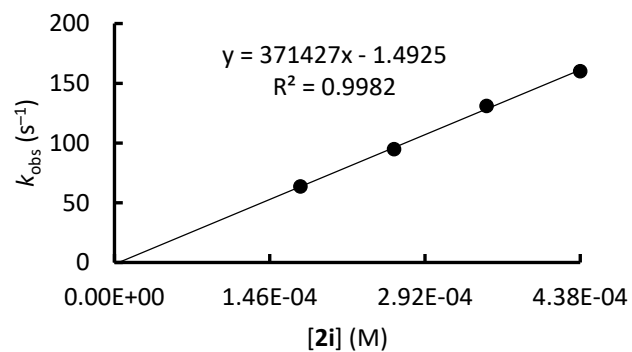
[1c] ₀ (M)	[2h] ₀ (M)	[18-c-6] ₀ (M)	<i>k</i> _{obs} (s ⁻¹)
1.75 × 10 ⁻⁵	1.75 × 10 ⁻⁴		1.62 × 10 ¹
1.75 × 10 ⁻⁵	2.63 × 10 ⁻⁴	2.89 × 10 ⁻⁴	2.37 × 10 ¹
1.75 × 10 ⁻⁵	3.50 × 10 ⁻⁴		3.21 × 10 ¹
1.75 × 10 ⁻⁵	4.38 × 10 ⁻⁴	4.82 × 10 ⁻⁴	3.98 × 10 ¹
1.75 × 10 ⁻⁵	5.25 × 10 ⁻⁴		4.71 × 10 ¹



1c + 2i in DMSO (stopped-flow, detection at 318 nm) CG186

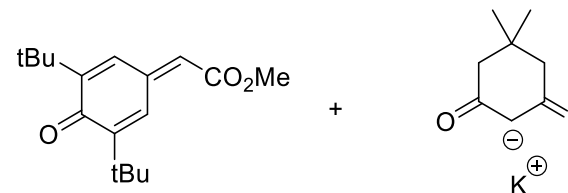


[1c] ₀ (M)	[2i] ₀ (M)	[2i-H] ₀ (M)	[18-c-6] ₀ (M)	k _{obs} (s ⁻¹)
2.03 × 10 ⁻⁵	1.75 × 10 ⁻⁴	1.75 × 10 ⁻⁴		6.36 × 10 ¹
2.03 × 10 ⁻⁵	2.63 × 10 ⁻⁴	2.63 × 10 ⁻⁴	2.89 × 10 ⁻⁴	9.48 × 10 ¹
2.03 × 10 ⁻⁵	3.50 × 10 ⁻⁴	3.50 × 10 ⁻⁴		1.31 × 10 ²
2.03 × 10 ⁻⁵	4.38 × 10 ⁻⁴	4.38 × 10 ⁻⁴	4.82 × 10 ⁻⁴	1.60 × 10 ²

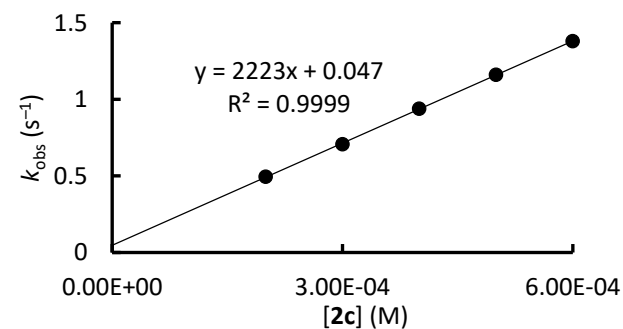


$$k_2 = (3.71 \pm 0.11) \times 10^5 \text{ M}^{-1} \text{ s}^{-1}$$

1d + 2c in DMSO (stopped-flow, detection at 309 nm) CG534

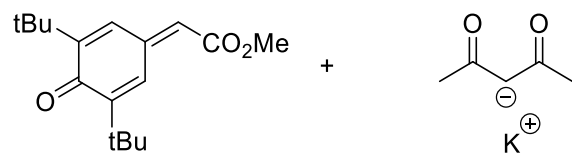


[1d] ₀ (M)	[2c] ₀ (M)	[2c-H] ₀ (M)	[18-c-6] ₀ (M)	k _{obs} (s ⁻¹)
2.22 × 10 ⁻⁵	2.00 × 10 ⁻⁴	2.00 × 10 ⁻⁴		4.95 × 10 ⁻¹
2.22 × 10 ⁻⁵	3.00 × 10 ⁻⁴	3.00 × 10 ⁻⁴	3.30 × 10 ⁻⁴	7.07 × 10 ⁻¹
2.22 × 10 ⁻⁵	4.00 × 10 ⁻⁴	4.00 × 10 ⁻⁴		9.39 × 10 ⁻¹
2.22 × 10 ⁻⁵	5.00 × 10 ⁻⁴	5.00 × 10 ⁻⁴	5.50 × 10 ⁻⁴	1.16
2.22 × 10 ⁻⁵	6.00 × 10 ⁻⁴	6.00 × 10 ⁻⁴		1.38



$$k_2 = (2.22 \pm 0.02) \times 10^3 \text{ M}^{-1} \text{ s}^{-1}$$

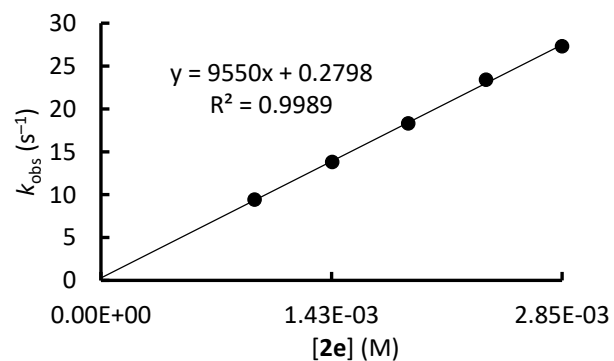
1d + 2e in DMSO (stopped-flow, detection at 340 nm) CG533



1d

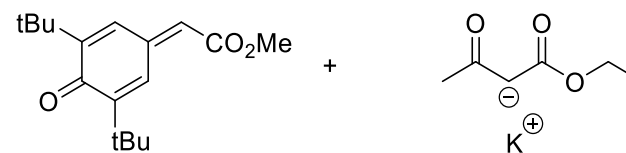
2e

$[1d]_0$ (M)	$[2e]_0$ (M)	$[2e-H]_0$ (M)	$[18-c-6]_0$ (M)	k_{obs} (s ⁻¹)
9.78×10^{-5}	9.50×10^{-4}	9.50×10^{-4}		9.42
9.78×10^{-5}	1.43×10^{-3}	1.43×10^{-3}	1.57×10^{-3}	1.38×10^1
9.78×10^{-5}	1.90×10^{-3}	1.90×10^{-3}		1.83×10^1
9.78×10^{-5}	2.38×10^{-3}	2.38×10^{-3}	2.61×10^{-3}	2.34×10^1
9.78×10^{-5}	2.85×10^{-3}	2.85×10^{-3}		2.73×10^1



$$k_2 = (9.55 \pm 0.18) \times 10^3 \text{ M}^{-1} \text{ s}^{-1}$$

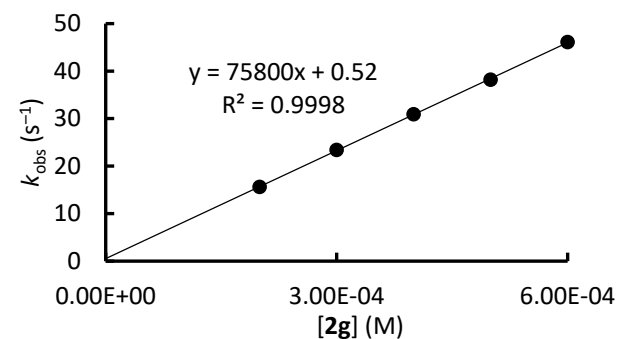
1d + 2g in DMSO (stopped-flow, detection at 309 nm) CG531



1d

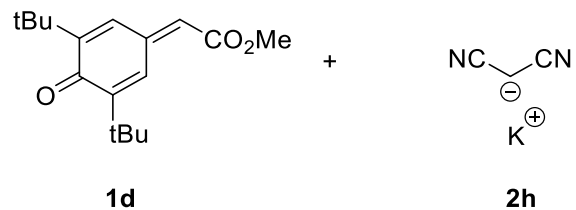
2g

$[1d]_0$ (M)	$[2g]_0$ (M)	$[2g-H]_0$ (M)	$[18-c-6]_0$ (M)	k_{obs} (s ⁻¹)
1.54×10^{-5}	2.00×10^{-4}	2.00×10^{-4}		1.56×10^1
1.54×10^{-5}	3.00×10^{-4}	3.00×10^{-4}	3.30×10^{-4}	2.34×10^1
1.54×10^{-5}	4.00×10^{-4}	4.00×10^{-4}		3.09×10^1
1.54×10^{-5}	5.00×10^{-4}	5.00×10^{-4}	5.50×10^{-4}	3.82×10^1
1.54×10^{-5}	6.00×10^{-4}	6.00×10^{-4}		4.61×10^1

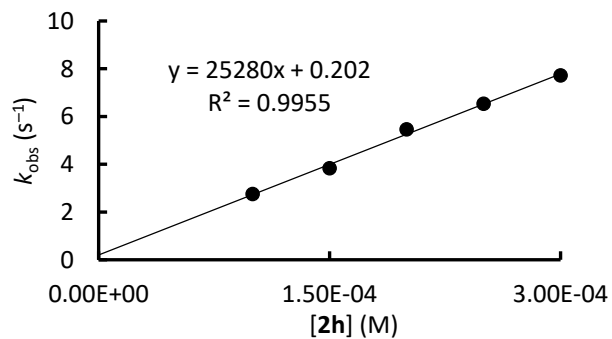


$$k_2 = (7.58 \pm 0.05) \times 10^4 \text{ M}^{-1} \text{ s}^{-1}$$

1d + 2h in DMSO (stopped-flow, detection at 309 nm) CG530

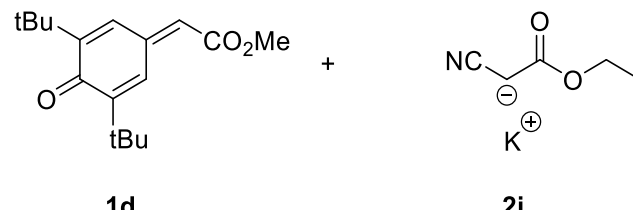


$[\mathbf{1d}]_0$ (M)	$[\mathbf{2h}]_0$ (M)	$[\mathbf{18-c-6}]_0$ (M)	k_{obs} (s ⁻¹)
1.70×10^{-5}	1.00×10^{-4}		2.75
1.70×10^{-5}	1.50×10^{-4}	1.65×10^{-4}	3.83
1.70×10^{-5}	2.00×10^{-4}		5.46
1.70×10^{-5}	2.50×10^{-4}	2.75×10^{-4}	6.53
1.70×10^{-5}	3.00×10^{-4}		7.72

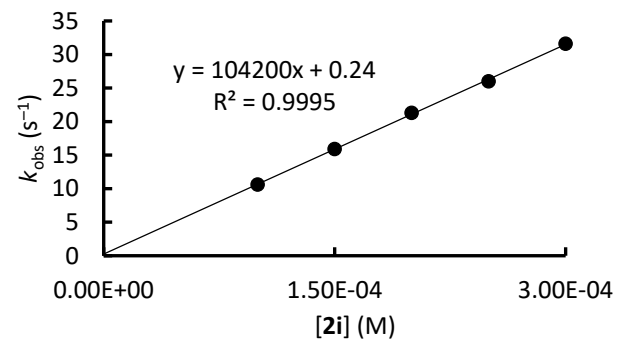


$$k_2 = (2.53 \pm 0.10) \times 10^4 \text{ M}^{-1} \text{ s}^{-1}$$

1d + 2i in DMSO (stopped-flow, detection at 309 nm) CG532

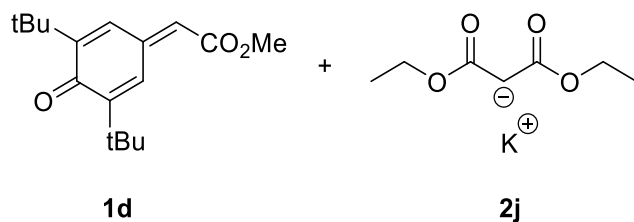


$[1\mathbf{d}]_0$ (M)	$[2\mathbf{i}]_0$ (M)	$[2\mathbf{i}\text{-H}]_0$ (M)	$[18\text{-c-6}]_0$ (M)	k_{obs} (s ⁻¹)
1.75×10^{-5}	1.00×10^{-4}	1.00×10^{-4}		1.06×10^1
1.75×10^{-5}	1.50×10^{-4}	1.50×10^{-4}	1.65×10^{-4}	1.59×10^1
1.75×10^{-5}	2.00×10^{-4}	2.00×10^{-4}		2.13×10^1
1.75×10^{-5}	2.50×10^{-4}	2.50×10^{-4}	2.75×10^{-4}	2.60×10^1
1.75×10^{-5}	3.00×10^{-4}	3.00×10^{-4}		3.16×10^1

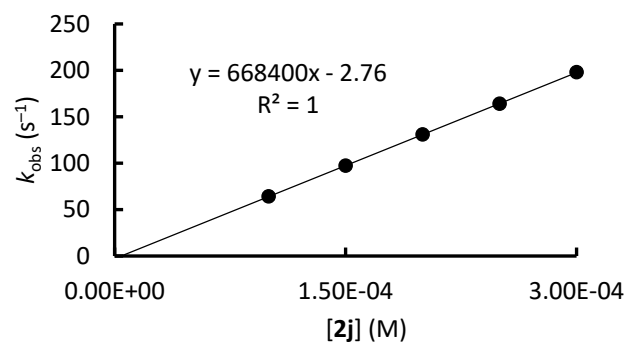


$$k_2 = (1.04 \pm 0.01) \times 10^5 \text{ M}^{-1} \text{ s}^{-1}$$

1d + 2j in DMSO (stopped-flow, detection at 309 nm) CG523_1

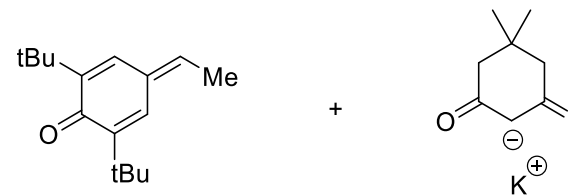


[1d] ₀ (M)	[2j] ₀ (M)	[18-c-6] ₀ (M)	<i>k</i> _{obs} (s ⁻¹)
1.38 × 10 ⁻⁵	1.00 × 10 ⁻⁴		6.42 × 10 ¹
1.38 × 10 ⁻⁵	1.50 × 10 ⁻⁴	1.65 × 10 ⁻⁴	9.74 × 10 ¹
1.38 × 10 ⁻⁵	2.00 × 10 ⁻⁴		1.31 × 10 ²
1.38 × 10 ⁻⁵	2.50 × 10 ⁻⁴	2.75 × 10 ⁻⁴	1.64 × 10 ²
1.38 × 10 ⁻⁵	3.00 × 10 ⁻⁴		1.98 × 10 ²

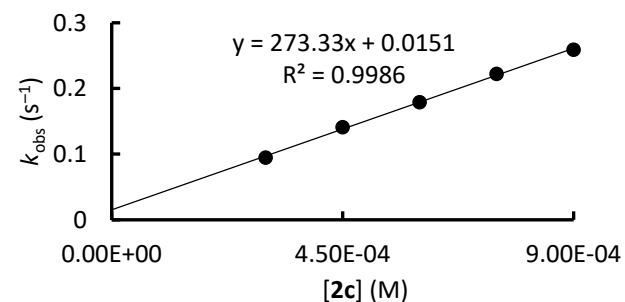


$$k_2 = (6.68 \pm 0.02) \times 10^5 \text{ M}^{-1} \text{ s}^{-1}$$

1e + 2c in DMSO (stopped-flow, detection at 310 nm) CG445_1



[1e] ₀ (M)	[2c] ₀ (M)	[2c-H] ₀ (M)	[18-c-6] ₀ (M)	<i>k</i> _{obs} (s ⁻¹)
2.18 × 10 ⁻⁵	3.00 × 10 ⁻⁴	3.00 × 10 ⁻⁴		9.45 × 10 ⁻²
2.18 × 10 ⁻⁵	4.50 × 10 ⁻⁴	4.50 × 10 ⁻⁴	4.95 × 10 ⁻⁴	1.41 × 10 ⁻¹
2.18 × 10 ⁻⁵	6.00 × 10 ⁻⁴	6.00 × 10 ⁻⁴		1.79 × 10 ⁻¹
2.18 × 10 ⁻⁵	7.50 × 10 ⁻⁴	7.50 × 10 ⁻⁴	8.25 × 10 ⁻⁴	2.22 × 10 ⁻¹
	9.00 × 10 ⁻⁴	9.00 × 10 ⁻⁴		2.59 × 10 ⁻¹



$$k_2 = (2.73 \pm 0.06) \times 10^2 \text{ M}^{-1} \text{ s}^{-1}$$

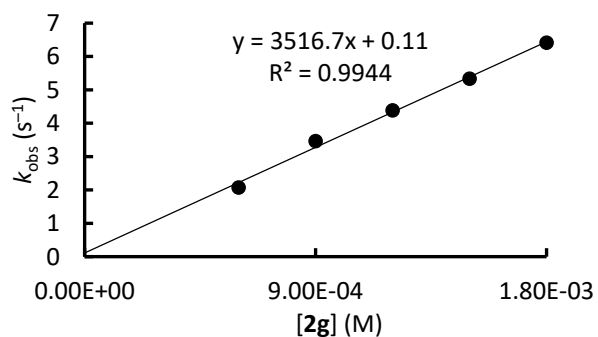
1e + 2g in DMSO (stopped-flow, detection at 320 nm) CG444



1e

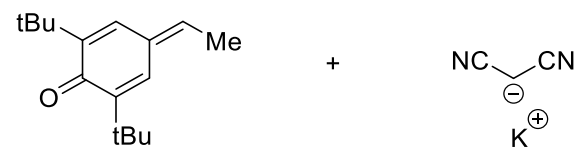
2g

[1e] ₀ (M)	[2g] ₀ (M)	[18-c-6] ₀ (M)	k _{obs} (s ⁻¹)
1.97 × 10 ⁻⁵	6.00 × 10 ⁻⁴		2.07
1.97 × 10 ⁻⁵	9.00 × 10 ⁻⁴	9.90 × 10 ⁻⁴	3.46
1.97 × 10 ⁻⁵	1.20 × 10 ⁻³		4.38
1.97 × 10 ⁻⁵	1.50 × 10 ⁻³	1.65 × 10 ⁻³	5.33
1.97 × 10 ⁻⁵	1.80 × 10 ⁻³		6.41



$$k_2 = (3.52 \pm 0.15) \times 10^3 \text{ M}^{-1} \text{ s}^{-1}$$

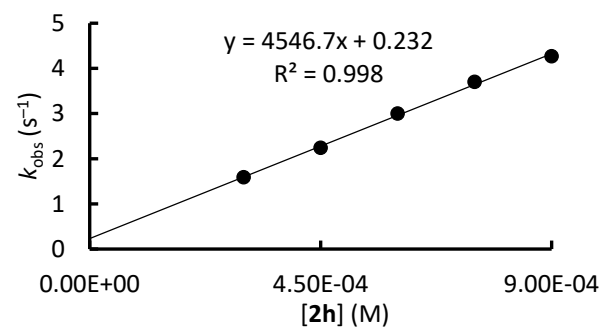
1e + 2h in DMSO (stopped-flow, detection at 320 nm) CG441



1e

2h

[1e] ₀ (M)	[2h] ₀ (M)	[18-c-6] ₀ (M)	k _{obs} (s ⁻¹)
1.97 × 10 ⁻⁵	3.00 × 10 ⁻⁴		1.59
1.97 × 10 ⁻⁵	4.50 × 10 ⁻⁴	4.95 × 10 ⁻⁴	2.24
1.97 × 10 ⁻⁵	6.00 × 10 ⁻⁴		3.00
1.97 × 10 ⁻⁵	7.50 × 10 ⁻⁴	8.25 × 10 ⁻⁴	3.70
1.97 × 10 ⁻⁵	9.00 × 10 ⁻⁴		4.27



$$k_2 = (4.55 \pm 0.12) \times 10^3 \text{ M}^{-1} \text{ s}^{-1}$$

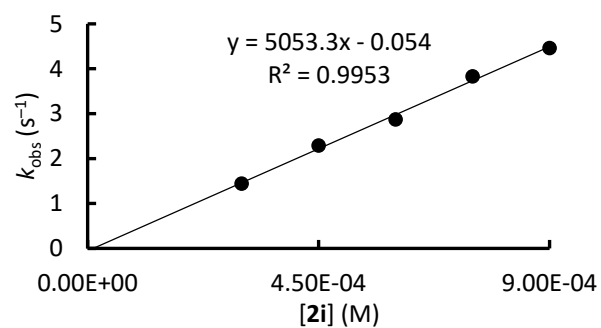
1e + 2i in DMSO (stopped-flow, detection at 320 nm) CG443



1e

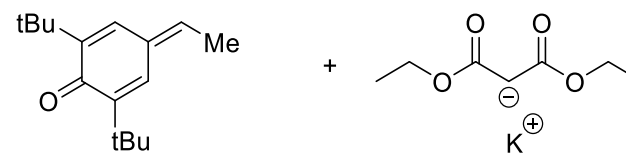
2i

[1e] ₀ (M)	[2i] ₀ (M)	[18-c-6] ₀ (M)	k _{obs} (s ⁻¹)
1.97 × 10 ⁻⁵	3.00 × 10 ⁻⁴		1.44
1.97 × 10 ⁻⁵	4.50 × 10 ⁻⁴	4.95 × 10 ⁻⁴	2.29
1.97 × 10 ⁻⁵	6.00 × 10 ⁻⁴		2.87
1.97 × 10 ⁻⁵	7.50 × 10 ⁻⁴	8.25 × 10 ⁻⁴	3.83
1.97 × 10 ⁻⁵	9.00 × 10 ⁻⁴		4.46



$$k_2 = (5.05 \pm 0.20) \times 10^3 \text{ M}^{-1} \text{ s}^{-1}$$

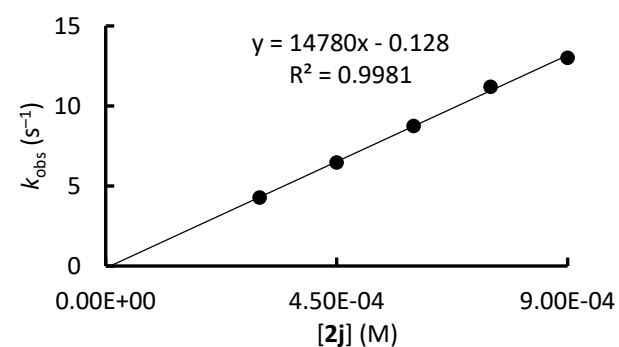
1e + 2j in DMSO (stopped-flow, detection at 320 nm) CG442



1e

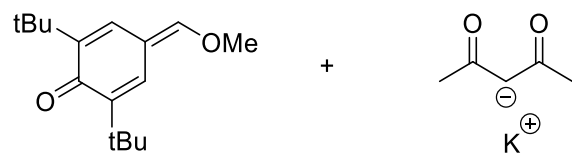
2j

[1e] ₀ (M)	[2j] ₀ (M)	[18-c-6] ₀ (M)	k _{obs} (s ⁻¹)
1.97 × 10 ⁻⁵	3.00 × 10 ⁻⁴		4.28
1.97 × 10 ⁻⁵	4.50 × 10 ⁻⁴	4.95 × 10 ⁻⁴	6.47
1.97 × 10 ⁻⁵	6.00 × 10 ⁻⁴		8.75
1.97 × 10 ⁻⁵	7.50 × 10 ⁻⁴	8.25 × 10 ⁻⁴	1.12 × 10 ¹
1.97 × 10 ⁻⁵	9.00 × 10 ⁻⁴		1.30 × 10 ¹



$$k_2 = (1.48 \pm 0.04) \times 10^4 \text{ M}^{-1} \text{ s}^{-1}$$

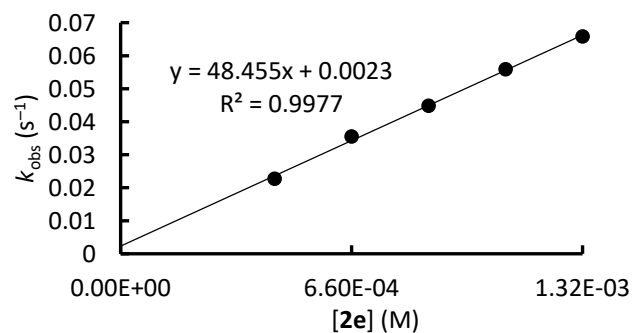
1f + 2e in DMSO (stopped-flow, detection at 345 nm) CG529



1f

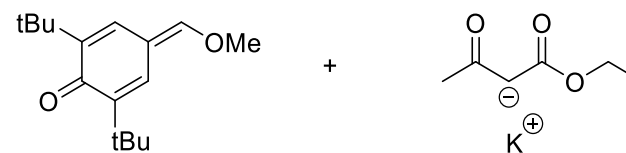
2e

[1f] ₀ (M)	[2e] ₀ (M)	[2e-H] ₀ , (M)	[18-c-6] ₀ (M)	k _{obs} (s ⁻¹)
1.80 × 10 ⁻⁵	4.40 × 10 ⁻⁴	4.40 × 10 ⁻⁴		2.27 × 10 ⁻²
1.80 × 10 ⁻⁵	6.60 × 10 ⁻⁴	6.60 × 10 ⁻⁴	7.26 × 10 ⁻⁴	3.55 × 10 ⁻²
1.80 × 10 ⁻⁵	8.80 × 10 ⁻⁴	8.80 × 10 ⁻⁴		4.48 × 10 ⁻²
1.80 × 10 ⁻⁵	1.10 × 10 ⁻³	1.10 × 10 ⁻³	1.21 × 10 ⁻³	5.59 × 10 ⁻²
1.80 × 10 ⁻⁵	1.32 × 10 ⁻³	1.32 × 10 ⁻³		6.58 × 10 ⁻²



$$k_2 = (4.85 \pm 0.14) \times 10^1 \text{ M}^{-1} \text{ s}^{-1}$$

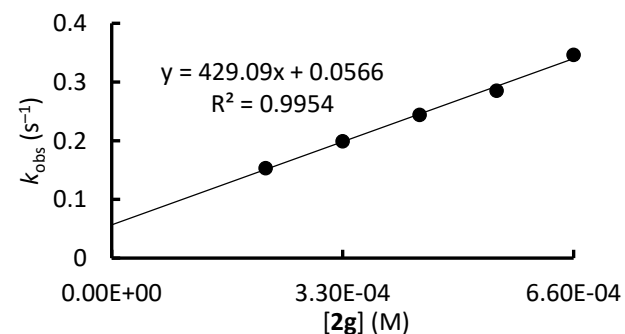
1f + 2g in DMSO (stopped-flow, detection at 345 nm) CG528



1f

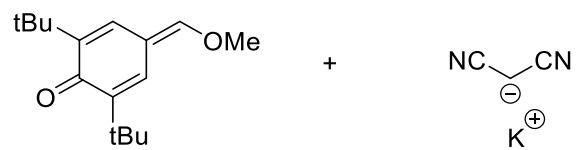
2g

[1f] ₀ (M)	[2g] ₀ (M)	[18-c-6] ₀ (M)	k _{obs} (s ⁻¹)
1.97 × 10 ⁻⁵	2.20 × 10 ⁻⁴		1.53 × 10 ⁻¹
1.97 × 10 ⁻⁵	3.30 × 10 ⁻⁴	3.63 × 10 ⁻⁴	1.99 × 10 ⁻¹
1.97 × 10 ⁻⁵	4.40 × 10 ⁻⁴		2.44 × 10 ⁻¹
1.97 × 10 ⁻⁵	5.50 × 10 ⁻⁴	6.05 × 10 ⁻⁴	2.85 × 10 ⁻¹
1.97 × 10 ⁻⁵	6.60 × 10 ⁻⁴		3.46 × 10 ⁻¹



$$k_2 = (4.29 \pm 0.17) \times 10^2 \text{ M}^{-1} \text{ s}^{-1}$$

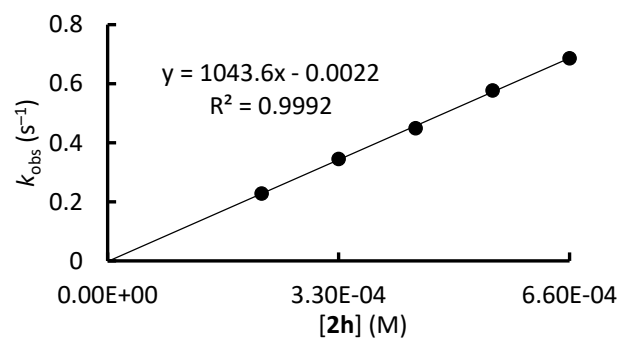
1f + 2h in DMSO (stopped-flow, detection at 345 nm) CG527



1f

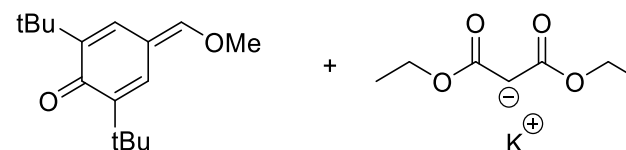
2h

[1f] ₀ (M)	[2h] ₀ (M)	[18-c-6] ₀ (M)	<i>k</i> _{obs} (s ⁻¹)
2.04 × 10 ⁻⁵	2.20 × 10 ⁻⁴		2.28 × 10 ⁻¹
2.04 × 10 ⁻⁵	3.30 × 10 ⁻⁴	3.63 × 10 ⁻⁴	3.45 × 10 ⁻¹
2.04 × 10 ⁻⁵	4.40 × 10 ⁻⁴		4.49 × 10 ⁻¹
2.04 × 10 ⁻⁵	5.50 × 10 ⁻⁴	6.05 × 10 ⁻⁴	5.77 × 10 ⁻¹
2.04 × 10 ⁻⁵	6.60 × 10 ⁻⁴		6.86 × 10 ⁻¹



$$k_2 = (1.04 \pm 0.02) \times 10^3 \text{ M}^{-1} \text{ s}^{-1}$$

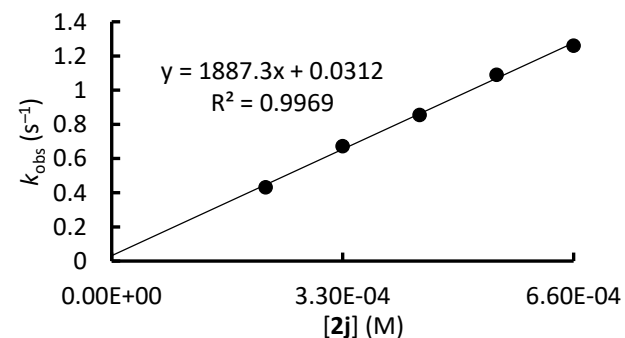
1f + 2j in DMSO (stopped-flow, detection at 345 nm) CG526



1f

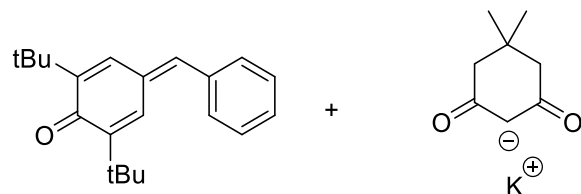
2j

[1f] ₀ (M)	[2j] ₀ (M)	[18-c-6] ₀ (M)	<i>k</i> _{obs} (s ⁻¹)
2.08 × 10 ⁻⁵	2.20 × 10 ⁻⁴		4.31 × 10 ⁻¹
2.08 × 10 ⁻⁵	3.30 × 10 ⁻⁴	3.63 × 10 ⁻⁴	6.72 × 10 ⁻¹
2.08 × 10 ⁻⁵	4.40 × 10 ⁻⁴		8.55 × 10 ⁻¹
2.08 × 10 ⁻⁵	5.50 × 10 ⁻⁴	6.05 × 10 ⁻⁴	1.09
2.08 × 10 ⁻⁵	6.60 × 10 ⁻⁴		1.26

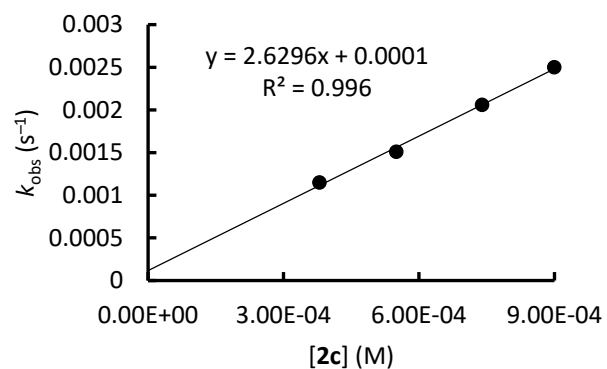


$$k_2 = (1.89 \pm 0.06) \times 10^3 \text{ M}^{-1} \text{ s}^{-1}$$

1g + 2c in DMSO (conventional photometry, detection at 359 nm) CG116

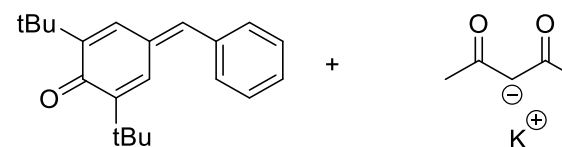


1g		2c		
$[1g]_0$ (M)	$[2c]_0$ (M)	$[2c-H]_0$ (M)	$[18-c-6]_0$ (M)	k_{obs} (s ⁻¹)
3.82×10^{-5}	3.80×10^{-4}	3.80×10^{-4}		1.15×10^{-3}
3.65×10^{-5}	5.50×10^{-4}	5.50×10^{-4}	6.04×10^{-4}	1.51×10^{-3}
3.68×10^{-5}	7.40×10^{-4}	7.40×10^{-4}		2.06×10^{-3}
3.58×10^{-5}	9.00×10^{-4}	9.00×10^{-4}		2.50×10^{-3}

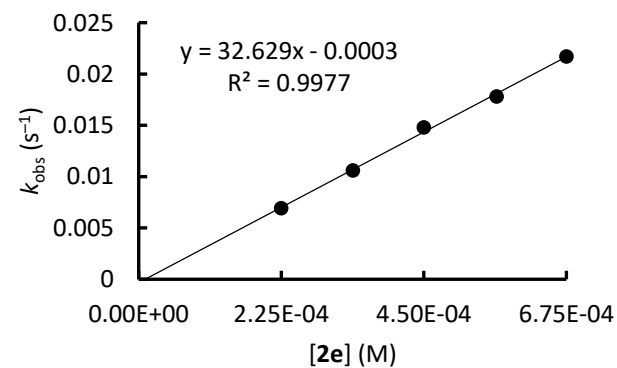


$$k_2 = (2.63 \pm 0.12) \text{ M}^{-1} \text{ s}^{-1}$$

1g + 2e in DMSO (stopped-flow, detection at 359 nm) CG115

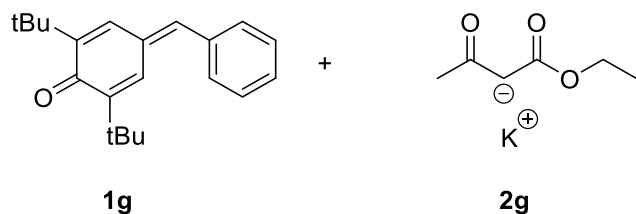


1g		2e		
$[1g]_0$ (M)	$[2e]_0$ (M)	$[2e-H]_0$ (M)	$[18-c-6]_0$ (M)	k_{obs} (s ⁻¹)
2.20×10^{-5}	2.25×10^{-4}	2.25×10^{-4}		6.91×10^{-3}
2.20×10^{-5}	3.38×10^{-4}	3.38×10^{-4}	3.72×10^{-4}	1.06×10^{-2}
2.20×10^{-5}	4.50×10^{-4}	4.50×10^{-4}		1.48×10^{-2}
2.20×10^{-5}	5.65×10^{-4}	5.65×10^{-4}	6.20×10^{-4}	1.78×10^{-2}
2.20×10^{-5}	6.75×10^{-4}	6.75×10^{-4}		2.17×10^{-2}

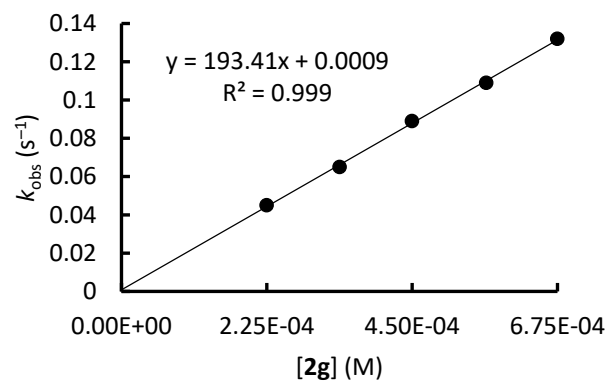


$$k_2 = (3.26 \pm 0.09) \times 10^1 \text{ M}^{-1} \text{ s}^{-1}$$

1g + 2g in DMSO (stopped-flow, detection at 359 nm) CG113

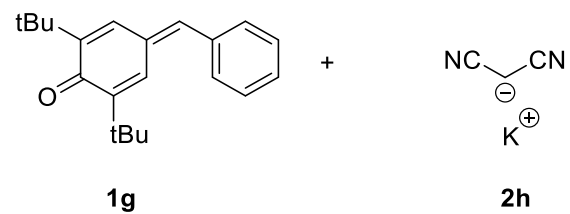


$[1g]_0$ (M)	$[2g]_0$ (M)	$[2g-H]_0$ (M)	$[18-c-6]_0$ (M)	k_{obs} (s ⁻¹)
1.54×10^{-5}	2.25×10^{-4}	2.25×10^{-4}		4.50×10^{-2}
1.54×10^{-5}	3.38×10^{-4}	3.38×10^{-4}	3.72×10^{-4}	6.54×10^{-2}
1.54×10^{-5}	4.50×10^{-4}	4.50×10^{-4}		8.98×10^{-2}
1.54×10^{-5}	5.65×10^{-4}	5.65×10^{-4}	6.20×10^{-4}	1.09×10^{-1}
1.54×10^{-5}	6.75×10^{-4}	6.75×10^{-4}		1.32×10^{-1}

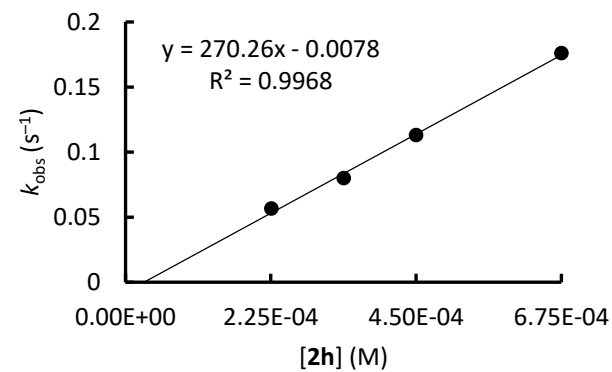


$$k_2 = (1.93 \pm 0.04) \times 10^2 \text{ M}^{-1} \text{ s}^{-1}$$

1g + 2h in DMSO (stopped-flow, detection at 359 nm) CG109

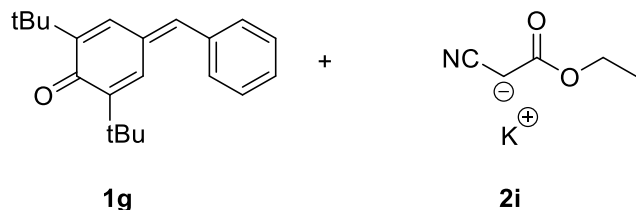


$[1g]_0$ (M)	$[2h]$ (M)	$[2h-H]_0$ (M)	$[18-c-6]_0$ (M)	k_{obs} (s ⁻¹)
1.79×10^{-5}	2.25×10^{-4}	2.25×10^{-4}		5.65×10^{-2}
1.79×10^{-5}	3.38×10^{-4}	3.38×10^{-4}	3.72×10^{-4}	7.99×10^{-2}
1.79×10^{-5}	4.50×10^{-4}	4.50×10^{-4}		1.13×10^{-1}
1.79×10^{-5}	6.75×10^{-4}	6.75×10^{-4}		1.76×10^{-1}

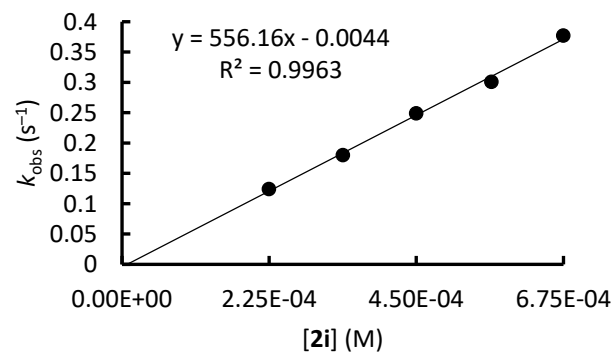


$$k_2 = (2.70 \pm 0.11) \times 10^2 \text{ M}^{-1} \text{ s}^{-1}$$

1g + 2i in DMSO (stopped-flow, detection at 359 nm) CG111

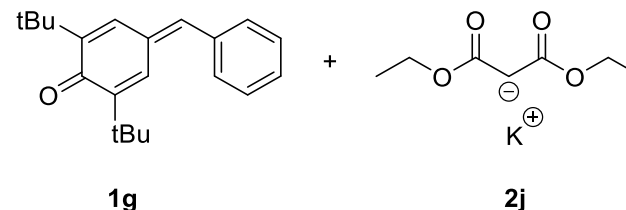


$[1g]_0$ (M)	$[2i]_0$ (M)	$[2i-H]_0$ (M)	$[18-c-6]_0$ (M)	k_{obs} (s ⁻¹)
1.82×10^{-5}	2.25×10^{-4}	2.25×10^{-4}		1.24×10^{-1}
1.82×10^{-5}	3.38×10^{-4}	3.38×10^{-4}	3.72×10^{-4}	1.80×10^{-1}
1.82×10^{-5}	4.50×10^{-4}	4.50×10^{-4}		2.49×10^{-1}
1.82×10^{-5}	5.65×10^{-4}	5.65×10^{-4}	6.20×10^{-4}	3.01×10^{-1}
1.82×10^{-5}	6.75×10^{-4}	6.75×10^{-4}		3.77×10^{-1}

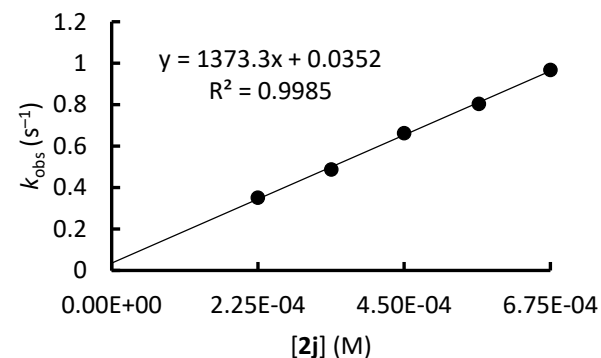


$$k_2 = (5.56 \pm 0.20) \times 10^2 \text{ M}^{-1} \text{ s}^{-1}$$

1g + 2j in DMSO (stopped-flow, detection at 359 nm) CG112



$[1g]_0$ (M)	$[2j]_0$ (M)	$[2j-H]_0$ (M)	$[18-c-6]_0$ (M)	k_{obs} (s ⁻¹)
1.73×10^{-5}	2.25×10^{-4}	2.25×10^{-4}		3.51×10^{-1}
1.73×10^{-5}	3.38×10^{-4}	3.38×10^{-4}	3.72×10^{-4}	4.87×10^{-1}
1.73×10^{-5}	4.50×10^{-4}	4.50×10^{-4}		6.62×10^{-1}
1.73×10^{-5}	5.65×10^{-4}	5.65×10^{-4}	6.20×10^{-4}	8.03×10^{-1}
1.73×10^{-5}	6.75×10^{-4}	6.75×10^{-4}		9.67×10^{-1}



$$k_2 = (1.37 \pm 0.03) \times 10^3 \text{ M}^{-1} \text{ s}^{-1}$$