SUPPLEMENTARY MATERIALS

SUPPLEMENTARY TABLES

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Table S1. Kinetic data for the reaction of **3** with LiOEt in EtOH at 25.0°C. (See Figure 1).

RUN ID	[LiOEt] (M)	k_{obs} (s^{-1})
BC4-3	0.00510	0.002373
BC4-4	0.0102	0.006767
BC4-5	0.0198	0.01633
BC4-6	0.0402	0.03649
BC4-7	0.0601	0.06061
BC4-10	0.0799	0.08307
BC4-8	0.0799	0.08538

Table S2. Kinetic data for the reaction of **3** with NaOEt in EtOH at 25.0°C. (See Figure 1)

RUN ID	[NaOEt] (M)	k_{obs} (s^{-1})
BA1-13	0.00106	2.106×10^{-4}
DPP5	0.00131	4.434×10^{-4}
BA1-21	0.00199	4.554×10^{-4}
DPP11	0.00218	5.669×10^{-4}
DPP10	0.00305	9.432×10^{-4}
DPP9	0.00524	2.307×10^{-3}
DPP8	0.00698	3.667×10^{-3}
BA1-25	0.00896	3.026×10^{-3}
DPP7	0.00918	5.240×10^{-3}
DPP6	0.01096	2.744×10^{-3}
DPP1	0.0131	7.264×10^{-3}
DPP3	0.0175	1.303×10^{-2}
DPP4	0.0175	1.152×10^{-2}
BA1-24	0.0200	9.877×10^{-3}
BA1-23	0.0298	1.693×10^{-2}
BA1-22	0.0396	2.441×10^{-2}
BA1-20	0.0498	2.919×10^{-2}
BA1-19	0.0596	3.709×10^{-2}
BA1-18	0.0695	4.748×10^{-2}
BA1-17	0.0793	6.350×10^{-2}
BA1-16	0.0895	7.654×10^{-2}
BA1-15	0.0980	8.569×10^{-2}

Table S3. Kinetic data for the reaction of **3** with KOEt in EtOH at 25.0°C. (See Figure 1).

RUN ID	[KOEt] (M)	k_{obs} (s^{-1})	k_{obs} average (s^{-1})	(stnd. dev.) (s^{-1})
BB2-8	0.00243	4.903×10^{-4}		
BB2-2	0.00486	1.319×10^{-3}	1.307×10^{-3}	(0.012×10^{-3})
BB2-7	0.00486	1.295×10^{-3}		
BB1-1	0.0097	3.439×10^{-3}		
BB2-1	0.0121	6.219×10^{-3}		
BB2-11	0.0199	7.992×10^{-3}		
BB2-9	0.0199	8.460×10^{-3}	8.269×10^{-3}	(0.200×10^{-3})
BB2-10	0.0199	8.354×10^{-3}		
BB2-12	0.0401	2.199×10^{-2}		
BB2-13	0.0401	2.094×10^{-2}	2.129×10^{-2}	(0.005×10^{-2})
BB2-14	0.0401	2.189×10^{-2}		
BB4-8	0.0607	3.553×10^{-2}		
BB4-1	0.0607	3.556×10^{-2}		
BB4-2	0.0607	3.331×10^{-2}	3.514×10^{-2}	(0.093×10^{-2})
BB2-16	0.0607	3.535×10^{-2}		
BB4-7	0.0607	3.593×10^{-2}		
BB2-17	0.0789	5.028×10^{-2}	4.929×10^{-2}	(0.099×10^{-2})
BB2-18	0.0789	4.829×10^{-2}		
BB4-6	0.0803	4.711×10^{-2}		
BB4-4	0.100	6.457×10^{-2}		
BB4-5	0.100	6.144×10^{-2}	6.497×10^{-2}	(0.306×10^{-2})
BB2-6	0.100	6.890×10^{-2}		

Table S4. Kinetic data for the reaction of **3** with CsOEt in EtOH at 25.0°C. (See Figure 1).

Run ID	[CsOEt] (M)	k_{obs} (s^{-1})
BD4-1	0.00497	0.001058
BD4-2	0.00921	0.002102
BD4-3	0.0200	0.005343
BD4-4	0.0400	0.01206
BD4-5	0.0600	0.01930
BD4-6	0.0829	0.02815

Table S5. Kinetic data for the reaction of **3** with KOEt in the presence of 18-Crown-6 in EtOH at 25.0°C. (See Figure 2).

RUN ID	[KOEt] (M)	[18C6] (M)	[18C6] [KOEt]	k_{obs} (s^{-1})	k_{obs}/[MOEt] ($s^{-1}M^{-1}$)
BB4-7	0.0607	0.0000	0.000	0.03593	0.5918
BB4-8	0.0607	0.0000	0.000	0.03553	0.5852
BBA4-1	0.0607	0.0121	0.200	0.03382	0.5570
BBA4-2	0.0607	0.0243	0.400	0.02718	0.4477
BBA4-12	0.0607	0.0304	0.500	0.02336	0.3848
BBA4-3	0.0607	0.0364	0.600	0.02152	0.3545
BBA4-4	0.0607	0.0486	0.80	0.01051	0.1731
BBA4-8	0.0607	0.0607	1.00	0.007796	0.1284
BBA4-11	0.0607	0.0607	1.00	0.009312	0.1534
BBA4-6	0.0607	0.0607	1.00	0.008978	0.1479
BBA4-9	0.0607	0.122	2.00	0.008177	0.1347
BBA4-13	0.0607	0.182	3.00	0.008429	0.1388
BBA4-10	0.0607	0.182	3.00	0.008324	0.1371
BBA4-5	0.0152	0.078	5.14	0.001785	0.1176
BBA4-7	0.0152	0.0455	3.00	0.002019	0.1330

Average k_{obs} / [MOEt] for ratios of [18-crown-6] / [KOEt] $\geq$ 1.0 = 0.1336 $\pm$ 0.0104 $s^{-1}M^{-1}$ corresponds to the constant rate observed after a 1:1 crown:metal ion ratio was achieved.

Table S6(a). Kinetic data for the reaction of **3** with LiOEt in the presence of LiCl in EtOH at 25.0°C. Run ID BCC5. (See Figure 3).

Ratio LiCl/LiOEt	k_{obs} (s^{-1})
0.00	3.01×10^{-3}
1.47	4.12×10^{-3}
3.30	4.94×10^{-3}
6.60	5.85×10^{-3}
9.90	6.10×10^{-3}
19.8	7.13×10^{-3}
30.1	7.36×10^{-3}
49.9	7.66×10^{-3}

Table S6(b). Kinetic data for the reaction of **3** with LiOEt in the presence of $LiNO_3$ in EtOH at 25.0°C. Run ID BCB5. (See Figure 3).

Ratio $LiNO_3$/LiOEt	k_{obs} (s^{-1})
0.00	2.99×10^{-3}
9.50	6.13×10^{-3}
19.3	6.93×10^{-3}
28.1	7.04×10^{-3}
38.7	6.65×10^{-3}
63.7	6.86×10^{-3}

Table S6(c). Kinetic data for the reaction of **3** with KOEt in the presence of $KO(O)CCH_3$ in EtOH at 25.0°C. Run ID BCE5. (See Figure 3).

Ratio $KOOCCH_3$/KOEt	k_{obs} (s^{-1})
0.00	1.31×10^{-3}
3.36	2.01×10^{-3}
3.36	1.97×10^{-3}
4.70	2.05×10^{-3}
6.71	1.97×10^{-3}
10.1	2.52×10^{-3}
20.1	2.92×10^{-3}
30.2	3.23×10^{-3}
50.4	3.63×10^{-3}

Table S6(d). Kinetic data for the reaction of **3** with KOEt in the presence of KI in EtOH at 25.0°C. Run ID BCF5. (See Figure 3).

Ratio KI/KOEt	k_{obs} (s^{-1})
0.00	1.81×10^{-4}
1.19	2.23×10^{-4}
4.94	3.16×10^{-4}
7.90	3.48×10^{-4}
13.8	3.71×10^{-4}
27.7	4.53×10^{-4}
41.5	4.85×10^{-4}

Table S7. Kinetic data for the reaction of **3** with KOEt in the presence and absence of 18-Crown-6 and with added Bu_4NCl in EtOH at 25.0°C. $[KOEt]_0 = 0.0188$ M.

Run ID	[18-C-6] (M)	[18-C-6]/[KOEt] (ratio)	$[Bu_4NCl]$ (M)	$[Bu_4NCl]$/[KOEt] (ratio)	k_{obs} (s^{-1})	k_{obs} (avg) / k_{obs} for EtO- (ratio)
BBN6-5	0	0	0	0	7.295×10^{-3}	
BBN6-5	0	0	0	0	7.264×10^{-3}	.....3.301
BBA6-6	2.282×10^{-2}	1.21	0	0	2.186×10^{-3}	
BBA6-7	2.536×10^{-2}	1.35	0	0	2.225×10^{-3}	.....1.000
BBAD6-1	2.282×10^{-2}	1.21	8.935×10^{-3}	0.474	2.279×10^{-3}	.....1.033
BBAD6-2	2.282×10^{-2}	1.21	2.223×10^{-2}	1.187	2.295×10^{-3}	.....1.041

Table S8. Data for the ion pairing treatment of the reaction of KOEt with **3** in EtOH at 25°C. (See Figure 4).

Run ID	[KOEt] (M)	k_{obs} (s^{-1})	[EtO^-] (M)	$k_{obs}/[EtO^-]$ ($M^{-1}s^{-1}$)
BB2-8	0.00243	4.90×10^{-4}	2.051×10^{-3}	2.391×10^{-1}
BB2-2,4,7	0.00486	1.19×10^{-3}	3.655×10^{-3}	3.252×10^{-1}
BB1-1	0.00972	3.44×10^{-3}	6.226×10^{-3}	5.524×10^{-1}
BB2-1	0.01214	6.22×10^{-3}	7.317×10^{-3}	8.499×10^{-1}
BB2-9,10,11	0.01992	8.27×10^{-3}	1.032×10^{-2}	8.009×10^{-1}
BB2-12,13,14	0.04007	2.16×10^{-2}	1.626×10^{-2}	1.329
BB4-1,2,7,8,2-16	0.06071	3.51×10^{-2}	2.100×10^{-2}	1.673
BB2-17,18	0.07892	4.93×10^{-2}	2.457×10^{-2}	2.006
BB4-6	0.08026	4.71×10^{-2}	2.482×10^{-2}	1.898
BB2-5,6 4-3,4,5	0.10017	6.63×10^{-2}	2.827×10^{-2}	2.347

$R^2 = 1.000$, slope = 76.67 ± 3.14

$k_{EtO^-} = 0.0940 \pm 0.0915\ M^{-1}s^{-1}$

$k_{KOEt} = 0.8519 \pm 0.0348\ M^{-1}s^{-1}$

Table S9. Data for the ion pairing treatment of the reaction of KOEt with **3** in the presence of excess

Run ID	[KOEt] (M)	[18-crown-6] (M)	k_{obs} (s^{-1})	[18C6]/[EtO^-] ($M^{-1}s^{-1}$)	k_{obs}/[EtO^-] ($M^{-1}s^{-1}$)
BBA6-5	0.00911	0.01268	0.000864	1.392	0.09483
BBA6-4	0.01821	0.02789	0.001790	1.531	0.09831
BBA6-3	0.03882	0.06948	0.003997	1.790	0.1030
BBA6-2	0.06071	0.09128	0.006599	1.504	0.1087
BBA5-1	0.07892	0.09990	0.008653	1.266	0.1096

$R^2 = 0.962$; slope = 0.2172 ± 0.0248

$k_{EtO^-} = 0.0939 \pm 0.0014\ M^{-1}s^{-1}$