Electronic Supplementary Material (ESI) for Nanoscale.

Supplementary Information

Employing LiCl Salt Gradient in the Wild-type α-Hemolysin Nanopore to Slow Down DNA Translocation and Detect Methylated Cytosine

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Figure S1.

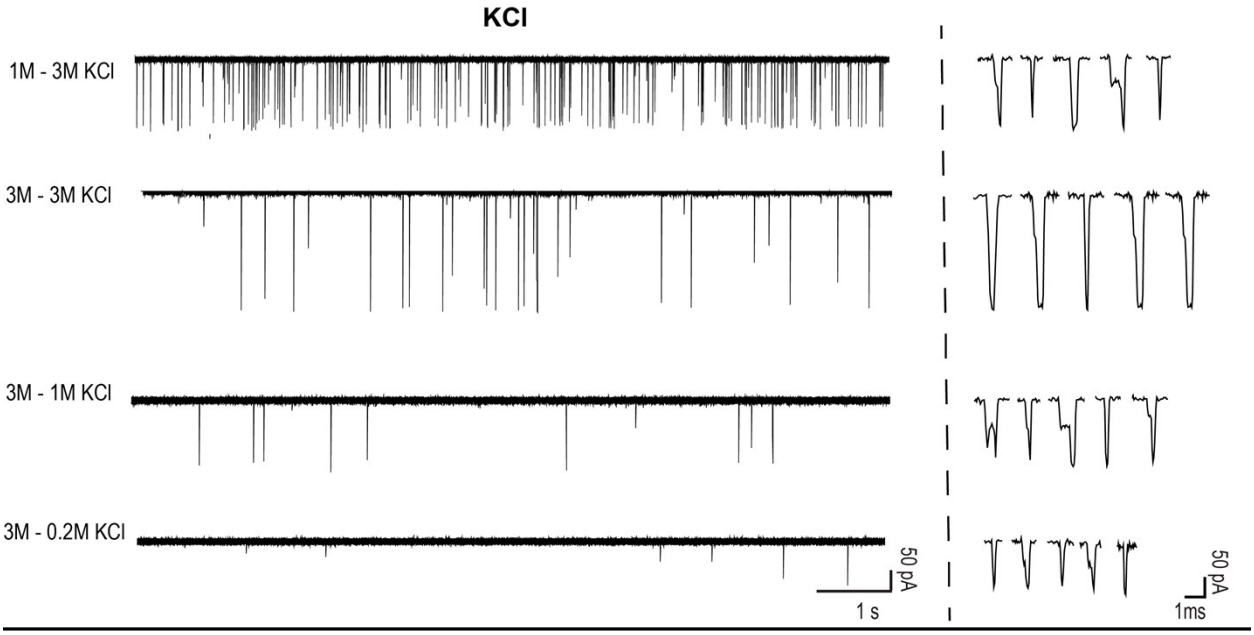

Figure S1. Sample data traces and current blockage events of 18b-0mC in KCl electrolyte buffers with varied concentrations. Different ionic concentrations between the *cis*- and the *trans* side lead to significant changes in events dwell time and occurrence. All data were collected at 120mV, pH of 7.2.

Figure S2.

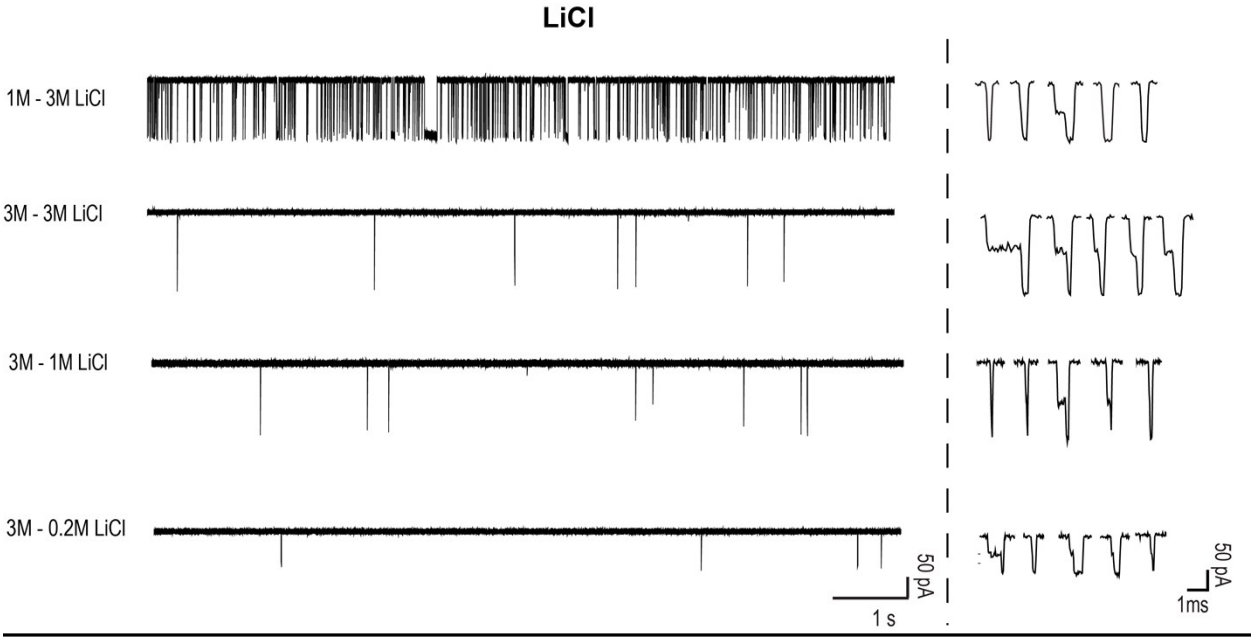

Figure S2. Sample data traces and current blockage events of 18b-0mC in LiCl electrolyte buffers with varied concentrations. Different ionic concentrations between the *cis*- and the *trans* side lead to significant changes in events dwell time and occurrence. All data were collected at 120mV, pH of 7.2.

Figure S3.

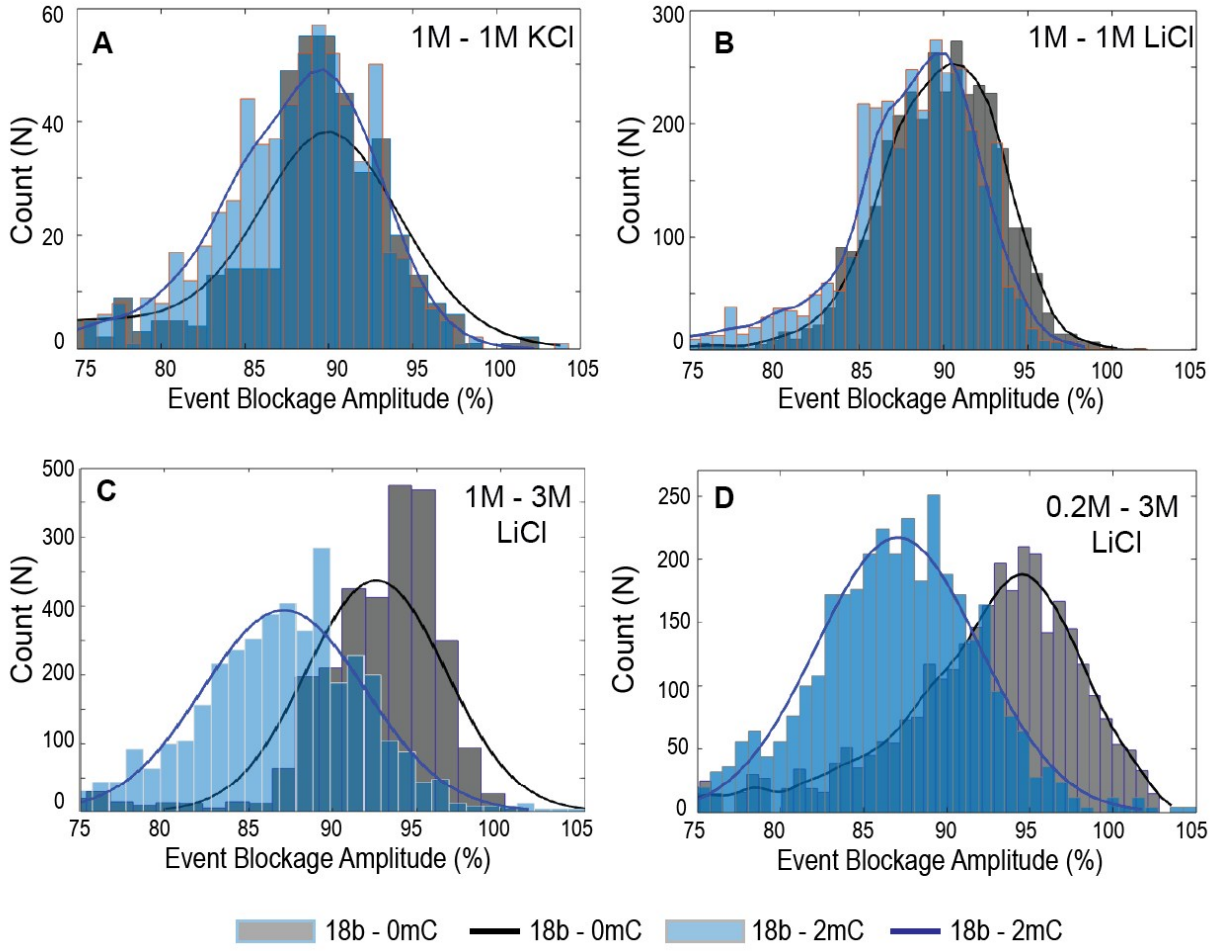

Figure S3. Gaussian fittings of 18b-0mC and 18b-2mC samples' event blockages at: 1M-1M KCl, 1M-1M LiCl, 1M-3M LiCl, and 0.2M-3M LiCl. As the concentration gradient between *cis*- and *trans* chamber increases, the peak-to-peak distance between two samples also increases. All data were collected at 120mV at pH 7.2 solutions.

Table S1. Summary of event analysis for 18b-0mC sample in various KCl electrolyte solutions.

	Amplitude (pA)		Dwell time (ms)		Frequency	
	mu	sigma	tau	S.E.	tau	S.E.
1M -3M KCl	-179.054	3.823	0.317	0.038	10.083	0.383
1M-1M KCl	-101.79	6.66776	0.166	0.003	6.719	0.433
3M -3M KCl	-282.989	4.841	0.471	0.015	1.303	0.056
3M - 1M KCl	-169.382	4.559	0.132	0.011	0.979	0.080
3M - 0.2M KCl	-109.720	2.340	0.140	0.067	0.237	0.035

(Note: All data were collected at 120mV, pH 7.2. Experiments with asymmetric concentration are denoted in the order of cis – trans concentration)

Table S2. Summary of event analysis for 18b-0mC sample in various LiCl electrolyte solutions.

		Conc.	Amplitude (pA)		Dwell time (ms)		Frequency	
		Trans/ Cis	mu	sigma	tau	S.E.	tau	S.E.
Varying Cis - Trans LiCl Concentration	0.2M - 3M LiCl	15	-79.63	2.499	0.945	0.083	55.615	3.323
	0.3M - 3M LiCl	10	-88.349	0.468	0.879	0.05	52.029	4.703
	0.5M - 3M LiCl	6	-87.14	0.206	0.81	0.06	47.619	2.082
	1M - 3M LiCl	3	-137.402	4.387	0.673	0.023	34.536	1.721
	2M - 3M LiCl	1.5	-152.285	3.653	0.566	0.071	2.439	0.156
	3M - 3M LiCl	1	-166.352	3.387	0.517	0.023	0.675	0.088
	3M - 1M LiCl	0.333	-168.14	4.301	0.192	0.016	1.474	0.132
	3M - 0.2M LiCl	0.067	-149.221	0.606	0.182.89	0.011	0.940	0.126
Ref.	1M - 1M LiCl	1	-79.273	3.54	0.382	0.02	4.8	0.313
	1M - 1M KCl	1	-101.79	6.667	0.166	0.003	6.719	0.433

(Note: All data were collected at 120mV, pH 7.2. Experiments with asymmetric concentration are denoted in the order of cis – trans concentration)

Table S3. Summary of event analysis for 18b-2. mC sample in various LiCl electrolyte solutions.

		Conc.	Amplitude (pA)		Dwell time (ms)		Frequency	
		Trans /Cis	mu	sigma	tau	S.E.	tau	S.E.
Varying Cis - Trans LiCl Concentration	0.2M - 3M LiCl	15	-74.027	2.556	0.765	0.078	59.841	1.817
	0.3M - 3M LiCl	10	-84.080	6.238	0.687	0.024	47.360	1.791
	0.5M - 3M LiCl	6	-83.467	5.381	0.702	0.030	42.680	2.134
	1M - 3M LiCl	3	-131.212	4.726	0.627	0.019	35.307	4.351
	2M - 3M LiCl	1.5	-151.73	4..636	0.523	0.119	2.072	0.202
	3M - 3M LiCl	1	-164.902	3.184	0.451	0.014	1.028	0.060
	3M - 1M LiCl	0.333	-165.729	4.850	0.177	0.030	1.354	0.445
	3M - 0.2M LiCl	0.067	-149.558	2.690	0.169	0.010	0.707	0.213
Ref.	1M - 1M LiCl	1	-77.5013	5.252	0.362	0.021	7.037	0.773
	1M - 1M KCl	1	-101.058	4.382	0.157	0.010	10.296	1.078

(Note: All data were collected at 120mV, pH 7.2. Experiments with asymmetric concentration are denoted in the order of cis – trans concentration)