

### Supplemental Table 3

Index to panels of dCypher data for experiments for the indicated figs

Name of panel for data from which Fig	Description
A-Fig5B	Dsup (WT) Titration (0 $\mu\text{g}/\text{mL}$ SaDNA)
B-Fig5C	Dsup (WT) Titration (0.75 $\mu\text{g}/\text{mL}$ SaDNA)
C-Fig5D	Dsup (WT) Titration w/ select acyl Nucs (0.75 $\mu\text{g}/\text{mL}$ SaDNA)
D-Fig5E	Dsup (WT) Titration w/ select methyl, truncated Nucs (0.75 $\mu\text{g}/\text{mL}$ SaDNA)
E-Fig5F	Dsup (WT) Titration w/ truncated Nucs (0.75 $\mu\text{g}/\text{mL}$ SaDNA)
F-Fig5G	Dsup (WT) Titration w/ acidic patch mutant Nucs (0.75 $\mu\text{g}/\text{mL}$ SaDNA)
G-Fig6A	Dsup (WT) Titration ( $\pm$ SaDNA)
H-Fig6B	Dsup (3R/3E) Titration ( $\pm$ SaDNA)
I-Fig6C	Dsup ( $\Delta\text{C}$ ) Titration ( $\pm$ SaDNA)
J-SupFig5	Dsup (WT) optimizations - Salt (NaCl) Titration and SaDNA Titration
K-EC50rel Tables	$\text{EC}_{50}^{\text{rel}}$ Table for all dCypher figures

**A**

	Alpha Counts	
[Dsup], M	Nucleosome	147x601 DNA
6.25E-08	147599	148422
2.08E-08	149775	143716
6.94E-09	138580	141163
2.31E-09	140657	128084
7.72E-10	77091	58763
2.57E-10	18517	5771
8.57E-11	3090	299
2.86E-11	279	61
0.00E+00	45	67

**B**

	Alpha Counts	
[Dsup], M	Nucleosome	147x601 DNA
6.25E-08	122695	834
2.08E-08	16590	53
6.94E-09	265	31
2.31E-09	127	44
7.72E-10	63	70
2.57E-10	79	47
8.57E-11	60	53
2.86E-11	60	50
0.00E+00	67	55

**C**

[Dsup], M	Nucleosome		147x601 DNA		Alpha Counts											
					H3K4Ac		H3K9Ac		H3K9bu		H3K9cr		H4K5Ac		H4K8Ac	
5.12E-08	61141	68866	229	252	63391	61024	33975	30866	69840	66010	53268	57761	2001	2001	16853	17475
4.10E-08	38686	45332	49	67	39545	38155	20006	22880	31389	40459	30613	34122	1173	1296	5351	5667
3.28E-08	20335	26708	27	36	17525	18185	11138	11617	19249	17952	12699	15061	770	906	1522	1281
2.62E-08	3469	9021	9	36	3633	3146	4300	4769	6125	5513	2596	3408	432	397	337	320
2.10E-08	256	1351	31	31	324	373	1031	1988	1035	960	373	514	252	257	216	216
1.68E-08	134	184	45	27	220	157	850	842	364	333	247	252	162	207	148	103
1.34E-08	99	90	18	27	112	157	464	387	126	117	130	103	162	162	126	103
1.07E-08	94	72	18	45	63	90	225	266	126	121	103	112	135	126	144	126
0.00E+00	72	36	18	27	31	31	40	36	31	22	31	27	27	31	31	36

**D**

[Dsup], M	Alpha Counts															
	Tail-less Nuc		H4 NΔ15		H3K4me1		H3K4me2		H3K4me3		H3K9me1		H3K9me2		H3K9me3	
5.12E-08	2191	2571	15463	14323	129191	127364	114108	118141	128421	130715	124189	123554	128916	125707	134742	132814
4.10E-08	1888	2192	11937	10968	106604	114680	87584	87562	111473	114912	95235	100256	102290	93666	115712	107730
3.30E-08	1235	1277	7499	7719	44437	60477	46392	44201	86543	72250	56914	55657	49905	47610	55629	61595
2.60E-08	340	364	4062	4414	11176	16257	9368	11492	35920	28630	14680	11859	14154	15571	11946	14956
2.10E-08	120	134	2778	2729	1213	2203	1297	1412	8364	6199	1370	1247	1082	1518	1263	1749
1.70E-08	57	78	2190	2121	296	283	1436	276	1962	1376	302	463	272	454	330	400
1.30E-08	87	81	1250	1485	478	235	228	272	287	360	361	364	361	332	304	200
1.10E-08	74	75	1148	1121	96	138	178	134	235	325	156	172	261	238	222	260
0.00E+00	50	107	71	61	44	62	52	68	47	101	44	52	55	57	59	49

**E**

[Dsup], M	Alpha Counts											
	Nucleosome		147x601 DNA		H3.1 NΔ2		H3.1 NΔ32		H3.3 NΔ32		Tail-less Nuc	
5.12E-08	56934	50471	1628	1728	65836	60385	20539	20817	18667	16234	6720	7306
4.10E-08	31862	34359	476	666	42244	38654	13452	15009	15796	16387	5042	6389
3.30E-08	14048	14783	643	706	20681	21676	7438	8135	12995	12745	3149	3639
2.60E-08	3354	4022	420	356	6630	6862	2697	3388	9228	8916	1771	1930
2.10E-08	8797	1122	327	308	1797	1863	1228	988	5963	5625	726	979
1.70E-08	593	491	155	123	600	501	389	659	3514	3428	193	243
1.30E-08	413	295	100	70	419	451	401	356	2524	2485	116	107
1.10E-08	268	246	86	104	249	317	219	215	1640	1767	106	182
0.00E+00	81	64	77	88	91	97	83	83	86	125	91	88

**F**

[Dsup], M	Nucleosome		147x601 DNA		Tailless Nuc		H2AE61A		Alpha Counts									
									H2AE92K		H2BE105A		H3Tetra		H2AK129ub		H3.3NΔ32	
6.30E-08	52911	51218	29486	25744	2889	1612	74	62	99	74	102	119	1640	1721	5437	5155	12935	7850
2.10E-08	15700	24720	40	63	5580	6312	77	73	128	154	126	127	4456	4496	3741	4168	28439	10685
6.90E-09	299	1076	47	40	410	433	54	74	67	106	86	103	799	877	206	220	9666	3586
2.30E-09	106	102	32	42	73	96	61	70	70	80	74	89	280	322	114	90	3216	597
7.70E-10	58	54	48	29	70	77	42	55	38	67	70	60	193	165	77	56	668	319
2.60E-10	58	48	35	35	45	42	32	32	64	42	42	45	70	58	71	41	135	141
8.60E-11	96	61	64	38	51	42	42	38	51	67	51	45	45	29	54	48	45	45
2.90E-11	67	48	42	61	42	26	38	38	38	51	42	42	58	48	48	64	58	51
9.50E-12	35	42	45	45	45	48	51	38	38	54	51	42	38	48	35	45	45	38
3.20E-12	38	45	29	48	48	42	45	55	38	45	32	51	45	38	58	35	48	32
1.10E-12	54	61	42	38	42	35	54	58	54	45	38	35	54	51	45	54	48	35
0.00E+00	42	51	45	29	55	42	51	38	54	55	45	38	42	32	55	48	51	45

**G**

[SalDNA] = 0.75 µg/mL

[Dsup], M	Nucleosome + SalDNA		147x601 DNA + SalDNA		Tail-less Nuc + SalDNA		Nucleosome		147x601 DNA		Tail-Less Nuc	
2.05E-08	42967	41760	651	631	5960	4771	103994	104166	108918	109122	101810	85592
1.64E-08	21789	24640	101	96	3877	3960	106317	106663	105440	106417	103510	92456
1.31E-08	8566	15134	71	86	1959	1968	104680	104837	105605	105792	99437	93856
1.05E-08	3845	4888	80	65	699	665	101657	96843	103711	106721	96516	91814
8.39E-09	1312	1268	86	79	265	106	99383	100703	99761	101713	93145	67188
6.71E-09	661	589	64	80	139	158	89183	91858	93117	94445	83398	80033
5.37E-09	333	250	48	45	76	162 0*		90450 0*		85578	49175	76839
4.29E-09	414	212	38	38	52	59	77174	78534	79424	80895	68482	67074
3.90E-09	196	194	29	32	74	0	64826	68445	70183	72353	58783	56781
2.60E-09	185	110	35	54	95	28	40251	47601	47368	43904	34849	35948
1.70E-09	110	87	48	61	90	114	28486	29919	29888	29352	25776	22699
0.00E+00	64	58	67	58	54	70	42	60	38	35	43	71

**H**

[SalDNA] = 0.75 µg/mL

[Dsup], M	Nucleosome + SalDNA		147x601 DNA + SalDNA		Tail-less Nuc + SalDNA		Nucleosome		147x601 DNA		Tail-Less Nuc	
1.00E-07	3041	3121	3257	3622	3687	3887	97036	135286	130266	133869	107460	67694
6.70E-08	3412	2980	2538	2514	2872	2519	104122	106659	133539	134728	109640	100740
4.40E-08	720	697	723	672	519	608	89219	115398	129069	129201	112105	107276
3.00E-08	681	622	817	970	1028	1143	74207	84479	121803	121494	94903	93882
2.00E-08	1224	683	873	782	949	714	55489	65165	113678	114372	80335	46178
1.30E-08	987	907	888	1168	1451	1525	37637	43776	102958	101017	55921	57686
8.80E-09	1716	1784	1741	1470	1758	1043	19522	21038	87854	88260	33880	29679
5.90E-09	385	459	164	50	134	265	8030	8324	69427	68464	14693	13220
3.90E-09	840	434	510	257	40	37	2019	2569	43085	42160	4964	4444
2.60E-09	75	396	229	82	120	820	329	711	13811	15328	1743	1476
1.70E-09	1285	1076	1123	1043	1088	992	1034	944	9322	8470	2116	624
0.00E+00	103	92	119	281	314	477	811	408	1270	612	1277	921

I [SalDNA] = 0.75 µg/mL

[Dsup], M	Nucleosome + SalDNA		147x601 DNA + SalDNA		Tail-less Nuc + SalDNA		Nucleosome		147x601 DNA		Tail-Less Nuc	
1.00E-07	3047	3583	3112	2424	2323	2476	2296	2567	2417	2512	2493	2883
6.70E-08	2379	2441	2386	3303	3020	2812	3238	3481	3697	3290	2924	3636
4.40E-08	914	979	830	1024	1280	1019	1163	1042	602	695	580	473
3.00E-08	753	683	689	626	934	880	713	834	863	495	661	846
2.00E-08	1002	1024	1080	1082	924	1168	749	822	877	835	932	1075
1.30E-08	1100	981	999	1062	846	699	848	882	870	708	680	808
8.80E-09	131	371	839	709	664	1272	1140	1310	708	1318	1492	1749
5.90E-09	597	436	265	505	487	550	742	576	788	566	157	404
3.90E-09	1088	1096	361	565	829	775	1172	832	795	723	904	508
2.60E-09	362	269	238	199	159	122	141	167	190	249	239	157
1.70E-09	616	511	466	716	546	654	723	626	865	734	1062	1026
0.00E+00	553	662	711	704	646	715	1099	759	683	249	126	97

J

50 mM NaCl					100 mM NaCl					125 mM NaCl					150 mM NaCl				
Alpha Counts																			
[Dsup], M	Nucleosome	147x601 DNA			[Dsup], M	Nucleosome	147x601 DNA			[Dsup], M	Nucleosome	147x601 DNA			[Dsup], M	Nucleosome	147x601 DNA		
6.25E-08	110606	112517	130217	137008	6.25E-08	205037	201912	198985	192111	6.25E-08	234621	223879	225708	231752	6.25E-08	141076	135554	163044	147830
3.13E-08	175434	167405	202834	209440	3.13E-08	221266	212749	218087	209613	3.13E-08	231754	233815	262482	266275	3.13E-08	144778	148211	162481	162241
1.56E-08	211206	214337	231683	235612	1.56E-08	217132	210397	210610	205925	1.56E-08	226227	209938	251667	241071	1.56E-08	127777	130491	148202	140209
7.81E-09	226395	232938	229403	227316	7.81E-09	213264	209486	197378	192683	7.81E-09	191760	179426	239343	232195	7.81E-09	113636	118835	122307	117709
3.91E-09	233081	231018	218436	218516	3.91E-09	196978	195032	186094	179776	3.91E-09	108587	179605	237498	232923	3.91E-09	77617	81452	93920	86967
1.95E-09	217964	218533	190568	190433	1.95E-09	177260	177857	163330	161936	1.95E-09	127082	105427	200745	207922	1.95E-09	14448	5016	40754	35347
9.77E-10	168839	167253	95371	93270	9.77E-10	132746	136101	94445	88776	9.77E-10	39721	28007	152727	152061	9.77E-10	1550	2347	24786	22700
4.88E-10	103921	108984	14199	15033	4.88E-10	84894	91759	33837	13188	4.88E-10	632	3555	77942	72561	4.88E-10	88	148	7414	9341
0.00E+00	393	500	165	148	0.00E+00	58	54	100	50	0.00E+00	113	154	89	79	0.00E+00	91	78	82	95

175 mM NaCl					200 mM NaCl					225 mM NaCl					250 mM NaCl				
Alpha Counts					Alpha Counts					Alpha Counts					Alpha Counts				
[Dsup], M	Nucleosome	147x601 DNA			[Dsup], M	Nucleosome	147x601 DNA			[Dsup], M	Nucleosome	147x601 DNA			[Dsup], M	Nucleosome	147x601 DNA		
6.25E-08	145774	137238	156234	176431	6.25E-08	108532	124990	109882	132035	6.25E-08	52068	72257	32430	72679	6.25E-08	1839	2691	3774	1968
3.125E-08	170699	170476	184408	189806	3.125E-08	126124	130764	137754	143402	3.13E-08	67462	75013	71268	79285	3.13E-08	1871	2076	8802	6517
1.563E-08	157781	155293	182604	168032	1.563E-08	110825	120625	128212	117371	1.56E-08	20618	56237	53191	58350	1.56E-08	613	997	6639	5463
7.813E-09	147145	153822	141462	141252	7.813E-09	76064	87082	93042	93831	7.81E-09	2709	6862	23232	22353	7.81E-09	175	147	662	753
3.906E-09	126618	121997	109030	106401	3.906E-09	14205	19232	43964	38211	3.91E-09	176	294	4541	4125	3.91E-09	160	90	210	232
1.953E-09	61499	73584	72371	59178	1.953E-09	707	1436	8694	8445	1.95E-09	49	64	410	533	1.95E-09	67	72	78	94
9.768E-10	10889	11872	26898	25503	9.768E-10	75	144	1200	1603	9.77E-10	44	77	126	142	9.77E-10	104	32	67	93
4.883E-10	2636	2064	9647	8294	4.883E-10	56	93	223	299	4.88E-10	54	70	96	78	4.88E-10	58	94	64	72
0	122	90	68	63	0	94	64	74	70	0.00E+00	84	81	91	80	0.00E+00	38	91	85	50

150 mM NaCl, 62.5 nM WT Dsup		
Alpha Counts		
[SalDNA], µg/mL	Nucleosome	147x601 DNA
0	147599	148422
0.03	174840	177121
0.08	167863	159132
0.25	77917	5859
0.74	122695	834
2.22	5251	40
6.67	47	73
20	117	6

K Figure 5B	Nucleosome	EC <sub>50</sub> <sup>max</sup> (nM)	Data constrained to Nucleosome max signal (149775)
	Nucleosome	0.74	
	147x601 DNA	0.96	

Figure 5C	Nucleosome	EC <sub>50</sub> <sup>max</sup> (nM)	Data constrained to Nucleosome max signal (122695)
	Nucleosome	24.60	
	147x601 DNA	ND	

Figure 5D	Nucleosome	EC <sub>50</sub> <sup>max</sup> (nM)	Data constrained to Nucleosome max signal (65004)
	Nucleosome	38.2	
	147x601 DNA	ND	
	H3K4Ac	38.0	
	H3K9Ac	50.6	
	H3K9bu	38.3	
	H3K9cr	40.5	
	H4K5Ac	ND	
	H4K8Ac	ND	

Figure 5E	Nucleosome	EC <sub>50</sub> <sup>max</sup> (nM)	Data constrained to H3K9me3 max signal (133778)
	H3K4me1	34.5	
	H3K4me2	37.0	
	H3K4me3	31.1	
	H3K9me1	34.9	
	H3K9me2	35.5	
	H3K9me3	33.9	
	H4 NΔ15	ND	
	Tail-Less Nuc	ND	

Figure 5F	Nucleosome	EC <sub>50</sub> <sup>max</sup> (nM)	Data constrained to Nucleosome max signal (53703)
	Nucleosome	38.2	
	147x601 DNA	ND	
	H3.1 NΔ2	34.9	
	H3.1 NΔ32	ND	
	H3.3 NΔ32	ND	
Tail-Less Nuc	ND		

Figure 5G	Nucleosome	EC <sub>50</sub> <sup>max</sup> (nM)	Data constrained to Nucleosome max signal (52065)
	Nucleosome	22.8	
	H2AEB1A	ND	
	H2AEB2K	ND	
H2BE105A,E113A	ND		

Figure 6A	Nucleosome	EC <sub>50</sub> <sup>max</sup> (nM)	(+)-SaIDNA Data constrained to Nucleosome max signal (42364)
	Nucleosome + SaIDNA	30.0	
	147x601 DNA + SaIDNA	ND	
	Tail-less Nuc + SaIDNA	ND	
	Nucleosome	1.5	
	147x601 DNA	1.5	
Tail-Less Nuc	1.9		

Figure 6B	Nucleosome	EC <sub>50</sub> <sup>max</sup> (nM)	(-) SaIDNA Data not constrained (upper plateau reached)
	Nucleosome + SaIDNA	ND	
	147x601 DNA + SaIDNA	ND	
	Tail-less Nuc + SaIDNA	ND	
	Nucleosome	19.3	
	147x601 DNA	5.1	
Tail-Less Nuc	12.7		

Figure 6C	Nucleosome	EC <sub>50</sub> <sup>max</sup> (nM)	
	Nucleosome + SaIDNA	ND	
	147x601 DNA + SaIDNA	ND	
	Tail-less Nuc + SaIDNA	ND	
	Nucleosome	ND	
	147x601 DNA	ND	
Tail-Less Nuc	ND		

Suppl. Figure 5A	Nucleosome	EC <sub>50</sub> <sup>max</sup> (nM)	
	Nucleosome	0.6	
	147x601 DNA	1.1	

Suppl. Figure 5B	Nucleosome	EC <sub>50</sub> <sup>max</sup> (nM)	
	Nucleosome	0.7	
	147x601 DNA	1.1	

Suppl. Figure 5C	Nucleosome	EC <sub>50</sub> <sup>max</sup> (nM)	
	Nucleosome	3.7	
	147x601 DNA	3.9	

Suppl. Figure 5D	Nucleosome	EC <sub>50</sub> <sup>max</sup> (nM)	
	Nucleosome	2.30	
	147x601 DNA	3.40	

Suppl. Figure 5E	Nucleosome	EC <sub>50</sub> <sup>max</sup> (nM)	
	Nucleosome	15.5	
	147x601 DNA	11.3	

Suppl. Figure 5F	Nucleosome	EC <sub>50</sub> <sup>max</sup> (nM)	
	Nucleosome	19.1	
	147x601 DNA	12.3	