

## INVENTORY OF SUPPLEMENTAL MATERIAL

### Supplemental Data

**Supplementary Figure 1** Comparison of H3K4 methyllysine-specific antibodies for different methylation states- mentioned in Fig 2.

**Supplementary Figure 2.** Effect of neighboring acetylation on BPTF binding – mentioned in Fig 4.

**Supplementary Figure 3.** Heat map of all experimental antibody data – associated with Fig 2. and Fig. 3.

**Supplementary Figure 4.** Scatter plots comparing two arrays for Rag2, BPTF, and CHD1 – mentioned in Fig. 4

### Supplemental Methods

Table S1 – Table of antibodies used

Table S2 – Table of peptides synthesized

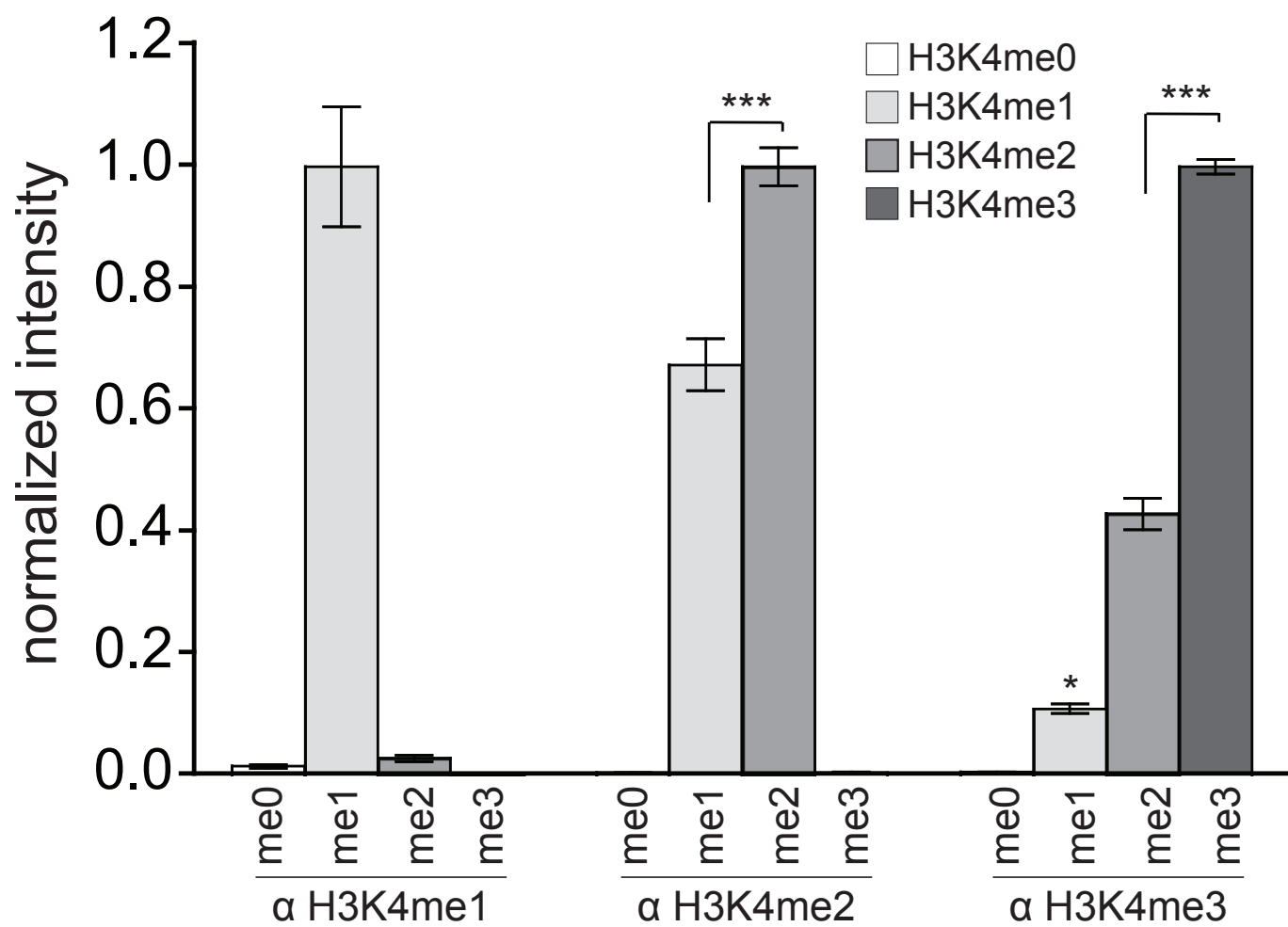
Table S3 – Layout of peptide array

Table S4 – Summary of assay conditions for all antibodies tested

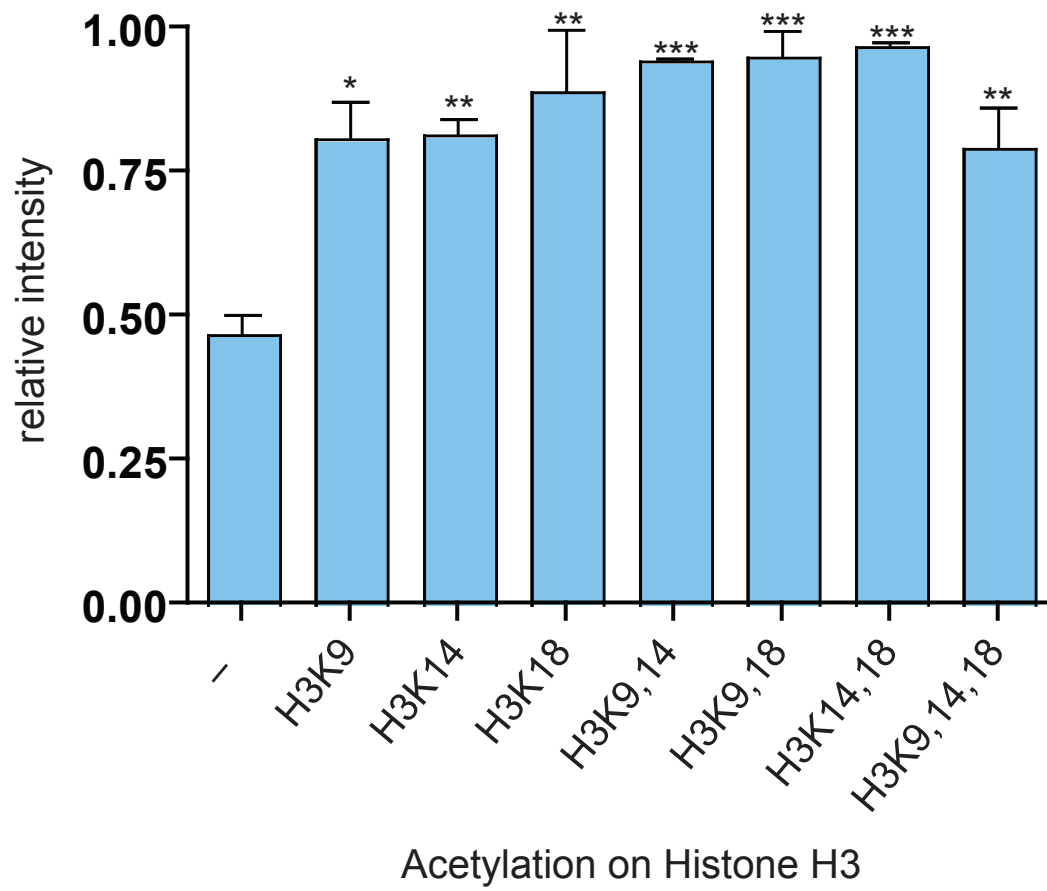
Additionally: All experimental datasets and full characterization for all reagents synthesized are available from our website

(<http://www.med.unc.edu/~bstrahl/Arrays/index.htm>)

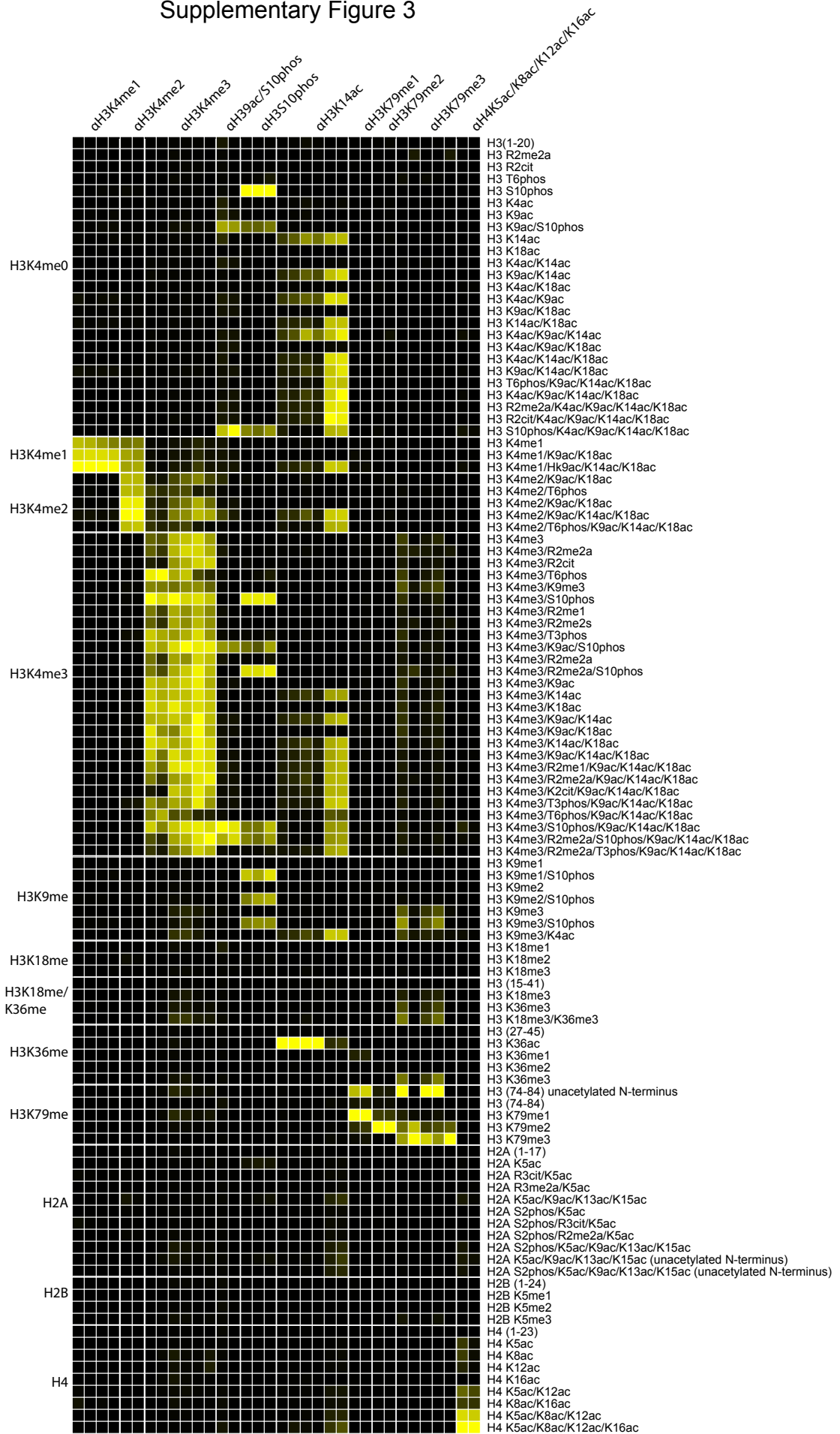
## Supplementary Figure 1



### Supplementary Figure 2

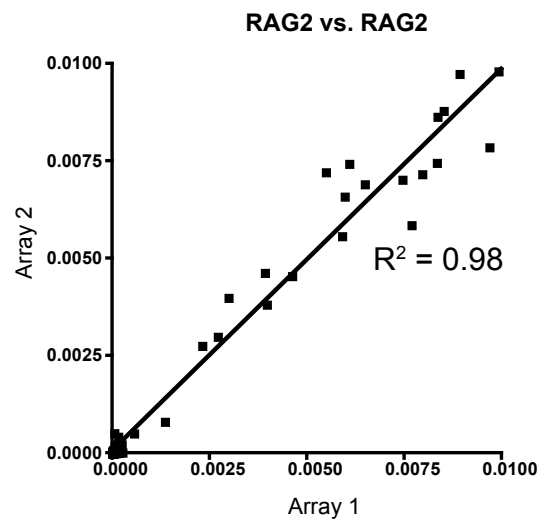


Supplementary Figure 3

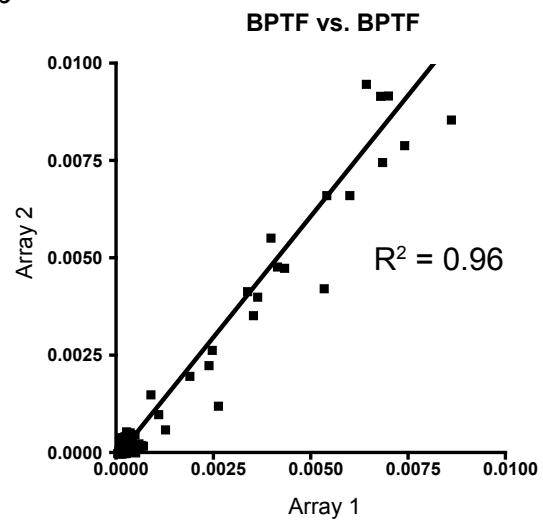


## Supplementary Figure 4

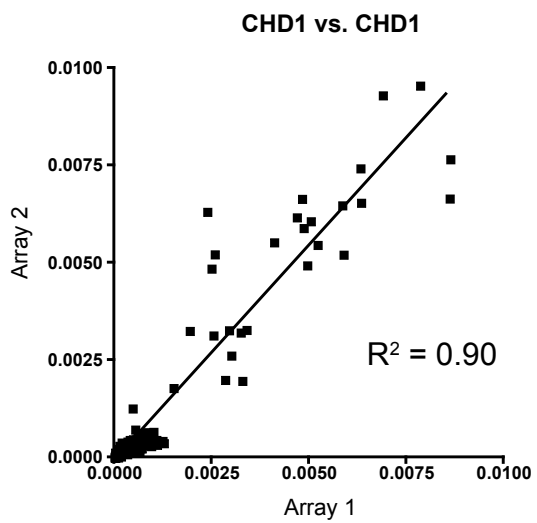
a



b



c



**Supplementary Table I: List of Antibodies and Sources**

<b>Modification</b>	<b>Antibody</b>	<b>Source</b>	<b>Supplier</b>	<b>Catalog</b>	<b>Lot</b>
H3K4me1	polyclonal	rabbit	upstate	07-436	30218
	polyclonal	rabbit	millipore	07-436	DAM1687548
H3K4me2	polyclonal	rabbit	active motif	39142	168
H3K4me3	polyclonal	rabbit	active motif	39160	1609004
	polyclonal	rabbit	millipore	07-473	DAM1623866
	monoclonal	mouse	abcam	ab1012	761207
H3K14ac	polyclonal	rabbit	active motif	39616	11709001
	polyclonal	rabbit	millipore	07-353	DAM1548623
	polyclonal	rabbit	abcam	ab46984	730270
H3S10phos	polyclonal	rabbit	active motif	39253	8308001
H3K9acS10phos	polyclonal	rabbit	cell signaling	9711	ref 10/2008
H3K79me1	polyclonal	rabbit	active motif	39146	172
H3K79me2	monoclonal	rabbit	milipore	04-835	DAM1527889
H3K79me3	polyclonal	rabbit	abcam	ab2621	809870
	polyclonal	rabbit	abcam	ab2621	441039
H4tetraacetyl	polyclonal	rabbit	active motif	39179	1008001

**Supplementary Table 2: List of Peptide Sequences and Identifying Number<sup>1</sup>**

Peptide #	Sequence
	<b>H3 [1-20]</b>
1	ARTKQTARKSTGGKAPRKQL-K(Biot)-NH <sub>2</sub>
2	ARTKQTARKSTGGK(Ac)APRKQL-K(Biot)-NH <sub>2</sub>
3	ARTKQTARK(Ac)STGGKAPRKQL-K(Biot)-NH <sub>2</sub>
4	ARTK(Ac)QTARKSTGGKAPRKQL-K(Biot)-NH <sub>2</sub>
5	ARTK(Ac)QTARKSTGGK(Ac)APRKQL-K(Biot)-NH <sub>2</sub>
6	ARTKQTARK(Ac)STGGK(Ac)APRKQL-K(Biot)-NH <sub>2</sub>
7	ARTK(Ac)QTARK(Ac)STGGKAPRKQL-K(Biot)-NH <sub>2</sub>
8	ARTK(Ac)QTARK(Ac)STGGK(Ac)APRKQL-K(Biot)-NH <sub>2</sub>
10	ARTKQTARKSTGGKAPRK(Ac)QL-K(Biot)-NH <sub>2</sub>
11	ARTKQTARKSTGGK(Ac)APRK(Ac)QL-K(Biot)-NH <sub>2</sub>
12	ARTKQTARK(Ac)STGGKAPRK(Ac)QL-K(Biot)-NH <sub>2</sub>
13	ARTK(Ac)QTARKSTGGKAPRK(Ac)QL-K(Biot)-NH <sub>2</sub>
14	ARTKQTARK(Ac)STGGK(Ac)APRK(Ac)QL-K(Biot)-NH <sub>2</sub>
15	ARTK(Ac)QTARKSTGGK(Ac)APRK(Ac)QL-K(Biot)-NH <sub>2</sub>
16	ARTK(Ac)QTARK(Ac)STGGKAPRK(Ac)QL-K(Biot)-NH <sub>2</sub>
17	ARTK(Ac)QTARK(Ac)STGGK(Ac)APRK(Ac)QL-K(Biot)-NH <sub>2</sub>
18	ARTK(Me <sub>3</sub> )QTARKSTGGKAPRKQL-K(Biot)-NH <sub>2</sub>
19	ARTK(Me <sub>3</sub> )QTARK(Ac)STGGKAPRKQL-K(Biot)-NH <sub>2</sub>
20	ARTK(Me <sub>3</sub> )QTARKSTGGK(Ac)APRKQL-K(Biot)-NH <sub>2</sub>
21	ARTK(Me <sub>3</sub> )QTARKSTGGKAPRK(Ac)QL-K(Biot)-NH <sub>2</sub>
22	ARTK(Me <sub>3</sub> )QTARK(Ac)STGGK(Ac)APRKQL-K(Biot)-NH <sub>2</sub>
23	ARTK(Me <sub>3</sub> )QTARK(Ac)STGGKAPRK(Ac)QL-K(Biot)-NH <sub>2</sub>
24	ARTK(Me <sub>3</sub> )QTARKSTGGK(Ac)APRK(Ac)QL-K(Biot)-NH <sub>2</sub>
25	ARTK(Me <sub>3</sub> )QTARK(Ac)STGGK(Ac)APRK(Ac)QL-K(Biot)-NH <sub>2</sub>
26	ARpTK(Me <sub>3</sub> )QTARK(Ac)STGGK(Ac)APRK(Ac)QL-K(Biot)-NH <sub>2</sub>
27	ARpTK(Me <sub>3</sub> )QTARKSTGGKAPRKQL-K(Biot)-NH <sub>2</sub>
28	AR(Me <sub>2</sub> a)pTK(Me <sub>3</sub> )QTARK(Ac)STGGK(Ac)APRK(Ac)QL-K(Biot)-NH <sub>2</sub>
29	AR(Me <sub>2</sub> a)pTK(Me <sub>3</sub> )QTARKSTGGKAPRKQL-K(Biot)-NH <sub>2</sub>
30	AR(Me <sub>2</sub> a)TK(Me <sub>3</sub> )QTARKSTGGKAPRKQL-K(Biot)-NH <sub>2</sub>
31	5-Fam-ARTKQTARKSTGGKAPRKQL-K(Biot)-NH <sub>2</sub>
32	ARTK(Me <sub>2</sub> )QTARKSTGGKAPRKQL-K(Biot)-NH <sub>2</sub>
33	ARTK(Me <sub>2</sub> )QTARK(Ac)STGGK(Ac)APRK(Ac)QL-K(Biot)-NH <sub>2</sub>
34	ARTK(Me)QTARKSTGGKAPRKQL-K(Biot)-NH <sub>2</sub>
35	ARTK(Me)QTARK(Ac)STGGK(Ac)APRK(Ac)QL-K(Biot)-NH <sub>2</sub>
36	ARTKQTARKpSTGGKAPRKQL-K(Biot)-NH <sub>2</sub>
37	ARTK(Ac)QTARK(Ac)pSTGGK(Ac)APRK(Ac)QL-K(Biot)-NH <sub>2</sub>
38	ARTK(Me <sub>3</sub> )QTARKpSTGGKAPRKQL-K(Biot)-NH <sub>2</sub>
39	ARTK(Me <sub>3</sub> )QTARK(Ac)pSTGGK(Ac)APRK(Ac)QL-K(Biot)-NH <sub>2</sub>
40	AR(Me <sub>2</sub> a)TK(Me <sub>3</sub> )QTARKpSTGGKAPRKQL-K(Biot)-NH <sub>2</sub>
41	AR(Me <sub>2</sub> a)TK(Me <sub>3</sub> )QTARK(Ac)pSTGGK(Ac)APRK(Ac)QL-K(Biot)-NH <sub>2</sub>
42	ARTKQTARK(Me <sub>3</sub> )STGGKAPRKQL-K(Biot)-NH <sub>2</sub>
43	ARTK(Ac)QTARK(Me <sub>3</sub> )STGGK(Ac)APRK(Ac)QL-K(Biot)-NH <sub>2</sub>
44	ARTK(Me <sub>2</sub> )QTARK(Ac)STGGKAPRK(Ac)QL-K(Biot)-NH <sub>2</sub>

45	ARTK(Me)QTARK(Ac)STGGKAPRK(Ac)QL-K(Biot)-NH <sub>2</sub>
47	AR(Me <sub>2</sub> a)TKQTARKSSTGGKAPRKQL-K(Biot)-NH <sub>2</sub>
48	AR(Me <sub>2</sub> a)TK(Ac)QTARK(Ac)STGGK(Ac)APRK(Ac)QL-K(Biot)-NH <sub>2</sub>
50	AR(Me <sub>2</sub> a)TK(Me <sub>3</sub> )QTARK(Ac)STGGK(Ac)APRK(Ac)QL-K(Biot)-NH <sub>2</sub>
51	AR(Me)TK(Me <sub>3</sub> )QTARKSSTGGKAPRKQL-K(Biot)-NH <sub>2</sub>
52	AR(Me)TK(Me <sub>3</sub> )QTARK(Ac)STGGK(Ac)APRK(Ac)QL-K(Biot)-NH <sub>2</sub>
53	ACitTKQTARKSSTGGKAPRKQL-K(Biot)-NH <sub>2</sub>
54	ACitTK(Me <sub>3</sub> )QTARKSSTGGKAPRKQL-K(Biot)-NH <sub>2</sub>
55	ACitTK(Me <sub>3</sub> )QTARK(Ac)STGGK(Ac)APRK(Ac)QL-K(Biot)-NH <sub>2</sub>
56	ACitTK(Ac)QTARK(Ac)STGGK(Ac)APRK(Ac)QL-K(Biot)-NH <sub>2</sub>
	<b>H4 [1-23]</b>
58	Ac-SGRGKGGKGLGKGGAKRHRKVLR-Peg-Biot
59	Ac-SGRGK(Ac)GGK(Ac)GLGK(Ac)GGAK(Ac)RHRKVLR-Peg-Biot
66	Ac-SGRGK(Ac)GGKGLGKGGAKRHRKVLR-Peg-Biot
67	Ac-SGRGKGGK(Ac)GLGKGGAKRHRKVLR-Peg-Biot
68	Ac-SGRGKGGKGLGK(Ac)GGAKRHRKVLR-Peg-Biot
69	Ac-SGRGKGGKGLGKGGAK(Ac)RHRKVLR-Peg-Biot
70	Ac-SGRGK(Ac)GGKGLGK(Ac)GGAKRHRKVLR-Peg-Biot
71	Ac-SGRGKGGK(Ac)GLGKGGAK(Ac)RHRKVLR-Peg-Biot
72	Ac-SGRGK(Ac)GGK(Ac)GLGK(Ac)GGAKRHRKVLR-Peg-Biot
	<b>H3 [15-41]</b>
90	Ac-APRK <sup>18</sup> QLATK <sup>23</sup> AARK <sup>27</sup> SAPSTGGVK <sup>36</sup> K <sup>37</sup> PHRY-GG-K(Biot)-NH <sub>2</sub>
91	Ac-APRK(Me <sub>3</sub> )QLATKAARKSAPSTGGVKKPHRY-GG-K(Biot)-NH <sub>2</sub>
93	Ac-APRKQLATKAARKSAPSTGGVK(Me <sub>3</sub> )KPHRY-GG-K(Biot)-NH <sub>2</sub>
95	Ac-APRK(Me <sub>3</sub> )QLATKAARKSAPSTGGVK(Me <sub>3</sub> )KPHRY-GG-K(Biot)-NH <sub>2</sub>
	<b>H3 [74-84]</b>
100	Ac-IAQDFK <sup>79</sup> TDLRF-Peg-K(Biot)-NH <sub>2</sub>
101	Ac-IAQDFK(Me <sub>3</sub> )TDLRF-Peg-K(Biot)-NH <sub>2</sub>
102	Ac-IAQDFK(Me <sub>2</sub> )TDLRF-Peg-K(Biot)-NH <sub>2</sub>
103	Ac-IAQDFK(Me)TDLRF-Peg-K(Biot)-NH <sub>2</sub>
104	IAQDFKTDLRF-Peg-K(Biot)-NH <sub>2</sub>
	<b>H3 [27-45]</b>
120	KSAPSTGGVK(Me <sub>3</sub> )KPHRYKPGT-G-K(Biot)-NH <sub>2</sub>
121	KSAPSTGGVK(Me <sub>2</sub> )KPHRYKPGT-G-K(Biot)-NH <sub>2</sub>
122	KSAPSTGGVK(Me)KPHRYKPGT-G-K(Biot)-NH <sub>2</sub>
123	KSAPSTGGVK(Ac)KPHRYKPGT-GG-K(Biot)-NH <sub>2</sub>
124	KSAPSTGGVK <sup>36</sup> K <sup>37</sup> PHRYKPGT-GG-K(Biot)-NH <sub>2</sub>
	<b>H3 [1-20]</b>
132	ARTK(Me <sub>3</sub> )QTARK(Me <sub>3</sub> )STGGKAPRKQL-K(Biot)-NH <sub>2</sub>
133	ARTKQTARK(Me <sub>2</sub> )STGGKAPRKQL-K(Biot)-NH <sub>2</sub>
134	ARTKQTARK(Me)STGGKAPRKQL-K(Biot)-NH <sub>2</sub>
137	ARTKQTARKSSTGGKAPRK(Me <sub>3</sub> )QL-K(Biot)-NH <sub>2</sub>
138	ARTKQTARKSSTGGKAPRK(Me <sub>2</sub> )QL-K(Biot)-NH <sub>2</sub>
139	ARTKQTARKSSTGGKAPRK(Me)QL-K(Biot)-NH <sub>2</sub>
144	ARTKQTARK(Ac)phSTGGKAPRKQL-K(Biot)-NH <sub>2</sub>
145	ARTKQTARK(Me <sub>3</sub> )phSTGGKAPRKQL-K(Biot)-NH <sub>2</sub>
146	ARTKQTARK(Me <sub>2</sub> )phSTGGKAPRKQL-K(Biot)-NH <sub>2</sub>
147	ARTKQTARK(Me)phSTGGKAPRKQL-K(Biot)-NH <sub>2</sub>



148	ARTK(Me <sub>3</sub> )QTARK(Ac)phSTGGKAPRKQL-K(Biot)-NH <sub>2</sub>
157	AR(Me <sub>2</sub> s)TK(Me <sub>3</sub> )QTARKSSTGGKAPRKQL-K(Biot)-NH <sub>2</sub>
162	ARTKQpTARKSSTGGKAPRKQL-K(Biot)-NH <sub>2</sub>
163	ARTK(Me <sub>3</sub> )QpTARKSSTGGKAPRKQL-K(Biot)-NH <sub>2</sub>
164	ARTK(Me <sub>2</sub> )QpTARKSSTGGKAPRKQL-K(Biot)-NH <sub>2</sub>
165	ARTKQpTARK(Ac)STGGK(Ac)APRK(Ac)QL-K(Biot)-NH <sub>2</sub>
166	ARTK(Me <sub>3</sub> )QpTARK(Ac)STGGK(Ac)APRK(Ac)QL-K(Biot)-NH <sub>2</sub>
167	ARTK(Me <sub>2</sub> )QpTARK(Ac)STGGK(Ac)APRK(Ac)QL-K(Biot)-NH <sub>2</sub>
	<b>H2A[1-17]</b>
300	Ac-SGRGK <sup>5</sup> QGGK <sup>9</sup> ARAK <sup>13</sup> AK <sup>15</sup> TR-Peg-Biot
301	Ac-SGRGK(Ac)QGGK(Ac)ARAK(Ac)AK(Ac)TR-Peg-Biot
302	Ac-SGRGK(Ac)QGGKARAKAKTR-Peg-Biot
303	Ac-pSGRGK(Ac)QGGKARAKAKTR-Peg-Biot
304	Ac-SGR(Me <sub>2</sub> a)GK(Ac)QGGKARAKAKTR-Peg-Biot
305	Ac-pSGR(Me <sub>2</sub> a)GK(Ac)QGGKARAKAKTR-Peg-Biot
306	Ac-SGCitGK(Ac)QGGKARAKAKTR-Peg-Biot
307	Ac-pSGCitGK(Ac)QGGKARAKAKTR-Peg-Biot
308	Ac-pSGRGK(Ac)QGGK(Ac)ARAK(Ac)AK(Ac)TR-Peg-Biot
309	SGRGK(Ac)QGGK(Ac)ARAK(Ac)AK(Ac)TR-Peg-Biot
310	pSGRGK(Ac)QGGK(Ac)ARAK(Ac)AK(Ac)TR-Peg-Biot
	<b>H2B[1-24]</b>
400	PEPAKSAPAPKKGSKKAVTKAQKK-Peg-Biot
401	PEPAK(Me <sub>3</sub> )SAPAPKKGSKKAVTKAQKK-Peg-Biot
402	PEPAK(Me <sub>2</sub> )SAPAPKKGSKKAVTKAQKK-Peg-Biot
403	PEPAK(Me)SAPAPKKGSKKAVTKAQKK-Peg-Biot

<sup>1</sup> Identifier numbers correspond to internal tracking numbers. Omitted numbers code for peptides not used in this study.

**Supplementary Table 3: Map of Peptide Location on Arrays – Listed by Identifying Number<sup>1</sup>**

subarray 1 and 3							
IgG (A1-A6)	1 (A7-A12)	IgG (A13-A18)	2 (A19-A24)	IgG (A25-A30)	3 (A31-A36)	IgG (A37-A42)	4 (A43-A48)
F (B1-B6)	5 (B7-B12)	100 (B13-B18)	6 (B19-B24)	120 (B25-B30)	7 (B31-A36)	58 (B37-B42)	8 (B43-B48)
90 (C1-C6)	10 (C7-C12)	F (C13-C18)	11 (C19-C24)	121 (C25-C30)	12 (C31-C36)	59 (C37-C42)	13 (C43-C48)
91 (D1-D6)	14 (D7-D12)	101 (D13-D18)	15 (D19-D24)	F (D25-D30)	16 (D31-D36)	66 (D37-D42)	17 (D43-D48)
93 (E1-E6)	18 (E7-E12)	102 (E13-E18)	19 (E19-E24)	122 (E25-E30)	20 (E31-E36)	F (E37-E42)	21 (E43-E48)
95 (F1-F6)	22 (F7-F12)	103 (F13-F18)	23 (F19-F24)	123 (F25-F30)	24 (F31-F36)	67 (F37-F42)	25 (F43-F48)
69 (G1-G6)	26 (G7-G12)	104 (G13-G18)	27 (G19-G24)	123 (G25-G30)	28 (G31-G36)	68 (G37-G42)	29 (G43-G48)
162 (H1-H6)	145 (H7-H12)	144 (H13-H18)	137 (H19-H24)	147 (H25-H30)	138 (H31-H36)	148 (H37-H42)	139 (H43-H48)
blank (I1-I6)	blank (I7-I12)	blank (I13-I18)	blank (I19-I24)	blank (I25-I30)	blank (I31-I36)	blank (I37-I42)	blank (I43-I48)
blank (J1-J6)	blank (J7-J12)	blank (J13-J18)	blank (J19-J24)	blank (J25-J30)	blank (J31-J36)	blank (J37-J42)	blank (J43-J48)
blank (K1-K6)	blank (K7-K12)	blank (K13-K18)	blank (K19-K24)	blank (K25-K30)	blank (K31-K36)	blank (K37-K42)	blank (K43-K48)
blank (L1-L6)	blank (L7-L12)	blank (L13-L18)	blank (L19-L24)	blank (L25-L30)	blank (L31-L36)	blank (L37-L42)	blank (L43-L48)
IgG (M1-M6)	30 (M7-M12)	IgG (M13-M18)	32 (M19-M24)	IgG (M25-M30)	33 (M31-M36)	IgG (M37-M42)	34 (M43-M48)
70 (N1-N6)	35 (N7-N12)	301 (N13-N18)	36 (N19-N24)	305 (N25-N30)	37 (N31-N36)	F (N37-N42)	38 (N43-N48)
71 (O1-O6)	39 (O7-O12)	302 (O13-O18)	40 (O19-O24)	F (O25-O30)	41 (O31-O36)	309 (O37-O42)	42 (O43-O48)
72 (P1-P6)	43 (P7-P12)	F (P13-P18)	44 (P19-P24)	306 (P25-P30)	45 (P31-P36)	310 (P37-P42)	157 (P43-P48)
F (Q1-Q6)	47 (Q7-Q12)	303 (Q13-Q18)	48 (Q19-Q24)	307 (Q25-Q30)	50 (Q31-Q36)	400 (Q37-Q42)	51 (Q43-Q48)
300 (R1-R6)	52 (R7-R12)	304 (R13-R18)	53 (R19-R24)	308 (R25-R30)	54 (R31-R36)	401 (R37-R42)	55 (R43-R48)
402 (S1-S6)	IgG (S7-S12)	403 (S13-S18)	167 (S19-S24)	56 (S25-S30)	IgG (S31-S36)	F (S37-S42)	IgG (S43-S48)
163 (T1-T6)	146 (T7-T12)	164 (T13-T18)	132 (T19-T24)	165 (T25-T30)	133 (T31-T36)	166 (T37-T42)	134 (T43-T48)
blank (U1-U6)	blank (U7-U12)	blank (U13-U18)	blank (U19-U24)	blank (U25-U30)	blank (U31-U36)	blank (U37-U42)	blank (U43-U48)
blank (V1-V6)	blank (V7-V12)	blank (V13-V18)	blank (V19-V24)	blank (V25-V30)	blank (V31-V36)	blank (V37-V42)	blank (V43-V48)
blank (W1-W6)	blank (W7-W12)	blank (W13-W18)	blank (W19-W24)	blank (W25-W30)	blank (W31-W36)	blank (W37-W42)	blank (W43-W48)
blank (X1-X6)	blank (X7-X12)	blank (X13-X18)	blank (X19-X24)	blank (X25-X30)	blank (X31-X36)	blank (X37-X42)	blank (X43-X48)
subarray 2 and 4							
134 (A1-A6)	166 (A7-A12)	133 (A13-A18)	165 (A19-A24)	132 (A25-A30)	164 (A31-A36)	146 (A37-A42)	163 (A43-A48)
IgG (B1-B6)	F (B7-B12)	IgG (B13-B18)	56 (B19-B24)	167 (B25-B30)	403 (B31-A36)	IgG (B37-B42)	402 (B43-B48)
55 (C1-C6)	401 (C7-C12)	54 (C13-C18)	308 (C19-C24)	53 (C25-C30)	304 (C31-C36)	52 (C37-C42)	300 (C43-C48)
51 (D1-D6)	400 (D7-D12)	50 (D13-D18)	307 (D19-D24)	48 (D25-D30)	303 (D31-D36)	47 (D37-D42)	F (D43-D48)
157 (E1-E6)	310 (E7-E12)	45 (E13-E18)	306 (E19-E24)	44 (E25-E30)	F (E31-E36)	43 (E37-E42)	72 (E43-E48)
42 (F1-F6)	309 (F7-F12)	41 (F13-F18)	F (F19-F24)	40 (F25-F30)	302 (F31-F36)	39 (F37-F42)	71 (F43-F48)
38 (G1-G6)	F (G7-G12)	37 (G13-G18)	305 (G19-G24)	36 (G25-G30)	301 (G31-G36)	35 (G37-G42)	70 (G43-G48)
34 (H1-H6)	IgG (H7-H12)	33 (H13-H18)	IgG (H19-H24)	32 (H25-H30)	IgG (H31-H36)	30 (H37-H42)	IgG (H43-H48)
blank (I1-I6)	blank (I7-I12)	blank (I13-I18)	blank (I19-I24)	blank (I25-I30)	blank (I31-I36)	blank (I37-I42)	blank (I43-I48)
blank (J1-J6)	blank (J7-J12)	blank (J13-J18)	blank (J19-J24)	blank (J25-J30)	blank (J31-J36)	blank (J37-J42)	blank (J43-J48)
blank (K1-K6)	blank (K7-K12)	blank (K13-K18)	blank (K19-K24)	blank (K25-K30)	blank (K31-K36)	blank (K37-K42)	blank (K43-K48)
blank (L1-L6)	blank (L7-L12)	blank (L13-L18)	blank (L19-L24)	blank (L25-L30)	blank (L31-L36)	blank (L37-L42)	blank (L43-L48)
139 (M1-M6)	148 (M7-M12)	138 (M13-M18)	147 (M19-M24)	137 (M25-M30)	144 (M31-M36)	145 (M37-M42)	162 (M43-M48)
29 (N1-N6)	68 (N7-N12)	28 (N13-N18)	124 (N19-N24)	27 (N25-N30)	104 (N31-N36)	26 (N37-N42)	69 (N43-N48)
25 (O1-O6)	67 (O7-O12)	24 (O13-O18)	123 (O19-O24)	23 (O25-O30)	103 (O31-O36)	22 (O37-O42)	95 (O43-O48)
21 (P1-P6)	F (P7-P12)	20 (P13-P18)	122 (P19-P24)	19 (P25-P30)	102 (P31-P36)	18 (P37-P42)	93 (P43-P48)
17 (Q1-Q6)	66 (Q7-Q12)	16 (Q13-Q18)	F (Q19-Q24)	15 (Q25-Q30)	101 (Q31-Q36)	14 (Q37-Q42)	91 (Q43-Q48)
13	59	12	121	11	F	10	90

(R1-R6)	(R7-R12)	(R13-R18)	(R19-R24)	(R25-R30)	(R31-R36)	(R37-R42)	(R43-R48)
8 (S1-S6)	58 (S7-S12)	7 (S13-S18)	120 (S19-S24)	6 (S25-S30)	100 (S31-S36)	5 (S37-S42)	F (S43-S48)
4 (T1-T6)	IgG (T7-T12)	3 (T13-T18)	IgG (T19-T24)	2 (T25-T30)	IgG (T31-T36)	1 (T37-T42)	IgG (T43-T48)
blank (U1-U6)	blank (U7-U12)	blank (U13-U18)	blank (U19-U24)	blank (U25-U30)	blank (U31-U36)	blank (U37-U42)	blank (U43-U48)
blank (V1-V6)	blank (V7-V12)	blank (V13-V18)	blank (V19-V24)	blank (V25-V30)	blank (V31-V36)	blank (V37-V42)	blank (V43-V48)
blank (W1-W6)	blank (W7-W12)	blank (W13-W18)	blank (W19-W24)	blank (W25-W30)	blank (W31-W36)	blank (W37-W42)	blank (W43-W48)
blank (X1-X6)	blank (X7-X12)	blank (X13-X18)	blank (X19-X24)	blank (X25-X30)	blank (X31-X36)	blank (X37-X42)	blank (X43-X48)

<sup>1</sup> Each peptide was printed as a series of 6 sequential spots on each of four subarrays. The layout of subarrays 1 and 3, and 2 and 4 are identical. Parentheses denote the location within a subarray where a given peptide was printed.

**Supplementary Table 4: Reaction Conditions for All Antibodies Tested**

<b>Barcode</b>	<b>Antibody</b>	<b>Dilution</b>
343501	H3K79me3 abcam new lot	1:1000
343502	H3K4me1 upstate	1:1000
343503	H4 tetraacetyl	1:2000
343504	H3K79me2	1:1000
343505	H3K79me1	1:1000
343506	H3K4me2	1:5000
343507	H3K14Ac millipore	1:5000
343508	H3S10phos	1:5000
343509	H3K79me3 old lot	1:3000
343510	H3K79me2	1:1000
343511	H3K4me3 active motif	1:1000
343512	H3K14Ac abcam	1:1000
343513	H3K14Ac active motif	1:1000
343514	H3K14Ac active motif	1:1000
343515	H3K14Ac millipore	1:5000
343516	H3K4me3 active motif	1:1000
343517	H3K4me3 millipore	1:10000
343518	H3K4me3 abcam	2.5µg/mL
343520	H3K4me2	1:5000
343521	H3K14Ac abcam	1:1000
343522	H3K79me1	1:1000
343523	H3k79me3 new	1:3000
343524	H3K4me3 Millipore	1:10000
343525	H3K9acS10phos	1:1000
343544	H4 tetraacetyl	1:2000
343545	H3K79me3	1:1000
343546	H3K4me1 upstate	1:1000
343547	H3K4me3 abcam	2.5µg/mL
343548	H3S10phos	1:5000
343549	H3K4me1 millipore	1:1000
343550	H3K9acS10phos	1:1000
343602	H3K79me3 old lot	1:3000
343604	H3K4me1 millipore	1:1000
343606	H3S10phos	1:5000
343614	H3k79me3 abcam new lot	1:3000