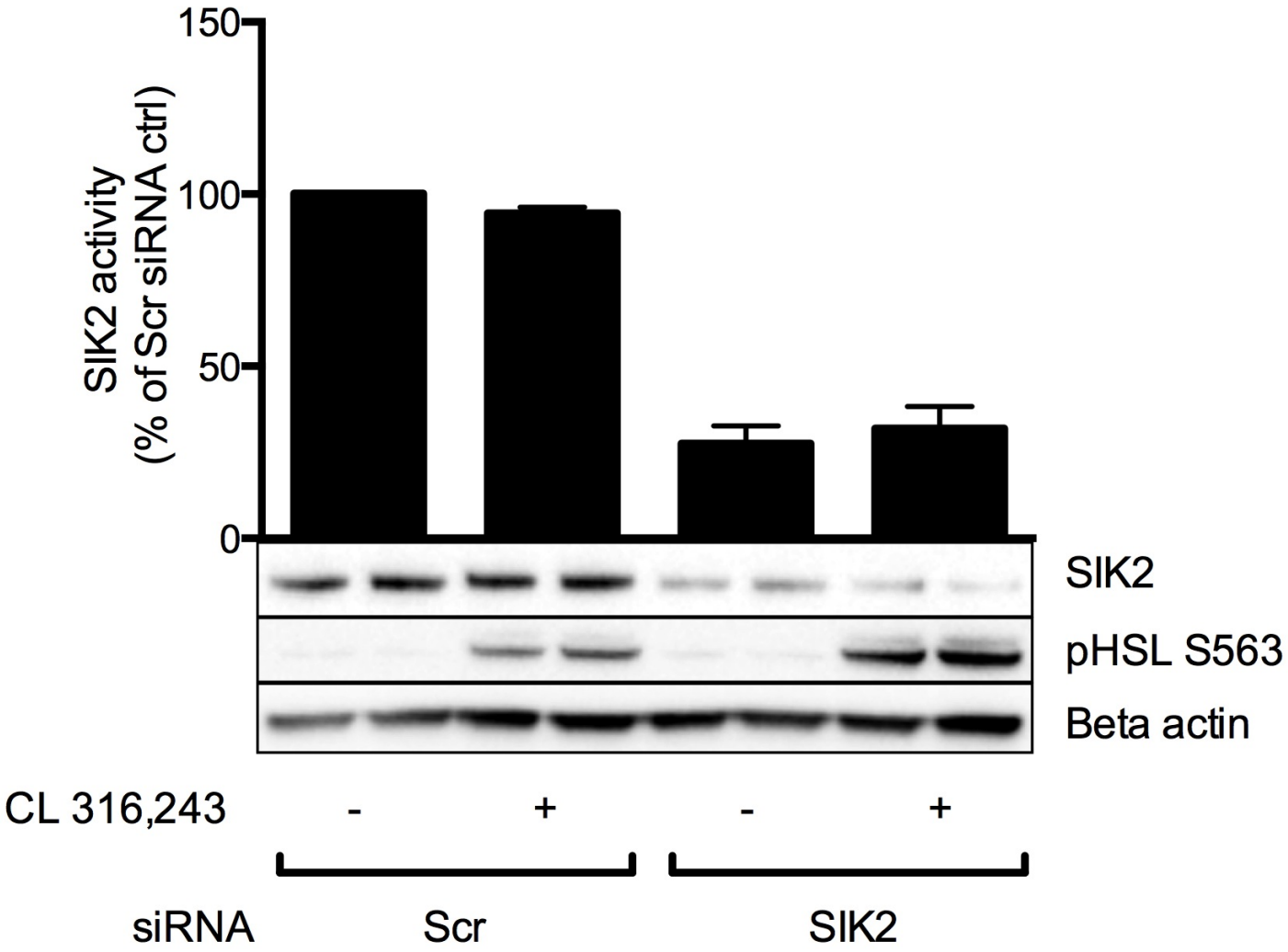
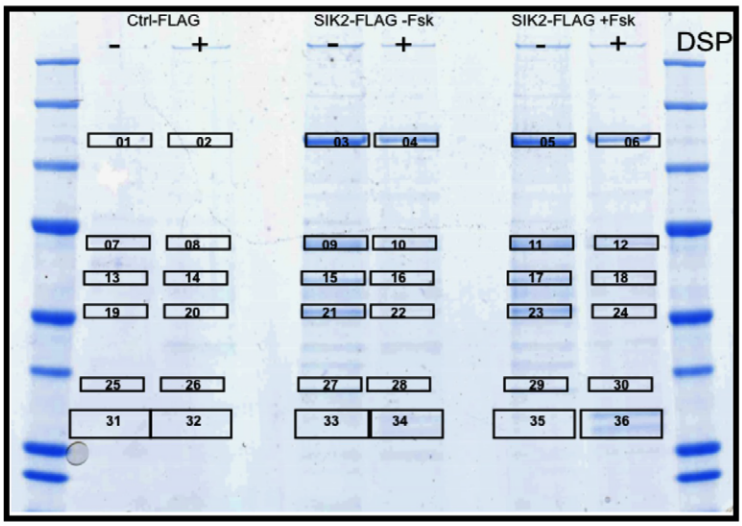
Supplementary figure 1



Supplementary figure 2

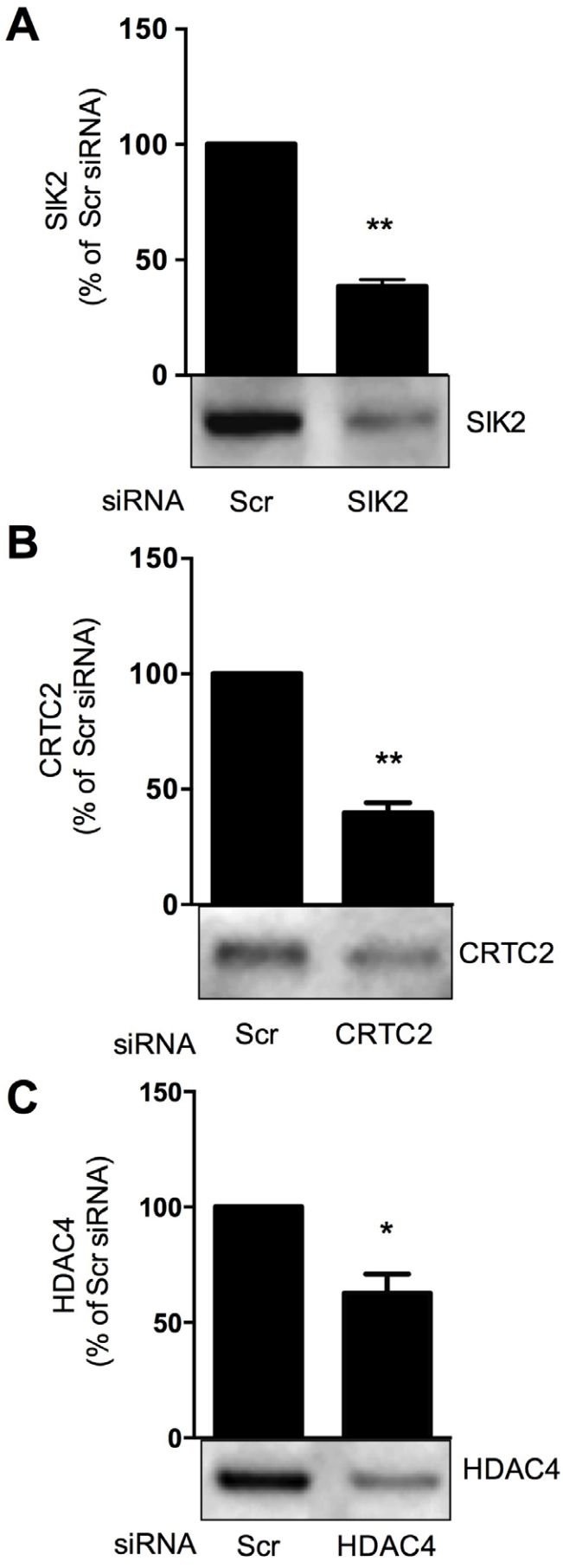
A



B

Number of peptides identified	Sequence Coverage %	Band # and Protein identified	Protein Description
		15	
12	23	sp|P30153|2AAA_HUMAN	PP2A 85KDa regA alpha
8	21	sp|O75688|PPM1B_HUMAN	PP1B
2	5	sp|P63151|2ABA_HUMAN	PP2A 55KDa regB alpha
		16	
4	6	sp|P30153|2AAA_HUMAN	PP2A 85KDa regA alpha
2	5	sp|O75688|PPM1B_HUMAN	PP1B
		17	
8 (2) *	24	sp|O75688|PPM1B_HUMAN	PP1B
2 (2) *	5	sp|P35813|PPM1A_HUMAN	PP1A
10	18	sp|P30153|2AAA_HUMAN	PP2A 85KDa regA alpha
2	5	sp|P63151|2ABA_HUMAN	PP2A 55KDa regB alpha
		18	
7	19	sp|O75688|PPM1B_HUMAN	PP1B
7	13	sp|P30153|2AAA_HUMAN	PP2A 85KDa regA alpha
		21	
5 (2) *	12	sp|P63151|2ABA_HUMAN	PP2A 55KDa regB alpha
4 (2) *	10	sp|Q66LE6|2ABD_HUMAN	PP2A 55KDa regB delta
		22	
2	5	sp|P63151|2ABA_HUMAN	PP2A 55KDa regB alpha
		23	
5 (1) *	13	sp|P63151|2ABA_HUMAN	PP2A 55KDa regB alpha
2 (2) *	6	sp|Q66LE6|2ABD_HUMAN	PP2A 55KDa regB delta
		24	
3	6	sp|P63151|2ABA_HUMAN	PP2A 55KDa regB alpha
		27	
6	22	sp|P67775|PP2AA_HUMAN	PP2A catalytic alpha
		28	
		29	
4 *	17	sp|P62714|PP2AB_HUMAN	PP2A catalytic beta
4 *	17	sp|P67775|PP2AA_HUMAN	PP2A catalytic alpha
		30	
4 *	17	sp|P62714|PP2AB_HUMAN	PP2A catalytic beta
4 *	17	sp|P67775|PP2AA_HUMAN	PP2A catalytic alpha

Supplementary figure 3



Legends to Supplementary figures.

Supplementary figure 1.
The activity of immunoprecipitated SIK2 was monitored by *in vitro* kinase activity measurement towards the peptide substrate HDAC5tide 72 h after electroporation of 3T3L1 adipocytes with siRNA, followed by stimulation with CL 316,243 (100 nM, 1 h). The phosphorylation of HSL on Ser563 was used as a positive control for the stimulation. Activity data are presented as the mean of 2 individual experiments ± s.e.m.

Supplementary figure 2. Identification of PP2A as an SIK2-interacting protein in FLAG-SIK2-expressing HEK293 cells. A. FLAG-SIK2 expressed in HEK293 that were stimulated with or without forskolin (FSK, 100 μM, 15 min) was purified with or without the crosslinker dithiobis succinimidyl propionate (DSP), and then subjected to electrophoresis and visualisation of co-immunoprecipitating proteins by colloidal Coomassie Blue. Sections were excised as shown and analysed by mass spectrometry. Bands 1-6 represent the bait (FLAG-SIK2), bands 7-12 are predominantly Hsp70 (data not shown) and bands 31-36 represent 14-3-3, which has earlier been shown to interact with SIK2 (Henriksson et al., 2012). **B.** Table listing information for peptides from PP2A and PP1A/B. For each excised band (15-18, 21-24, 27-30) the number of peptides identified for each protein and the total sequence coverage (as %) is given. Individual ion scores of identified peptides were all greater than the value required to indicate identity or extensive homology ($p<0.05$). Proteins are only listed where 2 or more peptides confirmed their presence. For adjacent sets of data with values marked by (*), values in parentheses denote the number of peptides that are shared/non-unique and may thus represent either isoform. For bands 13, 14, 19, 20, 25 and 26, from cells transfected with the empty FLAG-vector, no subunits of PP2A or PP1A/B were identified (data not shown).

Supplementary figure 3. Silencing of SIK2, CRTC2 and HDCA4 by siRNA in 3T3L1 adipocytes. The expression of SIK2 **(A)**, CRTC2 **(B)** and HDAC4 **(C)** was reduced by electroporation of siRNA into differentiated 3T3-L1 adipocytes, and protein levels were analysed by western blotting 72 h after electroporation. Bar graphs

represent the mean ± s.e.m. of quantified western blot signals from 3-4 individual experiments, each in which the data was normalized to Scr-treated cells (100%).