

1	tafi250	bind	tbp	experiment
<p>This same region of <b>TAFII250</b> binds to <b>TBP</b> and represses its interaction with TATA boxes, thereby decreasing DNA binding by <b>TFIID</b>.</p> <p><a href="http://www.jbc.org/cgi/content/full/276/27/25582">http://www.jbc.org/cgi/content/full/276/27/25582</a></p>				
2	proteasome	degrade	p53	no experiment
<p>As well as directly blocking <b>p53</b> activity in the nucleus, <b>MDM2</b> induces <b>p53</b> export to the cytoplasm where <b>p53</b> is ubiquitinated and degraded by the <b>proteasome</b> (Haupt et al., 1997 ; Kubbutat et al., 1997 ; Roth et al., 1998 ; Honda and Yasuda, 1999 ).</p> <p><a href="http://emboj.oupjournals.org/cgi/content/full/18/16/4424">http://emboj.oupjournals.org/cgi/content/full/18/16/4424</a></p>				
3	creb	depend on	pka	no experiment
<p>However, the mutant seems also to affect other <b>p38</b>-dependent activities (e.g. <b>p62TCF</b> activation) and the <b>PKA</b>-dependent phosphorylation of <b>CREB</b>.</p> <p><a href="http://emboj.oupjournals.org/cgi/content/full/16/5/1009">http://emboj.oupjournals.org/cgi/content/full/16/5/1009</a></p>				
4	hairy	interact	groucho	no experiment
<p>Thus, it has been suggested that <b>Hairy</b> interacts with both <b>dCtBP</b> and <b>Groucho</b>, thereby raising the possibility that the two proteins are components of a common corepressor complex ( 9).</p> <p><a href="http://www.pnas.org/cgi/content/full/96/2/535">http://www.pnas.org/cgi/content/full/96/2/535</a></p>				
5	p53	interact	cbp	experiment
<p>In summary, we have identified multiple <b>FKLF2</b> interacting domains and a new <b>p53</b> interacting domain of <b>CBP</b>.</p> <p><a href="http://linkinghub.elsevier.com/retrieve/pii/S0006291X02008422">http://linkinghub.elsevier.com/retrieve/pii/S0006291X02008422</a></p>				
6	cbp	interact	creb	experiment
<p>In this regard, our demonstration that <b>CBP</b> interacts with <b>CREB</b> under basal conditions in HepG2 cells and that the extent of this association is correlated with the ALAS promoter activity provides a strong support for our hypothesis.</p> <p><a href="http://www.jbc.org/cgi/content/full/278/4/2317">http://www.jbc.org/cgi/content/full/278/4/2317</a></p>				
7	ctbp	interact	e1a	experiment
<p>Acetylation at Lys239 Does Not Disrupt the Association of <b>E1A</b> with <b>CtBP</b>-- <b>CtBP</b> interacts with <b>E1A</b> and a variety of cellular <b>transcriptional repressors</b> through variations of a motif related to -PXDLS-.</p> <p><a href="http://www.jbc.org/cgi/content/full/277/41/38755">http://www.jbc.org/cgi/content/full/277/41/38755</a></p>				
8	akt	lead to	jnk	experiment
<p>Consequently, although we do not know at present how <b>TNFalpha</b> is produced in the absence of normal <b>NF-kappaB</b> signaling in transgenic keratinocytes, a possible explanation might be that <b>Akt</b> inhibition promoted by <b>K10</b> expression can lead to the activation of <b>JNK</b>.</p> <p><a href="http://www.jbc.org/cgi/content/full/278/15/13422">http://www.jbc.org/cgi/content/full/278/15/13422</a></p>				
9	akt	phosphorylate	gsk-3beta	no experiment
<p>As <b>PTEN</b> inactivates <b>Akt/PKB</b> ( 31), it activates <b>GSK-3beta</b>, which is phosphorylated and inactivated by <b>Akt/PKB</b> ( 7).</p> <p><a href="http://mcb.asm.org/cgi/content/full/23/17/6139">http://mcb.asm.org/cgi/content/full/23/17/6139</a></p>				
10	p53	interact	cbp	experiment
<p>B, wild-type <b>p53</b> interacts with <b>CBP</b>.</p> <p><a href="http://www.jbc.org/cgi/content/full/274/20/13760">http://www.jbc.org/cgi/content/full/274/20/13760</a></p>				
11	hh	regulate	ci	no experiment
<p>Nonetheless, the dependence of embryonic <b>wg</b> expression on <b>Ci activator</b> function and the role of <b>Ptc</b> in restricting the range of <b>Hh action</b> (Chen and Struhl, 1996 ) allow us to attribute an essential in vivo role to the <b>Hh</b>-regulated activator activity of <b>Ci</b>.</p> <p><a href="http://www.cell.com/cgi/content/full/96/6/819">http://www.cell.com/cgi/content/full/96/6/819</a></p>				
12	pka	regulate	creb	no experiment
<p><b>CREB</b> phosphorylation is regulated by <b>PKA</b> and by other protein kinases such as <b>Ca2+/calmodulin-dependent kinase (CaMK)</b> (Matthews et al., 1994 ), and <b>protein kinase C (PKC)</b> (Muthusamy and Leiden, 1998 ; Roberson et al., 1999 ).</p> <p><a href="http://jpet.aspetjournals.org/cgi/content/full/301/1/66">http://jpet.aspetjournals.org/cgi/content/full/301/1/66</a></p>				
13	catenin	bind	tcf	no experiment

Upon activation, **-catenin** binds nuclear **TCF** and may recruit the basal transcriptional complex to the promoter possibly via the **TATA binding protein TBP** [ Hecht et al., 1999] or the **TBP-associating protein TIP49** [ Bauer et al., 1998].

<http://linkinghub.elsevier.com/retrieve/pii/S0012160603003051>

14	ck2	phosphorylate	tbp	no experiment
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The available evidence suggests that **CK2** phosphorylation of **TBP** activates **TFIIIB**, although the step in initiation stimulated by **CK2** is not known.

<http://www.cell.com/cgi/content/full/106/5/575>

15	calmodulin	bind	fusion proteins	experiment
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After washing, **calmodulin** bound to **fusion proteins** was eluted and resolved by **SDS-PAGE**.

<http://www.jbc.org/cgi/content/full/275/51/39846>

16	ftz	interact	ftz-f1	no experiment
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In Drosophilids, loss of the YPWM motif abolished this competition for cofactors, allowing for exclusive interaction of **Ftz** with **Ftz-F1** such that the function of **Dm-Ftz** was devoted entirely to segmentation.

<http://www.current-biology.com/cgi/content/full/11/18/1403>

17	ctbp	bind	e1a	no experiment
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The binding of **CtBP** to **E1A** represses **CR1**-dependent transcriptional activation and tumorigenesis ( 21, 34).

<http://www.jbc.org/cgi/content/full/274/16/11334>

18	abd-a	repress	ubx	experiment
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Interestingly, 69B=>**Abd-A** represses **Ubx** in **ectodermal** tissues ( Table 1) and appears to produce a slight posterior expansion of **Scr** expression in the VMS ( Fig. 5C).

<http://linkinghub.elsevier.com/retrieve/pii/S092547730100301X>

19	pka	phosphorylate	gsk-3beta	no experiment
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Although phosphorylation and inactivation of **GSK-3beta** by **PKA**, **PKB/Akt**, and **PKC** have been demonstrated in several cell lineages ( 32, 33, 57-62), whether this inactivation leads to free **beta-cat** accumulation has not been previously reported.

<http://www.jbc.org/cgi/content/full/278/2/1380>

20	hh	induce	ci	no experiment
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It would be important, therefore, to measure the levels of **Ci** phosphorylation in cells stimulated with different concentrations of **Hh**, and to determine if distinct thresholds of **Hh** induce dephosphorylation of **Ci** to different extents.

<http://www.genesdev.org/cgi/content/full/16/18/2315>

21	creb	depend on	mapk	no experiment
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Concurrent increases in  $Ca^{2+}$  and cAMP thus may be particularly effective in generating a prolonged **phospho-MAPK** signal, in addition to the previously demonstrated cooperative role of these pathways in the **MAPK**-dependent activation of **CREB** (Impey et al., 1998 ).

<http://www.jneurosci.org/cgi/content/full/21/18/7053>

22	pka	regulate	ci	no experiment
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The implication that **PKA** may thereby regulate **Ci** processing is supported by the fact that another of the wing duplication mutations inactivates the catalytic subunit of **PKA** (Jiang and Struhl, 1995 ; Lepage et al., 1995 ; Li et al., 1995 ).

<http://emboj.oupjournals.org/cgi/content/full/17/13/3505>

23	hh	inhibit	ci	no experiment
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The repressor form is generated by proteolytic cleavage of **Ci**, which is inhibited by **Hh** signaling (Aza-Blanc et al. 1997 ).

<http://www.genesdev.org/cgi/content/full/17/2/282>

24	e1a	interact	ctbp	experiment
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We next asked whether **bona fide** acetylation of **E1A** disturbed its direct interaction with **CtBP**.

<http://www.jbc.org/cgi/content/full/277/41/38755>

25	e1a	bind	ctbp	no experiment
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In these experiments, **ectopic** expression of the domain of **E1a** that binds **CtBP** results in altered gene expression

profiles.

<http://mcb.asm.org/cgi/content/full/22/15/5296>

26	pka	mediate	gsk-3	experiment
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In addition to the **PI3K-PKB/Akt** module, we and others have demonstrated that cAMP-dependent **PKA** can directly mediate **GSK-3** phosphorylation and inactivation ( 21, 44).

<http://mcb.asm.org/cgi/content/full/22/7/2099>

27	erk	phosphorylate	ser	no experiment
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Since it is known that the **Tyr**-phosphorylation of **STATs** is required for DNA binding, whereas **Ser**-phosphorylation by **ERK** regulates the transactivating potential [ 25], we also looked for any effect of SMase on **ERK** activity.

<http://linkinghub.elsevier.com/retrieve/pii/S0014579301029775>

28	p300/cbp	interact	e1a	no experiment
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R UPPERT et al. 1993 ), and **p300/CBP** interacts with **CREB**, **E1A**, **PCAF**, **c-jun**, **c-fos**, **c-Myb**, **MyoD**, and **TFIIB** ( O GRYZKO et al. 1996 ;

<http://www.genetics.org/cgi/content/full/148/1/251>

29	akt	phosphorylate	gsk-3beta	no experiment
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However, several molecules have been reported to affect **GSK-3beta kinase** activity ( 34), while only **Akt** is known to phosphorylate **GSK-3beta** on the regulatory **serine** 9 residue.

<http://www.jbc.org/cgi/content/full/274/34/23858>

30	catenin	regulate	cadherin	experiment
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-**catenin**, which mediates the association of **cadherin** with **actin** filaments, is an important regulator of **cadherin** adhesion.

<http://www.neuron.org/cgi/content/full/35/1/91>

31	pka	activate	creb	experiment
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The N-terminal 1098 amino acids of **CBP** were found to contain sufficient information to enhance **PKA**-activated **CREB**-mediated transcription to the same extent seen with full-length **CBP**.

<http://www.jbc.org/cgi/content/full/271/45/28138>

32	ctbp	bind	e1a	experiment
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**CtBP** bound to **E1A** on the plate was determined by incubation with an antibody against **GST** (antibody raised in *goats*, diluted 1:5000; Amersham Pharmacia Biotech) followed by **horseradish peroxidase-linked antibody** against **goat IgG** (1:1000 Santa Cruz).

<http://www.jbc.org/cgi/content/full/273/33/20867>

33	hairly	interact	groucho	no experiment
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**Hairy** interacts with a second ubiquitous **corepressor protein**, **Groucho** ( Paroush et al. 1994).

<http://emboj.oupjournals.org/cgi/content/full/20/9/2246>

34	groucho	bind	hairly	experiment
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**B-C**, **dCtBP** and **Groucho** can bind **Hairy** simultaneously in vitro.

<http://www.jbc.org/cgi/content/full/275/48/37628>

35	e1a	bind	p300/cbp	experiment
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**E1A** binds to **Rb** and **p300/CBP**.

<http://www.jbc.org/cgi/content/full/274/40/28716>

36	cbp	interact	creb	no experiment
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This region of **CBP** is known to directly interact with multiple **transcription factors**, such as **CREB** and **c-Myb** ( 52).

<http://www.jbc.org/cgi/content/full/274/12/8143>

37	pka	induce	creb	no experiment
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Model of **PKA**-induced **CREB** phosphorylation mediated by the **PKC/ERK**-dependent pathway.

<http://www.jbc.org/cgi/content/full/276/15/11487>

38	e1a	bind	ctbp	no experiment
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The **Lys-239** acetylation site is located adjacent to the **sequence Pro-Leu-Asp-Leu-Ser** (PLDLS), which has been

shown to be responsible for the binding of **E1A** to **CtBP** ( 29).

<http://www.pnas.org/cgi/content/full/97/26/14323>

39	akt	phosphorylate	gsk-3	no experiment
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Regulation of **p21Cip1** by **GSK-3**-- In various cell types, **AKT** phosphorylates and inhibits the kinase activity of **GSK-3** ( 11), which regulates the proteasomal degradation of **cyclin D** ( 13).

<http://www.jbc.org/cgi/content/full/277/12/9684>

40	jnk	phosphorylate	p53	experiment
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( C ) Laminar shear stress of 12 dynes/cm<sup>2</sup> increases **p53** phosphorylation by **JNK**.

<http://www.pnas.org/cgi/content/full/97/17/9385>

41	pka	regulate	creb	experiment
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Indeed, **CREB** remained heavily phosphorylated throughout the **attenuation phase** in **A-CREB-expressing cells** (1 to 3 h), underscoring the potential importance of chromatin localization for stimulus-appropriate regulation of **CREB** by **PKA** (Fig. 5C and D).

<http://mcb.asm.org/cgi/content/full/20/5/1596>

42	e1a	inhibit	p53	experiment
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Inhibition of **NQO1** activity induces **Mdm-2**-independent degradation of **p53** that is inhibited by **LT**, **p14ARF**, and **E1A**.

<http://www.pnas.org/cgi/content/full/99/20/13125>

43	erk	lead to	creb	experiment
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Although the **MAPK** pathway has been shown to function in the stimulation of cellular proliferation ( 37), we provide evidence here that persistent **ERK** activation can also lead to suppression of **CREB** activity and inhibition of cell growth.

<http://www.jbc.org/cgi/content/full/278/13/11138>

44	pka	inhibit	erk2	no experiment
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Activated **PKA** then inhibits **ERK2**, possibly acting via the small **GTP-binding protein RAS** (Knetsch et al., 1996 ; Aubry et al., 1997 ).

<http://www.molbiolcell.org/cgi/content/full/9/12/3521>

45	akt	phosphorylate	creb	no experiment
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The relevance of the phosphorylation of **CREB** by **Akt** to apoptosis is also still unclear, although there is evidence that **CREB** regulates the **expression genes** critical for survival such as the gene encoding the cytokine **BDNF** (Shieh et al. 1998 ; Tao et al. 1998 ).

<http://www.genesdev.org/cgi/content/full/13/22/2905>

46	pkc	phosphorylate	gsk-3	no experiment
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Instead of assessing site-specific phosphorylation of **GSK-3**, Goode et al. examined the general phosphorylation of **GSK-3** by **PKC** with [ $\gamma$ -<sup>32</sup>P]ATP.

<http://mcb.asm.org/cgi/content/full/22/7/2099>

47	gsk-3	phosphorylate	creb	no experiment
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**GSK-3** phosphorylation of **CREB** (at **Ser-129**) is reported to have a stimulatory effect on **CREB** activity ( 42), and **CREB** is involved in the cAMP-mediated activation of **PEPCK** expression ( 48).

<http://diabetes.diabetesjournals.org/cgi/content/full/50/5/937>

48	pkc	activate	erk	no experiment
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The former is more likely because **RhoA**, which is activated by **G12/13**, is not considered to be directly linked to **ERK** activation ( 54), whereas **Gq/11**-mediated **PKC** activation can activate **ERK** by several mechanisms ( 55).

<http://www.jbc.org/cgi/content/full/277/28/24949>

49	teashirt	bind	armadillo	experiment
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GALLET, A., A. ERKNER, B. CHARROUX, L. FASANO, and S. KERRIDGE, 1998 Trunk-specific modulation of **Wingless** signaling in *Drosophila* by **Teashirt** binding to **Armadillo**.

<http://www.genetics.org/cgi/content/full/155/4/1725>

50	tafi250	bind	tbp	experiment
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(B) Levels of in vitro-expressed **TAFII250** bound to **GST**, **TBP**, or **Rb**, as detected by Western analysis (monoclonal anti-hTAFII250 antibody) of nonradioactive, duplicate kinase reactions performed concurrently with

those shown in panel A.

<http://mcb.asm.org/cgi/content/full/19/1/846>

51	creb	depend on	pka	experiment
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These data suggest a revised model for cAMP regulation of **CREB** in which the co-ordinate action of both **PKA**-dependent phosphorylation of **CREB** and **Rap1-ERK** stimulation of a downstream target are required for full transcription.

<http://www.jbc.org/cgi/content/full/275/44/34433>

52	pkc	regulate	mapk	no experiment
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Although it is known that the **PKC**-regulated **MAPK** cascade has a basal vegetative function that maintains **cell wall** integrity in the absence of an external stimulus ( 9), it is currently thought that **Ste11** and the downstream kinases in the mating and **IG** pathways perform specialized functions only in response to their respective stimuli.

<http://www.pnas.org/cgi/content/full/96/22/12679>

53	cbp	interact	creb	experiment
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**CBP** Potentiates Basal and **Inducible IL-6 Gene** Expression-- We further analyzed the relative contribution of **CBP** interactions with **AP-1**, **C/EBP**, **CREB**, or **NF-kappaB** in basal or **p65-driven IL-6 gene** expression.

<http://www.jbc.org/cgi/content/full/274/45/32091>

54	cbp	interact	tbp	no experiment
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However, **CBP** interacts stably with **TBP** in coimmunoprecipitation reactions and in vitro binding reactions ( 1, 63, 69).

<http://mcb.asm.org/cgi/content/full/19/3/1617>

55	p53	interact	sp1	no experiment
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It is possible that **p53** interacts with **Sp1** and prevents other transcriptional activators, such as **p300**, impeding their access to the promoter ( 7).

<http://mmb.asm.org/cgi/content/full/66/3/407>

56	akt	inactivate	gsk-3	no experiment
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**GSK-3** is a kinase phosphorylated and inactivated by **Akt/PKB** ( 7) that phosphorylates nuclear **cyclin D1**, enhancing its degradation ( 8).

<http://mcb.asm.org/cgi/content/full/23/17/6139>

57	erk	activate	jnk	experiment
----	-----	----------	-----	------------

B, dominant **negative SEK-1** prevents the activation of **JNK** activity by **ERK**.

<http://www.jbc.org/cgi/content/full/273/41/26722>

58	calmodulin	bind	fusion proteins	experiment
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As a control, we show **calmodulin** also binds specifically to **fusion proteins** that contain **IQ** sites (Fig. 8 C).

<http://www.jcb.org/cgi/content/full/142/3/711>

59	dfd	regulate	pb	experiment
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Regulation of **pb** expression by **Dfd** and **Scr**

<http://linkinghub.elsevier.com/retrieve/pii/S092547730100301X>

60	ck2	phosphorylate	p53	experiment
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( C) **CK2** phosphorylates Thr155 of **p53**.

<http://emboj.oupjournals.org/cgi/content/full/22/6/1302>

61	pkc	activate	erk	experiment
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To determine whether **PKC** activates **Erk** through **Ras** or by directly activating **Raf** and independently of **Ras**, we blocked **Ras** activation by either a dominant **negative mutant Ras (N17-Ras)** or a **farnesyl transferase inhibitor**.

<http://www.jbc.org/cgi/content/full/277/25/22558>

62	cbp	interact	creb	experiment
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In the case of **CREB**, **CBP** interacts with **CREB** via two regions; the **KIX domain** binds to the **PKA-phosphorylated KID domain**, and the **C/H2 domain** of **CBP** interacts with the b-ZIP region of **CREB** in a phosphorylation-independent manner.

<http://www.jbc.org/cgi/content/full/273/44/29098>

63	abd-a	repress	ubx	no experiment
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Since **Abd-A** also represses **Ubx** in the posterior midgut ( Bienz and Tremml, 1988), it is conceivable that **Abd-A** could be this **Tsh**-recruiting partner.

<http://emboj.oupjournals.org/cgi/content/full/20/1/137>

64	<b>jnk</b>	<b>phosphorylate</b>	<b>p53</b>	<b>experiment</b>
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deltaMEKK1 effect on **JNK** phosphorylation of **p53** was comparable to that seen with the kinase purified from UV-irradiated cells (Fig. 2 A).

<http://www.pnas.org/cgi/content/full/95/18/10541>

65	<b>dfd</b>	<b>regulate</b>	<b>pb</b>	<b>no experiment</b>
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It has been shown that **Dfd** and **Ser** positively regulate **pb** and are required for its correct deployment during embryogenesis ( Rusch and Kaufman, 2000).

<http://dev.biologists.org/cgi/content/full/128/14/2803>

66	<b>gsk-3beta</b>	<b>depend on</b>	<b>akt</b>	<b>experiment</b>
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Under physiological conditions, insulin inhibits glycogenolysis by promoting the **Akt**-dependent phosphorylation of **GSK-3beta** at Ser9.

<http://www.sciencemag.org/cgi/content/full/300/5625/1574>

67	<b>dctbp</b>	<b>interact</b>	<b>ttk69</b>	<b>experiment</b>
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We found that deletion of the putative **dCtBP**-interacting region of **Ttk69** ( Wen et al., 2000) has little effect on repression, suggesting that it is dispensable.

<http://linkinghub.elsevier.com/retrieve/pii/S0925477302001831>

68	<b>mapk</b>	<b>phosphorylate</b>	<b>mbp</b>	<b>experiment</b>
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A positive control sample contained 1.0 mug of **MBP** as substrate and is shown in lane 1, demonstrating phosphorylation of **MBP** by the activated **MAPK**.

<http://www.jbc.org/cgi/content/full/275/48/38032>

69	<b>cbp</b>	<b>bind</b>	<b>e1a</b>	<b>no experiment</b>
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Cotransfection of an expression vector for **CBP**, which can also bind **E1A**, did not have any effect on **DBP** transactivation or on the inhibition of transactivation by **E1A** (Fig. 4 B).

<http://www.jbc.org/cgi/content/full/274/25/17643>

70	<b>hth</b>	<b>interact</b>	<b>exd</b>	<b>no experiment</b>
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Rieckhof et al. (1997) showed that **HTH** and **MEIS1** can directly interact with **EXD** in vitro.

<http://linkinghub.elsevier.com/retrieve/pii/S0925477399003160>

71	<b>cbp</b>	<b>interact</b>	<b>p53</b>	<b>no experiment</b>
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**CBP** is known to interact with **p53** to potentiate the transcriptional activation functions of **p53** in inhibiting entry into G1 ( 22, 35).

<http://mcb.asm.org/cgi/content/full/19/4/2515>

72	<b>p53</b>	<b>interact</b>	<b>sp1</b>	<b>experiment</b>
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These data indicate that the physical interactions of **p53** with **Sp1** are possibly mediated by the 610-702 amino acid region that contains the **DNA binding domain** of **Sp1**.

<http://www.jbc.org/cgi/content/full/276/31/29116>

73	<b>creb</b>	<b>depend on</b>	<b>pka</b>	<b>no experiment</b>
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**PKA**-dependent phosphorylation of **CREB** on Ser133 is a critical step involved in the transcriptional gene regulation by the cAMP pathway ( 47).

<http://www.jbc.org/cgi/content/full/275/43/33379>

74	<b>pkc</b>	<b>regulate</b>	<b>mapk</b>	<b>experiment</b>
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Regulation of **MAPK** Activity by **PKCdelta** and **PKC** -- To identify the mechanism whereby the **nPKC** isoforms regulate gene expression during keratinocyte differentiation, we transfected keratinocytes with empty *adenovirus* or *adenovirus* encoding **PKCdelta** or **PKC** .

<http://www.jbc.org/cgi/content/full/277/35/31753>

75	<b>mapk</b>	<b>phosphorylate</b>	<b>mbp</b>	<b>no experiment</b>
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However, although both **MAPK** and **DOA phosphorylate intact MBP**, three peptides phosphorylated by **MAPK** (the sequences from **MBP**, **tyrosine hydroxylase**, and the **epidermal growth factor receptor** phosphorylated by **MAPK**) were not phosphorylated by **DOA**, suggesting that the phosphorylation site of **DOA** is different from that



of **MAPK**.

<http://www.jbc.org/cgi/content/full/271/44/27299>

76	akt	inhibit	gsk-3	no experiment
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Inhibition of **GSK-3** by **Akt** inhibits apoptosis and promotes cell survival ( 22, 26).

<http://www.jbc.org/cgi/content/full/277/23/20927>

77	tfiid	bind	tbp	no experiment
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A logical explanation for these observations is that additional **TFIID** subunits bind to **TBP** in the absence of **TAFII145p**, and that the **histone-like TAFIIs** are more important for **TFIID** structure.

<http://www.jbc.org/cgi/content/full/275/23/17391>

78	proteasome	degrade	p53	no experiment
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It has been shown that **Hdm2**-mediated **p53** degradation occurs through a **proteasome**-dependent pathway in the cytoplasm ( 17, 18).

<http://www.pnas.org/cgi/content/full/96/6/3077>

79	sp1	interact	target dna	experiment
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In sum, these results demonstrate that **SNURF** and **Sp1** may interact concomitantly with the same **target DNA** sequence, although there was no clear cooperative effect by **SNURF** on the DNA binding of **Sp1** under these in vitro conditions.

<http://www.jbc.org/cgi/content/full/276/26/23653>

80	creb	interact	cbp	experiment
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D, presence of two domains in **CREB** that interact with **CBP**.

<http://www.jbc.org/cgi/content/full/273/44/29098>

81	akt	inhibit	gsk-3	no experiment
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There are reciprocal relationships between these pathways, as **Akt** activation inhibits **GSK-3** through **serine** (9) phosphorylation and overexpression of **GSK-3** prevents **CREB** phosphorylation induced by brain-derived **nerve growth factor (BDNF)** (Mai et al., 2002 ).

<http://www.neuron.org/cgi/content/full/38/2/157>

82	pka	phosphorylate	creb	experiment
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The temporal association between kinase activity and **CREB** phosphorylation suggests that **PKA** and **CaMK** phosphorylate **CREB** in the **hippocampus** and the cortex, respectively, during **seizure** activity.

<http://www.jbc.org/cgi/content/full/271/24/14214>

83	akt	inactivate	gsk-3	no experiment
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**GSK-3** is a direct substrate for **PKB/Akt** in vitro ( 42), and there is evidence that **PKB/Akt** phosphorylates and inactivates **GSK-3** in vivo ( 43, 44).

<http://www.jbc.org/cgi/content/full/274/40/28279>

84	hairly	interact	dctbp	no experiment
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**dCtBP** was identified in interaction studies with **Knirps**, **Snail**, and **Hairy** (Nibu et al., 1998b ; Poortinga et al., 1998 ) These **repressor proteins** interact with **dCtBP** through **CtBP** binding motifs located within the **repressor domains** located near their C-terminal ends.

<http://www.molecule.org/cgi/content/full/9/2/213>

85	pkc	regulate	mapk	experiment
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Furthermore, the regulation of the **MAPK** cascade by both **Ras** and **PKC** is intimately linked, converging at the plasma membrane through their association with **c-Raf-1**.

<http://www.jbc.org/cgi/content/full/276/31/29079>

86	e1a	interact	dctbp	experiment
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It appears that interaction of **E1A** with **dCtBP** may expose this activation function since coexpression of **E1A** in NIH 3T3 cells induced weak transcriptional activation.

<http://www.molecule.org/cgi/content/full/9/2/213>

87	mapk	phosphorylate	mbp	experiment
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To visualize the phosphorylation of **MBP** by active **MAPK**, 3x kinase buffer containing 50 *muM* [ $\gamma$ -<sup>32</sup>P]ATP (5,000 cpm/pmol) and 0.25 mg of **MBP** per ml was immediately added.

<http://mcb.asm.org/cgi/content/full/19/4/2763>

88	ci	depend on	hh	experiment
<p>More intriguingly, posterior degradation of <b>Ci</b> depends on <b>Hh</b> signaling, as removal of <b>Smo</b> results in the accumulation of high levels of Ci155.</p> <p><a href="http://www.genesdev.org/cgi/content/full/16/18/2315">http://www.genesdev.org/cgi/content/full/16/18/2315</a></p>				
89	ctbp	bind	e1a	no experiment
<p>Moreover, the <b>CtBP</b>-binding sequence of <b>E1A</b> is a potent repressor of RNA transcription when targeted to a promoter by fusion with a heterologous DNA-binding domain ( 23).</p> <p><a href="http://www.jbc.org/cgi/content/full/273/39/25388">http://www.jbc.org/cgi/content/full/273/39/25388</a></p>				
90	pkc	phosphorylate	gsk-3	experiment
<p>Phosphorylation of <b>GSK-3</b> by <b>PKC</b></p> <p><a href="http://linkinghub.elsevier.com/retrieve/pii/S0014579300012345">http://linkinghub.elsevier.com/retrieve/pii/S0014579300012345</a></p>				
91	cbp	enhance	creb	no experiment
<p>Overexpression of <b>CBP</b> enhances <b>CREB</b>-mediated transcription ( Kwok et al. 1994 ), and microinjection of antibodies that block formation of a <b>CREB-CBP</b> complex inhibits <b>CREB</b>-mediated transcription ( Arias et al. 1994 ).</p> <p><a href="http://www.neuron.org/cgi/content/full/22/4/799">http://www.neuron.org/cgi/content/full/22/4/799</a></p>				
92	calmodulin	bind	fusion proteins	experiment
<p><b>Calmodulin</b> Binding to <b>Fusion Proteins</b>-- Purified <b>fusion proteins MBP-NumAdeltaC218</b> and <b>MBP-NumAdeltaN165</b> were resolved using 10% <b>SDS-PAGE</b>.</p> <p><a href="http://www.jbc.org/cgi/content/full/277/22/19735">http://www.jbc.org/cgi/content/full/277/22/19735</a></p>				
93	tbp	bind	tfiid	no experiment
<p>The <b>TAFII145Np-TBP</b> interaction is sensitive to <b>potassium acetate</b> concentrations above 0.3 M ( 23), and yet the binding of <b>TBP</b> to the intact <b>TFIID</b> complex is resistant to salt concentrations above 1 M <b>potassium acetate</b> ( 6, 7), indicating that <b>TBP</b> makes contacts with additional <b>TAF</b> subunits.</p> <p><a href="http://www.jbc.org/cgi/content/full/275/23/17391">http://www.jbc.org/cgi/content/full/275/23/17391</a></p>				
94	akt	inhibit	gsk-3beta	no experiment
<p>Intriguingly, the effector of <b>PI3K</b> signaling is protein kinase B (or <b>Akt</b>), which is known to inhibit the activity of <b>GSK-3beta</b> (Cross et al., 1995 ; Pap and Cooper, 1998 ).</p> <p><a href="http://www.jneurosci.org/cgi/content/full/23/22/8125">http://www.jneurosci.org/cgi/content/full/23/22/8125</a></p>				
95	tsh	stimulate	pkc	no experiment
<p><b>TSH</b> stimulates not only cAMP accumulation but also <b>PKA</b>-dependent increases in phosphodiesterase activity, thereby ensuring that cAMP elevation is transient ( 39).</p> <p><a href="http://mcb.asm.org/cgi/content/full/21/6/1921">http://mcb.asm.org/cgi/content/full/21/6/1921</a></p>				
96	pkc	regulate	creb	experiment
<p>[In new window] <b>PKA</b> regulates the activity of another widely studied inducible <b>transcription factor</b>, <b>CREB</b>.</p> <p><a href="http://www.molecule.org/cgi/content/full/1/5/661">http://www.molecule.org/cgi/content/full/1/5/661</a></p>				
97	cbp	activate	creb	no experiment
<p>Comparison of the amino acid sequence found within amino acids 227-460 of <b>CBP</b> to the same region of the <b>CBP</b> related <b>protein p300</b>, which like <b>CBP</b> activates <b>CREB</b>-mediated transcription, shows that these proteins share 68% identity in this domain ( 16, 35), and thus this same region of <b>p300</b> is also likely to participate in activation of <b>CREB</b>-mediated transcription.</p> <p><a href="http://www.jbc.org/cgi/content/full/271/45/28138">http://www.jbc.org/cgi/content/full/271/45/28138</a></p>				
98	pkc	phosphorylate	gsk-3	experiment
<p>To further examine our hypothesis that <b>Wnt</b> pathway mediates the activation of <b>proglucagon gene</b> transcription by <b>PKA</b>, we examined <b>GSK-3</b> phosphorylation and inactivation by <b>PKA</b> in the intestinal endocrine cell lines.</p> <p><a href="http://www.jbc.org/cgi/content/full/278/2/1380">http://www.jbc.org/cgi/content/full/278/2/1380</a></p>				
99	ldb proteins	bind	lim domains	experiment
<p><b>LDB proteins</b> bind <b>LIM domains</b> of <b>LIM-HD</b> (and nuclear <b>LIM-only</b>) <b>proteins</b>.</p> <p><a href="http://emboj.oupjournals.org/cgi/content/full/19/11/2602">http://emboj.oupjournals.org/cgi/content/full/19/11/2602</a></p>				
100	hairy	interact	groucho	no experiment



**Hairy** and **Runt proteins** interact with **Groucho** through their C-terminal WRPW or WRPY motifs ( 1, 12), whereas Dorsal binds **Groucho** through its **Rel homology domain** ( 52) and **Tef** interacts with **Groucho** through an **HMG domain** that also mediates its interaction with **CBP** ( 46).

<http://mcb.asm.org/cgi/content/full/21/17/5935>

101	mae	inhibit	yan	experiment
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However, because **MAE** inhibits **YAN**-mediated transcriptional repression, we expect that, in the absence of signaling, not all **YAN** will be bound to **MAE**.

<http://dev.biologists.org/cgi/content/full/130/5/845>

102	ctbp	interact	e1a	no experiment
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**CtBP** interacts with the **E1A**-related sequence PXDLS (Poortinga et al., 1998 ), whereas **Groucho** binds to the C-terminal WRPW sequence.

<http://emboj.oupjournals.org/cgi/content/full/18/12/3392>

103	creb	interact	cbp	no experiment
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Shaywitz et al. ( 15) demonstrated that the magnitude of transcription activated by **CREB** is dependent on the strength of the interaction of **CREB** with **CBP**.

<http://www.jbc.org/cgi/content/full/276/44/40721>

104	pka	lead to	creb	experiment
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In conclusion, we have found that intracellular Ca<sup>2+</sup> release induced by **PKA** leads to **CREB** phosphorylation via a **PKC**- and **ERK**-dependent mechanism, most likely involving **Rap1** activation.

<http://www.jbc.org/cgi/content/full/276/15/11487>

105	hairy	interact	groucho	experiment
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The relative values of **beta-galactosidase** activity for each interaction of **Hairy** with **dCtBP** or **Groucho** (as a control) are listed on the right.

<http://emboj.oupjournals.org/cgi/content/full/17/7/2067>

106	p53	interact	cbp	no experiment
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Moreover, both **CREB** and **p53** can interact directly with **CBP**, and phosphorylated **CREB** mediates recruitment of **CBP** to **p53**-responsive promoters through direct interaction with **p53** ( 13).

<http://www.jbc.org/cgi/content/full/278/13/11138>

107	cbp	NOT activate	creb	experiment
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This is consistent with the idea that the full-length **CBP** molecule is not normally a potent activator of basal **CREB** activity.

<http://www.jbc.org/cgi/content/full/271/30/17746>

108	gsk-3	phosphorylate	catenin	experiment
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Thus, we investigated whether this kinase also serves as a priming kinase for **-catenin** phosphorylation by **GSK-3**.

[http://linkinghub.elsevier.com/retrieve/pii/S0006-291X\(02\)00485-0](http://linkinghub.elsevier.com/retrieve/pii/S0006-291X(02)00485-0)

109	pka	phosphorylate	fusion proteins	experiment
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**Fusion proteins** were phosphorylated in vitro by **PKA** and/or **PKC**, resolved by **SDS-PAGE**, and visualized by autoradiography.

<http://www.jbc.org/cgi/content/full/272/8/5157>

110	scr	activate	pb	no experiment
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In the *Drosophila* embryo, **Dfd** and **Scr** activate the expression of **pb** in the maxillary and labial segments, respectively

<http://www.sciencemag.org/cgi/content/full/298/5591/97>

111	cbp	bind	creb	experiment
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Since **CBP** binds only the phosphorylated form of **CREB**, and the synergism we have observed between the proteins bound at the **LSR** and **CREB** is observed only under **PKA**-stimulating condition and can be competed by overexpression of **KID**, it is interesting to speculate that **CBP** may be involved in this synergistic response.

<http://www.jbc.org/cgi/content/full/270/14/8225>

112	p53	interact	cbp	no experiment
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In addition, a double-point mutation in the **activation domain 1** or the **activation domain 2**, which abolishes the transcriptional activity of **p53**, also abolishes the interaction of **p53** with **CBP** in vitro ( 21, 23).

<http://www.jbc.org/cgi/content/full/278/19/17557>

113	paxillin	NOT bind	gst	experiment
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**Paxillin** failed to bind **GST** alone or the **SH2 domain** of **Grb2** that belongs to the family of **SH2/SH3**-containing signaling molecules.

<http://www.jcb.org/cgi/content/full/148/5/957>

114	creb	depend on	erk	no experiment
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Furthermore, it has been shown recently that both **PKA** and **PKC** are upstream regulators of **ERK/MAPK** in **area CA1** of the *hippocampus* and that **PKA**-mediated **CREB** phosphorylation depends on **ERK/MAPK** activation (Roberson et al., 1999).

<http://www.jneurosci.org/cgi/content/full/20/21/8177>

115	pka	mediate	creb	experiment
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The present findings demonstrate that substitution of a negatively charged residue, Asp, at **Ser** of the transcriptional **activation domain** of **CREB** greatly reduces **PKA**-mediated activation of **CREB**.

<http://www.jbc.org/cgi/content/full/270/13/7041>

116	gsk-3	phosphorylate	catenin	no experiment
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Without stimulation by **Wnt ligand**, free -**catenin** is phosphorylated by **GSK-3**, then ubiquitinated and rapidly degraded by **proteasome**.

<http://linkinghub.elsevier.com/retrieve/pii/S0925443900000284>

117	erk2	phosphorylate	mbp	experiment
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The activity of the immunoprecipitated **MAPKs** was determined by measuring the phosphorylation of **MBP** for **ERK2**, **ERK6**, **p38** and **ERK5**, and **GST-ATP2(96)** for **SAPK4**.

<http://www.jbc.org/cgi/content/full/274/47/33287>

118	mapk	phosphorylate	cbp	no experiment
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Supporting this hypothesis, it has been reported that the C-terminal **transactivation domain** of **CBP** was phosphorylated by **MAPK** in vitro (49), and we now demonstrate that the C-terminal **transactivation domain** of **p300** can be phosphorylated by **MAPK** in a similar manner (Fig. 4 E).

<http://www.jbc.org/cgi/content/full/278/16/14013>

119	pka	phosphorylate	fusion proteins	experiment
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These data confirm the sequencing results obtained with **PKA** phosphorylation of the **fusion proteins**.

<http://www.jbc.org/cgi/content/full/275/8/5337>

120	e1a	bind	cbp	experiment
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Binding of **E1A** to **CBP** inhibits transcriptional activation mediated by **CBP**.

<http://www.jbc.org/cgi/content/full/273/44/29098>

121	proteasome	degrade	p53	no experiment
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Inhibition of **p53** acetylation or deacetylation at the C-terminal **lysines** residues would allow **MDM2** to efficiently ubiquitinate the same **lysine** residues of **p53** (52), thus leading to **p53** degradation through the **ubiquitin**-mediated **proteasome** machinery (27, 30, 31), although evidence linking **p53** ubiquitination to its degradation has not yet been obtained.

<http://www.jbc.org/cgi/content/full/277/34/30838>

122	e1a	interact	cbp	experiment
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Regardless of **p53**, **E1A** can interact with **CBP** and/or with X, which leads to modest transcriptional activation.

<http://www.jbc.org/cgi/content/full/273/28/17303>

123	pka	activate	creb	experiment
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Since **PKA** phosphorylation of **CREB** results in its specific binding to the **transcriptional co-activators CREB-binding protein** and **p300**, we suggest that the **PKA** activation of **CREB** occurs by the production of specific, complementary interactions with these proteins, rather than through the previously proposed mechanisms of a phosphorylation-dependent conformational change or increased DNA binding affinity.

<http://www.jbc.org/cgi/content/full/271/23/13716>

124	pka	phosphorylate	creb	experiment
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Our data demonstrate that phosphorylation of **CREB** by **PKA** does not alter the DNA binding affinity for either the canonical **SSCRE** or the non-canonical **TATCRE**.

<a href="http://www.jbc.org/cgi/content/full/271/23/13716">http://www.jbc.org/cgi/content/full/271/23/13716</a>				
125	nuclear protein	bind	sp1	experiment
A supershift assay was performed to test whether the binding of <b>nuclear protein</b> to the <b>SP1</b> site (GGGAGGGG) of the mEPCR gene could be shifted by an <b>SP1 antibody</b> (Fig. 5).				
<a href="http://www.jbc.org/cgi/content/full/275/17/12481">http://www.jbc.org/cgi/content/full/275/17/12481</a>				
126	dctbp	bind	hairy	experiment
<b>B-C</b> , <b>dCtBP</b> and <b>Groucho</b> can bind <b>Hairy</b> simultaneously in vitro.				
<a href="http://www.jbc.org/cgi/content/full/275/48/37628">http://www.jbc.org/cgi/content/full/275/48/37628</a>				
127	akt	inactivate	gsk-3	no experiment
Additionally, <b>Akt</b> phosphorylates and inactivates <b>GSK-3</b> ( 21), which may increase the amount of dephosphorylated, active <b>GS</b> in the cell ( 4, 10).				
<a href="http://www.jbc.org/cgi/content/full/274/39/27497">http://www.jbc.org/cgi/content/full/274/39/27497</a>				
128	pka	phosphorylate	gsk-3beta	experiment
One is that <b>PKA</b> directly phosphorylates and inhibits <b>GSK-3beta</b> efficiently in the <b>AKAP220</b> complex; the other is that <b>AKAP220</b> and <b>PKA</b> inhibit <b>PP1</b> co-operatively, thereby enhancing the phosphorylation of <b>GSK-3beta</b> and inhibiting the <b>GSK-3beta</b> activity.				
<a href="http://www.jbc.org/cgi/content/full/277/40/36955">http://www.jbc.org/cgi/content/full/277/40/36955</a>				
129	pkc	mediate	jnk	experiment
Interestingly, on coexpression of PKCmu with constitutively active <b>PKC A/E</b> , a reduction of <b>PKC</b> -mediated <b>JNK</b> activation could be observed (Fig. 6), indicating a negative feedback regulation of PKCmu on <b>PKC kinase</b> activity.				
<a href="http://www.jbc.org/cgi/content/full/277/8/6490">http://www.jbc.org/cgi/content/full/277/8/6490</a>				
130	ctbp	bind	e1a	no experiment
To determine specifically whether the <b>P-X-D-L-R</b> motif (residues 23-27) of <b>MITR</b> was responsible for all <b>CtBP</b> -binding activity, we mutated <b>residues DL</b> to AS, which has been shown previously to abolish <b>CtBP</b> binding to the <b>E1a</b> oncoprotein ( 20).				
<a href="http://www.jbc.org/cgi/content/full/276/1/35">http://www.jbc.org/cgi/content/full/276/1/35</a>				
131	ctbp	interact	e1a	no experiment
Although the <b>H315Q</b> mutation was proposed ( 16) to prevent the interaction of <b>CtBP</b> with the <b>E1a</b> C terminus and presumably other <b>repressor proteins</b> containing <b>CtBP</b> -recruitment motifs, we found that this mutation did not prevent the interaction of <b>GST-E1a</b> with <b>CtBP</b> in vitro (Fig. 4 b).				
<a href="http://www.pnas.org/cgi/content/full/100/8/4568">http://www.pnas.org/cgi/content/full/100/8/4568</a>				
132	ci	mediate	hh	experiment
These findings suggest that <b>sr</b> expression at the segment border is activated by <b>Ci</b> -mediated <b>Hh</b> signaling.				
<a href="http://www.molecule.org/cgi/content/full/6/1/203">http://www.molecule.org/cgi/content/full/6/1/203</a>				
133	pax6	bind	pd	experiment
C, the full-length isoform of <b>Pax6</b> binds to both the <b>PD</b> and the <b>HD</b> but not to the <b>TAD</b> in vitro.				
<a href="http://www.jbc.org/cgi/content/full/276/6/4109">http://www.jbc.org/cgi/content/full/276/6/4109</a>				
134	akt	inactivate	gsk-3beta	no experiment
Recently it has been reported that inactivation of <b>GSK-3beta</b> by <b>Akt</b> induces <b>cardiomyocyte hypertrophy</b> in vitro and <b>atrial natriuretic factor</b> expression ( 29, 47).				
<a href="http://www.jbc.org/cgi/content/full/277/25/22896">http://www.jbc.org/cgi/content/full/277/25/22896</a>				
135	pc	repress	ubx	experiment
Thus, <b>Ubx PRE</b> -associated nucleosomes appear to be targeted by E(Z)-mediated <b>H3-K27</b> methylation, which correlates with <b>PC</b> binding and repression of <b>Ubx</b> .				
<a href="http://www.sciencemag.org/cgi/content/full/298/5595/1039">http://www.sciencemag.org/cgi/content/full/298/5595/1039</a>				
136	erk2	phosphorylate	mbp	experiment
The extent of phosphorylation of <b>MBP</b> by <b>ERK2</b> as a result of activation by <b>MEK1</b> from untreated mitotic extract was assumed as 100%.				
<a href="http://www.cell.com/cgi/content/full/92/2/183">http://www.cell.com/cgi/content/full/92/2/183</a>				
137	nuclear proteins	bind	e1	experiment

Gel mobility shift analysis of **nuclear proteins** bound to **E1**.

<http://linkinghub.elsevier.com/retrieve/pii/S0167478102002282>

138	pka	activate	akt	no experiment
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However, not only was the activation of **Akt** by cAMP and **PKA** only minor, cAMP rather inhibited phosphorylation at **serine** 473 of **Akt** ( 44).

<http://www.jbc.org/cgi/content/full/276/16/12864>

139	pka	mediate	creb	experiment
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To determine whether the induction of **CREB** phosphorylation was mediated by **PKA**, we tested the effect of **hypoxia** on **CREB** phosphorylation in **PKA-deficient PC12 cells (123.7)** ( 28).

<http://www.jbc.org/cgi/content/full/273/31/19834>

140	hh	control	ci	experiment
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Models Illustrating how **Ci[rep]** and **Ci[act]** Are Controlled by **Hh** and how These Transcriptional Activities of **Ci** Shape the **Dpp** Morphogen Source

<http://www.cell.com/cgi/content/full/96/6/819>

141	erk	activate	creb	no experiment
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Several studies have demonstrated that **MAPK/ERK** can also activate **CREB** via phosphorylation of the **CREB kinase Rsk2**

<http://www.jneurosci.org/cgi/content/full/20/12/4563>

142	hth	interact	exd	no experiment
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**Hth** contains a homeodomain and interacts directly with **Exd**, suggesting that **Hth** also contributes to **Hox DNA** binding specificity.

<http://www.developmentalcell.com/cgi/content/full/3/4/487>

143	e1a	activate	p53	no experiment
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The signaling pathways by which such insults activate **p53** are mostly unknown, although **p19ARF**, the protein encoded by the alternate reading frame of the **p16INK4 gene** (see above), has recently been implicated in activation of **p53** by **E1A** and **Myc** ( 23).

<http://www.sciencemag.org/cgi/content/full/281/5381/1317>

144	cbp	inhibit	tcf	no experiment
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The mechanism by which **CBP** inhibits **TCF** function is not entirely clear, but **CBP** has been shown to acetylate a specific **lysine** residue in the **armadillo** binding domain of **TCF**.

<http://linkinghub.elsevier.com/retrieve/pii/S0167488999001585>

145	erk	activate	creb	no experiment
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The full expression of **L-LTP** and **L-LTP-associated CRE**-mediated gene expression requires the activation of **Erk**, suggesting that the activation of **CREB** by **Erk** plays a critical role in the formation of long-lasting neuronal plasticity.

<http://linkinghub.elsevier.com/retrieve/pii/S0736574800000940>

146	hox	interact	pbx	experiment
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These findings demonstrate that interaction of **HOX** with **PBX** is required for the **TSA** response of **pML(5xHOX-PBX)**. To explain these results, we propose a model whereby physical interaction between **HOX** and **PBX** is required for association with coactivators and corepressors, respectively (see Discussion).

<http://mcb.asm.org/cgi/content/full/20/22/8623>

147	creb	depend on	pka	experiment
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Neuregulin-induced phosphorylation of **CREB** is dependent on **PKA** in Sol8 myotubes.

<http://linkinghub.elsevier.com/retrieve/pii/S0006291X03006600>

148	cbp	interact	e1a	experiment
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This region is involved in the specific interaction of **CBP** not only with **E1A**, but also with a variety of specific **transcription factors** (**MyoD**, **E2F**, **c-Fos**, **TFIIB**) as well as with the **P/CAF protein**.

<http://nar.oupjournals.org/cgi/content/full/30/15/3312>

149	pkc	activate	erk	experiment
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The phosphorylation of **p85** is not downstream to the activation of **PKC** or **ERK-2**, since the prevention of the hyperosmosis-induced **ERK** activation by **PKC** depletion or by inhibition of **MEK** leaves the tyrosine

phosphorylation of **p85** intact.

<http://www.jbc.org/cgi/content/full/272/26/16670>

150	mapk	activate	transcription factor	experiment
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The results of the present study suggest that **HrEts** is the **transcription factor** that is likely activated by **MAPK** in the **FGF** signaling cascade in early inductive events in *ascidian* embryos.

<http://linkinghub.elsevier.com/retrieve/pii/S001216060300246X>

151	fusion proteins	NOT bind	gst	experiment
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In ligand blots, **GST-syntenin FL (full-length syntenin)** and **GST-M92-V298** (syntenin sequence starting at M92; data not shown) **fusion proteins** failed to bind to **GST** itself, to themselves (data not shown), or to **fusion proteins** composed of **GST** and the C-terminal deletions (**C9**, **C21**, C30, **C31**) or the F(C30)A mutant of the **syndecan-2 cytoplasmic domain**.

<http://www.pnas.org/cgi/content/full/94/25/13683>

152	scr	regulate	pb	experiment
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Regulation of **pb** expression by **Dfd** and **Scr**

<http://linkinghub.elsevier.com/retrieve/pii/S092547730100301X>

153	p53	interact	sp1	experiment
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However, **p53**, which interacts with **Sp1** with a similar affinity, is able to activate **EGFR** promoter activity through direct binding to the promoter region.

<http://www.jbc.org/cgi/content/full/276/45/41717>

154	p53	bind	consensus dna	experiment
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We were interested in determining whether CR2aa2055-2150 could form a ternary complex with **p53** bound to its **consensus DNA** recognition element.

<http://www.jbc.org/cgi/content/full/277/11/9054>

155	yan	bind	mae	experiment
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Co-immunoprecipitation experiments supported this interpretation, as the amount of **YAN** bound to **MAE** appeared to be significantly reduced in RASV12-stimulated cells ( Fig. 5A, compare lane 4 with lane 2; note that the total amount of **YAN** present is comparable with and without RASV12, lanes 1 and 3).

<http://dev.biologists.org/cgi/content/full/130/5/845>

156	pkc	phosphorylate	creb	no experiment
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Indeed, **T-cell receptor** stimulation induces **CREB** phosphorylation through a **PKC**-dependent pathway that also requires **MAPK** activation ( 206).

<http://biochem.annualreviews.org/cgi/content/full/68/0/821>

157	e1a	bind	p300/cbp	no experiment
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It is thought that binding of **E1A** to the **p300/CBP** inactivates the **p300/CBP** complex and represses the **p300/CBP-responsive gene(s)**.

<http://www.jbc.org/cgi/content/full/272/10/6101>

158	e1a	activate	p53	experiment
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**E1A** activates **p53**, which selectively induces **target genes** such as p21WAF1/CIP1 but not **Mdm2**, leading to cell death.

<http://mcb.asm.org/cgi/content/full/20/15/5554>

159	dfd	activate	pb	no experiment
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In the *Drosophila* embryo, **Dfd** and **Scr** activate the expression of **pb** in the maxillary and labial segments, respectively

<http://www.sciencemag.org/cgi/content/full/298/5591/97>

160	akt	phosphorylate	gsk-3	no experiment
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This conclusion is based on the observations that insulin-induced inhibition of **GSK-3** is blocked in cells treated with wortmannin or **LY 294002** ( 9, 17); coexpression of **GSK-3beta** with wild-type or constitutively active **Akt** results in the inhibition of **GSK-3** activity ( 10); expression of a dominant-negative mutant of **Akt** blocks the effect of insulin on **GSK-3beta** ( 18); and **Akt** phosphorylates and inactivates both **GSK-3** isoforms in vitro ( 9).

<http://www.jbc.org/cgi/content/full/276/44/40910>

161	knirps	interact	dctbp	no experiment
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**dCtBP** was identified in interaction studies with **Knirps**, *Snail*, and **Hairy** (Nibu et al., 1998b ; Poortinga et al., 1998 ) These **repressor proteins** interact with **dCtBP** through **CtBP** binding motifs located within the **repressor domains** located near their C-terminal ends.

<http://www.molecule.org/cgi/content/full/9/2/213>

162	transportin	bind	m9	experiment
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Even though **transportin** can bind an **M9** signal and the **BIB domain** simultaneously, it appears unlikely that **transportin** normally would import the two substrates at the same time: import of the **trimeric M9-transportin-BIB** complex is apparently much less efficient than import of, for example, an **M9-transportin** complex (not shown).

<http://emboj.oupjournals.org/cgi/content/full/17/15/4491>

163	transcription factor	bind	pre	experiment
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A *yeast* one-hybrid system was used to clone a **transcription factor** that binds to the **PRE** sequences in the proximal promoter of the **NPT2 gene**.

<http://www.jbc.org/cgi/content/full/274/40/28256>

164	ci	mediate	hh	no experiment
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This highly economic process is further exemplified by the finding that most, if not all, **Hh** signaling is mediated through **Ci** in *Drosophila*.

<http://www.genesdev.org/cgi/content/full/15/23/3059>

165	pkc	mediate	jnk	no experiment
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**PKC** and **PI3K** mediate **FRK** and **JNK** activity, respectively, which in turn phosphorylate **Fos** and **Jun**, resulting in transactivation of the **API** transcription complex.

<http://www.brjpharmacol.org/cgi/content/full/139/2/191>

166	ckii	phosphorylate	ser	experiment
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The cleavage site of **caspace 8** is located exactly between **Thr** and **Ser** residues phosphorylated by **CKI** and **CKII**.

<http://www.molecule.org/cgi/content/full/8/3/601>

167	pkc	regulate	mapk	no experiment
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However, **PKC** is an upstream regulator of the **MAPK** pathway ( 37, 38).

<http://www.jbc.org/cgi/content/full/276/48/45320>

168	erk	depend on	pka	no experiment
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Schematic model of **FSH**-stimulated, **PKA**-dependent activation of **ERK** in **granulosa cells**.

<http://www.jbc.org/cgi/content/full/278/9/7167>

169	sp1	NOT interact	cbp	no experiment
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The results showed that **ZBP-89** interacts with **p300** but not **CBP** (Fig. 8 A), whereas **Sp1** did not interact with either **p300** or **CBP** as reported previously ( 15).

<http://www.jbc.org/cgi/content/full/275/39/30725>

170	pkc	regulate	mapk	experiment
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These results indicate that **PKC** regulates **fibronectin**-induced **MAPK** activation at a step upstream of **Raf-1**.

<http://www.jbc.org/cgi/content/full/274/15/10571>

171	jk	phosphorylate	transcription factor	no experiment
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The authors then explored the functional consequence of this interaction on **JNK3** activation by measuring phosphorylation of **c-Jun**, a typical **transcription factor** targeted by the **JNK** signaling pathway.

<http://www.sciencemag.org/cgi/content/full/290/5496/1515>

172	mapk	mediate	yan	no experiment
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Baker et al. (Baker et al., 2001 ) showed that the binding of **EDL/MAE** to **YAN** is required for **MAPK**-mediated phosphorylation of **YAN**, leading to inactivation of **YAN** function as a repressor of **Ets target genes**.

<http://dev.biologists.org/cgi/content/full/130/17/4085>

173	erk2	phosphorylate	mbp	no experiment
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Under initial rate conditions, the phosphorylation of **MBP** by **ERK2** occurs at a single site (Thr97) ( 10), which displays a specificity constant among the highest of all known **ERK2 substrates** ( kcat/ K m = 2.4  $\mu$ M<sup>-1</sup> s<sup>-1</sup>) ( 6).

<http://www.jbc.org/cgi/content/full/276/44/40817>



174	cbp	interact	p53	experiment
<p><b>CBP</b> interacts with <b>FKLF2</b> and <b>p53</b> through distinct domains.  <a href="http://linkinghub.elsevier.com/retrieve/pii/S0006291X02008422">http://linkinghub.elsevier.com/retrieve/pii/S0006291X02008422</a></p>				
175	tcf	bind	groucho	no experiment
<p>It is thought that in the absence of <b>Wg</b> signaling, <b>TCF</b> bound to <b>Groucho</b> acts as a <b>transcriptional repressor</b> of <b>Wg target genes</b> (Cavallo et al., 1998 ; Yang et al., 2000 ).  <a href="http://dev.biologists.org/cgi/content/full/129/14/3393">http://dev.biologists.org/cgi/content/full/129/14/3393</a></p>				
176	tafi250	bind	gst	experiment
<p>(B) Levels of in vitro-expressed <b>TAFII250</b> bound to <b>GST</b>, <b>TBP</b>, or <b>Rb</b>, as detected by Western analysis (monoclonal anti-hTAFII250 antibody) of nonradioactive, duplicate kinase reactions performed concurrently with those shown in panel A.  <a href="http://mcb.asm.org/cgi/content/full/19/1/846">http://mcb.asm.org/cgi/content/full/19/1/846</a></p>				
177	nuclear proteins	bind	sp1	experiment
<p>Cooperation of <b>nuclear proteins</b> binding to <b>SP1</b> and <b>Ets DNA</b> elements is also needed for maximal expression, and <b>OSM</b> signaling may recruit additional factors that interact with sequences downstream from +1 to +47.  <a href="http://www.jbc.org/cgi/content/full/273/9/5211">http://www.jbc.org/cgi/content/full/273/9/5211</a></p>				
178	abdominal-b	regulate	empty spiracles	experiment
<p>JONES, B. and W. MCGINNIS, 1993 The regulation of <b>empty spiracles</b> by <b>Abdominal-B</b> mediates an abdominal segment identity function.  <a href="http://www.genetics.org/cgi/content/full/162/1/189">http://www.genetics.org/cgi/content/full/162/1/189</a></p>				
179	pkc	inactivate	gsk-3	no experiment
<p>Indeed, it has been reported that <b>Wnt proteins</b> induce inactivation of <b>GSK-3</b> through a <b>PKC</b>-dependent mechanism ( 6, 9).  <a href="http://mcb.asm.org/cgi/content/full/22/7/2099">http://mcb.asm.org/cgi/content/full/22/7/2099</a></p>				
180	akt	phosphorylate	gsk-3beta	no experiment
<p>Subsequently <b>Akt</b> can phosphorylate Ser9 of <b>GSK-3beta</b> ( 6).  <a href="http://www.jbc.org/cgi/content/full/276/40/37436">http://www.jbc.org/cgi/content/full/276/40/37436</a></p>				
181	cbp	interact	e1a	no experiment
<p>These <b>CBP</b> regions also interact with adenoviral <b>E1A</b> oncoprotein ( 44).  <a href="http://www.jbc.org/cgi/content/full/277/22/20011">http://www.jbc.org/cgi/content/full/277/22/20011</a></p>				
182	ldb	bind	lim domains	no experiment
<p>Combined with the biochemical data that only the first <b>LIM domain</b> binds to <b>Ldb</b> (Jurata et al., 1996 ), our results predict the presence of molecules which would bind to their second <b>LIM domains</b> and, by acting cooperatively with the individual members of the <b>Islet-1 family</b>, may modulate specific functions of them.  <a href="http://www.neuron.org/cgi/content/full/30/2/423">http://www.neuron.org/cgi/content/full/30/2/423</a></p>				
183	nuclear protein	bind	sp1	experiment
<p>Effect of <b>EGF</b> on <b>nuclear protein</b> binding to an <b>Sp1</b>-binding consensus sequence in lymphoblastoid cells.  <a href="http://www.jbc.org/cgi/content/full/276/12/8884">http://www.jbc.org/cgi/content/full/276/12/8884</a></p>				
184	creb	interact	cbp	experiment
<p>Since we found that both <b>CREB</b> and <b>P-Lim</b> interact with <b>CBP</b>, we utilized a 346 WT construct ( 346W), a 346 construct containing a <b>mutant P-Lim-binding site ( 346W Lim mut)</b>, or a 346 construct containing a <b>mutant CREB-binding site ( 346M)</b>.  <a href="http://www.jbc.org/cgi/content/full/275/43/33365">http://www.jbc.org/cgi/content/full/275/43/33365</a></p>				
185	pka	induce	creb	experiment
<p>Transfection of cells with either <b>PKI</b> or mtREVab inhibited <b>alpha1 adrenergic receptor</b>-stimulated <b>CRE-CAT</b> reporter activity, strongly suggesting that <b>CRE-dependent gene</b> transcription induced by <b>alpha1 adrenergic receptors</b> in <b>Rat1</b> fibroblasts is mediated by <b>PKA</b>-induced phosphorylation of <b>CREB</b>.  <a href="http://www.jbc.org/cgi/content/full/273/45/30033">http://www.jbc.org/cgi/content/full/273/45/30033</a></p>				
186	ckii	phosphorylate	creb	no experiment
<p>One study suggests that <b>CKII</b> also phosphorylates <b>CREB</b> at Ser142 and/or Ser143 ( 184).</p>				

<a href="http://biochem.annualreviews.org/cgi/content/full/68/0/821">http://biochem.annualreviews.org/cgi/content/full/68/0/821</a>				
187	akt	phosphorylate	creb	experiment
We can assume that the phosphorylation of <b>CREB</b> by activated <b>Akt</b> may be long-lasting.				
<a href="http://linkinghub.elsevier.com/retrieve/pii/S0006899302024745">http://linkinghub.elsevier.com/retrieve/pii/S0006899302024745</a>				
188	teashirt	bind	armadillo	experiment
GALLET, A., A. ERKNER, B. CHARROUX, L. FASANO, and S. KERRIDGE, 1998 Trunk-specific modulation of <b>Wingless</b> signaling in <i>Drosophila</i> by <b>Teashirt</b> binding to <b>Armadillo</b> .				
<a href="http://www.genetics.org/cgi/content/full/153/1/319">http://www.genetics.org/cgi/content/full/153/1/319</a>				
189	e1a	inhibit	p53	experiment
In summary, we conclude that adenoviral <b>oncogene E1A</b> inhibits <b>p73</b> -mediated transcription in a manner similar to inhibition of <b>p53</b> activity by <b>E1A</b> .				
<a href="http://www.jbc.org/cgi/content/full/278/20/18313">http://www.jbc.org/cgi/content/full/278/20/18313</a>				
190	pka	phosphorylate	cbp	experiment
Our results likewise suggest that <b>CBP</b> phosphorylation by <b>PKA</b> is the signal transduction step required for <b>HOXD4</b> to activate transcription in response to increased intracellular cAMP.				
<a href="http://mcb.asm.org/cgi/content/full/20/22/8623">http://mcb.asm.org/cgi/content/full/20/22/8623</a>				
191	jnk	depend on	pkc	no experiment
The production of <b>Fos</b> and <b>Jun</b> is mediated by <b>MAP kinase</b> activity, whereas the activity of <b>FRK</b> and <b>JNK</b> is dependent on <b>PKC</b> and <b>phosphoinositide-3-kinase (PI3K)</b> respectively (Yang et al., 1996 ; Huang et al., 1998 ;				
<a href="http://www.brjpharmacol.org/cgi/content/full/139/2/191">http://www.brjpharmacol.org/cgi/content/full/139/2/191</a>				
192	p53	bind	consensus dna	experiment
<b>NS5A</b> inhibits <b>p53</b> and <b>TBP</b> binding to their <b>consensus DNA</b> probes				
<a href="http://linkinghub.elsevier.com/retrieve/pii/S0167488902003154">http://linkinghub.elsevier.com/retrieve/pii/S0167488902003154</a>				
193	erk	activate	pka	experiment
Nevertheless, an underlying inhibitory action of <b>PMA</b> on PDE4D5 activity in <b>HASM cells</b> , caused presumably through its direct phosphorylation by <b>ERK</b> , could be uncovered by ablating various stages of the pathway that led to <b>PKA</b> activation by <b>ERK</b> (Fig. 8), such as inhibition of COX-2 and <b>PLA2</b> .				
<a href="http://molpharm.aspetjournals.org/cgi/content/full/60/5/1100">http://molpharm.aspetjournals.org/cgi/content/full/60/5/1100</a>				
194	p53	bind	sp1	experiment
As shown in Fig. 5A, elevated binding of <b>p53</b> to <b>Sp1</b> resulted in a decrease in <b>Sp1-associated HDAC1</b> .				
<a href="http://mcb.asm.org/cgi/content/full/23/8/2669">http://mcb.asm.org/cgi/content/full/23/8/2669</a>				
195	mapk	phosphorylate	mbp	experiment
Kinetic parameters of <b>MBP</b> phosphorylation by <b>MAPK</b> at different pH values (2K)				
<a href="http://linkinghub.elsevier.com/retrieve/pii/S016748389900223X">http://linkinghub.elsevier.com/retrieve/pii/S016748389900223X</a>				
196	creb	depend on	erk	experiment
Phosphorylation of <b>Elk-1</b> and <b>CREB</b> is dependent on <b>ERK</b> after glutamate stimulation.				
<a href="http://mcb.asm.org/cgi/content/full/19/1/136">http://mcb.asm.org/cgi/content/full/19/1/136</a>				
197	mapk	phosphorylate	yan	experiment
We demonstrate that the molecular mechanism underlying downregulation of <b>YAN</b> involves <b>CRM1</b> -mediated nuclear export and define a novel role in this context for <b>MAE</b> , a <b>co-factor</b> previously implicated in facilitating <b>MAPK</b> phosphorylation of <b>YAN</b> .				
<a href="http://dev.biologists.org/cgi/content/full/130/5/845">http://dev.biologists.org/cgi/content/full/130/5/845</a>				
198	transportin	mediate	m9	experiment
Note that <b>transportin</b> -mediated <b>M9</b> import in the absence of Ran and energy is significant (compare corresponding panels with the control without <b>transportin</b> ).				
<a href="http://www.current-biology.com/cgi/content/full/9/1/47">http://www.current-biology.com/cgi/content/full/9/1/47</a>				
199	pka	phosphorylate	fusion proteins	experiment
Phosphorylation of <b>fusion proteins</b> by <b>PKA</b> was performed in 20 <b>mM HEPES</b> , pH 7.0, 10 <b>mM MgCl2</b> , and 250 <b>muM ATP</b> .				
<a href="http://www.jneurosci.org/cgi/content/full/19/12/4748">http://www.jneurosci.org/cgi/content/full/19/12/4748</a>				

200

pkc

stimulate

mapk

no experiment

Once activated, **PKC** stimulates **MAPK** activity via a poorly understood mechanism involving the activation of **Raf kinase**( 13, 14) .

<http://www.jbc.org/cgi/content/full/271/3/1266>