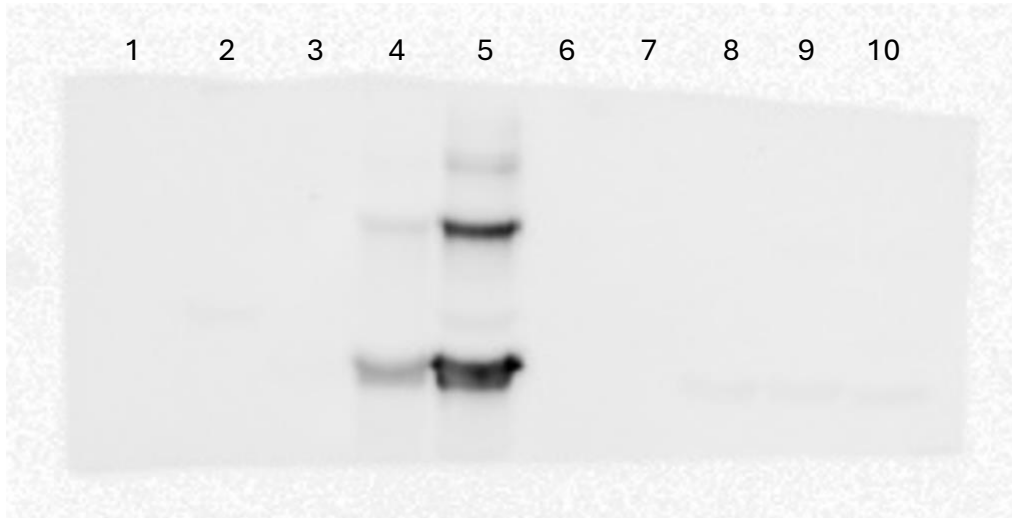
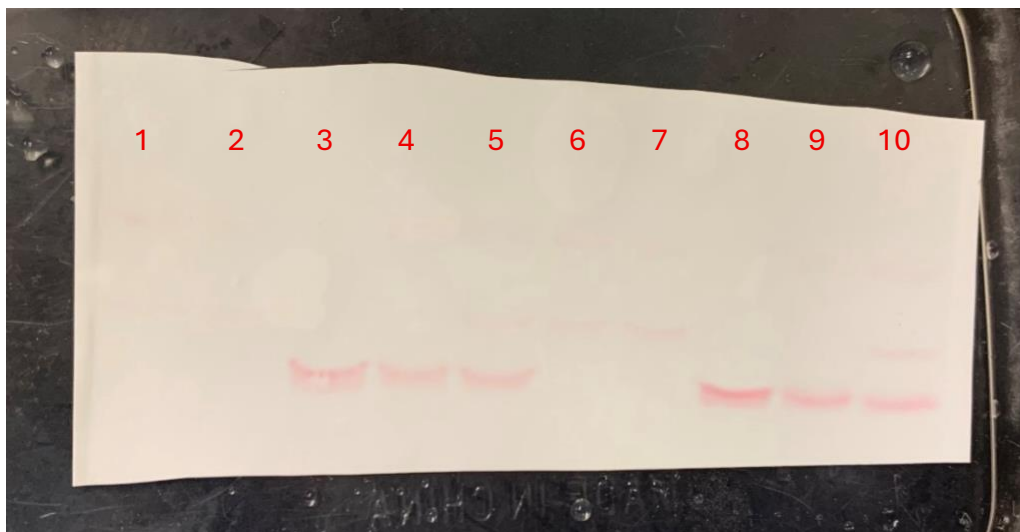


**Figure 3, Source Data 1.** (A) Original membranes corresponding to Figure 3, panel A. Lanes 1–5 show non- $\text{NaBH}_4$ -reduced samples from reactions in which histone H3 was incubated with acetoacetyl-CoA in the absence of enzyme or in the presence of p300, PCAF, GCN5, or HBO1. Lanes 6–10 show the corresponding  $\text{NaBH}_4$ -reduced samples from the same HAT reactions. Lanes 11–15 show samples in which histone H3 was incubated with acetyl-CoA in the absence of enzyme or in the presence of p300, PCAF, GCN5, or HBO1.

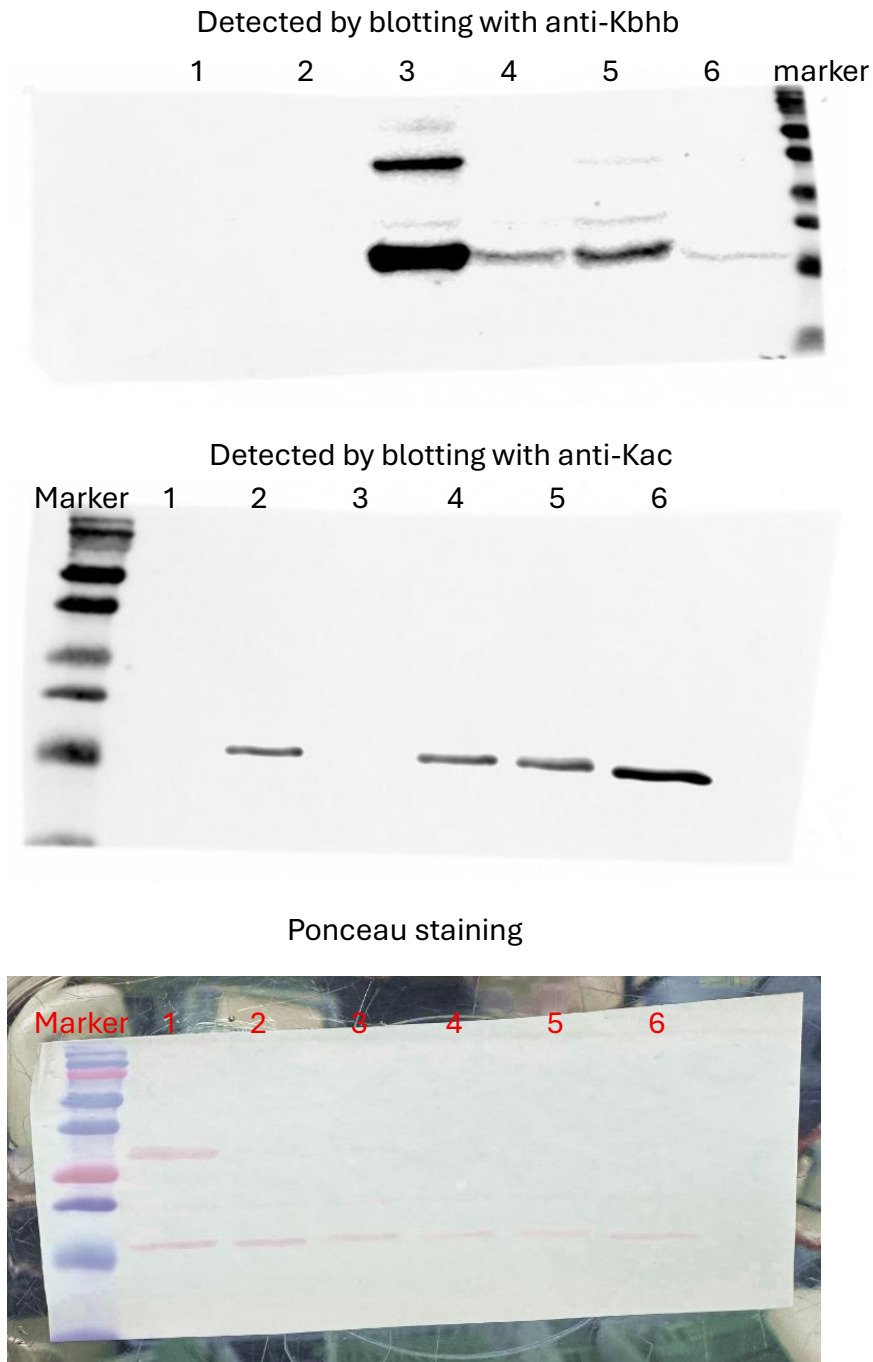
Detected by blotting with anti-Kbhb



Ponceau staining

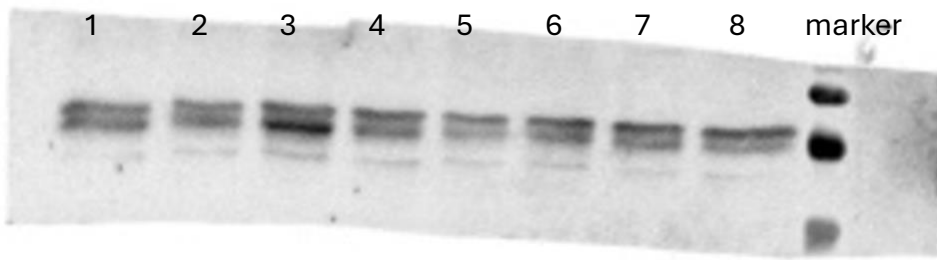


**Figure 3, Source Data 1.** (B) Original membranes corresponding to Figure 3, panel B. Lanes 1–5 show  $\text{NaBH}_4$ -reduced samples from reactions containing GCN5 alone; acetoacetyl-CoA plus GCN5; histone H3 alone; histone H3 plus acetoacetyl-CoA; histone H3 incubated with acetoacetyl-CoA and GCN5. Lanes 6–10 show the corresponding non- $\text{NaBH}_4$ -reduced samples under the same conditions.

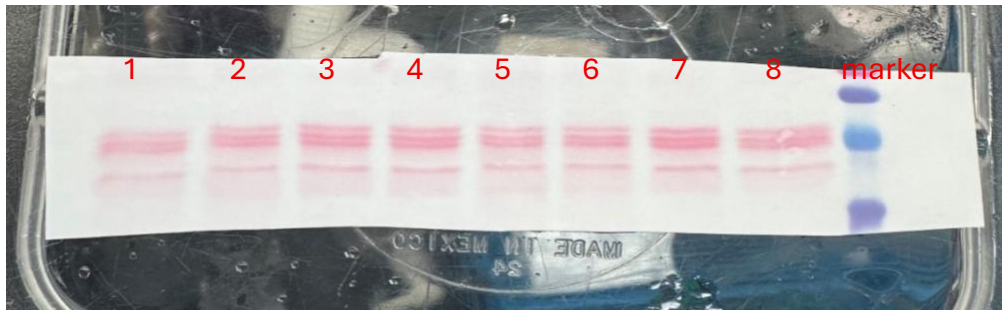


**Figure 3, Source Data 1.** (C) Original membranes corresponding to Figure 3, panel C. Lanes 1–6 show  $\text{NaBH}_4$ -reduced samples from reactions in which histone H3 and GCN5 were incubated with no added substrate; 10  $\mu\text{M}$  acetyl-CoA; 10  $\mu\text{M}$  acetoacetyl-CoA; 10  $\mu\text{M}$  acetyl-CoA plus 10  $\mu\text{M}$  acetoacetyl-CoA; 10  $\mu\text{M}$  acetyl-CoA plus 50  $\mu\text{M}$  acetoacetyl-CoA; or 50  $\mu\text{M}$  acetyl-CoA plus 10  $\mu\text{M}$  acetoacetyl-CoA.

Detected by blotting with anti-Kbhb



Ponceau staining



**Figure 3, Source Data 1.** (E) Original membranes corresponding to Figure 3, panel E. Lanes 1–4 show  $\text{NaBH}_4$ -reduced histone samples from HEK293T cells subjected to HDAC3 overexpression plus acetoacetate treatment; HDAC3 overexpression; acetoacetate treatment; no treatment. Lanes 5–8 show the corresponding non- $\text{NaBH}_4$ -reduced histone samples under the same conditions.