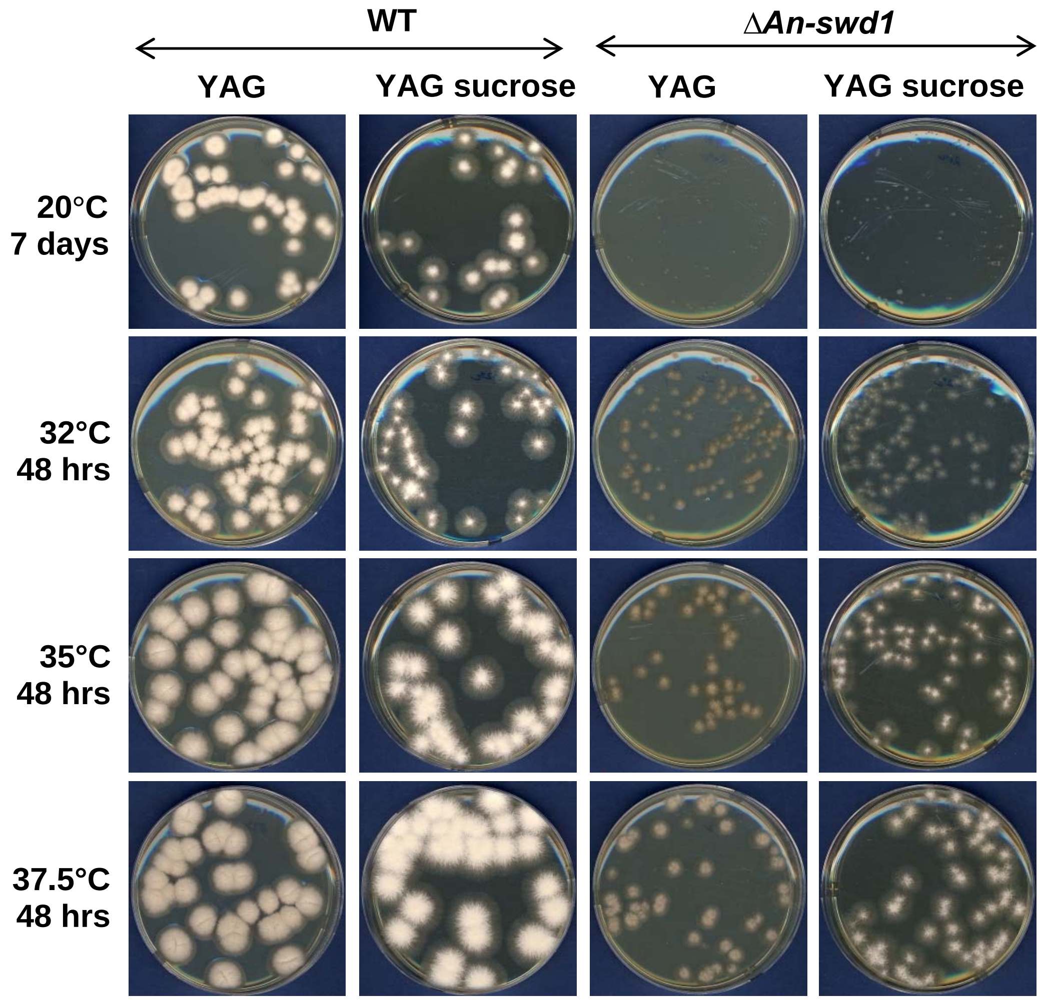

Figure S1 Deletion of *An-swd1* confers cold sensitivity. Colony growth of *ΔAn-swd1* (strain MG41) from single conidia at the indicated temperatures on media with or without 1 M sucrose, in comparison to wild type (WT, strain R153). The conidiation defects, but not cold sensitivity, of *ΔAn-swd1*cells are remediated in the presence of 1 M sucrose.

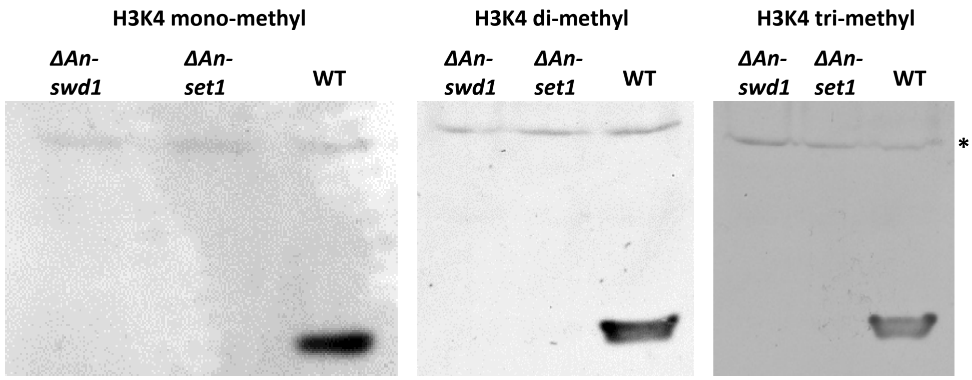

Figure S2 Cells deleted for *An-set1* or *An-swd1* show lack of H3K4 methylation. Western blots using antibodies against monomethylated, dimethylated or trimethylated histone H3K4 show the absence of these post-translational modifications in strains lacking Set1 complex function (*ΔAn-swd1* or *ΔAn-set1*) compared to WT strains. The equal intensity of the non-specific bands (marked by asterisk) among all the lanes reveals equal loading of the lanes. Strains used: WT = R153, *ΔAn-swd1* = MG41, *ΔAn-set1* = MG177.

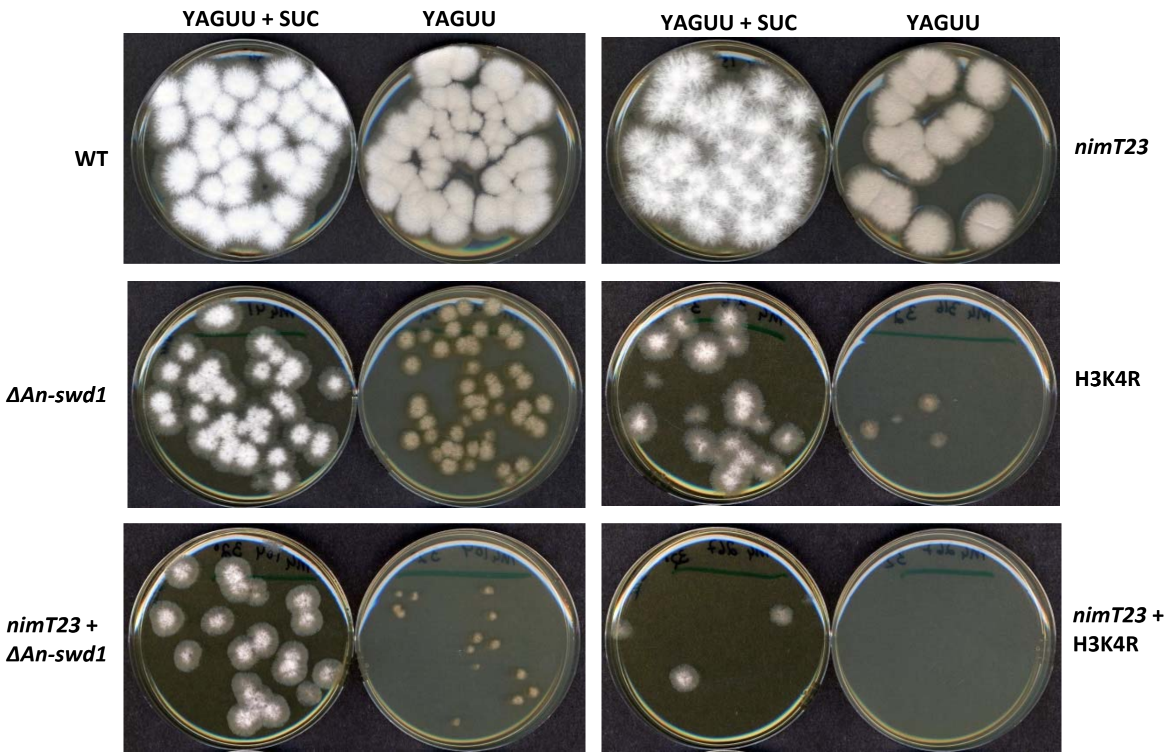

Figure S3 The degree of genetic interaction between *ΔAn-swd1* and *nimT23* is not greater than that between H3K4R and *nimT23*. Colony growth of conidia spread on media with or without 1 M sucrose, as indicated, is shown after 2 days incubated at 32°C. Equal numbers of conidia were plated for each strain. Note that the viability of the H3K4R strain is reduced in the absence of sucrose and that there is a greater growth defect in the *nimT23* + H3K4R strain than for the *nimT23* + *ΔAn-swd1* strain. Strains used: WT = R153, *nimT23* = MG151, *ΔAn-swd1* = MG41, *H3K4R* = MG316, *nimT23 + ΔAn-swd1* = MG104, *nimT23 + H3K4R* = MG267.

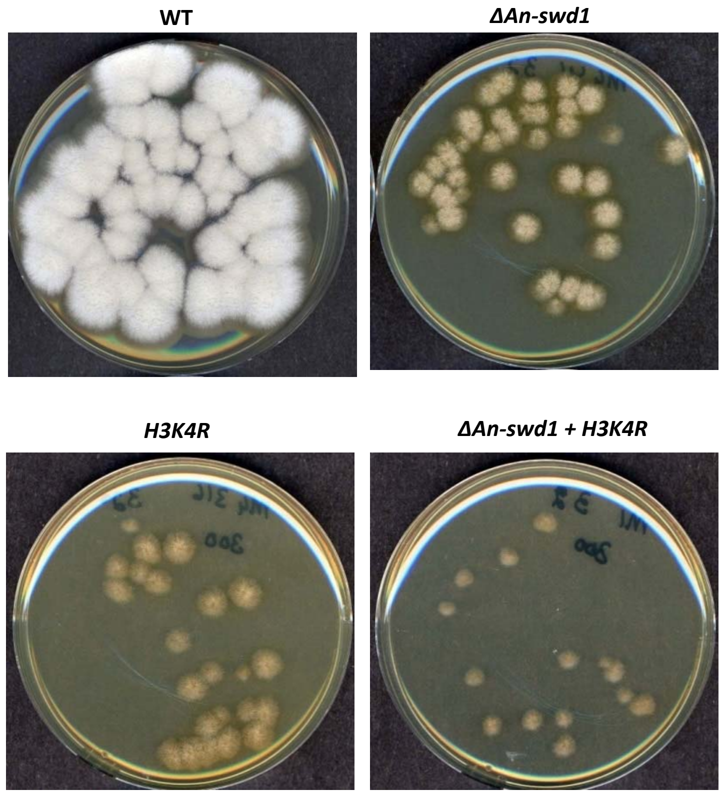

Figure S4 The *ΔAn-swd1* mutant does not cause greater growth defects than the H3K4R mutation. Colony growth of conidia spread on YAGUU is shown after 2 days incubated at 32°C. Equal numbers of conidia were plated for WT and *ΔAn-swd1* strains and 10-times more conidia were plated for the H3K4R and *ΔAn*-swd1 + H3K4R strains. Note that the viability of the H3K4R and Δ*swd1* + H3K4R strains are reduced and that there is a slightly greater growth defect in the *ΔAn-swd1* + H3K4R strain than for the H3K4R strain. Strains used: WT = R153, *ΔAn-swd1* = MG41, *H3K4R* = MG316, *ΔAn-swd1 + H3K4R* = MG411.

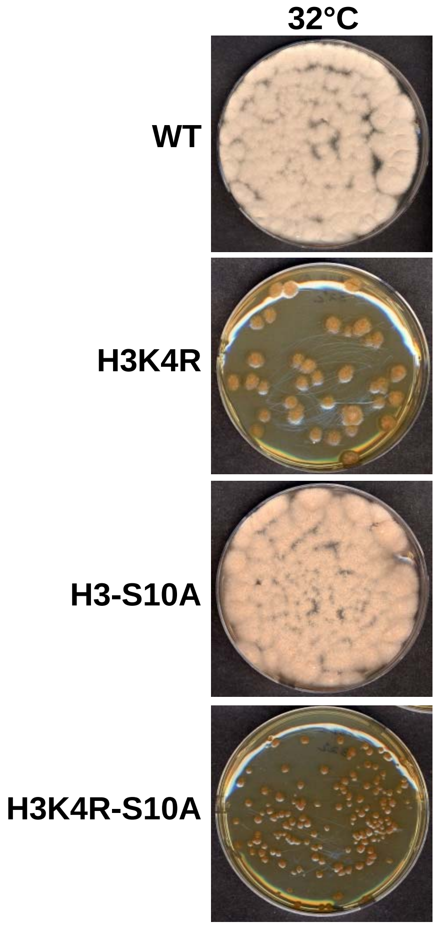

Figure S5 Lack of the methylatable lysine 4 and phosphorylatable serine 10 in histone H3 results in growth defects but not lethality. Colony growth of the strains carrying either WT H3, H3K4R, H3-S10A or the double mutant at 32°C after 96 hours. WT = R153, H3K4R = MG316, H3-S10A = MG327, H3K4R + S10A = MG320.

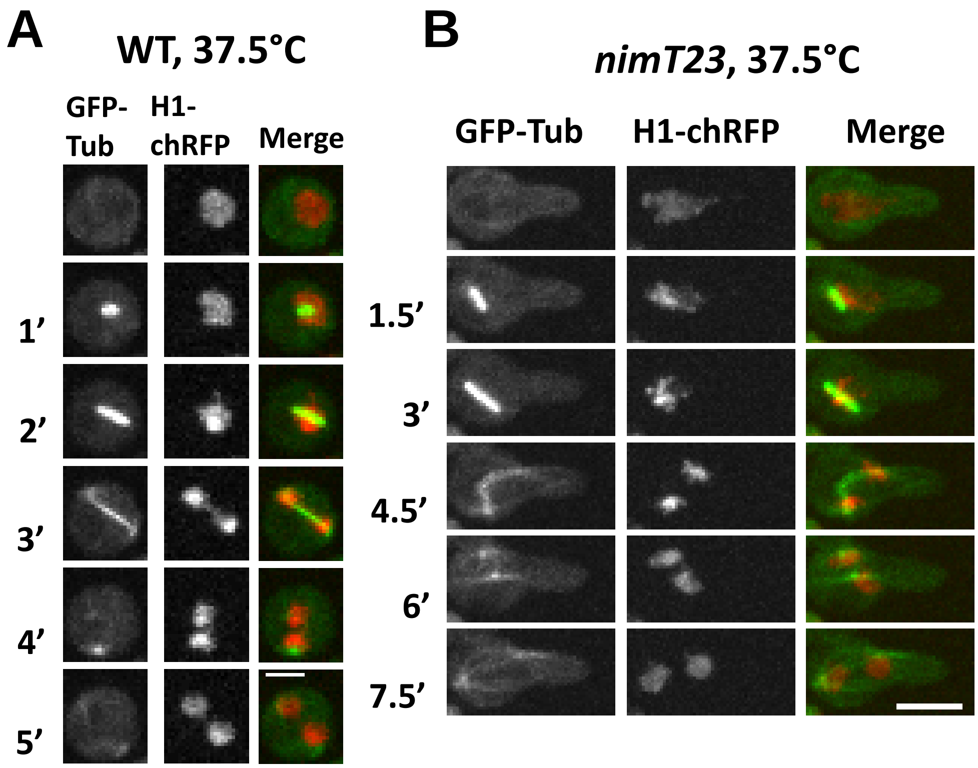

Figure S6 Cells with partial mitotic CDK1 activity complete mitosis successfully. Mitosis in cells of WT genotype (MG300) (A) and carrying *nimT23* mutant allele (MG304) (B) was followed by live cell imaging using GFP-Tub as a marker for the mitotic spindle and histone H1-chRFP as a marker for chromatin at 37.5°C, the semi-permissive temperature for *nimT23.* In contrast to WT cells, about half (n=13) of the *nimT23* cells had established polarized growth before entering the first nuclear division (see also Figure 4C). Bar for (A) 2.5µm; Bar for (B) 5µm.

Table S1 Genotypes of strains used in the study.

Name	Genotype (all strains carry *veA1*)	Source
R153	*wA3;pyroA4*	Lab stock
MG71	*nimA7; pyrG^{AF}insertion (pyrG89); ΔKu70::argB (argB2); riboA1; pyroA4; nicB8/A2?; wA3*	This study
MG41	*ΔAn-swd1::pyrG^{AF} (pyrG89); ΔKu70::argB(argB/B2); pyroA4; nirA14; sE15, wA3; fwA1; chA1*	This study
MG65	*nimA7; ΔAn-swd1::pyrG^{AF} (pyrG89); ΔKu70::argB (argB2); riboA1; pyroA4; nicB8/A2?; wA3*	This study
MG99	*nimT23; ΔKu70::argB (argB2); pyrG89; pyroA4; pabaA1; sE15; wA3*	This study
MG104	*nimT23; ΔAn-swd1::pyrG^{AF}(pyrG89); ΔKu70::argB (argB2); pyroA4; pabaA1; sE15; wA3*	This study
MG177	*ΔAn-set1::pyrG^{AF} (pyroG89); ΔKu70::argB(argB/B2); pyroA4; nirA14; sE15, wA3; fwA1; chA1*	This study
MG179	*ΔAn-set1::pyrG^{AF} (pyrG89); nimA7; ΔKu70::argB (argB2); riboA1; pyroA4; nicB8/A2?; wA3*	This study
MG181	*ΔAn-set1::pyrG^{AF}(pyrG89); nimT23; ΔKu70::argB (argB2); pyroA4; pabaA1; sE15; wA3*	This study
MG316	*H3K4R::pyrG^{AF} (pyroG89); ΔKu70::argB(argB/B2); pyroA4; nirA14; sE15, wA3; fwA1; chA1*	This study
MG318	*H3K4R::pyrG^{AF} (pyrG89); nimA7; ΔKu70::argB (argB2); riboA1; pyroA4; nicB8/A2?; wA3*	This study
MG267	*H3K4R::pyrG^{AF}(pyrG89); nimT23; ΔKu70::argB (argB2); pyroA4; pabaA1; sE15; wA3*	This study
MG327	*H3S10A::pyrG^{AF} (pyroG89); ΔKu70::argB(argB/B2); pyroA4; nirA14; sE15, wA3; fwA1; chA1*	This study
MG320	*H3K4R+S10A::pyrG^{AF} (pyroG89); ΔKu70::argB(argB/B2); pyroA4; nirA14; sE15, wA3; fwA1; chA1*	This study
HA365	*GFP-tub; An-H1-chRFP::pyroA^{AF}; pyrG89; (pyroA4; argB2?); ΔKuA::argB*	Lab stock [1,2]
HA375	*nimT23; GFP-tub; An-H1-chRFP::pyroA^{AF}; pyrG89; (pyroA4; argB2?); ΔKuA::argB*	Lab stock [1,2]
MG160	*ΔAn-swd1::pyrG^{AF} (pyrG89); ΔKu70::argB (argB2/argB?); H1chRFP::pyroA^{AF}(pyroA4); GFP-tub; wA3*	This study
MG161	*nimT23; ΔAn-swd1::pyrGAF (pyrG89); ΔKu70::argB (argB2/argB?);tubAGFP; H1chRFP::pyroA^{AF} (pyroA4)*	This study
MG300	*pyrG89; H1-chRFP::pyro^{AF} (pyroA4); GFP-tub; argB2; nirA14?; nicB8/A2?*	This study
MG304	*nimT23; pyrG89; GFP-tub; H1-chRFP::pyro^{AF} (pyroA4); argB2; sE15?; yA2/3*	This study
MG276	*ΔAn-swd1::pyrG^{AF} (pyrG89);H1-chRFP::pyro^{AF} (pyroA4); GFP-tub; argB2; nirA14?; nicB8/A2?; wA3*	This study
MG302	*nimT23; ΔAn-swd1::pyrG^{AF} (pyrG89); GFP-tub; H1-chRFP::pyro^{AF} (pyroA4); argB2; sE15?; fw/wA3*	This study
MG153	*nimA7; pyrG89; ΔKu70::argB? (argB2/argB?); H1chRFP::pyroAAF(pyroA4); GFP-tub; nicB8/A2?*	This study
MG159	*ΔAn-swd1::pyrG^{AF} (pyrG89); nimA7; ΔKu70::argB (argB2/argB?); H1chRFP::pyroAAF (pyroA4); GFP-tub; nicB8/A2?; wA3*	This study
MG224	*argB2; sE15; GFP-tub; AN162-CR; pyrG89; pyroA4; wA2/3; nicB8/A2?; nirA14?*	This study
MG227	*argB2; sE15; nimA7; pyrG89; pyroA4; GFP-tub; AN162-CR; nicB8/A2?; nirA14?; wA2/3*	This study
MG190	*nimA7; pyrG89; argB2; ndc80-CR::pyroA^{AF} (pyroA4?); GFP-tub; chaA1; GCP3-GFP::riboB^{AF}; nicB8/A2?*	This study
MG229	*nimA7; argB2; pyrG89; ΔyA::NLS-DsRed; GFP-tub; pyroA4; nicB8/A2?*	This study
MG244	*argB2; ΔAn-swd1::pyrG^{AF} (pyrG89); ΔyA::NLSDsRed; GFP-tub; nicB8/A2?; pyroA4; wA3*	This study
MG243	*Δswd1-pyrG^{AF}(pyrG89); nimA7; GFP-tub; ΔyA::NLS-DsRed; argB2; wA3; pyroA4; nicB8/A2?*	This study
MG213	*nimA7; Δswd1-pyrG^{AF}(pyrG89); argB2; nup49-CR::pyroA^{AF}(pyroA4); GFP-tub; nirA14?; nicB8/A2?; wA3*	This study
CDS790	*nimA7; argB2; wA3*	[3]
MG215	*nimA7; Δswd1-pyrG^{AF}(pyrG89); argB2; nicB8/A2?; wA3*	This study
CDS629	*ΔAn-mad2::pyrG^{AF}; pyroA4; pyrG89; chaA1*	[4]
MG383	*ΔAn-swd1::pyrG^{AF}(pyrG89); ΔAn-mad2::pyrG^{AF}(pyrG89); pyroA4; nirA14?; nicB8/A2?; chaA1*	This study
MG381	*nimA7; ΔAn-mad2::pyrG^{AF}(pyrG89); pyroA4; nirA14?; nicB8/A2?; chaA1*	This study
MG405	*nimT23; ΔAn-mad2::pyrG^{AF}(pyrG89); pyroA4; argB2; sE15?; wA/chA/fw*	This study
MG384	*nimA7; ΔAn-swd1::pyroG^{AF} (pyrG89); Δmad2::pyrG^{AF} (pyrG89);pyroA4; nirA14?; nicB8/A2?; wA/chaA1*	This study
MG219	*nimT23; Δswd1-pyrG^{AF}(pyrG89); argB2; pabaA1; pyroA4; sE15?; wA/yA*	This study
SO53	*nimT23; wA2*	[5]
MG402	*nimT23; ΔAn-swd1::pyrG^{AF} (pyrG89); Δmad2::pyrG^{AF} (pyrG89); pyroA4; argB2; sE15?; wA/chA/fw*	This study
MG218	*Δswd1-pyrG^{AF}(pyrG89); riboA1; argB2; nicB8/A2?; wA3*	This study
MG151	*pyrG^{AF} insertion (pyrG89); nimT23; ΔKu70::argB (argB2); pyroA4; pabaA1; sE15; wA3.*	This study
MG411	*ΔAn-swd1::pyro^{AF} (pyroA4); H3K4R::pyrG^{AF} (pyrG89); sE15; nirA14; wA3; fwA1; chA1.*	This study

Question marks indicate mutations or alleles that may be present in the strain and have not been tested for.

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