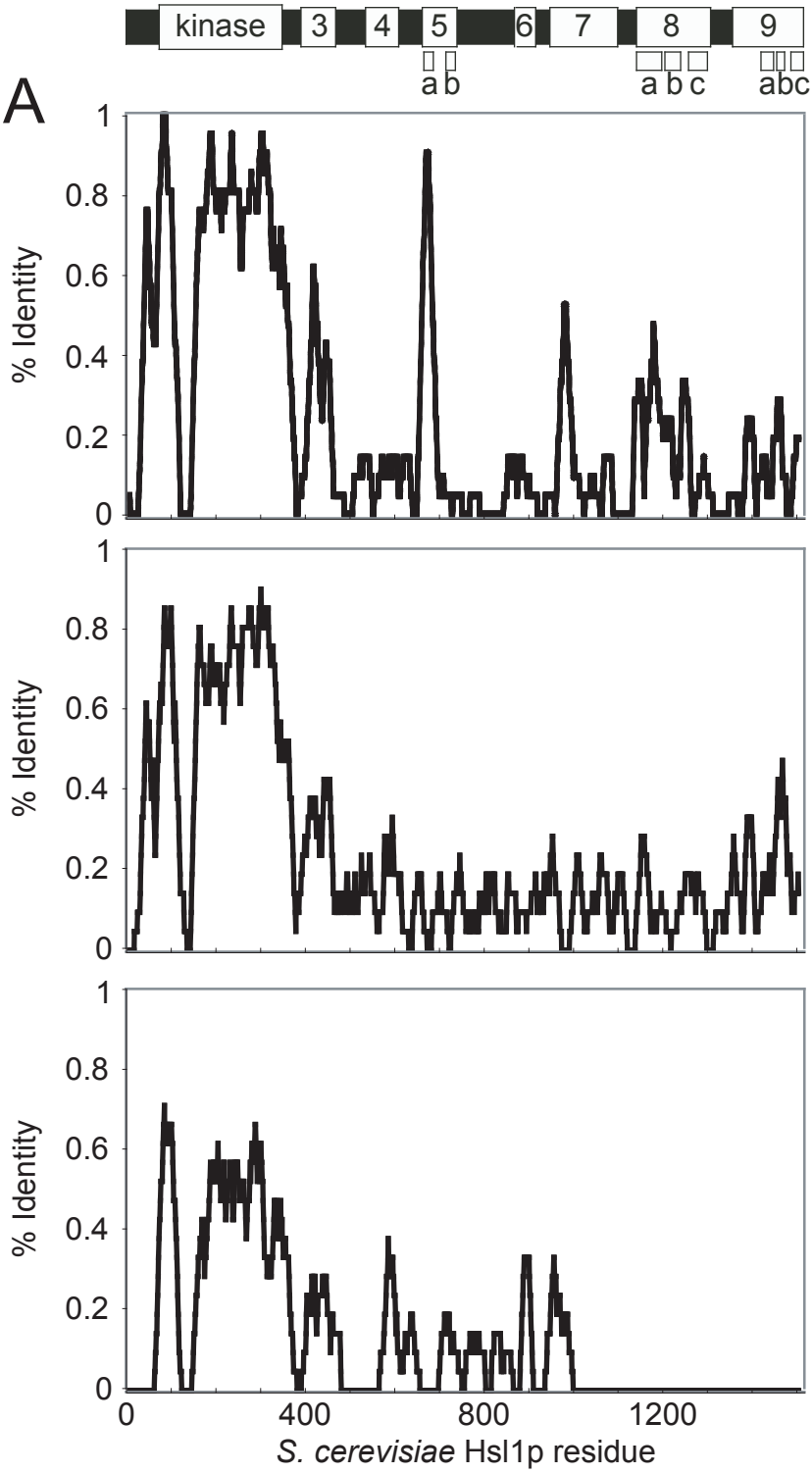
Supplementary Figure Legends

Figure S1. Rapid divergence of the non-kinase domain in Hsl1p orthologs and paralogs. A) Homology scans were conducted as described in the Experimental Procedures using ClustalW alignments of Hsl1p orthologs from *S. cerevisiae* and *A. gossypii* and *K. lactis* (top), *C. albicans* (middle), and *S. pombe* Nim1 (bottom). *S. cerevisiae* diverged from *A. gossypii* and *K. lactis* over 100 million years ago. The last common ancestor of *S. cerevisiae* and *C. albicans* lived 200-800 million years ago. **B)** Homology scan of *S. cerevisiae* paralogs Hsl1p, Gin4p, and Kcc4p aligned using ClustalW.

Figure S2. Cdc28p tyrosine phosphorylation in strains with Hsl1p regional deletions. A) Top: schematic of Hsl1p with regions indicated. Western blots of total cell lysates (NP40 lysis) probed with anti-phospho-Y19-Cdc28p and anti-PSTAIR (total Cdc28p) antibodies: mutants with high Hsl1p function show low Cdc28p phosphorylation. Functional Hsl1p promotes degradation of Swe1p, thereby lowering the amount of tyrosine phosphorylated Swe1p substrate, Cdc28p (Cdk1). **B)** DIC images of double-mutant strains containing Hsl1p regional deletions and *mih1*Δ.



Saccharomyces cerevisiae
Ashbya gossypii
Kluyveromyces lactis

Saccharomyces cerevisiae
Candida albicans

Saccharomyces cerevisiae
Shizosaccharomyces pombe

Saccharomyces cerevisiae:
Hsl1p
Gin4p
Kcc4p

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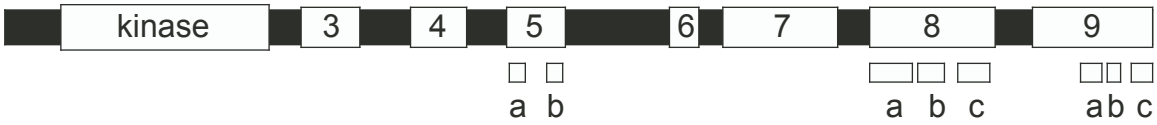
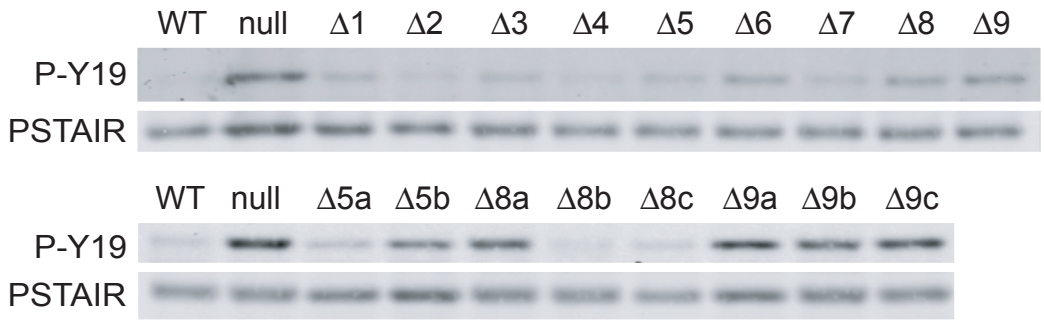


A



B

Rescue of *mih1*Δ *hsl1*Δ: