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Analysis of *Ibd1*, a possible regulator of nuclear division and bud separation in *Saccharomyces cerevisiae*

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The spatial and temporal coordination of nuclear division and cytokinesis is essential for genomic integrity during cell division. *IBD1* (*Inhibition of Bud Division 1*) in *Saccharomyces cerevisiae* was identified by limited homology to *byr4*, a dosage-dependent regulator of cytokinesis in *Schizosaccharomyces pombe*. *IBD1* is not an essential gene, and the knock-out cells show no growth defects except for reduced mating efficiency [1]. However, upon ectopic expression from an inducible promoter, *IBD1* is lethal and cause defects in nuclear division and bud separation, suggesting its functions on nuclear division and cytokinesis. The C-terminal 275 amino acids of the Ibd1p that display the homology to Byr4p were enough to induce these *IBD1* overexpression phenotypes. A functional Ibd1p-GFP fusion protein localizes to a single dot at the nuclear DNA boundary in the divided nuclei or to double dots in dividing nuclei, suggesting its localization on the spindle pole body. In the yeast two-hybrid screen, the C-terminal 275 amino acids of Ibd1p interact with Skp1, a kinetochore protein kinase that connects cell cycle regulators to the ubiquitin hydrolysis. Ibd1p co-precipitates with Skp1 in the yeast extract as well, confirming their interactions. We propose that Ibd1p is a new component of the spindle pole body that links proper nuclear division and cytokinesis to the cell cycle regulators.

[1] Huang *et al.*, (1997) *Yeast* 13, 1181-1194