

P021 Split decisions: regulating the end of the cell cycle
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Exit from mitosis requires the inactivation of the Cdk1-cyclin B kinase complex and the reversal of its phosphorylation events. Central to this regulation is the conserved Cdc14 family of protein phosphatases whose activity reverses Cdk-dependent phosphorylation events. Clp1 is the sole member of this phosphatase family in fission yeast. Studying the regulation of Clp1, we find that it is a direct target of the septation initiation network (SIN) as well as Cdk1. While phosphorylation by Cdk1 attenuates Clp1 activity prior to anaphase, SIN phosphorylation influences its cytoplasmic retention during anaphase. We find that phosphorylation of Clp1 by the SIN as well as targeting Clp1 to the contractile ring (CR) through a direct interaction with the contractile ring positioning protein, Mid1, both contribute to the fidelity of cell division. One of the primary targets of Clp1 at the CR is Cdc15. While the F-BAR domain of Cdc15 interacts with membranes and the formin Cdc12, we have found that the Cdc15 SH3 domain interacts with at least two previously uncharacterized proteins to facilitate CR constriction and the completion of cell division. Clp1 dephosphorylation influences the dynamics of Cdc15 interactions and contributes to CR stability.