

P011 Nuc2p, a subunit of the anaphase promoting complex, inhibits septation initiation network following cytokinesis in fission yeast

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The fission yeast *Schizosaccharomyces pombe* divides utilizing an actomyosin based contractile ring and is an attractive model for the study of the links between mitosis and cytokinesis. In fission yeast, the anaphase promoting complex (APC/C) and the septation initiation network (SIN), a SPB-associated GTPase driven signaling cascade, function sequentially to ensure proper coordination of mitosis and cytokinesis. Here we find a novel interplay between the TPR domain containing subunit of the APC/C, Nuc2p, and the SIN. Over-production of Nuc2p led to an increase in the presence of multinucleated cells, which correlated with a defect in actomyosin ring maintenance and localization of the SIN component protein kinases Cdc7p and Sid1p to the SPBs, indicative of defective SIN signaling. Conversely, loss of Nuc2p function led to increased SIN signaling, characterized by the persistent localization of Cdc7p and Sid1p on SPBs and assembly of multiple actomyosin rings and division septa. Genetic and biochemical analysis established that Nuc2p might influence the nucleotide-state of Spg1p GTPase, a key element of the SIN. We propose that Nuc2p, by inhibiting the SIN after cell division, prevents further deleterious cytokinetic events, thereby contributing to genome stability.