

**P042** Cell end factors inhibit Mid1p in specification of the cell division plane

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It is beginning to be appreciated that both positive and negative spatial cues may ensure the proper placement of the cell division plane. In *Schizosaccharomyces pombe*, the medial positioning of contractile ring assembly is mediated by mid1p, a peripheral membrane protein that forms a broad cortical band of dots overlying the nucleus in interphase and recruits other contractile ring factors in early mitosis. The position of the nucleus provides a positive cue to direct mid1p localization. In screening for possible negative cues, we found that *pom1* mutants exhibit mid1p distribution over the half of the cell over the non-growing cell end. This abnormal mid1p distribution leads to misplaced or multiple contractile rings. Pom1p belongs to the DYRK class of protein kinases, and forms an inhibitory concentration gradient emanating from cell ends. As pom1p is needed for inhibition only from non-growing cell ends, we are currently characterizing a second inhibitory mechanism that inhibits mid1p from the growing cell end. Careful time-lapse imaging suggests that this mechanism involves the physical transport of mid1p dots away from the growing cell end. These directed movements are slow and may be largely independent of cytoskeletal elements. These studies thus begin to reveal how at least three systems in distinct cellular locations are responsible for positioning mid1p and the cell division plane.