

PublisherInfo		
PublisherName	:	BioMed Central
PublisherLocation	:	London
PublisherImprintName	:	BioMed Central

Actin checkpoint

ArticleInfo		
ArticleID	:	4153
ArticleDOI	:	10.1186/gb-spotlight-20010719-01
ArticleCitationID	:	spotlight-20010719-01
ArticleSequenceNumber	:	224
ArticleCategory	:	Research news
ArticleFirstPage	:	1
ArticleLastPage	:	2
ArticleHistory	:	RegistrationDate : 2001-07-19 OnlineDate : 2001-07-19
ArticleCopyright	:	BioMed Central Ltd2001
ArticleGrants	:	
ArticleContext	:	130592211

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Mitotic segregation of chromosomes depends on correct assembly of the bipolar spindle and mitosis is delayed by the spindle assembly checkpoint (SAC). In the July 19 *Nature*, Gachet *et al.*, at the National Institute for Medical Research and University College London, describe a different mitotic checkpoint in yeast (*Nature* 2001, **412**:352-355). They investigated the link between organization of the actin cytoskeleton and the cell cycle in the fission yeast *Schizosaccharomyces pombe*. They synchronized cells in early G2 and then grew them in the presence of latrunculin B (Lat B), an inhibitor of actin polymerization. Lat B-treated cells arrested in mitosis with short and misoriented spindles. Actin depolymerization affected Cut1-mediated cohesin cleavage and sister chromatid separation. The effect of Lat B was independent of SAC activation. Gachet *et al.* screened yeast mutants to identify checkpoint components and found that cells lacking the Atf1 factor were hypersensitive to Lat B, as were mutants lacking the upstream Sty1 MAP kinase. Thus the integrity of the actin cytoskeleton, spindle orientation and stress-activated kinase signaling determine the nature of this new mitotic checkpoint.

References

1. The spindle checkpoint
2. *Nature* , [<http://www.nature.com>]
3. National Institute for Medical Research , [<http://www.nimr.mrc.ac.uk>]
4. University College London , [<http://www.ucl.ac.uk/>]
5. The Atf1 transcription factor is a target for the Sty1 stress-activated MAP kinase pathway in fission yeast.