

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

ISWI with my little eye

ArticleInfo		
ArticleID	:	4639
ArticleDOI	:	10.1186/gb-spotlight-20021120-01
ArticleCitationID	:	spotlight-20021120-01
ArticleSequenceNumber	:	305
ArticleCategory	:	Research news
ArticleFirstPage	:	1
ArticleLastPage	:	2
ArticleHistory	:	RegistrationDate : 2002-11-20 OnlineDate : 2002-11-20
ArticleCopyright	:	BioMed Central Ltd2002
ArticleGrants	:	
ArticleContext	:	130593311

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Condensed chromatin presents a barrier to access for the DNA replication machinery. In an Advanced Online Publication in [Nature Genetics](#), Nadine Collins and colleagues describe the role of chromatin-remodeling complexes during the replication of [pericentric heterochromatin](#) regions (*Nature Genetics*, doi:10.1038/ng1046, 18 November 2002). Immunostaining experiments revealed that the ISWI-ACF1 (ATP-utilizing chromatin assembly and remodeling factor 1) complex is co-localized with pericentric heterochromatin in mouse fibroblast cells during replication. Knocking out ACF1 function, by RNA interference, impaired the DNA replication of pericentric heterochromatin during late S phase and blocked cell cycle progression. This was reversed by decondensing chromatin by other means (using 5-aza-2-deoxycytidine - a DNA methylation inhibitor). Thus remodeling by the ACF1-ISWI complexes appears necessary to allow movement of the replication fork through condensed heterochromatin regions.

References

1. *Nature Genetics*, [<http://www.nature.com/naturegenetics>]
2. Unfolding the mysteries of heterochromatin.
3. HuCHRAC, a human ISWI chromatin remodelling complex contains hACF1 and two novel histone-fold proteins.