

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

## ssDNA Tools

ArticleInfo		
ArticleID	:	4105
ArticleDOI	:	10.1186/gb-spotlight-20010601-02
ArticleCitationID	:	spotlight-20010601-02
ArticleSequenceNumber	:	176
ArticleCategory	:	Research news
ArticleFirstPage	:	1
ArticleLastPage	:	2
ArticleHistory	:	RegistrationDate : 2001-06-01 OnlineDate : 2001-06-01
ArticleCopyright	:	BioMed Central Ltd2001
ArticleGrants	:	
ArticleContext	:	130592211

Jonathan B Weitzman

Email: jonathanweitzman@hotmail.com

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Homologous recombination of DNA is a powerful tool for chromosome engineering experiments, but is a rare event, requiring long stretches of homology and complex reactions. [Phage-mediated systems](#) allow efficient recombination of linear DNA with relatively short homologies. In the June 5 [Proceedings of the National Academy of Sciences](#), Ellis *et al.* describe an efficient recombination system that uses short synthetic single-stranded DNA (ssDNA) (*Proc Natl Acad Sci USA* 2001, **98**:6742-6746). They show that oligonucleotides as short as 30 nucleotides could be used to correct 'amber' mutations in the *E. coli galK* gene using the bacteriophage lambda Red system (with efficiencies up to 6%). Only the lambda Beta protein is absolutely required for ssDNA recombination. The authors propose a recombination mechanism in which the Beta protein binds and anneals the ssDNA to a complementary single-strand near the DNA replication fork. They suggest that ssDNA may prove useful for chromosome modification and repair in eukaryotic cells.

## References

1. An efficient recombination system for chromosome engineering in *Escherichia coli*.
2. *Proceedings of the National Academy of Sciences*, [<http://www.pnas.org>]