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Phage integrase in mice

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The Cre and Flp site-specific recombinases have become standard tools for genome engineering in mice. In an Advanced Online Publication in Nature Biotechnology Belteki *et al.* demonstrate that the integrase from *Streptomyces* ΦC31 phage can be used in mouse embryonic stem (ES) cells to generate site-specific insertions in the genome (*Nature Biotechnology,* 3 February 2003, doi;10.1038/nbt787). They placed a sequence flanked by *attP* or *attB* recognition sites in the mouse genome (P- or B-docking sites) and then introduced a plasmid containing an *attB* or *attP*-flanked promoterless gene (B- or P-incoming construct). They observed the highest frequencies of cassette exchange events when using P-docking sites with B-incoming sequences. Belteki *et al.* used the engineered ES cells to create chimeric mice and demonstrated germline transmission. The ΦC31 integrase thus represents another tool in the genome engineer's toolkit.

References

1. Conditional control of gene expression in the mouse.

2. *Nature Biotechnology*, [http://www.nature.com/naturebiotechnology]

3. Site-specific genomic integration in mammalian cells mediated by phage ΦC31 integrase.