ABSTRACT

SITE-SPECIFIC SERINE RECOMBINASES AND METHODS OF THEIR USE

The present invention provides a method for obtaining site-specific recombination in a eukaryotic cell, the method comprising providing a eukaryotic cell that comprises a first recombination attachment site and a second recombination attachment site; contacting the first and second recombination attachment sites with a prokaryotic recombinase polypeptide, resulting in recombination between the recombination attachment sites, wherein the recombinase polypeptide can mediate recombination between the first and second recombination attachment sites, the first recombination attachment site is a phage genomic recombination attachment site (attP) or a bacterial genomic recombination attachment site (attB), the second recombination site is attB or attP, and the recombinase is selected from the group consisting of a Listeria monocytogenes phage recombinase, a Streptococcus pyogenes phage recombinase, a Bacillus subtilis phage recombinase, a Mycobacterium tuberculosis phage recombinase and a Mycobacterium smegmatis phage recombinase, provided that when the first recombination attachment site is attB, the second recombination attachment site is attP and when the first recombination attachment site is attP, the second recombination attachment site is attB. The invention also describes compositions, vectors, and methods of use thereof, for the generation of transgenic cells, tissues, plants, and animals. The compositions, vectors and methods of the present invention are also useful in gene therapy applications.

No Figure