

Claims

1. A non-naturally occurring nucleic acid molecule comprising a nucleotide sequence having at least 99% identity to the nucleotide sequence of SEQ ID NO:3.
2. The non-naturally occurring nucleic acid molecule of claim 1, wherein the nucleotide sequence is identical to the nucleotide sequence of SEQ ID NO:3.
3. A vector comprising the non-naturally occurring nucleic acid molecule of claim 1 or 2.
4. The vector of claim 3, further comprising a promoter operably linked to said nucleic acid molecule.
5. The vector of claim 4, wherein the promoter is a cytomegalovirus (CMV) promoter, a simian virus 40 (SV40) promoter, a mouse mammary tumor virus (MMTV) promoter, a human immunodeficiency virus (HIV) promoter, a Moloney virus promoter, an avian leukosis virus (ALV) promoter, an Epstein Barr virus (EBV) promoter, or a Rous sarcoma virus (RSV) promoter.
6. The vector of claim 4, wherein the promoter is a tissue specific promoter.
7. The vector of any one of claims 3 to 6, further comprising a polyadenylation signal operably linked to said nucleic acid molecule.
8. The vector of claim 7, wherein the polyadenylation signal is a simian virus 40 (SV40) polyadenylation signal, bovine growth hormone (bGH) polyadenylation signal, human growth hormone (hGH) polyadenylation signal, or human b-globin polyadenylation signal.
9. The vector of any one of claims 3 to 8, wherein the vector is a DNA plasmid or a viral vector.
10. The vector of claim 9, wherein the viral vector is an adenoviral vector, adeno-associated virus vector, a pox virus vector, an enteric virus vector, a Venezuelan Equine Encephalitis virus vector, a Semliki Forest Virus vector, Tobacco Mosaic Virus vector, or lentiviral vector.
11. The vector of claim 9, wherein the vector is a recombinant adenoviral vector.
12. A cell comprising the non-naturally occurring nucleic acid molecule of claim 1 or 2, or the vector of any one of claims 3 to 11.
13. The cell of claim 12, wherein the cell is selected from the group consisting of a 911 cell, pTG6559 cell, GH329 cell, N52.E6 cell, HeLa-E1 cell, UR cell, VLI-293 cell, HEK293 cell, and a PER.C6 cell.
14. The cell of claim 12 or 13, wherein the cell further comprises adenovirus E1 A and E1B genes.

15. The cell of any one of claims 12 to 14, wherein the cell further comprises a nucleic acid sequence comprising an *attP* site, wherein the *attP* site comprises a nucleotide sequence at least 98% or at least 99% identical to the nucleotide sequence of SEQ ID NO: 7.
16. The cell of any one of claims 12 to 15, wherein the cell further comprises a nucleic acid sequence comprising an *attP* site, wherein the *attP* site comprises the nucleotide sequence of SEQ ID NO: 7.
17. The cell of any one of claims 12 to 16, wherein the cell further comprises a nucleic acid sequence comprising an *attB* site, wherein the *attB* site comprises a nucleotide sequence at least 98% or at least 99% identical to the nucleotide sequence of SEQ ID NO: 8 or 9.
18. The cell of any one of claims 12 to 16, wherein the cell further comprises a nucleic acid sequence comprising an *attB* site, wherein the *attB* site comprises the nucleotide sequence of SEQ ID NO: 8 or 9.
19. A method of conducting a site-specific recombination in a cell, comprising:
 - (a) obtaining a cell comprising a nucleic acid molecule having an *attP* site having a nucleotide sequence at least 98%, 99% or 100%, identical to SEQ ID NO:7, and an *attB* site having a nucleotide sequence at least 98%, 99% or 100%, identical of SEQ ID NO:8 or SEQ ID NO:9;
 - (b) introducing to the cell a non-naturally occurring nucleic acid molecule encoding a serine recombinase, wherein the nucleic acid molecule comprises a nucleotide sequence having at least 99% identity to the nucleotide sequence of SEQ ID NO:3; and
 - (c) growing the cell under conditions to allow the serine recombinase to catalyze the site-specific recombination between the *attP* and *attB* sites.
20. The method of claim 19, wherein the *attP* site is identical to SEQ ID NO: 7, the *attB* site is identical to SEQ ID NO: 8 or SEQ ID NO: 9, and the nucleotide sequence encoding the serine recombinase is identical to SEQ ID NO: 3.