CLAIMS

1. A polypeptide comprising a piggyBac transposase or a fragment or a derivative thereof having transposase function comprising at least one amino acid substitution selected from the group consisting of
isoleucine (I) at amino acid position 30 or at an amino acid position corresponding thereto is replaced by alanine (A) (I30A),
glutamine (Q) at amino acid position 118 or at an amino acid position corresponding thereto is replaced by proline (P) (Q118P),
methionine (M) at amino acid position 185 or at an amino acid position corresponding thereto is replaced by valine (V) (M185V),
methionine (M) at amino acid position 282 or at an amino acid position corresponding thereto is replaced by leucine (L) (M282L), and
asparagine (N) at amino acid position 538 or at an amino acid position corresponding thereto is replaced by arginine (R) (N538R).

2. The polypeptide of claim 1, wherein the piggyBac transposase or the fragment or the derivative thereof having transposase function comprises the following amino acid substitutions:
isoleucine (I) at amino acid position 30 or at an amino acid position corresponding thereto is replaced by alanine (A) (I30A),
methionine (M) at amino acid position 282 or at an amino acid position corresponding thereto is replaced by leucine (L) (M282L), and
asparagine (N) at amino acid position 538 or at an amino acid position corresponding thereto is replaced by arginine (R) (N538R).

3. The polypeptide of claims 1 or 2, wherein the piggyBac transposase or the fragment or the derivative thereof having transposase function comprises the following amino acid substitutions:
isoleucine (I) at amino acid position 30 or at an amino acid position corresponding thereto is replaced by alanine (A) (I30A),
glutamine (Q) at amino acid position 118 or at an amino acid position corresponding thereto is replaced by proline (P) (Q118P),

methionine (M) at amino acid position 185 or at an amino acid position corresponding thereto is replaced by valine (V) (M185V),
methionine (M) at amino acid position 282 or at an amino acid position corresponding thereto is replaced by leucine (L) (M282L), and
asparagine (N) at amino acid position 538 or at an amino acid position corresponding thereto is replaced by arginine (R) (N538R).

4. The polypeptide of any one of claims 1 to 3, wherein the polypeptide comprises at least one heterologous chromatin reader domain (CRD).

5. The polypeptide of claim 4, wherein the CRD is a plant homeodomain (PHD) type zinc finger.

6. The polypeptide of claim 5, wherein the PHD type zinc finger is a transcription initiation factor TFIID subunit 3 PHD.

7. A polynucleotide encoding the polypeptide of any one of claims 1 to 6.

8. A vector comprising the polynucleotide of claim 7.

9. A transposable element comprising a piggyBac or piggyBac-like
left repeat sequence and
left internal repeat sequence,
wherein the left internal repeat sequence comprises at least one nucleotide modification, wherein the at least one nucleotide modification increases the homology of the left internal repeat sequence to the left repeat sequence.

10. The transposable element of claim 9, wherein the at least one nucleotide modification is selected from the group consisting of a nucleotide substitution, a nucleotide deletion, a nucleotide addition, and a nucleotide insertion, or is a combination thereof.

11. The transposable element of claim 10, wherein the piggyBac left internal repeat sequence

(i) has a nucleotide sequence according to SEQ ID NO: 1 and comprises at least one nucleotide substitution selected from the group consisting of
adenosine (A) at nucleotide position 3 is replaced by cytidine (C) (A3C),
adenosine (A) at nucleotide position 9 is replaced by thymidine (T) (A9T),
adenosine (A) at nucleotide position 10 is replaced by thymidine (T) (A10T), and
guanosine (G) at nucleotide position 12 is replaced by thymidine (T) (G12T), or
is a variant thereof which is at least 80% identical to said nucleotide sequence, wherein said variant comprises at least one nucleotide substitution selected from the group consisting of
adenosine (A) at nucleotide position 3 or at a nucleotide position corresponding thereto is replaced by cytidine (C) (A3C),
adenosine (A) at nucleotide position 9 or at a nucleotide position corresponding thereto is replaced by thymidine (T) (A9T),
adenosine (A) at nucleotide position 10 or at a nucleotide position corresponding thereto is replaced by thymidine (T) (A10T), and
guanosine (G) at nucleotide position 12 or at a nucleotide position corresponding thereto is replaced by thymidine (T) (G12T),

(ii) has a nucleotide sequence according to SEQ ID NO: 2 and comprises a nucleotide insertion, wherein adenosine (A) is introduced between nucleotide positions 7 and 8, or
is a variant thereof which is at least 80% identical to said nucleotide sequence, wherein said variant comprises a nucleotide insertion, wherein adenosine (A) is introduced between nucleotide positions 7 and 8 or between nucleotide positions corresponding thereto,

(iii) has a nucleotide sequence according to SEQ ID NO: 3 and comprises at least one nucleotide substitution selected from the group consisting of
guanosine (G) at nucleotide position 7 is replaced by cytidine (C) (G7C), and
thymidine (T) at nucleotide position 9 is replaced by cytidine (C) (T9C), or
is a variant thereof which is at least 80% identical to said nucleotide sequence, wherein said variant comprises at least one nucleotide substitution selected from the group consisting of

guanosine (G) at nucleotide position 7 or at a nucleotide position corresponding thereto is replaced by cytidine (C) (G7C), and

thymidine (T) at nucleotide position 9 or at a nucleotide position corresponding thereto is replaced by cytidine (C) (T9C),

(iv) has a nucleotide sequence according to SEQ ID NO: 4 and comprises a nucleotide substitution, wherein thymidine (T) at nucleotide position 7 is replaced by adenosine (A) (T7A), or

is a variant thereof which is at least 80% identical to said nucleotide sequence, wherein said variant comprises a nucleotide substitution, wherein thymidine (T) at nucleotide position 7 or at a nucleotide position corresponding thereto is replaced by adenosine (A) (T7A), or

(v) has a nucleotide sequence according to SEQ ID NO: 5 and comprises at least one nucleotide substitution selected from the group consisting of

guanosine (G) at nucleotide position 6 is replaced by thymidine (T) (G6T), and

thymidine (T) at nucleotide position 14 is replaced by guanosine (G) (T14G), or

is a variant thereof which is at least 80% identical to said nucleotide sequence, wherein said variant comprises at least one nucleotide substitution selected from the group consisting of

guanosine (G) at nucleotide position 6 or at a nucleotide position corresponding thereto is replaced by thymidine (T) (G6T), and

thymidine (T) at nucleotide position 14 or at a nucleotide position corresponding thereto is replaced by guanosine (G) (T14G).

12. The transposable element of any one of claims 9 to 11, wherein the transposable element comprises

at least one polynucleotide of interest, or

at least one cloning site for inserting at least one polynucleotide of interest.

13. A method for producing a transgenic cell comprising the steps of:

(i) providing a cell, and

(ii) introducing

(iia) a transposable element, and

a polypeptide of any one of claims 1 to 6, or

a polynucleotide of claim 7, or

a vector of claim 8, or

(iib) a transposable element of any one of claims 9 to 12, and

a transposase or a fragment or a derivative thereof having transposase function, or

a polynucleotide encoding a transposase or a fragment or a derivative thereof having transposase function, or

a vector comprising a polynucleotide encoding a transposase or a fragment or a derivative thereof having transposase function, or

(iic) a transposable element of any one of claims 9 to 12, and

a polypeptide of any one of claims 1 to 6, or

a polynucleotide of claim 7, or

a vector of claim 8

into the cell, thereby producing the transgenic cell.

14. The method of claim 13, wherein the transposable element of (iia) comprises at least one polynucleotide of interest.

15. A transgenic cell obtainable by the method of claim 13 or 14.

16. Use of a transgenic cell of claim 15 for the production of a protein or virus.

17. A kit comprising

(i) a transposable element, and

a polypeptide of any one of claims 1 to 6, or

a polynucleotide of claim 7, or

a vector of claim 8; or

(ii) a transposable element of any one of claims 9 to 12, and

a transposase or a fragment or a derivative thereof having transposase function, or

a polynucleotide encoding a transposase or a fragment or a derivative thereof having transposase function, or

a vector comprising a polynucleotide encoding a transposase or a fragment or a derivative thereof having transposase function; or

(iii) a transposable element of any one of claims 9 to 12, and

a polypeptide of any one of claims 1 to 6, or
a polynucleotide of claim 7, or
a vector of claim 8.

18. The kit of claim 17, wherein the transposable element of (i) comprises
at least one polynucleotide of interest, or
at least one cloning site for inserting at least one polynucleotide of interest.

19. A targeting system comprising
(i) a transposable element, and
a polypeptide of any one of claims 1 to 6, or
a polynucleotide of claim 7, or
a vector of claim 8; or
(ii) a transposable element of any one of claims 9 to 12, and
a transposase or a fragment or a derivative thereof having transposase function, or
a polynucleotide encoding a transposase or a fragment or a derivative thereof having transposase function, or
a vector comprising a polynucleotide encoding a transposase or a fragment or a derivative thereof having transposase function; or
(iii) a transposable element of any one of claims 9 to 12, and
a polypeptide of any one of claims 1 to 6, or
a polynucleotide of claim 7, or
a vector of claim 8.

20. The targeting system of claim 19, wherein the transposable element of (i) comprises at least one polynucleotide of interest.