CLAIMS

1. A polypeptide comprising a transposase and at least one heterologous histone reader domain, wherein the transposase is selected from the group consisting of a wild-type PiggyBac transposase, a hyperactive PiggyBac transposase, a wild-type PiggyBac-like transposase, a hyperactive PiggyBac-like transposase, and a sleeping beauty transposase, and wherein the at least one heterologous histone reader domain is a plant homeodomain (PHD) type zinc finger recognising histone methylation degree or a bromodomain recognising the acetylation state of histones.

2. The polypeptide of claim 1, wherein the at least one heterologous histone reader domain is connected to the transposase via a linker.

3. The polypeptide of claim 1 or 2, wherein the at least one heterologous histone reader domain is connected to the N-terminus and/or C-terminus of the transposase via a linker.

4. The polypeptide of any one of claims 1 to 3, wherein
the PHD type zinc finger is a transcription initiation factor TFIID subunit 3 PHD, or
the bromodomain is a histone acetyltransferase KAT2A domain.

5. The polypeptide of claim 4, wherein
the transcription initiation factor TFIID subunit 3 PHD has an amino acid sequence according to SEQ ID NO: 20, or
the histone acetyltransferase KAT2A domain has an amino acid sequence according to SEQ ID NO: 21.

6. The polypeptide of any one of claims 1 to 5, wherein the polypeptide further comprises at least one heterologous DNA binding domain and/or a heterologous nuclear localization signal (NLS).

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 method for producing a transgenic cell comprising the steps of:
(i) providing a cell, and
(ii) introducing
a transposable element comprising at least one polynucleotide of interest, and
a polypeptide of any one of claims 1 to 6,
a polynucleotide of claim 7, or
a vector of claim 8
into the cell, thereby producing the transgenic cell.

10. The method of claim 9, wherein the introduction takes place via electroporation, transfection, injection, lipofection, and/or (viral) infection.

11. The method of claim 9 or 10, wherein the transposable element comprises terminal repeats (TRs).

12. The method of claim 11, wherein the at least one polynucleotide of interest is flanked by TRs.

13. The method of any one of claims 9 to 12, wherein the transposable element is
a DNA transposable element, or
a retrotransposable element.

14. The method of claim 13, wherein
the DNA transposable element comprises inverted terminal repeats (ITRs), or
the retrotransposable element is a long terminal repeat (LTR) retrotransposable element.

15. The method of any one of claims 9 to 14, wherein the cell is eukaryotic cell.

16. The method of claim 15, wherein the eukaryotic cell is a vertebrate, yeast, fungus, insect cell.

17. The method of any one of claims 9 to 16, wherein the at least one polynucleotide of interest is selected from the group consisting of a polynucleotide encoding a polypeptide, a non-coding polynucleotide, a polynucleotide comprising a promoter sequence, a polynucleotide encoding a mRNA, a polynucleotide encoding a tag, and a viral polynucleotide.

18. A transgenic cell obtainable by the method of any one of claims 9 to 17.

19. Use of a transgenic cell of claim 18 for the production of a protein or virus.

20. A kit comprising

(i) a transposable element comprising a cloning site for inserting at least one polynucleotide of interest, and

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