CLAIMS

1. A polypeptide comprising a transposase and at least one heterologous histone reader domain.

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 at least one heterologous histone reader domain is a naturally occurring histone reader domain recognising histone methylation degree and/or acetylation state of histones.

5. The polypeptide of claim 4, wherein
the naturally occurring histone reader domain recognising histone methylation degree is a plant homeodomain (PHD) type zinc finger, or
the naturally occurring histone reader domain recognising the acetylation state of histones is a bromodomain.

6. The polypeptide of claim 5, wherein
the PHD type zinc finger is a transcription initiation factor TFIID subunit 3 PHD, or
the bromodomain is a histone acetyltransferase KAT2A domain.

7. The polypeptide of claim 6, 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.

8. The polypeptide of any one of claims 1 to 7, 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, a sleeping beauty transposase, and a Tol2 transposase.

9. The polypeptide of any one of claims 1 to 8, wherein the polypeptide further comprises at least one heterologous DNA binding domain and/or a heterologous nuclear localization signal (NLS).

10. A polynucleotide encoding the polypeptide of any one of claims 1 to 9.

11. A vector comprising the polynucleotide of claim 10.

12. 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 9,
a polynucleotide of claim 10, or
a vector of claim 11
into the cell, thereby producing the transgenic cell.

13. The method of claim 12, wherein the introduction takes place via electroporation, transfection, injection, lipofection, and/or (viral) infection.

14. The method of claim 12 or 13, wherein the transposable element comprises terminal repeats (TRs).

15. The method of claim 14, wherein the at least one polynucleotide of interest is flanked by TRs.

16. The method of any one of claims 12 to 15, wherein the transposable element is
a DNA transposable element, or
a retrotransposable element.

17. The method of claim 16, wherein
the DNA transposable element comprises inverted terminal repeats (ITRs), or
the retrotransposable element is a long terminal repeat (LTR) retrotransposable element.

18. The method of any one of claims 12 to 17, wherein the cell is eukaryotic cell.

19. The method of claim 18, wherein the eukaryotic cell is a vertebrate, yeast, fungus, insect cell.

20. The method of any one of claims 12 to 19, 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.

21. A transgenic cell obtainable by the method of any one of claims 12 to 20.

22. Use of a transgenic cell of claim 21 for the production of a protein or virus.

23. 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 9,
a polynucleotide of claim 10,
a vector of claim 11, or
at least one heterologous CRE and a polypeptide comprising a transposase or a fragment or a derivative thereof having transposase function.