Claims

1. A method of modifying a targeted site of a double-stranded DNA, comprising a step of introducing a complex wherein a nucleic acid sequence-recognizing module that specifically binds to a target nucleotide sequence in a given double-stranded DNA and PmCDA1 are bonded, into a mammalian cell containing the double-stranded DNA, and culturing the cell at a temperature of 20°C to 25°C at least temporarily to convert one or more nucleotides in the targeted site to other one or more nucleotides or delete one or more nucleotides, or insert one or more nucleotides into said targeted site, without cleaving at least one strand of said double-stranded DNA in the targeted site,
wherein the nucleic acid sequence-recognizing module is a CRISPR-Cas system wherein at least one DNA cleavage ability of Cas is inactivated.

2. The method according to claim 1, wherein said Cas is deficient in two DNA cleavage abilities.

3. The method according to claim 1, wherein the temperature is 25°C.

4. The method according to any one of claims 1 to 3, wherein the double-stranded DNA is contacted with the complex by introducing a nucleic acid encoding the complex into a mammalian cell having the double-stranded DNA.

5. A method of modifying a targeted site of a double-stranded DNA, comprising a step of contacting a complex wherein a nucleic acid sequence-recognizing module that specifically binds to a target nucleotide sequence in a given double-stranded DNA, a nucleic acid base converting

enzyme and a base excision repair inhibitor are bonded, with said double-stranded DNA to convert one or more nucleotides in the targeted site to other one or more nucleotides or delete one or more nucleotides, or insert one or more nucleotides into said targeted site, without cleaving at least one strand of said double-stranded DNA in the targeted site,
wherein the nucleic acid sequence-recognizing module is a CRISPR-Cas system wherein at least one DNA cleavage ability of Cas is inactivated, and
wherein the nucleic acid base converting enzyme is PmCDA1 encoded by a nucleotide having codon optimized for a host cell.

6. The method according to claim 5, wherein said Cas is deficient in two DNA cleavage abilities.

7. The method according to claim 5 or 6, wherein the base excision repair inhibitor is a uracil DNA glycosylase inhibitor.

8. The method according to claim 5, wherein the host cell is a mammalian cell.

9. The method according to any one of claims 5 to 8, wherein the double-stranded DNA is contacted with the complex by introducing a nucleic acid encoding the complex into a cell having the double-stranded DNA.

10. A nucleic acid-modifying enzyme complex wherein a nucleic acid sequence-recognizing module that specifically binds to a target nucleotide sequence in a given double-stranded DNA, a nucleic acid base converting enzyme and a base excision repair inhibitor are bonded, which complex converts one or more nucleotides in the targeted site to other one or more nucleotides or deletes

one or more nucleotides, or inserts one or more nucleotides into said targeted site, without cleaving at least one strand of said double-stranded DNA in the targeted site,
wherein the nucleic acid sequence-recognizing module is a CRISPR-Cas system wherein at least one DNA cleavage ability of Cas is inactivated, and
wherein the nucleic acid base converting enzyme is PmCDA1 encoded by a nucleotide having codon optimized for a host cell.

11. The method according to claim 10, wherein the host cell is a mammalian cell.

12. A nucleic acid encoding the nucleic acid-modifying enzyme complex according to claim 10 or 11.