

CLAIMS

1. A method for producing a DNA library, comprising conducting a nucleic acid amplification reaction in a reaction solution comprising genomic DNA and a random primer at a high concentration using genomic DNA as a template to obtain DNA fragments by the nucleic acid amplification reaction.
2. The method for producing a DNA library according to claim 1, wherein the reaction solution comprises the random primer at a concentration of 4 to 200 μM .
3. The method for producing a DNA library according to claim 1, wherein the reaction solution comprises the random primer at a concentration of 4 to 100 μM .
4. The method for producing a DNA library according to claim 1, wherein the random primer comprises 9 to 30 nucleotides.
5. The method for producing a DNA library according to claim 1, wherein the DNA fragments each comprise 100 to 500 nucleotides.
6. A method for analyzing genomic DNA, comprising using a DNA library produced by the method for producing a DNA library according to any one of claims 1 to 5 as a DNA marker.
7. The method for analyzing genomic DNA according to claim 6, which comprises determining the nucleotide sequence of the DNA library produced by the method for producing a DNA library according to any one of claims 1 to 5 and confirming the presence or absence of the DNA marker based on the nucleotide sequence.

8. The method for analyzing genomic DNA according to claim 7, wherein the presence or absence of the DNA marker is confirmed based on the number of reads of the nucleotide sequence of the DNA library in the step of confirming the presence or absence of the DNA marker.
9. The method for analyzing genomic DNA according to claim 7, wherein the nucleotide sequence of the DNA library is compared with known sequence information or with the nucleotide sequence of a DNA library produced using genomic DNA from a different organism or tissue, and the presence or absence of the DNA marker is confirmed based on differences in the nucleotide sequences.
10. The method for analyzing genomic DNA according to claim 6, which comprises:
a step of preparing a pair of primers for specifically amplifying the DNA marker based on the nucleotide sequence of the DNA marker;
a step of conducting a nucleic acid amplification reaction using genomic DNA extracted from a target organism as a template and the pair of primers; and a step of confirming the presence or absence of the DNA marker in the genomic DNA based on the results of the nucleic acid amplification reaction.
11. A method for producing a DNA library, comprising:
a step of conducting a nucleic acid amplification reaction in a first reaction solution comprising genomic DNA and a random primer at a high concentration to obtain first DNA fragments by the nucleic acid amplification reaction using the genomic DNA as a template; and
a step of conducting a nucleic acid amplification reaction in a second reaction solution comprising the obtained first DNA fragments and a nucleotide, as a primer, which has a 3'-end nucleotide sequence having 70% identity to at least a 5'-end nucleotide sequence of the random primer to ligate the nucleotides to the first DNA fragments, thereby obtaining second DNA fragments.

12. The method for producing a DNA library according to claim 11, wherein the first reaction solution comprises the random primer at a concentration of 4 to 200 μ M.
13. The method for producing a DNA library according to claim 11, wherein the first reaction solution comprises the random primer at a concentration of 4 to 100 μ M.
14. The method for producing a DNA library according to claim 11, wherein the random primer comprises 9 to 30 nucleotides.
15. The method for producing a DNA library according to claim 11, wherein the first DNA fragments each comprise 100 to 500 nucleotides.
16. The method for producing a DNA library according to claim 11, wherein the primer for amplifying the second DNA fragments comprises a region used for a nucleotide sequencing reaction, or the primer used for a nucleic acid amplification reaction using the second DNA fragments as templates or a nucleic acid amplification reaction to be conducted repeatedly comprises a region used for a nucleotide sequencing reaction.
17. A method for analyzing a DNA library, comprising a step of determining a nucleotide sequence for a second DNA fragment obtained by the method for producing a DNA library according to any one of claims 11 to 15 or a DNA fragment obtained using a primer comprising a region complementary to a sequencer primer to be used in a nucleotide sequencing reaction in the method for producing a DNA library according to claim 16.
18. A method for analyzing genomic DNA, comprising using the DNA library produced by the method for producing a DNA library according to any of claims 11 to 17 as a DNA marker.

19. The method for analyzing genomic DNA according to claim 18, which comprises determining the nucleotide sequence of the DNA library produced by the method for producing a DNA library according to any one of claims 11 to 17 and confirming the presence or absence of the DNA marker based on the nucleotide sequence.

20. The method for analyzing genomic DNA according to claim 19, wherein the presence or absence of the DNA marker is confirmed based on the number of reads of the nucleotide sequence of the DNA library in the step of confirming the presence or absence of the DNA marker.

21. The method for analyzing genomic DNA according to claim 19, wherein the nucleotide sequence of the DNA library is compared with known sequence information or with the nucleotide sequence of a DNA library produced using genomic DNA from a different organism or tissue, and the presence or absence of the DNA marker is confirmed based on differences in the nucleotide sequences.

22. The method for analyzing genomic DNA according to claim 18, which comprises: a step of preparing a pair of primers for specifically amplifying the DNA marker based on the nucleotide sequence of the DNA marker; a step of conducting a nucleic acid amplification reaction using genomic DNA extracted from a target organism as a template and the pair of primers; and a step of confirming the presence or absence of the DNA marker in the genomic DNA based on the results of the nucleic acid amplification reaction.

23. A DNA library, which is produced by the method for producing a DNA library according to any one of claims 1 to 5 and 11 to 16.