

Claims

Claim 1

A polypeptide having a fluorescence property,

the polypeptide being defined in any one of (1) to (4)

5 below:

(1) A polypeptide having an amino acid sequence represented by SEQ ID NO. 1 or NO. 2,

(2) A polypeptide having an amino acid sequence represented by SEQ ID NO. 1 or NO. 2 in which amino acid
10 ~~sequence 1 to 23 amino acids~~ any number of not less than 1
amino acid and not more than 23 amino acids each at any
position have been replaced, deleted, inserted, and/or added,

(3) A polypeptide having a sequence identity of 90% or more with respect to the amino acid sequence represented by
15 SEQ ID NO. 1 or NO. 2, and

(4) A polypeptide that has an amino acid sequence in which at least one of amino acids 85, 151, and 176 of the amino acid sequence represented by SEQ ID NO. 1 or NO. 2 has been replaced and which has a sequence identity of 85% or more with respect to the
20 amino acid sequence represented by SEQ ID NO. 1 or NO. 2.

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Claim 2

The polypeptide according to claim 1,

wherein

the polypeptide has a fluorescence quantum yield Φ of

5 0.4 or more.

Claim 3

A polynucleotide defined in any one of (1) to (4) below:

10 (1) A polynucleotide encoding a polypeptide having an amino acid sequence represented by SEQ ID NO. 1 or NO. 2,

(2) A polynucleotide encoding a polypeptide that has an amino acid sequence represented by SEQ ID NO. 1 or NO. 2 in which amino acid sequence any number of not less than 1 amino acid and not more than 23 amino acids each at any position~~1 to 23 amino acids~~ have been replaced, deleted, inserted, and/or added and that has a fluorescence property,

15 (3) A polynucleotide encoding a polypeptide that has a sequence identity of 90% or more with respect to the amino acid sequence represented by SEQ ID NO. 1 or NO. 2 and that has a
20 fluorescence property, and

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The method according to claim 10,

wherein

the step (i) further includes introducing, into the cells, a second nucleic acid molecule including a polynucleotide encoding a fluorescent polypeptide different from the first nucleic acid molecule, the second nucleic acid molecule being operably linked to a second expression regulatory sequence so as to be under control of the second expression regulatory sequence.

Claim 12

A method for producing a transformant including, in a cell, all or ~~part~~ of a polynucleotide according to claim 3,

the method comprising the step of

introducing, into a cell, a polynucleotide according to claim 3, an expression cassette according to claim 4, or a vector according to claim 5.

Claim 13

A transformant containing a full length of a polynucleotide according to claim 3 produced by a method according to claim 12 or progeny of the transformant.

Claim 14

A method for producing a non-human transgenic

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organism including, in a cell, all ~~or part~~ of a polynucleotide according to claim 3,

the method comprising the step of

introducing, into a fertilized egg collected from a donor cell, a polynucleotide according to claim 3, an expression cassette according to claim 4, or a vector according to claim 5.

Claim 15

A non-human transgenic organism containing a full length of a polynucleotide according to claim 3 produced by a method according to claim 14 or progeny of the non-human transgenic organism.

Claim 16

A method for establishing a pluripotent stem cell, the method comprising the steps of:
collecting a cell from a non-human transgenic organism or progeny thereof according to claim 15; and
introducing a reprogramming factor into the cell.

Claim 17

A kit comprising:

a polypeptide according to claim 1 or 2;
a polynucleotide according to claim 3;
an expression cassette according to claim 4;
a vector according to claim 5;
a transformant according to claim 6 or 7; or