Claims

[Claim 1]

A polynucleotide consisting of the nucleotide sequence shown in SEQ ID NO: 1 or a partial sequence of the nucleotide sequence, the polynucleotide being a Chinese hamster-derived Hspa5 gene promoter and comprising a polynucleotide consisting of the nucleotide sequence shown in SEQ ID NO: 9.

[Claim 2]

The polynucleotide according to claim 1, which consists of the nucleotide sequence shown in SEQ ID NO: 1.

[Claim 3]

The polynucleotide according to claim 1, which consists of the nucleotide sequence shown in SEQ ID NO: 5.

[Claim 4]

The polynucleotide according to claim 1, which consists of the nucleotide sequence shown in SEQ ID NO: 6.

[Claim 5]

The polynucleotide according to claim 1, which consists of the nucleotide sequence shown in SEQ ID NO: 7.

[Claim 6]

The polynucleotide according to claim 1, which consists of the nucleotide sequence shown in SEQ ID NO: 8.

[Claim 7]

The polynucleotide according to claim 1, which consists of the nucleotide sequence shown in SEQ ID NO: 9.

[Claim 8]

A polynucleotide consisting of the nucleotide sequence shown in SEQ ID NO: 2 in the sequence listing, the polynucleotide being a human-derived Hspa5 gene promoter.

[Claim 9]

A polynucleotide consisting of the nucleotide sequence shown in SEQ ID NO: 3 in the sequence listing, the polynucleotide being a mouse-derived Hspa5 gene promoter.

[Claim 10]

A polynucleotide consisting of the nucleotide sequence shown in SEQ ID NO: 4 in the sequence listing, the polynucleotide being a rat-derived Hspa5 gene promoter.

[Claim 11]

A polynucleotide consisting of a nucleotide sequence having 95% or higher identity to the nucleotide sequence according to any one of claims 1 to 10, the polynucleotide having promoter activity.

[Claim 12]

A polynucleotide consisting of a nucleotide sequence having 99% or higher identity to the nucleotide sequence according to any one of claims 1 to 10, the polynucleotide having promoter activity.

[Claim 13]

A polynucleotide that hybridizes under stringent conditions to a polynucleotide consisting of a nucleotide sequence complementary to the nucleotide sequence according to any one of claims 1 to 12, the polynucleotide having promoter activity.

[Claim 14]

A foreign gene expression unit comprising the polynucleotide according to any one of claims 1 to 13.

[Claim 15]

The foreign gene expression unit according to claim 14, wherein the foreign gene is a gene encoding a multimeric protein.

[Claim 16]

The foreign gene expression unit according to claim 14, wherein the foreign gene is a gene encoding a heteromultimeric protein.

[Claim 17]

The foreign gene expression unit according to claim 14, wherein the foreign gene is a gene encoding an antibody or an antigen-binding fragment thereof.

[Claim 18]

A foreign gene expression vector comprising the foreign gene expression unit according to any one of claims 14 to 17.

[Claim 19]

A foreign gene expression vector comprising the foreign gene expression unit according to any one of claims 14 to 17 and any one or more polynucleotides selected from polynucleotides (a) to (e) of the following group A:

group A

(a) a polynucleotide consisting of the nucleotide sequence shown in SEQ ID NO: 35 in the sequence listing,

(b) a polynucleotide consisting of the nucleotide sequence shown in SEQ ID NO: 36 in the sequence listing,

(c) a polynucleotide consisting of the nucleotide sequence shown in SEQ ID NO: 37 in the sequence listing,

(d) a polynucleotide consisting of a nucleotide sequence having 95% or higher identity to the nucleotide sequence of any one of the polynucleotides (a) to (c), the polynucleotide having foreign gene expression-enhancing activity, and

(e) a polynucleotide consisting of a nucleotide sequence having 99% or higher identity to the nucleotide sequence of any one of the polynucleotides (a) to (c), the polynucleotide having foreign gene expression-enhancing activity.

[Claim 20]

A transformed cell into which the foreign gene expression vector according to claim 18 or 19 has been introduced.

[Claim 21]

The transformed cell according to claim 20, wherein the cell is a cultured cell derived from a mammal.

[Claim 22]

The transformed cell according to claim 21, wherein the cultured cell derived from a mammal is a COS-1 cell, a 293 cell, or a CHO cell.

[Claim 23]

A method for producing a foreign gene-derived protein, comprising culturing the transformed cell according to any one of claims 20 to 22, and obtaining the foreign gene-derived protein from the culture.

[Claim 24]

Use of the polynucleotide according to any one of claims 1 to 13 for the purpose of expressing a foreign gene in a transformed cell.

[Claim 25]

Use of the foreign gene expression vector according to claim 18 or 19 for the purpose of expressing a foreign gene in a transformed cell.

Claims

[Claim 1]

A polynucleotide consisting of the nucleotide sequence shown in SEQ ID NO: 1 or a partial sequence of the nucleotide sequence, the polynucleotide being a Chinese hamster-derived Hspa5 gene promoter and comprising a polynucleotide consisting of the nucleotide sequence shown in SEQ ID NO: 9.

[Claim 2]

The polynucleotide according to claim 1, which consists of the nucleotide sequence shown in SEQ ID NO: 1.

[Claim 3]

The polynucleotide according to claim 1, which consists of the nucleotide sequence shown in SEQ ID NO: 5.

[Claim 4]

The polynucleotide according to claim 1, which consists of the nucleotide sequence shown in SEQ ID NO: 6.

[Claim 5]

The polynucleotide according to claim 1, which consists of the nucleotide sequence shown in SEQ ID NO: 7.

[Claim 6]

The polynucleotide according to claim 1, which consists of the nucleotide sequence shown in SEQ ID NO: 8.

[Claim 7]

The polynucleotide according to claim 1, which consists of the nucleotide sequence shown in SEQ ID NO: 9.

[Claim 8]

A polynucleotide consisting of the nucleotide sequence shown in SEQ ID NO: 2 in the sequence listing, the polynucleotide being a human-derived Hspa5 gene promoter.

[Claim 9]

A polynucleotide consisting of the nucleotide sequence shown in SEQ ID NO: 3 in the sequence listing, the polynucleotide being a mouse-derived Hspa5 gene promoter.

[Claim 10]

A polynucleotide consisting of the nucleotide sequence shown in SEQ ID NO: 4 in the sequence listing, the polynucleotide being a rat-derived Hspa5 gene promoter.

[Claim 11]

A polynucleotide consisting of a nucleotide sequence having 95% or higher identity to the full length of the nucleotide sequence according to any one of claims 1 to 10, the polynucleotide having promoter activity.

[Claim 12]

A polynucleotide consisting of a nucleotide sequence having 99% or higher identity to the full length of the nucleotide sequence according to any one of claims 1 to 10, the polynucleotide having promoter activity.

[Claim 13]

A foreign gene expression unit comprising the polynucleotide according to any one of claims 1 to 12.

[Claim 14]

The foreign gene expression unit according to claim 13, wherein the foreign gene is a gene encoding a multimeric protein.

[Claim 15]

The foreign gene expression unit according to claim 13, wherein the foreign gene is a gene encoding a heteromultimeric protein.

[Claim 16]

The foreign gene expression unit according to claim 13, wherein the foreign gene is a gene encoding an antibody or an antigen-binding fragment thereof.

[Claim 17]

A foreign gene expression vector comprising the foreign gene expression unit according to any one of claims 13 to 16.

[Claim 18]

A foreign gene expression vector comprising the foreign gene expression unit according to any one of claims 13 to 16 and any one or more polynucleotides selected from polynucleotides (a) to (e) of the following group A:

group A

(a) a polynucleotide consisting of the nucleotide sequence shown in SEQ ID NO: 35 in the sequence listing,

(b) a polynucleotide consisting of the nucleotide sequence shown in SEQ ID NO: 36 in the sequence listing,

(c) a polynucleotide consisting of the nucleotide sequence shown in SEQ ID NO: 37 in the sequence listing,
(d) a polynucleotide consisting of a nucleotide sequence having 95% or higher identity to the full length of the nucleotide sequence of any one of the polynucleotides (a) to (c), the polynucleotide having foreign gene expression-enhancing activity, and
(e) a polynucleotide consisting of a nucleotide sequence having 99% or higher identity to the full length of the nucleotide sequence of any one of the polynucleotides (a) to (c), the polynucleotide having foreign gene expression-enhancing activity.

[Claim 19]

A transformed cell into which the foreign gene expression vector according to claim 17 or 18 has been introduced.

[Claim 20]

The transformed cell according to claim 19, wherein the cell is a cultured cell derived from a mammal.

[Claim 21]

The transformed cell according to claim 20, wherein the cultured cell derived from a mammal is a COS-1 cell, a 293 cell, or a CHO cell.

[Claim 22]

A method for producing a foreign gene-derived protein, comprising culturing the transformed cell according to any one of claims 19 to 21, and obtaining the foreign gene-derived protein from the culture.

[Claim 23]

Use of the polynucleotide according to any one of claims 1 to 12 for the purpose of expressing a foreign gene in a transformed cell.

[Claim 24]

Use of the foreign gene expression vector according to claim 17 or 18 for the purpose of expressing a foreign gene in a transformed cell.