(29).

Alternatively, the present disclosure provides the following examples.

(31). A polynucleotide comprising a nucleotide sequence that is at least 85% identical to a regulatory sequence selected from the group consisting of SEQ ID NOs:3-9, a promotor, and a heterologous sequence that encodes a polypeptide, wherein the regulatory sequence, the promotor, and the heterologous sequence that encodes the polypeptide are operably linked together.

(32). The polynucleotide of (31), wherein the polynucleotide further comprises an EF1αI gene intron.

(33). The polynucleotide of (32), wherein the EF1αI gene intron comprises a sequence that is at least 80% identical to SEQ ID NO: 13.

(34). The polynucleotide of (33), wherein the regulatory sequence selected from the group consisting of SEQ ID NOs: 3-9 has a forward direction.

(35). The polynucleotide of (34), wherein the regulatory sequence selected from the group consisting of SEQ ID NOs: 3-9 has a reverse direction.

(36). A host cell for enhanced expression of an antibody, the cell comprising

a first polynucleotide encoding an antibody heavy chain or fragment thereof, wherein the first polynucleotide is operably linked to a sequence that is at least 85% identical to a sequence of any of SEQ ID NOs:3-9 or a reverse complementary sequence of the sequence of any of SEQ ID NOs:3-9; and

a second polynucleotide encoding an antibody light chain or fragment thereof, wherein the second polynucleotide is operably linked to a sequence that is at least 85% identical to a sequence of any of SEQ ID NOs:3-9 or a reverse complementary sequence of the sequence of any of SEQ ID NOs:3-9.

(37). The host cell of (36), wherein the first polynucleotide is operably linked to a sequence that is at least 85% identical to SEQ ID NO: 4 and the second polynucleotide is operably linked to a sequence that is at least 85% identical to SEQ ID NO: 4.

(38). The host cell of (36), wherein the first polynucleotide is operably linked to a sequence that is at least 85% identical to SEQ ID NO: 4 and the second polynucleotide is operably linked to a sequence that is at least 85% identical to SEQ ID NO: 9.

(39). The host cell of (36), wherein the first polynucleotide is operably linked to a sequence that is at least 85% identical to SEQ ID NO: 9 and the second polynucleotide is operably linked to a sequence that is at least 85% identical to SEQ ID NO: 9.

(40). The host cell of (36), wherein the first polynucleotide is operably linked to a sequence that is at least 85% identical to SEQ ID NO: 4 and the second polynucleotide is operably linked to a sequence that is at least 85% identical to SEQ ID NO: 17.

(41). The host cell of (36), wherein the first polynucleotide is operably linked to a sequence that is at least 85% identical to SEQ ID NO: 9 and the second polynucleotide is operably linked to a sequence that is at least 85% identical to SEQ ID NO: 17.

(42). An expression vector comprising an expression cassette, wherein the expression cassette comprises a promoter operably linked to a nucleic acid sequence encoding a polypeptide, and a regulatory sequence that is at least 85% identical to a sequence selected from the group consisting of SEQ ID NOs:3-9, wherein the regulatory sequence is operably linked to the promotor.

(43). The expression vector of (42), wherein the expression vector has a sense strand and an anti-sense strand, and the sense strand comprises a sequence (from 5' to 3') that is at least 85% identical to a sequence selected from the group consisting of SEQ ID NOs:3-9.

(44). The expression vector of (42), wherein the expression vector has a sense strand and an anti-sense strand, and the anti-sense strand comprises a sequence (from 5' to 3') that is at least 85% identical to a sequence selected from the group consisting of SEQ ID NOs:3-9.

In one aspect, the present disclosure refers to a vector comprising an isolated polynucleotide molecule comprising a nucleotide sequence selected from the group consisting of SEQ ID NOs: 4, 6, 7, 17, 18, 20, 21, 22 and 23.

In one aspect, the present disclosure refers to a recombinant host cell comprising the vector disclosed herein.

In one aspect, the present disclosure refers to a method of preparing a recombinant host cell which stably expresses a protein, comprising a step of inserting into a host cell the vector disclosed herein.

In one aspect, the present disclosure refers to a method of preparing a protein, comprising a step of culturing the recombinant host cell disclosed herein under conditions that allow production of the protein.

In one aspect, the present disclosure refers to a kit comprising the recombinant host cell disclosed herein.

In one aspect, the present disclosure refers to the use of the recombinant cell disclosed herein in the preparation of a reagent or a kit for detecting a disease due to the abnormality of protein expression.

In one aspect, the present disclosure refers to the use of the recombinant host cell disclosed herein in the preparation of a drug for treating or preventing a disease.

Effects of disclosure

In a technical solution, the use of the transcriptional regulatory element WXRE listed in the present disclosure can greatly increase the expression amount of a heterologous protein and has great contribution to the production of mammalian proteins.

In some technical solutions, the expression amount of a heterologous protein is increased by about or at least 10%, 20%, 30%, 40%, 50%, 60%, 70%, or 80%. In some technical solutions, the expression amount of a heterologous protein is increased up to 80%.

In another technical solution, the use of the transcriptional regulatory element WXRE listed in the present disclosure can enable a heterologous protein to still maintain its biological

CLAIMS

1. A vector comprising an isolated polynucleotide molecule comprising a nucleotide sequence selected from the group consisting of SEQ ID NOs: 4, 6, 7, 17, 18, 20, 21, 22 and 23.

2. The vector according to claim 1, wherein the vector is a recombinant expression vector.

3. The vector according to claim 1 or 2, further comprising a nucleotide sequence selected from the group consisting of (i) to (iv):

(i) a sequence of SEQ ID NO: 13;

(ii) a reverse complementary sequence of the sequence of SEQ ID NO: 13;

(iii) a reverse complementary sequence of a sequence capable of hybridizing with the sequence of (i) or (ii) under a high stringency hybridization condition or a very high stringency hybridization condition; and

(iv) a sequence having at least 90% sequence identity, alternatively at least 95% sequence identity, preferably at least 97% sequence identity, more preferably at least 98% sequence identity, most preferably at least 99% sequence identity with the sequence of (i) or (ii).

4. The vector according to any of claims 1-3, further comprising a CMV promoter; preferably, the CMV promoter comprises a nucleotide sequence of SEQ ID NO: 16, or the CMV promoter comprises a sequence having at least 90% sequence identity, alternatively at least 95% sequence identity, preferably at least 97% sequence identity, more preferably at least 98% sequence identity, most preferably at least 99% sequence identity with the sequence of SEQ ID NO: 16.

5. The vector according to claim 4, comprising a combination of (1) a sequence of SEQ ID NO: 4; (2) a sequence of SEQ ID NO: 13 or a sequence having 90% identity thereto; and (3) a sequence of SEQ ID NO: 16 or a sequence having 90% identity thereto.

6. The vector according to any of claims 1-5, further comprising one or more genes encoding one or more proteins.

7. The vector according to claim 6, wherein the protein is selected from a group consisting of an antibody, a fusion protein, an enzyme, a soluble protein, a membrane protein, a structural protein, a ribosome protein, a zymogen, a cell surface receptor protein, a transcriptional regulatory protein, a translational regulatory protein, a chromatin protein, a hormone, a cell cycle regulatory protein, a G protein, a neuroactive peptide, an immunomodulatory protein, a blood component protein, an ion gate protein, a heat shock protein, dihydrofolate reductase, an antibiotic resistance protein, a functional fragment of any one of the proteins, an epitope fragment of any one of the proteins, and any combination thereof.

8. A recombinant host cell comprising the vector according to any of claims 1-7.

9. A method of preparing a recombinant host cell which stably expresses a protein, comprising a step of inserting into a host cell the vector according to any of claims 1-7.

10. The recombinant host cell according to claim 8 or the method according to claim 9, wherein the host cell is a Chinese hamster ovary (CHO) cell.

11. A method of preparing a protein, comprising a step of culturing the recombinant host cell according to claim 8 or 10 under conditions that allow production of the protein.

12. A kit comprising the recombinant host cell according to claim 8 or 10.

13. Use of the recombinant host cell according to claim 8 or 10 in the preparation of a reagent or a kit for detecting a disease due to the abnormality of protein expression.

14. Use of the recombinant host cell according to claim 8 or 10 in the preparation of a drug for treating or preventing a disease.