CLAIMS

1. A polypeptide having an amino acid sequence in which the amino acid residue at the 193-position in an amino acid sequence of a naturally occurring polypeptide of horseshoe crab factor B is substituted with a cysteine (Cys) residue.

2. A polypeptide having any one of amino acid sequence in the following (A) to (D), and having the function of horseshoe crab factor B:

(A) an amino acid sequence consisting of amino acid numbers 1 to 400 or amino acid numbers 24 to 400 of SEQ ID NO: 7,

(B) an amino acid sequence consisting of amino acid numbers 1 to 400 or amino acid numbers 24 to 400 of SEQ ID NO: 10,

(C) an amino acid sequence having at least one feature of the following (C1) and (C2):

(C1) a similarity of 99% or higher to at least one amino acid sequence in the items (A) and (B), provided that the cysteine (Cys) residue at the 193-position of SEQ ID:7 and SEQ ID: 10 is neither substituted nor deleted; and

(C2) an identity of 90% or higher to at least one amino acid sequence in the items (A) and (B), provided that the cysteine (Cys) residue at the 193-position of SEQ ID:7 and SEQ ID: 10 is neither substituted nor deleted

, and

(D) an amino acid sequence of a fusion polypeptide in which a peptide tag is added to the polypeptide according to any one of the items (A) to (C),

wherein the function of horseshoe crab factor B is a function of being changed to an activated form by contact with an activated factor C, cleaving a proclotting enzyme, and thereby changing the proclotting enzyme to a clotting enzyme.

3. A nucleic acid encoding the polypeptide according to claim 1 or 2.

4. A DNA having any one of the following (a), (b) and (d):

(a) a DNA having a base sequence according to any one of the following (a1) to (a4):

(a1) a base sequence consisting of base numbers 1 to 1200 of SEQ ID NO: 5;

(a2) a base sequence consisting of base numbers 70 to 1200 of SEQ ID NO: 5;

(a3) a base sequence consisting of base numbers 1 to 1200 of SEQ ID NO: 6; and

(a4) a base sequence consisting of base numbers 70 to 1200 of SEQ ID NO: 6,

(b) a DNA having a base sequence according to any one of the following (b1) to (b4):

(b1) a base sequence consisting of base numbers 1 to 1200 of SEQ ID NO: 8;

(b2) a base sequence consisting of base numbers 70 to 1200 of SEQ ID NO: 8;

(b3) a base sequence consisting of base numbers 1 to 1200 of SEQ ID NO: 9; and

(b4) a base sequence consisting of base numbers 70 to 1200 of SEQ ID NO: 9,

and

(c) a DNA having the base sequence of a fusion DNA in which a peptide tag-encoding DNA is added to the DNA according to any one of the items (a) and (b), the DNA encoding a polypeptide having the function of horseshoe crab factor B.

5. A vector retaining the nucleic acid according to claim 3 and/or the DNA according to claim 4.

6. A cell retaining the nucleic acid according to claim 3, the DNA according to claim 4, and/or the vector according to claim 5.

7. A method for producing a polypeptide, the method comprising a step of producing a polypeptide having the function of horseshoe crab factor B using the cell according to claim 6.

8. A polypeptide obtainable by the method according to claim 7.

9. A method for measuring an endotoxin, the method comprising steps of the following (1) and (2):

(1) a step of mixing the polypeptide according to claim 1, 2, or 8 with horseshoe crab factor C and a test sample; and

(2) a step of measuring protease activity of the polypeptide.

10. A reagent for endotoxin measurement, the reagent comprising the polypeptide according to claim 1, 2, or 8 as a constituent component.

11. A kit for endotoxin measurement, the kit comprising the polypeptide according to claim 1, 2, or 8, or the reagent according to claim 10, as a component part.