CLAIMS

[Claim 1]. A production method for a recombinant protein, the production method comprising:

a growth reduction step of reducing cell growth of recombinant cells which express a recombinant protein; and

a production step of producing the recombinant protein by culturing the recombinant cells in a protein production culture medium in a state of reducing the cell growth,

wherein the recombinant protein is a structural protein,

wherein the recombinant cell is a recombinant cell in which prokaryote is used as host cell,

wherein the cell growth of the recombinant cells is reduced in the growth reduction step by using recombinant cells having at least one modified morphogenetic regulator as the recombinant cells, and

wherein the morphogenetic regulator is selected from the group consisting of a cytoskeletal protein, a protein that controls a function of a cytoskeletal protein and a peptidoglycan synthase.

[Claim 2]. The production method according to claim 1, wherein the modified morphogenetic regulator is a mutant cytoskeletal protein.

[Claim 3]. The production method according to claim 2, wherein the mutant cytoskeletal protein is mutant MreB.

[Claim 4]. The production method according to claim 3, wherein the mutant morphogenetic regulator has an amino acid sequence having at least 90% sequence identity with MreB.

[Claim 5]. The production method according to claim 3 or 4, wherein

the mutant morphogenetic regulator has a mutation at the 53rd amino acid residue of MreB, which is alanine.

[Claim 6]. The production method according to any one of claims

3 to 5, wherein the mutant morphogenetic regulator has a mutation that substitutes the 53rd amino acid residue of MreB, which is alanine, for threonine.

[Claim 7]. The production method according to claim 1, wherein the recombinant cells are cells into which an expression cassette of a protein which controls a function of a cytoskeletal protein is introduced.

[Claim 8]. The production method according to claim 7, wherein the protein which controls the function of the cytoskeletal protein is sulA.

[Claim 9]. The production method according to any one of claims 1 to 8, wherein the protein production culture medium contains a naturally derived component.

[Claim 10]. The production method according to any one of claims 1 to 9, wherein a hydrophobicity of the recombinant protein is -1.0 or higher.

~~11. The production method according to any one of claims 1 to 10, wherein the recombinant protein is a structural protein.~~

~~12~~[Claim 11]. The production method according to any one of claims 1 to ~~11~~10, wherein the recombinant protein is fibroin.

~~13~~[Claim 12]. The production method according to any one of claims 1 to ~~12~~11, wherein the recombinant protein is spider silk fibroin.

~~14~~[Claim 13]. The production method according to any one of claims

1 to ~~13~~12, wherein the recombinant cells are bacilli.

~~15~~[Claim 14]. The production method according to any one of claims 1 to ~~14~~13, wherein the recombinant cells are microorganisms belonging to the genus *Escherichia*.

~~16~~[Claim 15]. A method for increasing a production volume of a recombinant protein per cell, the method comprising:

a growth reduction step of reducing cell growth of recombinant cells which express a recombinant protein; and

a production step of producing the recombinant protein by culturing the recombinant cells in a protein production culture medium in a state of reducing the cell growth,

wherein the recombinant protein is a structural protein,

wherein the recombinant cell is a recombinant cell in which prokaryote is used as host cell,

wherein the cell growth of the recombinant cells is reduced in the growth reduction step by using recombinant cells having at least one modified morphogenetic regulator as the recombinant cells, and

wherein the morphogenetic regulator is selected from the group consisting of a cytoskeletal protein, a protein that controls a function of a cytoskeletal protein and a peptidoglycan synthase.

~~17~~[Claim 16]. The method according to claim ~~16~~15, wherein the modified morphogenetic regulator is a mutant cytoskeletal protein.

~~18~~[Claim 17]. The method according to claim ~~16~~15, wherein the recombinant cells are cells into which an expression cassette of a protein which controls a function of a cytoskeletal protein is introduced.