Claims

[Claim 1]

A composition for cryoprotecting red blood cells during cryopreservation which contains an exopolysaccharide which is produced by *Pseudoalteromonas* sp. *s*train CY01 (KCTC 12867BP).

[Claim 2]

A low molecular exopolysaccharide having a molecular weight of 1.0×10^5 to 4.3×10^5 Da, which is obtained by acidolysis of the exopolysaccharide of claim 1.

[Claim 3]

A composition for cryoprotecting cells during cryopreservation which contains the exopolysaccharide of claim 2.

[Claim 4]

The composition of claim 3, further containing either glycerol or DMSO.

[Claim 5]

A method for producing the exopolysaccharide having the ability to protect cells during cryopreservation, wherein molar ratio of the glucose and the galactose is 3.4 : 1, the method comprising the steps of:

(a) culturing *Pseudoalteromonas* sp. *s*train CY01 (KCTC 12867BP) to produce the exopolysaccharide; and

(b) recovering the produced exopolysaccharide.

[Claim 6]

A method for producing the low molecular exopolysaccharide having a molecular weight of 1.0×10^5 to 4.3×10^5 Da of claim 2, the method comprising the steps of:

(a) culturing *Pseudoalteromonas* sp. *s*train CY01 (KCTC 12867BP) to produce the exopolysaccharide;

(b) recovering the produced exopolysaccharide; and

(c) hydrolyzing the produced exopolysaccharide.

[Claim 7]

The method of claim 6, the hydrolysis is by weak acid decomposition.

[Claim 8]

The method of claim 6, the step of (c) further comprise performing a heat treatment.

[Claim 9]

A method for cryopreserving cells using the exopolysaccharide of claim 2.

[Claim 10]

A method for cryopreserving red blood cells using the composition of claim 1.