Claims

1. A peptide or a composition thereof for use in the treatment of an infection associated with a Type III Secretion System pathogen or a quorum sensing antibiotic resistant pathogen, wherein the peptide comprises an amino acid sequence of X_1X_2[L or I]PPK; X_1 is selected from N, C, Q, M, S and T; and X_2 is selected from A, I, L and V; wherein the peptide has fewer than 19 amino acid residues and wherein the peptide is derived from a probiotic bacteria.

2. The peptide or the composition thereof for use according to claim 1, wherein the peptide comprises the amino acid sequence of MALPPK.

3. The peptide or the composition thereof for use according to claim 1, wherein the peptide consists of the amino acid sequence of MALPPK.

4.. The peptide or the composition thereof for use according to claim 1, wherein the peptide comprises the amino acid sequence of CVLPPK.

5. The peptide or the composition thereof for use according to claim 1, wherein the peptide consists of the amino acid sequence of CVLPPK.

6. The peptide or the composition thereof for use according to any one of claims 1 to 5, wherein the probiotic bacteria selected from Lactobacillus, Lactococcus, Streptococcus, Bifidobacterium, Pediococcus and any combination thereof, wherein the Lactobacillus is selected from Lactobacillus acidophilus (La-5), Lactobacillus fermentum, Lactobacillus rhamnosus, Lactobacillus reuteri, Lactobacillus helveticus, and Lactobacillus plantarum; the Lactococcus is Lactococcus lactis; the Bifidobacterium is selected from Bifidobacterium longum, Bifidobacterium bifidum, Bifidobacterium infantis and Bifidobacterium crudilactis and any mixture thereof; the Streptococcus is Streptococcus thermophiles; and the Enterococcus is Enterococcus faecium.

7. The peptide or the composition thereof for use according to any one of claims 1 to 6, wherein the composition further comprises an antibiotic, an antiviral, a sugar source, an edible food product, a nutritional supplement, ingestible liquid, or any combination thereof.

8. The peptide or the composition thereof for use according to any one of claims 1 to 7, wherein the peptide is concentrated from a cell-free supernatant or fraction thereof.

9. The peptide or the composition thereof for use according to any one of claims 1 to 8, wherein the peptide is in the form of a dried culture fraction, the dried culture fraction being a lyophilized culture fraction or a spray-dried culture fraction.

10. The peptide or the composition thereof for use according to claim 9, wherein the dried culture fraction is a cell-free supernatant.

11. The peptide or the composition thereof for use according to any one of claims 1 to 10, wherein the composition is a food product, beverage product, health product, medicament, or nutritional supplement.

12. The peptide or the composition thereof for use according to any one of claims 1 to 11, wherein the composition further comprises any one or a combination of a live probiotic bacteria from which the peptide is derived and a live probiotic bacteria other than the bacteria from which the peptide is derived.

13. The peptide or the composition thereof for use according to any one of claims 1 to 12, wherein the peptides in the composition are purified.

14. The peptide or the composition thereof for use according to any one of claims 1 to 13, wherein the infection associated with the Type III Secretion System pathogen is urinary tract infection.

15. The peptide or the composition thereof for use according to any one of claims 1 to 14, wherein the Type III Secretion System pathogen is uropathogenic *Escherichia coli*.

16. The peptide or the composition thereof for use according to any one of claims 1 to 13, wherein the infection associated with the antibiotic resistant pathogen is methicillin-resistant Staphylococci infection.

17. Use of the peptide or the composition thereof in the manufacture of a medical device for the treatment of an infection associated with a Type III Secretion System pathogen or a quorum sensing antibiotic resistant pathogen, wherein the peptide comprises an amino acid sequence of X_1X_2[L or I]PPK; X_1 is selected from N, C, Q, M, S and T, and X_2 is selected from A, I, L and V; the peptide has fewer than 19 amino acid residues; and the medical

device is a stent, catheter, or wound dressing comprising the peptide or the composition, which is to be released from the inert object over a period of time.

18. Use according to claim 17, wherein the peptide comprises the amino acid sequence of MALPPK.

19. Use according to claim 17, wherein the peptide consists of the amino acid sequence of MALPPK.

20. Use according to claim 17, wherein the peptide comprises the amino acid sequence of CVLPPK.

21. Use according to claim 17, wherein the peptide consists of the amino acid sequence of CVLPPK.

22. Use according to any one of claims 17 to 21, wherein the peptide is derived from a probiotic bacteria selected from Lactobacillus, Lactococcus, Streptococcus, Bifidobacterium, Pediococcus and any combination thereof, wherein the Lactobacillus is selected from Lactobacillus acidophilus (La-5), Lactobacillus fermentum, Lactobacillus rhamnosus, Lactobacillus reuteri, Lactobacillus helveticus, and Lactobacillus plantarum; the Lactococcus is Lactococcus lactis; the Bifidobacterium is selected from Bifidobacterium longum, Bifidobacterium bifidum, Bifidobacterium infantis and Bifidobacterium crudilactis and any mixture thereof; the Streptococcus is Streptococcus thermophiles; and the Enterococcus is Enterococcus faecium.

23. Use according to any one of claims 17 to 22, wherein the composition further comprises an antibiotic, an antiviral, a sugar source, an edible food product, a nutritional supplement, ingestible liquid, or any combination thereof.

24. Use according to any one of claims 17 to 23, wherein the peptide is concentrated from a cell-free supernatant or fraction thereof.

25. Use according to any one of claims 17 to 24, wherein the peptide is in the form of a dried culture fraction, the dried culture fraction being a lyophilized culture fraction or a spray-dried culture fraction.

26. Use according to claim 25, wherein the dried culture fraction is a cell-free supernatant.

27. Use according to any one of claims 17 to 26, wherein the composition is a food product, beverage product, health product, medicament, or nutritional supplement.

28. Use according to any one of claims 17 to 27, wherein the composition further comprises any one or a combination of a live probiotic bacteria from which the peptide is derived and a live probiotic bacteria other than the bacteria from which the peptide is derived.

29. Use according to any one of claims 17 to 28, wherein the peptides in the composition are purified.

30. Use according to any one of claims 17 to 29, wherein the infection associated with the Type III Secretion System pathogen is a urinary tract infection.

31. Use according to any one of claims 17 to 30, wherein the Type III Secretion System pathogen is uropathogenic *Escherichia coli*.

32. Use according to any one of claims 17 to 29, wherein the infection associated with the antibiotic resistant pathogen is methicillin-resistant Staphylococci infection.