WHAT IS CLAIMED IS:

1. A method of treating an infection by a microbial pathogen, in a subject, by modulating an anti-microbial immune response in said subject, comprising administering to said subject an effective amount of an anti-microbial polypeptide (AMP), wherein said AMP is IL-22.

2. A method of treating an infection by a microbial pathogen, in a subject, by modulating an anti-microbial immune response in said subject, comprising administering to said subject an effective amount of an anti-microbial polypeptide (AMP) or modulator thereof, wherein said AMP is selected from a group consisting of: IL-6, IL-18, IL-23, REG Iα, REG Iβ, HIP/PAP, REG III, REG IV, Reg-related sequence (RS) and LT.

3. A method of modulating the activity of an anti-microbial polypeptide (AMP) in cells of a subject infected with a microbial pathogen, comprising contacting said cells with an isolated AMP, wherein said AMP is IL-22.

4. A method of modulating the activity of an anti-microbial polypeptide (AMP) in cells of a subject infected with a microbial pathogen, comprising contacting said cells with an isolated AMP, wherein said AMP is selected from a group consisting of: IL-6, IL-18, IL-23, REG Iα, REG Iβ, HIP/PAP, REG III, REG IV, Reg-related sequence (RS) and LT.

5. The method of claim 1, wherein said infection is a microbial disorder.

6. The method of claim 5, wherein said microbial disorder is Inflammatory Bowel Disease (IBD).

7. The method of claim 5, wherein said microbial disorder is Crohn's or ulcerative colitis (UC).

8. The method of claim 1, wherein said microbial pathogen is a bacteria.

9. The method of claim 8, wherein said bacteria is gram negative.

10. The method of claim 8, wherein said bacteria is gram positive.

11. The method of claim 8, wherein said bacteria is an attaching or effacing (A/E) bacteria.

12. The method of claim 11, wherein said attaching or effacing (A/E) bacteria is an enterohemorrhagic Escherichia coli (EHEC) and enteropathogenic E. Coli (EPEC).

13. The method of claim 12, wherein said enteropathogenic E. coli (EHEC) is E. coli 0157:H7 or E. coli 055:H7.

14. The method of claim 2, wherein said anti-microbial polypeptide (AMP) is RegIIIβ and RegIIIγ.

15. The method of claim 1, wherein said microbial pathogen is a virus.

16. A method of treating an infection by a microbial pathogen, in a subject, by modulating an anti-microbial immune response in said subject, comprising administering to said subject an effective amount of an anti-microbial polypeptide (AMP) modulator, wherein said AMP modulator is an IL-22 agonist.

17. The method of claim 16, wherein said agonist increases expression and/or activity of said IL-22.

18. The method of claim 16, wherein said agonist is a polypeptide or nucleic acid molecule.

19. The method of claim 16, wherein said agonist is a fusion polypeptide.

20. The method of claim 16, wherein said agonist is an Fc fusion polypeptide.

21. The method of claim 16, wherein said agonist is an antibody or biologically active fragment thereof.

22. The method of claim 16, wherein said agonist is a monoclonal antibody.

23. The method of claim 16, wherein said agonist is a humanized antibody.

24. The method of claim 1 or 3 wherein the amino acid sequence of said IL-22 comprises a sequence shown as SEQ ID NO:8.

25. The method of claim 2 or 4 wherein the amino acid sequence of said AMP comprises a sequence selected from a group of amino acid sequences consisting of SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6, SEQ ID NO: 10, SEQ ID NO: 12, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, SEQ ID NO: 24, SEQ ID NO: 26, SEQ ID NO: 50, and SEQ ID NO: 52.

26. The method of claim 1 or 3, wherein the nucleic acid sequence encoding said IL-22 is a sequence shown as SEQ ID NO:7.

27. The method of claim 1 or 3, wherein the nucleic acid sequence encoding said AMP comprises a sequence selected from a group of nucleic acid sequences consisting of SEQ ID NO: 1, SEQ ID NO: 3, SEQ ID NO: 5, SEQ ID NO: 9, SEQ ID NO: 11, SEQ ID NO: 13, SEQ ID NO: 15, SEQ ID NO: 17, SEQ ID NO: 19, SEQ ID NO: 21, SEQ ID NO: 23, SEQ ID NO: 25, SEQ ID NO: 49, and SEQ ID NO: 51.

28. A kit comprising a pharmaceutical composition for treatment of a microbial disorder, wherein said pharmaceutical composition comprises an anti-microbial polypeptide (AMP), wherein said AMP is IL-22.

29. A kit comprising one or more pharmaceutical compositions for treatment of a microbial disorder, wherein said pharmaceutical compositions each comprise a different anti-microbial polypeptide (AMP) or modulator thereof, and wherein said AMP is selected from a group consisting of: IL-6, IL-18, IL-23, REG Iα, REG Iβ, HIP/PAP, REG III, REG IV, Reg-related sequence (RS), and LT.

CLAIMS

1. Use of an IL-22 polypeptide in the preparation of a medicament for treating Inflammatory Bowel Disease (IBD) in a human subject in need thereof, wherein the medicament is for systemic administration and the medicament comprises an effective amount of the IL-22 polypeptide.

2. The use of claim 1, wherein said IBD is Crohn's disease or ulcerative colitis (UC).

3. The use of claim 1 or 2, wherein said IL-22 polypeptide is an IL-22-Fc fusion polypeptide.

4. The use of any one of claims 1-3, wherein the amino acid sequence of said IL-22 comprises a sequence shown as SEQ ID NO:8.

5. The use of claim 4, wherein the IL-22 is encoded by a nucleic acid molecule comprising a sequence shown as SEQ ID NO:7.

6. The use of any one of claims 1-5, wherein the medicament is for intravenous administration.

7. The use of any one of claims 1-6, wherein said IBD is Crohn’s disease.

8. The use of any one of claims 1-6, wherein said IBD is ulcerative colitis.

9. The use of any one of claims 1-8, wherein said IL-22 polypeptide is lacking its associated signal peptide.

10. The use of any one of claims 1-9, wherein the amount of the IL-22 polypeptide is sufficient to increase expression of REGIIIβ and REGIIIγ compared to a control.