[0009] The present disclosure also provides a nutritional composition for use in enhancing an individuals's mucosal innate immune detection of pathogens wherein the nutritional composition comprises a neutral human milk oligosaccharide.

[0010] The present disclosure also provides the use of a nutritional composition in the manufacture of a medicament for enhancing an individual's mucosal innate immune detection of pathogens wherein the composition comprises a neutral human milk oligosaccharide.

[0010a] The present disclosure also provides the use of a nutritional composition comprising about 0.05 to about 0.5 mg/mL 2'-FL, about 0.05 to about 0.5 mg/mL LNnT, or a combination of both, in the manufacture of a medicament for enhancing an individual's mucosal innate immune response to pathogens.

[0010b] The present disclosure also provides the use of a nutritional composition comprising a neutral human milk oligosaccharide to an individual, in the manufacture of a medicament for enhancing an individual's mucosal innate immune detection of pathogens.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] FIG. 1 (A-D) provides graphs showing the change in RNA expression levels of genes encoding various mucosal innate immune receptor proteins, and the cytokine IL1B, in cells exposed to various treatments described in Example 1.

[0012] FIG. 2 is a graph showing the change in the RNA expression level of the gene encoding the mucosal innate immune defense protein, MUC2, in cells exposed to various treatments described in Example 2.

DETAILED DESCRIPTION

[0013] The present disclosure relates to methods for enhancing mucosal innate immunity in an individual. More specifically, such immunity is enhanced by administering nutritional compositions including human milk oligosaccharides (HMOs) to the individual.

[0014] A method for enhancing an individual's mucosal innate immune response to pathogens is disclosed. The method includes a step of administering a nutritional composition to the individual. The nutritional composition includes about 0.05 to about 0.5 mg/mL 2'-fucosyllactose (2'-FL), about 0.05 to about 0.5 mg/mL lacto-N-neotetraose (LNnT), or a combination of both.

10. The composition of any one of claims 1-9, wherein the nutritional composition is a nutritional composition selected from liquid and powdered dietary supplements, liquid and powdered human milk fortifiers, liquid and powdered preterm infant formulas, liquid and powdered infant formulas, liquid and powdered elemental and semi-elemental formulas, liquid and powdered pediatric formulas, liquid and powdered toddler formulas, liquid and powdered follow-on formulas, and liquid, powdered and solid adult nutritional formulas.

11. The composition of any one of claims 1-10, wherein the individual to whom the nutritional composition is administered has one or more of an enteric infection, inflammatory bowel disease, irritable bowel syndrome, necrotizing enterocolitis, colitis, bowel obstruction, chronic stress, other gastrointestinal diseases, antibiotic therapy, radiation therapy, chemotherapy, surgery, other treatments or therapies; and dehydration.

12. The composition of any one of claims 3-7, wherein the neutral human milk oligosaccharide is 2'-FL.

13. The composition of claim 12, wherein the concentration of 2'-FL in the nutritional composition is less than 1 mg/mL.

14. The composition of any one of claims 1-13, wherein the nutritional composition is substantially free of any HMO other than 2'-FL or LNnT.

15. Use of a nutritional composition comprising about 0.05 to about 0.5 mg/mL 2'-FL, about 0.05 to about 0.5 mg/mL LNnT, or a combination of both, in the manufacture of a medicament for enhancing an individual's mucosal innate immune response to pathogens.

16. The use of claim 15, wherein the enhancing of the individual's mucosal innate immune response to pathogens comprises at least one of increased expression of innate immune receptors, increased expression of innate immune cytokines, and increased expression of innate immune defense proteins.

17. Use of a nutritional composition comprising a neutral human milk oligosaccharide to an individual, in the manufacture of a medicament for enhancing an individual's mucosal innate immune detection of pathogens.

18. The use of claim 17, wherein the enhancing the individual's mucosal innate immune detection of pathogens comprises increased expression of one or more of innate immune receptors and innate immune cytokines.

19. The use of any one of claims 15-18, wherein the nutritional composition is to be administered orally.

20. The use of claim 19, wherein the nutritional composition is a nutritional beverage, powder, bar, gel, or a sachet sprinkled on food or dissolved in water.

21. The use of any one of claims 15-20, wherein the nutritional composition comprises 2'-FL or LNnT, but not both.

22. The use of any one of claims 15-21, wherein the nutritional composition contains about 0.05 to about 0.25 mg/mL of 2'-FL.

23. The use of any one of claims 15-22, wherein the nutritional composition contains about 0.25 mg/mL to about 0.5 mg/mL of LNnT.

24. The use of any one of claims 15-23, wherein the nutritional composition is a nutritional composition selected from liquid and powdered dietary supplements, liquid and powdered human milk fortifiers, liquid and powdered preterm infant formulas, liquid and powdered infant formulas, liquid and powdered elemental and semi-elemental formulas, liquid and powdered pediatric formulas, liquid and powdered toddler formulas, liquid and powdered follow-on formulas, and liquid, powdered and solid adult nutritional formulas.

25. The use of any one of claims 15-24, wherein the individual to whom the nutritional composition is administered has one or more of an enteric infection, inflammatory bowel disease, irritable bowel syndrome, necrotizing enterocolitis, colitis, bowel obstruction, chronic stress, other gastrointestinal diseases, antibiotic therapy, radiation therapy, chemotherapy, surgery, other treatments or therapies; and dehydration.

26. The use of any one of claims 17-21, wherein the neutral human milk oligosaccharide is 2'-FL.

27. The use of claim 26, wherein the concentration of 2'-FL in the nutritional composition is less than 1 mg/mL.

28. The use of any one of claims 15-27, wherein the nutritional composition is substantially free of any HMO other than 2'-FL or LNnT.