SUMMARY

[0005] The general inventive concepts are directed to compositions and methods including a natural bovine immunoglobulin, alone or in combination with another functional ingredient, for use in modulating or treating the symptoms/conditions or diseases described herein, including but not limited to: infectious disease-related behavioral symptoms and/or morbidity. In particular, the symptoms include: impaired cognition, fever, anhedonia, loss of appetite, hyperalgesia, sleep disturbances, lethargy, chills, irritability, and skin hypersensitivity to touch. In certain exemplary embodiments, the general inventive concepts contemplate a method to decrease cytokine burden and ameliorate sickness/illness behavior symptoms by reducing respiratory virus-induced inflammation. In certain embodiments, the general inventive concepts contemplate a nutritional method to decrease cytokine burden and ameliorate sickness/illness behavior symptoms by reducing respiratory virus-induced inflammation.

[0005a] In one aspect, provided herein is a use of a composition comprising from 0.01 g/L to 100 g/L of bovine immunoglobulin in the manufacture of a medicament for modulating respiratory virus-induced inflammation in an individual affected by a respiratory virus, wherein the composition comprising from 0.01 g/L to 100 g/L of bovine immunoglobulin is to be administered to the individual.

[0005b] In one aspect, provided herein is a use of a composition comprising from 0.01 g/L to 100 g/L of bovine immunoglobulin in the manufacture of a medicament for treating respiratory virus-induced symptoms.

[0005c] In one aspect, provided herein is a use of a nutritional composition comprising from 0.01 g/L to 100 g/L of bovine immunoglobulin in the manufacture of a medicament for modulating excessive inflammatory cytokine burden, wherein the nutritional composition comprising from 0.01 g/L to 100 g/L of bovine immunoglobulin is to be administered to the individual.

[0006] In certain exemplary embodiments, the general inventive concepts relate to a composition comprising a bovine immunoglobulin for modulating an infectious agent-induced cytokine response.

[0007] In certain exemplary embodiments, the general inventive concepts relate to a method of modulating respiratory virus-induced inflammation in an individual infected by a respiratory virus. The method comprises administering a composition comprising from 0.01 g/L to 100 g/L of bovine immunoglobulin to the individual.

[0008] In certain exemplary embodiments, the general inventive concepts relate to a composition comprising from 0.01 g/L to 100 g/L of bovine immunoglobulin for use in a method of ameliorating and/or treating infectious disease-related behavioral symptoms and/or morbidity. The symptoms include: impaired cognition, fever, anhedonia, loss of appetite, hyperalgesia, sleep disturbances, lethargy, chills, irritability, and skin hypersensitivity to touch.

[0009] In certain exemplary embodiments, the general inventive concepts relate to method of treating respiratory virus-induced symptoms by administering a composition, the composition comprising from 0.01 g/L to 100 g/L of bovine immunoglobulin.

WHAT IS CLAIMED IS:

1. Use of a composition comprising from 0.01 g/L to 100 g/L of bovine immunoglobulin in the manufacture of a medicament~~A method~~ for modulating respiratory virus-induced inflammation in an individual affected by a respiratory virus, wherein~~comprising administering a~~ the composition comprising from 0.01 g/L to 100 g/L of bovine immunoglobulin is to be administered to the individual.

2. The use~~method~~ of claim 1, wherein the composition is nutritional composition which comprises at least one of protein, fat, and carbohydrate.

3. The use~~method~~ of claim 1, wherein the composition is an infant formula.

4. The use~~method~~ of claim 1, wherein the composition is an adult formula.

5. The use~~method~~ of claim 1, wherein the individual is an infirmed adult.

6. The use~~method~~ of any preceding claim, wherein the composition is a liquid or reconstitutable powder.

7. The use~~method~~ of any preceding claim, wherein the composition comprises lutein.

8. The use~~method~~ of any preceding claim, wherein the composition comprises at least one of vitamin B-6, zinc, and choline.

9. The use~~method~~ of any preceding claim, wherein the inflammation is reduced.

10. The use~~method~~ of any preceding claim, wherein the inflammation is modulated by reducing proinflammatory cytokines.

11. The use~~method~~ of any preceding claim, wherein the composition comprises at least one of a protein source, a fat source, and a carbohydrate source.

12. The use~~method~~ of any preceding claim, wherein the source of the bovine immunoglobulin has not been hyperimmunized or otherwise intentionally exposed to conditions intended to increase activity against human virus induced inflammation.

13. Use of a~~A~~ composition comprising from 0.01 g/L to 100 g/L of bovine immunoglobulin in the manufacture of a medicament for treating respiratory virus-induced symptoms~~, the composition comprising from 0.01 g/L to 100 g/L of bovine immunoglobulin~~.

14. The use~~composition~~ of claim 13, wherein the composition is a nutritional composition selected from the group of an infant formula, pediatric formula, and an adult formula.

15. The use~~composition~~ of any one of claims 13-14, wherein the composition is an infant formula.

16. The use~~composition~~ of any one of claims 13-15 further comprising a polyunsaturated fatty acid selected from docosahexaenoic acid, and arachidonic acid, and combinations thereof.

17. The use~~composition~~ of any one of claims 13-16 further comprising lutein.

18. The use~~composition~~ of any one of claims 13-17, wherein the source of the bovine immunoglobulin has not been hyperimmunized or otherwise intentionally exposed to conditions intended to increase activity against human virus induced inflammation.

19. The use~~composition~~ of any one of claims 13-18, wherein the composition is a nutritional composition comprising a protein source, a fat source, and a carbohydrate source.

20. The use~~composition~~ of any one of claims 13-19, further comprising a polyunsaturated fatty acid.

21. The use~~composition~~ of any one of claims 13-20, wherein the nutritional composition is substantially free of galactooligosaccharides.

22. Use of a nutritional composition comprising from 0.01 g/L to 100 g/L of bovine immunoglobulin~~A method of~~ in the manufacture of a medicament for modulating excessive inflammatory cytokine burden, wherein the ~~method comprising administering a~~ nutritional composition comprising from 0.01 g/L to 100 g/L of bovine immunoglobulin is to be administered to the individual.

23. The use~~method~~ of claim 22, wherein the inflammation is modulated by modulating proinflammatory cytokines.

24. The use~~method~~ of claim 22, wherein modulating excessive inflammatory cytokine burden decreases sickness/illness behavior symptoms in the individual.

25. The use~~method~~ of claim 23, wherein the source of the bovine immunoglobulin has not been hyperimmunized or otherwise intentionally exposed to conditions intended to increase activity against human virus induced inflammation.

26. The use~~method~~ of claim 24, wherein the sickness/illness behavior symptoms are selected from impaired cognition, fever, anhedonia, loss of appetite, hyperalgesia, and sleep disturbances, lethargy, chills, irritability, skin hypersensitivity to touch.