[0009] In one embodiment, the present disclosure is directed to a method of modulating serum corticosterone levels in an animal. The method comprises administering to the animal a composition comprising 2-fucosyl-lactose.

[0010] In another embodiment, the present disclosure is directed to a method of decreasing serum corticosterone levels in an individual affected by stress. The method comprises administering to the individual a nutritional composition comprising 2-fucosyl-lactose.

[0011] In another embodiment the present disclosure is directed to a method of modulating hypothalamic pituitary adrenal response in an individual. The method comprises administering to the individual a composition comprising 2-fucosyl-lactose.

[0012] In another embodiment, the present disclosure is directed to the use of 2-fucosyl-lactose in the manufacture of a medicament for reducing a stress response in an animal.

[0012a] In another embodiment, the present disclosure is directed to the use of of 2-fucosyl-lactose in the manufacture of a medicament for treating or preventing at least one of mood disorders and depression in an individual affected by stress.

[0012b] In another embodiment, the present disclosure is directed to the use of 2-fucosyl-lactose in the manufacture of a medicament for treating or preventing an exacerbated hypothalamic pituitary adrenal response in an individual.

~~In another embodiment, the present disclosure is directed to the use of 2-fucosyl-lactose in the manufacture of a medicament for modulating serum corticosterone levels in an animal, wherein the medicament is a nutritional composition.~~

~~[0012a] In another embodiment, the present disclosure is directed to the use of 2-fucosyl-lactose in the manufacture of a medicament for decreasing serum corticosterone levels in an individual affected by stress, wherein the medicament is a nutritional composition.~~

~~[0012b] In another embodiment, the present disclosure is directed to the use of 2-fucosyl-lactose in the manufacture of a medicament for modulating hypothalamic pituitary adrenal response in an individual, wherein the medicament is a nutritional composition.~~

[0012c] It has been unexpectedly discovered that human milk oligosaccharides, and particularly, 2-fucosyl-lactose, can reduce exacerbated stress response in an individual by mediating hyperactive hypothalamic pituitary adrenal (HPA) responses and decreasing serum corticosterone levels in individuals affected by stress, particularly acute psychological stress. As overproduction of corticosterone is closely related to central nervous system function (e.g., cognitive skills, mood disorders, depression), administration of 2-fucosyl-lactose may further promote central nervous system function, especially in stressful situations that may produce mood disorders or depression. These benefits are advantageously achieved without the complications seen with previously used oral synthetic pharmacological approaches.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] Figure 1 is a graph depicting basal serum corticosterone levels in mice as analyzed in Example 1.

[0014] Figure 2 is a graph depicting post restraint serum corticosterone levels in mice as analyzed in Example 1.

DETAILED DESCRIPTION OF THE DISCLOSURE

[0015] The present disclosure is directed to methods for modulating and/or decreasing serum corticosterone levels and/or modulating the hypothalamic pituitary adrenal response in an individual, thereby maintaining a balanced physiological state. The present

WHAT IS CLAIMED IS

1. Use of 2-fucosyl-lactose in the manufacture of a medicament for modulating serum corticosterone levels in an animal, wherein the medicament is a nutritional composition.

2. Use of 2-fucosyl-lactose in the manufacture of a medicament for decreasing serum corticosterone levels in an individual affected by stress, wherein the medicament is a nutritional composition.

3. Use of 2-fucosyl-lactose in the manufacture of a medicament for modulating hypothalamic pituitary adrenal response in an individual, wherein the medicament is a nutritional composition.

4. The use of any one of claims 1-3, wherein the animal or individual is affected by acute physiological stress.

5. The use of any one of claims 1-4, wherein the animal or individual has been subjected to stress early in life.

6. The use of any one of claims 1-5, wherein the animal or individual is a maternally deprived infant.

7. The use of any one of claims 1-5, wherein the animal or individual is an infant.

8. The use of any one of claims 1-7, in which the medicament is a liquid comprising from 0.001 mg/mL to 20 mg/mL of 2-fucosyl-lactose.

9. The use of any one of claims 1-7, in which the medicament is a liquid comprising from 0.001 mg/mL to 10 mg/mL of 2-fucosyl-lactose.

10. The use of any one of claims 1-7, in which the medicament is a liquid comprising from 0.001 mg/mL to 5 mg/mL of 2-fucosyl-lactose.

11. The use of any one of claims 1-7, in which the medicament is a powder comprising from 0.0005% to 5% of 2-fucosyl-lactose by weight of the powder.

12. The use of any one of claims 1-7, in which the medicament is a powder comprising from 0.01% to 1% of 2-fucosyl-lactose by weight of the powder.

13. The use of any one of claims 1-12, in which the medicament further comprises at least one of a fat, protein, and carbohydrate.

14. The use of any one of claims 1-13, in which the medicament is an infant formula.

WHAT IS CLAIMED IS

1. Use of 2-fucosyl-lactose in the manufacture of a medicament for reducing a stress response in an animal.

2. Use of 2-fucosyl-lactose in the manufacture of a medicament for treating or preventing at least one of mood disorders and depression in an individual affected by stress.

3. Use of 2-fucosyl-lactose in the manufacture of a medicament for treating or preventing an exacerbated hypothalamic pituitary adrenal response in an individual.

4. The use of any one of claims 1-3, wherein the animal or individual is affected by acute physiological stress.

5. The use of any one of claims 1-4, wherein the animal or individual has been subjected to stress early in life.

6. The use of any one of claims 1-5, wherein the animal or individual is a maternally deprived infant.

7. The use of any one of claims 1-5, wherein the animal or individual is an infant.

8. The use of any one of claims 1-7, in which the medicament is a liquid comprising from 0.001 mg/mL to 20 mg/mL of 2-fucosyl-lactose.

9. The use of any one of claims 1-7, in which the medicament is a liquid comprising from 0.001 mg/mL to 10 mg/mL of 2-fucosyl-lactose.

10. The use of any one of claims 1-7, in which the medicament is a liquid comprising from 0.001 mg/mL to 5 mg/mL of 2-fucosyl-lactose.

11. The use of any one of claims 1-7, in which the medicament is a powder comprising from 0.0005% to 5% of 2-fucosyl-lactose by weight of the powder.

12. The use of any one of claims 1-7, in which the medicament is a powder comprising from 0.01% to 1% of 2-fucosyl-lactose by weight of the powder.

13. The use of any one of claims 1-12, in which the medicament further comprises at least one of a fat, protein, and carbohydrate.

14. The use of any one of claims 1-13, in which the medicament is an infant formula.