CLAIMS

What is claimed is:

1. A nutritional composition comprising:

(i) a protein source,

(ii) a lipid source,

(iii) a carbohydrate source,

(iv) a human milk oligosaccharide or a precursor thereof, wherein the human milk oligosaccharide comprises 3'-sialyllactose, 6'-sialyllactose, or a mixture thereof,

(v) a prebiotic, wherein the prebiotic comprises polydextrose and galactooligosaccharides in a ratio ranging from 1:4 to 4:1 by weight, and

(vi) a probiotic.

2. The composition of claim 1, wherein the at least one human milk oligosaccharide comprises at least one additional human milk oligosaccharide selected from the group consisting of 2'-fucosyllactose, 3'-fucosyllactose, lacto-N-biose, lacto-N-neotetraose, and lacto-N-tetraose.

3. The composition of claim 1, wherein the human milk oligosaccharide precursor comprises sialic acid, fucose, or a combination thereof.

4. The composition of claim 1, wherein the human milk oligosaccharide is present at a concentration ranging from 0.005 g/100 kcal to 1 g/100 kcal.

5. The composition of claim 1, wherein the polydextrose is present in an amount ranging from 0.1 g/100kcal to 0.5 g/100 kcal.

6. The composition of claim 1, wherein the galacto-oligosaccharide is present in the composition in an amount ranging from 0.1 g/100 kcal to 1.0 g/100kcal.

7. The composition of claim 1, wherein the probiotic comprises a *Lactobacillus* species.

8. The composition of claim 1, wherein the probiotic comprises *Lactobacillus rhamnosus* GG.

9. The composition of claim 1, wherein the probiotic is non-viable.

10. The composition of claim 1, wherein the probiotic is viable.

11. The composition of claim 1, wherein the probiotic is present in an amount ranging from $1x10^5$ cfu/100 kcals to 1.5×10^9 cfu/100 kcals of *Lactobacillus rhamnosus* GG.

12. The composition of claim 1, further comprising a source of long chain polyunsaturated fatty acids.

13. The composition of claim 12, wherein the source long chain polyunsaturated fatty acids comprises docosahexaenoic acid, arachidonic acid, or a combination thereof.

14. The composition of claim 1, further comprising a source of β-glucan.

15. The composition of claim 14, wherein the source of β-glucan comprises a 1,3-β-glucan.

16. The composition of claim 1, wherein the composition comprises per 100 kcal:

(i) between 1 g and 7 g of a protein source,

(ii) between 1 g and 10 g of a lipid source,

(iii) between 6 g and 22 g of a carbohydrate source,

(iv) between 0.005 g and 1 g of a human milk oligosaccharide, wherein the human milk oligosaccharide comprises 3'-sialyllactose, 6'-sialyllactose, or mixtures thereof,

(v) between 0.1 g and 1.0 g of a galacto-oligosaccharide,

(vi) between 0.1 g and 0.5 g of a polydextrose, wherein the weight ratio of polydextrose and galactooligosaccharides is in a ratio ranging from 1:4 to 4:1 by weight, and

(vii) between $1x10^5$ cfu/100 kcals to 1.5×10^9 cfu/100 kcals of *Lactobacillus rhamnosus* GG.