CLAIMS

What is claimed is:

~~1. Use of a nutritional composition in the manufacture of a composition for increasing lipolysis in a target subject, the nutritional composition comprising: a carbohydrate source; a protein or protein equivalent source; a fat or lipid source; and~~

~~a) dietary butyrate; and/or~~

~~b) lactoferrin;~~

~~2. Use of a nutritional composition in the manufacture of a composition for reducing adipogenesis in a target subject, the nutritional composition comprising: a carbohydrate source; a protein or protein equivalent source; a fat or lipid source; and~~

~~a) dietary butyrate; and/or~~

~~b) lactoferrin;~~

~~3. Use of a nutritional composition in the manufacture of a composition for increasing glucose uptake in a target subject, the nutritional composition comprising: a carbohydrate source; a protein or protein equivalent source; a fat or lipid source; and~~

~~a) dietary butyrate; and/or~~

~~b) lactoferrin;~~

~~4. The use of the nutritional composition according to any of claims 1 to 3, wherein the nutritional composition further comprises a probiotic.~~

~~5. The use of a nutritional composition according to any of the previous claims, wherein 1% to 99% of the protein equivalent source includes a peptide component comprising SEQ ID NO 4, SEQ ID NO 13, SEQ ID NO 17, SEQ ID NO 21, SEQ ID NO 24, SEQ ID NO 30, SEQ ID NO 31, SEQ ID NO 32, SEQ ID NO 51, SEQ ID NO 57, SEQ ID NO 60, and SEQ ID NO 63; and 1% to 99% of the protein equivalent source comprises a partially hydrolyzed protein, an extensively hydrolyzed protein, or combinations thereof.~~

~~6. The use of the nutritional composition according to any of the previous claims, wherein the nutritional composition further comprises inositol.~~

~~7. The use of the nutritional composition according to any of the previous claims, wherein the nutritional composition further comprises a prebiotic.~~

~~8. The use of a nutritional composition according to any of the previous claims, wherein the dietary butyrate is present in an amount of from 0.5 mg/100 Kcal to 300 mg/100 Kcal.~~

~~9. The use of a nutritional composition according to any of the previous claims, wherein the dietary butyrate comprises sodium butyrate.~~

~~10. The use of a nutritional composition according to any of the previous claims, wherein the nutritional composition comprises dietary butyrate that is provided by an enriched lipid fraction derived from bovine milk.~~

~~11. The use of a nutritional composition according to claim 10, wherein the enriched lipid fraction derived from milk further comprises milk fat globule membrane.~~

~~12. The use of the nutritional composition according to any of the previous claims, wherein the nutritional composition further comprises one or more long chain polyunsaturated fatty acids.~~

~~13. The use of the nutritional composition according to claim 12, wherein the one or more long chain polyunsaturated fatty acids comprises docosahexaenoic acid, arachidonic acid, and combinations thereof.~~

~~14. The use of the nutritional composition according to any of the previous claims, wherein the nutritional composition further comprises β-glucan.~~

~~15. The use of the nutritional composition according to any of the previous claims, wherein the nutritional composition is an infant formula.~~

1~~6~~. A staged feeding regimen for an infant or child, comprising the steps of:

A) administering a first nutritional composition comprising from 100 µg/mL to 1300 µg/mL of lactoferrin to the infant from birth to 3 months of age;

B) administering a second nutritional composition comprising from 600 µg/mL to 2000 µg/mL of lactoferrin to the infant from 3 months of age to 6 months of age; and

C) administering a third nutritional composition comprising from 100 µg/mL to 1500 µg/mL of lactoferrin to the infant from 6 months of age to 12 months of age,

wherein each of the first nutritional composition, the second nutritional composition and the third nutritional composition are different from each other.

~~17~~2. The staged feeding regimen of claim 1~~6~~, wherein the first nutritional composition further comprises at least one of the following selected from the group consisting of: i) up to 0.2 mg/100 kcal of iron; ii) up to 0.7 mg/100 kcal of zinc; iii) up to 2 g/100 kcal of protein; iv) a protein source comprising a whey:casein ratio of at least 72:28; v) up to 35 mg/100 kcal of inositol; and vii) from 1.8 µg/100 kcal to 2.0 µg/100 kcal of vitamin D.

~~18~~3. The staged feeding regimen of claim 1~~6~~ or claim ~~17~~2, wherein the second nutritional composition further comprises at least one of the following selected from the group consisting of: i) from 0.3 mg/100 kcal to 0.6 mg/100 kcal of iron; ii) up to 0.9 mg/100 kcal of zinc; iii) up to 1.9 g/100 kcal of protein; iv) a protein source comprising a whey:casein ratio of 65:44 to 68:32; v) up to 25 mg/100 kcal of inositol; vi) up to 9.0 mg/100 kcal of butyrate; and vii) from 1.8 µg/100 kcal to 2.0 µg/100 kcal of vitamin D.

~~19~~4. The staged feeding regimen of any one of claims 1~~6~~ - ~~18~~3, wherein the third nutritional composition further comprises at least one of the following selected from the group consisting of: i) from 0.3 mg/100 kcal to 1.2 mg/100 kcal of iron; ii) up to 1 mg/100 kcal of zinc; iii) up to 1.5 g/100 kcal of protein; iv) a protein source comprising a whey:casein ratio of 45:55 to 56:44; v) up to 20 mg/100 kcal of inositol; vi) up to 9.0 mg/100 kcal of butyrate; and vii) from 1.8 µg/100 kcal to 2.0 µg/100 kcal of vitamin D.

~~20~~5. The staged feeding regimen of any one of claims 1~~6~~ - ~~19~~4, wherein the first nutritional composition, second nutritional composition, and third nutritional composition each further comprise docosahexaenoic acid.

~~21~~6. The staged feeding regimen of any one of claims 1~~6~~ - ~~20~~5, wherein the first nutritional composition, second nutritional composition, and third nutritional composition each further comprise a carbohydrate source, a fat source, and a protein source.

~~22~~7. The staged feeding regimen of any one of claims 1~~6~~ - ~~21~~6, wherein the first nutritional composition, second nutritional composition, and third nutritional composition each further comprise prebiotics.

~~23~~8. The staged feeding regimen of any one of claims 1~~6~~ - ~~22~~7, wherein the first nutritional composition, second nutritional composition, and third nutritional composition each further comprise *Lactobacillus rhamnosus* GG.

~~24~~9. The staged feeding regimen of any one of claims 1~~6~~ - ~~23~~8, wherein the first nutritional composition, second nutritional composition, and third nutritional composition each further comprise β-glucan.

10. The staged feeding regimen of any one of claims 1 to 9, wherein the first nutritional composition, second nutritional composition, and third nutritional composition each further comprise inositol.

11. The staged feeding regimen of any one of claims 1 to 10, wherein the first nutritional composition, second nutritional composition, and third nutritional composition each further comprise a culture supernatant from a late-exponential growth phase of a probiotic batch-cultivation process.