CLAIMS

1. A spray-dried powder containing at least 80%-wt. of lacto-N-tetraose (LNT) which has been produced by microbial fermentation using a genetically-engineered microorganism, wherein the spray-dried powder contains ≤ 15%-wt. of water, is free of nucleic acid molecules derived from the genetically-engineered microorganism, and wherein the LNT is present in amorphous form having a mean particle size of 117.3 ± 0.7 µm as determined by laser diffraction.

2. The spray-dried powder according to claim 1, wherein the spray-dried powder contains at least 85 %-wt., at least 90 %-wt., at least 93 %wt., at least 95 %-wt. or at least 98 %-wt. LNT.

3. The spray-dried powder according to any one of claims 1 to 2, wherein the spray-dried powder contains preferably ≤ 10 %-wt. of water, more preferably ≤ 7 %-wt. of water, most preferably ≤ 5 %-wt. of water.

4. The spray-dried powder according to any one of claims 1 to 3, wherein the spray-dried powder is free of genetically-engineered microorganisms and nucleic acid molecules derived from genetically-engineered microorganisms.

5. A process for the manufacture of a spray-dried powder as defined in any one of claims 1 to 4, the process comprises the steps of:

   a) purifying the LNT from a fermentation broth;

   b) providing an aqueous solution containing the LNT of step a) in an amount of at least 20 %-wt.; and

c) subjecting the aqueous solution of step b) to spray-drying, wherein the aqueous solution is spray-dried at a nozzle temperature of at least 11 ºC and less than 150 ºC, and at an outlet temperature of at least 60 ºC and less than 80 ºC.

6. The process according to claim 5, wherein the step of purifying the LNT from a fermentation broth (step a)) includes one or more of the steps of

i) removing the microbial cells from the fermentation broth to obtain a cleared process stream;

ii) subjecting the cleared process stream to at least one ultrafiltration;

iii) treating the cleared process stream at least one time with a cation exchange resin and/or at least one time with an anion exchange resin;

iv) subjecting the cleared process stream to at least one nanofiltration and/or diafiltration;

v) subjecting the cleared process stream to at least one electrodialysis;

vi) treating the cleared process stream at least one time with activated charcoal; and/or

vii) subjecting the cleared process stream at least one time to a crystallization and/or precipitation step.

7. The process according to claim 5 or 6, wherein the aqueous solution contains the LNT in an amount of at least 20 % (w/v), 30 % (w/v), 35 % (w/v), and up to 45 % (w/v), 50 % (w/v), 60 % (w/v).

8. The process according to any one of claims 5 to 7, wherein the aqueous solution containing LNT is spray-dried at a nozzle temperature of at least 110 °C, preferably at least 120 °C, more preferably at least 125 °C, and less than 150 °C, preferably less than 140 °C and more preferably less than 135 °C.

9. The process according to any one of claims 5 to 8, wherein the aqueous solution containing LNT is spray-dried at an outlet temperature of at least 60 °C, preferably at least 65 °C, and less than 80 °C, preferably less than 70 °C.

10. Use of the spray-dried powder according to any one of claims 1 to 4 for the manufacture of a nutritional composition, preferably an infant formula.

11. A nutritional composition containing the spray-dried powder according to any one of claims 1 to 4.

12. The nutritional composition according to claim 11, further containing at least one additional HMO, wherein said at least one additional HMO is a neutral HMO or a sialylated HMO.

13. The nutritional composition according to claim 11 or 12, wherein the at least one neutral HMO is selected from the group consisting of 2'-fucosyllactose, 3-fucosyllactose, lacto-N-tetraose, lacto-N-neotetraose and lacto-N-fucopentaose I.

14. The nutritional composition according to any one of claims 11 to 13, wherein the at least one sialylated HMO is selected from the group consisting of 3'-sialyllactose, 6'-sialyllactose, sialyllacto-N-tetraose (LST)-a, LST-b, LST-c and disialyllacto-N-tetraose.

15. The nutritional composition according to any one of claims 11 to 14, wherein the nutritional composition contains at least one probiotic microorganism.