CLAIMS

1. A process for making crystalline 2'-fucosyllactose from an aqueous starting solution comprising 2'-fucosyllactose and at least one other carbohydrate, wherein:

the process comprises:

concentrating the starting solution to a supersaturated state with respect to 2'-fucosyllactose, and

precipitating a 2'-fucosyllactose crystal from the supersaturated solution while subjecting the supersaturated solution to a temperature of greater than 60°C; and

the supersaturated solution comprises no greater than 1% (by weight) organic solvent during the precipitation of the 2'-fucosyllactose crystal.

2. The process according to claim 1, wherein:

the at least one other carbohydrate comprises difucosyllactose, and

the starting solution has a dry solids content with a difucosyllactose concentration of at least 1% (wherein the percentage corresponds to a normalized peak area concentration obtained using high performance liquid chromatography).

3. The process according to any one of the preceding claims, wherein:

the at least one other carbohydrate comprises lactose, and

the starting solution has a dry solids content with a lactose concentration of at least 0.1% (wherein the percentage corresponds to a normalized peak area concentration obtained using high performance liquid chromatography).

4. The process according to any one of the preceding claims, wherein no organic solvent is added to the supersaturated solution while the supersaturated solution is being subjected to a temperature of greater than 60°C.

5. The process according to any one of the preceding claims, wherein the starting solution is derived from a fermentation.

6. The process according to any one of the preceding claims, wherein no organic solvent is added to the starting solution before or during concentration of the starting solution to a supersaturated state.

7. A process for making crystalline 2'-fucosyllactose from an aqueous starting solution comprising 2'-fucosyllactose and at least one other carbohydrate, wherein:

the process comprises:

concentrating the starting solution to a supersaturated state with respect to 2'-fucosyllactose, and

precipitating a 2'-fucosyllactose crystal from the supersaturated solution while subjecting the supersaturated solution to a temperature of at least 40°C;

the starting solution has a dry solids content with a 2'-fucosyllactose concentration of from 70 to 95% (wherein the percentage corresponds to a normalized peak area concentration obtained using high performance liquid chromatography); and

the supersaturated solution comprises no greater than 1% (by weight) organic solvent during the precipitation of the 2'-fucosyllactose crystal.

8. A process for making crystalline 2'-fucosyllactose from an aqueous starting solution comprising 2'-fucosyllactose and at least one other carbohydrate, wherein:

the process comprises:

concentrating the starting solution to a supersaturated state with respect to 2'-fucosyllactose, and

precipitating a 2'-fucosyllactose crystal from the supersaturated solution while subjecting the supersaturated solution to a temperature of at least 40°C;

the starting solution has a dry solids content with a 2'-fucosyllactose concentration of less than 98% (wherein the percentage corresponds to a normalized peak area concentration obtained using high performance liquid chromatography); and

the supersaturated solution comprises no greater than 1% (by weight) organic solvent during the precipitation of the 2'-fucosyllactose crystal.

9. A process for making crystalline 2'-fucosyllactose from an aqueous starting solution comprising 2'-fucosyllactose and at least one other carbohydrate, wherein:

the process comprises:

concentrating the starting solution to a supersaturated state with respect to 2'-fucosyllactose, and

precipitating a 2'-fucosyllactose crystal from the supersaturated solution while subjecting the supersaturated solution to a temperature of at least 40°C;

the supersaturated solution comprises no greater than 1% (by weight) organic solvent during the precipitation of the 2'-fucosyllactose crystal; and

the crystalline 2'-fucosyllactose has a melting point of from about 230 to about 239°C (as determined with a 1°C/min heating rating using the European Pharmacopoeia capillary melting point method).

10. A process for making crystalline 2'-fucosyllactose from an aqueous starting solution comprising 2'-fucosyllactose and at least one other carbohydrate, wherein:

the process comprises:

concentrating the starting solution to a supersaturated state with respect to 2'-fucosyllactose, and

precipitating a 2'-fucosyllactose crystal from the supersaturated solution while subjecting the supersaturated solution to a temperature of at least 40°C;

the supersaturated solution comprises no greater than 1% (by weight) organic solvent during the precipitation of the 2'-fucosyllactose crystal; and

the crystalline 2'-fucosyllactose exhibits an X-ray powder diffraction reflection, based on a measurement using CuKa radiation, at 16.98±0.20, 13.65±0.20 and 18.32±0.20 2Θ angles.

11. A process for making amorphous 2'-fucosyllactose, wherein the process comprises:

making crystalline 2'-fucosyllactose according to the process of any one of claims 1 to 10,

dissolving the crystalline 2'-fucosyllactose in a solvent to form a purified 2'-fucosyllactose solution, and

precipitating amorphous 2'-fucosyllactose from the purified 2'-fucosyllactose solution.

12. The process according to claim 11, wherein the precipitation of amorphous 2'-fucosyllactose from the purified 2'-fucosyllactose solution comprises spray drying.

13. A process for making a food, dietary supplement or medicine, wherein the process comprises:

making crystalline 2'-fucosyllactose according to the process of any one of claims 1 to 10, and

either:

mixing the crystalline 2'-fucosyllactose with one or more ingredients suitable for the food, dietary supplement or medicine; or

dissolving the crystalline 2'-fucosyllactose in a solvent and mixing the dissolved 2'-fucosyllactose with one or more ingredients suitable for the food, dietary supplement or medicine.

14. A process for making a food, dietary supplement or medicine, wherein the process comprises:

making amorphous 2'-fucosyllactose according to the process of claim 11 or 12, and

either:

mixing the amorphous 2'-fucosyllactose with one or more ingredients suitable for the food, dietary supplement or medicine; or

dissolving the amorphous 2'-fucosyllactose in a solvent and mixing the dissolved 2'-fucosyllactose with one or more ingredients suitable for the food, dietary supplement or medicine.

15. A process for making infant formula, wherein the process comprises:

making crystalline 2'-fucosyllactose according to the process of any one of claims 1 to 10, and

either:

mixing the crystalline 2'-fucosyllactose with one or more infant formula ingredients, or

dissolving the crystalline 2'-fucosyllactose in a solvent and mixing the dissolved 2'-fucosyllactose with one or more infant formula ingredients.

16. A process for making an infant formula, wherein the process comprises:
making amorphous 2'-fucosyllactose according to the process of claim 11 or 12, and either:

mixing the amorphous 2'-fucosyllactose with one or more infant formula ingredients, or

dissolving the amorphous 2'-fucosyllactose in a solvent and mixing the dissolved 2'-fucosyllactose with one or more infant formula ingredients.

17. A crystalline 2'-fucosyllactose product obtained from a process of any one of claims 1 to 10.

18. Amorphous 2'-fucosyllactose obtained from a process of claim 11 or 12.

19. A food, dietary supplement or medicine obtained from a process of claim 13 or 14.

20. An infant formulation obtained from a process of claim 15 or 16.