

**Claims**

1. Use of an  $\alpha$ -lactalbumin enriched whey protein extract as a source of cholesterol in a synthetic nutritional composition for an infant or child wherein, the  $\alpha$ -lactalbumin enriched (WPE) is  
5 obtained by a process comprising:
- a. acidifying a whey protein product to pH 4 or below
  - b. forming a low calcium whey protein product by concentrating the proteins in the acidified whey protein until the calcium to protein ratio is less than about 0.001 and,
  - c. precipitating  $\alpha$ -lactalbumin from the low-calcium whey protein product, wherein said  
10 precipitating step includes the sub-steps of:
    - (I) diluting the low-calcium whey protein product,
    - (II) adjusting the pH of the diluted low-calcium whey protein product to between 4 and 5 to form a precipitate and soluble proteins, and
    - (III) Separating the precipitate proteins from the soluble proteins;
- 15 Wherein the WPE is added to said composition in an effective amount sufficient to ensure that said synthetic nutritional composition has a final concentration of cholesterol found in human breast milk.
2. Use according to claim 1 wherein the cholesterol content in synthetic nutritional composition  
20 ranges from 90-150 mg/L.
3. Use according to claims 1 or 2 wherein the WPE is also used to optimise the concentration of  $\alpha$ -lactalbumin in said synthetic nutritional composition for an infant or child, and wherein said WPE is added to said composition in an effective amount sufficient to provide  $\alpha$ -lactalbumin  
25 in one of the ranges found in human breast milk.
4. A synthetic nutritional composition for an infant or child comprising an  $\alpha$ -lactalbumin enriched whey protein extract as defined in claim 1 wherein the synthetic nutritional composition comprises the WPE in a concentration in a range of 0.8 to 8 g/L.
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5. A synthetic nutritional composition for an infant or child according to claim 4 wherein said composition is an infant formula comprising 4 to 5 g/L of WPE and wherein said composition is preferably formulated for an infant of 6 to 12 months of age.
- 5 6. A synthetic nutritional composition for an infant or child according to claim 4 wherein said composition is an infant formula comprising 4 to 5 g/L of WPE and wherein said composition is preferably formulated for a child of 13 to 36 months of age.
- 10 7. A synthetic nutritional composition for an infant or child according to claim 6 wherein said composition is an infant formula comprising 0.5 to 1.5 g/L of WPE and wherein said composition is preferably formulated for a child of 3 to 8 years of age.
8. A synthetic nutritional composition for an infant or child according to any one of claims 4 to 7 wherein the cholesterol concentration in said composition is at least 90 mg/L.
- 15 9. A synthetic nutritional composition for an infant or child according to any one of claims 4 to 8 wherein the synthetic nutritional composition for an infant or child is a composition for consumption by infants either alone or in combination with human breast milk and is preferably an infant formula or human breast milk fortifier.
- 20 10. A synthetic nutritional composition for an infant or child comprising an WPE as defined in claim 1 for use in a method to promote and/or optimise the growth and/or the development in an infant or child to whom it is administered.
- 25 11. A synthetic nutritional composition for an infant or child comprising an WPE as defined in claim 1 for use in a method to promote and/or optimise immune defences in an infant or child to whom it is administered.
- 30 12. A synthetic nutritional composition for an infant or child comprising an WPE as defined in claim 1 for use in a method to promote and/or optimise fatty acid metabolism in an infant or child to whom it is administered.

13. A synthetic nutritional composition for use according to any one of claims 10 to 12, wherein the synthetic nutritional composition is a composition defined in anyone of claims 4 to 9.