

CLAIMS

What is claimed is:

1. A method for preparing a protein hydrolysate for use in a nutritional composition, the method comprising:
 - 5 hydrolyzing a milk protein preparation selected from the group consisting of a casein, acid casein or caseinate, beta-casein enriched casein, acid casein or caseinate, an alpha-casein enriched casein, acid casein or caseinate, and/or a kappa-casein enriched casein, acid casein or caseinate using a protease or proteases selected from the group consisting of trypsin or a trypsin-like protease, chymotrypsin or a chymotrypsin-like protease, pepsin and plasmin to form a protein hydrolysate.
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 2. The method of claim 1, wherein the casein, acid casein or caseinate is hydrolyzed using trypsin or trypsin-like protease, chymotrypsin or chymotrypsin-like protease, pepsin and plasmin.
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 3. The method of claim 1, wherein the casein, acid casein or caseinate is beta-casein enriched and the beta-casein enriched casein, acid casein or caseinate comprises between about 40% - 95% beta-casein.
 - 20 4. The method of claim 1, wherein the casein, acid casein or caseinate is alpha-casein enriched and the alpha-casein enriched casein, acid casein or caseinate comprises between about 50% - 95% alpha-casein.
 - 25 5. The method of claim 4, wherein the alpha-casein enriched casein, acid casein or caseinate further comprises between about 15% - 95% kappa-casein.
 6. The method of claim 1, wherein the casein, acid casein or caseinate is kappa-casein enriched and the kappa-enriched casein, acid casein or caseinate comprises between about 15-95% kappa-casein.
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 7. The method of claim 1, further comprising hydrolyzing a protein selected from the group consisting of polymeric immunoglobulin receptor (PIGR), osteopontin, bile-salt activated lipase, and clusterin using a protease selected from the group consisting of trypsin, chymotrypsin and plasmin.
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 8. A method for preparing a nutritional composition, the method comprising:

hydrolyzing a milk protein preparation selected from the group consisting of a casein, acid casein or caseinate, beta-casein enriched casein, acid casein or caseinate, an alpha-casein enriched casein, acid casein or caseinate, and/or a kappa-casein enriched casein, acid casein or caseinate using a protease selected from the group consisting of trypsin or trypsin-like protease, chymotrypsin or chymotrypsin-like protease, pepsin and plasmin to form a protein hydrolysate, where in the protein hydrolysate is included in the nutritional composition.

9. The method of claim 8, wherein the nutritional composition is a pediatric nutritional composition.

10. The method of claim 9, wherein the pediatric nutritional composition is an infant formula.

11. The method of any of claims 8-10, wherein the nutritional composition further comprises:

- (i) a protein source,
- (ii) a lipid source, and/or
- (iii) a carbohydrate source.

12. The method of claim 11, wherein the nutritional composition further comprises

- (iv) a prebiotic, and/or
- (vi) a probiotic.

13. The method of claim 12, wherein the probiotic comprises a *Lactobacillus* species.

14. The method of claim 13, wherein the probiotic comprises *Lactobacillus rhamnosus* GG.

15. The method of claim 12, wherein the probiotic is non-viable.

16. The method of claim 12, wherein the probiotic is viable.

17. The method of any of claims 12 – 16, wherein the probiotic is present in an amount ranging from about 1×10^5 cfu/100 kcals to about 1.5×10^9 cfu/100 kcals.

18. The method of any of claims 8 to 17, wherein the composition further comprises at least one human milk oligosaccharide (HMO).

19. The method of any of claims 8 to 18, further comprising a long chain polyunsaturated fatty acid.
- 5 20. The method of claim 19, wherein the long chain polyunsaturated fatty acid comprises docosahexaenoic acid and/or arachidonic acid.
21. The method of any of claims 8 to 20, further comprising a source of β -glucan.
- 10 22. The method of claim 21, wherein the source of β -glucan comprises a β -1,3-glucan.
23. A composition comprising the protein hydrolysate of any of claims 1 - 7.
24. A nutritional compound prepared by the method of any of claims 8-22.
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