

What we claim is:

1. A composition comprising the following components:
 - (e) bromelain,
 - 5 (f) one or more SCFAs or esters thereof,
 - (g) one or more amino acids selected from the group consisting of L-threonine, L-tryptophan, L-arginine, L-glutamine and L-methionine and combinations thereof, and
 - (h) Vitamin D or a metabolite thereof.
2. The composition of claim 1 wherein (c) comprises one or more amino acids selected from L-tryptophan, L-arginine, L-glutamine and L-methionine and combinations thereof.
3. The composition of claim 1 wherein (c) comprises L-tryptophan, L-arginine, L-glutamine and L-methionine.
4. The composition of claim 1 wherein (c) comprises L-arginine, L-glutamine and L-methionine.
5. The composition of claim 1 wherein (c) comprises L-tryptophan, L-glutamine and L-methionine.
6. The composition of claim 1 wherein (c) comprises L-tryptophan, L-arginine, and L-methionine.
7. The composition of claim 1 wherein (c) comprises L-tryptophan, L-arginine and L-glutamine.
8. The composition of claim 1 wherein (c) comprises L-tryptophan and L-arginine.
9. The composition of claim 1 wherein (c) comprises L-tryptophan and L-glutamine.
10. The composition of claim 1 wherein (c) comprises L-tryptophan and L-methionine.
11. The composition of claim 1 wherein (c) comprises L-arginine and L-glutamine.
12. The composition of claim 1 wherein (c) comprises L-arginine and L-methionine.
13. The composition of claim 1 wherein (c) comprises L-glutamine and L-methionine.
14. The composition of claim 1 wherein (c) L-tryptophan, L-arginine, L-glutamine or L-methionine.
15. The composition of claim 1 wherein (c) consists essentially of L-tryptophan, L-arginine, L-glutamine or L-methionine.
16. The composition of claim 1 comprising (a), (b), L-threonine and (d).
17. The composition of claim 16 consisting essentially of bromelain, a SCFA, L- threonine and Vitamin D or a metabolite thereof.
18. The composition of any one of the preceding claims wherein the one or more SCFA or ester thereof is butyric acid, propionic acid or acetic acid, or a salt thereof.
19. The composition of any one of the preceding claims wherein the one or more SCFA or ester thereof is sodium butyrate, calcium butyrate, sodium propionate or sodium acetate, preferably sodium butyrate.
20. The composition of any one of the preceding claims wherein the one or more SCFA or ester thereof is sodium butyrate.
21. The composition of any one of the preceding claims consisting essentially bromelain, sodium butyrate, L- threonine and Vitamin D or a metabolite thereof.

22. The composition of any one of the preceding claims wherein the composition is a unit dosage form that comprises about 50 mg to about 2500 mg, preferably about 250 to about 2250 mg, about 500 to about 2000 mg, about 750 to about 1750 mg, about 1000 to about 1600 mg, about 1300 to about 1550 mg, about 1400 to about 1500 mg, about 1420 to about 1460 mg, preferably about 1440 mg bromelain.
23. The composition of claim 22 comprising about 1440 mg, preferably about 1030 mg, preferably about 720 mg, preferably about 480 mg bromelain.
24. The composition of any one of the preceding claims wherein the composition is a unit dosage form that comprises about 45 to 1800 mg SCFA, preferably about 75 to about 1650 mg, about 250 to about 1500, about 500 to about 1400, about 750 to about 1500, about 1000 to about 1400, about 1100 to about 1300 mg, preferably about 1200 mg SCFA.
25. The composition of claim 24 comprising about 1200 mg, preferably about 600 mg, preferably about 300 mg SCFA.
26. The composition of claim 24 or 25 wherein the SCFA is sodium butyrate, sodium propionate or sodium acetate, preferably sodium butyrate.
27. The composition of any one of the preceding claims wherein the composition is a unit dosage form that comprises about 67.5 to about 2700 mg, preferably about 112.5 to about 2250 mg, about 250 to about 2000 mg, about 500 to about 1900 mg, about 900 to about 1800 mg, preferably about 1800 mg L-threonine, L-tryptophan, L-glutamine, L-arginine or L-methionine or any combination thereof.
28. The composition of claim 27 comprising about 67.5 to about 2700 mg, preferably about 112.5 to about 2250 mg, about 250 to about 2000 mg, about 500 to about 1900 mg, about 900 to about 1800 mg, preferably about 1800 mg L-threonine.
29. The composition of claim 28 comprising about 1800 mg, preferably about 900 mg, preferably about 450 mg L-threonine.
30. The composition of any one of the preceding claims wherein the composition is a unit dosage form that comprises about 4 to about 150 ug, about 6.5 to about 140 ug, about 13 to about 130 ug, about 25 to about 120 ug, about 35 to about 110 ug, about 50 to about 105 ug, preferably about 100 ug, preferably about 50 ug, preferably about 25 ug, preferably about 12.5 ug vitamin D.
31. The composition of claim 30 further comprising about 3 to about 150 mg, preferably about 6 to about 145 mg, about 12 to about 140 mg, about 24 to about 135 mg, 48 to about 130 mg, about 60 to about 125 mg, about 80 to about 120 mg, about 90 to about 110 mg, about 100 mg, preferably about 96 mg menthol.
32. The composition of claim 31 comprising about 105 mg, preferably 100 mg, preferably about 96 mg, preferably about 70 mg, preferably about 50 mg, preferably about 48 mg menthol.
33. A unit dosage form when used for the treatment or prophylaxis of inflammatory bowel disease (IBD) or irritable bowel syndrome (IBS) comprising about 1 to about 10 g of a composition as defined in any one of claims 1 to 32.

34. The unit dosage form of claim 33 that is an oral dosage form.
35. The oral dosage form of claim 34 comprising about 1 to about 8 g, about 1 to about 7 g, about 1 to about 6 g, about 1 to about 5 g, about 1 to about 4, about 1 to 3 g of the composition of any one of claims 1-32.
- 5 36. The oral dosage form of claim 34 or 35 comprising 50-2500 mg bromelain, preferably 720 mg bromelain, 45-1800 mg sodium butyrate, preferably 600 mg, preferably 300 mg sodium butyrate, 67.5-2700 mg L-threonine, preferably 900 mg, preferably 450 mg L-threonine, 4-150 µg Vitamin D, preferably 25 µg, preferably 12.5 µg Vitamin D, and optionally 3-150 mg menthol, preferably 105 mg, preferably 70 mg, preferably 48 mg menthol.
- 10 37. The oral dosage form of any one of claims 33 to 36 comprising one or more pills, tablets, minitabs, capsules, granules, particles or microparticles or any combination thereof.
38. The oral dosage form of any one of claims 33 to 37 comprising two different types of pills, tablets, minitabs, capsules, granules, particles or microparticles, wherein each different type is formulated to release its contents to a different part of the gastrointestinal tract.
- 15 39. The oral dosage form of any one of claims 33 to 38 wherein the different parts of the gastrointestinal tract are the duodenum and the colon.
40. The oral dosage form of claim 38 or 39 wherein the two different types of pills, tablets, minitabs, capsules, granules, particles or microparticles are Type A and Type B pills, tablets, minitabs, capsules, granules particles or microparticles, wherein the Type A and the Type B
- 20 pills, tablets, minitabs, capsules, granules, particles or microparticles each comprise at least one component, preferably at least two components, of the composition defined in any one of claims 1 to 32.
41. The oral dosage form of claim 40 wherein the Type A and Type B pills, tablets, minitabs, capsules, granules, particles or microparticles each comprise at least one different component
- 25 of the composition than each other, preferably at least two different components of the composition from each other.
42. The oral dosage form of claim 40 or 41 wherein the Type A pills, tablets, minitabs, capsules, granules, particles or microparticles comprise of bromelain.
43. The oral dosage form of any one of claims 40 to 42 wherein the Type A pill, tablet, minitab,
- 30 granule, capsule, particle or microparticle comprises about 400 mg to 1100 mg bromelain, about 600 mg to 1000 mg, about 700 mg to 900 mg, about 750 mg to 850 mg, preferably about 800 mg bromelain.
44. The oral dosage form of claim 40 or 41 wherein the Type B pill, tablet, minitab, capsule, granule, particle or microparticle comprises L-threonine, L-tryptophan, L-glutamine, L-arginine
- 35 or L-methionine or any combination thereof, sodium butyrate and Vitamin D.
45. The oral dosage form of claim 44 wherein the Type B pill, tablet, minitab, capsule, granule, particle or microparticle comprises L-threonine, sodium butyrate and Vitamin D, preferably vitamin D3.

46. The oral dosage form of any one of claims 40 to 45 wherein the Type B pill, tablet, minitab, granule, capsule, particle or microparticles comprises about 67.5 to about 2700 mg, preferably about 112.5 to about 2250 mg, about 250 to about 2000 mg, about 500 to about 1900 mg, about 900 to about 1800 mg, preferably about 1800 mg of L-threonine, L-tryptophan, L-glutamine, L-arginine or L-methionine or any combination thereof.
47. The oral dosage form of claim 46 wherein the Type B pill, tablet, minitab, granule, capsule, particle or microparticle comprises about 1800 mg, preferably about 900 mg, preferably about 450 mg of L-threonine, L-tryptophan, L-glutamine, L-arginine or L-methionine or any combination thereof.
48. The oral dosage form of any one of claims 40 to 47 wherein the Type B pill, tablet, minitab, granule, capsule, particle or microparticle comprises about 45 to 1800 mg sodium butyrate, preferably about 75 to about 1650 mg, about 250 to about 1500, about 500 to about 1400, about 750 to about 1500, about 1000 to about 1400, about 1100 to about 1300 mg, preferably about 1200 mg, preferably about 600 mg sodium butyrate.
49. The oral dosage form of any one of claims 40 to 48 wherein the Type B pill, tablet, minitab, granule, capsule, particle or microparticle comprises about 4 to about 150 ug, about 6.5 to about 140 ug, about 13 to about 130 ug, about 25 to about 120 ug, about 35 to about 110 ug, about 50 to about 105 ug, preferably about 105 ug, preferably about 100 ug, preferably about 70 ug Vitamin D.
50. A unit dosage form of claim 33 or 34 comprising at least one enterically coated pill, tablet, minitab, capsule, granule, particle or microparticle or any combination thereof comprising 1440 mg of bromelain and 288 mg menthol targeted to the small intestine and at least one enterically coated pill, tablet, minitab, capsule, granule, particle or microparticle or any combination thereof comprising a colon-targeted dose of 1200 mg butyric acid (sodium salt), 1800 mg of L-threonine and 0.025mg of Vitamin D3.
51. A unit dosage form comprising as discrete parts, Type A and Type B pills, tablets, minitabs, granules, capsules, particles or microparticles, wherein the Type A pills, tablets, minitabs, granules, capsules, particles or microparticles consist essentially of 720 mg of bromelain and are formulated for release of the bromelain to the small intestine of a subject, and the Type A pills, tablets, minitabs, granules, capsules, particles or microparticles optionally comprise 144 mg menthol, and the Type B pills, tablets, minitabs, granules, capsules, particles or microparticles consist essentially of 600 mg sodium butyrate, 900 mg L-threonine, L-tryptophan, L-glutamine, L-arginine or L-methionine or any combination thereof, and 0.0125 mg Vitamin D and are formulated for release of the sodium butyrate, L-threonine, L-tryptophan, L-glutamine, L-arginine or L-methionine or any combination thereof, and Vitamin D to the lower intestine of a subject.
52. A unit dosage form comprising as discrete parts, Type A and Type B pills, tablets, minitabs, granules, capsules, particles or microparticles,

- wherein the Type A pills, tablets, minitabs, granules, capsules, particles or microparticles consist essentially of 1440 mg of bromelain and are formulated for release of the bromelain to the small intestine of a subject, wherein the Type A pills, tablets, minitabs, granules, capsules, particles or microparticles optionally comprise 288 mg menthol, and
- 5 the Type B pills, tablets, minitabs, granules, capsules, particles or microparticles consist essentially of 1200 mg sodium butyrate, 1800 mg L-threonine, L-tryptophan, L-glutamine, L-arginine or L-methionine or any combination thereof, and 0.025 mg Vitamin D and are formulated for release of the sodium butyrate, L-threonine, L-tryptophan, L-glutamine, L-arginine or L-methionine or any combination thereof, and Vitamin D to the lower intestine of a
- 10 subject.
53. A method of preventing, treating or managing IBD or IBS comprising administering to a subject in need thereof, a therapeutically effective amount of a composition of any one of claims 1 to 32 or an oral dosage form of any one of claims 34 to 49.