CLAIMS

What is claimed is:

1. A medical composition comprising a therapeutically effective amount of a fucan in combination with at least one pharmaceutically acceptable excipient, filler, carrier or diluent, wherein the fucan has a sulphate content between 14 to 40% w/w; and a total carbohydrate content between 37 to 75% w/w, wherein the carbohydrate comprises each of fucose, galactose, glucose, mannose, xylose and rhamnose; and wherein the fucan comprises a molecular weight distribution wherein the portion from 0 to 5,000 g/mol comprises between 0 to 25% w/w, the portion from 5,000 to 60,000 g/mol comprises between 5 to 38% w/w, the portion from 60,000 to 200,000 g/mol comprises between 10 to 30% w/w, the portion from 200,000 to 1,600,000 g/mol comprises between 8 to 43% w/w, and the portion from more than 1,600,000 g/mol comprises between 1 to 33% w/w.

2. The medical composition of claim 1 wherein the fucan has a fucose content as a percentage of total carbohydrate content between 31 to 71% w/w.

3. The medical composition of any one of claims 1 to 2 wherein the fucan has a galactose content as a percentage of total carbohydrate content between 9 to 46% w/w.

4. The medical composition of any one of claims 1 to 2 wherein the fucan has a sugar content excluding fucose and galactose as a percentage of total carbohydrate content between 0 to 59% w/w.

5. The medical composition of any one of claims 1 to 2 wherein the fucan has an acetyl content as a ratio of acetyl:fucose between 0 to 36%.

6. The medical composition of any one of claims 1 to 2 wherein the fucan when prepared as a 0.1% w/v solution has a pH of 4 to 8.

7. The medical composition of any one of claims 1 to 2 wherein the fucan has a protein content between 0 to 12 % w/w.

8. The medical composition of any one of claims 1 to 2 wherein the fucan has an appearance of white, off-white, light yellow, light orange, or light green.

9. The medical composition of any one of claims 1 to 2 wherein the composition is a solution, gel, sol or suspension with a fucan concentration between 0.001 to 10% w/v.

10. The composition of claim 9 wherein the fucan concentration is 5% w/v.

11. The composition of claim 9 wherein the fucan concentration is between 0.001 and 1% w/v.

12. The composition of claim 11 wherein the fucan concentration is 0.05% w/v.

13. The composition of claim 11 wherein the fucan concentration is 0.03% w/v.

14. A kit comprising a therapeutically effective amount of the composition of any one of claims 1 to 2 in a vessel configured to administer at least one dose of the composition to an animal, the kit further comprising at least one label comprising instructions for the administration.

15. The kit of claim 14, wherein the instructions direct treatment of at least one of fibrous adhesions, peritonitis, ischemia, reperfusion injury, endotoxemia, keloid trait scarring, keloids, dermatitis, and rosacea.

16. An isolated and purified composition according to any one of claims 1 to 2 for use in the manufacture of a medicament for inhibiting, or treating a proliferative or inflammatory disease in a human patient.

17. The composition of claim 16 wherein the disease is at least one of fibrous adhesions, peritonitis, ischemia, reperfusion injury, endotoxemia, keloid trait scarring, keloids, dermatitis, and rosacea.

18. The composition of claim 16 wherein the composition is a solution, gel, sol, suspension, spray, mousse, lotion, cream, ointment, paste, slurry, particulate, microparticulate, microsphere, film, slab, wrap, barrier or implant.

19. The medical composition of claim 1 wherein the fucan is prepared from the brown marine algae *Laminaria hyperborean.*

20. The medical composition of claim 1 wherein the fucan is prepared from the brown marine algae *Laminaria japonica.*

21. The medical composition of claim 1 wherein the fucan is prepared from the brown marine algae *Undaria pinnatifida.*

22. A medical composition comprising a therapeutically effective amount of a fucan in combination with at least one pharmaceutically acceptable excipient, filler, carrier or diluent, wherein the fucan has a sulphate content between 0.001 to 60% w/w; a total carbohydrate content between 37 to 75% w/w; a fucose content as a percentage of total carbohydrate content between 31 to 71% w/w; an acetyl group content of 0.001 to 2% w/w; a protein content of 0.001 to 2% w/w; and an appearance of white to off-white or white to light brown; and when made up to a 0.1% w/v solution result in a solution with a pH of 4 to 8, wherein the carbohydrate comprises each of fucose, galactose, glucose, mannose, xylose and rhamnose.

23. The medical composition of claim 22 wherein the fucan has a molecular weight distribution wherein the portion from 0 to 5,000 g/mol comprises between 0.001 to 25% w/w, the portion from 5,000 to 60,000 g/ml comprises between 0.001 to 55% w/w, the portion from 60,000 to 200,000 g/mol comprises between 0.001 to 40% w/w, the portion from 200,000 to 1,600,000 g/mol comprises between 0.001 to 60% w/w and the portion from more than 1,600,000 g/mol comprises between 0.1 to 50% w/w.

24. The medical composition of claim 22 wherein the fucan is prepared from the brown marine algae *Laminaria hyperborean.*

25. The medical composition of claim 22 wherein the fucan is prepared from the brown marine algae *Laminaria japonica.*

26. The medical composition of claim 22 wherein the fucan is prepared from the brown marine algae *Undaria pinnatifida.*

27. A medical composition comprising a therapeutically effective amount of a fucan in combination with at least one pharmaceutically acceptable excipient, filler, carrier or diluent, wherein the fucan has a sulphate content between 0.001 to 60% w/w; a total carbohydrate content between 37 to 75% w/w; a fucose content as a percentage of total carbohydrate content between 31 to 71% w/w; an acetyl group content of 0% w/w; and a protein content of 0% w/w; an appearance of white to off-white or white to light brown; and when made up to a 0.1% w/v solution result in a solution with a pH of 4 to 8, wherein the carbohydrate comprises each of fucose, galactose, glucose, mannose, xylose and rhamnose.

28. The medical composition of claim 27 wherein the fucan has a molecular weight distribution wherein the portion from 0 to 5,000 g/mol comprises between 0.001 to 25% w/w, the portion from 5,000 to 60,000 g/ml comprises between 0.001 to 55% w/w, the portion from 60,000 to 200,000 g/mol comprises between 0.001 to 40% w/w, the portion

from 200,000 to 1,600,000 g/mol comprises between 0.001 to 60% w/w and the portion from more than 1,600,000 g/mol comprises between 0.001 to 50% w/w.

29. The medical composition of claim 27 wherein the fucan is'\ prepared from the brown marine algae *Laminaria hyperborean.*

30. The medical composition of claim 27 wherein the fucan is prepared from the brown marine algae *Laminaria japonica.*

31. The medical composition of claim 27 wherein the fucan is prepared from the brown marine algae *Undaria pinnatifida.*

CLAIMS

What is claimed is:

1. A medical composition comprising a therapeutically effective amount of a fucan in combination with at least one pharmaceutically acceptable excipient, filler, carrier or diluent, wherein the fucan has a sulphate content between about 14 to 40% w/w; a total carbohydrate content between about 37 to 75% w/w; a molecular weight distribution such that the portion from about 0 to 5,000 g/mol comprises between about 0 to 25% w/w, the portion from about 5,000 to 60,000 g/mol comprises between about 5 to 38% w/w, the portion from about 60,000 to 200,000 g/mol comprises between about 10 to 30% w/w, the portion from about 200,000 to 1,600,000 g/mol comprises between about 8 to 43% w/w, and the portion from more than about 1,600,000 g/mol comprises between about 1 to 33% w/w.

2. The medical composition of claim 1 wherein the fucan has a fucose content as a percentage of total carbohydrate content between about 31 to 71% w/w.

3. The medical composition of any one of claims 1 to 2 wherein the fucan has a galactose content as a percentage of total carbohydrate content between about 9 to 46% w/w.

4. The medical composition of any one of claims 1 to 3 wherein the fucan has a sugar content excluding fucose and galactose as a percentage of total carbohydrate content between about 0 to 59% w/w.

5. The medical composition of any one of claims 1 to 4 wherein the fucan has an acetyl content as a ratio of acetyl:fucose between about 0 to 36%.

6. The medical composition of any one of claims 1 to 5 wherein the fucan when prepared as a 0.1% w/v solution has a pH of about 4 to 8.

7. The medical composition of any one of claims 1 to 6 wherein the fucan has a protein content between about 0 to 12 % w/w.

8. The medical composition of any one of claims 1 to 7 wherein the fucan has an appearance of white, off-white, light yellow, light orange, or light green.

9. The medical composition of any one of claims 1 to 8 wherein the composition is a solution, gel, sol or suspension with a fucan concentration between about 0 to 10% w/v.

10. The composition of claim 9 wherein the fucan concentration is about 5% w/v.

11. The composition of claim 9 wherein the fucan concentration is between about 0.001 and 1% w/v.

12. The composition of claim 11 wherein the fucan concentration is about 0.05% w/v.

13. The composition of claim 11 wherein the fucan concentration is about 0.03% w/v.

14. A method of inhibiting a fibrous adhesion in an animal comprising administering a therapeutically effective amount of the composition of any one of claims 1 to 8to a site suspected of having the fibrous adhesion.

15. A method of inhibiting peritonitis in an animal comprising administering a therapeutically effective amount of the composition of any one of claims 1 to 13 to a site suspected of having the peritonitis.

16 A method of inhibiting ischemia in an animal comprising administering a therapeutically effective amount of the composition of any one of claims 1 to 13to a site suspected of having the ischemia.

17. A method of inhibiting reperfusion injury in an animal comprising administering a therapeutically effective amount of the composition of any one of claims 1 to 13to a site suspected of having the reperfusion injury.

18. A method of inhibiting endotoxemia in an animal comprising administering a therapeutically effective amount of the composition of any one of claims 1 to 13to a site suspected of having the endotoxemia.

19. A method of inhibiting keloid trait scarring in an animal comprising administering a therapeutically effective amount of the composition of any one of claims 1 to 13 to a site suspected of having the keloid trait scarring.

20. A method of inhibiting keloids in an animal comprising administering a therapeutically effective amount of the composition of any one of claims 1 to 13to a site suspected of having the keloids.

21. A method of inhibiting dermatitis in an animal comprising administering a therapeutically effective amount of the composition of any one of claims 1 to 13to a site suspected of having the dermatitis.

22. A method of inhibiting rosacea in an animal comprising administering a therapeutically effective amount of the composition of any one of claims 1 to 13to a site suspected of having the rosacea.

23. A kit comprising a therapeutically effective amount of the composition of any one of claims 1 to 13in a vessel configured to administer at least one dose of the composition

to an animal, the kit further comprising at least one label comprising instructions for the administration.

24. The kit of claim 23, wherein the instructions direct treatment of at least one of fibrous adhesions, peritonitis, ischemia, reperfusion injury, endotoxemia, keloid trait scarring, keloids, dermatitis, and rosacea.

25. An isolated and purified composition according to any one of claims 1 to 13 for use in the manufacture of a medicament for inhibiting, preventing, or treating a proliferative or inflammatory disease in a human patient.

26. The composition of claim 25 wherein the disease is at least one of fibrous adhesions, peritonitis, ischemia, reperfusion injury, endotoxemia, keloid trait scarring, keloids, dermatitis, and rosacea.

27. The composition of claim 25 wherein the composition is a solution, gel, sol, suspension, spray, mousse, lotion, cream, ointment, paste, slurry, particulate, microparticulate, microsphere, film, slab, wrap, barrier or implant.