Claims:

1. Isolated or substantially purified heparan sulphate HS8, wherein the heparan sulphate HS8 is capable of binding a peptide consisting of the amino acid sequence GHFKDPKRLYCKNGGF (SEQ ID NO:1).

2. Isolated or substantially purified heparan sulphate HS8 according to claim 1, wherein following digestion with heparin lyases I, II and III and then subjecting the resulting disaccharide fragments to capillary electrophoresis analysis the heparan sulphate HS8 has a disaccharide composition comprising:

Disaccharide	Normalised weight percentage
ΔUA,2S-GlcNS,6S	12.7±3.0
ΔUA,2S-GlcNS	7.2±2.0
ΔUA-GlcNS,6S	15.5±3.0
ΔUA,2S-GlcNAc,6S	6.5±2.0
ΔUA-GlcNS	15.7±3.0
ΔUA,2S-GlcNAc	1.0±0.5
ΔUA-GlcNAc,6S	8.9±3.0
ΔUA-GlcNAc	32.5±3.0.

3. Isolated or substantially purified heparan sulphate HS8 according to claim 1 or claim 2, wherein following digestion with heparin lyases I, II and III and then subjecting the resulting disaccharide fragments to capillary electrophoresis analysis the heparan sulphate HS8 has a disaccharide composition comprising:

Disaccharide	Normalised weight percentage
ΔUA,2S-GlcNS,6S	12.7±1.0
ΔUA,2S-GlcNS	7.2±0.4
ΔUA-GlcNS,6S	15.5±1.0
ΔUA,2S-GlcNAc,6S	6.5±0.6
ΔUA-GlcNS	15.7±3.0
ΔUA,2S-GlcNAc	1.0 ±0.4
ΔUA-GlcNAc,6S	8.9±1.0
ΔUA-GlcNAc	32.5±1.6.

4. Isolated or substantially purified heparan sulphate HS8 according to any one of claims 1 to 3, obtained by a method comprising:

(i) providing a solid support having polypeptide molecules adhered to the support, wherein the polypeptide consists of the amino acid sequence GHFKDPKRLYCKNGGF (SEQ ID NO:1);

(ii) contacting the polypeptide molecules with a mixture comprising glycosaminoglycans such that polypeptide-glycosaminoglycan complexes are allowed to form;

(iii) partitioning polypeptide-glycosaminoglycan complexes from the remainder of the mixture;

(iv) dissociating glycosaminoglycans from the polypeptide-glycosaminoglycan complexes;

(v) collecting the dissociated glycosaminoglycans.

5. Isolated or substantially purified heparan sulphate HS8 according to claim 4, wherein the mixture comprising glycosaminoglycans is a heparan sulphate preparation obtained from porcine intestinal mucosa.

6. A composition comprising isolated or substantially purified heparan sulphate HS8 according to any one of claims 1 to 5.

7. The composition of claim 6, further comprising a growth factor, preferably FGF2.

8. A pharmaceutical composition or medicament comprising isolated or substantially purified heparan sulphate HS8 according to any one of claims 1 to 5.

9. The pharmaceutical composition or medicament of claim 8, wherein the pharmaceutical composition or medicament further comprises FGF2 protein and/or mesenchymal stem cells.

10. The pharmaceutical composition or medicament of claim 8 or claim 9, for use in a method of medical treatment.

11. Isolated or substantially purified heparan sulphate HS8 according to any one of claims 1 to 5 for use in a method of medical treatment.

12. Isolated or substantially purified heparan sulphate HS8 for use according to claim 11, wherein the method of medical treatment comprises a method of wound healing *in vivo*.

13. Isolated or substantially purified heparan sulphate HS8 for use according to claim 11, wherein the method of medical treatment comprises the repair and/or regeneration of tissue, preferably bone tissue.

14. Use of isolated or substantially purified heparan sulphate HS8 according to any one of claims 1 to 5 in the manufacture of a medicament for the treatment of a disease, condition or injury to tissue, wherein the method involves the repair and/or regeneration of tissue, preferably bone tissue.

15. Isolated or substantially purified heparan sulphate HS8 according to any one of claims 1 to 5, for use in a method of treating a disease, condition or injury to tissue in a patient, the method comprising administration of a therapeutically effective amount of heparan sulphate HS8 to the patient leading to repair and/or regeneration of the tissue, preferably bone tissue.

16. Isolated or substantially purified heparan sulphate HS8 for use according to claim 15, wherein the method comprises administering heparan sulphate HS8 to tissue at or surrounding a wound or location on the patient's body at which regeneration or repair of tissue is required.

17. Isolated or substantially purified heparan sulphate HS8 for use according to claim 15 or 16, wherein the method further comprises administering FGF2 protein to the patient.

18. A biocompatible implant or prosthesis comprising a biomaterial and isolated or substantially purified heparan sulphate HS8 according to any one of claims 1 to 5 for use in a method of treating a disease, condition or injury to tissue in a patient, the method comprising surgically implanting the biocompatible implant or prosthesis into tissue of the patient at or surrounding the site of the disease, condition or injury leading to repair and/or regeneration of the tissue.

19. A biocompatible implant or prosthesis comprising a biomaterial and isolated or substantially purified heparan sulphate HS8 according to any one of claims 1 to 5.

20. A method of forming a biocompatible implant or prosthesis, the method comprising the step of coating or impregnating a biomaterial with isolated or substantially purified heparan sulphate HS8 according to any one of claims 1 to 5.

21. Isolated or substantially purified heparan sulphate HS8 for use in a method of treating a bone fracture in a patient, the method comprising administration of a therapeutically effective amount of isolated or substantially purified heparan sulphate HS8 according to any one of claims 1 to 5 to the patient.

22. Isolated or substantially purified heparan sulphate HS8 for use according to claim 21, wherein the method comprises administering said isolated or substantially purified heparan sulphate HS8 to the tissue surrounding the fracture.

23. Isolated or substantially purified heparan sulphate HS8 for use according to claim 21, wherein administration of said isolated or substantially purified heparan sulphate HS8 comprises injection of the heparan sulphate to the tissue surrounding the fracture.

24. Isolated or substantially purified heparan sulphate HS8 for use according to any one of claims 21 to 23, wherein said isolated or substantially purified heparan sulphate HS8 is formulated as a pharmaceutical composition or medicament comprising the isolated or substantially purified heparan sulphate HS8 and a pharmaceutically acceptable carrier, adjuvant or diluent.

25. Isolated or substantially purified heparan sulphate HS8 for use in a method of treating a bone fracture in a patient, the method comprising surgically implanting a biocompatible implant or prosthesis, which implant or prosthesis comprises a biomaterial and a therapeutically effective amount of isolated or substantially purified heparan sulphate HS8 according to any one of claims 1 to 5 into tissue of the patient at or surrounding the site of fracture.

26. A method of culturing stem cells *in vitro*, the method comprising culturing stem cells *in vitro* in contact with isolated or substantially purified heparan sulphate HS8 according to any one of claims 1 to 5.

27. A method of enriching for colony forming units (CFU-F) in a culture of mesenchymal stem cells (MSC), the method comprising culturing MSCs *in vitro* in contact with isolated or substantially purified heparan sulphate HS8 according to any one of claims 1 to 5.

28. A method of enriching for colony forming units (CFU-F) in a culture of mesenchymal stem cells (MSC), the method comprising culturing MSCs *in vitro* in contact with isolated or substantially purified heparan sulphate HS8 according to any one of claims 1 to 5, such that cultured cells proliferate and the population of MSCs expands, wherein the expanded MSC population is characterised in that:

- ≤ 2% of the MSC population express any of CD45, CD34, CD14, CD19, HLA-DR; and
- ≥ 95% of the MSC population express CD105, CD73 and CD90;

and

- ≥ 40% of the MSC population express CD49a and/or
- ≥ 50% of the MSC population express SSEA-4 and/or
- ≥ 20% of the MSC population express STRO-1.

29. A method of enriching for colony forming units (CFU-F) in a culture of mesenchymal stem cells (MSC), the method comprising culturing *in vitro* MSCs in contact with isolated or substantially purified heparan sulphate HS8 according to any one of claims 1 to 5, and passaging the MSCs, wherein after one or more passages the MSC population is characterised in that:

- ≤ 2% of the MSC population express any of CD45, CD34, CD14, CD19, HLA-DR; and
- ≥ 95% of the MSC population express CD105, CD73 and CD90;

and

- ≥ 40% of the MSC population express CD49a and/or
- ≥ 50% of the MSC population express SSEA-4 and/or
- ≥ 20% of the MSC population express STRO-1.

30. Culture media comprising isolated or substantially purified heparan sulphate HS8 according to any of claims 1 to 5.

31. The culture media of claim 30, further comprising FGF2.

32. A kit of parts, the kit comprising a predetermined amount of isolated or substantially purified heparan sulphate HS8 according to any one of claims 1 to 5, and a predetermined amount of FGF2.

33. Products containing therapeutically effective amounts of:

(i) Isolated or substantially purified heparan sulphate HS8 according to any one of claims 1 to 5; and one or both of

(ii) FGF2 protein;

(iii) Mesenchymal stem cells,

for simultaneous, separate or sequential use in a method of medical treatment.

34. A method of increasing the stability of a growth factor, preferably FGF2, the method comprising contacting a growth factor, preferably FGF2, with isolated or substantially purified heparan sulphate HS8 according to any one of claims 1 to 5.