

What is claimed is:

1. A method of assessing the wound healing potency of a mesenchymal stem cell population, wherein the mesenchymal stem cell population is a mesenchymal stem cell population of the umbilical cord, wherein the mesenchymal stem cell population of the umbilical cord is a mesenchymal stem cell population of the amniotic membrane of umbilical cord, wherein the method comprises determining in a medium the level of all four proteins selected from the group consisting of Angiopoietin 1 (Ang-1), Transforming Growth Factor beta (TGF- β), Vascular Endothelial Growth Factor (VEGF) and Hepatocyte Growth Factor (HGF) secreted into the medium by the mesenchymal stem cell population, and wherein a secretion level of all four proteins equaling or exceeding a threshold value indicates potency for wound healing of the mesenchymal stem cell population.
2. A method of identifying a tissue suitable as starting material for producing a mesenchymal stem cell population for pharmaceutical use, wherein the mesenchymal stem cell population is a mesenchymal stem cell population of the umbilical cord, wherein the mesenchymal stem cell population of the umbilical cord is a mesenchymal stem cell population of the amniotic membrane of umbilical cord, wherein the method comprises determining in a medium the level of all four proteins selected from the group consisting of Angiopoietin 1 (Ang-1), Transforming Growth Factor beta (TGF- β), Vascular Endothelial Growth Factor (VEGF) and Hepatocyte Growth Factor (HGF) secreted into the medium by a sample of the tissue or a cell isolated from the tissue, wherein the tissue is an umbilical cord or the amniotic membrane of the umbilical cord, and wherein a secretion level of all four proteins equaling or exceeding a threshold value indicates that the tissue or an isolated cell is suitable as starting material for producing a mesenchymal stem cell population for pharmaceutical use.
3. A method of selecting a mesenchymal stem cell population for producing a stem cell population under cGMP conditions, wherein the mesenchymal stem cell population is a mesenchymal stem cell population of the umbilical cord, wherein the mesenchymal stem cell population of the umbilical cord is a mesenchymal stem cell population of the amniotic membrane of umbilical cord, wherein the method comprises determining in a medium the level of all four proteins selected from the group consisting of

Angiopoietin 1 (Ang-1), Transforming Growth Factor beta (TGF- β), Vascular Endothelial Growth Factor (VEGF) and Hepatocyte Growth Factor (HGF) secreted into the medium by the mesenchymal stem cell population, and wherein a secretion level of all four proteins equaling or exceeding a threshold value indicates that the mesenchymal stem cell population is suitable as starting material for producing the mesenchymal stem cell population under cGMP conditions.

4. A method of selecting a mesenchymal stem cell population for producing a stem cell population for subsequent pharmaceutical administration, wherein the mesenchymal stem cell population is a mesenchymal stem cell population of the umbilical cord, wherein the mesenchymal stem cell population of the umbilical cord is a mesenchymal stem cell population of the amniotic membrane of umbilical cord, wherein the method comprises determining in a medium the level of all four proteins selected from the group consisting of Angiopoietin 1 (Ang-1), Transforming Growth Factor beta (TGF- β), Vascular Endothelial Growth Factor (VEGF) and Hepatocyte Growth Factor (HGF) secreted into the medium by the mesenchymal stem cell population, and wherein a secretion level of all four proteins equaling or exceeding a threshold value indicates that the mesenchymal stem cell population is suitable as starting material for producing the mesenchymal stem cell population for subsequent pharmaceutical administration.
5. A method of selecting a mesenchymal stem cell population for generating a master cell bank, wherein the mesenchymal stem cell population is a mesenchymal stem cell population of the umbilical cord, wherein the mesenchymal stem cell population of the umbilical cord is a mesenchymal stem cell population of the amniotic membrane of umbilical cord, wherein the method comprises determining in a medium the level of all four proteins selected from the group consisting of Angiopoietin 1 (Ang-1), Transforming Growth Factor beta (TGF- β), Vascular Endothelial Growth Factor (VEGF) and Hepatocyte Growth Factor (HGF) secreted into the medium by the mesenchymal stem cell population, and wherein a secretion level of all four proteins equaling or exceeding a threshold value indicates that the mesenchymal stem cell population is suitable for generating a master cell bank.

6. The method of any of claims 1-5, wherein for Angiopoietin 1 (Ang-1) the threshold value is about 400 pg/ml or about 500 pg/ml.
7. The method of claim 6, wherein for Transforming Growth Factor beta (TGF- β) the threshold value is about 400 pg/ml or about 500 pg/ml.
8. The method of any one of the claims 6 to 7, wherein for Vascular Endothelial Growth Factor (VEGF) the threshold value is about 80 pg/ml or about 100 pg/ml.
9. The method of any one of the claims 6 to 8, wherein for Hepatocyte Growth Factor (HGF) the threshold value is about 80 pg/ml or about 100 pg/ml.
10. The method of any of claims 6 to 9, wherein the secretion level of all four proteins equal or exceed their respective threshold value, and wherein the threshold value is
 - a threshold value of about 400 pg/ml for Angiopoietin 1 (Ang-1),
 - a threshold value of about 400 pg/ml for Transforming Growth Factor beta (TGF- β),
 - a threshold value of about 80 pg/ml for Vascular Endothelial Growth Factor (VEGF),
 - and
 - a threshold value of about 80 pg/ml for Hepatocyte Growth Factor (HGF).
11. The method of any of claims 6 to 9, wherein the secretion level of all four proteins equal or exceed their respective threshold value, and wherein the threshold value is
 - a threshold value of about 500 pg/ml for Angiopoietin 1 (Ang-1),
 - a threshold value of about 500 pg/ml for Transforming Growth Factor beta (TGF- β),
 - a threshold value of about 100 pg/ml for Vascular Endothelial Growth Factor (VEGF),
 - and
 - a threshold value of about 100 pg/ml for Hepatocyte Growth Factor (HGF).
12. The method of any of the forgoing claims, wherein the mesenchymal stem cell population of the amniotic membrane of the umbilical cord is a mesenchymal stem cell population, wherein at least 90 % or more cells of the stem cell population express each of the following markers: CD73, CD90 and CD105.

13. The method of claim 12, wherein at least 90 % or more cells of the mesenchymal stem cell population lack expression of the following markers: CD34, CD45 and HLA-DR.
14. The method of claim 12 or 13, wherein at least 91 % or more, 92 % or more, 93 % or more, 94 % or more, 95 % or more, 96 % or more, 97 % or more, 98 % or more 99 % or more cells of the mesenchymal stem cell population express each of CD73, CD90 and CD105 and lack expression of each of CD34, CD45 and HLA-DR.
15. The method of any of the foregoing claims, wherein the medium is a cell culture medium or a storage medium.
16. The method of claim 15, wherein the storage medium is Hypothermosol or Plasmalyte.
17. The method of any one of the claims 1 to 14, wherein the medium comprises Dulbecco's Modified Eagle's Medium (DMEM) in a final concentration of 55 to 65 % (v/v), Ham's F12 Medium (F12) in a final concentration of 5 to 15 % (v/v), a serum free basal medium in a final concentration of 15 to 30 % (v/v) and Fetal Bovine Serum (FBS) in a final concentration of 1 to 8 % (v/v).
18. The method of claim 17, wherein the medium comprises Dulbecco's Modified Eagle's Medium (DMEM) in a final concentration of 57.5 to 62.5 % (v/v), Ham's F12 Medium (F12) in a final concentration of 7.5 to 12.5 % (v/v), a serum free basal medium in a final concentration of 17.5 to 25.0 % (v/v) and Fetal Bovine Serum (FBS) in a final concentration of 1.75 to 3.5 % (v/v).
19. The method of claim 18, wherein the medium comprises Dulbecco's Modified Eagle's Medium (DMEM) in a final concentration of about 61.8 % (v/v), Ham's F12 Medium (F12) in a final concentration of about 11.8 % (v/v), a serum free basal medium in a final concentration of about 23.6 % (v/v) and Fetal Bovine Serum (FBS) in a final concentration of about 2.5 % (v/v).
20. The method of claim 18 or 19, wherein the serum free basal medium is M171.

21. The method of any of claims 18 to 20, wherein the medium further comprises Epidermal Growth Factor (EGF) in a final concentration of 1 ng/ml to 20 ng/ml.
22. The method of claim 21, wherein the medium comprises Epidermal Growth Factor (EGF) in a final concentration of about 10ng/ml.
23. The method of any of claims 17 to 22, wherein the medium comprises Insulin in a final concentration of 1 µg/ml to 10 µg/ml.
24. The method of claim 23, wherein the medium comprises Insulin in a final concentration of about 5 µg/ml.
25. The method of any of claims 17 to 24, wherein the medium further comprises at least one of the following supplements: adenine, hydrocortisone, and 3,3',5-Triiodo-L-thyronine sodium salt (T3).
26. The method of any of claims 1 to 25, wherein cultivating the mesenchymal stem cell population in the medium as defined in any of the foregoing claims 17 to 25 results in an increase of the expression and/or secretion of at least one of the proteins selected from a group consisting of Angiopoietin 1 (Ang-1), Transforming Growth Factor beta (TGF-β; in particular TGF-β1), Vascular Endothelial Growth Factor (VEGF) and Hepatocyte Growth Factor (HGF) by the mesenchymal stem cell population relative to a reference medium that does not comprise all of DMEM (Dulbecco's modified eagle medium), F12 (Ham's F12 Medium), M171 (Medium 171) and FBS (Fetal Bovine Serum).
27. The method of any one of the claims 1 to 26, wherein the medium is subjected to centrifugation after a suitable period of cultivation.
28. The method of claim 27, wherein the suitable period of cultivation comprises about 12h, about 24h, about 36h, about 46h, about 48h or about 50h, preferably about 48h.
29. The method of claim 27 or 28, wherein the supernatant of the centrifuged cell culture medium is subjected to a multiplex assay.

30. The method of claim 29, wherein the multiplex assay is bead-based.
31. Use of at all four proteins selected from the group consisting of Angiopoietin 1 (Ang-1), Transforming Growth Factor beta (TGF- β), Vascular Endothelial Growth Factor (VEGF) and Hepatocyte Growth Factor (HGF) for assessing the wound healing potency of a mesenchymal stem cell population of the umbilical cord, wherein the mesenchymal stem cell population of the umbilical cord is a mesenchymal stem cell population of the amniotic membrane of umbilical cord, wherein the use comprises determining in a medium the level of at all four proteins secreted into the medium by the mesenchymal stem cell population, and wherein a secretion level of all four proteins equaling or exceeding a threshold value indicates potency for wound healing of the mesenchymal stem cell population.
32. Use of all four proteins selected from the group consisting of Angiopoietin 1 (Ang-1), Transforming Growth Factor beta (TGF- β), Vascular Endothelial Growth Factor (VEGF) and Hepatocyte Growth Factor (HGF) for selecting a mesenchymal stem cell population for producing a stem cell population under cGMP conditions, wherein the mesenchymal stem cell population is a mesenchymal stem cell population of the umbilical cord, wherein the mesenchymal stem cell population of the umbilical cord is a mesenchymal stem cell population of the amniotic membrane of umbilical cord, wherein the use comprises determining in a medium the level of at all four proteins secreted into the medium by the mesenchymal stem cell population, and wherein a secretion level of all four proteins equaling or exceeding a threshold value indicates that the mesenchymal stem cell population is suitable as starting material for producing the mesenchymal stem cell population under cGMP conditions.
33. Use of all four proteins selected from the group consisting of Angiopoietin 1 (Ang-1), Transforming Growth Factor beta (TGF- β), Vascular Endothelial Growth Factor (VEGF) and Hepatocyte Growth Factor (HGF) for selecting a mesenchymal stem cell population for producing a stem cell population for subsequent pharmaceutical administration, wherein the mesenchymal stem cell population is a mesenchymal stem cell population of the umbilical cord, a placental mesenchymal stem cell population, wherein the mesenchymal stem cell population of the umbilical cord is a mesenchymal stem cell population of the amniotic membrane of umbilical cord, wherein the use

comprises determining in a medium the level of at all four proteins secreted into the medium by the mesenchymal stem cell population, and wherein a secretion level of all four proteins equaling or exceeding a threshold value indicates that the mesenchymal stem cell population is suitable as starting material for producing the mesenchymal stem cell population for subsequent pharmaceutical administration.

34. Use of all four proteins selected from the group consisting of Angiopoietin 1 (Ang-1), Transforming Growth Factor beta (TGF- β), Vascular Endothelial Growth Factor (VEGF) and Hepatocyte Growth Factor (HGF) for selecting a mesenchymal stem cell population for generating a master cell bank, wherein the mesenchymal stem cell population is a mesenchymal stem cell population of the umbilical cord, wherein the mesenchymal stem cell population of the umbilical cord is a mesenchymal stem cell population of the amniotic membrane of umbilical cord, wherein the use comprises determining in a medium the level of at all four proteins secreted into the medium by the mesenchymal stem cell population, and wherein a secretion level of all four proteins equaling or exceeding a threshold value indicates that the mesenchymal stem cell population is suitable for generating a master cell bank.
35. Use of all four proteins selected from the group consisting of Angiopoietin 1 (Ang-1), Transforming Growth Factor beta (TGF- β), Vascular Endothelial Growth Factor (VEGF) and Hepatocyte Growth Factor (HGF) for identifying a tissue suitable as starting material for producing a mesenchymal stem cell population for pharmaceutical use, wherein the mesenchymal stem cell population is a mesenchymal stem cell population of the umbilical cord, wherein the mesenchymal stem cell population of the umbilical cord is a mesenchymal stem cell population of the amniotic membrane of umbilical cord, wherein the tissue is an umbilical cord or the amniotic membrane of the umbilical cord, wherein the use comprises determining in a medium the level of at all four proteins secreted into the medium by the mesenchymal stem cell population, and wherein a secretion level of all four proteins equaling or exceeding a threshold value indicates that the tissue or an isolated cell is suitable as starting material for producing a mesenchymal stem cell population for pharmaceutical use.

36. A method of identifying a medium suitable for inducing or improving wound healing properties of a mesenchymal stem cell population, wherein the method comprises determining the level of all four proteins selected from the group consisting of Angiopoietin 1 (Ang-1), Transforming Growth Factor beta (TGF- β), Vascular Endothelial Growth Factor (VEGF) and Hepatocyte Growth Factor (HGF) secreted into the medium by the mesenchymal stem cell population, wherein the mesenchymal stem cell population of the umbilical cord is a mesenchymal stem cell population of the amniotic membrane of umbilical cord, wherein the use comprises determining in a medium the level of at all four proteins secreted into the medium by the mesenchymal stem cell population, and wherein a secretion level of all four proteins equaling or exceeding a threshold value indicates that the medium is suitable for inducing or improving wound healing properties of a mesenchymal stem cell population.
37. Use of all four proteins selected from the group consisting of Angiopoietin 1 (Ang-1), Transforming Growth Factor beta (TGF- β), Vascular Endothelial Growth Factor (VEGF) and Hepatocyte Growth Factor (HGF) for identifying a medium suitable for inducing or improving wound healing properties of a mesenchymal stem cell population, wherein the mesenchymal stem cell population of the umbilical cord is a mesenchymal stem cell population of the amniotic membrane of umbilical cord, wherein the use comprises determining in a medium the level of at all four proteins secreted into the medium by the mesenchymal stem cell population, and wherein a secretion level of all four proteins equaling or exceeding a threshold value indicates that the medium is suitable for inducing or improving wound healing properties of a mesenchymal stem cell population.