SUMMARY

This present disclosure relates to a composition comprising a biocompatible matrix and a mesenchymal stem cells (MSC) population, wherein said mesenchymal stem cells population is substantially pure.

In one aspect of the present disclosure, there is provided a composition comprising a biocompatible matrix and a mesenchymal stem cells population, wherein said mesenchymal stem cells population is substantially pure, wherein said mesenchymal stem cells are undifferentiated.

In another aspect of the present disclosure, there is provided a composition as described herein, for use for treating a soft tissue injury in a subject in need thereof.

In yet another aspect of the present disclosure, there is provided a method for the preparation of a composition comprising a biocompatible matrix and a mesenchymal stem cells population, comprising incubating a substantially pure mesenchymal stem cells population with a biocompatible matrix, wherein said mesenchymal stem cells are undifferentiated.

In a further aspect of the present disclosure, there is provided a use of the composition as described herein, in the manufacture of a medicament for treating a soft tissue injury in a subject in need thereof.

According to one embodiment, the mesenchymal stem cells population of the present disclosure comprises less than 25% of fibroblasts.

According to one embodiment, the mesenchymal stem cells of the present disclosure are undifferentiated.

In one embodiment, the mesenchymal stem cells of the present disclosure are derived from adipose tissue, bone-marrow, umbilical cord tissue, Wharton's jelly, amniotic fluid, placenta, peripheral blood, fallopian tube, corneal stroma, lung, muscle, skin, bone, dental tissue or fetal liver. Preferably, the mesenchymal stem cells of the

composition are derived from adipose tissue, more preferably from subcutaneous adipose tissue.

According to one embodiment, the biocompatible matrix of the present disclosure is acellular.

In one embodiment, the biocompatible matrix of the present disclosure comprises collagen.

In one embodiment, the biocompatible matrix of the present disclosure is human, porcine, bovine or equine.

According to one embodiment, mesenchymal stem cells of the present disclosure originate from the subject to be treated.

The present disclosure also relates to a composition comprising a biocompatible matrix and a mesenchymal stem cells population as described hereinabove for use for treating a soft tissue injury in a subject in need thereof.

According to one embodiment, the soft tissue to be treated in the present disclosure is selected from the group comprising skin tissue, muscle tissue, dermal tissue, tendon tissue, ligament tissue, meniscus tissue and bladder tissue.

In one embodiment, the soft tissue injury is an acute or a chronic wound.

According to one embodiment, the soft tissue injury to be treated is selected from the group comprising tears or ruptures of soft tissue, skin wounds, skin burns, skin ulcers, surgical wounds, vascular diseases, muscle disease, hernias and radiation wounds. In a particular embodiment, the skin wound is a diabetic wound.

According to one embodiment, the composition for use of the present disclosure is administered topically or by surgical implantation.

The present disclosure also relates to a method for the preparation of a composition comprising a biocompatible matrix and a mesenchymal stem cells population, comprising incubating a substantially pure mesenchymal stem cells population with a biocompatible matrix.

DEFINITIONS

In the present invention, the following terms have the following meanings:

- "**Mesenchymal stem cells**" or MSC, are multipotent stem cells which are capable of differentiating into more than one specific type of mesenchymal or connective tissue including osteogenic, chondrogenic, adipogenic, myelosupportive stroma, myogenic, or neurogenic lineages. Mesenchymal stem cells can be isolated from tissues including, without limitation, adipose tissue, bone-marrow, umbilical cord tissue, Wharton's jelly, amniotic fluid, placenta, peripheral blood, fallopian tube, corneal stroma, lung, muscle, skin, bone, dental tissue, pre-menstrual fluid, foreskin and fetal liver, and the like.
- "**Late passaged mesenchymal stem cell**" refers to a cell exhibiting a less immunogenic characteristic when compared to an earlier passaged cell. The immunogenicity of a mesenchymal stem cell corresponds to the number of passages. Preferably, the cell has been passaged up to at least the fourth passage, more preferably, the cell has been passaged up to at least the sixth passage, and most preferably, the cell has been passaged up to at least the eight passage.

CLAIMS

1. A composition comprising a biocompatible matrix and a mesenchymal stem cells population, wherein said mesenchymal stem cells population is substantially pure, wherein said mesenchymal stem cells are undifferentiated.

2. The composition according to claim **1**, wherein said mesenchymal stem cells population comprises less than 25% of fibroblasts.

3. The composition according to anyone of claims **1** or **2**, wherein said mesenchymal stem cells are derived from adipose tissue, bone-marrow, umbilical cord tissue, Wharton's jelly, amniotic fluid, placenta, peripheral blood, fallopian tube, corneal stroma, lung, muscle, skin, bone, dental tissue and fetal liver.

4. The composition according to anyone of claims **1** to **3**, wherein said mesenchymal stem cells are derived from adipose tissue, preferably from subcutaneous adipose tissue.

5. The composition according to anyone of claims **1** to **4**, wherein said biocompatible matrix is acellular.

6. The composition according to anyone of claims **1** to **5**, wherein said biocompatible matrix comprises collagen.

7. The composition according to anyone of claims **1** to **6**, wherein said biocompatible matrix is human, porcine, bovine or equine.

8. The composition according to anyone of claims **1** to **7**, wherein mesenchymal stem cells originate from the subject to be treated.

9. The composition according to anyone of claims **1** to **8**, for use for treating a soft tissue injury in a subject in need thereof.

10. The composition for use according to claim **9**, wherein said soft tissue is selected from the group comprising skin tissue, muscle tissue, dermal tissue, tendon tissue, ligament tissue, meniscus tissue and bladder tissue.

11. The composition for use according to claim **9** or **10,** wherein said soft tissue injury is an acute or a chronic wound.

12. The composition for use according to anyone of claims **9** to **11**, wherein said soft tissue injury is selected from the group comprising tears or ruptures of soft tissue, skin wounds, skin burns, skin ulcers, surgical wounds, vascular diseases, muscle disease, hernias and radiation wounds.

13. The composition for use according to claim **12**, wherein said skin wound is a diabetic wound.

14. The composition for use according to anyone of claims **9** to **13**, wherein said composition is to be administered topically or by surgical implantation.

15. A method for the preparation of a composition comprising a biocompatible matrix and a mesenchymal stem cells population, comprising incubating a substantially pure mesenchymal stem cells population with a biocompatible matrix, wherein said mesenchymal stem cells are undifferentiated.

16. Use of the composition according to anyone of claims **1** to **8**, in the manufacture of a medicament for treating a soft tissue injury in a subject in need thereof.

17. The use according to claim **16**, wherein said soft tissue is selected from the group comprising skin tissue, muscle tissue, dermal tissue, tendon tissue, ligament tissue, meniscus tissue and bladder tissue.

18. The use according to claim **16** or **17,** wherein said soft tissue injury is an acute or a chronic wound.

19. The use according to anyone of claims **16** to **18**, wherein said soft tissue injury is selected from the group comprising tears or ruptures of soft tissue, skin wounds, skin burns, skin ulcers, surgical wounds, vascular diseases, muscle disease, hernias and radiation wounds.

20. The use according to claim **19**, wherein said skin wound is a diabetic wound.

21. The use according to anyone of claims **16** to **20**, wherein said composition is to be administered topically or by surgical implantation.