Claims

1. Use of a composition comprising integrin alpha10-selected Mesenchymal Stem Cells (MSCs), for the manufacture of a medicament for the treatment of a disease, disorder or trauma of the respiratory system, and/or in connection with transplantation of an organ or tissue of the respiratory tract of a mammal.

2. The use according to claim 1, wherein the disease of the respiratory system is a lower respiratory tract disease; or wherein the disease of the respiratory system is a respiratory disease principally affecting the lung interstitium; or wherein the disease of the respiratory system is a respiratory disease affecting the airways.

3. The use according to any one of the preceding claims, wherein the disease of the respiratory system is a disease principally affecting the lung interstitium selected from the group consisting of acute respiratory distress syndrome (ARDS), pulmonary oedema , pulmonary eosinophilia, idiopathic interstitial pneumonitis, primary interstitial lung diseases specific to infancy or childhood, interstitial lung diseases associated with systemic diseases, pulmonary alveolar microlithiasis, lymphangioleiomyomatosis, and lipoid pneumonitis.

4. The use according to any one of the preceding claims, wherein the disease of the respiratory system is acute respiratory distress syndrome (ARDS) and/or associated disorders.

5. The use according to any one of the preceding claims, wherein the disease of the respiratory system is cytokine release syndrome (CRS); or wherein the disease of the respiratory system is cytokine storm syndrome (CSS); or wherein the disease of the respiratory system is cytokine mediated ARDS; or wherein the disease of the respiratory system is ARDS/Respiratory distress syndrome of newborn, such as respiratory distress syndrome of newborn; or wherein the disease of the respiratory system is ARDS resulting from trauma; or wherein the disease of the respiratory system is ARDS caused by viral or bacterial infection; or wherein the disease of the respiratory system is ARDS resulting from severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) / COVID-19; and/or

wherein the ARDS associated disease is multisystem inflammatory syndrome associated with COVID-19.

6. The use according to any one of the preceding claims, wherein at least 60% of the MSCs express integrin α10 subunit.

7. The use according to any one of the preceding claims, wherein the MSCs are MHC class II, CD45, CD34, CD11b and/or CD19 negative, and/or wherein the MSCs express CD73, CD90 and/or CD105.

8. The use according to any one of the preceding claims, wherein the MSCs are selected from the group consisting of a mesenchymal stem cells, mesenchymal progenitor cells, and mesenchymal stromal cells; or a mixture thereof.

9. The use according to any one of the preceding claims, wherein the MSCs are induced to express integrin α10 subunit.

10. The use according to any one of the preceding claims, wherein the MSCs are cultured in a culture media comprising mammalian serum and FGF-2; or wherein the MSCs are cultured in a culture media comprising platelet lysate and/or platelet lysate components; or wherein the MSCs are cultured in a culture media comprising FGF-2 and platelet lysate and/or platelet lysate components; or wherein the MSCs are cultured in a culture media comprising mammalian serum and platelet lysate and/or platelet lysate components; or wherein the MSCs are cultured in a culture media comprising TGFβ; or wherein the MSCs are cultured in a culture media comprising FGF2; or wherein the MSCs are cultured in a serum-free culture media comprising platelet lysate and/or platelet lysate components; or wherein the MSCs are cultured in a serum-free culture media comprising growth factors; or wherein the MSCs are cultured in a serum-free culture media comprising the growth factors FGF2 and/or TGFβ.

11. The use according to any one of the preceding claims, wherein the MSCs are allogeneic or autologous.

12. The use according to any one of the preceding claims, wherein the composition comprising the MSCs is formulated for administration into the lung or airways.

13. The use according to any one of the preceding claims, wherein the composition comprising the MSCs is formulated for administration via injection, and/or wherein the composition comprising the MSCs is formulated for administration parenterally.

14. The use according to any one of the preceding claims, wherein the composition comprising the MSCs is formulated for administration via intravenous injection, intramuscular injection and/or intratracheal injection, or any combination thereof.

15. The use according to any one of the preceding claims, wherein the composition comprising the MSCs is formulated for administration in a cell suspension with a pharmaceutically acceptable excipient.

16. The use according to any one of the preceding claims, wherein the composition comprising the MSCs is formulated for administration during surgery to repair a damaged lung, and/or wherein the composition comprising the MSCs is formulated for administration in connection with lung transplantation.

17. The use according to any one of the preceding claims, wherein the MSCs are derived from adipose tissue, bone marrow, synovial membrane, peripheral blood, cord blood, umbilical cord blood, Wharton's jelly, and/or amniotic fluid, such as MSCs derived from fetal, neonatal, juvenile or adult MSCs and/or progenitor cells; and/or MSCs not derived from embryonic cells or from an embryo.

18. The use according to any one of the preceding claims, wherein the MSCs are an in vitro cell culture.

19. The use according to any one of the preceding claims, wherein the selection of MSCs has been conducted with an anti-integrin α10 antibody.

20. Use of a composition comprising integrin alpha10-selected Mesenchymal Stem Cells (MSCs), for the manufacture of a medicament for

-preventing blood clotting,
-promoting hemodynamic stability,
-reducing the need for inotropic support,
-improving oxygenation capacity,
-preventing tissue damage, for example structural tissue damage,
-reverting tissue damage, for example structural tissue damage,
-reducing neutrophil counts,
-increasing lymphocyte counts,
-decreasing proinflammatory cytokines, and/or
-increasing interferon-α,
in a mammal in connection with a disease, disorder, or trauma of the respiratory system, and/or in connection with transplantation of an organ or tissue of the respiratory tract of a mammal.