CLAIMS

1. A process for the manufacturing of extracellular vesicles (EVs) associated with proteins, derived from MSCs, said process comprises the steps of:
   - purifying EVs from a cell medium comprising MSCs, wherein said purifying occurs via at least one filtration step of said medium; followed by
   - a concentration step of the filtrate of said at least one filtration step, wherein said EVs are concentrated by means of tangential flow filtration (TFF) in a TFF device; and
   - wherein during said TFF step the EVs are associated with one or more exogenous proteins inside of said TFF device, or in a vessel fluidly connected to said TFF device to which said EVs are transferred from said TFF.
2. Process according to claim 1, wherein said proteins are supplemented to said TFF device or connected vessel during concentrating of said EVs.
3. Process according to claim 1, wherein calcium is supplemented to said TFF device or connected vessel during concentrating of said EVs.
4. Process according to claim 3, wherein said calcium and said proteins are mixed in said TFF or connected vessel and incubated with said EVs residing in said TFF device or connected vessel.
5. Process according to claim 4, wherein said EVs associated with proteins are washed, re-concentrated, and collected outside said TFF device.
6. Process according to any of the previous claims, wherein said proteins are selected from annexins, thioredoxins and lactadherin.
7. Process according to any of the previous claims, wherein said proteins are Annexin V, Trx or Mfge8, preferably recombinant Annexin V, Trx or Mfge8.
8. Process according to any of the previous claims, wherein said TFF device has a cut-off range of 100 kDa.
9. Process according to any of the previous claims, wherein said MSCs are cultured and expanded in a cell medium comprising purified human serum albumin.
10. Process according to claim 9, wherein the albumin concentration in said medium is between 1 g/l and 5 g/l.
11. Composition comprising a therapeutically effective amount of EVs associated with proteins, said proteins are selected from the group of annexins, thioredoxins or lactadherin.
12. Composition according to claim 11, wherein said proteins are Annexin V, Trx or Mfge8, preferably recombinant Annexin V, Trx or Mfge8.

13. Composition according to claim 11 or 12, wherein said composition further comprises calcium, preferably at a concentration of between 1 and 10 mM.
14. Composition according to any of the previous claims, further comprising human albumin, preferably at a concentration of between 10 to 20 g/l of said composition.
15. Composition according to claim 14, wherein said protein is Annexin V, wherein said composition further comprises calcium, and wherein ratio between EV-associated Annexin V and albumin is between 1:90000 and 1:3000000.
16. Composition according to any of the previous claims, wherein said composition comprises human albumin and calcium at a ratio of between 25 and 750 mg albumin per mg calcium.
17. Composition according to any of the previous claims, wherein said EVs have a size of between 50 and 300 nm.
18. Composition according to any of the previous claims, said composition is formulated for intravenous, intranasal, intratracheal oral, subcutaneous, intramuscular, cutaneous or transdermal administration to a patient.
19. Composition according to any of the previous claims for therapeutic or prophylactic use.
20. Composition according to any of the previous claims for use in the prevention or treatment of lung disorders.
21. The composition for use of claim 20, wherein said lung disorder is inflammatory lung disease, lung vascular disease, or acute lung injury.
22. The composition for use of claim 21, wherein said inflammatory lung disease is pulmonary hypertension, asthma, bronchopulmonary dysplasia (BPD), allergy, or idiopathic pulmonary fibrosis.
23. The composition for use of claim 21 wherein said acute lung injury is associated with sepsis or is ventilator-induced acute respiratory distress syndrome (ARDS).
24. The composition for use of claim 21, wherein said inflammatory lung disease is associated with a viral infection, preferably associated with influenza, SARS-CoV-1, MERS, or SARS-CoV-2.
25. The composition for use of claims 19-24, for use in the treatment of COVID-19, preferably for use in the treatment of COVID-19 induced or acute pneumonia.
26. The composition according to any of the previous claims for use in the prevention or treatment of Crohn’s Disease.
27. The composition for use of any of the previous claims wherein said a therapeutically effective amount of said composition is to be administered to a patient, said patient may be an adult, an infant or a neonate.

28. The composition for use of any of the previous claims wherein said composition is to be administered at a dose of 10^9 EVs/kg to 10^{12} EVs/kg of said patient or for each administration.