CLAIMS

1. Use of a composition comprising a population of culture expanded mesenchymal lineage precursor or stem cells (MLPSCs) in the manufacture of a medicament for treating or preventing hyperinflammation in a human subject in need thereof, in which the hyperinflammation is associated with cytokine release syndrome (CRS), hemophagocytic lymphohistiocytosis (HLH), or multi-system inflammatory syndrome (MIS).

2. Use according to Claim 1, in which the hyperinflammation is caused by a viral infection.

3. Use according to Claim 2, in which the viral infection is caused by a rhinovirus, an influenza virus, a respiratory syncytial virus (RSV) or a coronavirus, preferably in which the viral infection is caused by a coronavirus .

4. Use according to Claim 3, in which the coronavirus is Severe Acute Respiratory Syndrome coronavirus (SARS-CoV), Middle East Respiratory Syndrome coronavirus (MERS-CoV) or COVID-19.

5. Use according to any preceding claim, in which the subject also has Acute Respiratory Distress Syndrome (ARDS).

6. Use according to any preceding claim, in which the MLPSCs are culture expanded from an intermediate cryopreserved MLPSCs population.

7. Use according to any preceding claim, in which the MLPSCs are culture expanded for at least about 5 passages.

8. Use according to any preceding claim, in which the MLPSCs are cryopreserved and thawed.

9. Use according to any preceding claim, in which the subject has MIS, and in which the subject is a child.

10. Use according to any preceding claim, in which the subject has myocarditis.

11. Use according to any preceding claim, in which the MLPSCs are mesenchymal stem cells (MSCs).

12. Use according to any preceding claim, in which the MLPSCs are modified to carry or express an anti-viral drug or thrombolytic agent.

13. Use according to any preceding claim, in which the medicament comprises a dose of between 1 x 10^7 and 2 x 10^8 cells.

14. Use according to any of Claims 1 to 12, in which the medicament comprises a dose of about 1 x 10^8 cells.

15. Use according to Claim 13 or 14, in which the medicament comprises two doses.

16. Use according to any preceding claim, in which the subject's circulating C-reactive protein (CRP) levels decrease after administration of the medicament.

17. Use according to any preceding claim, in which the subject's white blood cell count decreases after administration of the medicament.

18. Use according to any preceding claim, in which the subject's FiO2 levels decrease after administration of the medicament and/or the subject's P/F ratio increases after administration of the medicament.

19. Use according to any preceding claim, in which, after administration of the medicament, the subject's:

D-dimer level is reduced;

BNP level is reduced; and/or

LVEF% is increased.

20. Use according to Claim 19, in which the subject's D-dimer level is reduced to below 15 µg/ml after administration of the medicament.

21. Use according to any preceding claim, in which the composition further comprises Plasma-Lyte A, DMSO, HSA solution.

22. Use according to any preceding claim, in which the composition comprises greater than 6.68 x10^6 viable cells/mL.

23. Use according to Claim 19, in which treatment reduces the subject's D-dimer level below 5 µg/ml.