CLAIMS

1. Use of a population of mesenchymal lineage precursor or stem cells in the manufacture of a medicament for preventing progressive heart failure in a myocardial infarction subject, in which the subject has a proximal left anterior descending (LAD) lesion.

2. Use according to Claim 1, in which the subject has an LVESV of greater than 70 ml.

3. Use according to Claim 1 or 2, in which the subject has persistent left ventricular dysfunction.

4. Use according to Claim 1, 2 or 3, in which the subject has a LVEF of less than about 45%.

5. Use according to Claim 1, 2 or 3, in which the subject has a LVEF of less than about 40%.

6. Use according to any preceding claim, in which the mesenchymal lineage precursor or stem cells are to be administered between about 1 and 7 days post-myocardial infarction.

7. Use according to any preceding claim, in which the subject has greater than about 4x upper limit of normal creatine kinase-MB and/or troponin and/or myoglobin.

8. Use according to any preceding claim, in which the subject has an infarct size between about 10 – 25% of the left ventricle.

9. Use according to any of Claims 1 to 7, in which the subject has an infarct size greater than about 18.5% of the left ventricle.

10. Use according to any preceding claim, in which the LVEF and/or infarct size is measured via cardiovascular magnetic resonance imaging (cMR).

11. Use according to any preceding claim in which a population of mesenchymal lineage precursor or stem cells enriched for STRO-1^{+} cells are to be administered.

12. Use according to any preceding claim in which a population of mesenchymal lineage precursor or stem cells enriched for STRO-1^{bright} cells are to be administered.

13. Use according to any preceding claim, in which the population of mesenchymal lineage precursor or stem cells are to be administered systemically, intravenously or intramuscularly.

14. Use according to any preceding claim in which between 1.2 x 10^8 to 4 x 10^8 cells are to be administered.

15. Use according to any preceding claim, in which the population of cells are autogeneic or allogeneic.

16. Use according to any preceding claim, in which the population of cells have been culture expanded prior to administration.

17. Use according to any preceding claim, in which the population of mesenchymal lineage precursor or stem cells express tissue non-specific alkaline phosphatase (TNAP).

18. Use according to any preceding claim, in which the population of mesenchymal lineage precursor or stem cells express angiopoietin-1 (Ang1) in an amount of at least 0.1 μg/10^6 cells; and/or Vascular Endothelial Growth Factor (VEGF) in an amount less than about 0.05 μg/10^6 cells.

19. Use according to any preceding claim, in which the population of mesenchymal lineage precursor or stem cells express Ang1:VEGF at a ratio of at least about 2:1.

20. Use according to any preceding claim, in which the mesenchymal lineage precursor or stem cells are to be administered in the form of a composition comprising the mesenchymal lineage precursor or stem cells and a carrier and/or excipient.