CLAIMS

1. A method for preventing progressive heart failure in a myocardial infarction subject, the method comprising administering to the subject a population of mesenchymal lineage precursor or stem cells and/or progeny thereof and/or soluble factors derived therefrom, in which the subject has a proximal left anterior descending (LAD) lesion.

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

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

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

5. A method according to any preceding claim, in which the subject has a LVEF of less than about 40%.

6. A method according to any preceding claim, in which the mesenchymal lineage precursor or stem cells and/or progeny thereof and/or soluble factors derived therefrom are administered between about 1 and 7 days post-myocardial infarction.

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

9. A method according to any preceding claim, in which the subject has an infarct size greater than about 18.5% of the left ventricle.

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

11. A method according to any preceding claim comprising administering a population of mesenchymal lineage precursor or stem cells enriched for STRO-1^+ cells and/or progeny thereof and/or soluble factors derived therefrom.

12. A method according to any preceding claim comprising administering a population of mesenchymal lineage precursor or stem cells enriched for STRO-1^{bright} cells and/or progeny thereof and/or soluble factors derived therefrom.

13. A method according to any preceding claim, in which the population of mesenchymal lineage precursor or stem cells and/or progeny thereof and/or soluble factors derived therefrom are administered systemically, intravenously or intranasally.

14. A method according to any preceding claim comprising administering between 1.2 x 10^8 to 4 x 10^8 cells.

15. A method according to any preceding claim, in which the population of cells and/or progeny cells are autogeneic or allogeneic and/or the soluble factors are derived from autogeneic or allogeneic cells.

16. A method according to any preceding claim, in which the population of cells and/or progeny thereof have been culture expanded prior to administration and/or prior to obtaining the soluble factors.

17. A method according to any preceding claim, in which the population of mesenchymal lineage precursor or stem cells express tissue non-specific alkaline phosphatase (TNAP) and/or the progeny cells and/or soluble factors are derived from mesenchymal lineage precursor or stem cells that express TNAP.

18. A method 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 the progeny cells and/or soluble factors are derived from mesenchymal lineage precursor or stem cells that express 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 and/or the progeny cells and/or soluble factors are derived from mesenchymal lineage precursor or stem cells that express VEGF in an amount less than about 0.05 μg/10^6 cells and/or the progeny cells.

19. A method 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 and/or the progeny cells and/or soluble factors are derived from mesenchymal lineage precursor or stem cells that express Ang1:VEGF at a ratio of at least about 2:1.

20. A method according to any preceding claim, in which the mesenchymal lineage precursor or stem cells and/or progeny cells thereof and/or soluble factors derived therefrom are administered in the form of a composition comprising the mesenchymal lineage precursor or stem cells and/or progeny cells thereof and/or soluble factors derived therefrom and a carrier and/or excipient.