CLAIMS

1. A method for preparing improved cardiomyocyte-like cells comprising the steps of:

(i) differentiating at least one multipotent or pluripotent cell into cardiomyocyte-like cell(s); ~~and~~

(ii) contacting the multipotent, pluripotent and/or cardiomyocyte-like cell(s) with collagen IV, V or XI; and

(iii) contacting the cardiomyocyte-like cell(s) with at least one agent to promote and/or induce integrin subunit alpha-V (integrin α_V) activity, thereby modulating expression of at least one cardiac gene of said cardiomyocyte-like cells.

2. The method according to claim 1, wherein the at least one agent promotes and/or induces integrin subunit alpha-V activity by itself or as part of a dimer.

3. The method according to claim 1 or 2, wherein the at least one agent comprises an activating antibody, a RGD peptide and/or a constitutively active form of alpha-V integrin subunit.

4. The method according to claim 1, wherein promoting and/or inducing the activity of integrin subunit alpha-V comprises promoting and/or inducing integrin subunit alpha-V gene expression.

5. The method according to claim 4, wherein promoting and/or inducing the activity of integrin subunit alpha-V comprises promoting and/or increasing integrin subunit alpha-V gene expression at the transcriptional and/or translational levels.

~~6. The method according to any one of the preceding claims, further comprising contacting the multipotent, pluripotent and/or cardiomyocyte-like cell(s) with collagen prior to or concomitant with the at least one agent.~~

~~7. The method according to claim 6, wherein the collagen comprises collagen IV, V and/or XI.~~

~~8.~~6. The method according to ~~claim 6 or 7~~ any one of the preceding claims, wherein the collagen comprises collagen V.

~~9.~~7. The method according to any one of the preceding claims, wherein step (iii) comprises modulating cardiac gene expression at the transcriptional and/or translational levels.

~~10.~~8. The method according to any one of the preceding claims, wherein step (ii) comprises enhancing cardiac gene expression.

~~11.~~9. The method according to any one of the preceding claims, wherein the at least one cardiac gene comprises sarcomeric α-actin, sarcomeric α-actinin, desmin, skeletal/cardiac specific titin, sarcomeric α-tropomyosin, cardiac troponin I, sarcomeric MHC, SERCA2 ATPase, connexin-43, GATA binding protein 4 (GATA4), Nkx2.5, myocyte enhancing factor 2A, myocyte enhancing factor 2C, myocyte enhancing factor 2D, cardiac α-actin, skeletal muscle α-actin, cardiac troponin T, cardiac troponin C, and L-type calcium α 1 c.

~~12.~~10. The method according to claim 8~~11~~, wherein the at least one cardiac gene comprises GATA4, Nkx2.5, cardiac α-actin, cardiac troponin T, and/or cardiac troponin C.

~~13.~~11. The method according to claim 8~~11~~ or ~~12~~9, wherein the at least one cardiac gene comprises cardiac α-actin, cardiac troponin T and/or cardiac troponin C.

~~14.~~12. The method according to any one of claims ~~11~~8 to ~~13~~10, wherein the at least one cardiac gene comprises cardiac troponin T and/or cardiac troponin C.

~~15.~~13. The method according to any one of the preceding claims, wherein the cardiomyocyte-like cells are suitable and/or for use in transplantation.

~~16.~~14. A method for screening for an agent capable of improving cardiomyocytes differentiated from at least one multipotent or pluripotent cell comprising screening for a candidate agent capable of promoting and/or inducing integrin subunit alpha-V activity~~,~~.

~~17. The method according to claim 16,~~ comprising the steps of:

(i) providing cardiomyocyte-like cell(s) differentiated from at least one multipotent or pluripotent cell;

(ii) contacting the cardiomyocyte-like cell(s) with the candidate agent; and

(iii) (a) screening for a candidate agent capable of modulating the expression of at least one cardiac gene when compared to the expression of said cardiac gene in cardiomyocyte-like cells absent the candidate agent; and/or

(b) determining if the candidate agent promotes and/or induces integrin subunit alpha-V activity.

~~18.~~15. The method according to claim ~~17~~14, wherein the ability of the candidate agent to modulate the expression of the at least one cardiac gene and/or to promote

and/or induce integrin subunit alpha-V activity is indicative of its ability to improve cardiomyocytes differentiated from at least one multipotent or pluripotent cell.

~~19.~~16. The method according to any one of claims ~~16~~13 to ~~18~~15, comprising detecting for enhanced expression of selected cardiac genes in cardiomyocyte-like cell(s) differentiated from at least one multipotent or pluripotent cell contacted with the candidate agent.

~~20.~~17. The method according to any one of claims ~~16~~13 to ~~19~~16, comprising detecting for enhanced expression of GATA4, Nkx2.5, cardiac α-actin, cardiac troponin T, and/or cardiac troponin C genes in cardiomyocyte-like cells differentiated from at least one multipotent or pluripotent cell contacted with the candidate agent.

~~21.~~18. The method according to any one of claims ~~16~~13 to ~~20~~17, comprising detecting for enhanced expression of cardiac α-actin, cardiac troponin T, and/or cardiac troponin C genes in cardiomyocyte-like cells differentiated from at least one multipotent or pluripotent cell contacted with the candidate agent.

~~22.~~19. The method according to any one of claims ~~16~~13 to ~~21~~18, comprising detecting for enhanced expression of cardiac troponin T and/or cardiac troponin C genes in cardiomyocyte-like cells differentiated from at least one multipotent or pluripotent cell contacted with the candidate agent.

~~23.~~20. The method according to any one of claims ~~16~~13 to ~~22~~19, comprising detecting and comparing the expression of at least one cardiac gene in cardiomyocyte-like cells contacted with and absent the candidate agent.

~~24.~~21. The method according to any one of claims ~~17~~13 to ~~23~~20, wherein modulating or enhanced cardiac gene expression is at the transcription and/or translation level.

~~25.~~22. The method according to any one of claims ~~17~~13 to ~~24~~21, comprising detecting for the transcription and/or translation product.

~~26.~~23. The method according to claim ~~22~~25, wherein detection comprises using real-time PCR, microarray analysis, ELISA and/or immunoblotting.

~~27.~~24. The method according to any one of the preceding claims, wherein the method is an *in vitro* method.