[0005a] In one aspect, the present disclosure refers to the use of mesenchymal stem cells in the manufacture of a medicament for treating cardiomyopathy in a subject, where the subject is identified as a hyper-responder to the mesenchymal stem cells before the cells are to be administered to the subject, wherein the subject is identified as a hyper-responder by determining the absence of a pathologic variant relevant for cardiomyopathy in the following genes: ACTC, MYH7, MYH6, MYBPC3, TNNT2, TNNC1, TNNI3, TPM1, TTN, DMD, DES, LDB3, SGCD, PDLIM3, VCL, RYAB, ILK, LAMA4, FLNC, TCAP, CSRP3, ACTN2, MYPN, ANKRD1, BAG3, LMNA, TMPO, PSEN1, PSEN2, PLN, EYA4, TAZ/G4.5, CPT2, ACADVL, RBM20, ABCC, SCN5A, GATAD1, PRDM16, GAA, FKRP, CTNNA3, DSP, PKP2, SOS2, and ALMS1.

[0006] In one example, described herein is a method of treating a cardiovascular disorder in a subject in need thereof comprising administering to a subject identified as a hyper-responder to cell therapy an amount of cells to treat the cardiovascular disorder in the subject. In some examples, the subject is suffering from a cardiovascular disorder such as, for example, heart failure, adriamycin-induced cardiomyopathy, idiopathic dilated cardiomyopathy, ischemic cardiomyopathy, myocarditis, ischemic heart disease, cardiomyopathy due to infiltrative myocardial disease, cardiomyopathy due to amyloidosis, cardiomyopathy due to sarcoidosis, cardiomyopathy due to hemochromatosis, peripartum cardiomyopathy, cardiomyopathy due to hypertension, cardiomyopathy due to infection with the human immunodeficiency virus, cardiomyopathy due to connective-tissue disease, cardiomyopathy due to scleroderma, cardiomyopathy due to systemic lupus erythematosus, cardiomyopathy due to Marfan's syndrome, cardiomyopathy due to polyarteritis nodosum, cardiomyopathy due to nonspecific connective-tissue disease, cardiomyopathy due to ankylosing spondylitis, cardiomyopathy due to rheumatoid arthritis, cardiomyopathy due to relapsing polychondritis, cardiomyopathy due to Wegener's granulomatosis, cardiomyopathy due to mixed connective-tissue disease, cardiomyopathy due to substance abuse, cardiomyopathy due to chronic alcohol abuse, cardiomyopathy due to cocaine abuse, cardiomyopathy due to doxorubicin therapy, restrictive cardiomyopathy, familial cardiomyopathy, cardiomyopathy due to valvular heart disease, cardiomyopathy due to endocrine dysfunction, cardiomyopathy due to thyroid disease, cardiomyopathy due to carcinoid, cardiomyopathy due to pheochromocytoma, cardiomyopathy due to acromegaly, cardiomyopathy due to neuromuscular disease, cardiomyopathy due to neoplastic heart disease, cardiomyopathy due to congenital heart disease, cardiomyopathy due to complication of coronary-artery bypass surgery, cardiomyopathy due to radiation, cardiomyopathy due to critical illness, cardiomyopathy due to endomyocardial fibroelastosis, cardiomyopathy due to thrombotic thrombocytopenic purpura, cardiomyopathy due to rheumatic carditis, cardiomyopathy due to leukotriene therapy, cardiomyopathy due to lithium therapy or

What is claimed is:

1. Use of mesenchymal stem cells in the manufacture of a medicament for treating cardiomyopathy in a subject, where the subject is identified as a hyper-responder to the mesenchymal stem cells before the cells are to be administered to the subject, wherein the subject is identified as a hyper-responder by determining the absence of a pathologic variant relevant for cardiomyopathy in the following genes: ACTC, MYH7, MYH6, MYBPC3, TNNT2, TNNC1, TNNI3, TPM1, TTN, DMD, DES, LDB3, SGCD, PDLIM3, VCL, RYAB, ILK, LAMA4, FLNC, TCAP, CSRP3, ACTN2, MYPN, ANKRD1, BAG3, LMNA, TMPO, PSEN1, PSEN2, PLN, EYA4, TAZ/G4.5, CPT2, ACADVL, RBM20, ABCC, SCN5A, GATAD1, PRDM16, GAA, FKRP, CTNNA3, DSP, PKP2, SOS2, and ALMS1.

2. The use of claim 1, wherein the mesenchymal stem cells are allogeneic mesenchymal stem cells or autologous mesenchymal stem cells.

3. The use of claim 1, wherein the cardiomyopathy is non-ischemic dilated cardiomyopathy.

4. The use of claim 1, wherein the cells are to be administered locally.

5. The use of claim 4, wherein the cells are to be administered by transendocardial injection.

6. The use of claim 1, wherein the cells are to be administered in an amount ranging from 20 million to 10^9 cells.

7. The use of claim 5 or claim 6, wherein the cells are to be administered by one or more transendocardial injections into one or more sites on the ventricle of the subject.

8. The use of claim 7, wherein the cells are to be administered by

(a) ten transendocardial injections into ten sites on the left ventricle of the subject;

(b) fifteen transendocardial injections into fifteen sites on the left ventricle of the subject; or

(c) twenty transendocardial injections into twenty sites on the left ventricle of the subject.

9. The use of claim 5 or claim 6, wherein the cells are to be administered in an amount of about 400 million cells.

10. The use of claim 1, wherein administration of the cells

(a) results in an increase in flow-mediated vasodilation (FMD) in the subject of at least 3%;

(b) results in an increase of ejection fraction in the subject compared to the ejection fraction of the subject prior to treatment with the cells; and/or,

(c) results in the subject having an increased six-minute walk distance compared to the six-minute walk distance prior to treatment with the cells.