CLAIMS

1. Use of amiodarone and ivabradine in the preparation of a medicament for the treatment or amelioration of an engraftment arrhythmia in a subject recipient of a cardiac graft of cardiomyocytes, in which an effective amount of amiodarone and an effective amount of ivabradine are to be administered to the subject.

2. Use according to Claim 1, in which the cardiac graft of cardiomyocytes comprises *in vitro*-differentiated cardiomyocytes.

3. Use according to Claim 2, in which the *in vitro*-differentiated cardiomyocytes are differentiated from induced pluripotent stem (iPS) cells or from embryonic stem (ES) cells.

4. Use according to Claim 1, 2 or 3, in which the cardiac graft of cardiomyocytes is derived from stem cells autologous to the subject.

5. Use according to any preceding claim, in which the amiodarone and ivabradine are to be administered concurrently with the cardiac graft of cardiomyocytes.

6. Use according to any of Claims 1 to 4, in which administration of amiodarone and/or ivabradine is to be initiated prior to administration of the cardiac graft of cardiomyocytes.

7. Use according to any of Claims 1 to 4, in which the administration of ivabradine and/or amiodarone is to be initiated concurrently with or after administration of the cardiac graft of cardiomyocytes.

8. Use according to any preceding claim, in which amiodarone is to be administered as a single bolus administration.

9. Use according to any of Claims 1 to 7, in which the administration is to be continuous or repeated administration; or oral administration and/or intravenous injection.

10. Use according to any preceding claim, in which the amiodarone is to be administered orally at a dose of 100-800 mg, three times per day; by IV bolus at a dose of 100-300 mg; or to a serum concentration of 1.5 to 2.5 μg/ml.

11. Use according to any preceding claim, in which the ivabradine is to be orally administered at a dose of 5 to 15 mg, twice per day.

12. Use according to any preceding claim, in which the ivabradine is to be administered when there is tachycardia or to maintain a resting heart rate of less than or equal to 150 beats per minute (bpm).

13. Use according to any preceding claim, in which the administration of amiodarone and ivabradine reduces post-graft accelerated heart rate experienced by the graft recipient by at least 10% relative to a subject receiving a graft of the same type of cells in the absence of amiodarone and ivabradine administration.

14. Use according to any preceding claim, in which the administration of amiodarone and ivabradine reduces the proportion of time in which the subject experiences engraftment arrhythmia by at least 10% relative to a subject receiving a cardiac graft of cardiomyocytes of the same type of cardiomyocytes in the absence of amiodarone and ivabradine administration.

15. Use according to any preceding claim, in which administration of amiodarone and ivabradine is short-term; or terminated after engraftment arrhythmia burden reaches zero, without recrudescence of the arrhythmia.

16. Use of amiodarone and ivabradine in the preparation of a medicament for reducing engraftment arrhythmia in a subject undergoing a cardiomyocyte transplant, in which:

(a) *in vitro*-differentiated cardiomyocytes are to be administered to cardiac tissue of a subject in need thereof, and

(b) an amount of amiodarone and an amount of ivabradine effective to reduce engraftment arrhythmia in the subject are to be administered to the subject.

17. Use according to any preceding claim, in which about 10 million cardiomyocytes to about 10 billion cardiomyocytes are to be administered to the subject.

18. Use according to any preceding claim, in which the subject is a human.

19. Use according to any preceding claim, in which the subject has or is at risk for having a cardiovascular disease or a cardiac event selected from the group consisting of: atherosclerotic

heart disease, myocardial infarction, cardiomyopathy, cardiac arrhythmia, valvular stenosis, congenital heart disease, chronic heart failure, regurgitation, ischemia, fibrillation, and polymorphic ventricular tachycardia.

20. A composition comprising *in vitro*-differentiated cardiomyocytes, amiodarone and ivabradine.

CLAIMS

1. Use of amiodarone and ivabradine in the preparation of a medicament for the treatment or amelioration of an engraftment arrhythmia in a subject recipient of a cardiac graft of cardiomyocytes, in which an effective amount of amiodarone and an effective amount of ivabradine are to be administered simultaneously, in the same or in separate compositions, or sequentially to the subject.

2. Use according to Claim 1, in which the cardiac graft of cardiomyocytes comprises *in vitro*-differentiated cardiomyocytes.

3. Use according to Claim 2, in which the *in vitro*-differentiated cardiomyocytes are differentiated from induced pluripotent stem (iPS) cells or from embryonic stem (ES) cells.

4. Use according to Claim 1, 2 or 3, in which the cardiac graft of cardiomyocytes is derived from stem cells autologous to the subject.

5. Use according to any preceding claim, in which the amiodarone and ivabradine are to be administered concurrently with the cardiac graft of cardiomyocytes.

6. Use according to any of Claims 1 to 4, in which administration of amiodarone and/or ivabradine is to be initiated prior to administration of the cardiac graft of cardiomyocytes.

7. Use according to any of Claims 1 to 4, in which the administration of ivabradine and/or amiodarone is to be initiated concurrently with or after administration of the cardiac graft of cardiomyocytes.

8. Use according to any preceding claim, in which amiodarone is to be administered as a single bolus administration.

9. Use according to any of Claims 1 to 7, in which the administration is to be continuous or repeated administration; or oral administration and/or intravenous injection.

10. Use according to any preceding claim, in which the amiodarone is to be administered orally at a dose of 100-800 mg, three times per day; by IV bolus at a dose of 100-300 mg; or to a serum concentration of 1.5 to 2.5 μg/ml.

11. Use according to any preceding claim, in which the ivabradine is to be orally administered at a dose of 5 to 15 mg, twice per day.

12. Use according to any preceding claim, in which the ivabradine is to be administered when there is tachycardia or to maintain a resting heart rate of less than or equal to 150 beats per minute (bpm).

13. Use according to any preceding claim, in which the administration of amiodarone and ivabradine reduces post-graft accelerated heart rate experienced by the graft recipient by at least 10% relative to a subject receiving a graft of the same type of cells in the absence of amiodarone and ivabradine administration.

14. Use according to any preceding claim, in which the administration of amiodarone and ivabradine reduces the proportion of time in which the subject experiences engraftment arrhythmia by at least 10% relative to a subject receiving a cardiac graft of cardiomyocytes of the same type of cardiomyocytes in the absence of amiodarone and ivabradine administration.

15. Use according to any preceding claim, in which administration of amiodarone and ivabradine is short-term; or terminated after engraftment arrhythmia burden reaches zero, without recrudescence of the arrhythmia.

16. Use of amiodarone and ivabradine in the preparation of a medicament for reducing engraftment arrhythmia in a subject undergoing a cardiomyocyte transplant, in which:

(a) *in vitro*-differentiated cardiomyocytes are to be administered to cardiac tissue of a subject in need thereof, and

(b) an amount of amiodarone and an amount of ivabradine effective to reduce engraftment arrhythmia in the subject are to be administered simultaneously, in the same or in separate compositions, or sequentially to the subject.

17. Use according to any preceding claim, in which about 10 million cardiomyocytes to about 10 billion cardiomyocytes are to be administered to the subject.

18. Use according to any preceding claim, in which the subject is a human.

19. Use according to any preceding claim, in which the subject has or is at risk for having a cardiovascular disease or a cardiac event selected from the group consisting of: atherosclerotic heart disease, myocardial infarction, cardiomyopathy, cardiac arrhythmia, valvular stenosis, congenital heart disease, chronic heart failure, regurgitation, ischemia, fibrillation, and polymorphic ventricular tachycardia.

20. A composition comprising *in vitro*-differentiated cardiomyocytes, amiodarone and ivabradine.