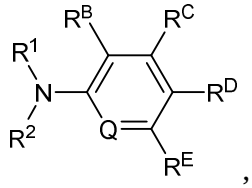
We claim:

1. A compound, or a stereoisomer, tautomer, pharmaceutically acceptable salt, hydrate, or solvate thereof, according to the formula



,

wherein:

R^B is H, aliphatic, -O-aliphatic, -S-aliphatic, -O-C(O)-aliphatic, or halogen;

R^C is H or aliphatic;

R^D is $–(CR^7_2)_n$-X-$(CR^7_2)_m$-$N(R^4)R^5$,

$–(CH_2)_qSO_3M$, $–(CH_2)_qNH_2$, or $–(CH_2)_qOH$;

;

R^E is H, -O-aliphatic, aliphatic, -S-aliphatic, -O-C(O)-aliphatic, or halogen;

Q is C-R^3;

X is $N(R^6)$;

R^1 and R^2 independently are H or aliphatic;

R^3 is H, aliphatic, -O-aliphatic, or -S-aliphatic;

R^4 and R^5 independently are H, aliphatic, aryl or heteroaryl, or R^4 and R^5 together with N form a heterocycloaliphatic or heteroaryl ring;

R^6 is H or aliphatic;

each R^7 independently is H, halogen, or aliphatic;

M is a monatomic cation; and

m, *n*, and *q* independently are integers from 1 to 10,

wherein if R^D is $–(CR^7_2)_n$-X-$(CR^7_2)_m$-$N(R^4)R^5$, then at least one of the following conditions applies

(i) at least one of R^1 and R^2 is other than H, or

(ii) at least one of R^C and R^E is other than H, or

(iii) X is other than N(H), or

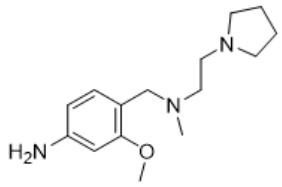
(iv) *m* is not 2, or

(v) *n* is not 1, or

(vi) if Q is CH then R^B is not –O-aliphatic, or

(vii) if R^B is H then Q is not C-R^3 where R^3 is -O-aliphatic, and

wherein the compound is not



.

2. The compound according to claim 1, wherein R^B is H, aliphatic, -O-aliphatic, -S-aliphatic, or halogen.

3. The compound according to claim 2, wherein:

R^D is $–(CR^7_2)_n$ -X-$(CR^7_2)_m$-N(R^4)R^5; and

X is N(R^6) where R^6 is aliphatic.

4. The compound according to claim 1, wherein:

(i) R^4 and R^5 are alkyl; or

(ii) *m* is 2, or *n* is 1, or *m* is 2 and *n* is 1; or

(iii) R^6 is H, or each R^7 is H, or R^6 is H and each R^7 is H; or

(iv) any combination thereof.5. The compound according to claim 1, wherein R^D is -$(CH_2)_qNH_2$, -$(CH_2)_qOH$, or -$(CH_2)_qSO_3M$ where *q* is an integer from 1 to 10 and M is a monatomic cation.

6. The compound according to claim 1, wherein the compound is:

N^1-(4-amino-2-methoxybenzyl)-*N*^{2},*N*^{2}-diethylethane-1,2-diamine;

3-methoxy-4-(((2-(pyrrolidin-1-yl)ethyl)amino)methyl)aniline;

sodium (4-amino-2-methoxyphenyl)methanesulfonate;

sodium (4-(dibutylamino)-3-methoxyphenyl)methanesulfonate;

sodium (4-amino-3-methoxyphenyl)methanesulfonate;

4-((2-(diethylamino)ethoxy)methyl)-2,3-dimethoxyaniline; or

N^1-(4-amino-3-methylbenzyl)-N^2,N^2-diethylethane-1,2-diamine.

7. A pharmaceutical composition, comprising:

a therapeutically effective amount of at least one compound according to claim 1, or a stereoisomer, tautomer, pharmaceutically acceptable salt, hydrate, or solvate thereof; and

at least one pharmaceutically acceptable additive.

8. Use of a compound according to claim 1, or a stereoisomer, tautomer, pharmaceutically acceptable salt, hydrate, or solvate thereof, in the manufacture of a medicament for inhibiting activity of a ryanodine receptor, wherein an effective amount of the compound, or a stereoisomer, tautomer, pharmaceutically acceptable salt, hydrate, or solvate thereof is to be contacted with the ryanodine receptor.

9. The use of claim 8, wherein the effective amount of the compound, or stereoisomer, tautomer, pharmaceutically acceptable salt, hydrate, or solvate thereof, is to be administered to a subject to be contacted with the ryanodine receptor.

10. The use of claim 9, wherein the subject is a subject identified as having, or being at risk of having, a cardiac arrhythmia or heart failure.

11. The use of claim 8, wherein the compound is:

N^1-(4-amino-2-methoxybenzyl)-N^2,N^2-diethylethane-1,2-diamine;

3-methoxy-4-(((2-(pyrrolidin-1-yl)ethyl)amino)methyl)aniline;

sodium (4-amino-2-methoxyphenyl)methanesulfonate; or

any combination thereof.

12. Use of the compound according to claim 1, or a stereoisomer, tautomer, pharmaceutically acceptable salt, hydrate, or solvate thereof in the manufacture of a medicament for ameliorating at least one sign or symptom of a cardiac arrhythmia or heart failure, wherein one or more therapeutically effective doses of the compound, or a stereoisomer, tautomer, pharmaceutically acceptable salt, hydrate, or solvate thereof, are to be administered over an effective period of time to a subject identified as having, or being at risk of having, a cardiac arrhythmia or heart failure.

13. The use of claim 12, wherein the compound is:
N^1-(4-amino-2-methoxybenzyl)-N^2,N^2-diethylethane-1,2-diamine;
3-methoxy-4-(((2-(pyrrolidin-1-yl)ethyl)amino)methyl)aniline;
sodium (4-amino-2-methoxyphenyl)methanesulfonate; or
any combination thereof.

14. The use of claim 8, wherein the compound has a calcium spark response IC_{50} value within a range of from 20 nM to 500 nM as determined in cells from a catecholaminergic polymorphic ventricular tachycardic (CPVT) mouse model.

15. The compound according to claim 1, or a stereoisomer, tautomer, pharmaceutically acceptable salt, hydrate, or solvate thereof for use in therapy.