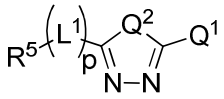
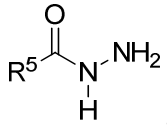
wherein each of R^{1a} and R^{1b} is independently hydrogen, optionally substituted C1-C4 alkyl, or an alkyloxy carbonyl group; and wherein R^7 is optionally substituted and selected from monocyclic aryl, bicyclic aryl, monocyclic heteroaryl, bicyclic heteroaryl, and tricyclic heteroaryl.

[0012] Also disclosed are compositions for disrupting odorant sensing comprising (a) a first compound having the structure:

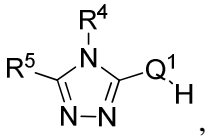


wherein R^5 is optionally substituted aryl or optionally substituted (≤C6) heteroaryl; wherein L^1 is a divalent organic groups having from 1 to 8 non-hydrogen members; wherein p is 0 or 1; wherein Q^1 is hydrogen, OR^{20}, SR^{20}, or $NR^{21a}R^{21b}$, wherein R^{20} is hydrogen, methyl, ethyl, propyl, isopropyl, cyclopropyl, butyl, i-butyl, s-butyl, t-butyl, or CH_2-isopropyl; wherein each of R^{21a} and R^{21b} is independently hydrogen, methyl, ethyl, propyl, isopropyl, cyclopropyl, butyl, i-butyl, s-butyl, t-butyl, or CH_2-isopropyl; and wherein Q^2 is O, S, or NR^4 wherein R^4 is hydrogen or $alkyl_{(C\leq 5)}$.

[0013] Also disclosed are methods for preparing a compound, the method comprising the steps of: providing a compound having a structure represented by a formula:



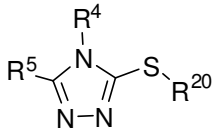
wherein R^5 is optionally substituted aryl or optionally substituted (≤C6) heteroaryl; and reacting with R^4-N=C=S or R^4-N=C=O, thereby yielding a product having the formula:



wherein Q^1 is -O- or -S-; wherein R^4 is optionally substituted and selected from (C1-C5) alkyl, (C1-C5) alkenyl, (C6-C10) aryl, (≤C10) aralkyl, (≤C8) heteroaryl, and (≤C8) heteroaralkyl.

[0013a] Also disclosed are methods of disrupting odor sensing behavior in an organism having an ORco ion channel, comprising exposing the organism to a composition comprising:

(a) a first compound having a structure:



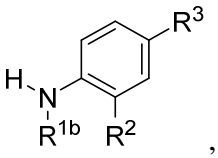
,

wherein R^5 is optionally substituted ≤C6 heteroaryl;

wherein R^{20} is hydrogen, methyl, ethyl, propyl, isopropyl, cyclopropyl, butyl, i-butyl, s-butyl, t-butyl, or CH_2-isopropyl; and

wherein R^4 is hydrogen or ≤C5 alkyl; and

(b) a second compound having a structure:



,

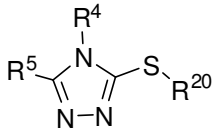
wherein R^{1b} is hydrogen or optionally substituted C1-C4 alkyl;

wherein R^2 is hydrogen or methyl; and

wherein R^3 is hydrogen, halo, hydroxy, nitro, halo, cyclopropyl, C≤5 alkyl, substituted C≤5 alkyl, C≤5 alkenyl, or substituted C≤5 alkenyl.

[0013b] Also disclosed are methods of agonizing an ORco ion channel, comprising exposing the ORco ion channel to a composition comprising:

(a) a first compound having a structure:



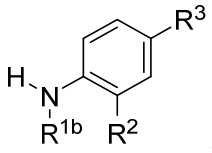
,

wherein R^5 is optionally substituted ≤C6 heteroaryl;

wherein R^{20} is hydrogen, methyl, ethyl, propyl, isopropyl, cyclopropyl, butyl, i-butyl, s-butyl, t-butyl, or CH_2-isopropyl; an

wherein R^4 is hydrogen or ≤C5 alkyl; and

(b) a second compound having a structure:



,

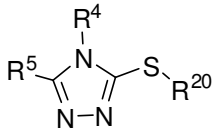
wherein R^{1b} is hydrogen or optionally substituted C1-C4 alkyl;

wherein R^2 is hydrogen or methyl; and

wherein R^3 is hydrogen, halo, hydroxy, nitro, halo, cyclopropyl, C≤5 alkyl, substituted C≤5 alkyl, C≤5 alkenyl, or substituted C≤5 alkenyl.

[0013c] Also disclosed are compositions for disrupting odorant sensing comprising

(a) a first compound having a structure:



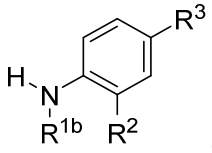
,

wherein R^5 is optionally substituted ≤C6 heteroaryl;

wherein R^{20} is hydrogen, methyl, ethyl, propyl, isopropyl, cyclopropyl, butyl, i-butyl, s-butyl, t-butyl, or CH_2-isopropyl; and

wherein R^4 is hydrogen or ≤C5 alkyl; and

(b) a second compound having a structure:



,

wherein R^{1b} is hydrogen or optionally substituted C1-C4 alkyl;

wherein R^2 is hydrogen or methyl; and

wherein R^3 is hydrogen, halo, hydroxy, nitro, halo, cyclopropyl, C≤5 alkyl, substituted C≤5 alkyl, C≤5 alkenyl, or substituted C≤5 alkenyl.

[0013d] Also disclosed are articles comprising the composition as described herein.

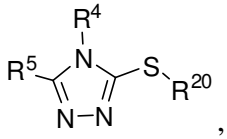
[0014] While aspects of the present invention can be described and claimed in a particular statutory class, such as the system statutory class, this is for convenience only and one of skill in the art will understand that each aspect of the present invention can be described and claimed in any statutory class. Unless otherwise expressly stated, it is in no way intended that any method or aspect set forth herein be construed as requiring that its

CLAIMS

What is claimed is:

1. A method of disrupting odor sensing behavior in an organism having an ORco ion channel, comprising exposing the organism to a composition comprising:

(a) a first compound having a structure:



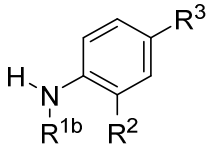
,

wherein R^5 is optionally substituted ≤C6 heteroaryl;

wherein R^{20} is hydrogen, methyl, ethyl, propyl, isopropyl, cyclopropyl, butyl, i-butyl, s-butyl, t-butyl, or CH_2-isopropyl; and

wherein R^4 is hydrogen or ≤C5 alkyl; and

(b) a second compound having a structure:



,

wherein R^{1b} is hydrogen or optionally substituted C1-C4 alkyl;

wherein R^2 is hydrogen or methyl; and

wherein R^3 is hydrogen, halo, hydroxy, nitro, halo, cyclopropyl, C≤5 alkyl, substituted C≤5 alkyl, C≤5 alkenyl, or substituted C≤5 alkenyl.

2. The method of claim 1, wherein the organism is an insect.

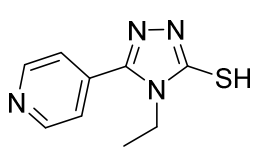
3. The method of claim 1, wherein R^4 is methyl, ethyl, isopropyl, or cyclopropyl.

4. The method of claim 1, wherein R^5 is substituted with 0-3 groups independently selected from hydroxy, nitro, halo, carboxyl, carboxy(C1-C4)alkyl, phenyl, benzyl, benzyloxy, amino,

alkyl(C1-C4)amino, dialkyl(C1-C4, C1-C4)amino, C1-C4 alkoxy, C1-C5 alkyl, and C1-C5 alkenyl.

5. The method of claim 1, wherein R^5 is selected from:

6. The method of claim 1, wherein the first compound has the structure:



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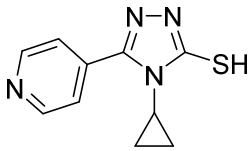
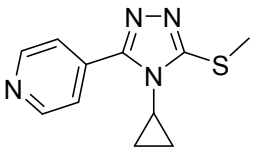
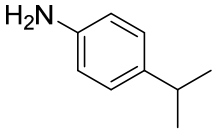


, or


; and

the second compound has the structure:



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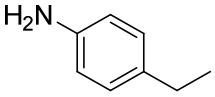

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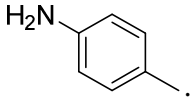


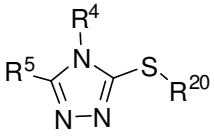
.

7. The method of claim 1, wherein the composition is formed as a water-soluble tablet, formulated as an aerosol, or formulated as a sprayable liquid.

8. The method of claim 1, wherein the composition further comprises an insect repellant.

9. A method of agonizing an ORco ion channel, comprising exposing the ORco ion channel to a composition comprising:

(a) a first compound having a structure:



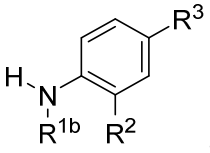
,

wherein R^5 is optionally substituted ≤C6 heteroaryl;

wherein R^{20} is hydrogen, methyl, ethyl, propyl, isopropyl, cyclopropyl, butyl, i-butyl, s-butyl, t-butyl, or CH_2-isopropyl; and

wherein R^4 is hydrogen or ≤C5 alkyl; and

(b) a second compound having a structure:



,

wherein R^{1b} is hydrogen or optionally substituted C1-C4 alkyl;

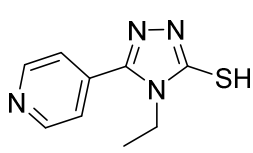
wherein R^2 is hydrogen or methyl; and

wherein R^3 is hydrogen, halo, hydroxy, nitro, halo, cyclopropyl, C≤5 alkyl, substituted C≤5 alkyl, C≤5 alkenyl, or substituted C≤5 alkenyl.

10. The method of claim 9, wherein R^4 is methyl, ethyl, isopropyl, or cyclopropyl.

11. The method of claim 9, wherein R^5 is substituted with 0-3 groups independently selected from hydroxy, nitro, halo, carboxyl, carboxy(C1-C4)alkyl, phenyl, benzyl, benzyloxy, amino, alkyl(C1-C4)amino, dialkyl(C1-C4, C1-C4)amino, C1-C4 alkoxy, C1-C5 alkyl, and C1-C5 alkenyl.

12. The method of claim 9, wherein the first compound has the structure:



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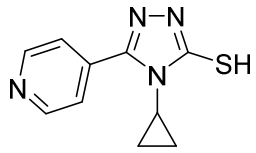

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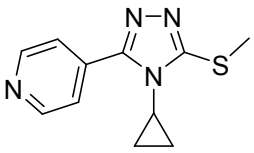
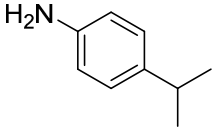


; and

the second compound has the structure:



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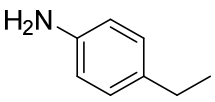

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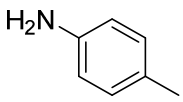

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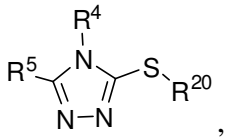
13. A composition for disrupting odorant sensing comprising

(a) a first compound having a structure:



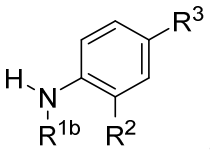
,

wherein R^5 is optionally substituted ≤C6 heteroaryl;

wherein R^{20} is hydrogen, methyl, ethyl, propyl, isopropyl, cyclopropyl, butyl, i-butyl, s-butyl, t-butyl, or CH_2-isopropyl; and

wherein R^4 is hydrogen or ≤C5 alkyl; and

(b) a second compound having a structure:



,

wherein R^{1b} is hydrogen or optionally substituted C1-C4 alkyl;

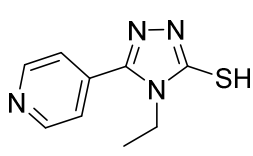
wherein R^2 is hydrogen or methyl; and

wherein R^3 is hydrogen, halo, hydroxy, nitro, halo, cyclopropyl, C≤5 alkyl, substituted C≤5 alkyl, C≤5 alkenyl, or substituted C≤5 alkenyl.

14. The composition of claim 13, wherein R^4 is methyl, ethyl, isopropyl, or cyclopropyl.

15. The composition of claim 13, wherein R^5 is substituted with 0-3 groups independently selected from hydroxy, nitro, halo, carboxyl, carboxy(C1-C4)alkyl, phenyl, benzyl, benzyloxy, amino, alkyl(C1-C4)amino, dialkyl(C1-C4, C1-C4)amino, C1-C4 alkoxy, C1-C5 alkyl, and C1-C5 alkenyl.

16. The composition of claim 13, wherein the first compound has the structure:



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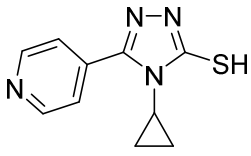
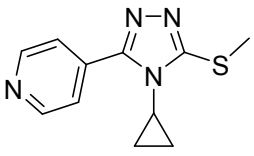
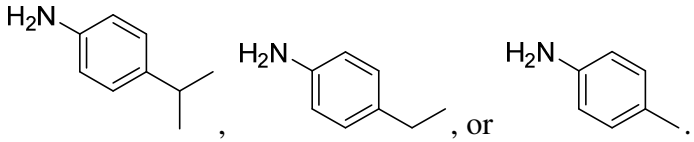


, or



; and

the second compound has the structure:



, , or .

17. The composition of claim 13, formed as a water-soluble tablet, formulated as an aerosol, or formulated as a sprayable liquid.

18. The composition of claim 13, further comprising an insect repellant.

19. An article comprising the composition of claim 13.

20. The article of claim 19, formed as clothing or netting or an insect trap.