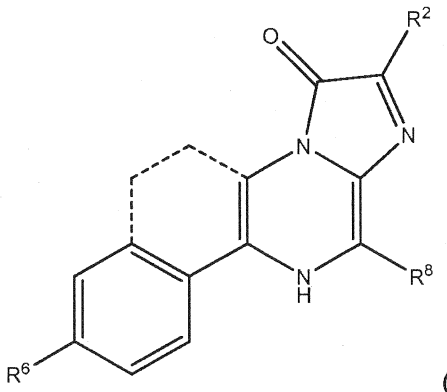
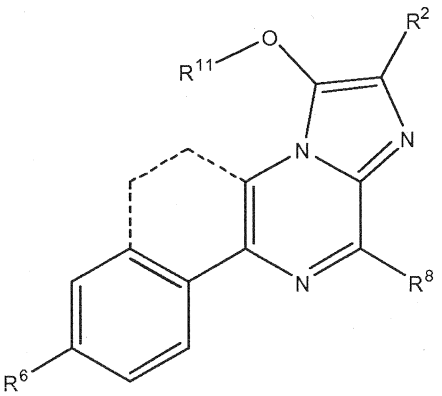
What is claimed:

1. A compound of formula (Ia) or (Ib):



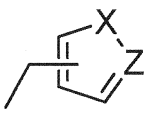
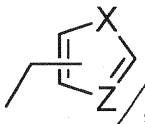
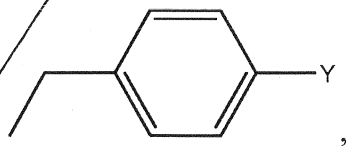
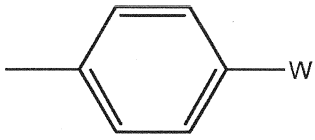
(Ia)

or



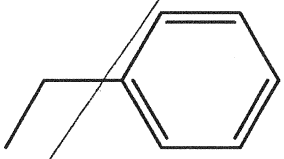
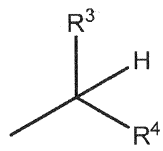
(Ib)

wherein R^2 is selected from the group consisting of

, , ,  or C_{2-5} straight chain alkyl;

R^6 is selected from the group consisting of -H, -OH, $-NH_2$, -OC(O)R or $-OCH_2OC(O)R$;

R^8 is selected from the group consisting of

, , H or lower cycloalkyl;

wherein R^3 and R^4 are both H or both C_{1-2} alkyl;

W is $-NH_2$, halo, -OH, -NHC(O)R, $-CO_2R$;

X is –S-, –O- or –NR^{22}-;

Y is –H, -OH, or –OR^{11};

Z is –CH- or –N-;

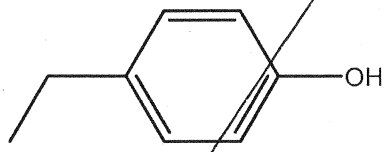
each R^{11} is independently –C(O)R'' or –$CH_2OC(O)R''$;

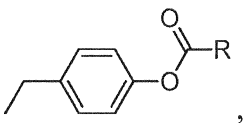
R^{22} is H, CH_3 or CH_2CH_3;

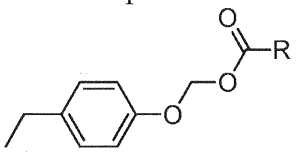
each R is independently C_{1-7} straight-chain alkyl or C_{1-7} branched alkyl;

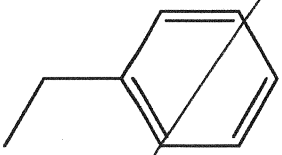
R'' is C_{1-7} straight-chain alkyl or C_{1-7} branched alkyl;

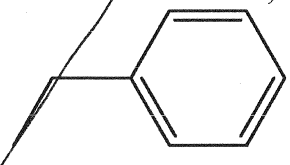
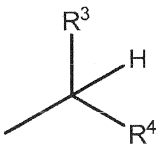
the dashed bonds indicate the presence of an optional ring, which may be saturated or unsaturated;

with the proviso that when R^2 is 

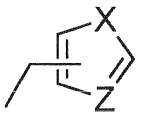
, 

, or 

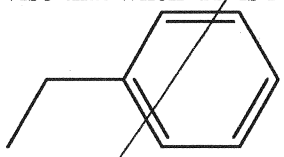
, R^8 is not 
;

with the proviso that when R^2 is 
, R^8 is 

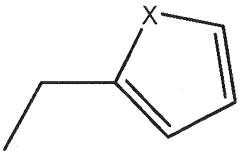
or lower cycloalkyl; and

with the proviso that when R^6 is NH_2, R^2 is , 

, or C_{2-5} alkyl;

or R^8 is not 
.

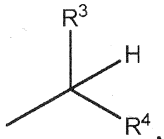
2. A compound according to claim 1,

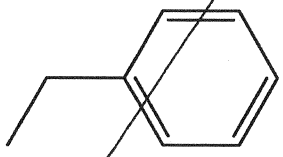
wherein R^2 is 

; and

X is O or S.

3. A compound according to claim 1, wherein R^2 is C_{2-5} straight-chain alkyl.

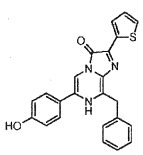
4. A compound according to any of the preceding claims, wherein R^8 is , lower cycloalkyl or H.

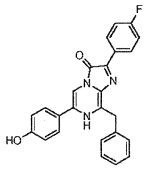
5. A compound according to any one of claims 1-3, wherein R^8 is .

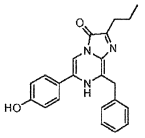
6. A compound according to any one of the preceding claims, wherein R_{11} is $-CH_2OC(O)C(CH_3)_3$.

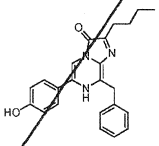
7. A compound according to any one of claims 1-5, wherein R'' is $-C(CH_3)_3$, $-CH(CH_3)_2$, $-CH_2C(CH_3)_3$, or $-CH_2CH(CH_3)_2$.

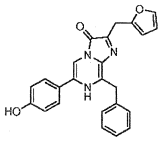
8. A compound selected from

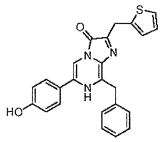

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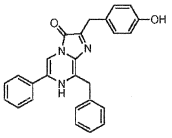

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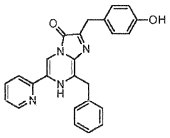

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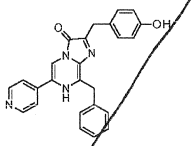

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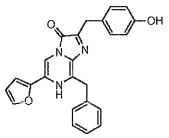

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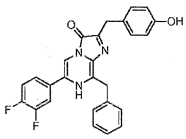

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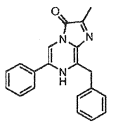

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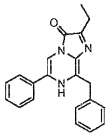

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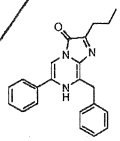

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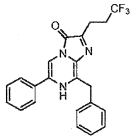

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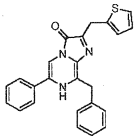

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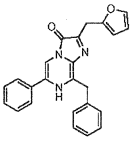

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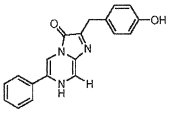

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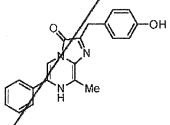

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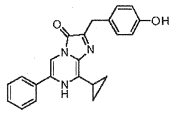

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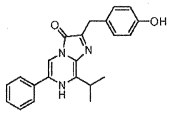

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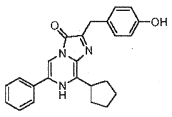

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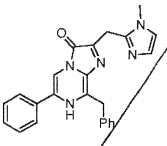

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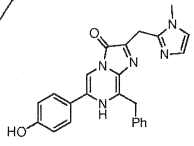

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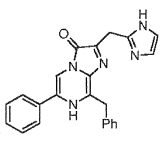

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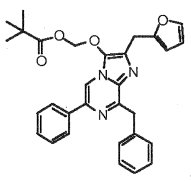

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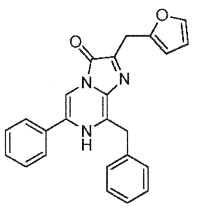

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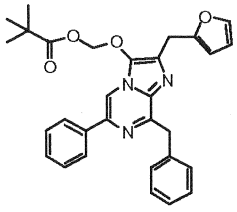

4541



9. A compound of formula



or



10. A kit comprising a compound according to any one of claims 1-9.

11. The kit of claim 10 further comprising a luciferase.

12. The kit of claim 11, wherein the luciferase is an *Oplophorus* or *Renilla* luciferase.

13. A kit of any one of claims 10-12, further comprising a buffer reagent.

14. A method for detecting luminescence in a sample comprising

contacting a sample with a compound according to any one of claims 1-9;

contacting the sample with a coelenterazine-utilizing luciferase, if it is not present in the sample; and

detecting luminescence.

15. The method of claim 14, wherein the sample contains live cells.

16. The method of claim 14, wherein the sample contains a coelenterazine-utilizing luciferase.

17. A method for detecting luminescence in a transgenic animal comprising

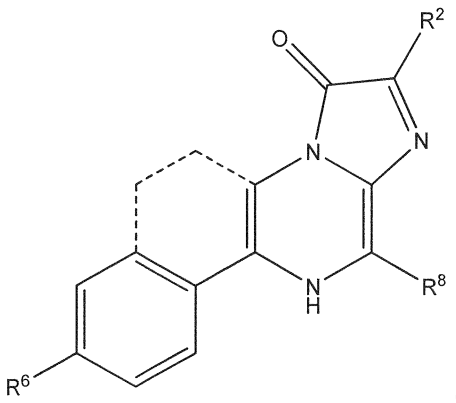
administering a compound according to any one of claims 1-9 to a transgenic animal; and

detecting luminescence;

wherein the transgenic animal expresses a coelenterazine-utilizing luciferase.

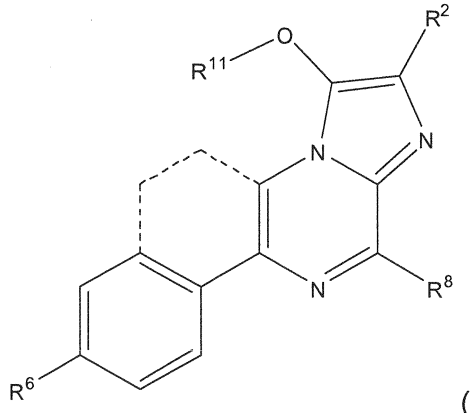
CLAIMS

1. A compound of formula (Ia) or (Ib):



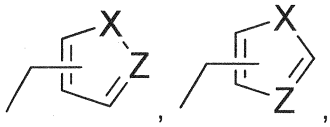
(Ia)

or



(Ib)

wherein R^2 is selected from the group consisting of

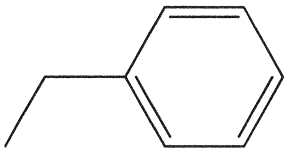


, or

C_{2-5} straight chain alkyl;

R^6 is selected from the group consisting of -H, -OH, $-NH_2$, -OC(O)R or -$OCH_2OC(O)R$;

R^8 is


;

X is –S-, –O- or –NR^{22}-;

Z is –CH- or –N-;

each R^{11} is independently –C(O)R'' or –$CH_2OC(O)R''$;

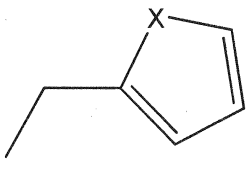
R^{22} is H, CH_3 or CH_2CH_3;

each R is independently C_{1-7} straight-chain alkyl or C_{1-7} branched alkyl;

R'' is C_{1-7} straight-chain alkyl or C_{1-7} branched alkyl;

the dashed bonds indicate the presence of an optional ring, which may be saturated or unsaturated.

2. A compound according to claim 1,

wherein R^2 is 

; and

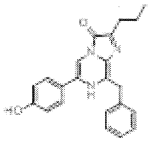
X is O or S.

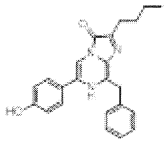
3. A compound according to claim 1, wherein R^2 is C_{2-5} straight-chain alkyl.

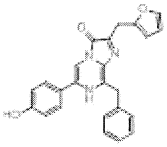
4. A compound according to any one of the preceding claims, wherein R_{11} is –$CH_2OC(O)C(CH_3)_3$.

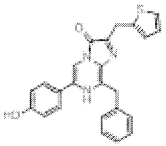
5. A compound according to any one of claims 1-5, wherein R'' is -$C(CH_3)_3$, -$CH(CH_3)_2$, -$CH_2C(CH_3)_3$, or –$CH_2CH(CH_3)_2$.

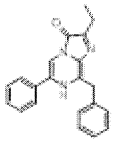
6. A compound selected from

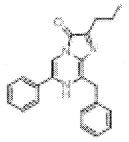

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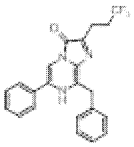

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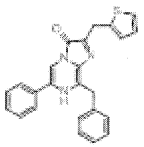

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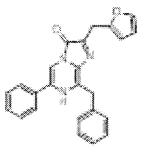

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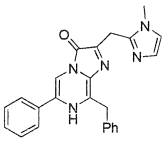

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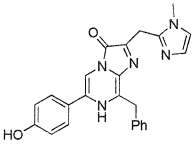

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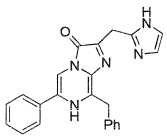

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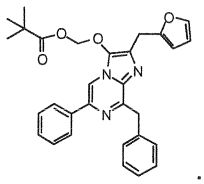

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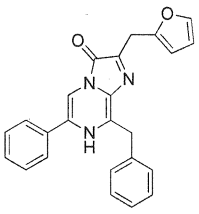

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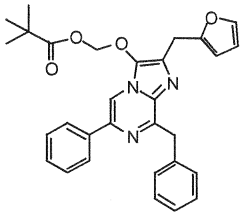

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7. A compound of formula



or



8. A kit comprising a compound according to any one of claims 1-7.

9. The kit of claim 8 further comprising a luciferase.

10. The kit of claim 9, wherein the luciferase is an *Oplophorus* or *Renilla* luciferase.

11. A kit of any one of claims 8-10, further comprising a buffer reagent.

12. A method for detecting luminescence in a sample comprising

contacting a sample with a compound according to any one of claims 1-7;

contacting the sample with a coelenterazine-utilizing luciferase, if it is not present in the sample; and

detecting luminescence.

13. The method of claim 12, wherein the sample contains live cells.

14. The method of claim 12, wherein the sample contains a coelenterazine-utilizing luciferase.

15. A method for detecting luminescence in a non-human transgenic animal comprising

administering a compound according to any one of claims 1-7 to a non-human transgenic animal; and

detecting luminescence;

wherein the non-human transgenic animal expresses a coelenterazine-utilizing luciferase.