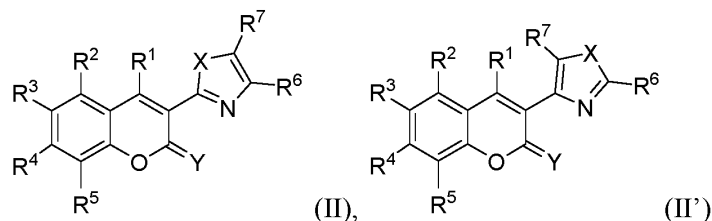


WHAT IS CLAIMED IS:

1. A compound of Formula (II) or (II'), or a salt or mesomeric form thereof:



wherein X is S, O, or NR^a;

Y is O or NH;

each R¹, R², R³ and R⁵ is independently H, optionally substituted C₁-C₆ alkyl, C₁-C₆ alkoxy, C₂-C₆ alkenyl, C₂-C₆ alkynyl, C₁-C₆ haloalkyl, C₁-C₆ haloalkoxy, C₁-C₆ hydroxyalkyl, (C₁-C₆ alkoxy)(C₁-C₆ alkyl), optionally substituted amino, halo, cyano, hydroxy, nitro, sulfonyl, sulfinio, sulfo, sulfonate, S-sulfonamido, N-sulfonamido, optionally substituted C₃-C₁₀ carbocyclyl, optionally substituted C₆-C₁₀ aryl, optionally substituted 5 to 10 membered heteroaryl, or optionally substituted 3 to 10 membered heterocyclyl;

R⁴ is -NR^bR^c, halo, -OR^d or -OS(O)₂R^d;

each of R⁶ and R⁷ is independently H, carboxyl, -C(O)NR^bR^c, -C(O)OR^d, C₁-C₆ alkyl, substituted C₁-C₆ alkyl, C₁-C₆ haloalkyl, halo, optionally substituted amino, N-sulfonamido, sulfonyl, S-sulfonamido, hydroxy, cyano, nitro, optionally substituted phenyl, optionally substituted C₃-C₈ carbocyclyl, optionally substituted 5 to 10 membered heteroaryl, or optionally substituted 3 to 10 membered heterocyclyl; or R⁶ and R⁷ in Formula (II) together with the atoms to which they are attached form an optionally substituted C₅-C₈ carbocyclyl or an optionally substituted 5 to 8 membered heterocyclyl;

R^a is H or C₁-C₆ alkyl;

each R^b and R^c is independently H, C₁-C₆ alkyl, or substituted C₁-C₆ alkyl; or R^b and R^c together with the nitrogen atom to which they are attached form an optionally substituted 4 to 10 membered heterocyclyl; and

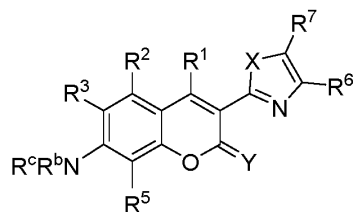
each R^d is independently optionally substituted C₁-C₆ alkyl or optionally substituted phenyl; provided that

at least one of R⁶ and R⁷, or the optionally substituted C₅-C₈ carbocyclyl or optionally substituted 5 to 8 membered heterocyclyl formed from R⁶ and R⁷ and the atoms to which they are attached, comprises a carboxyl; or

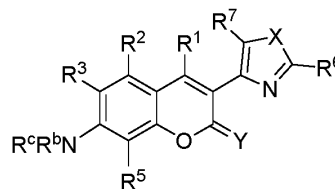
R⁴ is -NR^bR^c and at least one of R^b and R^c comprises a carboxyl or -C(O)OR^d.

2. The compound of claim 1, wherein R⁴ is halo.

3. The compound of claim 1, wherein R^4 is $-\text{OS}(\text{O})_2R^d$, and wherein R^d is $\text{C}_1\text{-C}_6$ alkyl or $\text{C}_1\text{-C}_6$ haloalkyl.
4. The compound of claim 3, wherein R^d is trifluoromethyl.
5. The compound of claim 1, wherein R^4 is $-\text{NR}^bR^c$ and the compound is also represented by Formula (IIa) or (IIa')



(IIa),



(IIa'), or a salt

or a mesomeric form thereof.

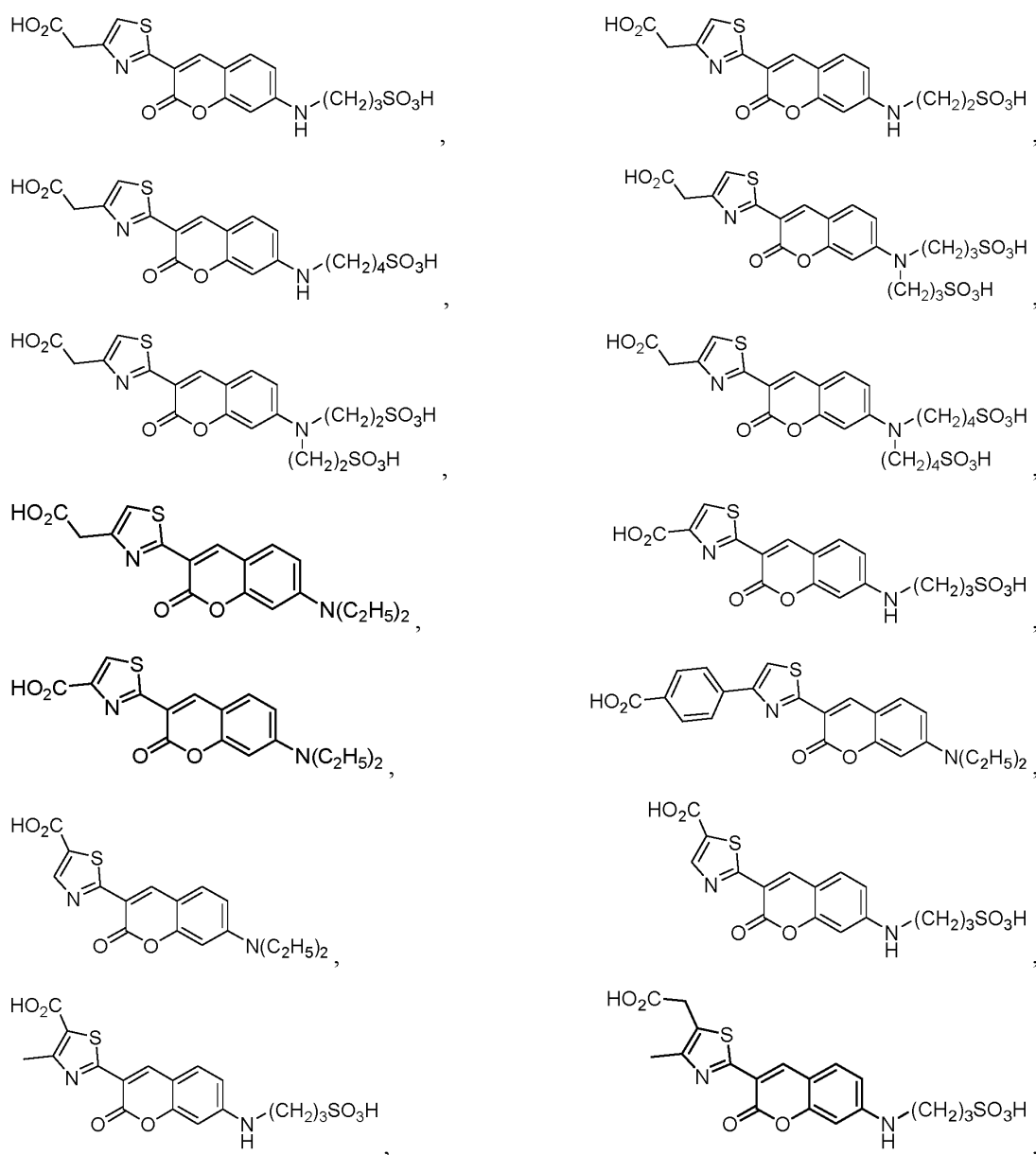
6. The compound of claim 5, wherein each of R^b and R^c is independently H, $\text{C}_1\text{-C}_6$ alkyl, or substituted $\text{C}_1\text{-C}_6$ alkyl.
7. The compound of claim 6, wherein each of R^b and R^c is independently $\text{C}_1\text{-C}_6$ alkyl or substituted $\text{C}_1\text{-C}_6$ alkyl, or R^b is H and R^c is $\text{C}_1\text{-C}_6$ alkyl or substituted $\text{C}_1\text{-C}_6$ alkyl.
8. The compound of claim 6 or 7, wherein the substituted $\text{C}_1\text{-C}_6$ alkyl is independently substituted with carboxyl, $-\text{C}(\text{O})\text{OR}^d$, sulfo ($-\text{SO}_3\text{H}$), sulfonate ($-\text{SO}_3^-$), $-\text{O}-\text{SO}_3^-$ or $-\text{SO}_2\text{NR}^eR^f$, and wherein each of R^e and R^f is independently H or $\text{C}_1\text{-C}_6$ alkyl.
9. The compound of claim 6 or 7, wherein each of R^b and R^c is ethyl.
10. The compound of any one of claims 6 to 8, wherein each of R^b and R^c is independently $\text{C}_1\text{-C}_6$ alkyl substituted with carboxyl, $-\text{C}(\text{O})\text{OR}^d$, $-\text{SO}_3\text{H}$, $-\text{SO}_3^-$, or $-\text{SO}_2\text{NH}_2$.
11. The compound of any one of claims 6 to 8, wherein R^b is H and R^c is $\text{C}_1\text{-C}_6$ alkyl or $\text{C}_1\text{-C}_6$ alkyl substituted with carboxyl, $-\text{C}(\text{O})\text{OR}^d$, $-\text{SO}_3\text{H}$, $-\text{SO}_3^-$, $-\text{O}-\text{SO}_3^-$ or $-\text{SO}_2\text{NH}_2$.
12. The compound of claim 5, wherein R^b and R^c together with the nitrogen atom to which they are attached form an optionally substituted 4, 5 or 6 membered heterocyclyl.
13. The compound of any one of claims 1 to 12, wherein Y is O.
14. The compound of any one of claims 1 to 13, wherein X is S or O.
15. The compound of any one of claims 1 to 14, wherein R^1 is H or $\text{C}_1\text{-C}_6$ alkyl.
16. The compound of any one of claims 1 to 15, wherein R^2 is H.
17. The compound of any one of claims 1 to 16, wherein R^3 is H or $\text{C}_1\text{-C}_6$ alkyl.
18. The compound of any one of claims 1 to 17, wherein R^5 is H.
19. The compound of any one of claims 1 to 18, wherein each of R^6 and R^7 is independently H, $\text{C}_1\text{-C}_6$ alkyl, substituted $\text{C}_1\text{-C}_6$ alkyl, optionally substituted phenyl, carboxyl or $-\text{C}(\text{O})\text{OR}^d$.

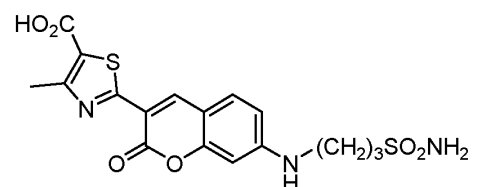
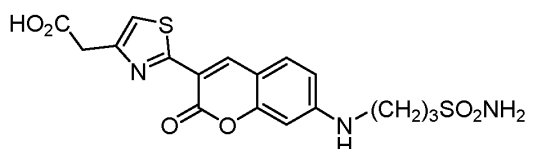
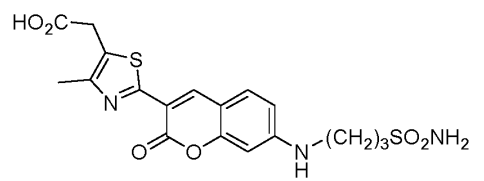
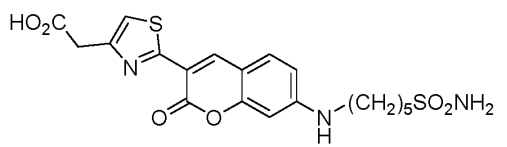
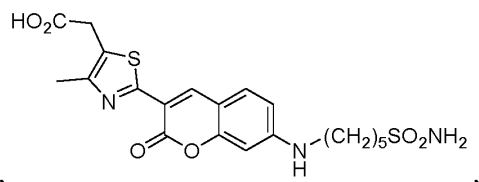
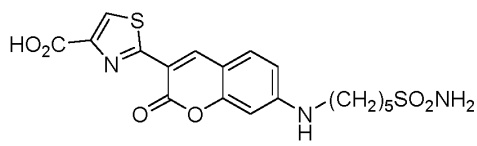
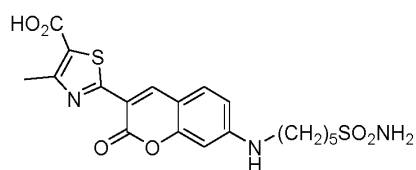
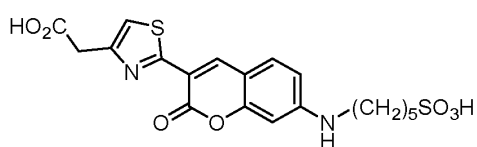
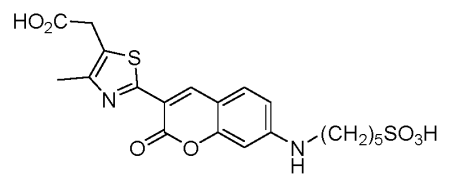
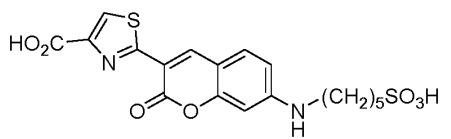
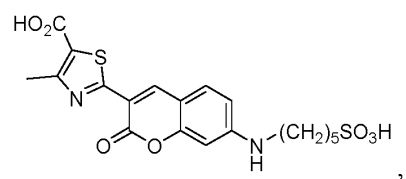
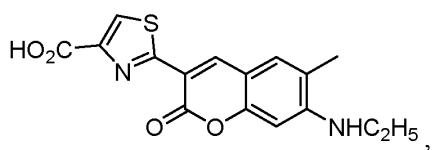
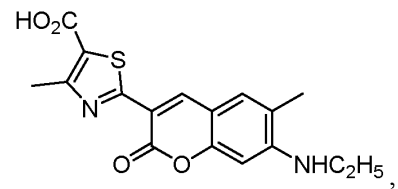
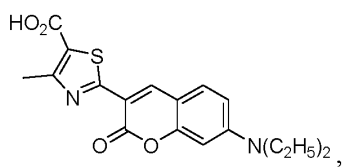
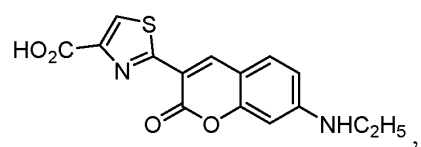
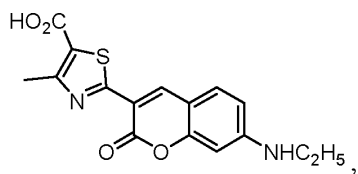
20. The compound of claim 19, wherein one of R^6 or R^7 is H or C_1 - C_6 alkyl, and the other one of R^6 or R^7 is carboxyl, $-C(O)OR^d$, C_1 - C_6 alkyl, substituted C_1 - C_6 alkyl, or phenyl optionally substituted with carboxyl, $-C(O)OR^d$ or sulfo.

21. The compound of claim 19 or 20, wherein one of R^6 or R^7 is H or methyl, and the other one of R^6 or R^7 is carboxyl, $-C(O)OR^d$, methyl, phenyl, phenyl substituted with carboxyl or $-C(O)OR^d$, or C_1 - C_6 alkyl substituted with carboxyl or $C(O)OR^d$.

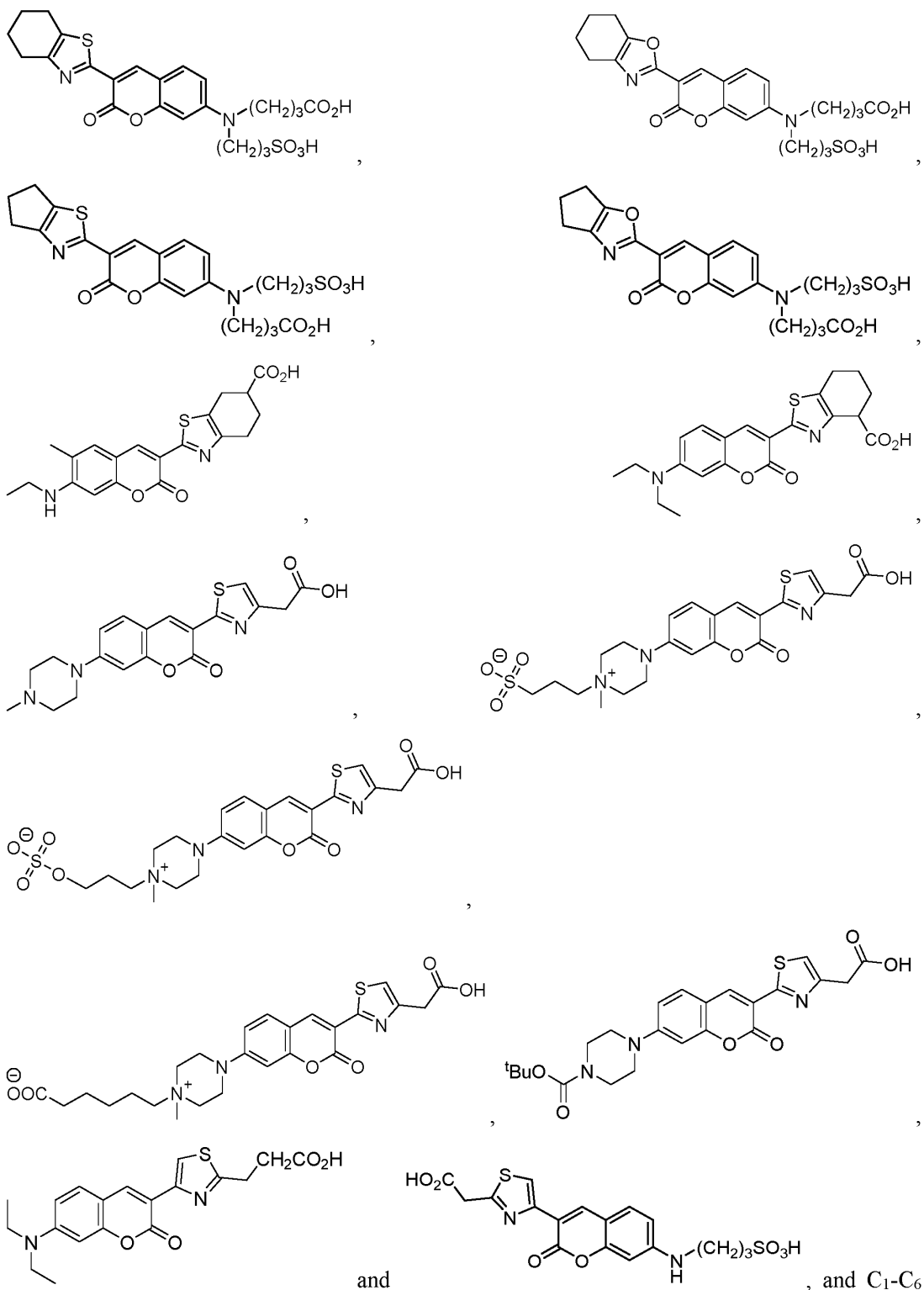
22. The compound of any one of claims 1 to 18, wherein R^6 and R^7 together with the atoms to which they are attached form a C_5 - C_6 carbocyclyl.

23. The compound of claim 14, selected from the group consisting of



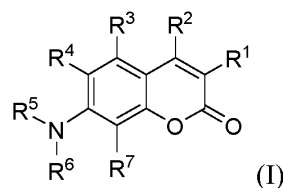


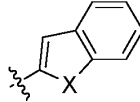
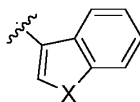




alkyl carboxylic esters, salts and mesomeric forms thereof.

24. A compound of Formula (I), or a salt or mesomeric form thereof:



wherein R¹ is , ,  or , each optionally

substituted with one or more substituents independently selected from the group consisting of carboxyl, -C(O)NR^bR^c, -C(O)OR^d, C₁-C₆ alkyl, substituted C₁-C₆ alkyl, halo, optionally substituted amino, hydroxy, sulfo, sulfonate, sulfate, N-sulfonamido, and S-sulfonamido;

R² is H, optionally substituted C₁-C₆ alkyl, or phenyl optionally substituted with one or more substituents selected from the group consisting of carboxyl, -C(O)NR^bR^c, -C(O)OR^d, optionally substituted C₁-C₆ alkyl, halo, cyano, nitro, sulfonyl, sulfinyl, sulfo, sulfonate, optionally substituted amino, and hydroxy;

each R³, R⁴ and R⁷ is independently H, optionally substituted C₁-C₆ alkyl, C₁-C₆ alkoxy, C₂-C₆ alkenyl, C₂-C₆ alkynyl, C₁-C₆ haloalkyl, C₁-C₆ haloalkoxy, C₁-C₆ hydroxyalkyl, (C₁-C₆ alkoxy)(C₁-C₆ alkyl), optionally substituted amino, halo, cyano, hydroxy, nitro, sulfonyl, sulfinyl, sulfo, sulfonate, S-sulfonamido, N-sulfonamido, optionally substituted C₃-C₁₀ carbocyclyl, or optionally substituted 3 to 10 membered heterocyclyl;

each R⁵ and R⁶ is independently H, C₁-C₆ alkyl, substituted C₁-C₆ alkyl, or R⁵ and R⁶ together with the nitrogen atom to which they are attached form an optionally substituted 4 to 10 membered heterocyclyl;

X is O, S, or NR^a;

R^a is H or C₁-C₆ alkyl;

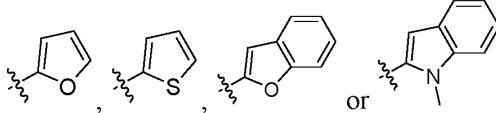
each R^b and R^c is independently H, C₁-C₆ alkyl, or substituted C₁-C₆ alkyl; and

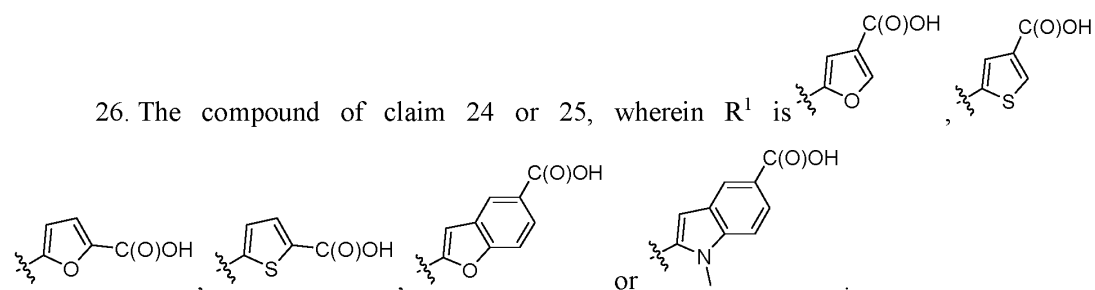
R^d is optionally substituted C₁-C₆ alkyl or optionally substituted phenyl; provided

that

at least one of R⁵ or R⁶, or the optionally substituted 4 to 10 membered heterocyclyl formed from R⁵ and R⁶ and the nitrogen atom to which they are attached, comprises a carboxyl or -C(O)OR^d, or

R¹ comprises a carboxyl or -C(O)OR^d.

25. The compound of claim 24, wherein R^1 is , each substituted with carboxyl.

26. The compound of claim 24 or 25, wherein R^1 is .

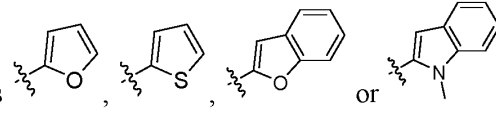
27. The compound of any one of claims 24 to 26, wherein each of R^5 and R^6 is C_1 - C_6 alkyl.

28. The compound of claim 27, wherein each of R^5 and R^6 is ethyl.

29. The compound of any one of claims 24 to 26, wherein R^5 is H and R^6 is substituted C_1 - C_6 alkyl.

30. The compound of any one of claims 24 to 26, wherein each of R^5 and R^6 is a substituted C_1 - C_6 alkyl.

31. The compound of claim 29 or 30, wherein the C_1 - C_6 alkyl is substituted with carboxyl, $-C(O)OR^d$, sulfo ($-SO_3H$), sulfonate ($-SO_3^-$), sulfate ($-O-SO_3^-$) or an optionally substituted amino.

32. The compound of claim 24, wherein R^1 is , each unsubstituted or substituted with sulfo ($-SO_3H$).

33. The compound of claim 32, wherein R^5 is H and R^6 is C_1 - C_6 alkyl substituted with carboxyl.

34. The compound of claim 32, wherein each of R^5 and R^6 is C_1 - C_6 alkyl substituted with carboxyl, $-C(O)OR^d$, sulfo ($-SO_3H$), sulfonate ($-SO_3^-$), or sulfate ($-O-SO_3^-$) and one of R^5 and R^6 is substituted with carboxyl.

35. The compound of claim 32, wherein R^5 and R^6 and the nitrogen atom to which they are attached form a 5 or 6 membered heterocyclyl substituted with carboxyl.

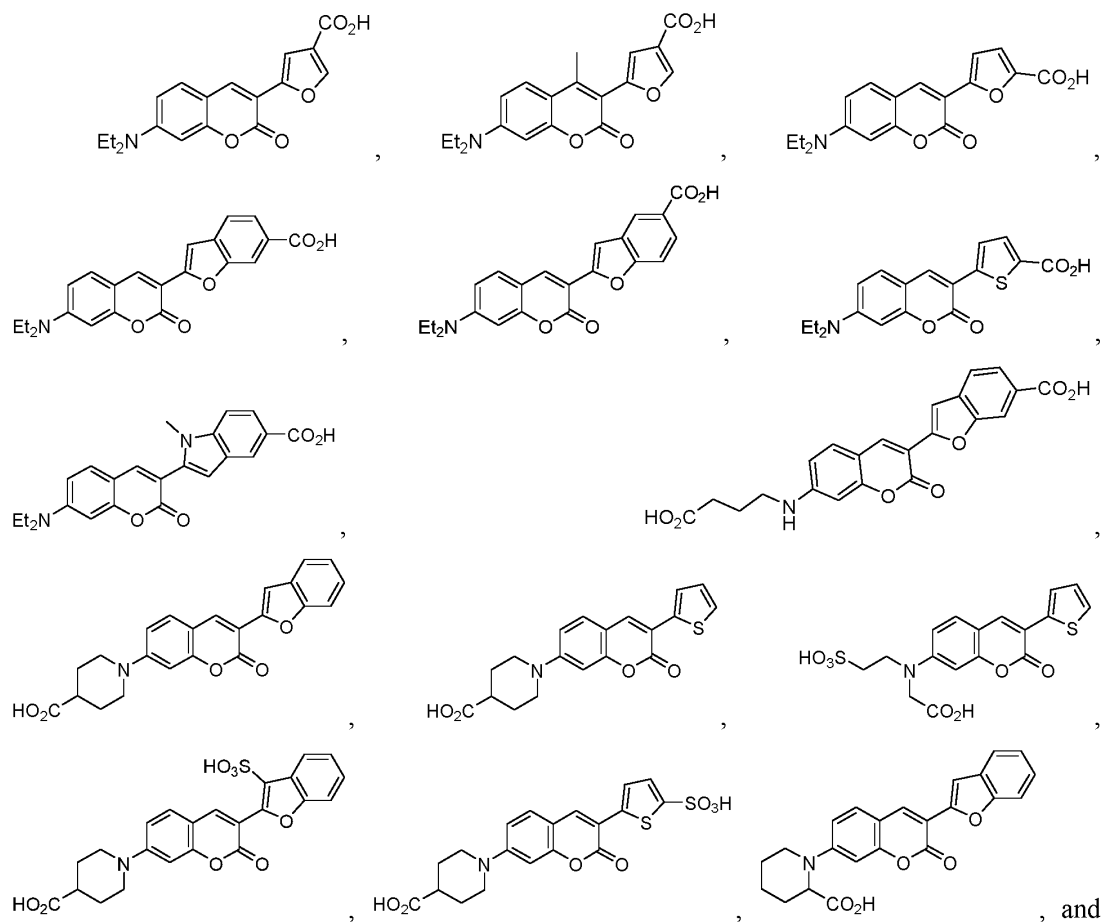
36. The compound of any one of claims 24 to 35, wherein R^2 is H.

37. The compound of any one of claims 24 to 35, wherein R^2 is C_1 - C_6 alkyl.

38. The compound of claim 37, wherein R^2 is methyl.

39. The compound of any one of claims 24 to 38, wherein each of R^3 , R^4 and R^7 is H.

40. The compound of claim 24, selected from the group consisting of:



salts and mesomeric forms thereof.

41. A nucleotide or oligonucleotide labeled with a compound according to any one of claims 5 to 40.

42. The labeled nucleotide or oligonucleotide of claim 41, wherein the compound is attached the nucleotide or oligonucleotide via a carboxyl group of R^1 of Formula (I).

43. The labeled nucleotide or oligonucleotide of claim 41, wherein the compound is attached the nucleotide or oligonucleotide via a carboxyl group of R^6 or R^7 of Formula (II) or (II').

44. The labeled nucleotide or oligonucleotide of any one of claims 41 to 43, wherein the compound is attached to the C5 position of a pyrimidine base or the C7 position of a 7-deaza purine base through a linker moiety.

45. The labeled nucleotide or oligonucleotide of any one of claims 41 to 44, further comprising a 3' OH blocking group covalently attached to the ribose or deoxyribose sugar of the nucleotide.

46. The nucleotide or oligonucleotide of claim 41, wherein the nucleotide or oligonucleotide is an oligonucleotide hybridized to at least a portion of a target polynucleotide.

47. The oligonucleotide of claim 46, wherein the target polynucleotide is immobilized on a solid support.

48. The oligonucleotide according to claim 47, wherein the solid support comprises an array of a plurality of immobilized target polynucleotides.

49. A kit comprising a first type of labeled nucleotide according to any one of claims 41 to 45.

50. The kit of claim 49, further comprising a second type of labeled nucleotide, wherein the second type of labeled nucleotide is labeled with a different compound than the first type of labeled nucleotide.

51. The kit of claim 50, wherein the first and second types of labeled nucleotides are excitable using a single laser wavelength.

52. The kit of claim 50 or 51, further comprising a third type of nucleotide and a fourth type of nucleotide, wherein each of the second, third, and fourth type of nucleotides is labeled with a different compound, wherein each label has a distinct absorbance maximum that is distinguishable from the other labels.

53. The kit of claim 49, wherein the kit comprises four types of nucleotides, wherein a first type of nucleotide is a labeled nucleotide according to any one of claims 41 to 45, a second type of nucleotide is labeled with a second label, a third type of nucleotide is labeled with a third label, and a fourth type of nucleotide is unlabeled (dark).

54. The kit of claim 49, wherein the kit comprises four types of nucleotides, wherein a first type of nucleotide is a labeled nucleotide according to any one of claims 41 to 45, a second type of nucleotide is labeled with a second label, a third type of nucleotide is labeled with a mixture of two labels, and a fourth type of nucleotide is unlabeled (dark).

55. The kit according to any one of claims 49 to 54, further comprising a DNA polymerase and one or more buffer compositions.

56. Use of a compound of any one of claims 1 to 40, a labeled nucleotide or oligonucleotide of claims 41 to 45, or a kit of any one of claims 49 to 55 in sequencing, expression analysis, hybridization analysis, genetic analysis, RNA analysis, or a protein binding assay.

57. The use according to claim 56 on an automated sequencing instrument, wherein said automated sequencing instrument comprises two lasers operating at different wavelengths.

58. A method of determining the sequence of a single-stranded target polynucleotide, comprising:

- (a) contacting a primer polynucleotide/target polynucleotide complex with one or more labeled nucleotides, wherein at least one of said labeled nucleotide is a nucleotide of

any one of claims 41 to 45, and wherein the primer polynucleotide is complementary to at least a portion of the target polynucleotide;

(b) incorporating a labeled nucleotide into the primer polynucleotide; and

(c) performing one or more fluorescent measurements to determine the identity of the incorporated nucleotide.

59. The method of claim 58, wherein the primer polynucleotide/target polynucleotide complex is formed by contacting the target polynucleotide with a single-stranded primer polynucleotide complementary to at least a portion of the target polynucleotide.

60. The method of claim 58 or 59, further comprising (d) removing the label and the 3' blocking group from the nucleotide incorporated into the primer polynucleotide.

61. The method of claim 59, further comprising (e) washing the removed label and the 3' blocking group away from the primer polynucleotide.

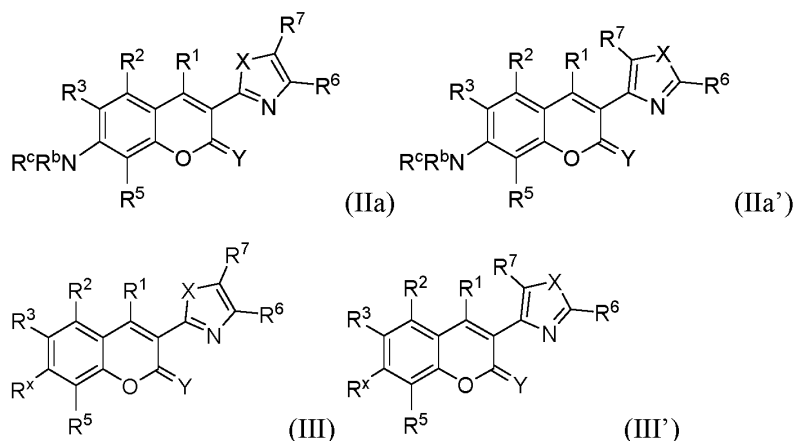
62. The method of claim 61, further comprising repeating steps (a) to (e) until a sequence of at least a portion of the template polynucleotide strand is determined.

63. The method of claim 62, wherein the steps (a) to (e) is repeated at least 50 times.

64. The method of any one of claims 58 to 63, wherein the label and the 3' blocking group from the nucleotide incorporated into the primer polynucleotide are removed in a single chemical reaction.

65. The method of any one of claims 58 to 64, wherein the method is performed on an automated sequencing instrument, and wherein the automated sequencing instrument comprises two light sources operating at different wavelengths.

66. A process of preparing a compound of Formula (IIa) or (IIa'), comprising reacting a compound of Formula (III) or (III') with an amine of formula NHR^bR^c respectively;



wherein X is S, O, or NR^a ;

Y is O or NH;

each R^1 , R^2 , R^3 and R^5 is independently H, optionally substituted C_1 - C_6 alkyl, C_1 - C_6 alkoxy, C_2 - C_6 alkenyl, C_2 - C_6 alkynyl, C_1 - C_6 haloalkyl, C_1 - C_6 haloalkoxy, C_1 - C_6 hydroxyalkyl, $(C_1$ - C_6 alkoxy)(C_1 - C_6 alkyl), optionally substituted amino, halo, cyano, hydroxy, nitro, sulfonyl, sulfinio, sulfo, sulfonate, S-sulfonamido, N-sulfonamido, optionally substituted C_3 - C_{10} carbocyclyl, optionally substituted C_6 - C_{10} aryl, optionally substituted 5 to 10 membered heteroaryl, or optionally substituted 3 to 10 membered heterocyclyl;

each of R^6 and R^7 is independently H, carboxyl, $-C(O)NR^bR^c$, $-C(O)OR^d$, C_1 - C_6 alkyl, substituted C_1 - C_6 alkyl, C_1 - C_6 haloalkyl, halo, optionally substituted amino, N-sulfonamido, sulfonyl, S-sulfonamido, hydroxy, cyano, nitro, optionally substituted phenyl, optionally substituted C_3 - C_8 carbocyclyl, optionally substituted 5 to 10 membered heteroaryl, or optionally substituted 3 to 10 membered heterocyclyl; or R^6 and R^7 in Formula (III) together with the atoms to which they are attached form an optionally substituted C_5 - C_8 carbocyclyl or an optionally substituted 5 to 8 membered heterocyclyl;

R^x is halo, $-OR^d$ or $-OS(O)_2R^d$;

R^a is H or C_1 - C_6 alkyl;

each R^b and R^c is independently H, C_1 - C_6 alkyl, or substituted C_1 - C_6 alkyl; or R^b and R^c together with the nitrogen atom to which they are attached form an optionally substituted 4 to 10 membered heterocyclyl; and

each R^d is independently optionally substituted C_1 - C_6 alkyl or optionally substituted phenyl.