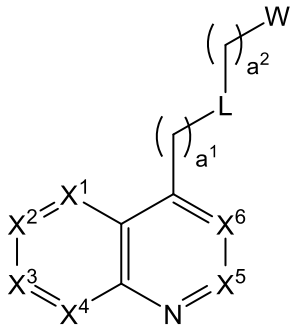
CLAIMS

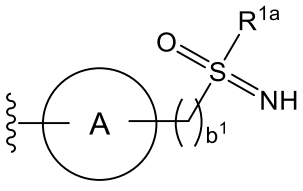
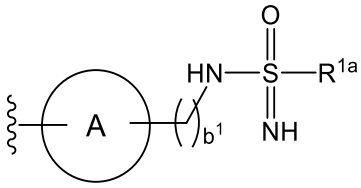
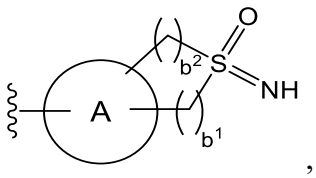
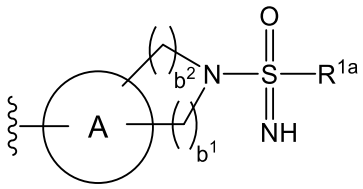
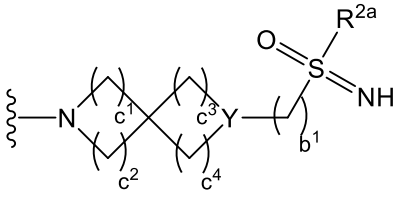
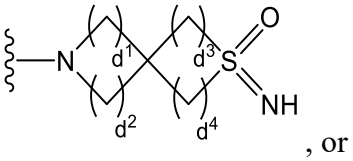
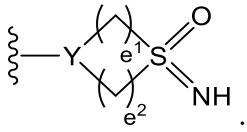
What is claimed is:

1. A compound of Formula (I)



(I),

or a pharmaceutically acceptable salt thereof, wherein:

W is , , , , , , or ;

ring A is aryl, heteroaryl, cycloalkyl, cycloalkenyl, heterocycloalkyl or heterocycloalkenyl, each of which is substituted or unsubstituted;

R^{1a} and R^{2a} are each independently hydrogen, optionally substituted C_{1-6} alkyl, optionally substituted C_{3-6} cycloalkyl, optionally substituted 3-6 membered heterocycloalkyl, or optionally substituted C_{1-6} haloalkyl;

Y is -N- or -CH-;

X^1 is $-CR^{1b}-$ or -N-;

X^2 is $-CR^{2b}-$ or -N-;

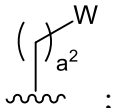
X^3 is -CR^{3b}- or -N-;

X^4 is -CR^{4b}- or -N-;

X^5 is -CR^{5b}- or -N-;

X^6 is -CR^{6b}- or -N-;

R^{1b}-R^{6b} are each independently hydrogen, halogen, hydroxyl, C_{1-4} alkoxy optionally substituted with one or more halo substituents, cyano, C_{1-3} alkyl, C_{1-3} haloalkyl, nitro, -$NR^{1c}R^{2c}$, -$NHC(O)R^{3c}$, or -$C(O)NR^{4c}R^{5c}$;

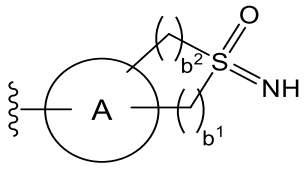
L is a bond, -O-, -C(O)-, -NR^{6c}-, or -$OCHR^{7c}$-*, wherein * represents the point of attachment to 

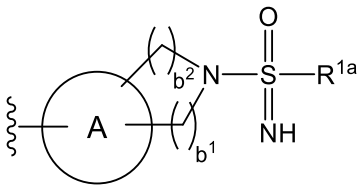
;

R^{1c}-R^{7c} are each independently hydrogen or C_{1-3} alkyl;

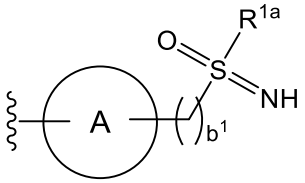
a^1, a^2, b^1, and c^4 are each independently 0, 1, 2, or 3; and

b^2, c^1-c^3, d^1-d^4, e^1, and e^2 are each independently 1, 2, or 3.

2. The compound of claim 1, or a pharmaceutically acceptable salt thereof, wherein W comprises a fused ring structure when W is 

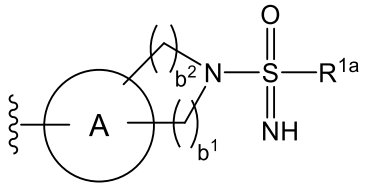
or 

.

3. The compound of claim 1, or a pharmaceutically acceptable salt thereof, wherein W is 

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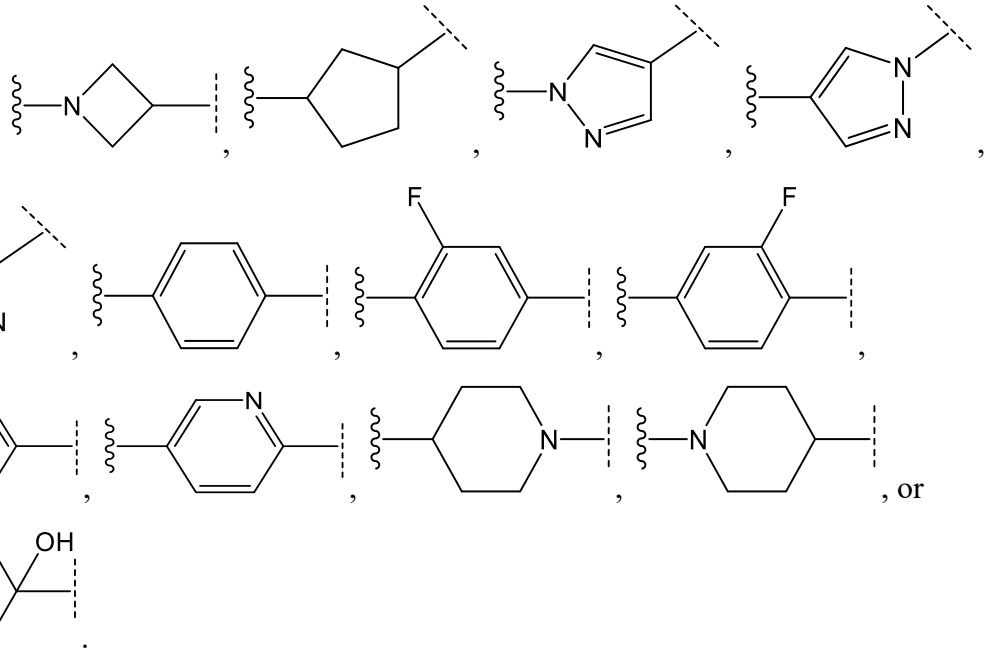
4. The compound of claim 1 or 2, or a pharmaceutically acceptable salt thereof, wherein W is



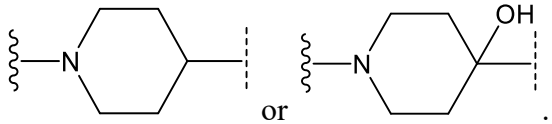
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5. The compound of any one of claims 1-4, or a pharmaceutically acceptable salt thereof, wherein A is aryl.

6. The compound of any one of claims 1-4, or a pharmaceutically acceptable salt thereof, wherein A is heterocycloalkyl.

7. The compound of any one of claims 1-4, or a pharmaceutically acceptable salt thereof, wherein A is 

, or .

8. The compound of claim 7, or a pharmaceutically acceptable salt thereof, wherein A is 

or .

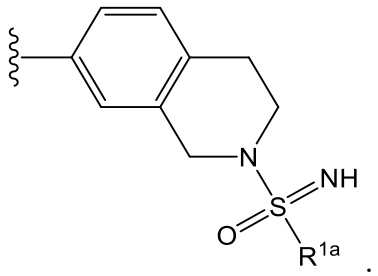
9. The compound of any one of claims 1-8, or a pharmaceutically acceptable salt thereof, wherein R^{1a} is C_{1-6} alkyl or C_{3-6} cycloalkyl.

10. The compound of claim 9, or a pharmaceutically acceptable salt thereof, wherein R^{1a} is methyl or cyclopropyl.

11. The compound of any one of claims 1-10, or a pharmaceutically acceptable salt thereof, wherein b^1 is 0.

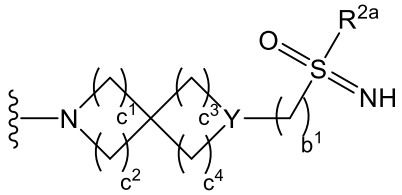
12. The compound of any one of claims 1-10, or a pharmaceutically acceptable salt thereof, wherein b^1 is 1.

13. The compound of claim 4, or a pharmaceutically acceptable salt thereof, wherein W is



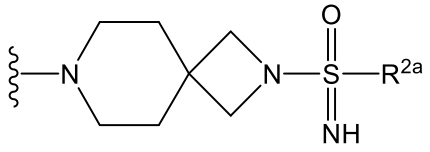
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14. The compound of claim 1, or a pharmaceutically acceptable salt thereof, wherein W is

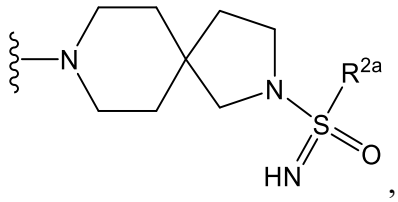


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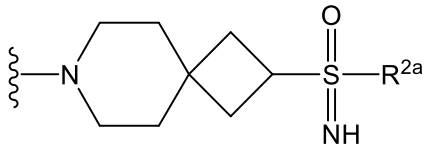
15. The compound of claim 14, or a pharmaceutically acceptable salt thereof, wherein W is



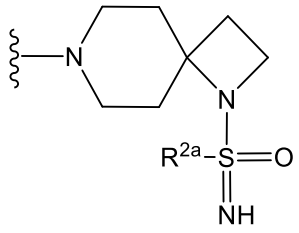
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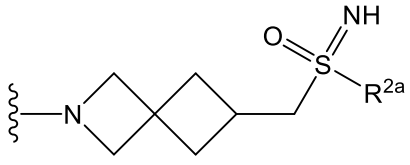
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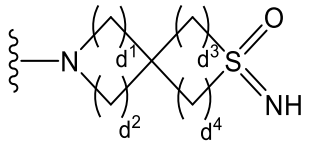
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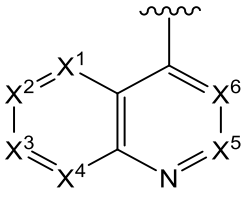
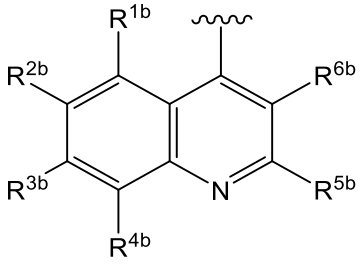
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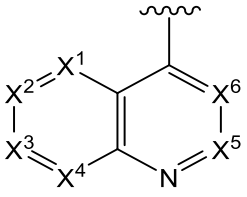
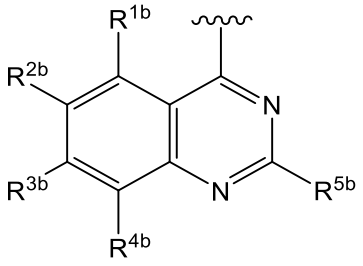
16. The compound of claim 14 or 15, or a pharmaceutically acceptable salt thereof, wherein R^{2a} is $C_{1\text{-}6}$ alkyl.

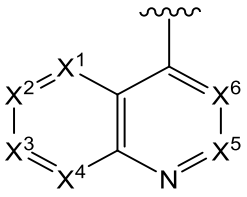
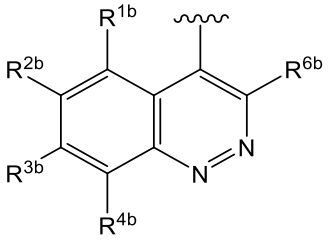
17. The compound of claim 1, or a pharmaceutically acceptable salt thereof, wherein W is

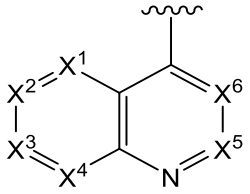
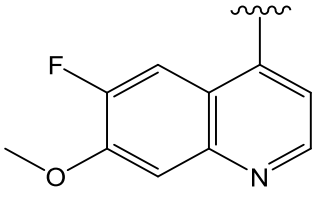
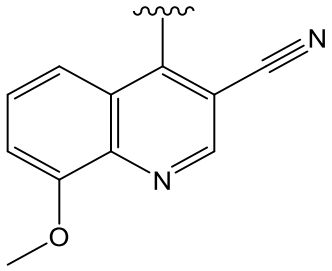
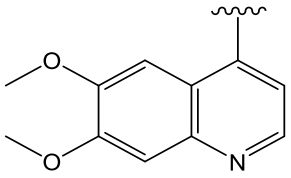
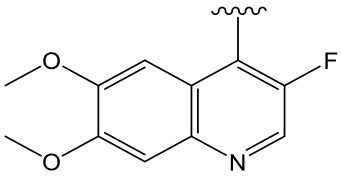


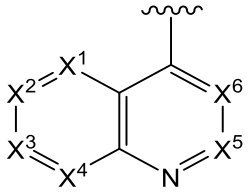
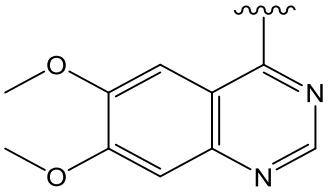
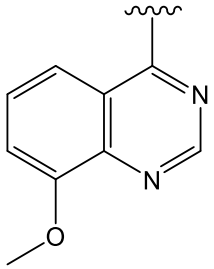
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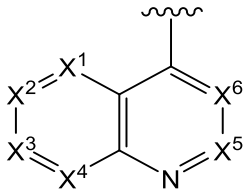
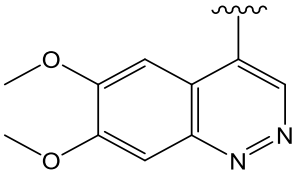
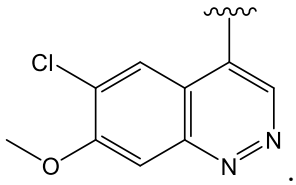
18. The compound of any one of claims 1-17, or a pharmaceutically acceptable salt thereof, wherein the  portion of Formula (I) is .

19. The compound of any one of claims 1-17, or a pharmaceutically acceptable salt thereof, wherein the  portion of Formula (I) is .

20. The compound of any one of claims 1-17, or a pharmaceutically acceptable salt thereof, wherein the  portion of Formula (I) is .

21. The compound of claim 18, or a pharmaceutically acceptable salt thereof, wherein the  portion of Formula (I) is , , , or .

22. The compound of claim 19, or a pharmaceutically acceptable salt thereof, wherein the  portion of Formula (I) is  or .

23. The compound of claim 20, or a pharmaceutically acceptable salt thereof, wherein the  portion of Formula (I) is  or .

24. The compound of any one of claims 1-23, or a pharmaceutically acceptable salt thereof, wherein L is a bond.

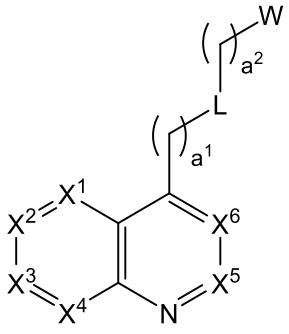
25. The compound of any one of claims 1-23, or a pharmaceutically acceptable salt thereof, wherein L is -O-.

26. The compound of any one of claims 1-25, or a pharmaceutically acceptable salt thereof, wherein a^1 is 0.

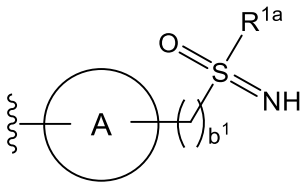
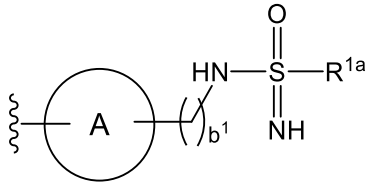
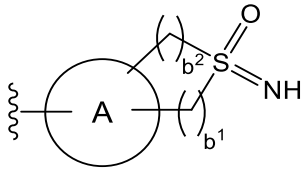
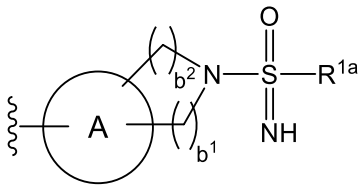
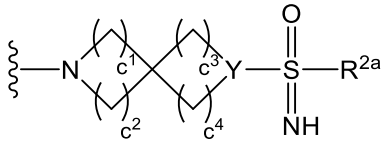
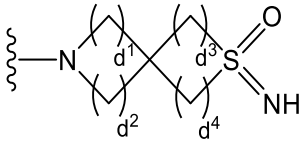
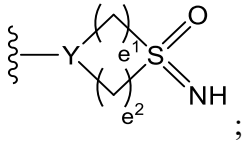
27. The compound of any one of claims 1-26, or a pharmaceutically acceptable salt thereof, wherein a^2 is 0.

28. The compound of claim 1, or a pharmaceutically acceptable salt thereof, wherein the compound is selected from the group consisting of compounds of Table 1.

29. A compound of Formula (I-1):


(I-1),

or a pharmaceutically acceptable salt thereof, wherein:

W is , , , , , , or ;

ring A is aryl, heteroaryl, cycloalkyl, cycloalkenyl, heterocycloalkyl or heterocycloalkenyl, each of which is substituted or unsubstituted;

R^{1a} and R^{2a} are each independently hydrogen, C_{1-6} alkyl, C_{3-6} cycloalkyl, 3-6 membered heterocycloalkyl, or C_{1-6} haloalkyl;

Y is -N- or -CH-;

X^1 is $-CR^{1b}-$ or -N-;

X^2 is $-CR^{2b}-$ or -N-;

X^3 is $-CR^{3b}-$ or -N-;

X^4 is $-CR^{4b}-$ or -N-;

X^5 is $-CR^{5b}-$ or -N-;

X^6 is $-CR^{6b}-$ or -N-;

R^{1b}-R^{6b} are each independently hydrogen, halogen, hydroxyl, C_{1-4} alkoxy optionally substituted with one or more halo substituents, cyano, C_{1-3} alkyl, C_{1-3} haloalkyl, nitro, $-NR^{1c}R^{2c}$, $-NHC(O)R^{3c}$, or $-C(O)NR^{4c}R^{5c}$;

L is a bond, -O-, -C(O)-, or $-NR^{6c}-$;

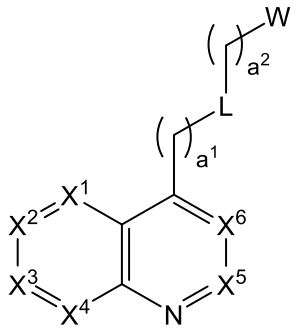
R^{1c}-R^{6c} are each independently hydrogen or C_{1-3} alkyl;

a^1, a^2, and b^1 are each independently 0, 1, or 2; and

b^2, c^1-c^4, d^1-d^4, e^1, and e^2 are each independently 1, 2, or 3.

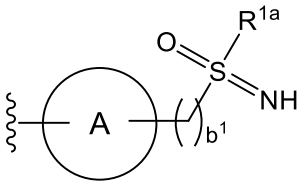
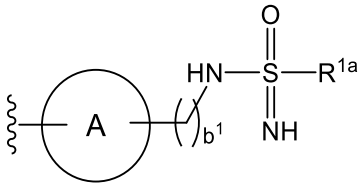
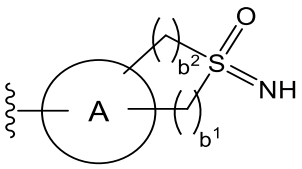
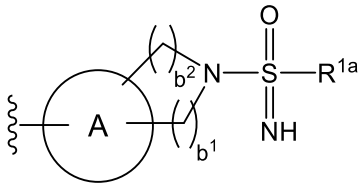
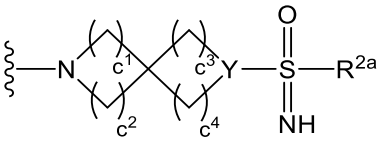
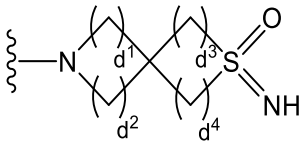
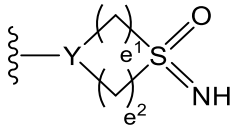
30. The compound of claim 29, or a pharmaceutically acceptable salt thereof, wherein the compound is selected from the group consisting of compounds 1, 2-37, 38-44, 45-52, 53, 54, 55, 56-60, 61-75, 76-80, 81-94, 95-103, and 104-113 of Table 1.

31. A compound of Formula (I-2):



(I-2),

or a pharmaceutically acceptable salt thereof, wherein:

W is , , , , , , or ;

ring A is aryl, heteroaryl, cycloalkyl, cycloalkenyl, heterocycloalkyl or heterocycloalkenyl, each of which is substituted or unsubstituted;

R^{1a} and R^{2a} are each independently hydrogen, C_{1-6} alkyl, C_{3-6} cycloalkyl, 3-6 membered heterocycloalkyl, or C_{1-6} haloalkyl, wherein the C_{1-6} alkyl is optionally substituted by hydroxyl, C_{1-3} alkoxy, or C_{3-6} cycloalkyl;

Y is -N- or -CH-;

X^1 is $-CR^{1b}-$ or -N-;

X^2 is $-CR^{2b}-$ or -N-;

X^3 is $-CR^{3b}-$ or -N-;

X^4 is $-CR^{4b}-$ or -N-;

X^5 is $-CR^{5b}-$ or -N-;

X^6 is $-CR^{6b}-$ or -N-;

R^{1b}-R^{6b} are each independently hydrogen, halogen, hydroxyl, C_{1-4} alkoxy optionally substituted with one or more halo substituents, cyano, C_{1-3} alkyl, C_{1-3} haloalkyl, nitro, $-NR^{1c}R^{2c}$, $-NHC(O)R^{3c}$, or $-C(O)NR^{4c}R^{5c}$;

L is a bond, -O-, -C(O)-, or $-NR^{6c}-$;

R^{1c}-R^{6c} are each independently hydrogen or C_{1-3} alkyl;

a^1, a^2, and b^1 are each independently 0, 1, 2, or 3; and

b^2, c^1-c^4, d^1-d^4, e^1, and e^2 are each independently 1, 2, or 3.

32. The compound of claim 31, or a pharmaceutically acceptable salt thereof, wherein the compound is selected from the group consisting of compounds 1-165 of Table 1.
33. A pharmaceutical composition comprising a compound of any one of claims 1-32, or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable carrier or excipient.
34. Use of a compound of any one of claims 1-32, or a pharmaceutically acceptable salt thereof, in the manufacture of a medicament for treating cancer, a bacterial and/or viral infection, insulin resistance, type II diabetes, chondrocalcinosis, osteoarthritis, soft-tissue calcification disorder, calcium pyrophosphate deposition disorder, or hypophosphatasia.
35. The use of claim 34, wherein the soft-tissue calcification disorder is cardiac calcification after heart injury.
36. A compound of any one of claims 1-32, or a pharmaceutically acceptable salt thereof, for use in therapy.