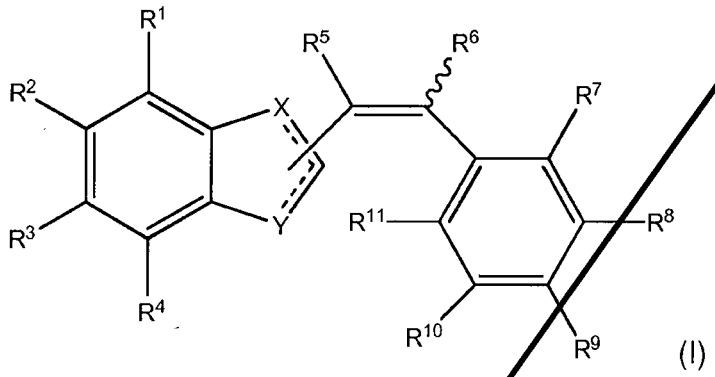
CLAIMS

What is claimed is:

1. A compound comprising Formula (I):



(I)

wherein:

R^1, R^2, R^3, R^4, R^7, R^8, R^9, R^{10}, R^{11} are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, alkylalkylamino, amidine, amino, carboxyl, cyano, ester, halogen, hydroxyl, and nitro;

R^5 and R^6 are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, carboxyl, ester, and cyano;

X and Y are independently chosen from O, C, CR^{12}, $CR^{12}R^{13}$, S, SR^{14} N, or NR^{15}; and

R^{12}, R^{13}, R^{14}, and R^{15} are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, alkylalkylamino, amidine, amino, carboxyl, cyano, ester, halogen, hydroxyl, and nitro.

2. The compound of claim 1, wherein R^1, R^4, R^7, and R^{11} are hydrogen.

3. The compound of claim 1, wherein R^6 is chosen from hydrogen, cyano, and carboxyl, and R^5 is hydrogen.

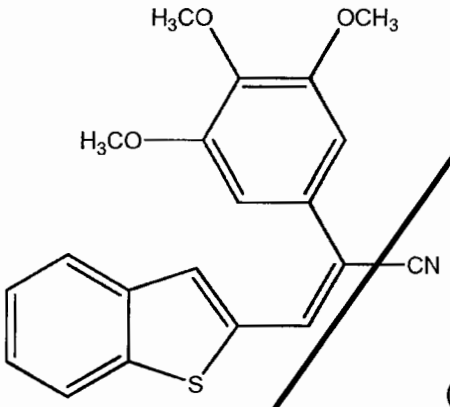
4. The compound of claim 1, wherein R^8, R^9, and R^{10} are independently chosen from hydrogen, methoxy, ethoxy, benzyloxy, substituted benzyloxy, hydroxyl, and lower alkyl groups.

5. The compound of claim 1, wherein R^8, R^9, and R^{10} are independently chosen from hydrogen, hydroxyl, and methoxy.

6. The compound of claim 1, wherein X is chosen from C or S.

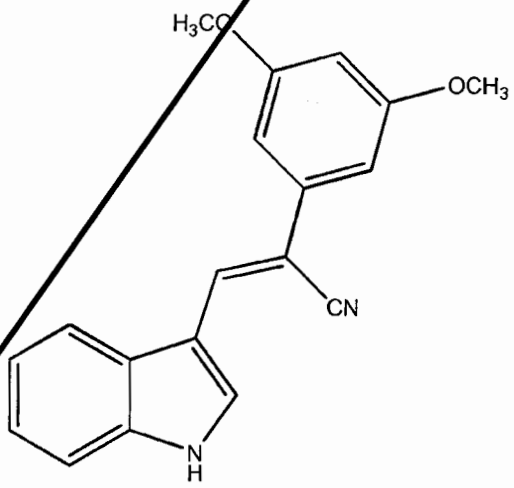
7. The compound of claim 1, wherein Y is chosen from O, S, and NR^{15}.

8. The compound of claim 1, wherein the compound comprises Formula (I)(a):



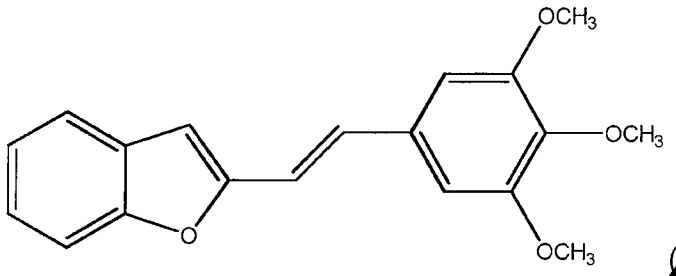
(I)(a).

9. The compound of claim 1, wherein the compound comprises Formula (I)(b):



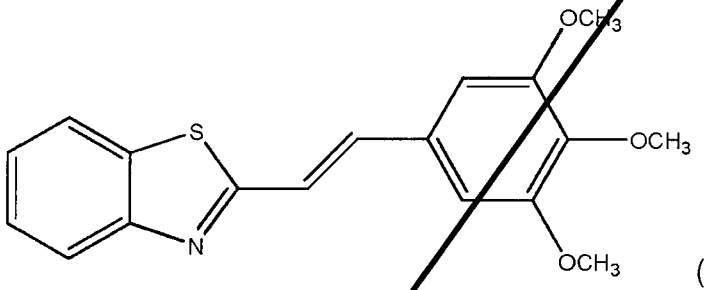
(I)(b).

10. The compound of claim 1, wherein the compound comprises Formula (I)(c):



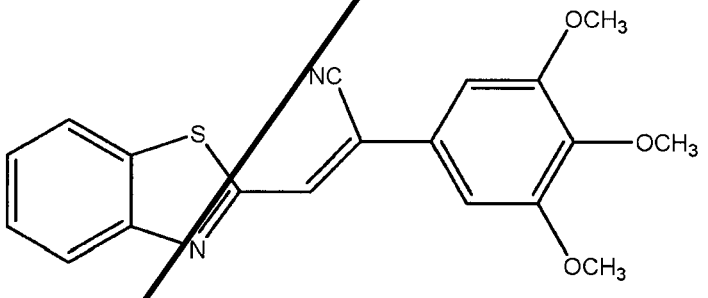
(I)(c).

11. The compound of claim 1, wherein the compound comprises Formula (I)(d):



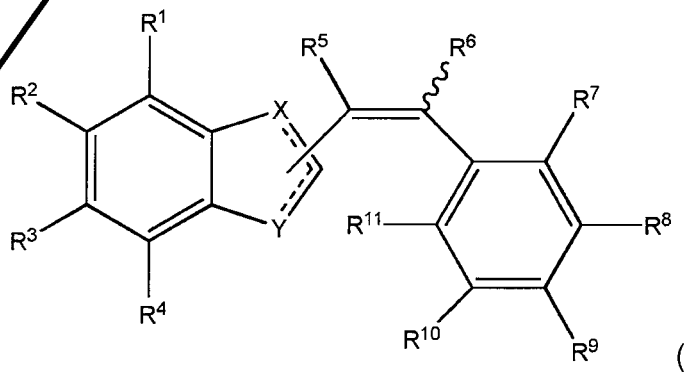
(I)(d).

12. The compound of claim 1, wherein the compound comprises Formula (I)(e):



(I)(e).

13. A pharmaceutical composition comprising a compound of Formula (I):



(I)

wherein:

R^1, R^2, R^3, R^4, R^7, R^8, R^9, R^{10}, R^{11} are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, alkylalkylamino, amidine, amino, carboxyl, cyano, ester, halogen, hydroxyl, and nitro;

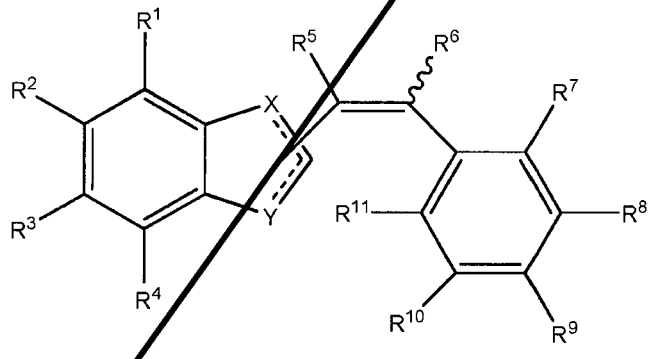
R^5 and R^6 are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, carboxyl, ester, and cyano;

X and Y are independently chosen from O, C, CR^{12}, $CR^{12}R^{13}$, S, SR^{14} N, or NR^{15};

R^{12}, R^{13}, R^{14}, and R^{15} are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, alkylalkylamino, amidine, amino, carboxyl, cyano, ester, halogen, hydroxyl, and nitro; and

at least one pharmaceutically acceptable excipient.

14. A process for producing a compound comprising Formula (I):



(I)

wherein:

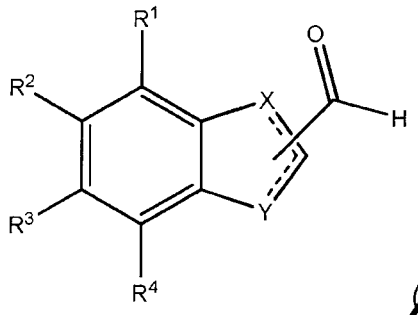
R^1, R^2, R^3, R^4, R^7, R^8, R^9, R^{10}, R^{11} are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, alkylalkylamino, amidine, amino, carboxyl, cyano, ester, halogen, hydroxyl, and nitro;

R^5 and R^6 are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, carboxyl, ester, and cyano;

X and Y are independently chosen from O, C, CR^{12}, $CR^{12}R^{13}$, S, SR^{14} N, or NR^{15};

R^{12}, R^{13}, R^{14}, and R^{15} are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, alkylalkylamino, amidine, amino, carboxyl, cyano, ester, halogen, hydroxyl, and nitro; and

the processes comprises contacting a compound of Formula (III):



(III)

with a phenyl acetonitrile or a phenyl triphenyl phosphine and a proton acceptor.

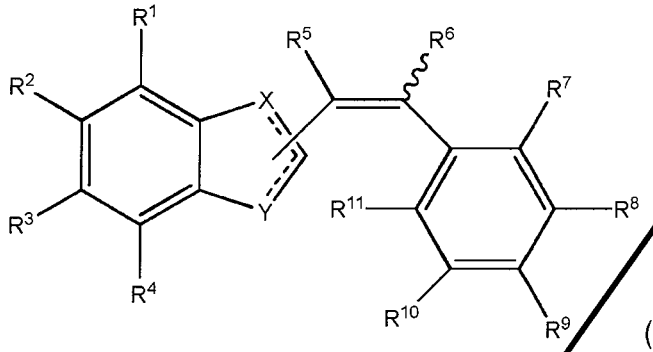
15. The process of claim 14, wherein the compound comprising Formula (III) is chosen from benzo[b]thiophene-2-carbaldehydes, benzo[b]thiophene-3-carbaldehydes, benzofuran-2-carboxaldehydes, benzofuran-3-carboxaldehydes, indole-2-carboxaldehydes, indole-3-carboxaldehydes, and benzthiazole-2-carboxaldehydes.

16. The process of claim 14, wherein the phenyl acetonitrile is chosen from 3,4,5-trimethoxy phenylacetonitrile, 3,4-dimethoxyphenylacetonitrile, and 4-hydroxy, 3,5-trimethoxyphenylacetonitrile.

17. The process of claim 14, wherein the phenyl triphenyl phosphine is chosen from 3,4,5 trimethoxy phenyltriphenyl phosphine bromide, 3,4-dimethoxy phenyltriphenyl phosphine bromide, 4-hydroxy, and 3,5-dimethoxyphenyltriphenyl phosphine bromide.

18. The process of claim 14, wherein the base is a methoxide base.

19. A method of inhibiting tubulin polymerization in a subject, the method comprising administering to the subject a compound comprising Formula (I):



(I)

wherein:

R^1, R^2, R^3, R^4, R^7, R^8, R^9, R^{10}, R^{11} are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, alkylalkylamino, amidine, amino, carboxyl, cyano, ester, halogen, hydroxyl, and nitro;

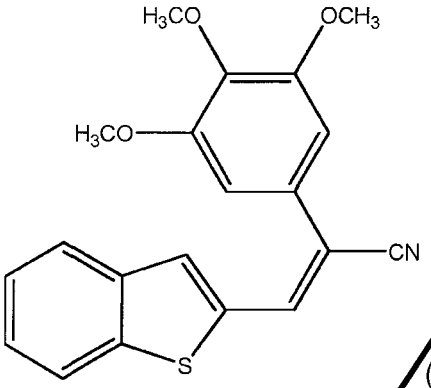
R^5 and R^6 are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, carboxyl, ester, and cyano;

X and Y are independently chosen from O, C, CR^{12}, $CR^{12}R^{13}$, S, SR^{14} N, or NR^{15}; and

R^{12}, R^{13}, R^{14}, and R^{15} are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, alkylalkylamino, amidine, amino, carboxyl, cyano, ester, halogen, hydroxyl, and nitro.

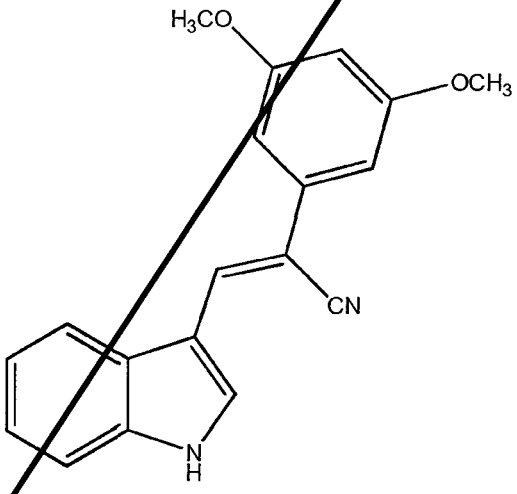
20. The method of claim 19, wherein the compound comprising Formula (I) is administered with at least one pharmaceutically acceptable excipient.

21. The method of claim 19, wherein the compound comprising Formula (I) is Formula (I)(a):



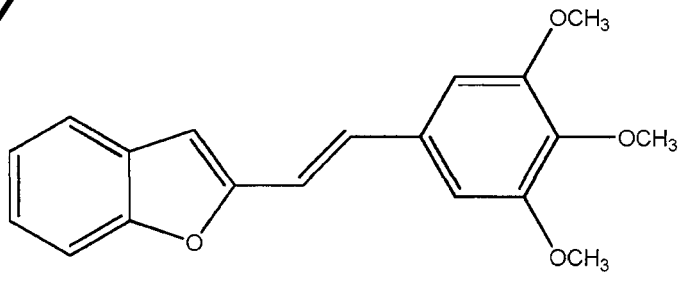
(I)(a).

22. The method of claim 19, wherein the compound comprising Formula (I) is Formula (I)(b):



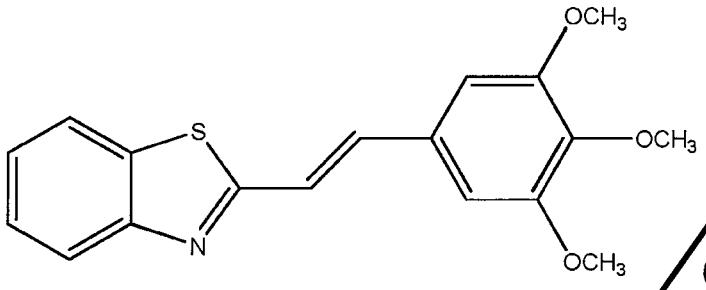
(I)(b).

23. The method of claim 19, wherein the compound comprising Formula (I) is Formula (I)(c):



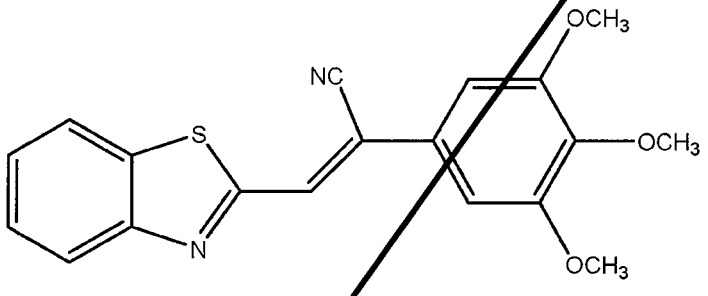
(I)(c).

24. The method of claim 19, wherein the compound comprising Formula (I) is Formula (I)(d):



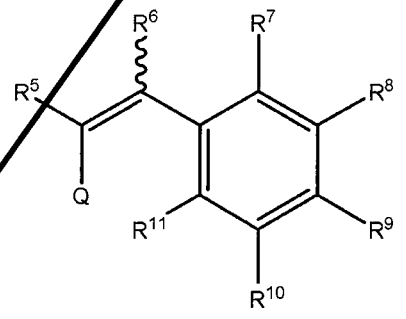
(I)(d).

25. The method of claim 19, wherein the compound comprising Formula (I) is Formula (I)(e):



(I)(e).

26. A compound comprising Formula (II):



(II)

wherein:

R^7, R^8, R^9, R^{10}, R^{11} are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, alkoxy, alkylalkylamino, amidine, amino, carboxyl, cyano, ester, halogen, hydroxyl, and nitro;

R^5 and R^6 are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, carboxyl, ester, and cyano; and

Q is a quinolinyl moiety,

with the proviso that where R^6 is cyano, R^8 and R^9 are not each OCH_3.

27. The compound of claim 26, wherein R^5 is hydrogen and R^6 is cyano.

28. The compound of claim 26, wherein Q is chosen from 2-quinolinyl and 3-quinolinyl.

29. The compound of claim 26, wherein R^7, R^8, R^9, R^{10}, R^{11} are independently chosen from hydrogen and hydroxyl.

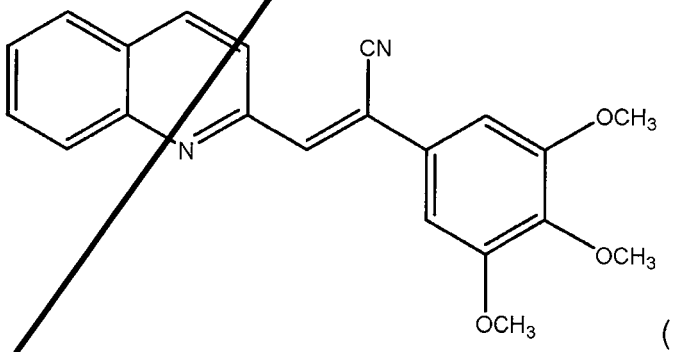
30. The compound of claim 26, wherein R^7 and R^{11} are hydrogen.

31. The compound of claim 26, wherein R^8, R^9, and R^{10} are independently chosen from hydrogen and hydroxyl.

32. The compound of claim 26, wherein R^8, R^9, and R^{10} are hydroxyl.

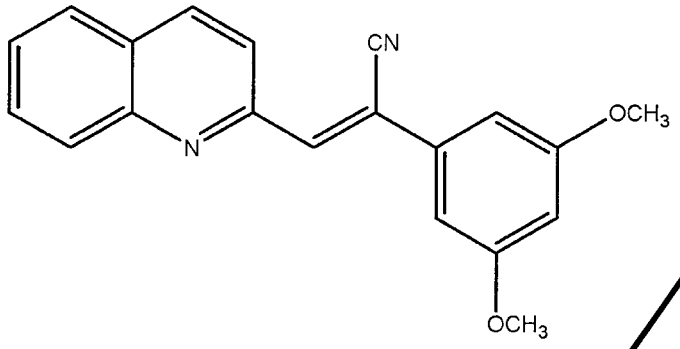
33. The compound of claim 26, wherein R^8 and R^{10} are hydroxyl.

34. The compound of claim 26, wherein the compound comprises Formula (II)(a):



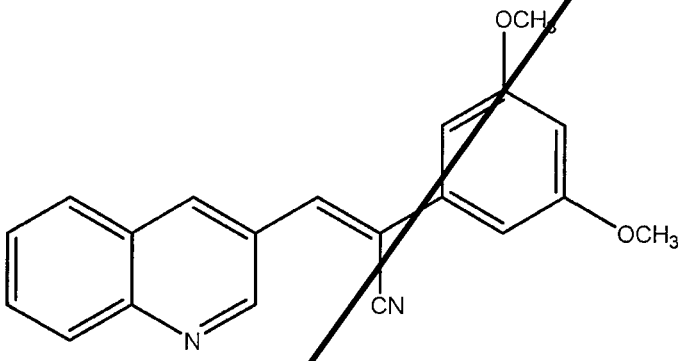
(II)(a).

35. The compound of claim 1, wherein the compound comprises Formula (II)(b):



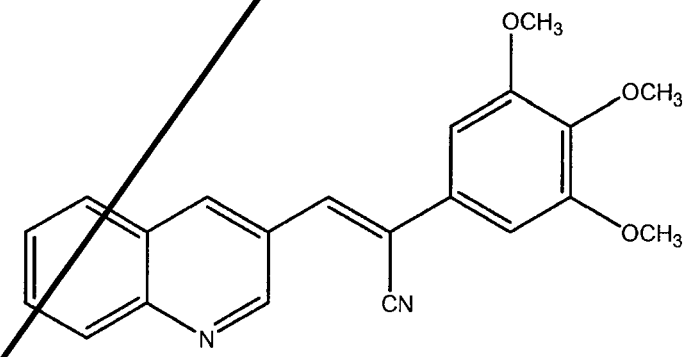
(II)(b).

36. The compound of claim 1, wherein the compound comprises Formula (II)(c):



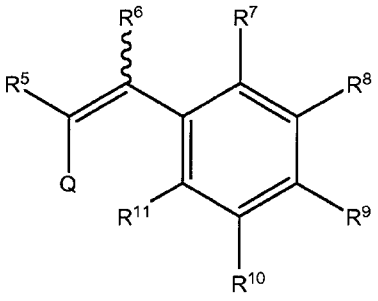
(II)(c).

37. The compound of claim 1, wherein the compound comprises Formula (II)(d):



(II)(d).

38. A pharmaceutical composition comprising a compound of Formula (II):



(II)

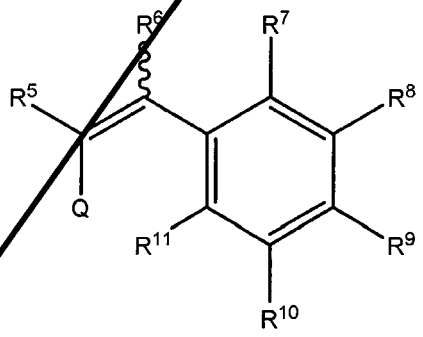
wherein:

R^7, R^8, R^9, R^{10}, R^{11} are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, alkoxy, alkylalkylamino, amidine, amino, carboxyl, cyano, ester, halogen, hydroxyl, and nitro;

R^5 and R^6 are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, carboxyl, ester, and cyano; and

Q is a quinolinyl moiety.

39. A process for producing a compound comprising Formula (II):



(II)

wherein:

R^7, R^8, R^9, R^{10}, R^{11} are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, alkoxy, alkylalkylamino, amidine, amino, carboxyl, cyano, ester, halogen, hydroxyl, and nitro;

R^5 and R^6 are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, carboxyl, ester, and cyano; and

Q is a quinolinyl moiety;

the processes comprises contacting a quinolinyl carboxaldehyde with a phenyl acetonitrile or a phenyl triphenyl phosphine and a proton acceptor.

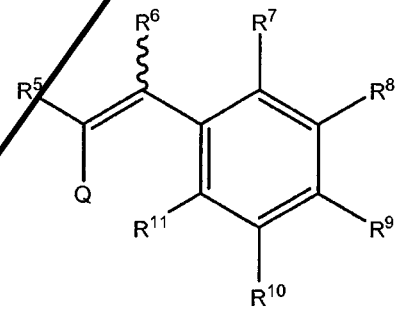
40. The process of claim 39, wherein the quinolinyl carboxaldehyde is chosen from quinolinyl-2-carboxaldehyde, quinolinyl-3-carboxaldehyde, and quinolinyl-4-carboxaldehyde.

41. The process of claim 39, wherein the phenyl acetonitrile is chosen from 3,4,5-trimethoxy phenylacetonitrile, 3,4-dimethoxyphenylacetonitrile, and 4-hydroxy, 3,5-trimethoxyphenylacetonitrile.

42. The process of claim 39, wherein the base is a methoxide base.

43. The process of claim 39, wherein the phenyl triphenyl phosphine is chosen from 3,4,5 trimethoxyphenyl triphenyl phosphine bromide, 3,4-dimethoxyphenyl triphenyl phosphine bromide, 4-hydroxy, and 3,5-dimethoxyphenyl triphenyl phosphine bromide.

44. A method of inhibiting tubulin polymerization in a subject, the method comprising administering to the subject a compound comprising Formula (II):



(II)

wherein:

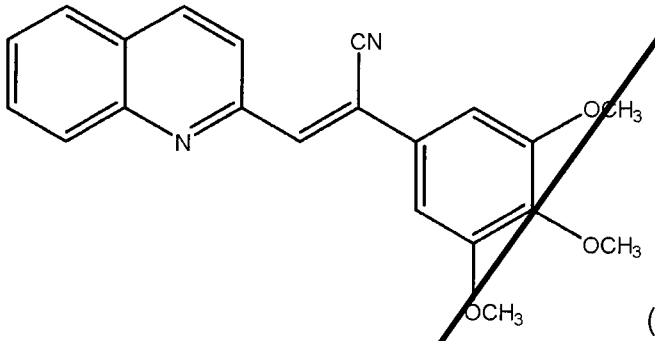
R^7, R^8, R^9, R^{10}, R^{11} are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, alkoxy, alkylalkylamino, amidine, amino, carboxyl, cyano, ester, halogen, hydroxyl, and nitro;

R^5 and R^6 are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, carboxyl, ester, and cyano; and

Q is a quinolinyl moiety.

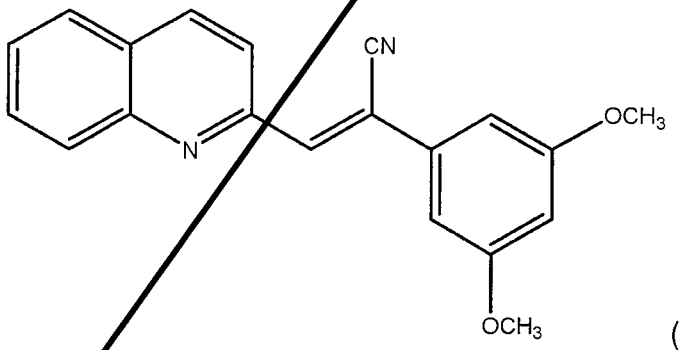
45. The method of claim 44, wherein the compound comprising Formula (II) is administered with at least one pharmaceutically acceptable excipient.

46. The method of claim 44, wherein the compound comprising Formula (II) is Formula (II)(a):



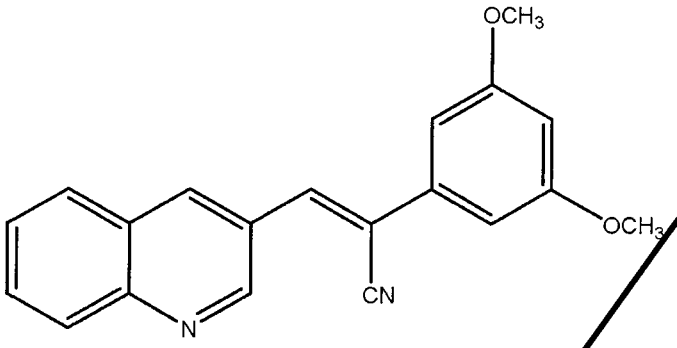
(II)(a).

47. The method of claim 44, wherein the compound comprising Formula (II) is Formula (I)(b):



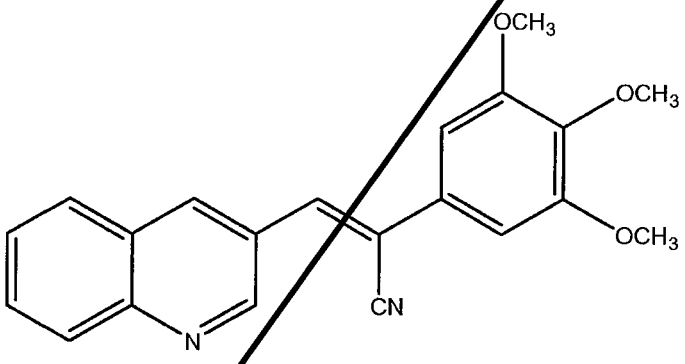
(II)(b).

48. The method of claim 44, wherein the compound comprising Formula (II) is Formula (II)(c):



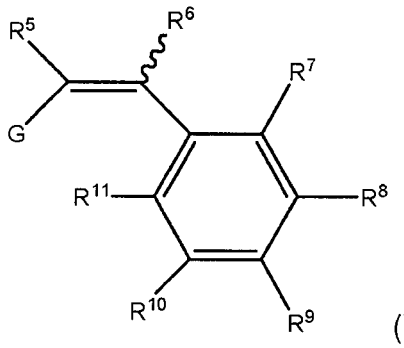
(II)(c).

49. The method of claim 44, wherein the compound comprising Formula (II) is Formula (II)(d):



(II)(d).

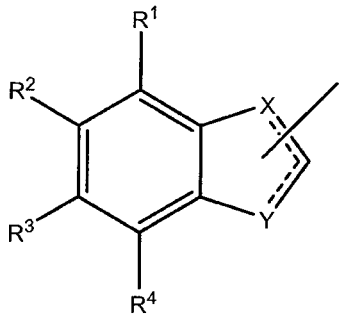
50. A compound comprising Formula (V):



(V)

wherein:

G is chosen from



or Q

Q is a quinolinyl moiety;

R^1, R^2, R^3, R^4, R^7, R^8, R^9, R^{10}, R^{11} are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, alkylalkylamino, amidine, amino, carboxyl, cyano, ester, halogen, hydroxyl, and nitro;

R^5 and R^6 are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, carboxyl, ester, and cyano;

X and Y are independently chosen from O, C, CR^{12}, $CR^{12}R^{13}$, S, SR^{14} N, or NR^{15}; and

R^{12}, R^{13}, R^{14}, and R^{15} are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, alkylalkylamino, amidine, amino, carboxyl, cyano, ester, halogen, hydroxyl, and nitro.

51. The compound of claim 50, wherein R^1, R^4, R^7, and R^{11} are hydrogen.

52. The compound of claim 50 or 51, wherein R^6 is chosen from hydrogen, cyano, and carboxyl, and R^5 is hydrogen.

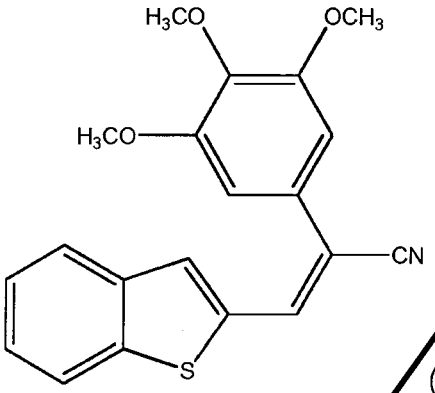
53. The compound of any one of claims 50 to 52, wherein R^8, R^9, and R^{10} are independently chosen from hydrogen, methoxy, ethoxy, benzyloxy, substituted benzyloxy, hydroxyl, and lower alkyl groups.

54. The compound of any one of claims 50 to 53, wherein R^8, R^9, and R^{10} are independently chosen from hydrogen, hydroxyl, and methoxy.

55. The compound of any one of claims 50 to 54, wherein X is chosen from C or S.

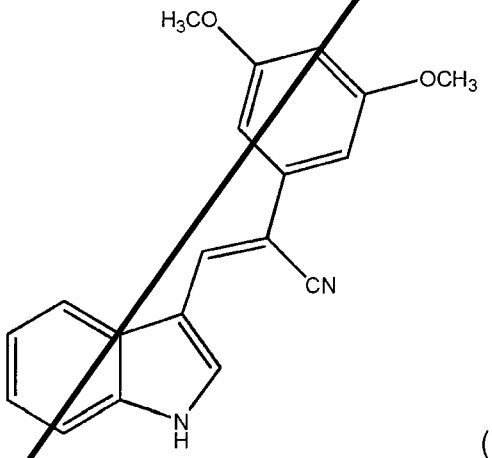
56. The compound of any one of claims 50 to 55, wherein Y is chosen from O, S, and NR^{15}.

57. The compound of claim 50, wherein the compound comprises Formula (I)(a):



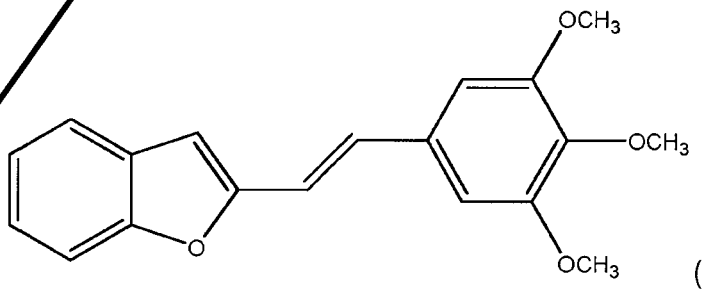
(I)(a).

58. The compound of claim 50, wherein the compound comprises Formula (I)(b):



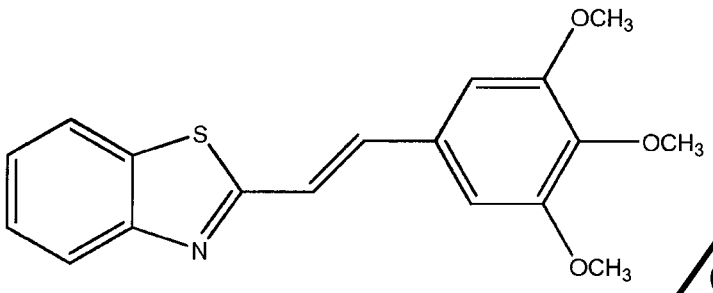
(I)(b).

59. The compound of claim 50, wherein the compound comprises Formula (I)(c):



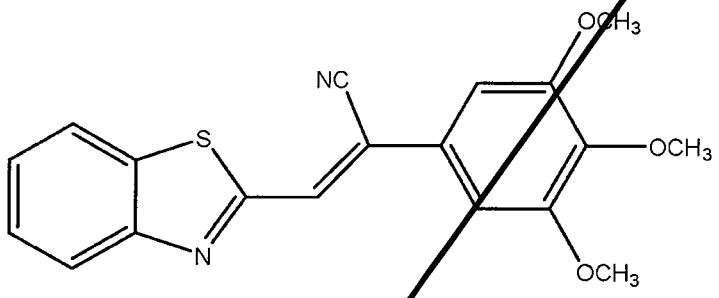
(I)(c).

60. The compound of claim 50, wherein the compound comprises Formula (I)(d):



(I)(d).

61. The compound of claim 50, wherein the compound comprises Formula (I)(e):

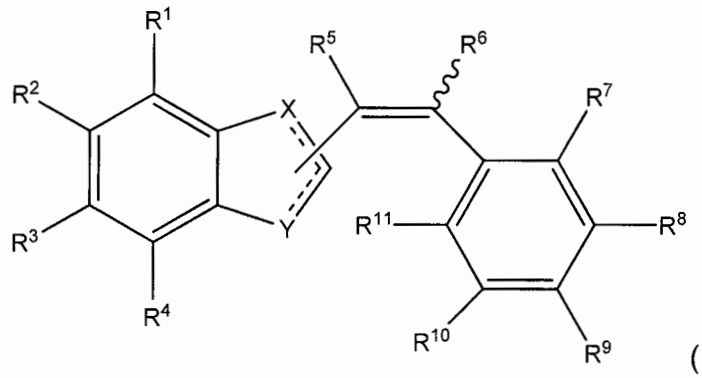


(I)(e).

62. The compound of any one of claims 50 to 61 in combination with at least one pharmaceutically acceptable excipient.

What is claimed is:

1. A compound comprising Formula (I):



(I)

wherein:

R^1, R^2, R^3, R^4, R^7, R^8, R^9, R^{10}, R^{11} are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, alkylalkylamino, amidine, amino, carboxyl, cyano, ester, halogen, hydroxyl, and nitro;

R^5 and R^6 are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, carboxyl, ester, and cyano;

X and Y are independently chosen from O, C, CR^{12}, $CR^{12}R^{13}$, S, SR^{14} N, or NR^{15}; and

R^{12}, R^{13}, R^{14}, and R^{15} are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, alkylalkylamino, amidine, amino, carboxyl, cyano, ester, halogen, hydroxyl, and nitro.

2. The compound of claim 1, wherein R^1, R^4, R^7, and R^{11} are hydrogen.

3. The compound of claim 1, wherein R^6 is chosen from hydrogen, cyano, and carboxyl, and R^5 is hydrogen.

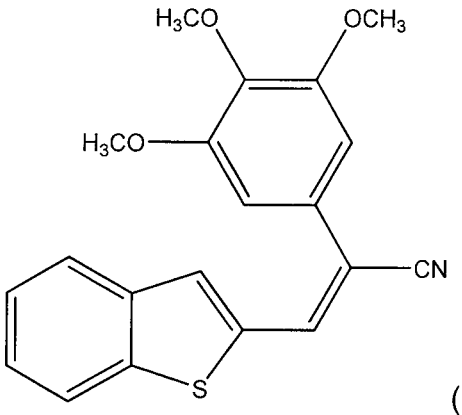
4. The compound of claim 1, wherein R^8, R^9, and R^{10} are independently chosen from hydrogen, methoxy, ethoxy, benzyloxy, substituted benzyloxy, hydroxyl, and lower alkyl groups.

5. The compound of claim 1, wherein R^8, R^9, and R^{10} are independently chosen from hydrogen, hydroxyl, and methoxy.

6. The compound of claim 1, wherein X is chosen from C or S.

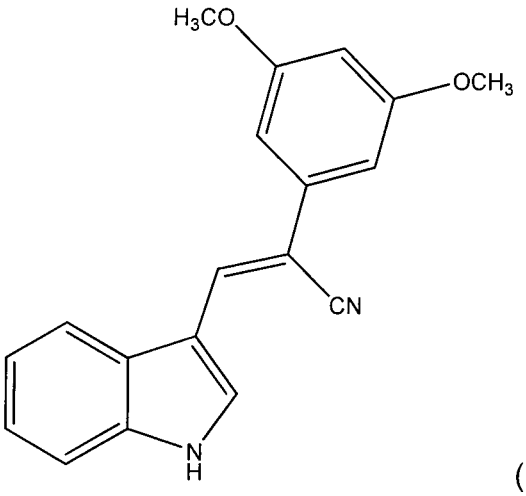
7. The compound of claim 1, wherein Y is chosen from O, S, and NR^{15}.

8. The compound of claim 1, wherein the compound comprises Formula (I)(a):



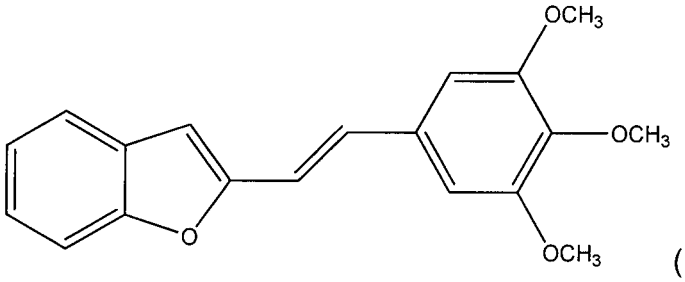
(I)(a).

9. The compound of claim 1, wherein the compound comprises Formula (I)(b):



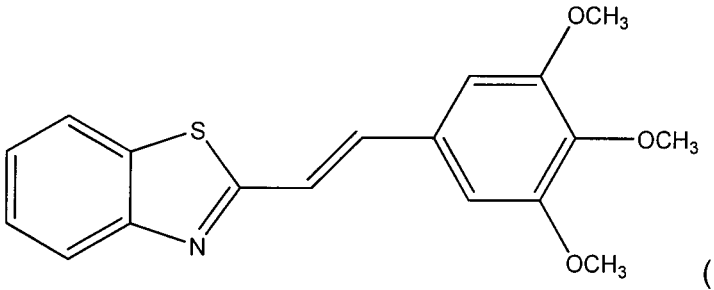
(I)(b).

10. The compound of claim 1, wherein the compound comprises Formula (I)(c):



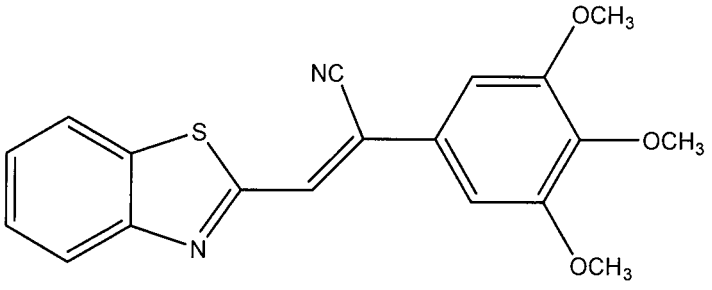
(I)(c).

11. The compound of claim 1, wherein the compound comprises Formula (I)(d):



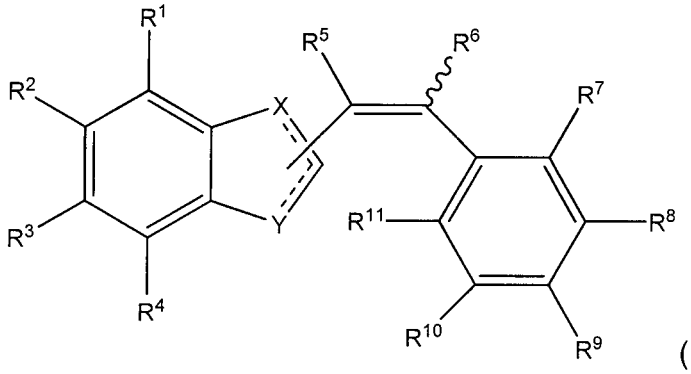
(I)(d).

12. The compound of claim 1, wherein the compound comprises Formula (I)(e):



(I)(e).

13. A pharmaceutical composition comprising a compound of Formula (I):



(I)

wherein:

R^1, R^2, R^3, R^4, R^7, R^8, R^9, R^{10}, R^{11} are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, alkylalkylamino, amidine, amino, carboxyl, cyano, ester, halogen, hydroxyl, and nitro;

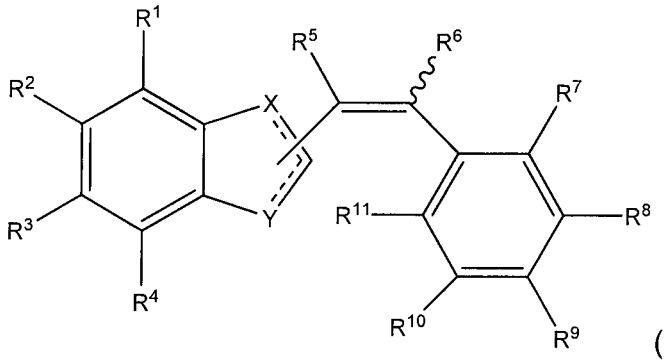
R^5 and R^6 are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, carboxyl, ester, and cyano;

X and Y are independently chosen from O, C, CR^{12}, $CR^{12}R^{13}$, S, SR^{14} N, or NR^{15};

R^{12}, R^{13}, R^{14}, and R^{15} are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, alkylalkylamino, amidine, amino, carboxyl, cyano, ester, halogen, hydroxyl, and nitro; and

at least one pharmaceutically acceptable excipient.

14. A process for producing a compound comprising Formula (I):



(I)

wherein:

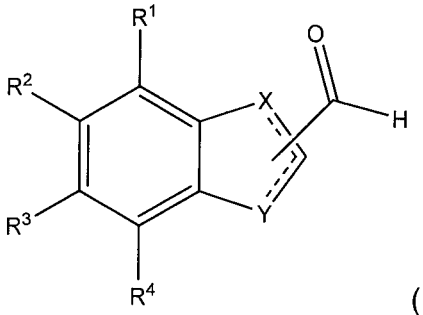
R^1, R^2, R^3, R^4, R^7, R^8, R^9, R^{10}, R^{11} are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, alkylalkylamino, amidine, amino, carboxyl, cyano, ester, halogen, hydroxyl, and nitro;

R^5 and R^6 are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, carboxyl, ester, and cyano;

X and Y are independently chosen from O, C, CR^{12}, $CR^{12}R^{13}$, S, SR^{14} N, or NR^{15};

R^{12}, R^{13}, R^{14}, and R^{15} are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, alkylalkylamino, amidine, amino, carboxyl, cyano, ester, halogen, hydroxyl, and nitro; and

the processes comprises contacting a compound of Formula (III):



(III)

with a phenyl acetonitrile or a phenyl triphenyl phosphine and a proton acceptor.

15. The process of claim 14, wherein the compound comprising Formula (III) is chosen from benzo[b]thiophene-2-carbaldehydes, benzo[b]thiophene-3-

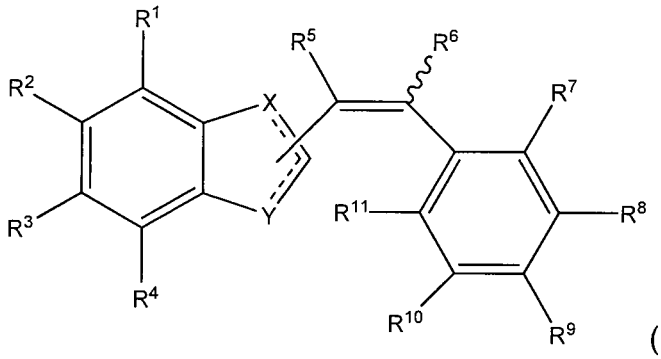
carbaldehydes, benzofuran-2-carboxaldehydes, benzofuran-3-carboxaldehydes, indole-2-carboxaldehydes, indole-3-carboxaldehydes, and benzthiazole-2-carboxaldehydes.

16. The process of claim 14, wherein the phenyl acetonitrile is chosen from 3,4,5-trimethoxy phenylacetonitrile, 3,4-dimethoxyphenylacetonitrile, and 4-hydroxy, 3,5-trimethoxyphenylacetonitrile.

17. The process of claim 14, wherein the phenyl triphenyl phosphine is chosen from 3,4,5 trimethoxy phenyltriphenyl phosphine bromide, 3,4-dimethoxy phenyltriphenyl phosphine bromide, 4-hydroxy, and 3,5-dimethoxyphenyltriphenyl phosphine bromide.

18. The process of claim 14, wherein the base is a methoxide base.

19. A method of inhibiting tubulin polymerization in a subject, the method comprising administering to the subject a compound comprising Formula (I):



(I)

wherein:

R^1, R^2, R^3, R^4, R^7, R^8, R^9, R^{10}, R^{11} are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, alkylalkylamino, amidine, amino, carboxyl, cyano, ester, halogen, hydroxyl, and nitro;

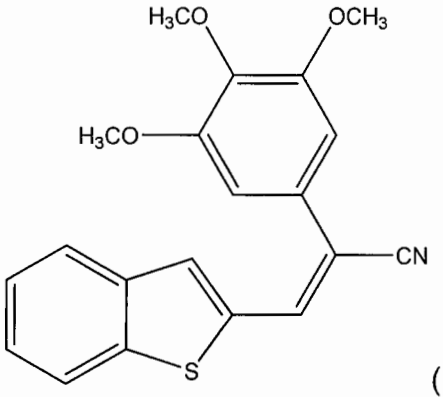
R^5 and R^6 are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, carboxyl, ester, and cyano;

X and Y are independently chosen from O, C, CR^{12}, $CR^{12}R^{13}$, S, SR^{14} N, or NR^{15}; and

R^{12}, R^{13}, R^{14}, and R^{15} are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, alkylalkylamino, amidine, amino, carboxyl, cyano, ester, halogen, hydroxyl, and nitro.

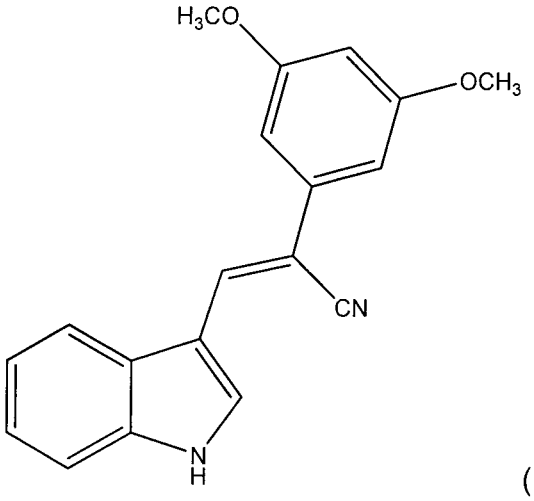
20. The method of claim 19, wherein the compound comprising Formula (I) is administered with at least one pharmaceutically acceptable excipient.

21. The method of claim 19, wherein the compound comprising Formula (I) is Formula (I)(a):



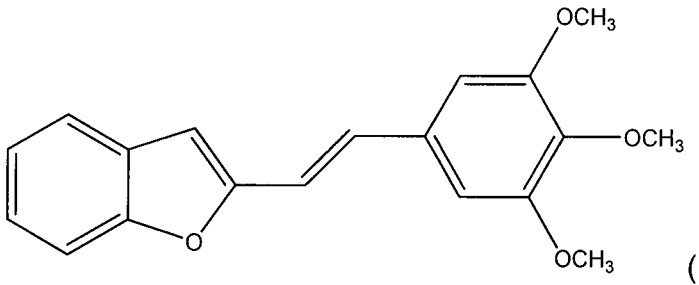
(I)(a).

22. The method of claim 19, wherein the compound comprising Formula (I) is Formula (I)(b):



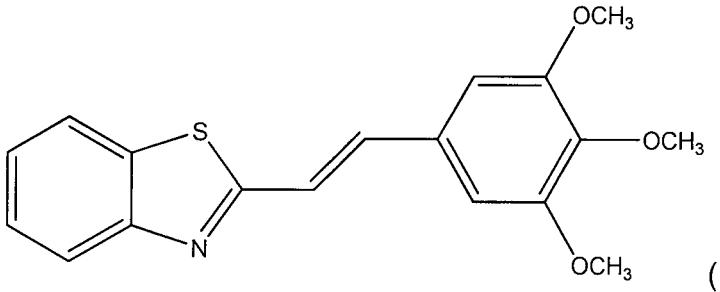
(I)(b).

23. The method of claim 19, wherein the compound comprising Formula (I) is Formula (I)(c):



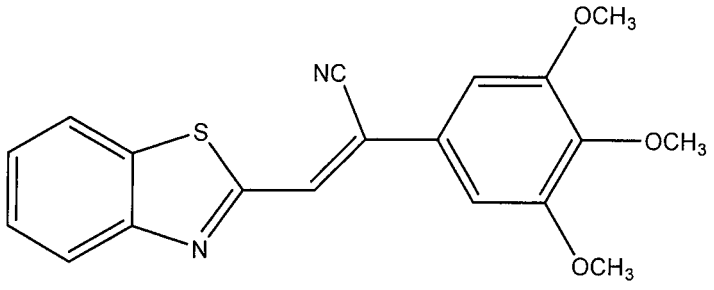
(I)(c).

24. The method of claim 19, wherein the compound comprising Formula (I) is Formula (I)(d):



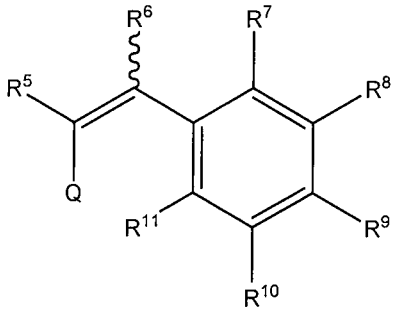
(I)(d).

25. The method of claim 19, wherein the compound comprising Formula (I) is Formula (I)(e):



(I)(e).

26. A compound comprising Formula (II):



(II)

wherein:

R^7, R^8, R^9, R^{10}, R^{11} are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, alkoxy, alkylalkylamino, amidine, amino, carboxyl, cyano, ester, halogen, hydroxyl, and nitro;

R^5 and R^6 are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, carboxyl, ester, and cyano; and

Q is a quinolinyl moiety,

with the proviso that where R^6 is cyano, R^8 and R^9 are not each OCH_3.

27. The compound of claim 26, wherein R^5 is hydrogen and R^6 is cyano.

28. The compound of claim 26, wherein Q is chosen from 2-quinolinyl and 3-quinolinyl.

29. The compound of claim 26, wherein R^7, R^8, R^9, R^{10}, R^{11} are independently chosen from hydrogen and hydroxyl.

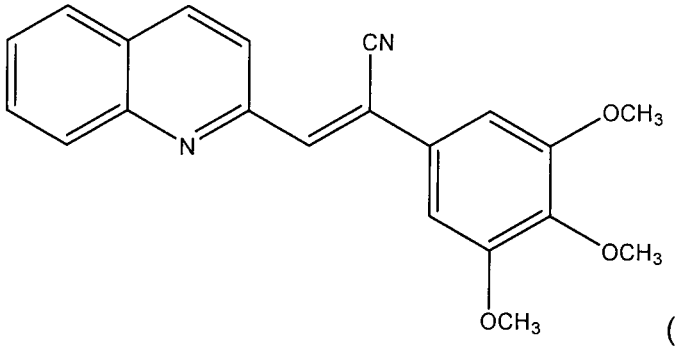
30. The compound of claim 26, wherein R^7 and R^{11} are hydrogen.

31. The compound of claim 26, wherein R^8, R^9, and R^{10} are independently chosen from hydrogen and hydroxyl.

32. The compound of claim 26, wherein R^8, R^9, and R^{10} are hydroxyl.

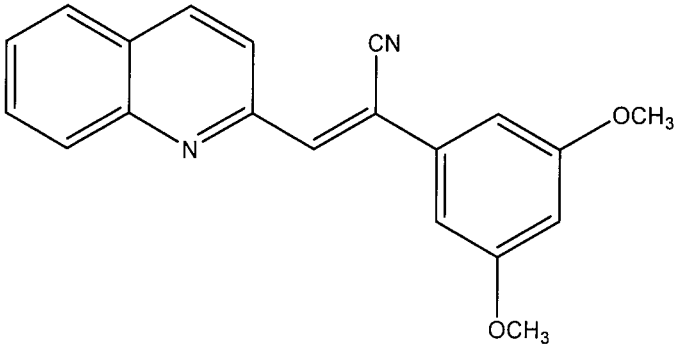
33. The compound of claim 26, wherein R^8 and R^{10} are hydroxyl.

34. The compound of claim 26, wherein the compound comprises Formula (II)(a):



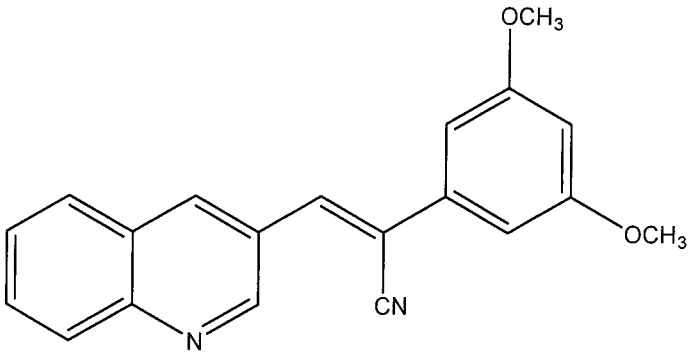
(II)(a).

35. The compound of claim 26, wherein the compound comprises Formula (II)(b):



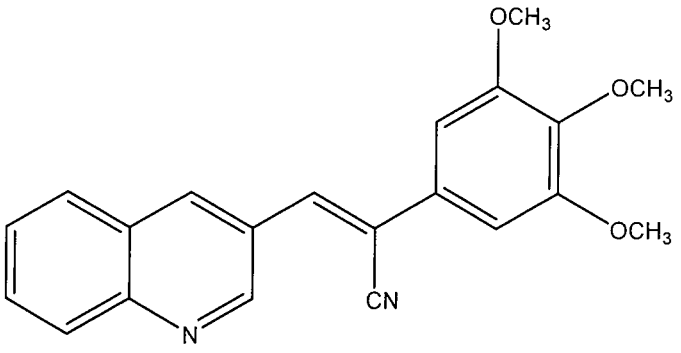
(II)(b).

36. The compound of claim 26, wherein the compound comprises Formula (II)(c):



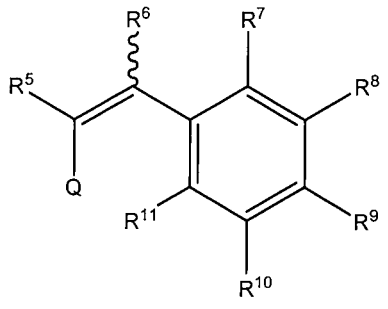
(II)(c).

37. The compound of claim 26, wherein the compound comprises Formula (II)(d):



(II)(d).

38. A pharmaceutical composition comprising a compound of Formula (II):



(II)

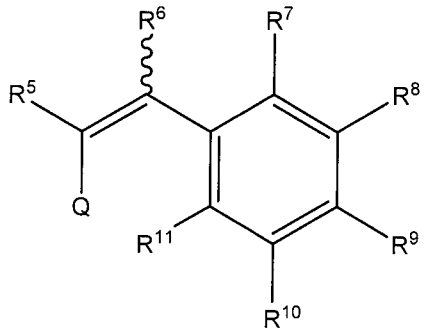
wherein:

R^7, R^8, R^9, R^{10}, R^{11} are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, alkoxy, alkylalkylamino, amidine, amino, carboxyl, cyano, ester, halogen, hydroxyl, and nitro;

R^5 and R^6 are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, carboxyl, ester, and cyano; and

Q is a quinolinyl moiety.

39. A process for producing a compound comprising Formula (II):



(II)

wherein:

R^7, R^8, R^9, R^{10}, R^{11} are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, alkoxy, alkylalkylamino, amidine, amino, carboxyl, cyano, ester, halogen, hydroxyl, and nitro;

R^5 and R^6 are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, carboxyl, ester, and cyano; and

Q is a quinolinyl moiety;

the processes comprises contacting a quinolinyl carboxaldehyde with a phenyl acetonitrile or a phenyl triphenyl phosphine and a proton acceptor.

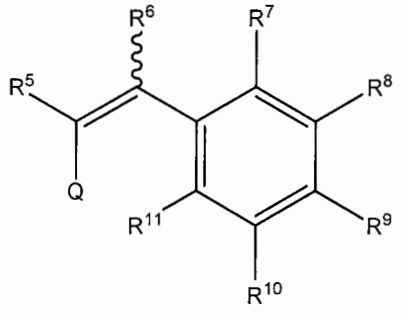
40. The process of claim 39, wherein the quinolinyl carboxaldehyde is chosen from quinolinyl-2-carboxaldehyde, quinolinyl-3-carboxaldehyde, and quinolinyl-4-carboxaldehyde.

41. The process of claim 39, wherein the phenyl acetonitrile is chosen from 3,4,5-trimethoxy phenylacetonitrile, 3,4-dimethoxyphenylacetonitrile, and 4-hydroxy, 3,5-trimethoxyphenylacetonitrile.

42. The process of claim 39, wherein the base is a methoxide base.

43. The process of claim 39, wherein the phenyl triphenyl phosphine is chosen from 3,4,5 trimethoxyphenyl triphenyl phosphine bromide, 3,4-dimethoxyphenyl triphenyl phosphine bromide, 4-hydroxy, and 3,5-dimethoxyphenyl triphenyl phosphine bromide.

44. A method of inhibiting tubulin polymerization in a subject, the method comprising administering to the subject a compound comprising Formula (II):



(II)

wherein:

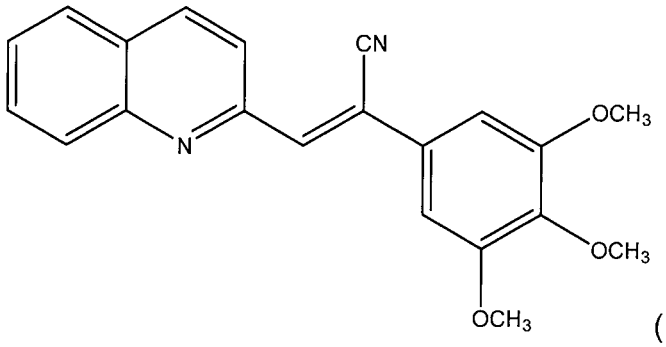
R^7, R^8, R^9, R^{10}, R^{11} are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, alkoxy, alkylalkylamino, amidine, amino, carboxyl, cyano, ester, halogen, hydroxyl, and nitro;

R^5 and R^6 are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, carboxyl, ester, and cyano; and

Q is a quinolinyl moiety.

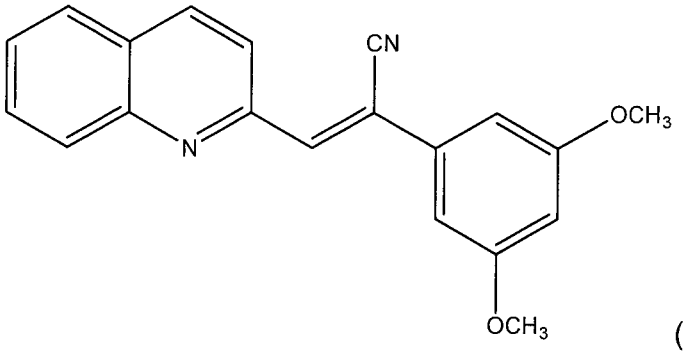
45. The method of claim 44, wherein the compound comprising Formula (II) is administered with at least one pharmaceutically acceptable excipient.

46. The method of claim 44, wherein the compound comprising Formula (II) is Formula (II)(a):



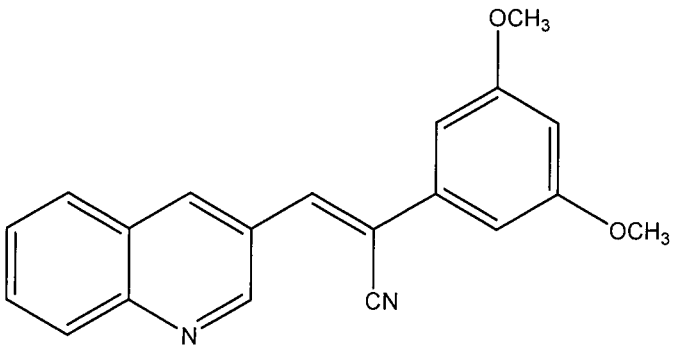
(II)(a).

47. The method of claim 44, wherein the compound comprising Formula (II) is Formula (I)(b):



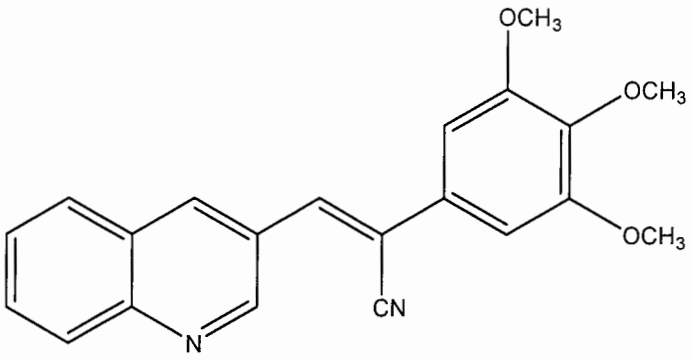
(II)(b).

48. The method of claim 44, wherein the compound comprising Formula (II) is Formula (II)(c):



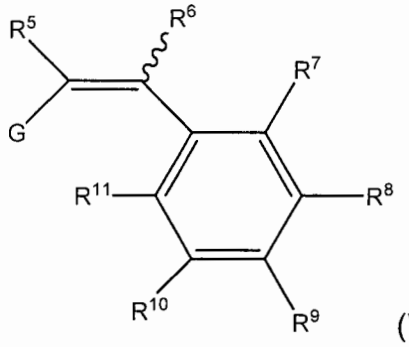
(II)(c).

49. The method of claim 44, wherein the compound comprising Formula (II) is Formula (II)(d):



(II)(d).

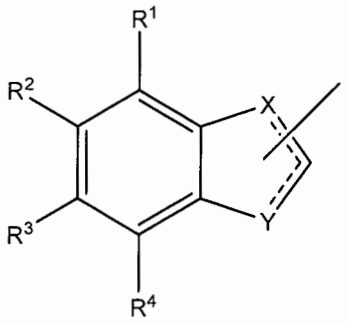
50. A compound comprising Formula (V):



(V)

wherein:

G is chosen from



or Q

Q is a quinolinyl moiety;

R^1, R^2, R^3, R^4, R^7, R^8, R^9, R^{10}, R^{11} are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, alkylalkylamino, amidine, amino, carboxyl, cyano, ester, halogen, hydroxyl, and nitro;

R^5 and R^6 are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, carboxyl, ester, and cyano;

X and Y are independently chosen from O, C, CR^{12}, $CR^{12}R^{13}$, S, SR^{14} N, or NR^{15}; and

R^{12}, R^{13}, R^{14}, and R^{15} are independently chosen from hydrogen, hydrocarbyl, substituted hydrocarbyl, alkylalkylamino, amidine, amino, carboxyl, cyano, ester, halogen, hydroxyl, and nitro.

51. The compound of claim 50, wherein R^1, R^4, R^7, and R^{11} are hydrogen.

52. The compound of claim 50 or 51, wherein R^6 is chosen from hydrogen, cyano, and carboxyl, and R^5 is hydrogen.

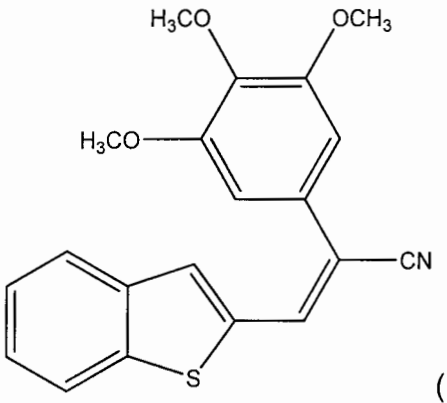
53. The compound of claim 52, wherein R^8, R^9, and R^{10} are independently chosen from hydrogen, methoxy, ethoxy, benzyloxy, substituted benzyloxy, hydroxyl, and lower alkyl groups.

54. The compound of claim 53, wherein R^8, R^9, and R^{10} are independently chosen from hydrogen, hydroxyl, and methoxy.

55. The compound claim 54, wherein X is chosen from C or S.

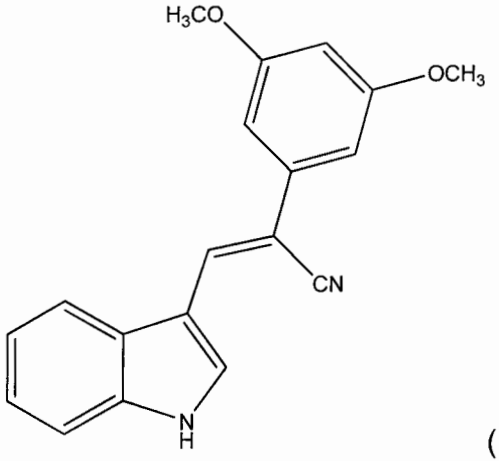
56. The compound of claim 50, wherein Y is chosen from O, S, and NR^{15}.

57. The compound of claim 50, wherein the compound comprises Formula (I)(a):



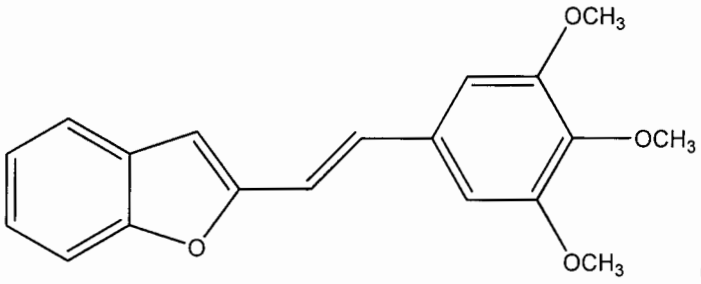
(I)(a).

58. The compound of claim 50, wherein the compound comprises Formula (I)(b):



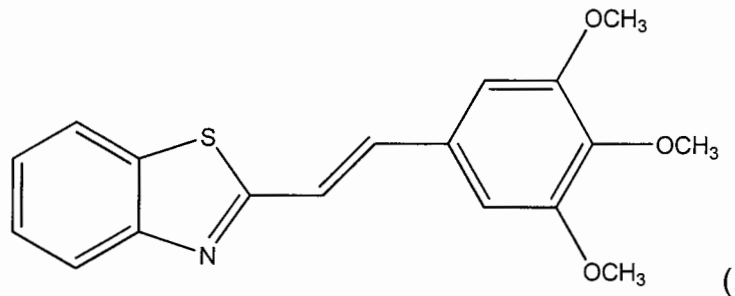
(I)(b).

59. The compound of claim 50, wherein the compound comprises Formula (I)(c):



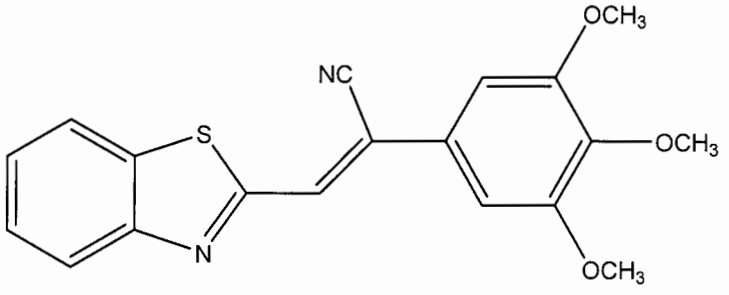
(I)(c).

60. The compound of claim 50, wherein the compound comprises Formula (I)(d):



(I)(d).

61. The compound of claim 50, wherein the compound comprises Formula (I)(e):



(I)(e).

62. The compound of claim 50 in combination with at least one pharmaceutically acceptable excipient.