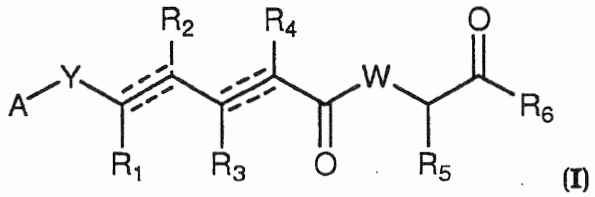
CLAIMS

1. A compound of general formula **I**



(I)

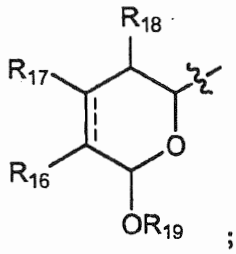
wherein Y is selected from $-CHR_{ay}-$, $-CHR_{ay}-CHR_{by}-$, $-CR_{ay}=CR_{by}-$, $-C\equiv C-$, $-CHR_{ay}-CHR_{by}-CHR_{cy}-$, $-CHR_{ay}-CR_{by}=CR_{cy}-$, and $-CHR_{ay}-C\equiv C-$;

each R_{ay}, R_{by}, and R_{cy} is independently selected from hydrogen, substituted or unsubstituted C_1-C_{12} alkyl, substituted or unsubstituted C_2-C_{12} alkenyl, and substituted or unsubstituted C_2-C_{12} alkynyl;

each R_1, R_2, R_3, R_4, and R_5 is independently selected from hydrogen, substituted or unsubstituted C_1-C_{12} alkyl, substituted or unsubstituted C_2-C_{12} alkenyl, and substituted or unsubstituted C_2-C_{12} alkynyl;

R_6 is selected from NR_8R_9, and OR_{10};

A is



;

W is selected from O and NR_7;

R_7 is selected from hydrogen, COR_a, $COOR_a$, substituted or unsubstituted C_1-C_{12} alkyl, substituted or unsubstituted C_2-C_{12} alkenyl, and substituted or unsubstituted C_2-C_{12} alkynyl, or R_7 and R_5 together with the corresponding N atom and C atom to which they are attached may form a substituted or unsubstituted heterocyclic group;

R_8 is selected from hydrogen, COR_a, $COOR_a$, substituted or unsubstituted C_1-C_{12} alkyl, substituted or unsubstituted C_2-C_{12} alkenyl, substituted or unsubstituted C_2-C_{12} alkynyl, and substituted or unsubstituted C_4-C_{12} alkenynyl;

R_{10} is selected from hydrogen, substituted or unsubstituted C_1-C_{12} alkyl, substituted or unsubstituted C_2-C_{12} alkenyl, and substituted or unsubstituted C_2-C_{12} alkynyl;

each dotted line represents an optional additional bond, but when a triple bond exists between the C atoms to which R_1 and R_2 are attached, R_1 and R_2 are absent, and when a triple bond exists between the C atoms to which R_3 and R_4 are attached, R_3 and R_4 are absent;

R_9 is selected from hydrogen, COR_a, $COOR_a$, substituted or unsubstituted C_1-C_{12} alkyl, substituted or unsubstituted C_2-C_{12} alkenyl, substituted or unsubstituted C_2-C_{12} alkynyl, and substituted or unsubstituted C_4-C_{12} alkenynyl;

each R_{16}, R_{17} and R_{18} are independently selected from hydrogen, OR_a, $OCOR_a$, $OCOOR_a$, NR_aR_b, NR_aCOR_b, and $NR_aC(=NR_a)NR_aR_b$, substituted or unsubstituted C_1-C_{12} alkyl, substituted or unsubstituted C_2-C_{12} alkenyl and substituted or unsubstituted C_2-C_{12} alkynyl;

R_{19} is selected from hydrogen, COR_a, $COOR_a$, $CONR_aR_b$, $S(O)R_a$, SO_2R_a, $P(O)(R_a)OR_b$, $SiR_aR_bR_c$, substituted or unsubstituted C_1-C_{12}

alkyl, substituted or unsubstituted C_2-C_{12} alkenyl and substituted or unsubstituted C_2-C_{12} alkynyl; and

each R_a, R_b, and R_c are independently selected from hydrogen, substituted or unsubstituted C_1-C_{12} alkyl, substituted or unsubstituted C_2-C_{12} alkenyl, substituted or unsubstituted C_2-C_{12} alkynyl, substituted or unsubstituted aryl and substituted or unsubstituted heterocyclic group; or

a pharmaceutically acceptable salt, tautomer or stereoisomer thereof.

2. A compound according to claim 1, wherein R_{19} is selected from hydrogen, substituted or unsubstituted C_1-C_6 alkyl and COR_a, and wherein R_a is a substituted or unsubstituted C_1-C_6 alkyl.

3. A compound according to claim 2, wherein R_{19} is hydrogen.

4. A compound according to any preceding claim, wherein R_{16} is selected from hydrogen, OR_a and $OCOR_a$, wherein R_a is selected from hydrogen and substituted or unsubstituted C_1-C_6 alkyl.

5. A compound according to claim 4, wherein R_{16} is selected from hydrogen, OH and methoxy.

6. A compound according to any preceding claim, wherein one additional bond is present between the C atoms to which R_{16} and R_{17} are attached.

7. A compound according to any preceding claim, wherein R_{17} and R_{18} are hydrogen.

8. A compound according to any preceding claim, wherein R_1, R_2, R_3 and R_4 are independently selected from hydrogen and a substituted or unsubstituted C_1-C_6 alkyl.

9. A compound according to claim 8 wherein R_1, R_2, R_3 and R_4 are hydrogen.

10. A compound according to any preceding claim, wherein Y is selected from $-CHR_{ay}-$, $-CR_{ay}=CR_{by}-$ and $-CHR_{ay}-CR_{by}=CR_{cy}-$, and wherein R_{ay}, R_{by} and R_{cy} are independently selected from hydrogen and substituted or unsubstituted C_1-C_6 alkyl.

11. A compound according to claim 10, wherein R_{ay}, R_{by} and R_{cy} are independently selected from hydrogen and methyl.

12. A compound according to any preceding claim, wherein R_5 is selected from hydrogen and a substituted or unsubstituted C_1-C_6 alkyl.

13. A compound according to claim 12, wherein R_5 is selected from methyl, isopropyl and tert-butyl.

14. A compound according to any preceding claim, wherein W is NR_7 and wherein R_7 is as defined in claim 1.

15. A compound according to claim 14, wherein R_7 is hydrogen.

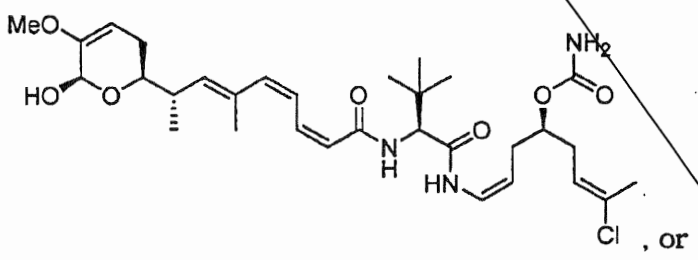
16. A compound according to any of claims 1 to 11, wherein W is NR_7 and wherein R_7 and R_5 together with the corresponding N atom and C atom to which they are attached form a substituted or unsubstituted pyrrolidine group.

17. A compound according to any preceding claim, wherein R_6 is NR_8R_9 and wherein R_8 is hydrogen and R_9 is selected from hydrogen, substituted or unsubstituted C1-C_{12} alkyl, substituted or unsubstituted C_2-C_{12} alkenyl, substituted or unsubstituted C_2-C_{12} alkynyl, and substituted or unsubstituted C_4-C_{12} alkenylnyl.

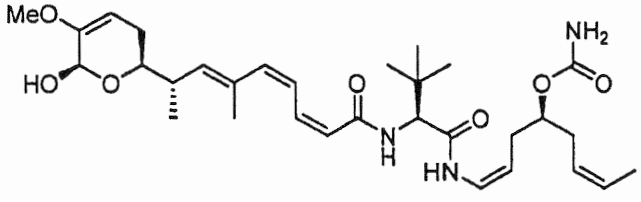
18. A compound according to claim 17, wherein R_9 is selected from a substituted C_2-C_{12} alkenyl and a substituted C_4-C_{12} alkenylnyl that are substituted in one or more positions with halogen, OR', =O, OCOR', OCONHR', OCONR'R', CONHR', CONR'R' and protected OH, wherein each of the R' groups is independently selected from hydrogen, substituted or unsubstituted C_1-C_{12} alkyl, substituted or unsubstituted C_2-C_{12} alkenyl, substituted or unsubstituted C_2-C_{12} alkynyl and substituted or unsusbtituted aryl.

19. A compound according to any preceding claim, wherein one additional bond is present between the C atoms to which R_1 and R_2 are attached and one o two additional bonds are present between the C atoms to which R_3 and R_4 are attached.

20. A compound according to claim 1, having the following formula:



, or



or a pharmaceutically acceptable salt, tautomer or stereoisomer thereof.

21. A pharmaceutical composition comprising a compound according to any preceding claim, or a pharmaceutically acceptable salt, tautomer or stereoisomer thereof, and a pharmaceutically acceptable diluent or carrier.

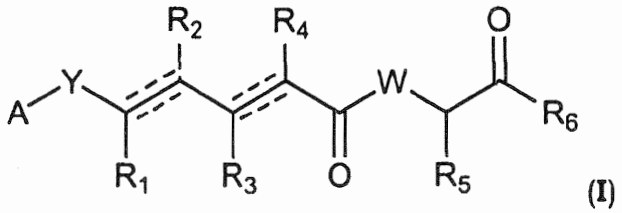
22. A compound according to any of claims 1 to 20, or a pharmaceutically acceptable salt, tautomer or stereoisomer thereof, for use as a medicament.

23. A compound according to any of claims 1 to 20, or a pharmaceutically acceptable salt, tautomer or stereoisomer thereof, for use as medicament for treating cancer.

24. Use of a compound according to any of claims 1 to 20, or pharmaceutically acceptable salts, tautomers or stereoisomers thereof, in the preparation of a medicament for the treatment of cancer.

CLAIMS

1. A compound of general formula **I**



(I)

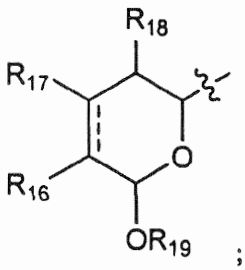
wherein Y is selected from $-CHR_{ay}-$, $-CHR_{ay}-CHR_{by}-$, $-CR_{ay}=CR_{by}-$, $-C\equiv C-$, $-CHR_{ay}-CHR_{by}-CHR_{cy}-$, $-CHR_{ay}-CR_{by}=CR_{cy}-$, and $-CHR_{ay}-C\equiv C-$;

each R_{ay}, R_{by}, and R_{cy} is independently selected from hydrogen, substituted or unsubstituted C_1-C_{12} alkyl, substituted or unsubstituted C_2-C_{12} alkenyl, and substituted or unsubstituted C_2-C_{12} alkynyl;

each R_1, R_2, R_3, R_4, and R_5 is independently selected from hydrogen, substituted or unsubstituted C_1-C_{12} alkyl, substituted or unsubstituted C_2-C_{12} alkenyl, and substituted or unsubstituted C_2-C_{12} alkynyl;

R_6 is selected from NR_8R_9, and OR_{10};

A is



;

W is selected from O and NR_7;

R_7 is selected from hydrogen, COR_a, $COOR_a$, substituted or unsubstituted C_1-C_{12} alkyl, substituted or unsubstituted C_2-C_{12} alkenyl,

and substituted or unsubstituted C_2-C_{12} alkynyl, or R_7 and R_5 together with the corresponding N atom and C atom to which they are attached may form a substituted or unsubstituted heterocyclic group;

R_8 is selected from hydrogen, COR_a, $COOR_a$, substituted or unsubstituted C_1-C_{12} alkyl, substituted or unsubstituted C_2-C_{12} alkenyl, substituted or unsubstituted C_2-C_{12} alkynyl, and substituted or unsubstituted C_4-C_{12} alkenynyl;

R_{10} is selected from hydrogen, substituted or unsubstituted C_1-C_{12} alkyl, substituted or unsubstituted C_2-C_{12} alkenyl, and substituted or unsubstituted C_2-C_{12} alkynyl;

each dotted line represents an optional additional bond, but when a triple bond exists between the C atoms to which R_1 and R_2 are attached, R_1 and R_2 are absent, and when a triple bond exists between the C atoms to which R_3 and R_4 are attached, R_3 and R_4 are absent;

R_9 is selected from hydrogen, COR_a, $COOR_a$, substituted or unsubstituted C_1-C_{12} alkyl, substituted or unsubstituted C_2-C_{12} alkenyl, substituted or unsubstituted C_2-C_{12} alkynyl, and substituted or unsubstituted C_4-C_{12} alkenynyl;

each R_{16}, R_{17} and R_{18} are independently selected from hydrogen, OR_a, $OCOR_a$, $OCOOR_a$, NR_aR_b, NR_aCOR_b, and $NR_aC(=NR_a)NR_aR_b$, substituted or unsubstituted C_1-C_{12} alkyl, substituted or unsubstituted C_2-C_{12} alkenyl and substituted or unsubstituted C_2-C_{12} alkynyl;

R_{19} is selected from hydrogen, COR_a, $COOR_a$, $CONR_aR_b$, $S(O)R_a$, SO_2R_a, $P(O)(R_a)OR_b$, $SiR_aR_bR_c$, substituted or unsubstituted C_1-C_{12} alkyl, substituted or unsubstituted C_2-C_{12} alkenyl and substituted or unsubstituted C_2-C_{12} alkynyl; and

each R_a, R_b, and R_c are independently selected from hydrogen, substituted or unsubstituted C_1-C_{12} alkyl, substituted or unsubstituted C_2-C_{12} alkenyl, substituted or unsubstituted C_2-C_{12} alkynyl, substituted or unsubstituted aryl and substituted or unsubstituted heterocyclic group; or

a pharmaceutically acceptable salt, tautomer or stereoisomer thereof.

2. A compound according to claim 1, wherein R_{19} is selected from hydrogen, substituted or unsubstituted C_1-C_6 alkyl and COR_a, and wherein R_a is a substituted or unsubstituted C_1-C_6 alkyl.

3. A compound according to claim 2, wherein R_{19} is hydrogen.

4. A compound according to any one of the preceding claims, wherein R_{16} is selected from hydrogen, OR_a and $OCOR_a$, wherein R_a is selected from hydrogen and substituted or unsubstituted C_1-C_6 alkyl.

5. A compound according to claim 4, wherein R_{16} is selected from hydrogen, OH and methoxy.

6. A compound according to any one of the preceding claims, wherein one additional bond is present between the C atoms to which R_{16} and R_{17} are attached.

7. A compound according to any one of the preceding claims, wherein R_{17} and R_{18} are hydrogen.

8. A compound according to any one of the preceding claims, wherein R_1, R_2, R_3 and R_4 are independently selected from hydrogen and a substituted or unsubstituted C_1-C_6 alkyl.

9. A compound according to claim 8 wherein R_1, R_2, R_3 and R_4 are hydrogen.

10. A compound according to any one of the preceding claims, wherein Y is selected from $-CHR_{ay}-$, $-CR_{ay}=CR_{by}-$ and $-CHR_{ay}-CR_{by}=CR_{cy}-$, and wherein R_{ay}, R_{by} and R_{cy} are independently selected from hydrogen and substituted or unsubstituted C_1-C_6 alkyl.

11. A compound according to claim 10, wherein R_{ay}, R_{by} and R_{cy} are independently selected from hydrogen and methyl.

12. A compound according to any one of the preceding claims, wherein R_5 is selected from hydrogen and a substituted or unsubstituted C_1-C_6 alkyl.

13. A compound according to claim 12, wherein R_5 is selected from methyl, isopropyl and tert-butyl.

14. A compound according to any one of the preceding claims, wherein W is NR_7 and wherein R_7 is as defined in claim 1.

15. A compound according to claim 14, wherein R_7 is hydrogen.

16. A compound according to any one of claims 1 to 11, wherein W is NR_7 and wherein R_7 and R_5 together with the corresponding N atom and C atom to which they are attached form a substituted or unsubstituted pyrrolidine group.

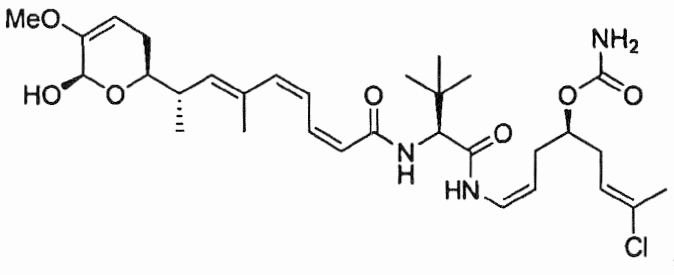
17. A compound according to any one of the preceding claims, wherein R_6 is NR_8R_9 and wherein R_8 is hydrogen and R_9 is selected from hydrogen, substituted or unsubstituted C_1-C_{12} alkyl, substituted or

unsubstituted C_2-C_{12} alkenyl, substituted or unsubstituted C_2-C_{12} alkynyl, and substituted or unsubstituted C_4-C_{12} alkenynyl.

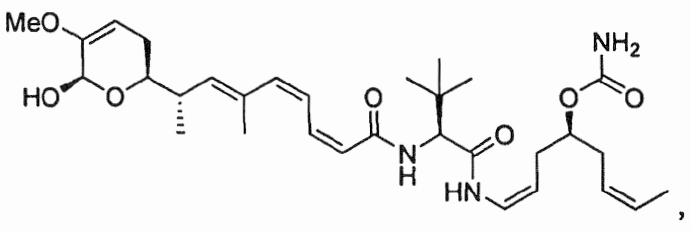
18. A compound according to claim 17, wherein R_9 is selected from a substituted C_2-C_{12} alkenyl and a substituted C_4-C_{12} alkenynyl that are substituted in one or more positions with halogen, OR', =O, OCOR', OCONHR', OCONR'R', CONHR', CONR'R' and protected OH, wherein each of the R' groups is independently selected from hydrogen, substituted or unsubstituted C_1-C_{12} alkyl, substituted or unsubstituted C_2-C_{12} alkenyl, substituted or unsubstituted C_2-C_{12} alkynyl and substituted or unsusbtituted aryl.

19. A compound according to any one of the preceding claims, wherein one additional bond is present between the C atoms to which R_1 and R_2 are attached and one or two additional bonds are present between the C atoms to which R_3 and R_4 are attached.

20. A compound according to claim 1, having the following formula:



, or



,

or a pharmaceutically acceptable salt, tautomer or stereoisomer thereof.

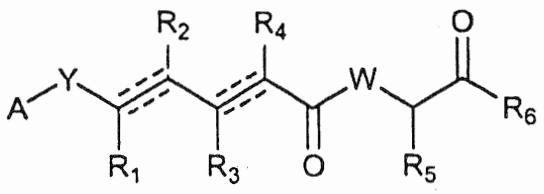
21. A pharmaceutical composition comprising a compound according to any one of the preceding claims, or a pharmaceutically acceptable salt, tautomer or stereoisomer thereof, and a pharmaceutically acceptable diluent or carrier.

22. A compound according to any one of claims 1 to 20, or a pharmaceutically acceptable salt, tautomer or stereoisomer thereof, for use as a medicament.

23. A compound according to any one of claims 1 to 20, or a pharmaceutically acceptable salt, tautomer or stereoisomer thereof, for use as a medicament for treating cancer.

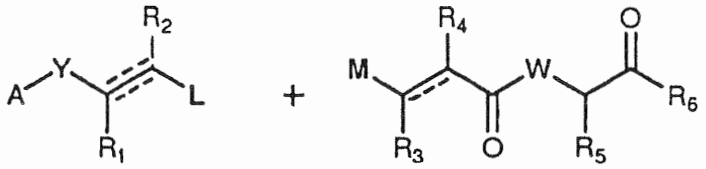
24. Use of a compound according to any of claims 1 to 20, or pharmaceutically acceptable salts, tautomers, or stereoisomers thereof, in the preparation of a medicament for the treatment of cancer.

25. A process for the preparation of compounds according to formula I



as defined in any one of claims 1 to 20 wherein A, Y, W, R_1, R_2, R_3, R_4, R_5 and R_6 are also as defined in any one of claims 1 to 20

comprising the coupling of Fragments C and D



Fragment C + Fragment D

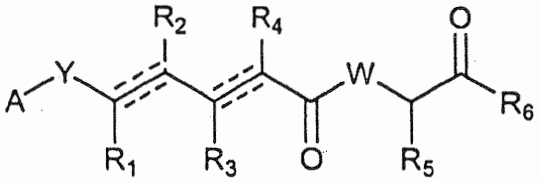
wherein R_1, R_2, R_3, R_4, R_5, R_6, A, Y and W are the desired groups as defined in the compound of formula I or an appropriate protecting group as needed, and L and M are the appropriate reacting or leaving groups.

26. A process according to claim 25, wherein the compound of formula I is any one of the compounds defined in claim 20.

27. A process according to claim 25 or claim 26 wherein leaving group "L" is iodide.

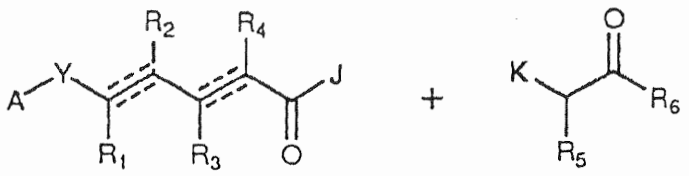
28. A process according to any one of claims 25 to 27 wherein reacting group "M" is tributyl tin.

29. A process for the preparation of a compound according to formula I



as defined in any one of claims 1 to 20 wherein A, Y, W, R_1, R_2, R_3, R_4, R_5 and R_6 are also as defined in any one of claims 1 to 20

comprising the coupling of Fragments A and B



Fragment A Fragment B

wherein R_1, R_2, R_3, R_4, R_5, R_6, A and Y are the desired groups or an appropriate protecting group as needed, and J and K are the appropriate reacting or leaving groups.

30. A process according to claim 29, wherein the compound of formula I is any one of the compounds defined in claim 20.

31. A compound when prepared according to the process of claim 25 or claim 29.