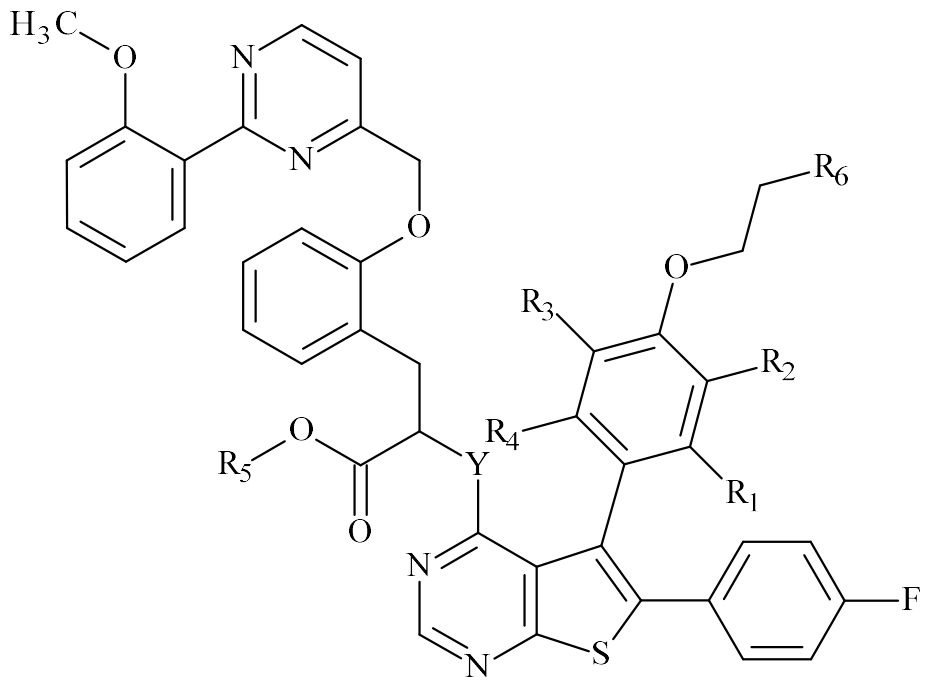
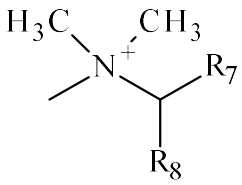
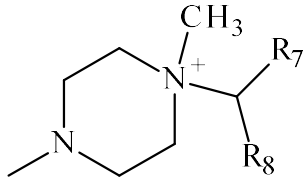
1. A compound of formula (I):

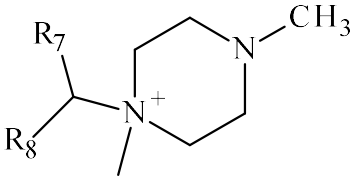


(I)

wherein:

- Y represents a -NH- group or an oxygen atom;
- R_1 represents a linear or branched (C_1-C_6)alkyl group, a linear or branched (C_2-C_6)alkenyl group, a linear or branched (C_2-C_6)alkynyl group, a linear or branched (C_1-C_6)alkoxy group, a -S-(C_1-C_6)alkyl group, a linear or branched (C_1-C_6)polyhaloalkyl group, a hydroxy group, a hydroxy(C_1-C_6)alkyl group, a cyano group, -NR_9R_9', -Cy_1 or a halogen atom;
- R_2, R_3 and R_4 independently of one another represent a hydrogen atom, a halogen atom, a linear or branched (C_1-C_6)alkyl group, a linear or branched (C_2-C_6)alkenyl group, a linear or branched (C_2-C_6)alkynyl group, a linear or branched (C_1-C_6)polyhaloalkyl, a hydroxy group, a hydroxy(C_1-C_6)alkyl group, a linear or branched (C_1-C_6)alkoxy group, a -S-(C_1-C_6)alkyl group, a cyano group, a nitro group, -alkyl(C_0-C_6)-NR_9R_9', -O-alkyl(C_1-C_6)-NR_9R_9', -C(O)-OR_9, -O-C(O)-R_9, -C(O)-NR_9R_9', -NR_9-C(O)-R_9', -NR_9-C(O)-OR_9', -alkyl(C_1-C_6)-NR_9-C(O)-R_9', -SO_2-NR_9R_9', or -SO_2-alkyl(C_1-C_6);
- R_5 represents a hydrogen atom;

- R_6 represents the group  ,  ,

  or  ;

- R_7 represents a hydrogen atom or a linear or branched $(C_1\text{-}C_6)$alkyl group;
- R_8 represents a -O-P(O)(O^-)(O^-) group, a -O-P(O)(O^-)(OR_{10}) group, a -O-P(O)(OR_{10})(OR_{10}') group, a -O-SO_2-O^- group, a -O-SO_2-OR_{10} group, -Cy_2, a -O-C(O)-R_9 group, a -O-C(O)-OR_9 group or a -O-C(O)-NR_9R_9' group;
- R_9 and R_9' independently of one another represent a hydrogen atom, a linear or branched $(C_1\text{-}C_6)$alkyl group or a linear or branched amino$(C_1\text{-}C_6)$alkyl group;
- R_{10} and R_{10}' independently of one another represent a hydrogen atom, a linear or branched $(C_1\text{-}C_6)$alkyl group or an arylalkyl$(C_1\text{-}C_6)$ group;
- Cy_1 and Cy_2 independently of one another, represent a cycloalkyl group, a heterocycloalkyl group, an aryl group or a heteroaryl group;

wherein the ammonium so defined may exist as a zwitterionic form or may have a monovalent anionic counterion,

and wherein:

- "aryl" means a phenyl or naphthyl group,
- "heteroaryl" means any mono- or bi-cyclic group composed of from 5 to 10 ring members, having at least one aromatic moiety and having from 1 to 3 heteroatoms selected from oxygen, sulphur and nitrogen,
- "cycloalkyl" means any mono- or bi-cyclic non-aromatic carbocyclic group having from 3 to 10 ring members,
- "heterocycloalkyl" means any mono- or bi-cyclic non-aromatic carbocyclic group having from 3 to 10 ring members, and having from 1 to 3 heteroatoms selected from oxygen, sulphur and nitrogen, which may have fused, bridged or spiro ring systems,

wherein the aryl, heteroaryl, cycloalkyl and heterocycloalkyl groups so defined and the alkyl, alkenyl, alkynyl, alkoxy groups, to be substituted by from 1 to 4 groups selected from linear or branched (C_1-C_6)alkyl, linear or branched (C_2-C_6)alkenyl group, linear or branched (C_2-C_6)alkynyl group, linear or branched (C_1-C_6)alkoxy, (C_1-C_6)alkyl-S-, hydroxy, oxo (or *N*-oxide where appropriate), nitro, cyano, -C(O)-OR', -O-C(O)-R', -C(O)-NR'R'', -NR'R'', -(C=NR')-OR'', linear or branched (C_1-C_6)polyhaloalkyl, trifluoromethoxy or halogen, wherein R' and R'' independently of one another represent a hydrogen atom or a linear or branched (C_1-C_6)alkyl group, and wherein one or more of the carbon atoms of the preceding possible substituents, may be deuterated,

its enantiomers, diastereoisomers and atropisomers, and addition salts thereof with a pharmaceutically acceptable acid or base.

2. The compound according to claim 1, wherein Y represents an oxygen atom.

3. The compound according to claim 1, wherein at least one of the groups selected from R_2, R_3 and R_4 does not represent a hydrogen atom.

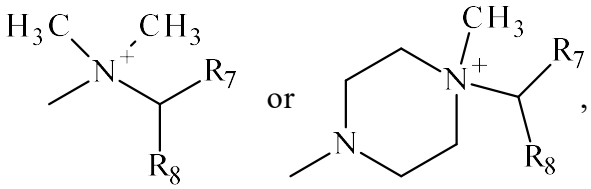
4. The compound according to claim 1, wherein R_1 represents a linear or branched (C_1-C_6)alkyl group or a halogen atom.

5. The compound according to claim 1, wherein R_2 represents a halogen atom, a hydroxy group, or a linear or branched (C_1-C_6)alkoxy group.

6. The compound according to claim 1, wherein R_3 and R_4 represent a hydrogen atom.

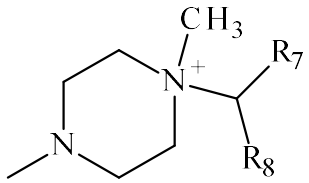
7. The compound according to claim 1, wherein the substituents of the pair (R_1, R_4) are identical and the substituents of the pair (R_2, R_3) are identical.

8. The compound according to claim 1, wherein R_6 represents



wherein R_7 and R_8 are as defined in claim 1.

9. The compound according to claim 1, wherein R_6 represents



wherein R_7 and R_8 are as defined in claim 1.

10. The compound according to claim 1, wherein R_7 represents a methyl group or a hydrogen atom.

11. The compound according to claim 1, wherein R_8 represents a -O-P(O)(O^-)(OR_{10}) group in which R_{10} represents a hydrogen atom, a benzyl group or a methyl group.

12. The compound according to claim 1, wherein R_8 represents a 5-methyl-2-oxo-1,3-dioxol-4-yl group; a -O-C(O)-CH_3 group; a -O-C(O)-*t*Bu group; a -O-C(O)-CH_2-NH_2 group; a -O-C(O)-CH[CH(CH_3)$_2$]-NH_2 group; a -O-C(O)-O-CH_2CH_3 group; or a -O-C(O)-N(CH_2CH_3)$_2$ group.

13. The compound according to claim 1, which is selected from the group consisting of:

- {4-[2-(4-{(5S_a)-4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2-chloro-3-methylphenoxy)ethyl]-1-methylpiperazin-1-ium-1-yl}methyl hydrogen phosphate;
- benzyl {4-[2-(4-{(5S_a)-4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2-chloro-3-methylphenoxy)ethyl]-1-methylpiperazin-1-ium-1-yl}methyl phosphate;

- {4-[2-(4-{(5S_a)-4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2-chloro-3-methylphenoxy)ethyl]-1-methylpiperazin-1-ium-1-yl}methyl methyl phosphate;
- {4-[2-(4-{(5S_a)-4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2-chloro-3-ethylphenoxy)ethyl]-1-methylpiperazin-1-ium-1-yl}methyl hydrogen phosphate;
- {4-[2-(3-bromo-4-{(5S_a)-4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2-chlorophenoxy)ethyl]-1-methylpiperazin-1-ium-1-yl}methyl hydrogen phosphate;
- benzyl {4-[2-(3-bromo-4-{(5S_a)-4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2-chlorophenoxy)ethyl]-1-methylpiperazin-1-ium-1-yl}methyl phosphate;
- {4-[2-(3-bromo-4-{(5S_a)-4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2-chlorophenoxy)ethyl]-1-methylpiperazin-1-ium-1-yl}methyl methyl phosphate;
- *N*-[(5S_a)-5-{3-chloro-4-[2-(4-{[(hydroxyphosphinato)oxy]methyl}-4-methylpiperazin-4-ium-1-yl)ethoxy]-2-methylphenyl}-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-4-yl]-2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}-D-phenylalanine;
- {4-[2-(4-{4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2,6-dichloro-3,5-dimethylphenoxy)ethyl]-1-methylpiperazin-1-ium-1-yl}methyl hydrogen phosphate;
- {4-[2-(4-{4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-3,5-dimethylphenoxy)ethyl]-1-methylpiperazin-1-ium-1-yl}methyl hydrogen phosphate;

- {[2-(4-{(5S_a)-4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2-chloro-3-methylphenoxy)ethyl](dimethyl)ammonio}methyl hydrogen phosphate;
- 1-{4-[2-(4-{(5S_a)-4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2-chloro-3-methylphenoxy)ethyl]-1-methylpiperazin-1-ium-1-yl}ethyl hydrogen phosphate;
- 1-{4-[2-(3-bromo-4-{(5S_a)-4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2-chlorophenoxy)ethyl]-1-methylpiperazin-1-ium-1-yl}ethyl hydrogen phosphate;
- {1-[2-(4-{(5S_a)-4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2-chloro-3-methylphenoxy)ethyl]-4-methylpiperazin-1-ium-1-yl}methyl hydrogen phosphate;
- {1-[2-(3-bromo-4-{(5S_a)-4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2-chlorophenoxy)ethyl]-4-methylpiperazin-1-ium-1-yl}methyl hydrogen phosphate;
- {4-[2-(4-{(5S_a)-4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2-chloro-3-methylphenoxy)ethyl]-1-methylpiperazin-1-ium-1-yl}methyl sulfate;
- 1-[(acetyloxy)methyl]-4-[2-(4-{(5S_a)-4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2-chloro-3-methylphenoxy)ethyl]-1-methylpiperazin-1-ium;
- 4-[2-(4-{(5S_a)-4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2-chloro-3-methylphenoxy)ethyl]-1-{[(ethoxycarbonyl)oxy]methyl}-1-methylpiperazin-1-ium;
- 4-[2-(4-{(5S_a)-4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2-

chloro-3-methylphenoxy)ethyl]-1-{[(diethylcarbamoyl)oxy]methyl}-1-methylpiperazin-1-ium;
- 4-[2-(4-{(5S_a)-4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2-chloro-3-methylphenoxy)ethyl]-1-[(glycyloxy)methyl]-1-methylpiperazin-1-ium;
- 4-[2-(4-{(5S_a)-4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2-chloro-3-methylphenoxy)ethyl]-1-{1-[(diethylcarbamoyl)oxy]ethyl}-1-methylpiperazin-1-ium;
- 4-[2-(4-{(5S_a)-4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2-chloro-3-methylphenoxy)ethyl]-1-methyl-1-[(5-methyl-2-oxo-1,3-dioxol-4-yl)methyl]piperazin-1-ium;
- 4-[2-(4-{(5S_a)-4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2-chloro-3-methylphenoxy)ethyl]-1-methyl-1-[(L-valyloxy)methyl]piperazin-1-ium;
- 4-[2-(4-{(5S_a)-4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2-chloro-3-methylphenoxy)ethyl]-1-{[(2,2-dimethylpropanoyl)oxy]methyl}-1-methylpiperazin-1-ium;
- 1-[(acetyloxy)methyl]-4-[2-(3-bromo-4-{(5S_a)-4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2-chlorophenoxy)ethyl]-1-methylpiperazin-1-ium;
- 4-[2-(3-bromo-4-{(5S_a)-4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2-chlorophenoxy)ethyl]-1-{[(ethoxycarbonyl)oxy]methyl}-1-methylpiperazin-1-ium;
- 4-[2-(3-bromo-4-{(5S_a)-4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2-chlorophenoxy)ethyl]-1-{[(diethylcarbamoyl)oxy]methyl}-1-methylpiperazin-1-ium;

- 4-[2-(3-bromo-4-{(5S_a)-4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2-chlorophenoxy)ethyl]-1-[(glycyloxy)methyl]-1-methylpiperazin-1-ium;
- 4-[2-(3-bromo-4-{(5S_a)-4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2-chlorophenoxy)ethyl]-1-{1-[(diethylcarbamoyl)oxy]ethyl}-1-methylpiperazin-1-ium;
- 4-[2-(3-bromo-4-{(5S_a)-4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2-chlorophenoxy)ethyl]-1-methyl-1-[(5-methyl-2-oxo-1,3-dioxol-4-yl)methyl]piperazin-1-ium;
- 4-[2-(3-bromo-4-{(5S_a)-4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2-chlorophenoxy)ethyl]-1-methyl-1-[(L-valyloxy)methyl]piperazin-1-ium; and
- 4-[2-(3-bromo-4-{(5S_a)-4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2-chlorophenoxy)ethyl]-1-{[(2,2-dimethylpropanoyl)oxy]methyl}-1-methylpiperazin-1-ium.

14. The compound according to claim 1, which is {4-[2-(4-{(5S_a)-4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2-chloro-3-methylphenoxy)ethyl]-1-methylpiperazin-1-ium-1-yl}methyl hydrogen phosphate.

15. The compound according to claim 1, which is {4-[2-(3-bromo-4-{(5S_a)-4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2-chlorophenoxy)ethyl]-1-methylpiperazin-1-ium-1-yl}methyl hydrogen phosphate.

16. The compound according to claim 1, which is {[2-(4-{(5S_a)-4-[(1*R*)-1-carboxy-2-(2-{[2-(2-methoxyphenyl)pyrimidin-4-yl]methoxy}phenyl)ethoxy]-6-(4-fluorophenyl)thieno[2,3-*d*]pyrimidin-5-yl}-2-chloro-3-

methylphenoxy)ethyl](dimethyl)ammonio}methyl hydrogen phosphate.

17. A pharmaceutical composition comprising the compound according to claim 1, or an addition salt thereof with a pharmaceutically acceptable acid or base, in combination with one or more pharmaceutically acceptable excipients.

18. An effective amount of the compound according to claim 1, alone or in combination with one or more pharmaceutically acceptable excipients, for use in the treatment of a condition requiring a pro-apoptotic agent in a subject in need thereof.

19. The compound according to claim 18, wherein the condition is selected from cancer, auto-immune diseases and immune system diseases.

20. The compound according to claim 19, wherein the condition is selected from cancers of the bladder, brain, breast and uterus, chronic lymphoid leukaemias, cancer of the colon, œsophagus and liver, lymphoblastic leukaemias, acute myeloid leukaemias, lymphomas, melanomas, malignant haemopathies, myelomas, ovarian cancer, non-small-cell lung cancer, prostate cancer, pancreatic cancer and small-cell lung cancer.

21. A combination of the compound according to claim 1, with an anti-cancer agent selected from genotoxic agents, mitotic poisons, anti-metabolites, proteasome inhibitors, kinase inhibitors and antibodies.

22. A pharmaceutical composition comprising the combination according to claim 21 in combination with one or more pharmaceutically acceptable excipients.

23. An effective amount of the compound according to claim 21, alone or in combination with one or more pharmaceutically acceptable excipients, for use in the treatment of cancer in a subject in need thereof.

24. An effective amount of the compound according to claim 3, alone or in combination with one or more pharmaceutically acceptable excipients, for use in the treatment of

cancer requiring radiotherapy in a subject in need thereof.