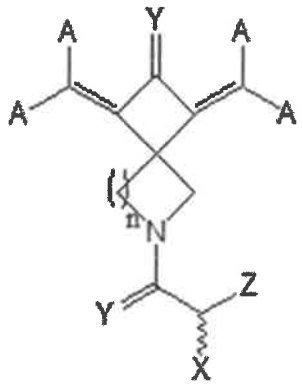
wherein X is Hydrogen, OR1 or NP, wherein P is selected from the group consisting of R1, C(O)R1 , C(O)OR1 , C(O)NR1 R2, S- N(R1)COOR1 , and S-N(R1), wherein Y is selected from the group consisting of O, S, NR1 and CR1 R2, and wherein R1 and R2 are selected from the group consisting of hydrogen, nitro, hydroxyl, carboxy, amino, halogen, cyano and C1-C14 linear or branched alkyl groups, that are optionally substituted with 1-3 substituents selected from the group consisting of C1-C14 linear or branched alkyl, up to perhalo substituted C 1-C14 linear or branched alkyl, C1-C14 alkoxy, hydrogen, nitro, hydroxyl, carboxy, amino, C1 -C14 alkylamino, C1-Cn dialkylamino, halogen, and cyano.; wherein Z is selected from the group consisting of hydrogen; C1 to C14 linear, branched, or cyclic alkyls; alkenyls, phenyl; benzyl, 1-5 substituted benzyl, C1 to C3 alkyl-phenyl, wherein the alkyl moiety is optionally substituted with halogen up to perhalo; up to perhalo substituted C1 to C14 linear or branched alkyls; -(CH_2)q-K, where K is a 5 or 6 membered monocyclic heterocyclic ring, containing 1 to 4 atoms selected from oxygen, nitrogen and sulfur, which is saturated, partially saturated, or aromatic, or an 8 to 10 membered bicyclic heteroaryl having 1-4 heteroatoms selected from the group consisting of O, N and S, wherein said alkyl moiety is optionally substituted with halogen up to perhalo, and wherein the variable q is an integer ranging from 0 to 4;

wherein B is (i) R1, C(O)R1 , C(O)OR1, C(O)NR1R2, S-N(R)COOR1, S- N(R1)COO(B), S(B); and wherein each R1-R2, other than perhalo substituted C1-C14 linear or branched alkyl, is optionally substituted with 1-3 substituents independently selected from the group consisting of C1-C14 linear or branched alkyl, up to perhalo substituted C1-C14 linear or branched alkyl, C1 -C3 alkoxy, hydroxyl, carboxy, amino, C1-C3 alkylamino, C1-C6 dialkylamino, halogen, cyano; and

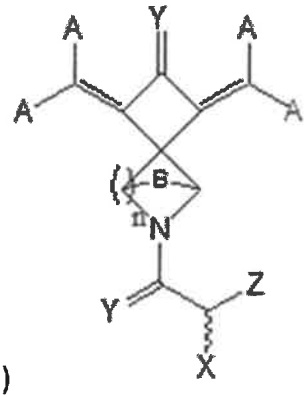
where in R3 is H, C $_{1-6}$-alkyl, C $_{2-6}$-alkenyl; C $_{1-3}$-alkoxy-C $_{1-6}$-alkyl-; C $_{1-3}$-alkoxy-C $_{2-6}$-alkenyl-; aryl-C $_{0-6}$-alkyl-; heteroaryl-C $_{0-6}$-alkyl-; heterocyclyl-C $_{0-6}$-alkyl-; cycloalkyl-C $_{0-6}$-alkyl-;---C $_{1-6}$-alkyl-COOC $_{1-6}$-alkyl;---C $_{2-6}$-alkyl-aryloxy; C $_{i-6}$ alkyl-heteroaryl; C $_{1-6}$-alkyl-heterocyclyl; C $_{1-6}$-alkyl-cycloalkyl; C $_{1-6}$-alkyl-aryl; COR^4, where R^4 is selected from: C $_{1-6}$-alkyl; C $_{2-6}$-alkenyl; C $_{1-6}$alkoxy; C $_{1-3}$-alkoxy-C $_{1-6}$-alkyl-; C $_{1-3}$-alkoxy-C $_{2-6}$-alkenyl-; aryl-C $_{0}$-

CLAIMS

1. Compounds having the structure of formula either I, or II, or III, or IV



(I)



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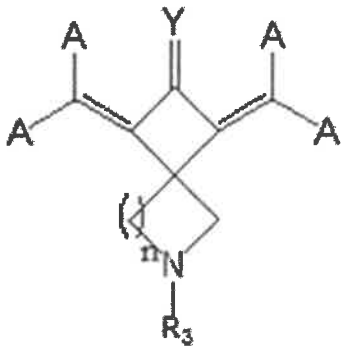


(III)

(IV)

wherein each pair of A is one of:

(i) phenyl, optionally substituted with 1-5 substituents selected from the group consisting of R1, OR1, NR1R2, S(O)qR1, SO_2NR1R2, NR1SO_2R2, C(O)R1, C(O)OR1, C(O)NR1R2, NR1C(O)R2, NR1C(O)OR2, CF_3, and OCF_3;

(ii) naphthyl, optionally substituted with 1-5 substituents selected from the consisting of R1, OR1, NR1R2, S(O)qR1, SO_2NR1R2, NR1SO_2R2, C(O)R1, C(O)OR1, C(O)NR1R2, NR1C(O)R2, NR1C(O)OR2, CF_3, and OCF_3;

(iii) a 5 or 6 membered monocyclic heteroaryl group, having 1-3 heteroatoms selected from the group consisting of O, N, and S, optionally substituted with 1-3 substituents selected from the group consisting of R1, OR1, NR1R2, S(O)qR1, SO_2NR1R2,

$NR1SO_2R2$, C(O)R1, C(O)OR1, C(O)NR1R2, NR1C(O)R2, NR1C(O)OR2, CF_3, and OCF_3; and

(iv) an 8 to 10 membered bicyclic heteroallyl group containing 1-3 heteroatoms selected from the group consisting of O, N, and S; and the second ring is fused to the first ring using 3 to 4 carbon atoms, and the bicyclic hetero aryl group is optionally substituted with 1-3 substituents selected from the group consisting of R1, OR1, NR1R2, S(O)qR1, SO_2NR1R2, $NR1SO_2R2$, C(O)R1, C(O)OR1, C(O)NR1 R2, NR1 C(O)R2, NR1C(O)OR2, CF_3, and OCF_3;

(v) any group belongs to R1 or R2

wherein n represents number of atoms ranging from 0-4 (0,1,2,3,4) and can be C, N, or O, wherein when n is N, it can be NH, NR1 or NR2;

wherein X is Hydrogen, OR1 or NP, wherein P is selected from the group consisting of R1 , C(O)R1 , C(O)OR1 , C(O)NR1 R2, S- N(R1)COOR1 , and S-N(R1), wherein Y is selected from the group consisting of O, S, NR1 and CR1 R2, and wherein R1 and R2 are selected from the group consisting of hydrogen, nitro, hydroxyl, carboxy, amino, halogen, cyano and C1-C14 linear or branched alkyl groups, that are optionally substituted with 1-3 substituents selected from the group consisting of C1-C14 linear or branched alkyl, up to perhalo substituted C1-C14 linear or branched alkyl, C1-C14 alkoxy, hydrogen, nitro, hydroxyl, carboxy, amino, C1 -C14 alkylamino, C1-Cn dialkylamino, halogen, and cyano;

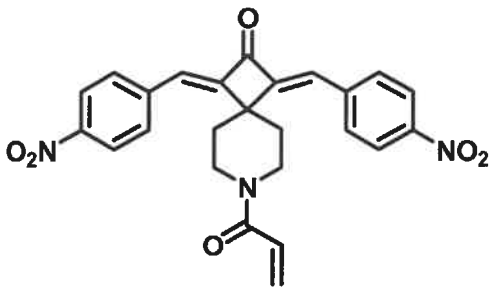
wherein Z is selected from the group consisting of hydrogen; C1 to C14 linear, branched, or cyclic alkyls; alkenyls, phenyl; benzyl, 1-5 substituted benzyl, C1 to C3 alkyl-phenyl, wherein the alkyl moiety is optionally substituted with halogen up to perhalo; up to perhalo substituted C1 to C14 linear or branched alkyls; $-(CH_2)q-K$, where K is a 5 or 6 membered monocyclic heterocyclic ring, containing 1 to 4 atoms selected from oxygen, nitrogen and sulfur, which is saturated, partially saturated, or aromatic, or an 8 to 10 membered bicyclic heteroaryl having 1-4 heteroatoms selected from the group consisting of O,N and S, wherein said alkyl moiety is optionally substituted with halogen up to perhalo, and wherein the variable q is an integer ranging from 0 to 4;

wherein B is (i) R1, C(O)R1 , C(O)OR1, C(O)NR1R2, S-N(R)COOR1, S- N(R1)COO(B), S(B); and wherein each R1-R2, other than per-halo substituted C1-C14 linear or branched alkyl, is optionally substituted with 1-3 substituents independently selected from the group consisting of C1-C14 linear or branched alkyl, up to perhalo substituted C1-C14 linear or branched alkyl, C1 -C3 alkoxy, hydroxyl, carboxy, amino, C1-C3 alkylamino, C1-C6 dialkylamino, halogen, cyano; and

wherein R_3 is H, C 1-6-alkyl, C 2-6-alkenyl; C 1-3-alkoxy-C 1-6-alkyl-; C 1-3-alkoxy-C 2-6-alkenyl- ;aryl-C 0-6-alkyl-;heteroaryl-C 0-6-alkyl-; heterocyclyl-C 0-6-alkyl-; cycloalkyl-C 0-6-alkyl-;---C 1-6-alkyl-COOC 1-6-alkyl;----C 2-6-alkyl-aryloxy; C 1-6-alkyl-heteroaryl; C 1-6-alkyl-heterocyclyl; C 1-6-alkyl-cycloalkyl; C 1-6-alkyl-aryl; COR^4, wherein R^4 is selected from: C 1-6-alkyl; C 2-6-alkenyl; C 1-6-alkoxy; C 1-3-alkoxy-C 1-6-alkyl-; C 1-3-alkoxy-C 2-6-alkenyl-; aryl-C 0-6-alkyl-; heteroaryl-C 0-6-alkyl-;heterocyclyl-C 0-6-alkyl-; cycloalkyl-C 0-6-alkyl-; -C 1-6-alkyl-COOC 1-6-alkyl; NH_2; -NHC 1-6-alkyl; -$N(C\ 1\text{-}6\text{-}alkyl)_2$; or -C 0-6-alkyl-aryloxy.

2. A compound according to claim 1 which binds to proteasomal proteins as either DUB inhibitor or proteasome receptor inhibitor.

3. The compound according to claim 1, wherein the compound has the formula



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4. Use of the compound according to any one of claims 1 to 3, in the preparation of a medicament for the inhibition of proteasomes in a mammal.

5. Use of the compound according to any one of claims 1 to 3, in the preparation of a medicament for treating a disease in a mammal.

6. The use of claim 5 or claim 5, wherein the mammal is a human, or a dog, or a cat.

7. The use of claim 5 or claim 6, wherein the disease is a type of cancer or diabetes or neurological disorders.

8. The use of any one of claims 4 to 7, wherein the compound of any one of claims 1 to 3 is for administration alone or in combination with at least one other therapeutic agent or radiation.

9. The compound according to any one of claims 1 to 3 for use in medicine.

10. The compound of claim 9, for use in inhibiting proteasomes in a mammal.

11. The compound of claim 9, for use in treating a disease in a mammal.