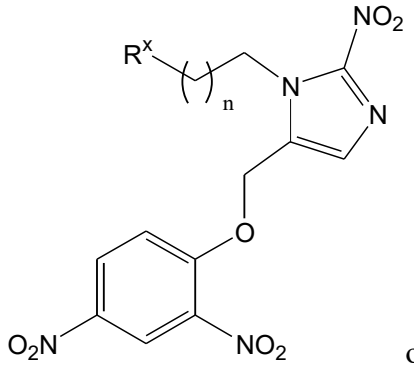
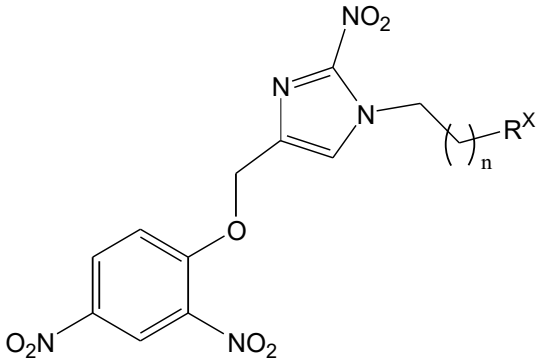
CLAIMS

1. A compound having structural formula (**I**) or (**II**):



or

(**I**)



(**II**)

or a pharmaceutically acceptable form or an isotope derivative thereof,

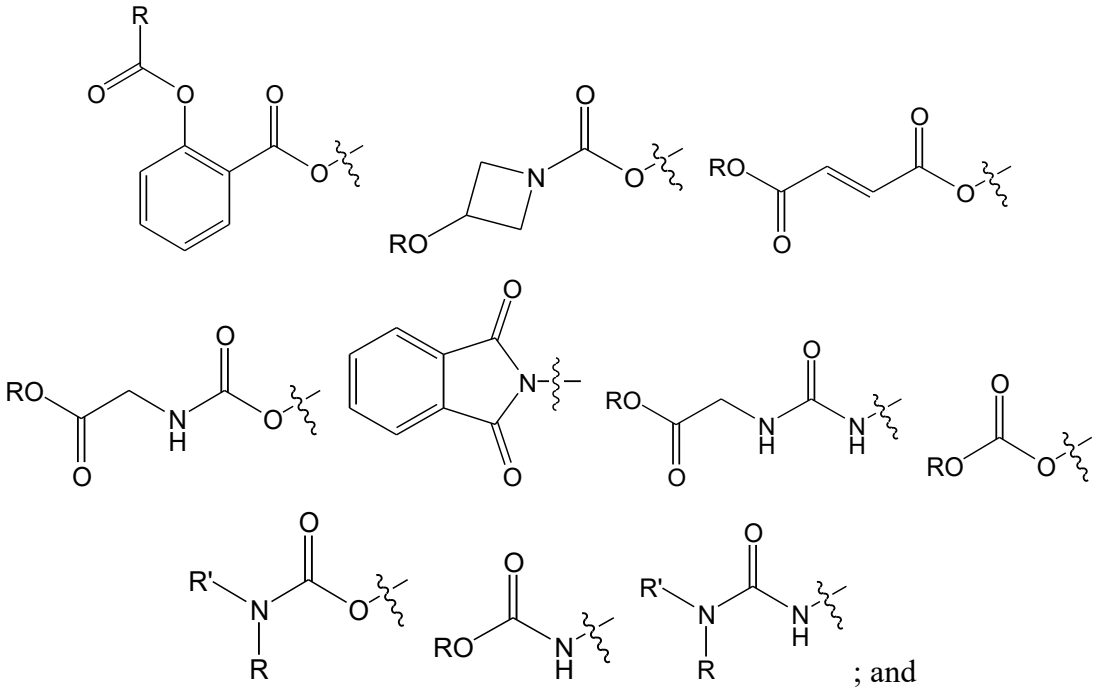
wherein

n is 1, 2, 3 or 4; and

R^X is R^{X1}, R^{X2} or R^{X3}, wherein

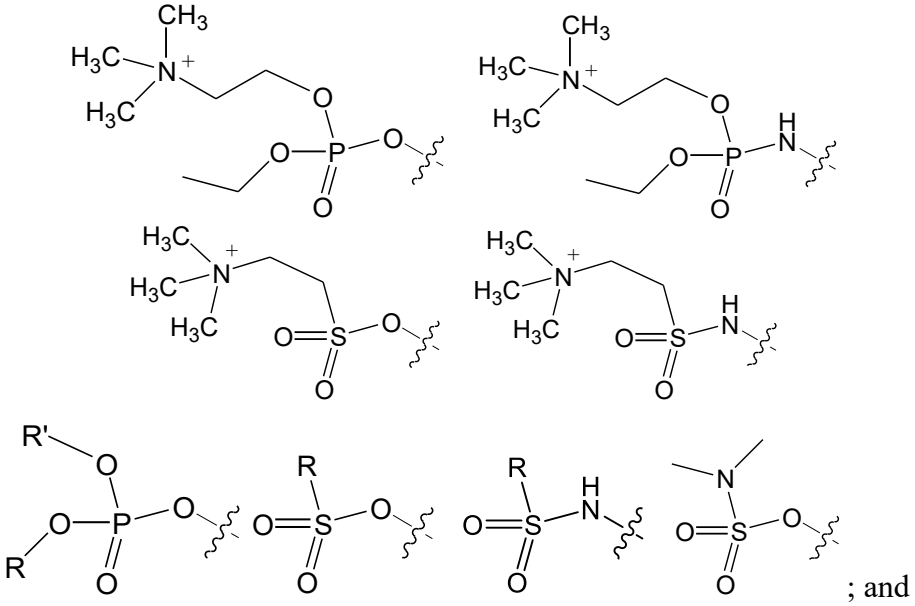
R^{X1} is a group selected from: $CH_2C(=O)OR^3$, $CH_2C(=O)SR^3$, $C(=O)NR^4R^5$, OR^6, SR^6, NR^7R^8, $NR^9C(=O)R^{10}$, $OC(=O)R^{11}$, $SC(=O)R^{12}$, $OC(=O)OR^{13}$, $SC(=O)OR^{13}$, $NR^9C(=O)OR^{13}$, $OC(=O)NR^{14}R^{15}$, $SC(=O)NR^{14}R^{15}$, $NR^9C(=O)NR^{14}R^{15}$, $OC(=O)SR^3$, $SC(=O)SR^3$, $NR^9C(=O)SR^3$, halo, CN, H, and $C_{1\text{-}6}$ alkyl; and

R^{X2} is a group selected from:



; and

R^{X3} is a group selected from:



; and

each of R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{11}, R^{12}, R^{13}, R^{14} and R^{15}:

is independently selected from H and C_{1-6} alkyl, 3- to 8-membered carbocyclic or heterocyclic ring, optionally substituted with 1-6 R^A, or

R^4 and R^5, R^7 and R^8, or R^{14} and R^{15}, together with the N atom they are bonded to, respectively, form a 3- to 8-membered heterocyclic ring, optionally substituted with 1-6 R^A;

each R^A is independently selected from the group consisting of: D, halo, R, OR and NRR'; and

each of R and R'

is independently H or C_{1-6} alkyl, optionally substituted with 1-4 groups selected from D, halo, C_{1-6} alkoxy and amino; or

R and R' together with the N atom they are bonded to, respectively, form a 3- to 6-membered heterocyclic ring, optionally substituted with 1-4 groups selected from D, halo, C_{1-6} alkyl or alkoxy, and amino.

2. The compound of claim 1, having the structural formula (**I**).

3. The compound of claim 1, having the structural formula (**II**).

4. The compound of any one of claims 1-3, wherein R^X is R^{X1}.

5. The compound of claim 4, wherein R^{X1} is $CH_2C(=O)OR^3$ or $OC(=O)R^{11}$.

6. The compound of claim 4, wherein R^{X1} is $C(=O)NR^4R^5$ or $NR^9C(=O)R^{10}$.

7. The compound of claim 4, wherein R^{X1} is $CH_2C(=O)SR^3$ or $SC(=O)R^{12}$.

8. The compound of claim 4, wherein R^{X1} is $OC(=O)OR^{13}$, $SC(=O)OR^{13}$, $NR^9C(=O)OR^{13}$, $OC(=O)NR^{14}R^{15}$, $SC(=O)NR^{14}R^{15}$, $NR^9C(=O)NR^{14}R^{15}$, $OC(=O)SR^3$, $SC(=O)SR^3$ or $NR^9C(=O)SR^3$.

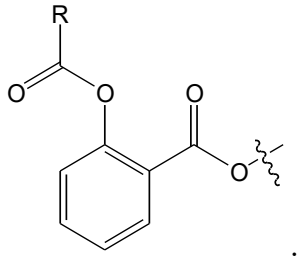
9. The compound of claim 4, wherein R^{X1} is OR^6 or SR^6.

10. The compound of claim 4, wherein R^{X1} is NR^7R^8.

11. The compound of claim 4, wherein R^{X1} is halo, CN or C_{1-3} alkyl.

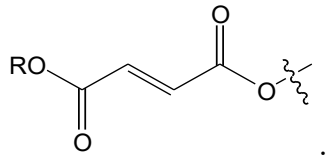
12. The compound of any one of claims 1-3, wherein R^X is R^{X2}.

13. The compound of claim 12, wherein R^{X2} is:



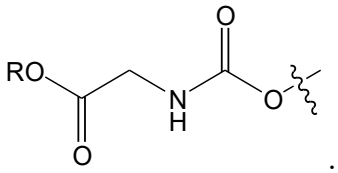
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14. The compound of claim 12, wherein R^{X2} is:



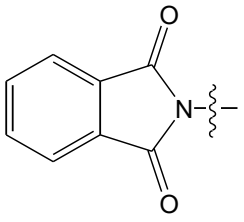
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15. The compound of claim 12, wherein R^{X2} is:



.

16. The compound of claim 12, wherein R^{X2} is:

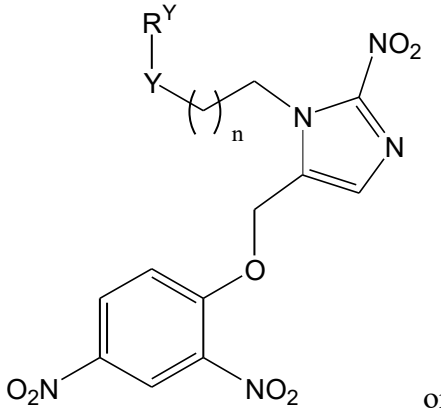


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17. The compound of any one of claims 1-3, wherein R^X is R^{X3}.

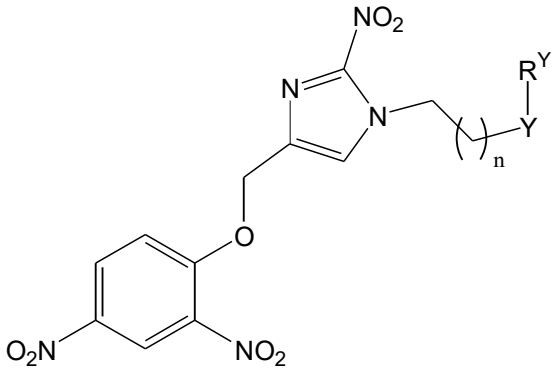
18. The compound of any one of claims 1-17, wherein each of R and R', if present, is independently H or C_{1-3} alkyl.

19. A compound having structural formula (**III**) or (**IV**):



or

(**III**)



(**IV**)

or a pharmaceutically acceptable form or an isotope derivative thereof,

wherein

n is 1, 2, 3 or 4;

Y is selected from a single bond, NR, S, CRR' and O;

R^Y is a group selected from: H, halo, CN, R, C(=O)OR, C(=O)NRR', C(=O)R and C(=O)SR; and

each of R and R' is independently H or C_{1-6} alkyl, or R and R', together with the N atom they are bonded to, form a 3- to 6-membered heterocyclic ring, wherein the alkyl or heterocyclic ring is optionally substituted with 1-4 groups selected from D, halo, C_{1-6} alkyl or alkoxy, and amino.

20. The compound of claim 19, having the structural formula (**III**).

21. The compound of claim 19, having the structural formula (**IV**).

22. The compound of any one of claims 19-21, wherein Y is O and R^Y is selected from R, C(=O)OR, C(=O)NRR', C(=O)R, and C(=O)SR.

23. The compound of any one of claims 19-21, wherein Y is S and R^Y is selected from R, C(=O)OR, C(=O)NRR', C(=O)R, and C(=O)SR.

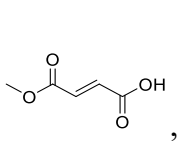
24. The compound of any one of claims 19-21, wherein Y is NR and R^Y is selected from R, C(=O)OR, C(=O)NRR', C(=O)R, and C(=O)SR.

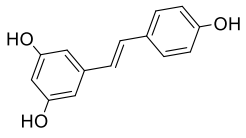
25. The compound of any one of claims 19-21, wherein Y is CH_2 and R^Y is selected from halo, CN, R, C(=O)OR, C(=O)NRR', C(=O)R, and C(=O)SR.

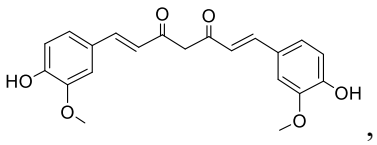
26. The compound of any one of claims 19-21, wherein Y is a single bond.

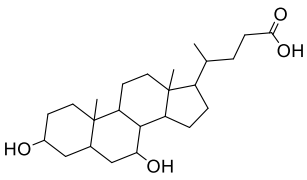
27. A compound selected from **Table 1A** or **Table 1B**.

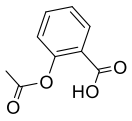
28. A conjugate compound formed by a compound according to any one of claims 1-27 and a biologically active moiety characterized by an anti-ROS and/or anti-inflammatory activity, wherein the biologically active moiety is selected from:



,


,


,


and


.

29. A pharmaceutical composition comprising a compound according to any of claims 1-27.

30. Use of a compound of any of claims 1-27, and a pharmaceutically acceptable excipient, carrier, or diluent, in preparation of a medicament for treating a disease or disorder selected from metabolic diseases, neurodegenerative diseases, aging-related diseases, liver disease, and cardiovascular disease, or a related disease or disorder.