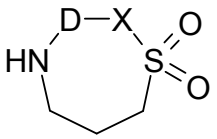
that the conversion of 3APS to 2-carboxyethanesulfonic acid in primary neuron culture media was significantly inhibited by vigabatrin, a classic GABA transaminase inhibitor. Nialamide, a monoamine oxidase inhibitor, also reduced the formation of 2-carboxyethanesulfonic acid (from 3APS) but to a lesser extent.

In one aspect of the present disclosure, there is provided a compound of Formula XII:



(XII)

wherein,

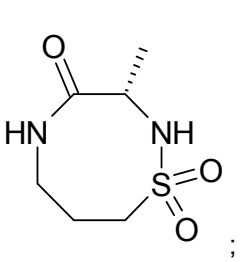
D is a carbonyl, or a substituted methylene group; and

X is selected from O, NH, and S;

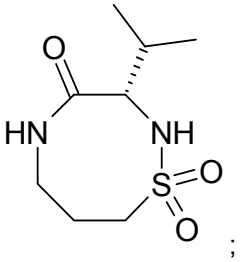
wherein the methylene is substituted with oxo or OR^{14}, wherein R^{14} is a group selected from C_1-C_{12}alkyl, C_2-C_{12}alkenyl, C_2-C_{12}alkynyl, C_3-C_{15}cycloalkyl, C_3-C_{15}heterocycloalkyl, C_6-C_{15}aryl, and C_5-C_{15}heteroaryl

or a pharmaceutically acceptable salt or solvate thereof.

In another aspect, the present disclosure refers to a compound, wherein said compound is:



;



;

or a pharmaceutically acceptable salt or solvate thereof.

In another aspect of the present disclosure, there is provided a pharmaceutical composition for use in treating or preventing a disease or condition selected from the group consisting of Alzheimer's disease, mild cognitive impairment Down's syndrome, Hereditary Cerebral Hemorrhage with Amyloidosis of the Dutch-Type, cerebral amyloid angiopathy, a degenerative dementia, a dementia of mixed vascular and degenerative origin, dementia associated with Parkinson's disease, dementia associated with progressive supranuclear palsy, dementia associated with cortical basal degeneration, and diffuse Lewy body type of Alzheimer's disease, comprising a compound as described herein together with a pharmaceutically acceptable carrier.

In yet another aspect of the present disclosure, there is provided a use of a compound as described herein in the manufacture of a medicament for treating or preventing a disease or condition selected from the group consisting of Alzheimer's disease, mild cognitive impairment Down's syndrome, Hereditary Cerebral Hemorrhage with Amyloidosis of the Dutch-Type, cerebral amyloid angiopathy, a degenerative dementia, a dementia of mixed vascular and degenerative origin,

dementia associated with Parkinson's disease, dementia associated with progressive supranuclear palsy, dementia associated with cortical basal degeneration, and diffuse Lewy body type of Alzheimer's disease.

In a further aspect of the present disclosure, there is provided a prodrug of 3-amino-1-propanesulfonic acid (3APS) or a pharmaceutically acceptable salt thereof, wherein said prodrug is a compound as described herein.

In another aspect of the present disclosure, there is provide the pharmaceutical composition comprising a prodrug as described herein together with a pharmaceutically acceptable carrier, for use in treating or preventing a disease or condition selected from the group consisting of Alzheimer's disease, mild cognitive impairment Down's syndrome, Hereditary Cerebral Hemorrhage with Amyloidosis of the Dutch-Type, cerebral amyloid angiopathy, a degenerative dementia, a dementia of mixed vascular and degenerative origin, dementia associated with Parkinson's disease, dementia associated with progressive supranuclear palsy, dementia associated with cortical basal degeneration, and diffuse Lewy body type of Alzheimer's disease.

In yet another aspect of the present disclosure, there is provided a use of a prodrug as described herein in the manufacture of a medicament for treating or preventing a disease or condition selected from the group consisting of Alzheimer's disease, mild cognitive impairment Down's syndrome, Hereditary Cerebral Hemorrhage with Amyloidosis of the Dutch-Type, cerebral amyloid angiopathy, a degenerative dementia, a dementia of mixed vascular and degenerative origin, dementia associated with Parkinson's disease, dementia associated with progressive supranuclear palsy, dementia associated with cortical basal degeneration, and diffuse Lewy body type of Alzheimer's disease.

In a further aspect of the present disclosure, there is provided a pharmaceutical composition for use in treating or preventing a neurodegenerative disease, comprising a compound as described herein together with a pharmaceutically acceptable carrier.

In another aspect of the present disclosure, there is provided a use of a compound as described herein in the manufacture of a medicament for treating or preventing a neurodegenerative disease.

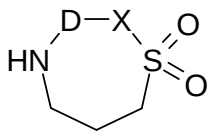
In yet another aspect of the present disclosure, there is provided a pharmaceutical composition for use in treating or preventing a neurodegenerative disease, comprising a prodrug as described herein together with a pharmaceutically acceptable carrier.

In a further aspect of the present disclosure, there is provided a use of the prodrug as described herein in the manufacture of a medicament for treating or preventing a neurodegenerative disease.

In another aspect of the present disclosure, there is provided a process for converting a compound as described herein, to 3-amino-1-propanesulfonic acid, comprising contacting said compound with an enzyme which metabolizes said compound to 3-amino-1-propanesulfonic acid *in vitro*.

CLAIMS

1. A compound of Formula XII:



(XII)

wherein,

D is a carbonyl or a substituted methylene group; and

X is selected from O, NH, and S;

wherein the methylene is substituted with oxo or OR^{14}, wherein R^{14} is a group selected from C_1-C_{12}alkyl, C_2-C_{12}alkenyl, C_2-C_{12}alkynyl, C_3-C_{15}cycloalkyl, C_3-C_{15}heterocycloalkyl, C_6-C_{15}aryl, and C_5-C_{15}heteroaryl

or a pharmaceutically acceptable salt or solvate thereof.

2. The compound of claim 1, wherein D is a carbonyl.

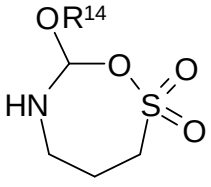
3. The compound of claim 1, wherein D is a substituted methylene group.

4. The compound of any one of claims 1 to 3, wherein X is an oxygen atom.

5. The compound of any one of claims 1 to 3, wherein X is a NH group.

6. The compound of any one of claims 1 to 3, wherein X is a sulfur atom.

7. The compound claim 1, wherein said compound is of Formula XII-A:



(XII-A)

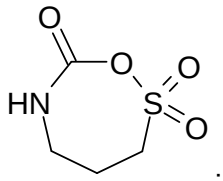
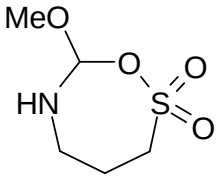
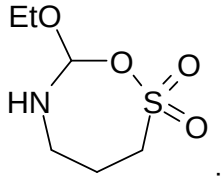
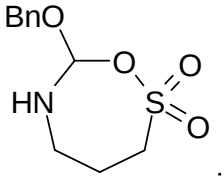
wherein,

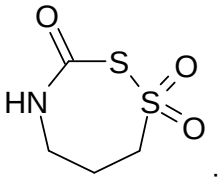
R^{14} is a group selected from C_1-C_{12}alkyl, C_2-C_{12}alkenyl, C_2-C_{12}alkynyl, C_3-C_{15}cycloalkyl, C_3-C_{15}heterocycloalkyl, C_6-C_{15}aryl, and C_5-C_{15}heteroaryl;
or a pharmaceutically acceptable salt or solvate thereof.

8. The compound of claim 7, wherein said R^{14} is a C_1-C_{12}alkyl group.

9. The compound of claim 8, wherein said R^{14} is a C_1-C_6alkyl group.

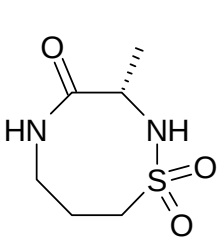
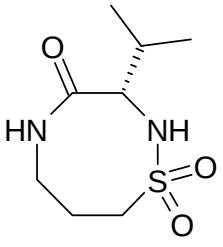
10. The compound of claim 1, wherein said compound is:


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;

;

or a pharmaceutically acceptable salt or solvate thereof.

11. A compound, wherein said compound is:


;

;

or a pharmaceutically acceptable salt or solvate thereof.

12. A pharmaceutical composition for use in treating or preventing a disease or condition selected from the group consisting of Alzheimer's disease, mild cognitive impairment

Down's syndrome, Hereditary Cerebral Hemorrhage with Amyloidosis of the Dutch-Type, cerebral amyloid angiopathy, a degenerative dementia, a dementia of mixed vascular and degenerative origin, dementia associated with Parkinson's disease, dementia associated with progressive supranuclear palsy, dementia associated with cortical basal degeneration, and diffuse Lewy body type of Alzheimer's disease, comprising a compound of any one of claims 1 to 11 together with a pharmaceutically acceptable carrier.

13. Use of a compound of any one of claims 1 to 11 in the manufacture of a medicament for treating or preventing a disease or condition selected from the group consisting of Alzheimer's disease, mild cognitive impairment Down's syndrome, Hereditary Cerebral Hemorrhage with Amyloidosis of the Dutch-Type, cerebral amyloid angiopathy, a degenerative dementia, a dementia of mixed vascular and degenerative origin, dementia associated with Parkinson's disease, dementia associated with progressive supranuclear palsy, dementia associated with cortical basal degeneration, and diffuse Lewy body type of Alzheimer's disease.

14. A prodrug of 3-amino-1-propanesulfonic acid (3APS) or a pharmaceutically acceptable salt thereof, wherein said prodrug is a compound of any one of claims 1 to 11.

15. The pharmaceutical composition comprising a prodrug of claim 14 together with a pharmaceutically acceptable carrier, for use in treating or preventing a disease or condition selected from the group consisting of Alzheimer's disease, mild cognitive impairment Down's syndrome, Hereditary Cerebral Hemorrhage with Amyloidosis of the Dutch-Type, cerebral amyloid angiopathy, a degenerative dementia, a dementia of mixed vascular and degenerative origin, dementia associated with Parkinson's disease, dementia associated with progressive supranuclear palsy, dementia associated with cortical basal degeneration, and diffuse Lewy body type of Alzheimer's disease.

16. Use of a prodrug of claim 14 in the manufacture of a medicament for treating or preventing a disease or condition selected from the group consisting of Alzheimer's disease, mild cognitive impairment Down's syndrome, Hereditary Cerebral Hemorrhage with Amyloidosis of the Dutch-Type, cerebral amyloid angiopathy, a degenerative

dementia, a dementia of mixed vascular and degenerative origin, dementia associated with Parkinson's disease, dementia associated with progressive supranuclear palsy, dementia associated with cortical basal degeneration, and diffuse Lewy body type of Alzheimer's disease.

17. The pharmaceutical composition for use of claim 12 or the use of claim 13, wherein the disease or condition is Alzheimer's disease, mild cognitive impairment, Hereditary Cerebral Hemorrhage with Amyloidosis of the Dutch-Type, or cerebral amyloid angiopathy.

18. The pharmaceutical composition for use or the use of claim 17, wherein said disease or condition is Alzheimer’s disease.

19. The pharmaceutical composition for use of claim 15 or the use of claim 16, wherein the disease or condition is Alzheimer's disease, mild cognitive impairment, Hereditary Cerebral Hemorrhage with Amyloidosis of the Dutch-Type, or cerebral amyloid angiopathy.

20. A pharmaceutical composition for use in treating or preventing a neurodegenerative disease, comprising a compound of any one of claims 1 to 11 together with a pharmaceutically acceptable carrier.

21. Use of a compound of any one of claims 1 to 11 in the manufacture of a medicament for treating or preventing a neurodegenerative disease.

22. The pharmaceutical composition for use of claim 12 or the use of claim 13, wherein said disease or condition is Parkinson’s disease.

23. The pharmaceutical composition for use or the use of claim 19, wherein said disease or condition is Alzheimer’s disease.

24. The pharmaceutical composition for use of claim 15 or the use of claim 16, wherein said disease or condition is Parkinson’s disease.

25. A pharmaceutical composition for use in treating or preventing a neurodegenerative disease, comprising a prodrug of claim 14 together with a pharmaceutically acceptable carrier.

26. Use of the prodrug of claim 14 in the manufacture of a medicament for treating or preventing a neurodegenerative disease.

27. A process for converting a compound of any one of claims 1 to 11, to 3-amino-1-propanesulfonic acid, comprising contacting said compound with an enzyme which metabolizes said compound to 3-amino-1-propanesulfonic acid *in vitro*.

28. The process of claim 27, comprising contacting said compound with plasma, blood, brain cells or any combination thereof.