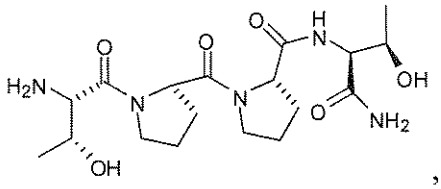
CLAIMS

1. ~~A method for treating autism in a patient in need thereof, comprising administering to said patient:~~

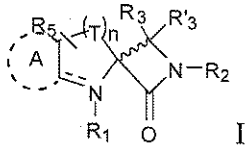
~~a pharmaceutically effective amount~~ Use of GLYX-13:



, or pharmaceutically acceptable salt thereof,

or

a pharmaceutically effective amount of a compound represented by Formula I:



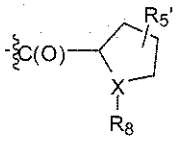
I

and pharmaceutically acceptable salts, stereoisomers, and N-oxides thereof; wherein

T is, independently for each occurrence, CR_4R_4', and n is 0, 1, 2 or 3;

A is optionally present and is selected from phenyl or pyridine, wherein A is optionally substituted by one or more substituents selected from R_a;

R_1 is selected from the group consisting of H, hydroxyl, $-S(O)_2-C_{1-4}$alkyl; $-SO_2$, C_{1-4}alkyl, C_2-C_4alkenyl, phenyl, R_7, or



, wherein C_{1-4}alkyl, C_{2-4}alkenyl, or phenyl is optionally substituted by one or more substituents selected from R_a;

X is CH or N;

R_3 and R_3' are independently selected from the group consisting of H, halogen, hydroxyl, phenyl, C_{1-4}alkyl, amido, amine, or C_{2-4}alkenyl, wherein C_{1-4}alkyl, C_{2-4}alkenyl and phenyl are optionally substituted by one or more substituents selected from R_a;

R_4 and R_4' are independently selected from the group consisting of H, halogen, hydroxyl, phenyl, C_{1-4}alkyl, amido, amine, C_{1-4}alkoxy or C_{2-4}alkenyl, wherein C_{1-4}alkyl, C_{2-4}alkenyl, C_{1-4}alkoxy, and phenyl are optionally substituted by one or more substituents selected from R_a;

R_2 is selected from the group consisting of H, R_7, -$S(O)_2$, $S(O)_2$-C_1-C_4alkyl, C_{1-4}alkyl, hydroxyl, or phenyl wherein C_{1-4}alkyl, C_{2-4}alkenyl and phenyl are optionally substituted by one or more substituents selected from R_a;

R_5 and R_5' are each independently selected from group consisting of H, halogen, C_{1-4}alkyl, C_{1-4}alkoxy, C_{2-4}alkenyl, cyano, amino, phenyl, and hydroxyl, wherein C_{1-4}alkyl, C_{2-4}alkenyl and phenyl are optionally substituted by one or more substituents selected from R_a;

R_7 is selected from group consisting of –C(O)-R_9, -C(O)-O-R_9, or -C(O)-NR_d-R_9,

R_9 is selected from the group consisting of H, C_{1-4}alkyl, phenyl, or heterocyclic, wherein C_{1-4}alkyl, phenyl or heterocyclic is optionally substituted by 1, 2 or 3 substituents selected from R_b

R_8 is selected from group consisting of H, –C(O)- C_{1-4}alkyl or C(O)-O- C_{1-4} alkyl, wherein C_{1-4}alkyl is optionally substituted by 1, 2 or 3 substituents selected from R_a;

R_a is selected, independently for each occurrence, from carboxy, hydroxyl, halogen, amino, phenyl, C_{1-4}alkyl, and C_{1-4}alkoxy;

R_b is selected, independently for each occurrence, from the group consisting of carboxy, hydroxyl, halogen, amino, phenyl, C_{1-4}alkyl, C_{1-4}alkoxy, and -NH-R_c;

R_c is selected, independently for each occurrence from the group consisting of: -C(O)-O-C_{1-4}alkyl; and –C(O)-C_{1-4}alkyl; and

R_d is selected, independently for each occurrence, H and C_{1-4}alkyl;

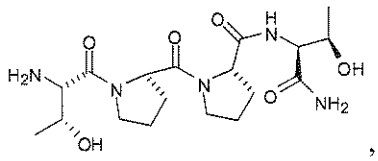
and pharmaceutically acceptable salts, N-oxides or stereoisomers thereof, in the manufacture of a medicament for treating autism in a patient in need thereof.

2. The ~~method~~ use of claim 1, wherein the medicament is to be administered to the patient and about 1 day after administration, the patient has substantial improvement in one or more autism symptoms.

3. The ~~method~~ use of any one of claims 1-2, wherein the medicament is to be administered to the patient and about 8 days after administration the patient has substantial improvement in one or more autism symptoms

4. ~~A method of treating a condition selected from the group consisting of epilepsy, AIDS dementia, multiple system atrophy, progressive supra-nuclear palsy, Friedrich's ataxia, Down's syndrome, fragile X syndrome, tuberous sclerosis, olivio-ponto-cerebellar atrophy, cerebral palsy, drug-induced optic neuritis, peripheral neuropathy, myelopathy, ischemic retinopathy, diabetic retinopathy, glaucoma, cardiac arrest, behavior disorders, and impulse control disorders, in a patient in need thereof, comprising administering to said patient:~~

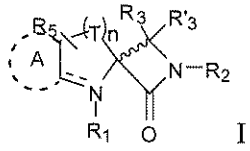
~~a pharmaceutically effective amount~~ Use of GLYX-13:



, or pharmaceutically acceptable salt thereof,

or

a pharmaceutically effective amount of a compound represented by Formula I:



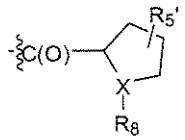
I

wherein

T is, independently for each occurrence, CR_4R_4', and n is 0, 1, 2 or 3;

A is optionally present and is selected from phenyl or pyridine, wherein A is optionally substituted by one or more substituents selected from R_a;

R_1 is selected from the group consisting of H, hydroxyl, $-S(O)_2-C_{1-4}$alkyl; $-SO_2$, C_{1-4}alkyl, C_2-C_4alkenyl, phenyl, R_7, or



, wherein C_{1-4}alkyl, C_{2-4}alkenyl, or phenyl is optionally substituted by one or more substituents selected from R_a;

X is CH or N;

R_3 and R_3' are independently selected from the group consisting of H, halogen, hydroxyl, phenyl, C_{1-4}alkyl, amido, amine, or C_{2-4}alkenyl, wherein C_{1-4}alkyl, C_2-

$_4$alkenyl and phenyl are optionally substituted by one or more substituents selected from R_a;

R_4 and R_4' are independently selected from the group consisting of H, halogen, hydroxyl, phenyl, C_1-$_4$alkyl, amido, amine, C_1-$_4$alkoxy or C_2-$_4$alkenyl, wherein C_1-$_4$alkyl, C_2-$_4$alkenyl, C_1-$_4$alkoxy, and phenyl are optionally substituted by one or more substituents selected from R_a;

R_2 is selected from the group consisting of H, R_7, -$S(O)_2$, $S(O)_2$-C_1-C_4alkyl, C_1-$_4$alkyl, hydroxyl, or phenyl wherein C_1-$_4$alkyl, C_2-$_4$alkenyl and phenyl are optionally substituted by one or more substituents selected from R_a;

R_5 and R_5' are each independently selected from group consisting of H, halogen, C_1-$_4$alkyl, C_1-$_4$alkoxy, C_2-$_4$alkenyl, cyano, amino, phenyl, and hydroxyl, wherein C_1-$_4$alkyl, C_2-$_4$alkenyl and phenyl are optionally substituted by one or more substituents selected from R_a;

R_7 is selected from group consisting of –C(O)-R_9, -C(O)-O-R_9, or -C(O)-NR_d-R_9,

R_9 is selected from the group consisting of H, C_1-$_4$alkyl, phenyl, or heterocyclic, wherein C_1-$_4$alkyl, phenyl or heterocyclic is optionally substituted by 1, 2 or 3 substituents selected from R_b

R_8 is selected from group consisting of H, –C(O)- C_1-$_4$alkyl or C(O)-O- C_1-$_4$ alkyl, wherein C_1-$_4$alkyl is optionally substituted by 1, 2 or 3 substituents selected from R_a;

R_a is selected, independently for each occurrence, from carboxy, hydroxyl, halogen, amino, phenyl, C_1-$_4$alkyl, and C_1-$_4$alkoxy;

R_b is selected, independently for each occurrence, from the group consisting of carboxy, hydroxyl, halogen, amino, phenyl, C_1-$_4$alkyl, C_1-$_4$alkoxy, and -NH-R_c;

R_c is selected, independently for each occurrence from the group consisting of: -C(O)-O-C_1-$_4$alkyl; and –C(O)-C_1-$_4$alkyl; and

R_d is selected, independently for each occurrence, H and C_1-$_4$alkyl;

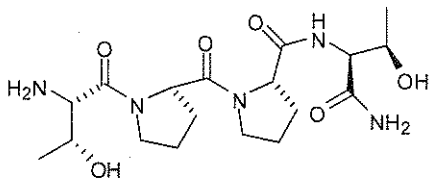
and pharmaceutically acceptable salts, N-oxides or stereoisomers thereof, in the manufacture of a medicament for treating a condition selected from the group consisting of epilepsy, AIDS dementia, multiple system atrophy, progressive supra-nuclear palsy, Friedrich's ataxia, Down's syndrome, fragile X syndrome, tuberous sclerosis, olivio-ponto-cerebellar atrophy, cerebral palsy, drug-induced optic neuritis, peripheral neuropathy, myelopathy, ischemic retinopathy, diabetic retinopathy, glaucoma, cardiac arrest, behavior disorders, and impulse control disorders, in a patient in need thereof.

5. The ~~method~~ use of claim 4, wherein the condition is fragile X syndrome.

6. The ~~method~~ use of any one of claims 1-5, wherein the ~~compound~~ medicament is to be administered intravenously, intraperitoneally, intranasally, orally, intramuscularly, or subcutaneously.

7. The ~~method~~ use of any one of claims 1-6, wherein the ~~method comprises administering~~ medicament is to be administered in a single-dose ~~of said compound~~.

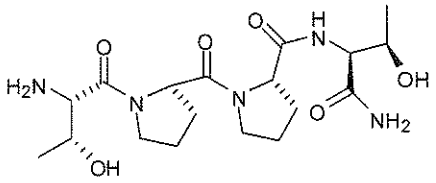
8. A method of modulating an autism target gene expression in a cell comprising contacting a call with an effective amount of the compound:



or pharmaceutically acceptable salts thereof.

9. The method of claim 8, wherein the autism target is selected from ABAT, APOE, CHRNA4, GABRA5,GFAP, GRIN2A, PDYN, an d PENK.

10. ~~A method of modulating synaptic plasticity in a patient suffering from a synaptic plasticity related disorder, comprising administering to the patient an effective amount~~ Use of the compound:



or pharmaceutically acceptable salts thereof, in the manufacture of a medicament for modulating synaptic plasticity in a patient suffering from a synaptic plasticity related disorder.

11. The ~~method~~ use of any one of claims 1-~~10~~7 and 10 and the method of any one of claims 8-9, wherein the patient is a pediatric patient.

12. ~~A method of treating attention deficit disorder, ADHD, schizophrenia, anxiety, amelioration of opiate, nicotine and/or ethanol addiction, traumatic brain injury, spinal cord injury, post-traumatic stress syndrome and/or Huntington's chorea, in a patient in need thereof, comprising administering to the patient:~~

~~a pharmaceutically effective amount~~ Use of GLYX-13:

R_2 is selected from the group consisting of H, R_7, $-S(O)_2$, $S(O)_2$-C_1-C_4alkyl, C_1-$_4$alkyl, hydroxyl, or phenyl wherein C_1-$_4$alkyl, C_2-$_4$alkenyl and phenyl are optionally substituted by one or more substituents selected from R_a;

R_5 and R_5' are each independently selected from group consisting of H, halogen, C_1-$_4$alkyl, C_1-$_4$alkoxy, C_2-$_4$alkenyl, cyano, amino, phenyl, and hydroxyl, wherein C_1-$_4$alkyl, C_2-$_4$alkenyl and phenyl are optionally substituted by one or more substituents selected from R_a;

R_7 is selected from group consisting of $-C(O)-R_9$, $-C(O)-O-R_9$, or $-C(O)-NR_d-R_9$,

R_9 is selected from the group consisting of H, C_1-$_4$alkyl, phenyl, or heterocyclic, wherein C_1-$_4$alkyl, phenyl or heterocyclic is optionally substituted by 1, 2 or 3 substituents selected from R_b

R_8 is selected from group consisting of H, $-C(O)-$ C_1-$_4$alkyl or $C(O)-O-$ C_1-$_4$ alkyl, wherein C_1-$_4$alkyl is optionally substituted by 1, 2 or 3 substituents selected from R_a;

R_a is selected, independently for each occurrence, from carboxy, hydroxyl, halogen, amino, phenyl, C_1-$_4$alkyl, and C_1-$_4$alkoxy;

R_b is selected, independently for each occurrence, from the group consisting of carboxy, hydroxyl, halogen, amino, phenyl, C_1-$_4$alkyl, C_1-$_4$alkoxy, and $-NH-R_c$;

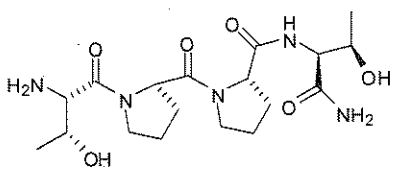
R_c is selected, independently for each occurrence from the group consisting of: $-C(O)-O-C_1$-$_4$alkyl; and $-C(O)-C_1$-$_4$alkyl; and

R_d is selected, independently for each occurrence, H and C_1-$_4$alkyl;

and pharmaceutically acceptable salts, N-oxides or stereoisomers thereof, in the manufacture of a medicament for treating attention deficit disorder, ADHD, schizophrenia, anxiety, amelioration of opiate, nicotine and/or ethanol addiction, traumatic brain injury, spinal cord injury, post-traumatic stress syndrome and/or Huntington's chorea, in a patient in need thereof.

13. ~~A method of treating Alzheimer's disease, or memory loss that accompanies early stage Alzheimer's disease in a patient in need thereof, comprising administering to the patient:~~

~~a pharmaceutically effective amount~~ Use of GLYX-13:



, or pharmaceutically acceptable salt thereof,

or

C_{2-4}alkenyl and phenyl are optionally substituted by one or more substituents selected from R_a;

R_7 is selected from group consisting of –C(O)-R_9, -C(O)-O-R_9, or -C(O)-NR_d-R_9,

R_9 is selected from the group consisting of H, C_{1-4}alkyl, phenyl, or heterocyclic, wherein C_{1-4}alkyl, phenyl or heterocyclic is optionally substituted by 1, 2 or 3 substituents selected from R_b

R_8 is selected from group consisting of H, –C(O)- C_{1-4}alkyl or C(O)-O- C_{1-4} alkyl, wherein C_{1-4}alkyl is optionally substituted by 1, 2 or 3 substituents selected from R_a;

R_a is selected, independently for each occurrence, from carboxy, hydroxyl, halogen, amino, phenyl, C_{1-4}alkyl, and C_{1-4}alkoxy;

R_b is selected, independently for each occurrence, from the group consisting of carboxy, hydroxyl, halogen, amino, phenyl, C_{1-4}alkyl, C_{1-4}alkoxy, and -NH-R_c;

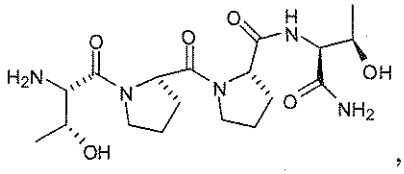
R_c is selected, independently for each occurrence from the group consisting of: -C(O)-O-C_{1-4}alkyl; and –C(O)-C_{1-4}alkyl; and

R_d is selected, independently for each occurrence, H and C_{1-4}alkyl;

and pharmaceutically acceptable salts, N-oxides or stereoisomers thereof, in the manufacture of a medicament for treating Alzheimer's disease, or memory loss that accompanies early stage Alzheimer's disease in a patient in need thereof.

14. ~~A method of treating Huntington's disease, in a patient in need thereof, comprising administering to the patient:~~

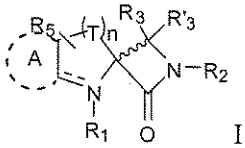
~~a pharmaceutically effective amount~~ Use of GLYX-13:



, or pharmaceutically acceptable salt thereof,

or

a pharmaceutically effective amount of a compound represented by Formula I:



I

R_9 is selected from the group consisting of H, C_{1-4}alkyl, phenyl, or heterocyclic, wherein C_{1-4}alkyl, phenyl or heterocyclic is optionally substituted by 1, 2 or 3 substituents selected from R_b

R_8 is selected from group consisting of H, –C(O)- C_{1-4}alkyl or C(O)-O- C_{1-4} alkyl, wherein C_{1-4}alkyl is optionally substituted by 1, 2 or 3 substituents selected from R_a;

R_a is selected, independently for each occurrence, from carboxy, hydroxyl, halogen, amino, phenyl, C_{1-4}alkyl, and C_{1-4}alkoxy;

R_b is selected, independently for each occurrence, from the group consisting of carboxy, hydroxyl, halogen, amino, phenyl, C_{1-4}alkyl, C_{1-4}alkoxy, and -NH-R_c;

R_c is selected, independently for each occurrence from the group consisting of: -C(O)-O-C_{1-4}alkyl; and –C(O)-C_{1-4}alkyl; and

R_d is selected, independently for each occurrence, H and C_{1-4}alkyl;

and pharmaceutically acceptable salts, N-oxides or stereoisomers thereof, in the manufacture of a medicament for treating Huntington's disease, in a patient in need thereof.