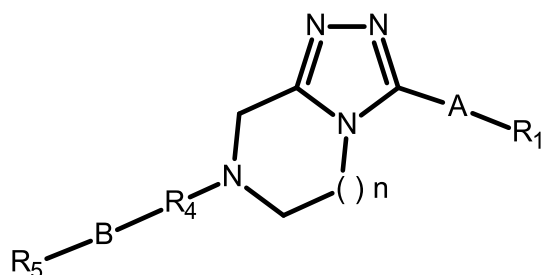


CLAIMS:

1. A compound having the general formula I:

(I)



or an enantiomer, diastereomer, N-oxide, or a pharmaceutically acceptable salt thereof, wherein:

R₁ is an optionally substituted C₃-C₅ heterocyclic group containing at least 1 heteroatom selected from N, O, and S; an optionally substituted C₃-C₆ cycloalkyl group or an optionally substituted C₃-C₆ cycloalkenyl group, wherein the optional substituents are selected from the group consisting of a halogen atom, C₁-C₆ alkyl, C₁-C₆ alkoxy, hydroxy, mercapto, nitro or a cyano group;

and

A is a triple bond;

n is 1;

R₄ is a carbonyl;

B is oxygen, sulphur or nitrogen, wherein the nitrogen is optionally substituted by a C₁₋₅ alkyl or alkoxy, or null; and

R₅ is an optionally substituted mono-, bi- or tricyclic C₆-C₁₄ aryl group, an optionally substituted mono-, bi- or tricyclic C₁-C₁₃ heterocyclic group containing from 1 to 5 heteroatoms selected from N, O, and S, an optionally substituted C₃-C₆ cycloalkyl group, an optionally substituted C₃-C₆ cycloalkenyl group or an optionally substituted linear or branched C₁ to C₂₀ alkyl group.

2. The compound according to claim 1 wherein the optional substituents are independently selected from halogen atoms and C₁-C₆ alkyl, C₁-C₆ alkoxy, hydroxy, mercapto, nitro, cyano, oxo, halo(C₁-C₆)alkyl, halo(C₁-C₆)alkoxy, C₁-C₆ alkylthio, C₁-C₆ alkylsulphonyl, C₁-C₆ alkylcarbonyl, sulphamoyl, C₁-C₆ alkylsulphamoyl, di(C₁-C₆)alkylsulphamoyl, (C₁-

C₆)alkoxycarbonyl and (C₁-C₆)alkylcarbonyl(C₁-C₆)alkyl groups, and from groups of the formulae -NR^{*}R^{*}, -C(=O)-NR^{*}R^{*}, -A, -O-A, -C(=O)-A, -(CH₂)_q-A, -NR^{**}-A, -C(=O)-NR^{**}-A, -NR^{**}C(=O)-A and -O-C(=O)-A wherein each R^{*} independently represents a hydrogen atom or a C₁-C₆ alkyl, C₁-C₆ alkoxy, C₁-C₆ alkylcarbonyl, phenyl or benzyl group, R^{**} represents a hydrogen atom or a C₁-C₆ alkyl group, q is an integer from 1 to 6 and A represents a phenyl group or a C₁-C₈ heterocyclic group containing from 1 to 3 heteroatoms selected from N, O and S; a C₁-C₆ cycloalkyl group; each group A being optionally substituted with from 1 to 3 groups independently selected from halo, hydroxy, cyano, nitro and C₁-C₆ alkyl.

3. The compound according to claim 2 wherein the optional substituents are selected from the groups consisting of halogen atoms and C₁-C₆ alkyl groups.

4. The compound according to claim 1 wherein B is O, N optionally substituted with C₁₋₅ alkyl or alkoxy such as a methoxy or null.

5. The compound according to claim 1 wherein if B is O, R₅ is a C₁-C₁₃ heterocyclic group containing from 1 to 5 heteroatoms selected from N, O, and S, or an optionally substituted linear or branched C₁ to C₂₀ alkyl group; if B is null, R₅ is an optionally substituted mono-, bi- or tricyclic C₆-C₁₄ aryl group, an optionally substituted mono-, bi- or tricyclic C₁-C₁₃ heterocyclic group containing from 1 to 5 heteroatoms selected from N, O, and S, an optionally substituted C₃-C₆ cycloalkyl group, or an optionally substituted C₃-C₆ cycloalkenyl group; and if B is N optionally substituted by a C₁₋₅ alkyl or alkoxy, R₅ is an optionally substituted linear or branched C₁ to C₂₀ alkyl group.

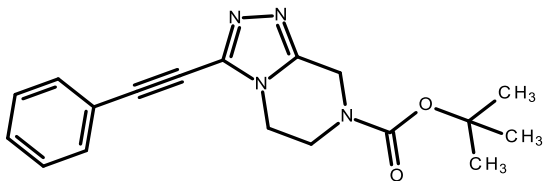
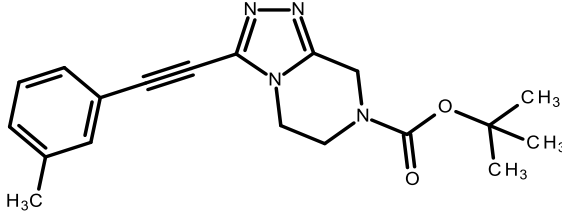
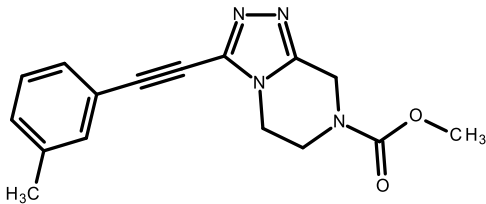
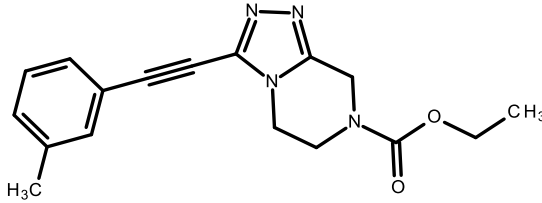
6. A compound according to any one of the foregoing claims, wherein R₁ represents an optionally substituted C₃-C₅ heterocyclic group containing from 1 to 3 heteroatoms selected from nitrogen, oxygen and sulfur and R₅ is selected from the group consisting of a 2-furyl, 3-methylphenyl, 3-chlorophenyl, 5-methyl-2-furyl, 3-furyl, 2,5-dimethyl-3-furyl, 4-morpholinyl, piperidinyl and pyrrolidinyl group.

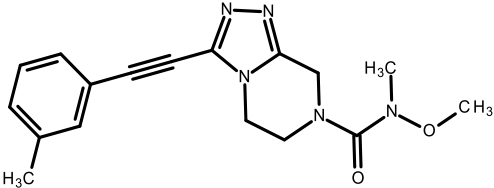
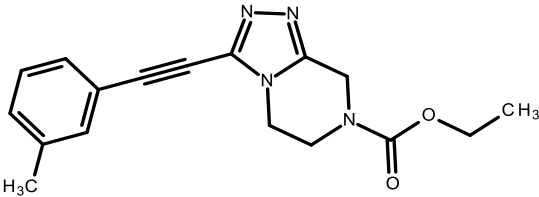
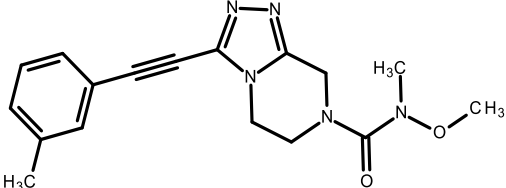
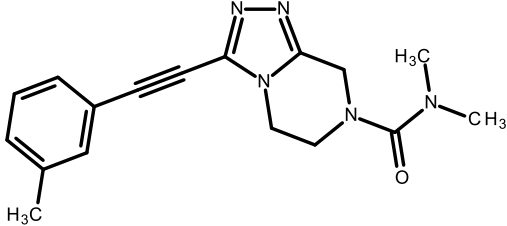
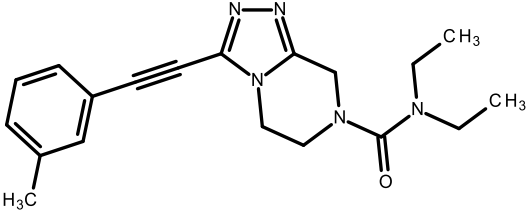
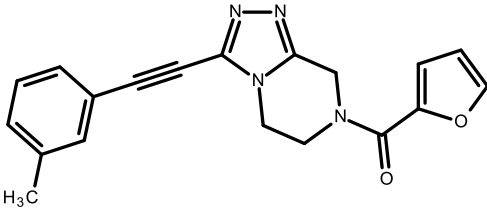
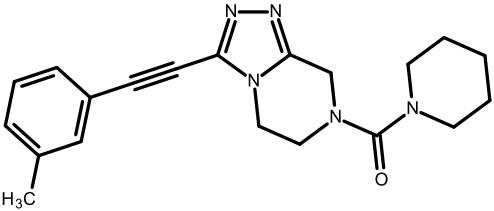
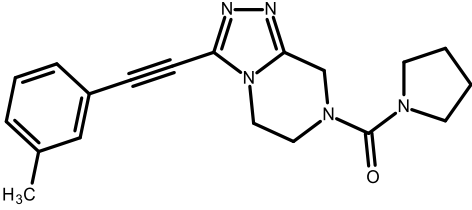
7. A compound according to any one of claims 1 to 5 wherein when B is Oxygen, R₁ represents an optionally substituted C₃-C₅ heterocyclic group containing from 1 to 3 heteroatoms selected from nitrogen, oxygen and sulfur, and R₅ is selected from the group

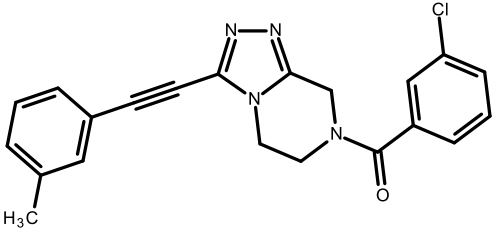
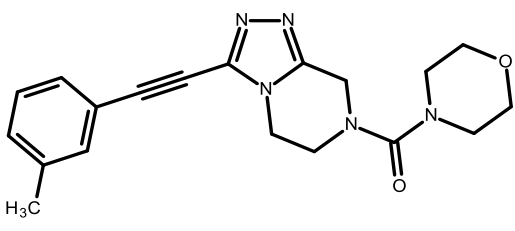
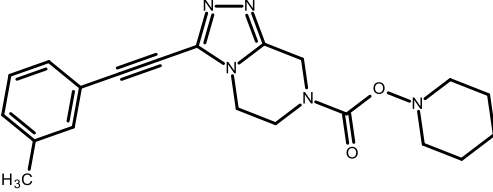
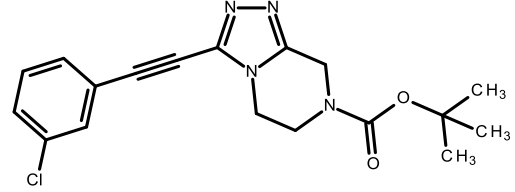
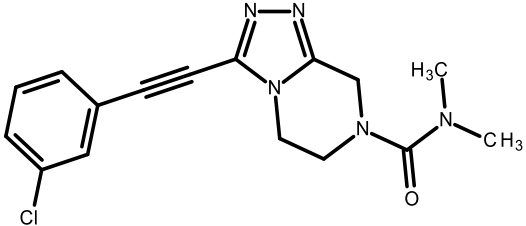
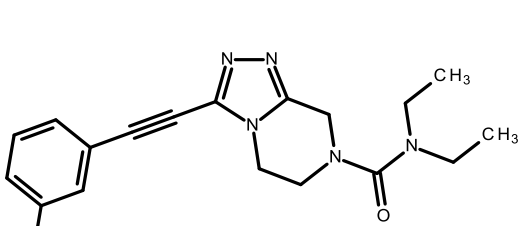
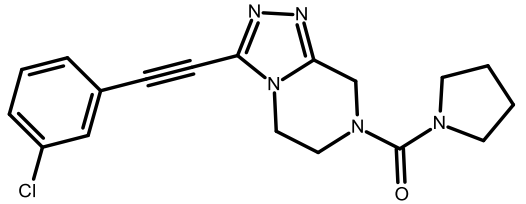
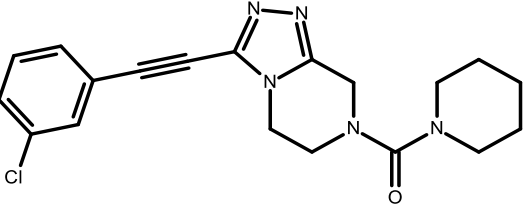
consisting of an alkyl group, optionally substituted, chosen from methyl, ethyl, isopropyl, propyl, tert-butyl, butyl, isobutyl; or wherein, when B is nitrogen or N-alkyl chosen from methyl, ethyl, isopropyl, propyl, tert-butyl, butyl, isobutyl or methoxy, R₁ represents an optionally substituted C₃-C₅ heterocyclic group containing from 1 to 3 heteroatoms selected from nitrogen, oxygen and sulfur, and R₅ is selected from the group consisting of an alkyl group optionally substituted chosen from methyl, ethyl, isopropyl, propyl, tert-butyl, butyl, isobutyl.

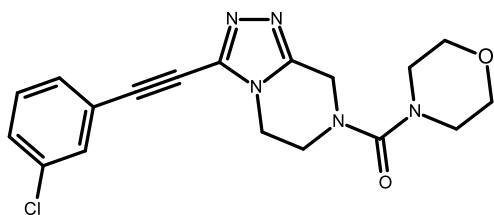
8. A compound according to claim 6 wherein the compound is 3-[2-(3-chlorophenyl)ethynyl]-N,N-diethyl-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazine-7-carboxamide, which is a compound wherein R₁ is a 3-chlorophenyl, B is an ethylated nitrogen and R₅ is an ethyl group.

9. A compound according to claim 1 optionally including a pharmaceutically acceptable carrier or diluent wherein the compound is selected from the group consisting of:

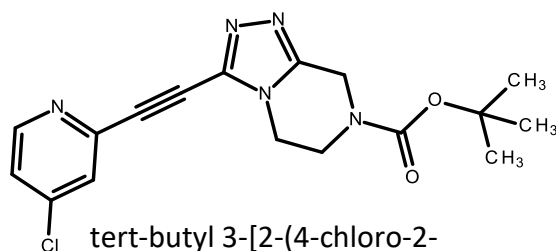
 tert-butyl 3-(2-phenylethynyl)-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazine-7-carboxylate	 tert-butyl 3-[2-(m-tolyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazine-7-carboxylate
 methyl 3-[2-(m-tolyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazine-7-carboxylate	 ethyl 3-[2-(m-tolyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazine-7-carboxylate

 N-methoxy-N-methyl-3-[2-(m-tolyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazine-7-carboxamide	 ethyl 3-[2-(m-tolyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazine-7-carboxylate
 N-methoxy-N-methyl-3-[2-(m-tolyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazine-7-carboxamide	 N,N-dimethyl-3-[2-(m-tolyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazine-7-carboxamide
 N,N-diethyl-3-[2-(m-tolyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazine-7-carboxamide	 2-furyl-[3-[2-(m-tolyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazin-7-yl]methanone
 ([3-[2-(m-tolyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazin-7-yl]-(1-piperidyl)methanone	 [3-[2-(m-tolyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazin-7-yl]-pyrrolidin-1-yl-methanone

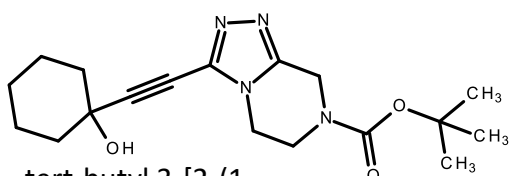
 (3-chlorophenyl)-[3-[2-(m-tolyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazin-7-yl]methanone	 morpholino-[3-[2-(m-tolyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazin-7-yl]methanone
 1-piperidyl 3-[2-(m-tolyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazine-7-carboxylate	 tert-butyl 3-[2-(3-chlorophenyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazine-7-carboxylate
 3-[2-(3-chlorophenyl)ethynyl]-N,N-dimethyl-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazine-7-carboxamide	 3-[2-(3-chlorophenyl)ethynyl]-N,N-diethyl-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazine-7-carboxamide
 [3-[2-(3-chlorophenyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazin-7-yl]-pyrrolidin-1-yl-methanone	 [3-[2-(3-chlorophenyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazin-7-yl]-(1-piperidyl)methanone



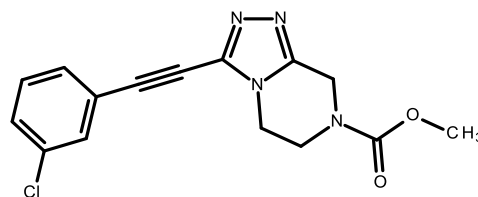
[3-[2-(3-chlorophenyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazin-7-yl]-morpholino-methanone



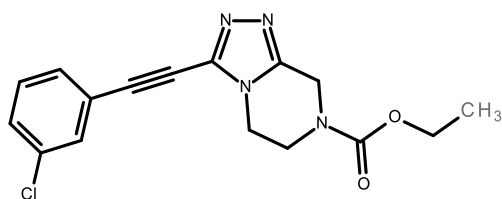
tert-butyl 3-[2-(4-chloro-2-pyridyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazine-7-carboxylate



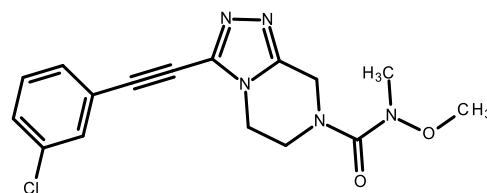
tert-butyl 3-[2-(1-hydroxycyclohexyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazine-7-carboxylate



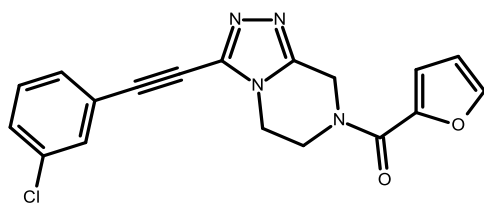
methyl 3-[2-(3-chlorophenyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazine-7-carboxylate



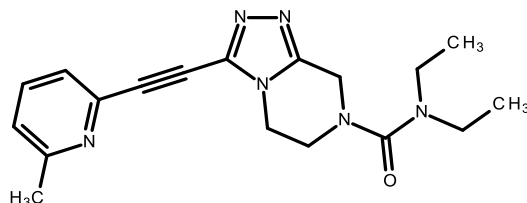
ethyl 3-[2-(3-chlorophenyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazine-7-carboxylate



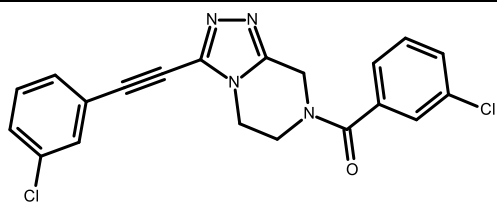
3-[2-(3-chlorophenyl)ethynyl]-N-methoxy-N-methyl-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazine-7-carboxamide



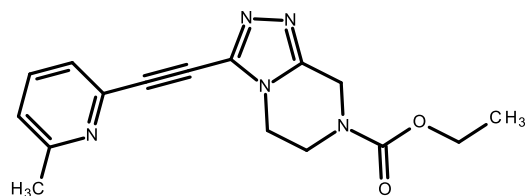
[3-[2-(3-chlorophenyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazin-7-yl]-(2-furyl)methanone



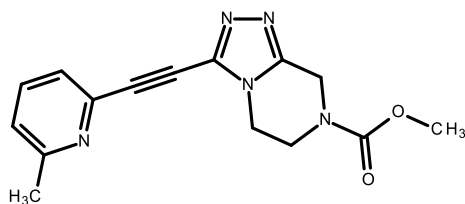
N,N-diethyl-3-[2-(6-methyl-2-pyridyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazine-7-carboxamide



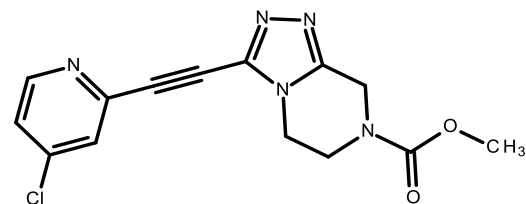
(3-chlorophenyl)-[3-[2-(3-chlorophenyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazin-7-yl]methanone



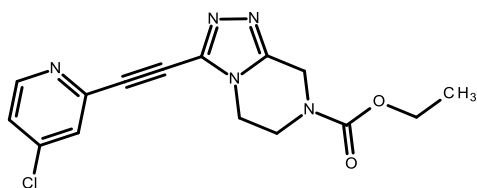
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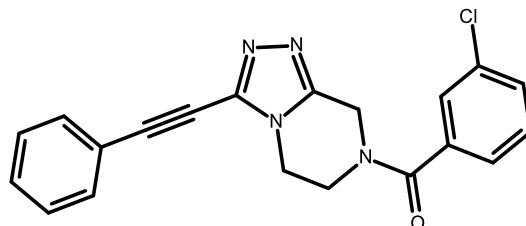
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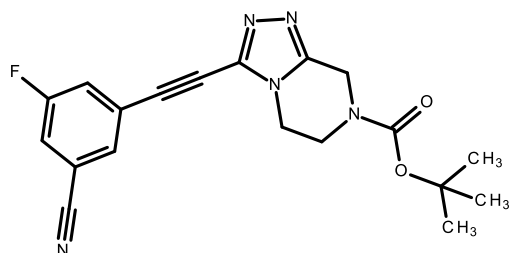
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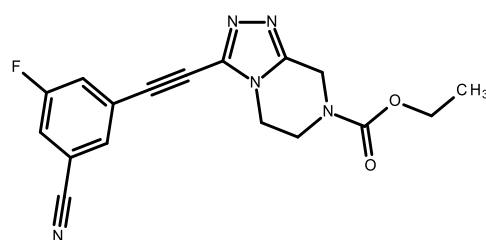
ethyl 3-[2-(4-chloro-2-pyridyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazine-7-carboxylate



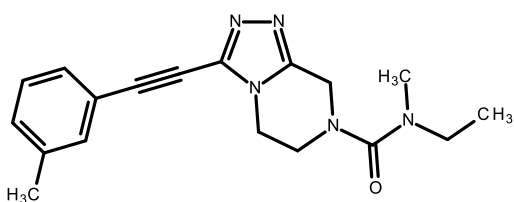
(3-chlorophenyl)-[3-(2-phenylethynyl)-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazin-7-yl]methanone



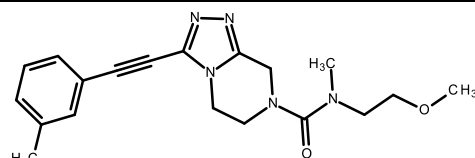
tert-butyl 3-[2-(3-cyano-5-fluorophenyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazine-7-carboxylate



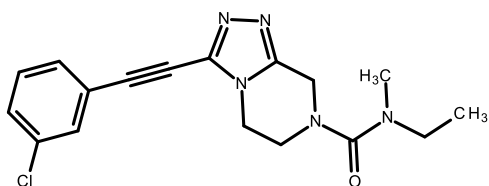
ethyl 3-[2-(3-cyano-5-fluorophenyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazine-7-carboxylate



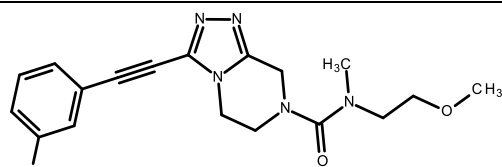
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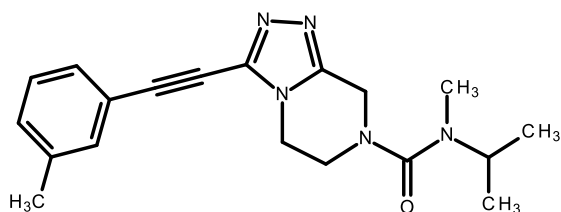
N-(2-methoxyethyl)-N-methyl-3-[2-(m-tolyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazine-7-carboxamide



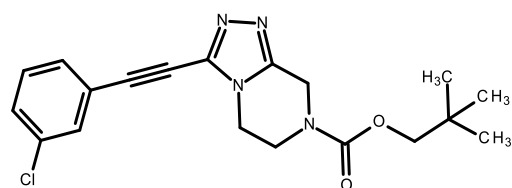
3-[2-(3-chlorophenyl)ethynyl]-N-ethyl-N-methyl-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazine-7-carboxamide



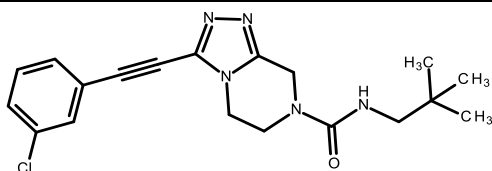
3-[2-(3-chlorophenyl)ethynyl]-N-(2-methoxyethyl)-N-methyl-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazine-7-carboxamide



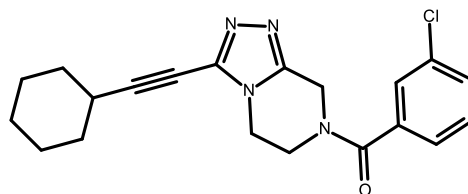
N-isopropyl-N-methyl-3-[2-(m-tolyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazine-7-carboxamide



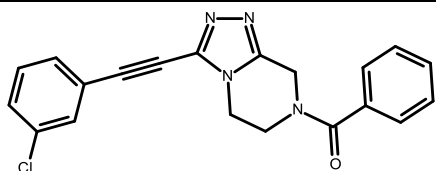
2,2-dimethylpropyl 3-[2-(3-chlorophenyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazine-7-carboxylate



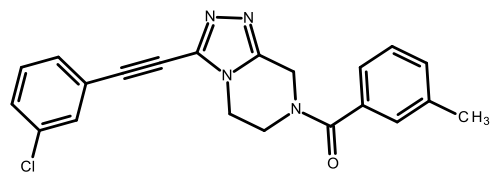
3-[2-(3-chlorophenyl)ethynyl]-N-(2,2-dimethylpropyl)-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazine-7-carboxamide



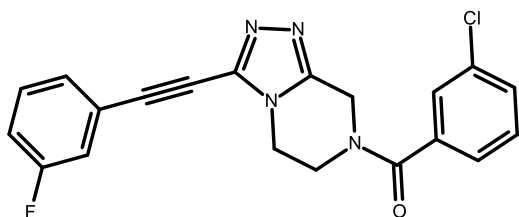
(3-chlorophenyl)-[3-(2-cyclohexylethynyl)-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazin-7-yl]methanone



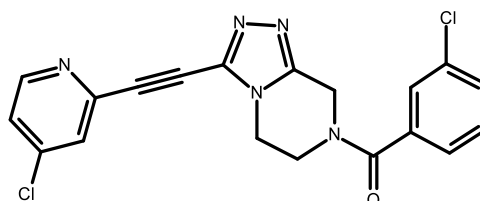
[3-[2-(3-chlorophenyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazin-7-yl]-phenyl-methanone



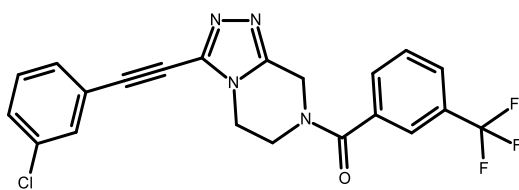
[3-[2-(3-chlorophenyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazin-7-yl]-(m-tolyl)methanone



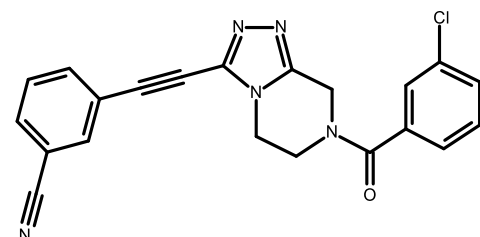
(3-chlorophenyl)-[3-[2-(3-fluorophenyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazin-7-yl]methanone



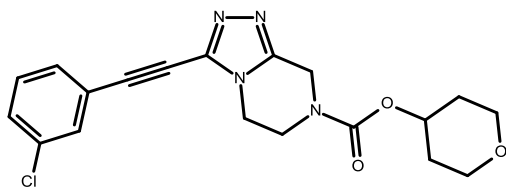
(3-chlorophenyl)-[3-[2-(4-chloro-2-pyridyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazin-7-yl]methanone



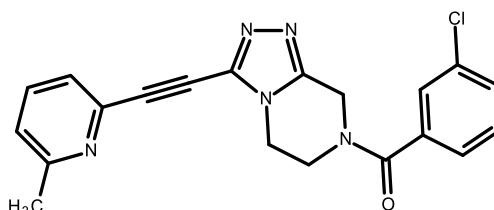
[3-[2-(3-chlorophenyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazin-7-yl]-[3-(trifluoromethyl)phenyl]methanone



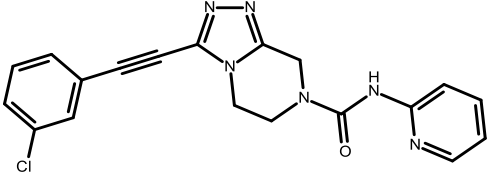
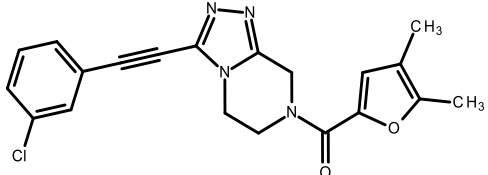
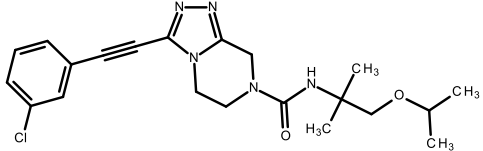
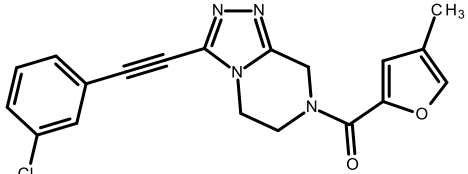
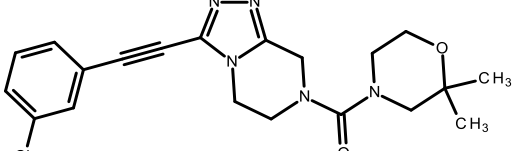
3-[2-[7-(3-chlorobenzoyl)-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazin-3-yl]ethynyl]benzonitrile



tetrahydropyran-4-yl 3-[2-(3-chlorophenyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazine-7-carboxylate



(3-chlorophenyl)-[3-[2-(6-methyl-2-pyridyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazin-7-yl]methanone

 3-[2-(3-chlorophenyl)ethynyl]-N-(2-pyridyl)-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazine-7-carboxamide	 [3-[2-(3-chlorophenyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazin-7-yl]-(4,5-dimethyl-2-furyl)methanone
 3-[2-(3-chlorophenyl)ethynyl]-N-(2-isopropoxy-1,1-dimethyl-ethyl)-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazine-7-carboxamide	 [3-[2-(3-chlorophenyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazin-7-yl]-(4-methyl-2-furyl)methanone
 [3-[2-(3-chlorophenyl)ethynyl]-6,8-dihydro-5H-[1,2,4]triazolo[4,3-a]pyrazin-7-yl]-(2,2-dimethylmorpholin-4-yl)methanone	

10. A compound according to any one of the preceding claims for use in the treatment or prevention of a neurological and psychiatric disorder associated with glutamate dysfunction such as schizophrenia or cognitive decline, dementia or cognitive impairment.

11. A compound for use according to claim 10 wherein the disorder treated is selected from the group consisting of: Rett's syndrome, Phelan-McDermid syndrome, psychosis, schizophrenia, autism cognitive disorders, tuberous sclerosis, cognition disorders, Alzheimer's dementia or wherein the compound is an mGlu₅ negative allosteric modulator and the disorder is selected from the group consisting of: addiction, major depressive disorder, anxiety, epilepsy, Fragile X syndrome, gastroesophageal reflux disease (GERD), substance abuse and dependence, Parkinson's disease and L-Dopa induced dyskinesia, urinary incontinence, irritable bowel syndrome (IBS) and pain.

12. Use of the compound according to any one of claims 1 to 9 in the manufacture of a medicament for the treatment or prevention of a neurological and psychiatric disorder associated with glutamate dysfunction such as schizophrenia or cognitive decline, dementia or cognitive impairment, wherein the compound is to be administered to a subject in need thereof.

13. The use of claim 12, wherein the compound is an mGlu5 positive allosteric modulator and the disorder treated is selected from the group consisting of: Rett's syndrome, Phelan-McDermid syndrome, psychosis, schizophrenia, autism cognitive disorders, tuberous sclerosis, cognition disorders, Alzheimer's dementia.

14. The use of claim 12, wherein the compound is an mGlu5 negative allosteric modulator and the disorder is selected from the group consisting of: addiction, major depressive disorder, anxiety, epilepsy, Fragile X syndrome, gastroesophageal reflux disease (GERD), substance abuse and dependence, Parkinson's disease and L-Dopa induced dyskinesia, urinary incontinence, irritable bowel syndrome (IBS) and pain.