

However, a major challenge in developing inhibitors for blocking the function of mammalian glycosidases, including O-GlcNAcase, is the large number of functionally related enzymes present in tissues of higher eukaryotes. Accordingly, the use of non-selective inhibitors in studying the cellular and organismal physiological role of one particular enzyme is complicated because complex phenotypes arise from the concomitant inhibition of such functionally related enzymes. In the case of β -N-acetylglucosaminidases, existing compounds that act to block O-GlcNAcase function are non-specific and act potently to inhibit the lysosomal β -hexosaminidases.

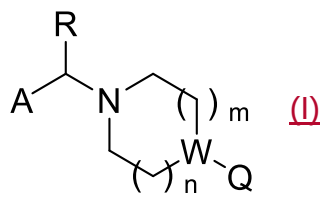
Low molecular weight OGA inhibitors are e.g. disclosed in the international applications WO 2008/025170 and WO 2014/032187, which are structurally different from the compounds of the present invention. Further compounds that have some structurally similar elements are disclosed in WO 2016/030443, US 3489757, US 3299067, WO 99/21850, WO 2005/110982 and WO 2009/053373. However, these compounds do not show the improved pharmacological properties more closely described below.

Presently, no OGA inhibitor has reached the market. Thus, there is a need for low molecular weight molecules that selectively inhibit OGA and provide improved pharmacological properties that are of high relevance in drug development.

The present invention has the objective of providing novel compounds having valuable properties, in particular those which can be used for the preparation of medicaments.

Summary

In one aspect of the present disclosure, there is provided a sulfoximine group-containing compound of formula (I)

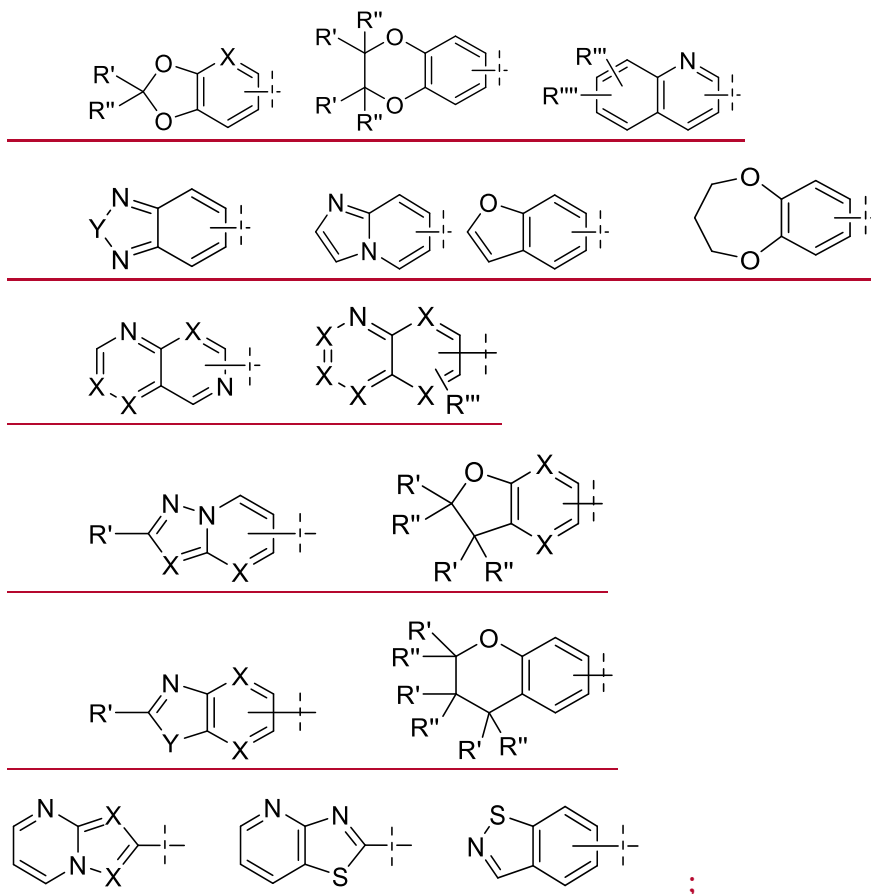


wherein

R is straight chain or branched alkyl having 1 to 6 carbon atoms, wherein 1 to 5 hydrogen atoms may be replaced by Hal or OH;

W is CH or N;

A denotes one of the following groups:

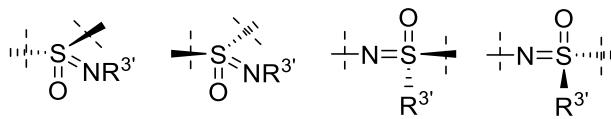


X is N or CR''';

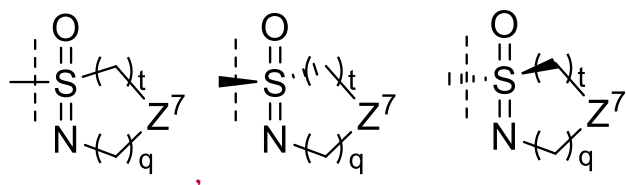
Y is O, S, SO or SO₂;

R', R'' denote each independently H, Hal or straight chain or branched alkyl having 1 to 12 carbon atoms;

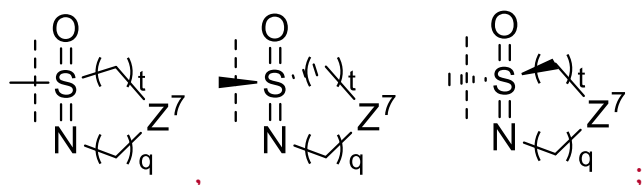
R''' , R'''' independently denote H, Hal, NR^3R^4 , CHR^3R^4 , OR^3 , CN or a straight chain or branched alkyl having 1 to 12 carbon atoms, wherein 1 to 3 CH_2 -groups may be replaced by a group selected from O, NR^3 , S, SO, SO_2 , $S(O)(NR^3)$, $N(SO)R^3$, CO, COO, OCO, $CONR^3$, NR^3CO ,



and wherein 1 to 5 hydrogen atoms may be replaced by Hal, NR^3R^4 or NO_2 or by one of the following groups:

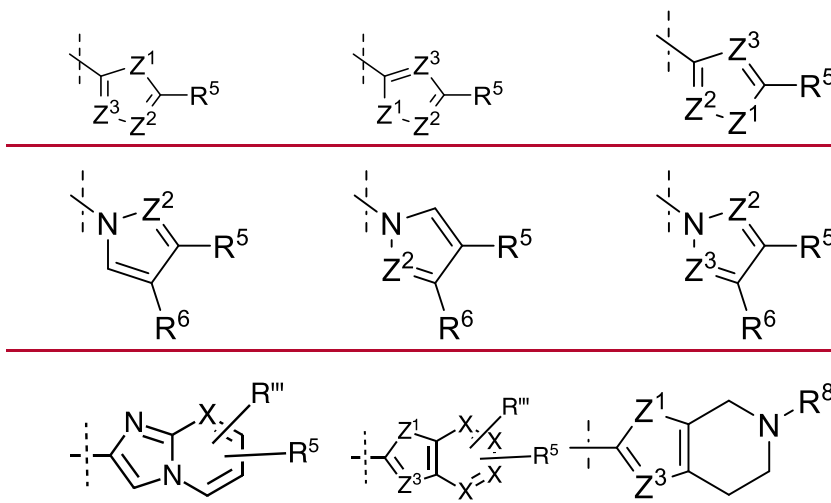


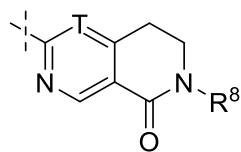
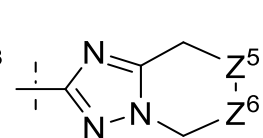
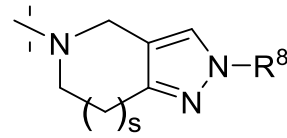
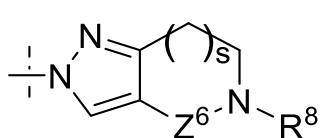
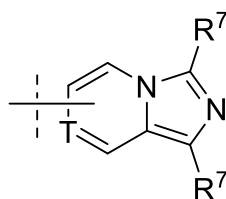
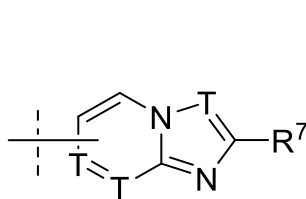
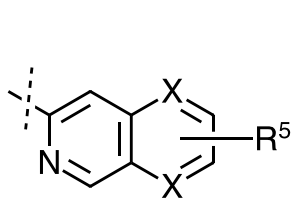
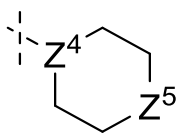
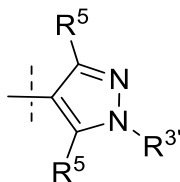
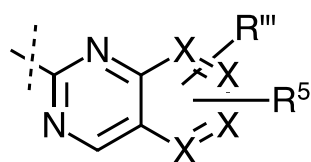
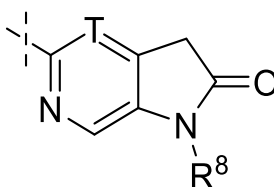
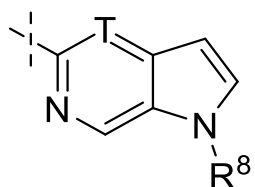
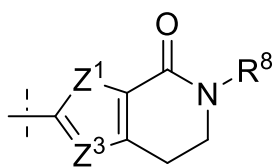
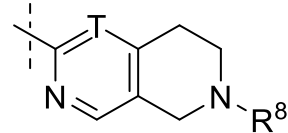
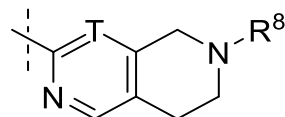
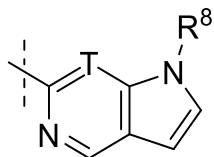
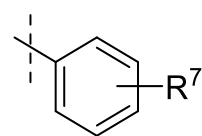
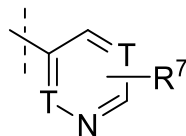
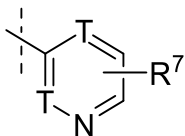
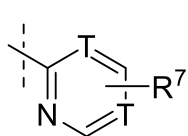
or R''' , R'''' independently denote one of the following groups:

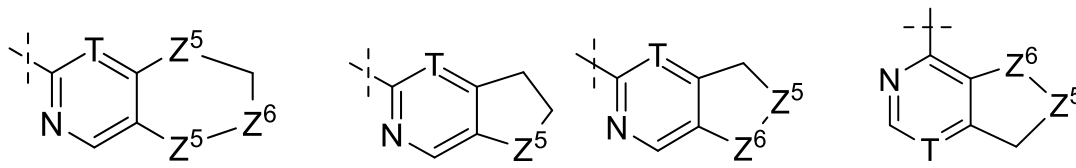


R^3 , R^4 denote each independently H or a straight chain or branched alkyl group having 1 to 12 carbon atoms;

Q denotes one of the following groups:



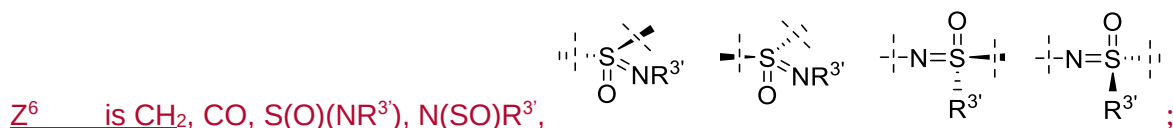
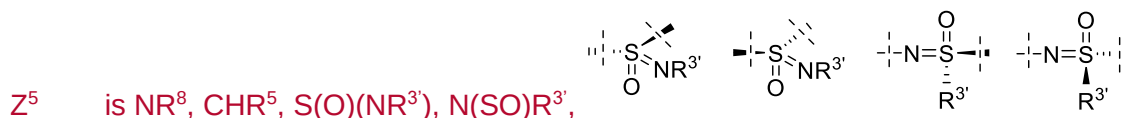




Z¹ is S, O, NR^{3'};

Z², Z³ independently denote CR⁵ or N;

Z⁴ is N, CH, CON, COCH;



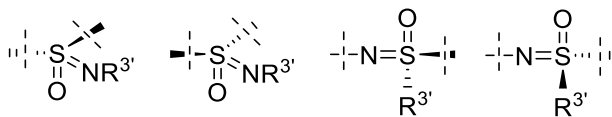
Z⁷ is C(R^{3'})₂, S, O, NR^{3'};

s denotes 0 or 1;

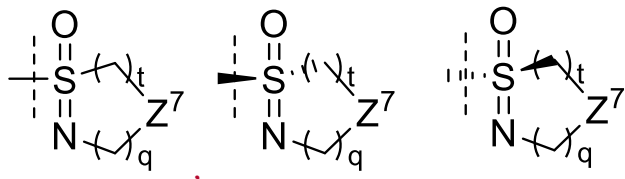
T is N, CH or CR⁷;

R^{3'} denotes H or a straight chain or branched alkyl group having 1 to 12 carbon atoms, wherein 1 to 3 CH₂-groups may be replaced by a group selected from SO₂, CO, O and wherein 1 to 5 hydrogen atoms may be replaced by Hal;

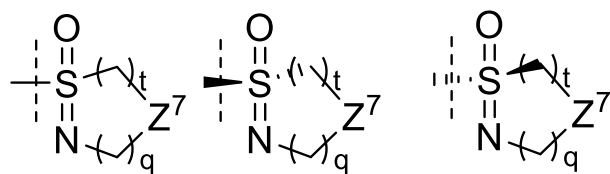
R⁵, R⁶, R⁷ independently denote H, Hal, NR³R⁴, NO₂ or a straight chain or branched alkyl having 1 to 12 carbon atoms, wherein 1 to 3 CH₂-groups may be replaced by a group selected from O, NR³, S, SO, SO₂, S(O)(NR^{3'}), N(SO)R^{3'}, CO, COO, OCO, CONR³, NR³CO



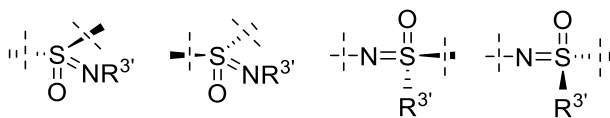
and wherein 1 to 5 hydrogen atoms may be replaced by Hal, NR³R⁴, NO₂, OR³, Het, Ar, Cyc, or by one of the following groups:



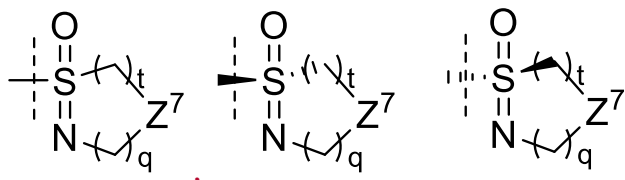
or R⁵, R⁶, R⁷ denote Ar, Het or Cyc or one of the following groups:



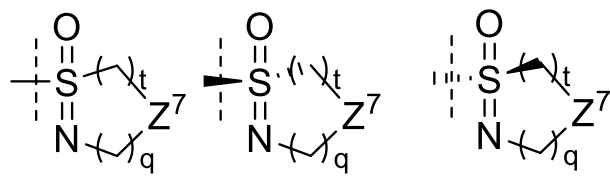
R⁸ denotes H or straight chain or branched alkyl having 1 to 12 carbon atoms, wherein 1 to 3 CH₂-groups may be replaced by a group selected from SO, SO₂, S(O)(NR^{3'}), N(SO)R^{3'}, CO, COO, OCO, CONR³, NR³CO, and



and further wherein 1 to 5 hydrogen atoms may be replaced by CN, OR³, SR³, Hal, NR³R⁴, NO₂ or by one of the following groups:



, or R^8 denote one of the following groups:



Hal denotes F, Cl, Br or I;

Het denotes a saturated, unsaturated or aromatic ring, being monocyclic or bicyclic or fused-bicyclic and having 3- to 8- members and containing 1 to 4 heteroatoms selected from N, O and S, which may be substituted by 1 to 3 substituents selected from R⁵, Hal and OR³;

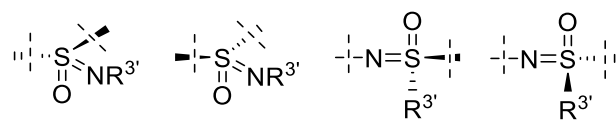
Ar denotes a 6-membered carbocyclic aromatic ring or a fused or non-fused bicyclic aromatic ring system, which is optionally substituted by 1 to 3 substituents independently selected from R⁵, OR³ and Hal;

Cyc denotes a saturated or an unsaturated carbocyclic ring having from 3 to 8 carbon atoms which is optionally substituted by 1 to 3 substituents independently selected from R⁵ or Hal or OH;

m and n denote independently from one another 0, 1, 2 or 3,

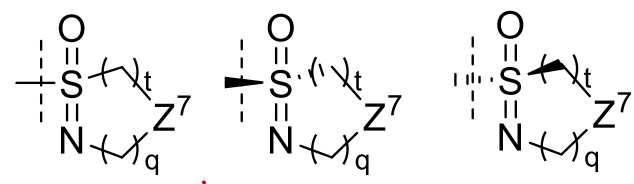
t and q denote independently from one another 0, 1, 2 or 3, with t + q ≥ 1

and wherein at least one of Z⁵ and Z⁶ is the group S(O)(NR^{3'}) or N(SO)R^{3'} or



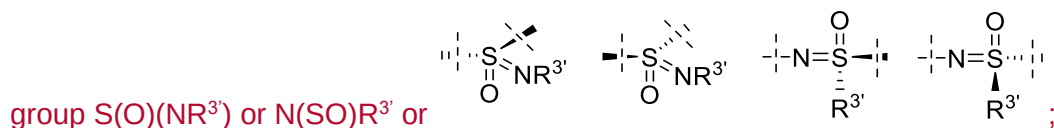
or

wherein at least one of R^{'''}, R^{'''}, R⁵, R⁶, R⁷ and R⁸ is or contains a sulfoximine group selected from:



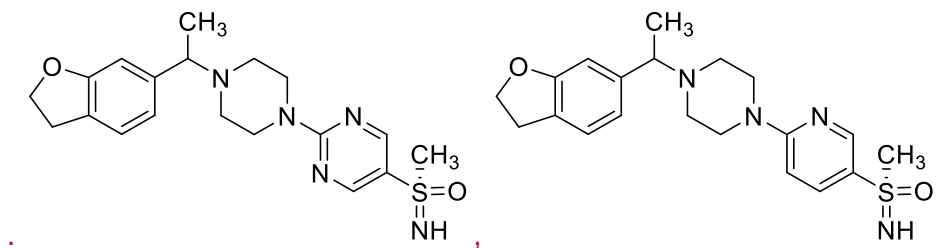
or

wherein at least one of R'' , R''' , R^5 , R^6 , R^7 and R^8 is selected from a straight chain or branched alkyl group having 1 to 12 carbon atoms, wherein at least one CH_2 -group is replaced by the



and solvates, salts, tautomers, enantiomers, racemates and stereoisomers thereof, including mixtures thereof in all ratios and sulfoximine group-containing compounds of formula I, wherein one or more H atoms are replaced by D (deuterium),

with the proviso that the following compounds are excluded:



In another aspect of the present disclosure, there is provided a mixture comprising sulfoximine group-containing compounds Ia and Ib disclosed herein, having identical groups A, R, W, Q, n and m, in equal or unequal amounts.

In a further aspect of the present disclosure, there is provided a sulfoximine group-containing compound of formula (I) disclosed herein for use as a medicament.

In another aspect of the present disclosure, there is provided a use of a sulfoximine group-containing compound of formula (I) disclosed herein and solvates, salts, tautomers, enantiomers, racemates and stereoisomers thereof, including mixtures thereof in all ratios, in the manufacture of a medicament for the treatment of a condition selected from neurodegenerative diseases, diabetes, cancer, cardiovascular diseases and stroke.

In a further aspect of the present disclosure, there is provided a sulfoximine group-containing compound for use in treating a tauopathy, wherein a sulfoximine group-containing compound disclosed herein is to be administered to a mammal in need of such treatment.

In another aspect of the present disclosure, there is provided a method for inhibiting O-GlcNAcase, wherein a system expressing the O-GlcNAcase is contacted with a sulfoximine group-containing compound disclosed herein under in-vitro conditions such that the O-GlcNAcase is inhibited.

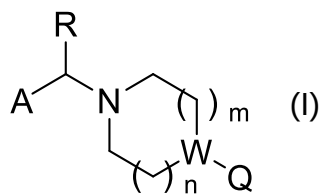
In a further aspect of the present disclosure, there is provided a pharmaceutical composition comprising as active ingredient a sulfoximine group-containing compound disclosed herein together with pharmaceutically tolerable adjuvants and/or excipients, optionally in combination with one or more further active ingredients.

Description

In this regard, plasma protein binding (PPB) is an important differentiating factor in drug development as it determines at least in part the unbound, and thus, likely effective) drug concentrations at pharmacological target site. It is a well-acknowledged paradigm that, in the absence of energy-dependent processes (e.g. transporter-mediated active organ uptake or efflux), once steady state equilibrium has been reached, unbound drug concentration in plasma may be considered equal to unbound drug concentration in the target tissue(s), i.e. only the unbound drug in the tissues is available for binding to the target receptor and can therefore drive the desired pharmacologic activity (Free drug theory (FDT) (Bohnert, T. et al. J. Pharmaceutical Sciences 2013, 102, 2953-2994). As a consequence, high plasma protein binding may also have a negative impact on efficacy since it is the free fraction of drug that is responsible for the pharmacological action.

CLAIMS

1. A sulfoximine group-containing compound of formula (I)

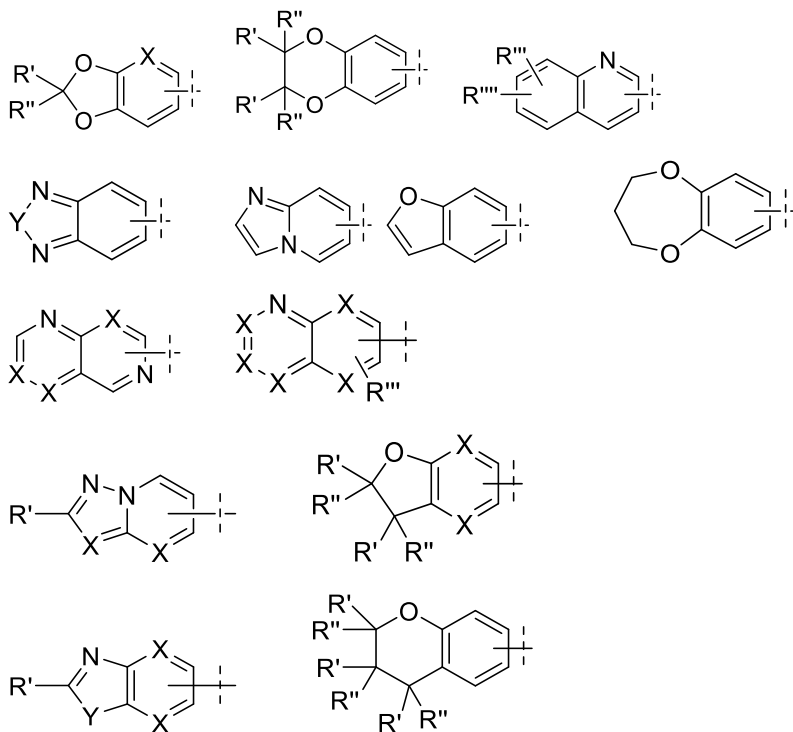


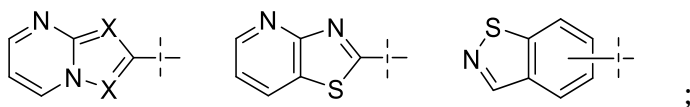
wherein

R is straight chain or branched alkyl having 1 to 6 carbon atoms, wherein 1 to 5 hydrogen atoms may be replaced by Hal or OH;

W is CH or N;

A denotes one of the following groups:



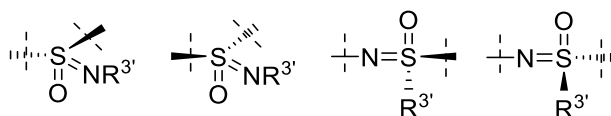


X is N or CR^{'''};

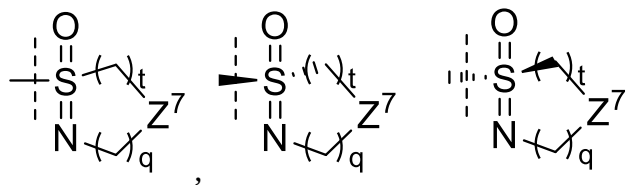
Y is O, S, SO or SO₂;

R', R'' denote each independently H, Hal or straight chain or branched alkyl having 1 to 12 carbon atoms;

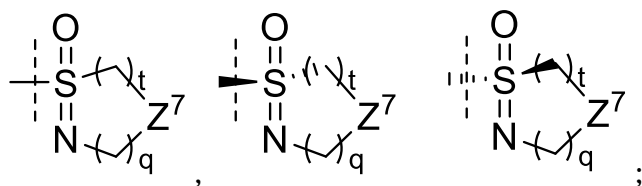
R^{'''}, R^{''''} independently denote H, Hal, NR³R⁴, CHR³R⁴, OR³, CN or a straight chain or branched alkyl having 1 to 12 carbon atoms, wherein 1 to 3 CH₂-groups may be replaced by a group selected from O, NR³, S, SO, SO₂, S(O)(NR³), N(SO)R³, CO, COO, OCO, CONR³, NR³CO,

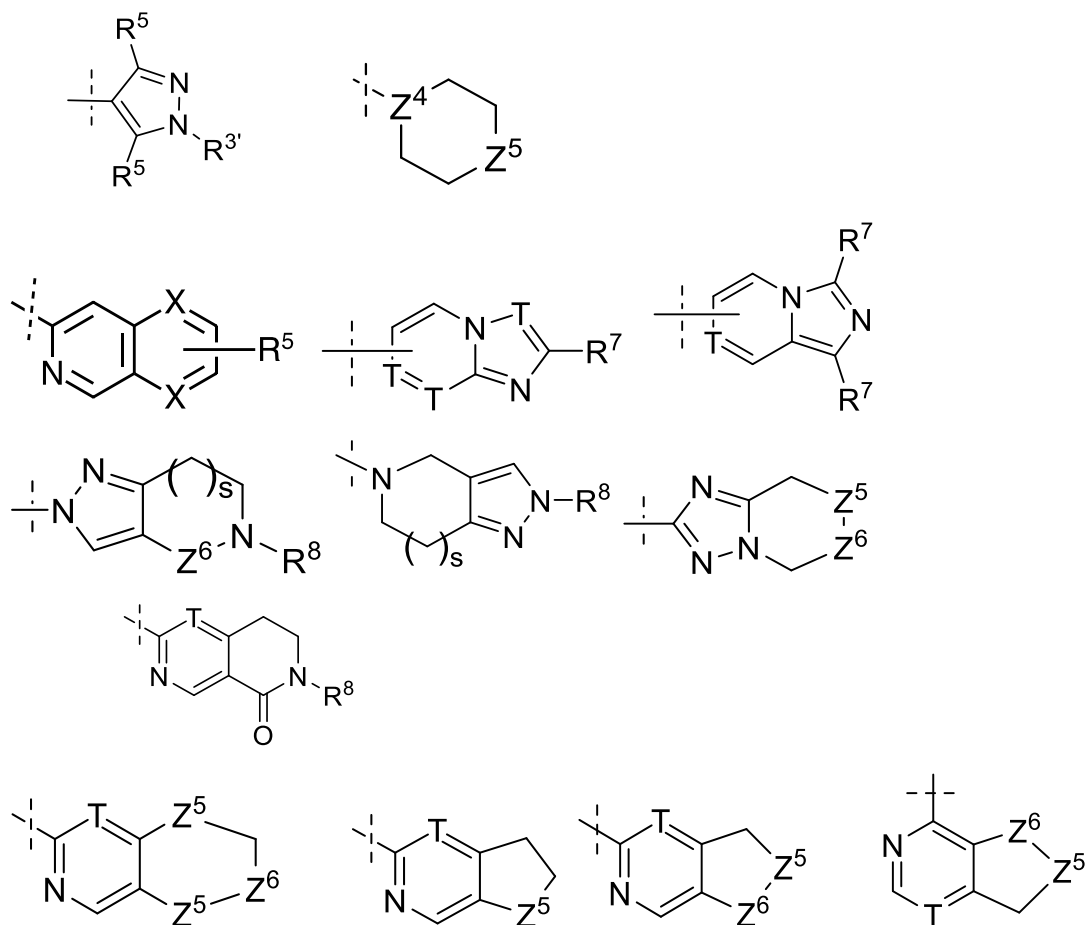


and wherein 1 to 5 hydrogen atoms may be replaced by Hal, NR³R⁴ or NO₂ or by one of the following groups:



or R^{'''}, R^{''''} independently denote one of the following groups:





Z^1 is S, O, $NR^{3'}$;

Z^2, Z^3 independently denote CR^5 or N;

Z^4 is N, CH, CON, COCH;

Z^5 is NR^8 , CHR^5 , $S(O)(NR^{3'})$, $N(SO)R^{3'}$,

Z^6 is CH_2 , CO, $S(O)(NR^{3'})$, $N(SO)R^{3'}$, ;

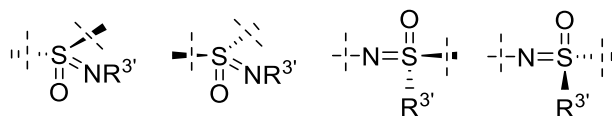
Z^7 is $C(R^{3'})_2$, S, O, $NR^{3'}$;

s denotes 0 or 1;

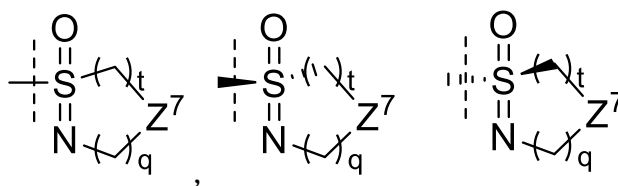
T is N, CH or CR^7 ;

$R^{3'}$ denotes H or a straight chain or branched alkyl group having 1 to 12 carbon atoms, wherein 1 to 3 CH_2 -groups may be replaced by a group selected from SO_2 , CO, O and wherein 1 to 5 hydrogen atoms may be replaced by Hal;

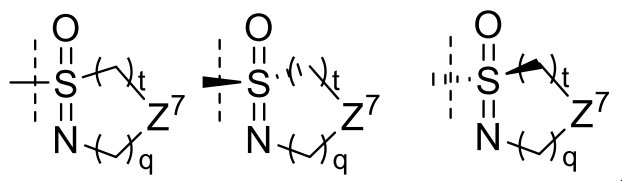
R^5 , R^6 , R^7 independently denote H, Hal, NR^3R^4 , NO_2 or a straight chain or branched alkyl having 1 to 12 carbon atoms, wherein 1 to 3 CH_2 -groups may be replaced by a group selected from O, NR^3 , S, SO, SO_2 , $S(O)(NR^{3'})$, $N(SO)R^{3'}$, CO, COO, OCO, $CONR^3$, NR^3CO



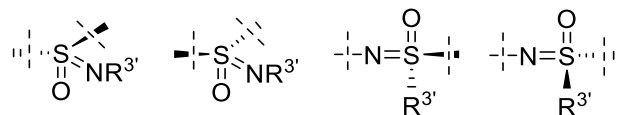
and wherein 1 to 5 hydrogen atoms may be replaced by Hal, NR^3R^4 , NO_2 , OR^3 , Het, Ar, Cyc, or by one of the following groups:



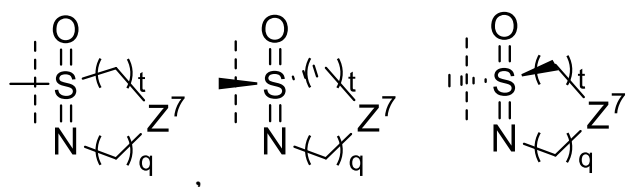
or R^5 , R^6 , R^7 denote Ar, Het or Cyc or one of the following groups:



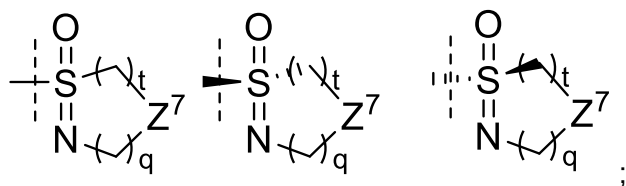
R^8 denotes H or straight chain or branched alkyl having 1 to 12 carbon atoms, wherein 1 to 3 CH_2 -groups may be replaced by a group selected from SO, SO_2 , $S(O)(NR^{3'})$, $N(SO)R^{3'}$, CO, COO, OCO, $CONR^{3'}$, $NR^{3'}CO$, and



and further wherein 1 to 5 hydrogen atoms may be replaced by CN, $OR^{3'}$, $SR^{3'}$, Hal, $NR^{3'}R^4$, NO_2 or by one of the following groups:



, or R^8 denote one of the following groups:



Hal denotes F, Cl, Br or I;

Het denotes a saturated, unsaturated or aromatic ring, being monocyclic or bicyclic or fused-bicyclic and having 3- to 8- members and containing 1 to 4 heteroatoms selected from N, O and S, which may be substituted by 1 to 3 substituents selected from R^5 , Hal and $OR^{3'}$;

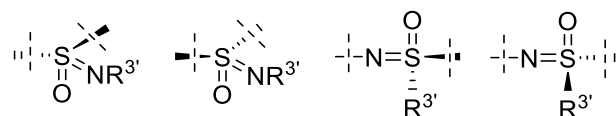
Ar denotes a 6-membered carbocyclic aromatic ring or a fused or non-fused bicyclic aromatic ring system, which is optionally substituted by 1 to 3 substituents independently selected from R^5 , $OR^{3'}$ and Hal;

Cyc denotes a saturated or an unsaturated carbocyclic ring having from 3 to 8 carbon atoms which is optionally substituted by 1 to 3 substituents independently selected from R^5 or Hal or OH;

m and n denote independently from one another 0, 1, 2 or 3,

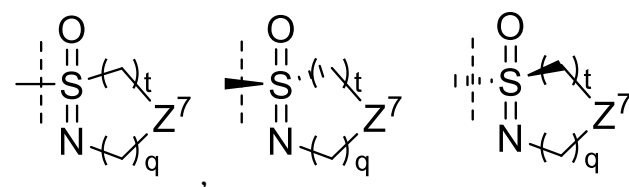
t and q denote independently from one another 0, 1, 2 or 3, with $t + q \geq 1$

and wherein at least one of Z^5 and Z^6 is the group $S(O)(NR^{3'})$ or $N(SO)R^{3'}$ or



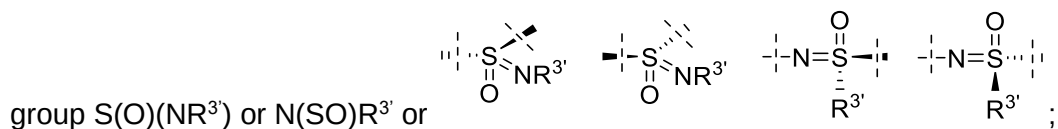
or

wherein at least one of R'' , R''' , R^5 , R^6 , R^7 and R^8 is or contains a sulfoximine group selected from:



or

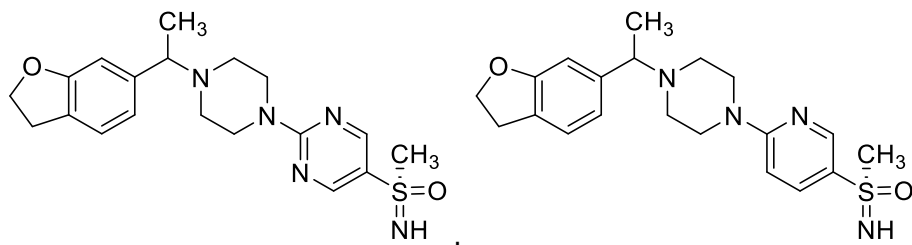
wherein at least one of R'' , R''' , R^5 , R^6 , R^7 and R^8 is selected from a straight chain or branched alkyl group having 1 to 12 carbon atoms, wherein at least one CH_2 -group is replaced by the



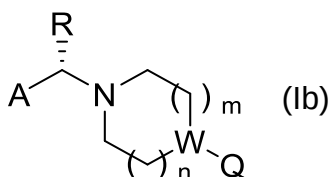
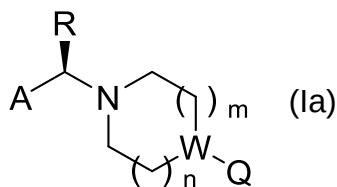
group $S(O)(NR^{3'})$ or $N(SO)R^{3'}$ or

and ~~pharmaceutically usable derivatives~~, solvates, salts, ~~prodrugs~~, tautomers, enantiomers, racemates and stereoisomers thereof, including mixtures thereof in all ratios and sulfoximine group-containing compounds of formula I, wherein one or more H atoms are replaced by D (deuterium),

with the proviso that the following compounds are excluded:

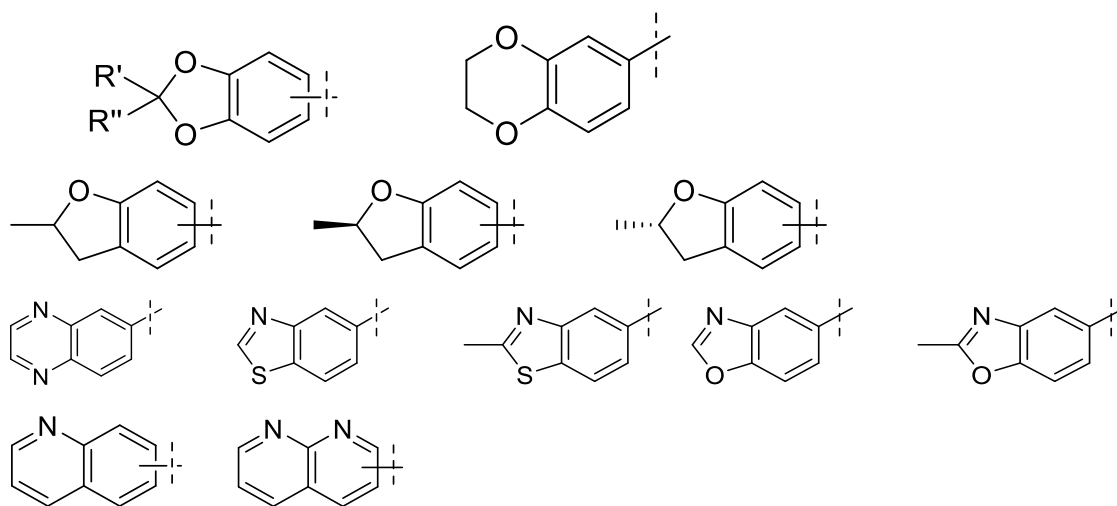


2. A sulfoximine group-containing compound according to claim 1 chosen from the group consisting of formula Ia and Ib:



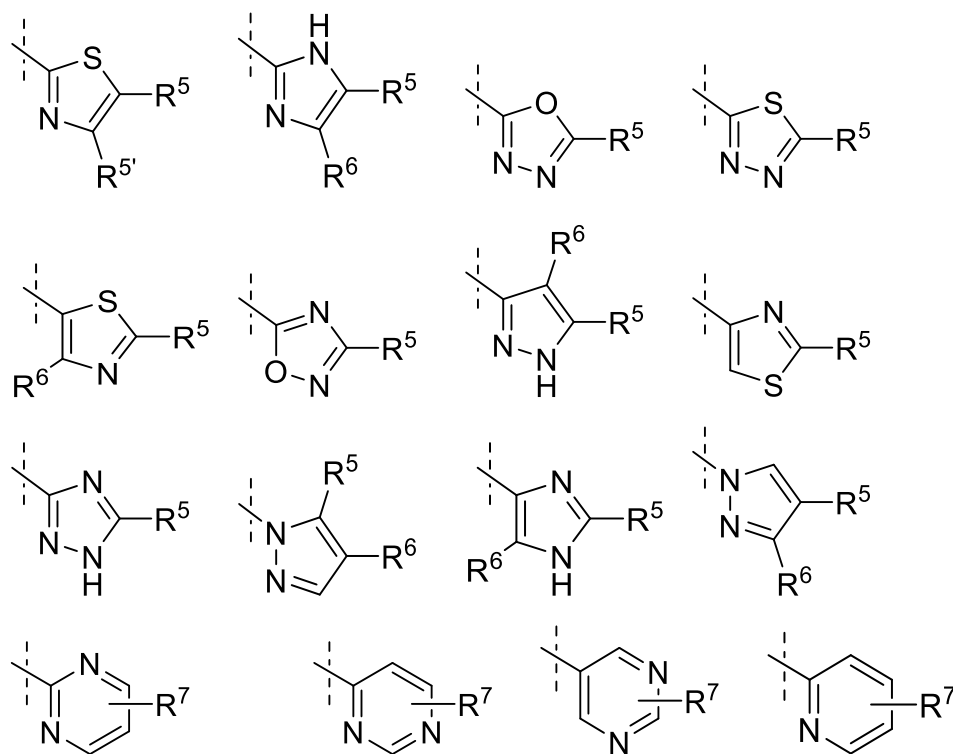
wherein A, R, W, Q, n and m have the meaning given in claim 1.

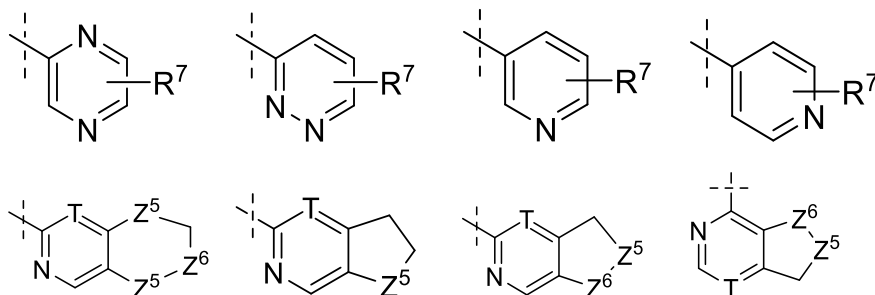
3. A mixture comprising sulfoximine group-containing compounds Ia and Ib according to claim 2, having identical groups A, R, W, Q, n and m, in equal or unequal amounts.
4. A sulfoximine group-containing compound of formula I according to one of the claims 1, 2 or 3, wherein R is methyl and/or W is N.
5. A sulfoximine group-containing compound of formula I according to one of the claims 1, 2, 3 or 4, wherein A denotes one of the following groups:



wherein R' and R'' have the meaning given in claim 1.

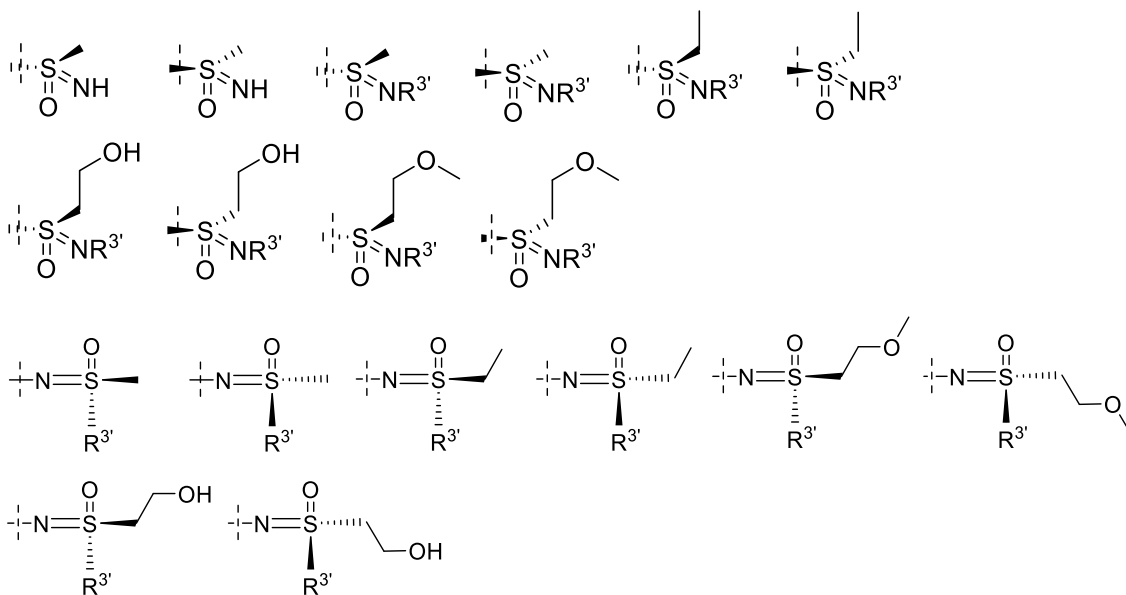
6. A sulfoximine group-containing compound of formula I according to one of the claims 1, 2, 3, 4 or 5, wherein Q denotes one of the following groups:



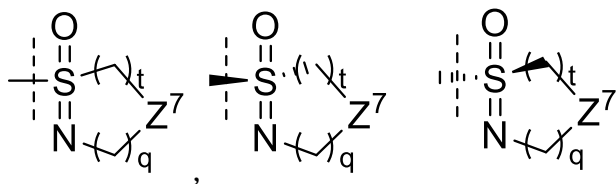


wherein T, Z⁵, Z⁶, R⁵, R⁶ and R⁷ have the meaning given in claim 1.

7. A sulfoximine group-containing compound of formula I according to claim 1 to claim 6, wherein R⁵, R⁶, R⁷ are independently selected from H, SO₂CH₃, SO₂CH₂CH₃, SO₂CH₂CH₂OH, SO₂CH₂CH₂OCH₃, S(O)(NR^{3'})CH₃, S(O)(NR^{3'})CH₂CH₃, S(O)(NR^{3'})CH₂CH₂OH, S(O)(NR^{3'})CH₂CH₂OCH₃, N(SO)R^{3'}CH₃, N(SO)R^{3'}CH₂CH₃, N(SO)R^{3'}CH₂CH₂OH, N(SO)R^{3'}CH₂CH₂OCH₃,



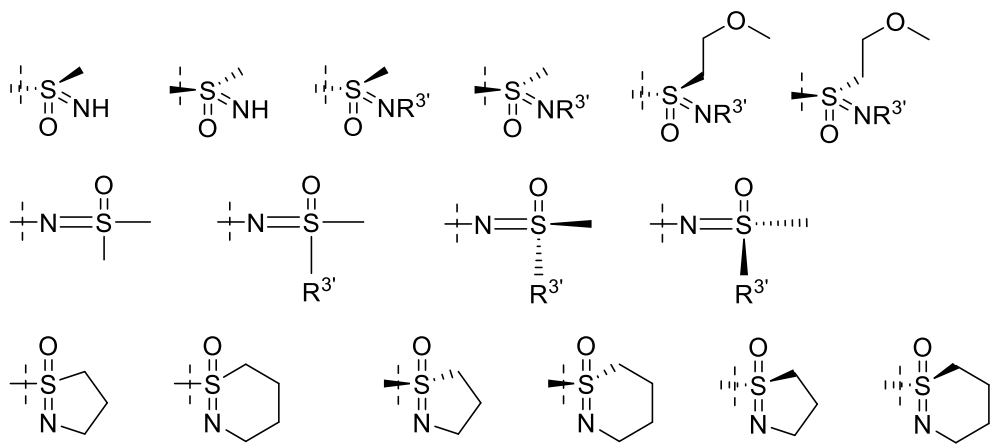
Hal, NR^{3'}R⁴, NO₂, phenyl, 2-,3- or 4-hydroxy or methoxyphenyl, alkyl, alkoxy (Oalkyl), hydroxyalkylen, alkoxyalkylen, COOH, COOalkyl, CONHalkyl, CONH₂, CON(CH₃)₂, NHCOalkyl, NHCH₂CH₃, NHCH₂CH₂CH₃, NHCOCH₂CH₂OH, CO-N-morpholinyl, CON(CH₃)CH₂CH₂N(CH₃)₂, CO-1-piperidinyl, CO-4-hydroxy-1-piperidinyl, CO-1-piperazinyl, CO-4-methyl-1-piperazinyl, CH₂-N-morpholinyl, CH₂N(H)COCH₃, CH₂N(CH₃)COCH₃, CH₂NH₂, NH₂, CH(OH)CH₃, CH(OR³)CH₃ and a group



wherein $t + q$ is 2 or 3,

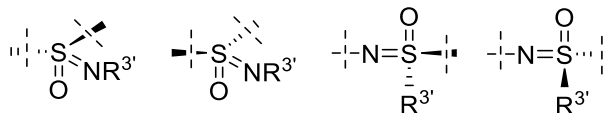
and R^3 , R^4 , Z^7 and $R^{3'}$ have the meaning given in claim 1.

8. A sulfoximine group-containing compound of formula I according to claim 1 to claim 7, wherein one of the groups R'' , R''' , R^5 , R^6 , R^7 and R^8 is selected from



wherein $R^{3'}$ has the meaning given in claim 1.

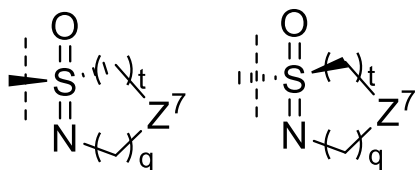
9. Sulfoximine group-containing Compounds of formula I according to claim 1, wherein at least



one of Z^5 and Z^6 is selected from the group

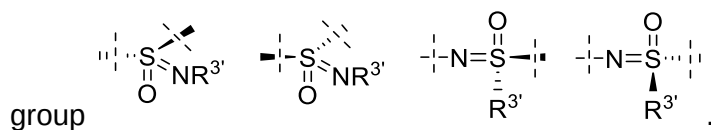
or

wherein at least one of R'' , R''' , R^5 , R^6 , R^7 and R^8 is or contains a sulfoximine group selected from:



or

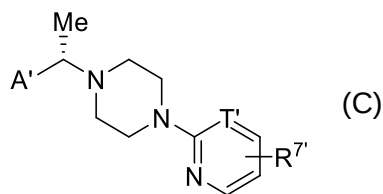
wherein at least one of R^{'''}, R^{''''}, R⁵, R⁶, R⁷ and R⁸ is selected from a straight chain or branched alkyl group having 1 to 12 carbon atoms, wherein at least one CH₂-group is replaced by the



wherein R^{3'}, Z⁷, t, q are as defined in claim 1,

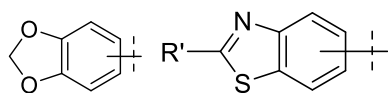
and ~~pharmaceutically usable derivatives~~, solvates, salts, ~~prodrugs~~, tautomers, enantiomers, racemates and stereoisomers thereof, including mixtures thereof in all ratios and sulfoximine group-containing compounds of formula I, wherein one or more H atoms are replaced by D (deuterium).

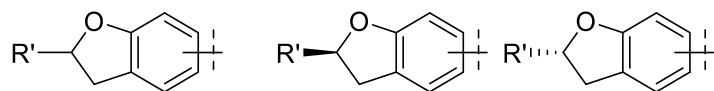
10. A sulfoximine group-containing compound according to claim 1 of formula C:



wherein

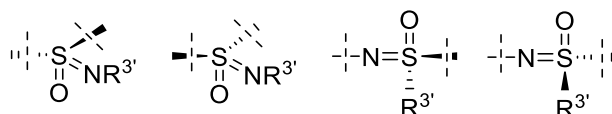
A' denotes one of the following groups:



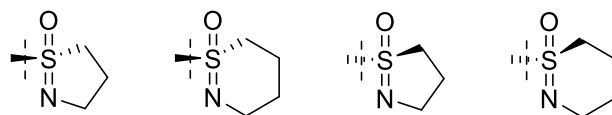


T' is N, CH;

R^{7'} denotes straight chain or branched alkyl having 1 to 12 carbon atoms, wherein 1 to 3 CH₂-groups are replaced by a group selected from



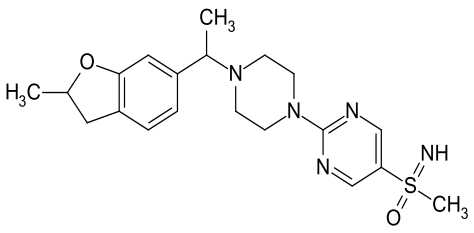
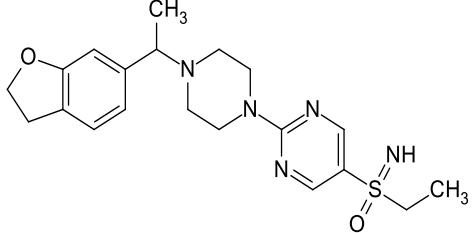
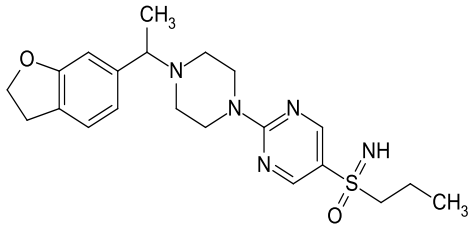
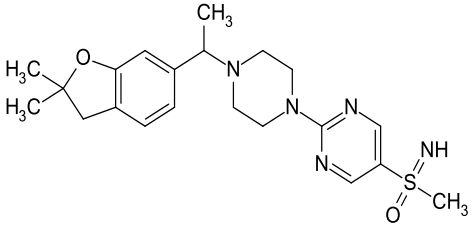
and wherein 1 to 5 hydrogen atoms may be replaced by Hal, NR³R⁴, NO₂, OR³, Het, Ar, Cyc, or R^{7'} denotes:

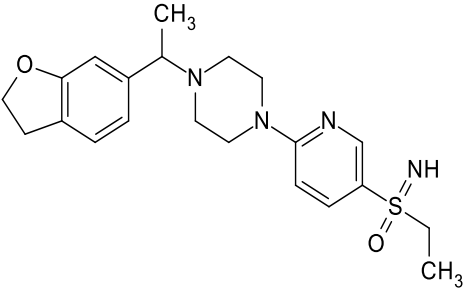
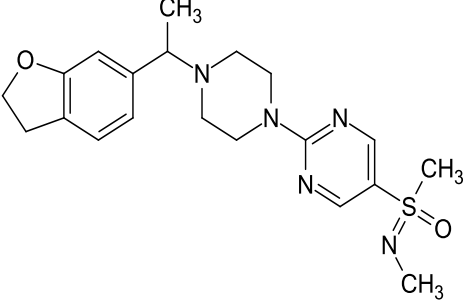
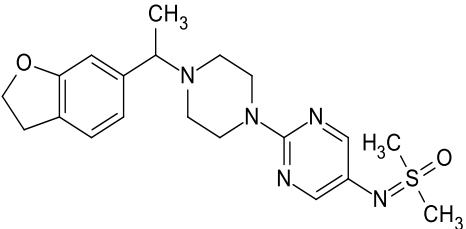
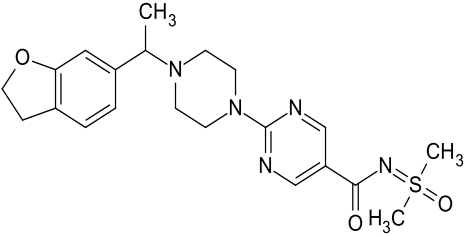


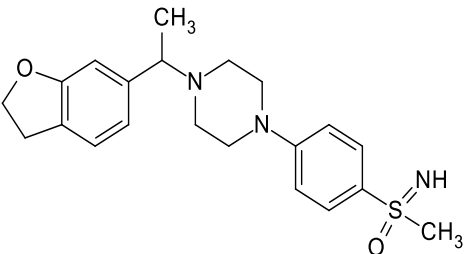
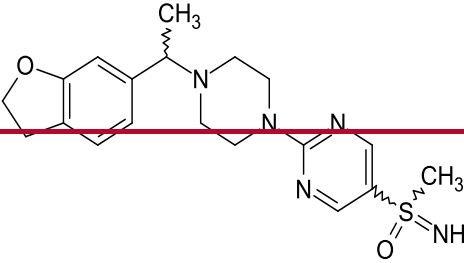
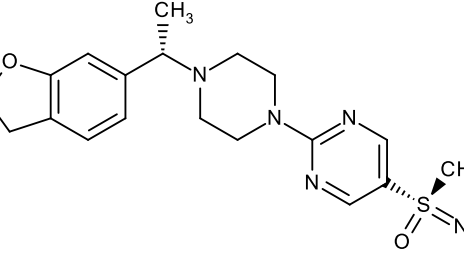
and R', R³, R³, R⁴, Hal, Het, Ar and Cyc are as defined in claim 1,

and ~~pharmaceutically usable derivatives~~, solvates, salts, ~~prodrugs~~, tautomers, enantiomers, racemates and stereoisomers thereof, including mixtures thereof in all ratios and sulfoximine group-containing compounds of formula I, wherein one or more H atoms are replaced by D (deuterium).

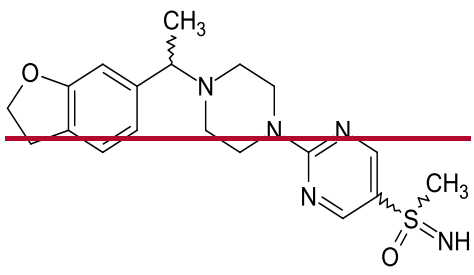
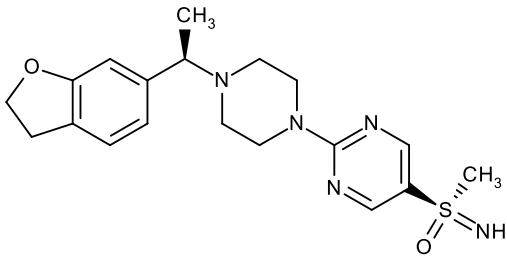
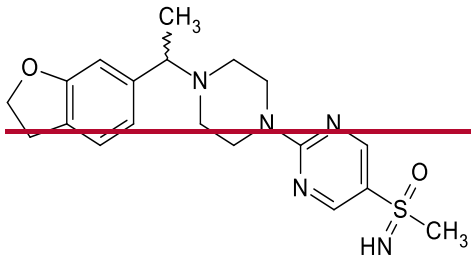
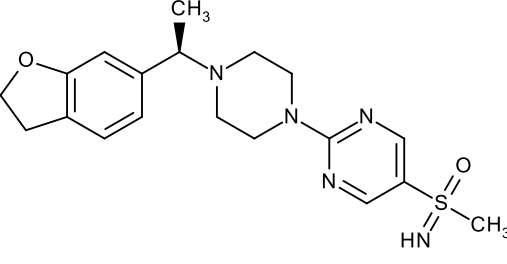
11. A sulfoximine group-containing compound of formula I according to any one of claims 1 to claim 10, wherein m and n simultaneously denote 1.
12. A sulfoximine group-containing compound according to claim 1, selected from the following group:

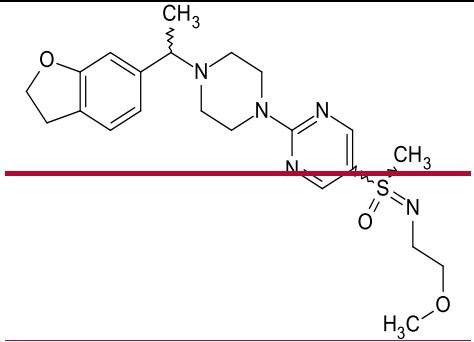
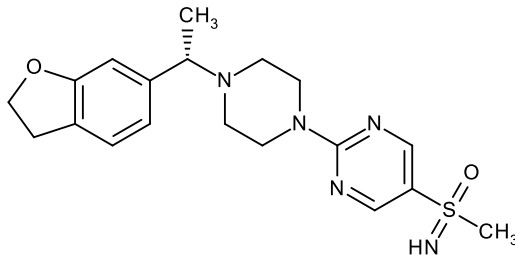
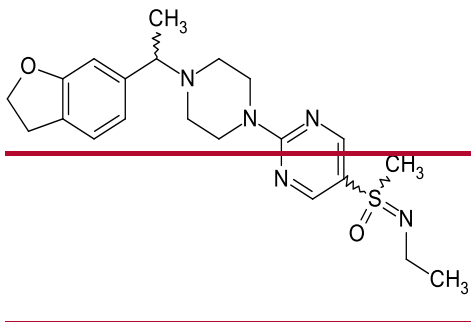
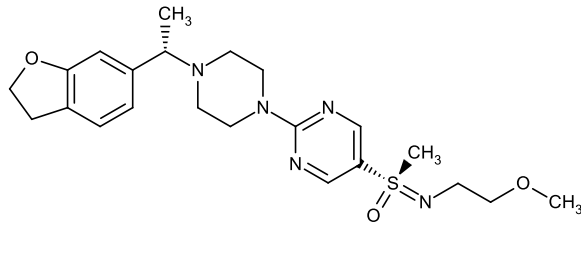
Example no	Structure	Chirality
2		Racemic mixture of 4 diastereomers
3		Racemic mixture of 2 diastereomers
4		Racemic mixture of 2 diastereomers
5		Racemic mixture of 2 diastereomers

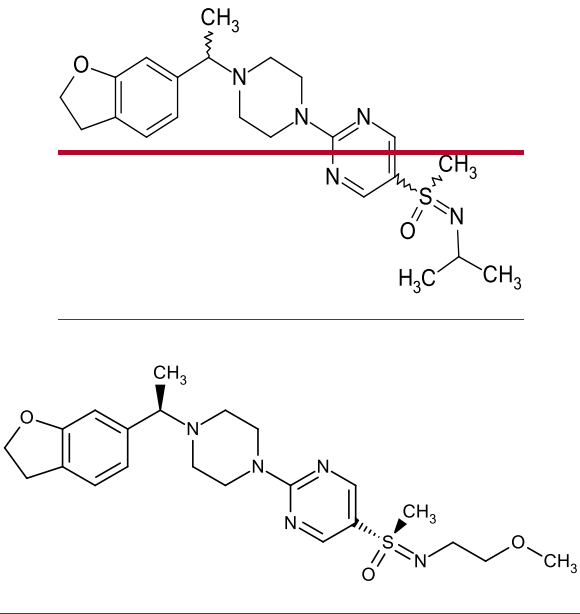
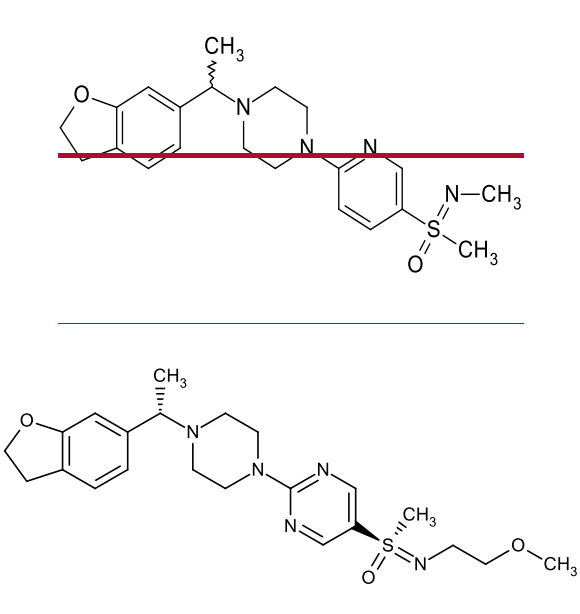
6		Racemic mixture of 2 diastereomers
8		Racemic mixture of 2 diastereomers
9		Racemic
10		Racemic

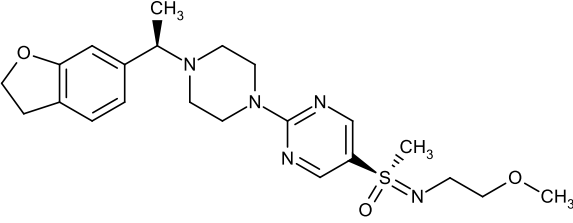
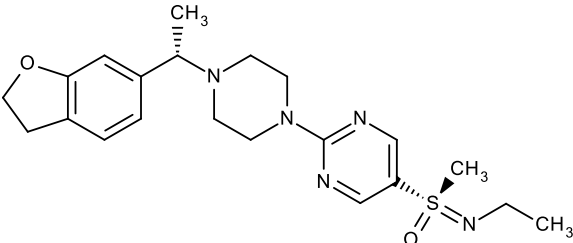
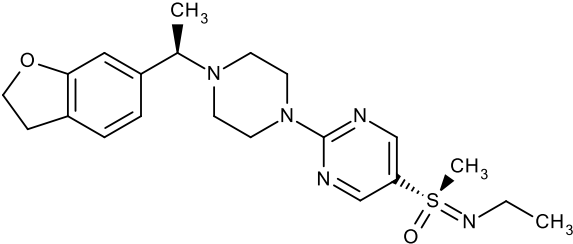
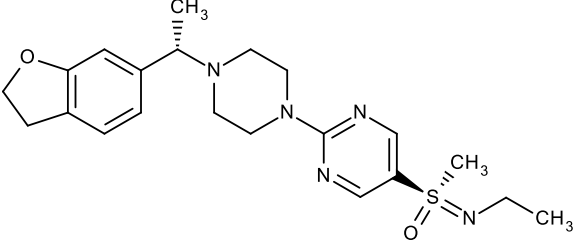
11		~~Racemic mixture of 2~~ diastereomers
~~12~~	 	~~Chiral SFC, Method A~~ First eluting diastereomer

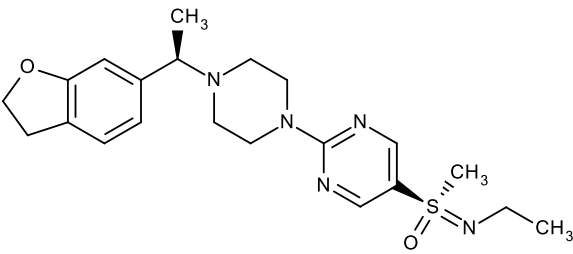
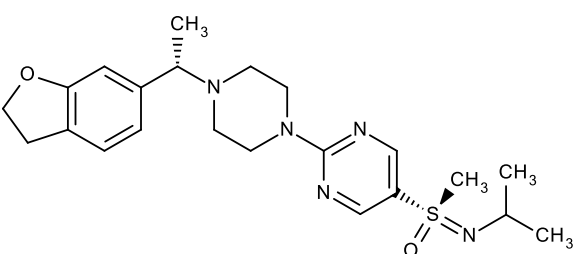
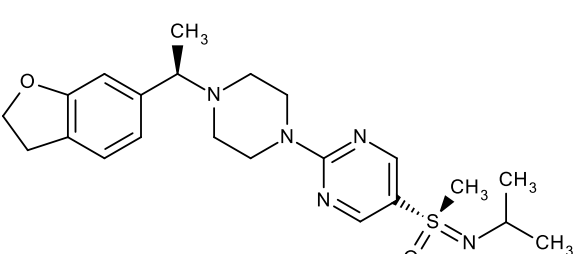
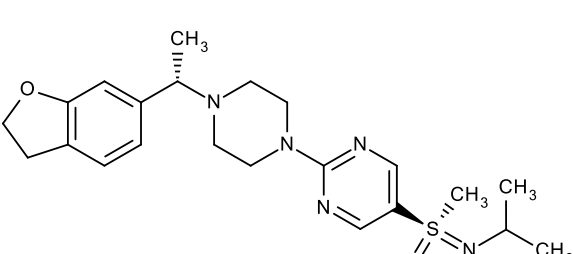
~~13~~		~~Chiral SFC, Method A~~ Second eluting diastereomer
~~14~~		~~Chiral SFC Method A~~ Third eluting diastereomer

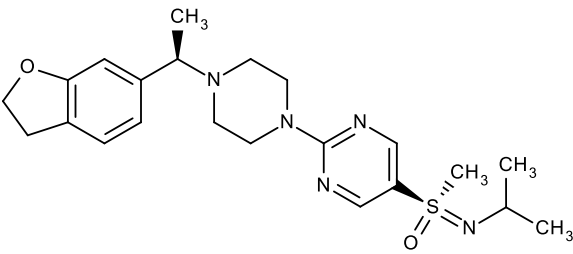
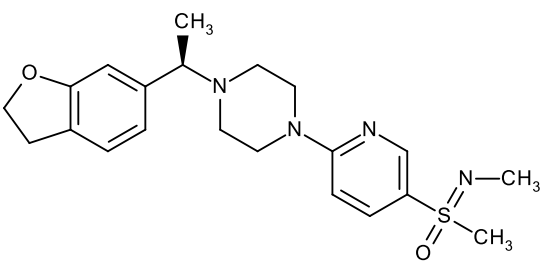
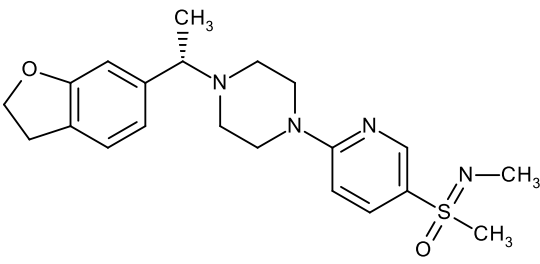
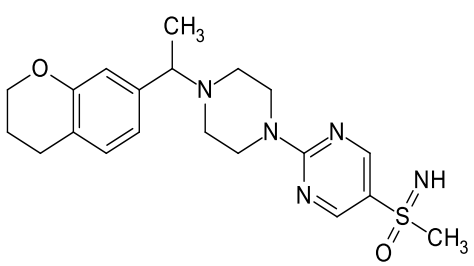
15	 	~~Chiral SFC, Method A~~ Fourth-eluting diastereomer
16	 	Synthesized from Intermediate-2

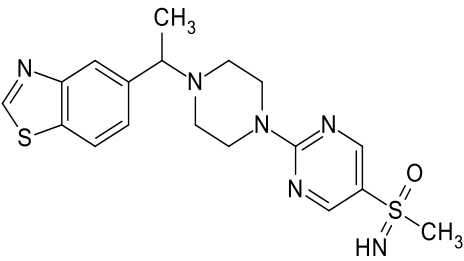
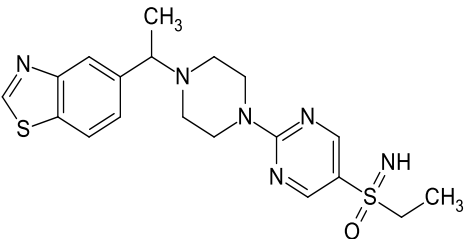
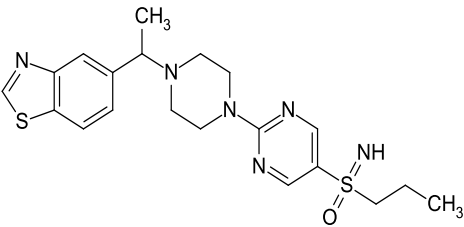
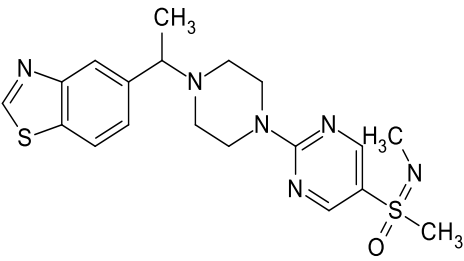
~~17~~	 	Synthesized from Example 12
~~18~~	 	Synthesized from Example 12

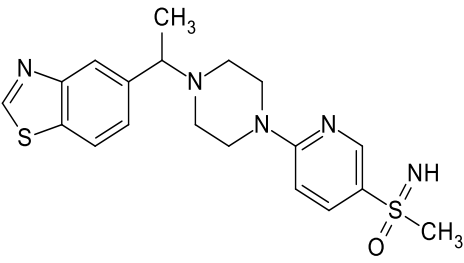
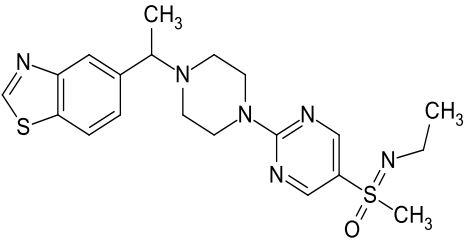
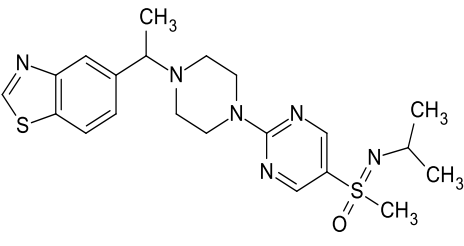
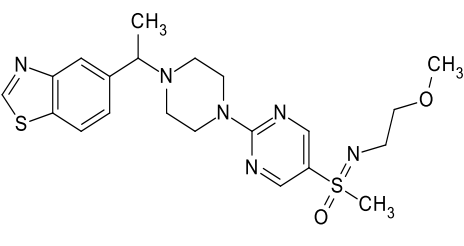
19	 Chemical structure of compound 19: A benzodioxane ring system is connected via a chiral center (wavy bond) to a piperazine ring. The piperazine ring is further connected to a pyrimidine ring. The pyrimidine ring is substituted with a sulfonamide group: -S(=O)(CH₃)-N(CH₃)CH₃.	Synthesized from Example 12
20	 Chemical structure of compound 20: A benzodioxane ring system is connected via a chiral center (dashed bond) to a piperazine ring. The piperazine ring is further connected to a pyrimidine ring. The pyrimidine ring is substituted with a sulfonamide group: -S(=O)(CH₃)-N(CH₃)CH₃.	Synthesized from Intermediate 2

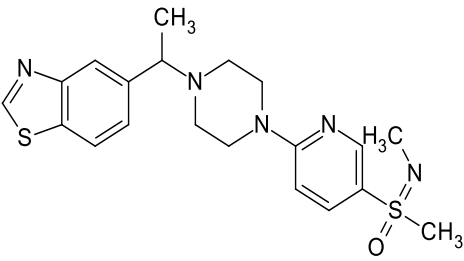
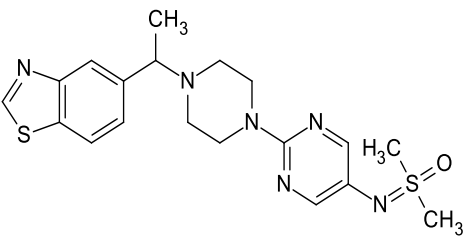
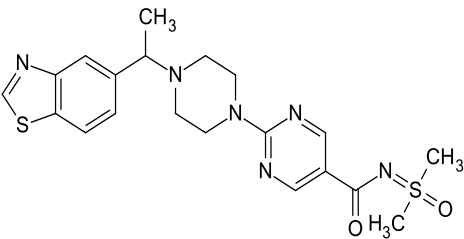
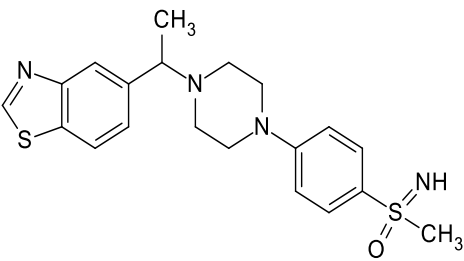
	 <chem>COCNCCS(=O)(=O)[C@H]1C=NC(=N1)N2CCN(CC2C3=CC=C4C(=C3)OCO4)C</chem>	
	 <chem>CCNCCS(=O)(=O)[C@@H]1C=NC(=N1)N2CCN(CC2C3=CC=C4C(=C3)OCO4)C</chem>	
	 <chem>CCNCCS(=O)(=O)[C@H]1C=NC(=N1)N2CCN(CC2C3=CC=C4C(=C3)OCO4)C</chem>	
	 <chem>CCNCCS(=O)(=O)[C@@H]1C=NC(=N1)N2CCN(CC2C3=CC=C4C(=C3)OCO4)C</chem>	

		
		
		
21		~~Racemic mixture of 2~~ diastereomers

22		~~Racemic mixture of 2~~ diastereomers
23		~~Racemic mixture of 2~~ diastereomers
24		~~Racemic mixture of 2~~ diastereomers
25		~~Racemic mixture of 2~~ diastereomers

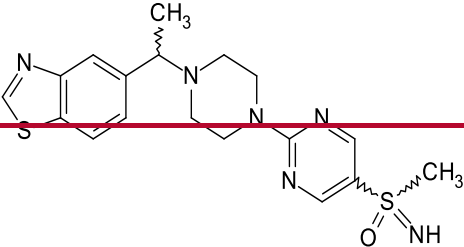
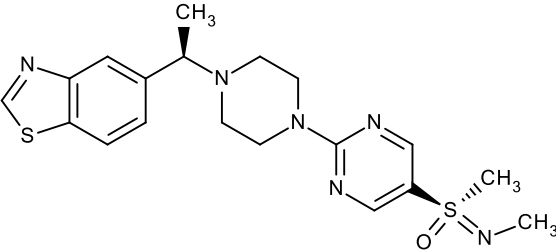
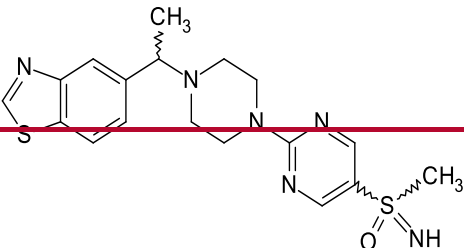
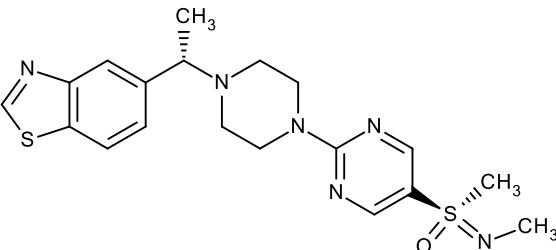
26		~~Racemic mixture of 2~~ diastereomers
27		~~Racemic mixture of 2~~ diastereomers
28		~~Racemic mixture of 2~~ diastereomers
29		~~Racemic mixture of 2~~ diastereomers

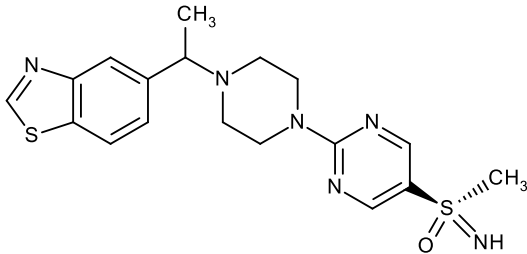
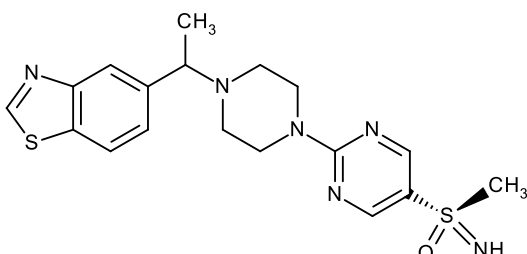
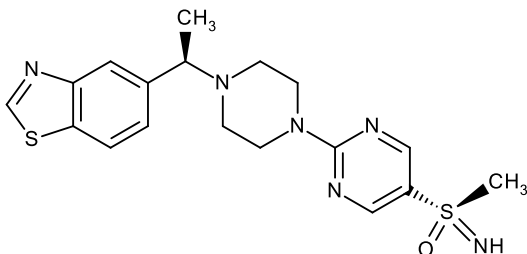
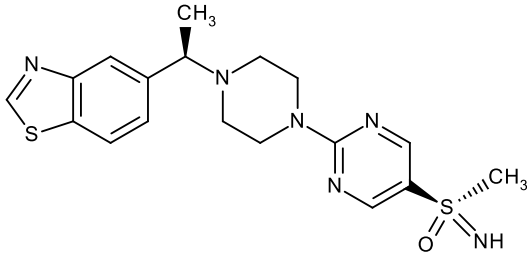
30		~~Racemic mixture of 2~~ diastereomers
31		Racemic
32		Racemic
33		~~Racemic mixture of 2~~ diastereomers

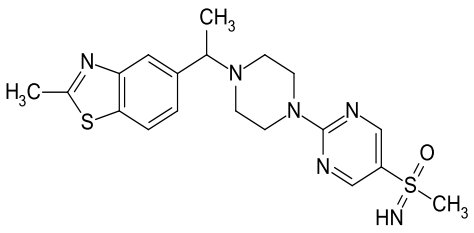
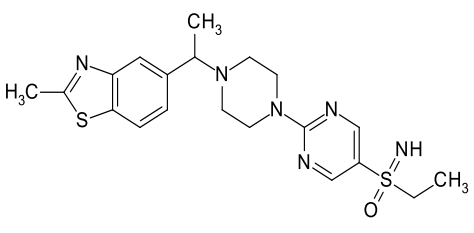
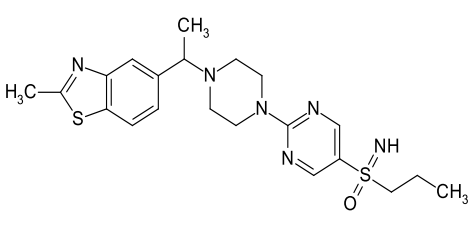
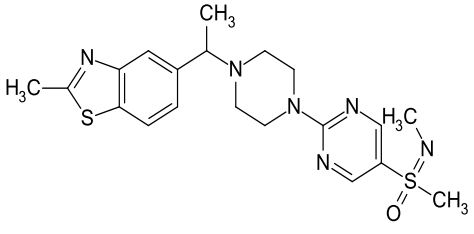
34		Synthesized from Intermediate 7
35		Synthesized from Intermediate 7 and Intermediate 11

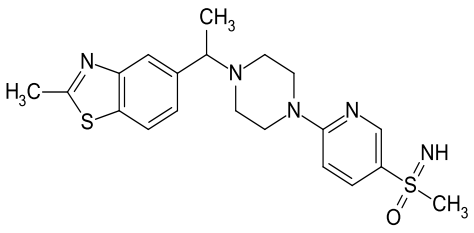
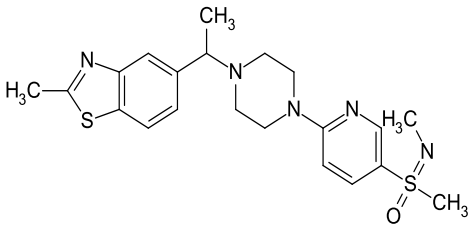
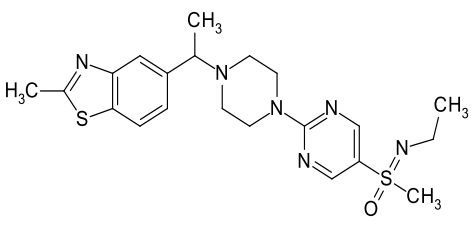
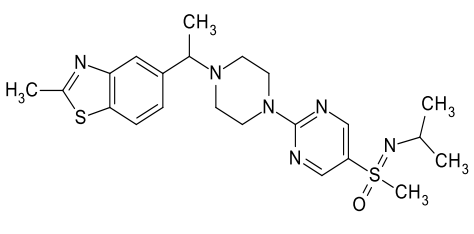
36		Synthesized from Intermediate 7 and Intermediate 12
37		Synthesized from Example 35

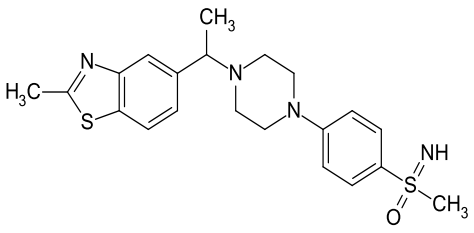
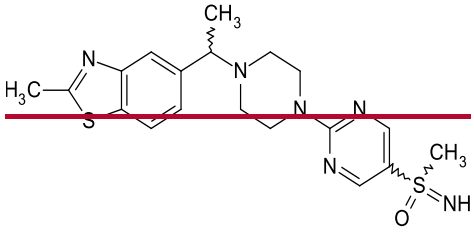
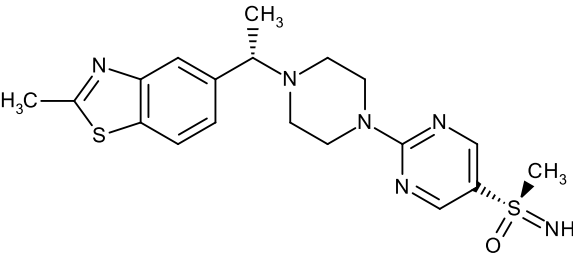
~~38~~		Synthesized from Intermediate 12
~~39~~		Synthesized from Intermediate 11

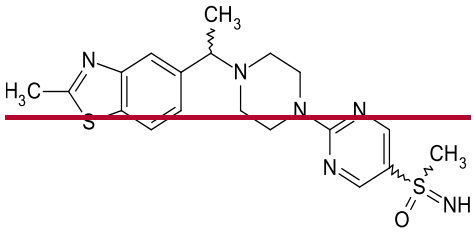
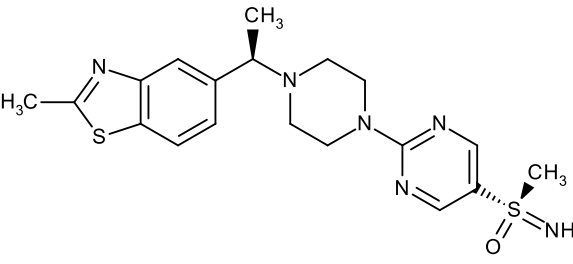
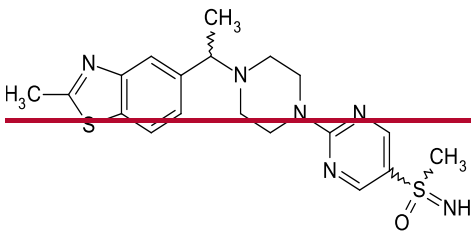
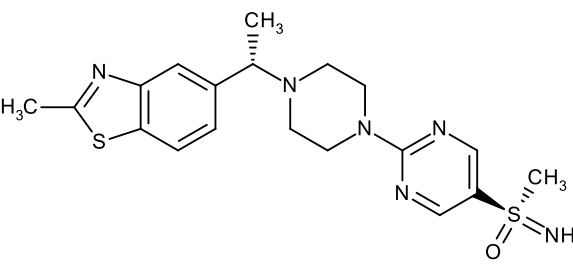
40	 	Synthesized from Intermediate 11; Chiral SFC, Method B, first eluting diastereomer
41	 	Synthesized from Intermediate 12; Chiral SFC, Method B, second eluting diastereomer

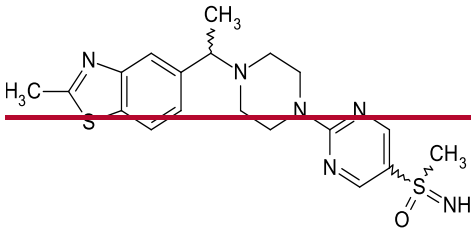
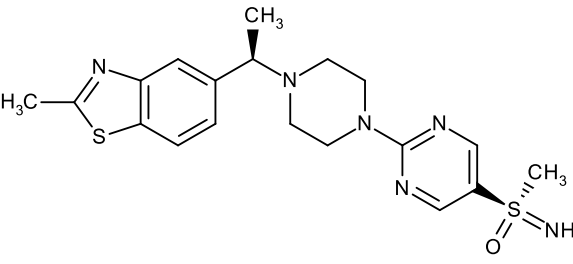
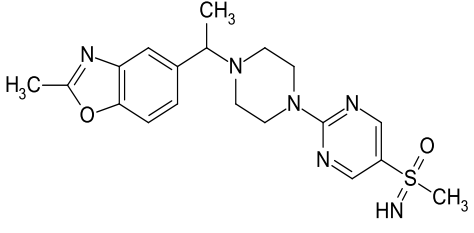
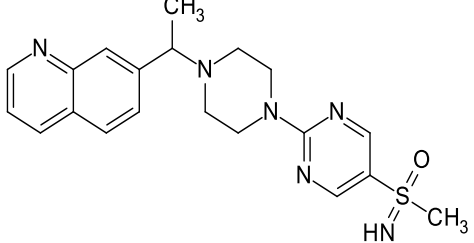
		
		
		
		

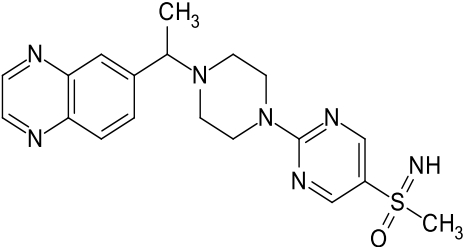
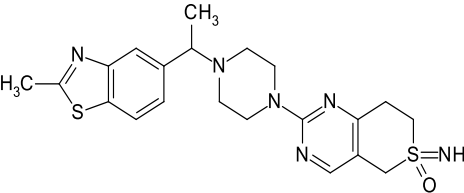
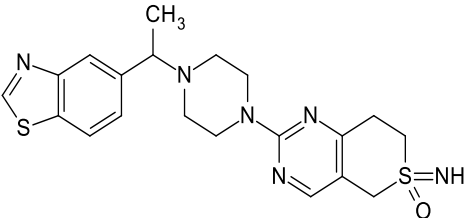
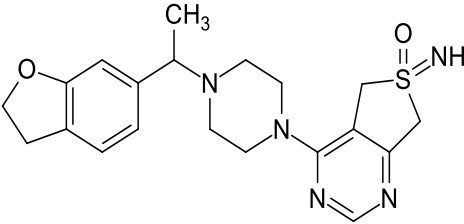
42		~~Racemic mixture of 2~~ diastereomers
43		~~Racemic mixture of 2~~ diastereomers
44		~~Racemic mixture of 2~~ diastereomers
45		~~Racemic mixture of 2~~ diastereomers

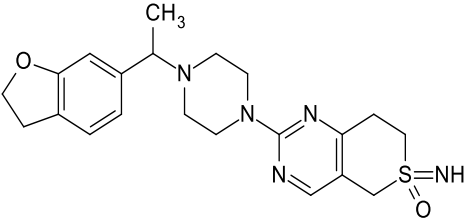
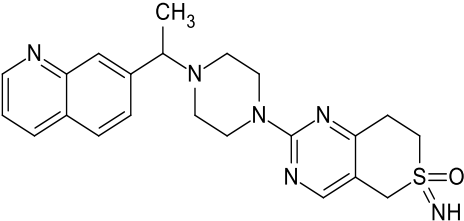
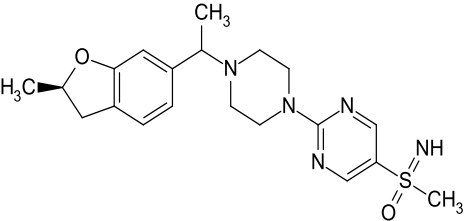
46		~~Racemic mixture of 2~~ diastereomers
47		~~Racemic mixture of 2~~ diastereomers
48		~~Racemic mixture of 2~~ diastereomers
49		~~Racemic mixture of 2~~ diastereomers

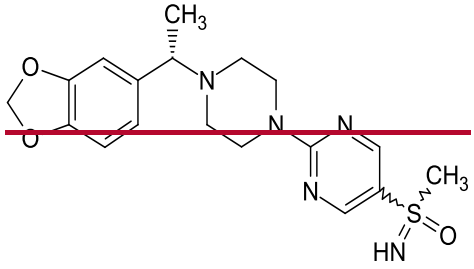
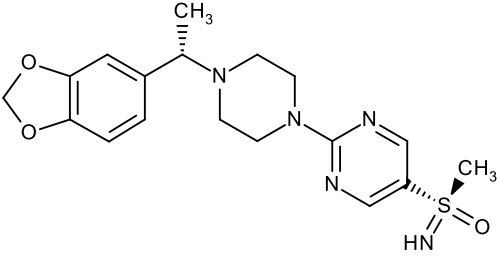
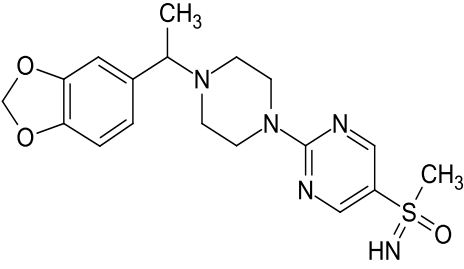
50		~~Racemic mixture of 2~~ diastereomers
51	 	~~Chiral SFC, Method C~~ First eluting diastereomer

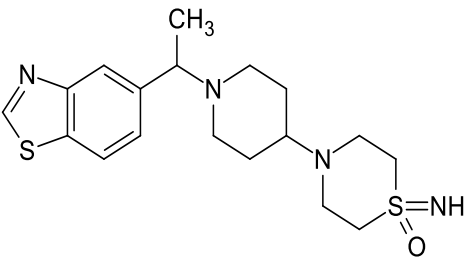
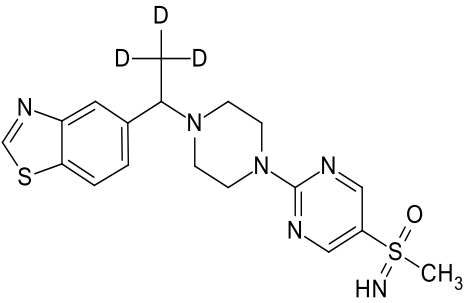
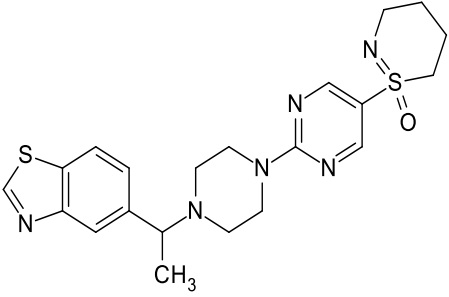
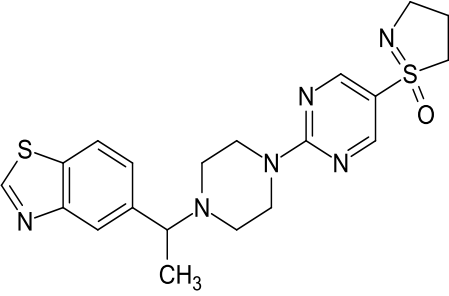
52	 	~~Chiral SFC, Method C~~ ~~Second eluting diastereomer~~
53	 	~~Chiral SFC, Method C~~ ~~Third eluting diastereomer~~

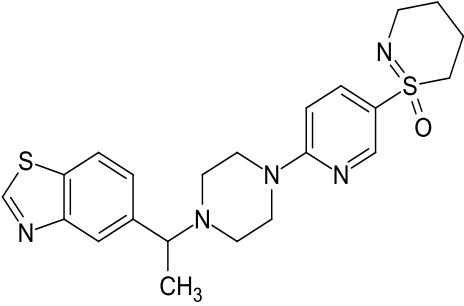
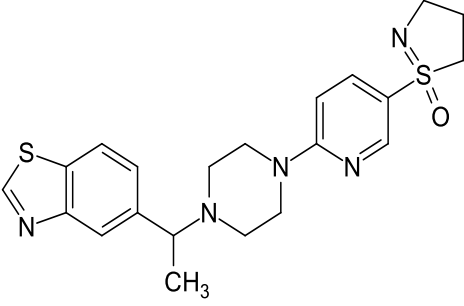
54	 	~~Chiral SFC, Method C~~ Fourth-eluting diastereomer
55		~~Racemic mixture of 2~~ diastereomers
56		~~Racemic mixture of 2~~ diastereomers

57		Racemic mixture of 2 diastereomers
58		Racemic mixture of 2 diastereomers
59		Racemic mixture of 2 diastereomers
60		Racemic mixture of 2 diastereomers

61		Racemic mixture of 2 diastereomers
62		Racemic mixture of 2 diastereomers
63		Mixture of 4 diastereomers

64		Mixture of 2 diastereomers
		
65		Racemic mixture of 2 diastereomers

66		
67		
68		
69		

70		
71		

and ~~pharmaceutically usable derivatives~~, solvates, salts, ~~prodrugs~~, tautomers, enantiomers, racemates and stereoisomers thereof, including mixtures thereof in all ratios and sulfoximine group-containing compounds of formula I, wherein one or more H atoms are replaced by D (deuterium).

13. A sulfoximine group-containing compound of formula (I) according to any one of claims 1 to 12 for use as a medicament.
14. Use of Aa sulfoximine group-containing compound of formula (I) according to any one of claims 1 to 12 and ~~pharmaceutically usable derivatives~~, solvates, salts, tautomers, enantiomers, racemates and stereoisomers thereof, including mixtures thereof in all ratios, in the manufacture of a medicament for ~~use in a~~ treatment of a condition selected from neurodegenerative diseases, diabetes, cancer, cardiovascular diseases and stroke.
15. ~~A compound for~~The use ~~in a treatment of a condition~~ according to claim 14, wherein the condition is selected from the group of one or more tauopathies and Alzheimer's disease, Dementia, Amyotrophic lateral sclerosis (ALS), Amyotrophic lateral sclerosis with cognitive impairment (ALSci), Argyrophilic grain disease, Behavioural variant frontotemporal dementia

(BvFTD), Bluit disease, Chronic traumatic encephalopathy, Corticobasal degeneration (CBP), Dementia pugilistica, Diffuse neurofibrillary tangles with calcification, Down's syndrome, Familial British dementia, Familial Danish dementia, Frontotemporal dementia with parkinsonism linked to chromosome 17 (FTDP-17), Frontotemporal lobar degeneration (FTLD), Ganglioglioma, Gangliocytoma, Gerstmann-Straussler-Scheinker disease, Globular glia tauopathy, Guadeloupean parkinsonism, Hallevorden-Spatz disease (neurodegeneration with brain iron accumulation type 1), Lead encephalopathy, Lipofuscinosis, Meningioangiomas, Multiple system atrophy, Myotonic dystrophy, Niemann-Pick disease (type C), Pallido-ponto-nigral degeneration, Parkinsonism-dementia complex of Guam, Pick's disease (PiD), Parkinson's disease dementia, Postencephalitic parkinsonism (PEP), Primary progressive aphasia, Prion diseases (including Creutzfeldt-Jakob Disease (GJD), Progressive nonfluent aphasia, Variant Creutzfeldt-Jakob Disease (vCJD), Fatal Familial Insomnia, Kuru, Progressive supratentorial gliosis, Progressive supranuclear palsy (PSP), Semantic dementia, Steele-Richardson-Olszewski syndrome, Subacute sclerosing panencephalitis, Tangle-only dementia, Tuberous sclerosis, Huntington's disease and Parkinson's disease, preferably one or more tauopathies and Alzheimer's disease.

16. A sulfoximine group-containing compound ~~method~~ for use in treating a tauopathy, wherein a sulfoximine group-containing compound defined in any one of claims 1 to 12 is to be administered to a mammal in need of such treatment.
17. A method for inhibiting α -O-GlcNAcaseglycosidase, wherein a system expressing the O-GlcNAcaseglycosidase is contacted with a sulfoximine group-containing compound as defined in any one of claims 1 to 12 under in-vitro conditions such that the O-GlcNAcaseglycosidase is inhibited.
18. A pharmaceutical composition comprising as active ingredient a sulfoximine group-containing compound according to any one of claims 1 to 12 together with pharmaceutically tolerable adjuvants and/or excipients, optionally in combination with one or more further active ingredients.