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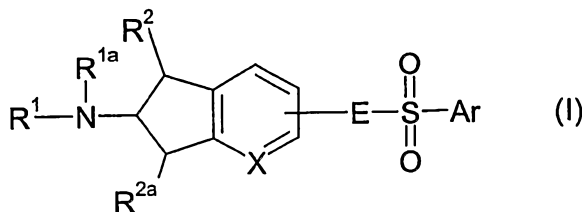
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(54) Title: 6-AMINO(AZA)INDANE COMPOUNDS SUITABLE FOR TREATING DISORDERS THAT RESPOND TO MODULATION OF THE DOPAMINE D₃ RECEPTOR



(57) Abstract: The present invention relates to 6-amino(aza)indane compound of the formula (I) wherein Ar is phenyl or an aromatic 5- or 6-membered C-bound heteroaromatic radical, wherein Ar may carry 1 radical R^a and wherein Ar may also carry 1 or 2 radicals R^b; X is N or CH; E is CR⁶R⁷ or NR³; R¹ is C₁-C₄-alkyl, C₃-C₄-cycloalkyl, C₃-C₄-cycloalkylmethyl, C₃-C₄-alkenyl, fluorinated C₁-C₄-alkyl, fluorinated C₃-C₄-cycloalkyl, fluorinated C₃-C₄-cycloalkylmethyl, fluorinated C₃-C₄-alkenyl, together are (CH₂)_n with n being 1, 2, 3 or 4; R² and R^{2a} each independently are H, CH₃, CH₂F, CHF₂ or CF₃; R³ is H or C₁-C₄-alkyl; and the physiologically tolerated acid addition salts of these compounds. The invention also relates to pharmaceutical compositions comprising at least one compound of the formula (I) or a pharmaceutically acceptable salt thereof and to a method for treating a medical disorder susceptible to treatment with a dopamine D₃ receptor ligand, said method comprising administering an effective amount of at least one compound of the formula (I) or a pharmaceutically acceptable salt thereof.

WO 2006/040177 A1

6-AMINO(AZA)INDANE COMPOUNDS SUITABLE FOR TREATING DISORDERS THAT RESPOND TO MODULATION OF THE DOPAMINE D₃ RECEPTOR

Background Of The Invention

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The present invention relates to novel 6-amino(aza)indane compounds. The compounds possess valuable therapeutic properties and are suitable, in particular, for treating diseases that respond to modulation of the dopamine D₃ receptor.

10 Neurons obtain their information by way of G protein-coupled receptors, inter alia. A large number of substances exert their effect by way of these receptors. One of them is dopamine. Confirmed findings exist with regard to the presence of dopamine and its physiological function as a neurotransmitter. Disorders in the dopaminergic transmitter system result in diseases of the central nervous system which include, for example,
15 schizophrenia, depression and Parkinson's disease. These diseases, and others, are treated with drugs which interact with the dopamine receptors.

Up until 1990, two subtypes of dopamine receptor had been clearly defined pharmacologically, namely the D₁ and D₂ receptors. More recently, a third subtype was found,
20 namely the D₃ receptor which appears to mediate some effects of antipsychotics and antiparkinsonians (J.C. Schwartz et al., *The Dopamine D₃ Receptor as a Target for Antipsychotics*, in *Novel Antipsychotic Drugs*, H.Y. Meltzer, Ed. Raven Press, New York 1992, pages 135-144; M. Dooley et al., *Drugs and Aging* 1998, 12, 495-514, J.N. Joyce, *Pharmacology and Therapeutics* 2001, 90, pp. 231-59 "The Dopamine D₃ Receptor as a Therapeutic Target for Antipsychotic and Antiparkinsonian Drugs").
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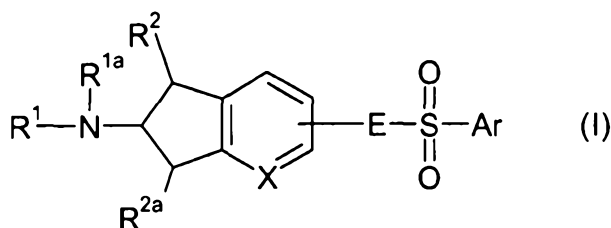
Since then, the dopamine receptors have been divided into two families. On the one hand, there is the D₂ group, consisting of D₂, D₃ and D₄ receptors, and, on the other hand, the D₁ group, consisting of D₁ and D₅ receptors. Whereas D₁ and D₂ receptors are widely distributed, D₃ receptors appear to be expressed regioselectively. Thus, these receptors are preferentially to be found in the limbic system and the projection regions of the mesolimbic dopamine system, especially in the nucleus accumbens, but also in other regions, such as the amygdala. Because of this comparatively regioselective expression, D₃ receptors are regarded as being a target having few side-effects
30 and it is assumed that while a selective D₃ ligand would have the properties of known antipsychotics, it would not have their dopamine D₂ receptor-mediated neurological side-effects (P. Sokoloff et al., *Localization and Function of the D₃ Dopamine Receptor*,

Arzneim. Forsch./Drug Res. **42(1)**. 224 (1992); P. Sokoloff *et al.* Molecular Cloning and Characterization of a Novel Dopamine Receptor (D₃) as a Target for Neuroleptics, *Nature*. **347**. 146 (1990)).

6-aminoindane compounds having an affinity for the dopamine D₃ receptor have been described in WO 95/04713, WO 96/23760 and WO 97/45403. Some of these compounds possess high affinities for the dopamine D₃ receptor. They have therefore been proposed as being suitable for treating diseases of the central nervous system. Unfortunately their affinity and selectivity towards the D₃ receptor or their pharmacological profile are not satisfactory. Consequently there is an ongoing need to provide new compounds, which either have an high affinity and an improved selectivity. The compounds should also have good pharmacological profile, e.g. a high brain plasma ratio, a high bioavailability, a good metabolic stability or a decreased inhibition of the mitochondrial respiration.

Summary of the Invention

According to a first aspect of the invention, there is provided a 6-amino(aza)indane compound of the formula I



wherein

Ar is phenyl or an aromatic 5- or 6-membered C-bound heteroaromatic radical, wherein Ar carries 1 radical R^a and wherein Ar may also carry 1 or 2 radicals R^b;

R^a being selected from the group consisting of C₁-C₆-alkyl, C₂-C₆-alkenyl, fluorinated C₂-C₆-alkenyl, C₃-C₆-cycloalkyl, C₁-C₆-alkoxy, fluorinated C₃-C₆-cycloalkyl, fluorinated C₁-C₆-alkoxy, C₁-C₆-hydroxyalkyl, C₁-C₆-alkoxy-C₁-C₄-alkyl, C₁-C₆-hydroxyalkoxy, C₁-C₆-alkoxy-C₁-C₄-alkoxy, COOH, NR⁴R⁵, CH₂NR⁴R⁵, ONR⁴R⁵, NHC(O)NR⁴R⁵, SO₂NR⁴R⁵, C₁-C₆-alkylcarbonyl, fluorinated C₁-C₆-alkylcarbonyl, C₁-C₆-

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alkylcarbonylamino, fluorinated C₁-C₆-alkylcarbonylamino, C₁-C₆-alkylcarbonyloxy, fluorinated C₁-C₆-alkylcarbonyloxy, C₁-C₆-alkoxycarbonyl, C₁-C₆-alkylthio, fluorinated C₁-C₆-alkylthio, C₁-C₆-alkylsulfinyl, C₁-C₆-alkylsulfonyl, fluorinated C₁-C₆-alkylsulfinyl, fluorinated C₁-C₆-alkylsulfonyl, phenylsulfonyl, phenyl, phenoxy, benzyloxy and a 3- to 7-membered heterocyclic radical, wherein the five last mentioned radicals may carry 1, 2, 3 or 4 radicals selected from halogen, cyano, OH, oxo, CN, fluorinated C₁-C₆-alkyl, C(O)NR⁴R⁵, and the radicals R^a,

R^b being, independently from each other, selected from halogen, cyano, nitro, OH, methyl, methoxy, fluoromethyl, difluoromethyl, trifluoromethyl, fluormethoxy, difluoromethoxy and trifluoromethoxy,

the radical R^a and one radical R^b, if present and bound to two adjacent carbon atoms of phenyl, may form a 5- or 6-membered heterocyclic or carbocyclic ring which is fused to the phenyl ring and which is unsubstituted or which may carry 1, 2 or 3 radicals selected from halogen, NO₂, NH₂, OH, CN, C₁-C₆-alkyl, C₃-C₆-cycloalkyl, C₁-C₆-alkoxy, fluorinated C₁-C₆-alkyl, fluorinated C₃-C₆-cycloalkyl, fluorinated C₁-C₆-alkoxy, C₁-C₆-hydroxyalkyl, C₁-C₄-alkoxy-C₂-C₄-alkyl, C₁-C₆-hydroxyalkoxy, C₁-C₄-alkoxy-C₂-C₄-alkoxy, C₁-C₆-alkylcarbonyl, C₁-C₆-alkylamino, di-C₁-C₆-alkylamino, C₁-C₆-alkylaminocarbonyl, di-C₁-C₆-alkylaminocarbonyl, fluorinated C₁-C₆-alkylcarbonyl, C₁-C₆-alkylcarbonylamino, fluorinated C₁-C₆-alkylcarbonylamino, C₁-C₆-alkylcarbonyloxy, fluorinated C₁-C₆-alkylcarbonyloxy, C₁-C₆-alkoxycarbonyl, C₁-C₆-alkylthio, fluorinated C₁-C₆-alkylthio, C₁-C₆-alkylsulfinyl, C₁-C₆-alkylsulfonyl, fluorinated C₁-C₆-alkylsulfinyl and fluorinated C₁-C₆-alkylsulfonyl,

provided that if Ar is phenyl, R^{2a} is hydrogen and R² is hydrogen, Ar carries 1 radical R^a which is different from methyl, methoxy, and trifluoromethoxy, and optionally 1 or 2 radicals R^b;

X is N or CH;

E is CR⁶R⁷ or NR³;

R¹ is C₁-C₄-alkyl, C₃-C₄-cycloalkyl, C₃-C₄-cycloalkylmethyl, C₃-C₄-alkenyl, fluorinated C₁-C₄-alkyl, fluorinated C₃-C₄-cycloalkyl, fluorinated C₃-C₄-cycloalkylmethyl, fluorinated C₃-C₄-alkenyl, formyl or C₁-C₃-alkylcarbonyl;

R^{1a} is H or R^{1a} and R² or R^{1a} and R^{2a} together are (CH₂)_n with n being 1, 2, 3 or 4;

R² and R^{2a} each independently are H, CH₃, CH₂F, CHF₂ or CF₃;

R³ is H or C₁-C₄-alkyl;

R⁴, R⁵ independently of each other are selected from H, C₁-C₂-alkyl, C₁-C₂-alkoxy and fluorinated C₁-C₂-alkyl;

R⁶, R⁷ independently of each other are selected from H, C₁-C₂-alkyl and fluorinated C₁-C₂-alkyl;

and the physiologically tolerated acid addition salts of these compounds.

According to a second aspect of the invention, there is provided

4-(Difluoromethoxy)-N-(2-propylaminoindan-5-yl)-benzenesulfonamide;

4-(1,1,2,2-Tetrafluoroethoxy)-N-(2-propylaminoindan-5-yl)-benzenesulfonamide;

4-(2,2,2-Trifluoroethoxy)-N-(2-propylaminoindan-5-yl)-benzenesulfonamide;

4-(2,2-Difluoroethoxy)-N-(2-propylaminoindan-5-yl)-benzenesulfonamide;

4-(2-Fluoroethoxy)-N-(2-propylaminoindan-5-yl)-benzenesulfonamide;

4-(2,2,2-Trifluoroethyl)-N-(2-propylaminoindan-5-yl)-benzenesulfonamide;

4-(2-Fluoro-1-methylethyl)-N-(2-propylaminoindan-5-yl)-benzenesulfonamide;

4-Ethyl-N-(2-propylaminoindan-5-yl)-benzenesulfonamide;

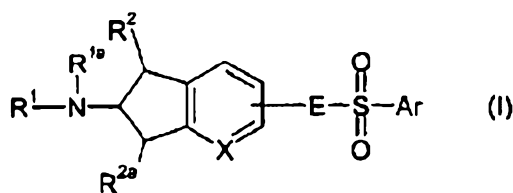
6-(3-Fluoropropoxy)-pyridine-3-sulfonic acid (2-propylamino-indan-5-yl)-amide.

According to a third aspect of the invention, there is provided a pharmaceutical composition comprising at least one compound of the formula I or a pharmaceutically acceptable salt thereof in accordance with the first or second aspect of the present invention, optionally together with at least one physiologically acceptable carrier or auxiliary substance.

According to a fourth aspect of the invention, there is provided a method for treating a medical disorder susceptible to treatment with a dopamine D₃ receptor ligand, said method comprising administering an effective amount of at least one compound of the formula I or a pharmaceutically acceptable salt thereof in accordance with the any one of the first to third aspects of the present invention to a subject in need thereof.

According to a fifth aspect of the invention, there is provided the use of a compound of the formula I or a pharmaceutically acceptable salt thereof in accordance with the any one of the first to fourth aspects of the present invention for preparing a pharmaceutical composition for the treatment of a medical disorder susceptible to treatment with a dopamine D3 receptor ligand.

The invention is based on the object of providing compounds which act as highly selective dopamine D₃ receptor ligands. This object is surprisingly achieved by means of 6-amino(aza)indane compound of the formula I



wherein

Ar is phenyl or an aromatic 5- or 6-membered C-bound heteroaromatic radical, wherein Ar may carry 1 radical R^a and wherein Ar may carry 1 or 2 further radicals R^b;

R^a being selected from the group consisting of C₁-C₆-alkyl, C₂-C₆-alkenyl, fluorinated C₂-C₆-alkenyl, C₃-C₆-cycloalkyl, C₁-C₆-alkoxy, fluorinated C₁-C₆-alkyl, fluorinated C₃-C₆-cycloalkyl, fluorinated C₁-C₆-alkoxy, C₁-C₆-hydroxyalkyl, C₁-C₆-alkoxy-C₁-C₄-alkyl, C₁-C₆-hydroxyalkoxy, C₁-C₆-alkoxy-C₁-C₄-alkoxy, COOH, NR⁴R⁵, CH₂NR⁴R⁵, ONR⁴R⁵, NHC(O)NR⁴R⁵,

5 C(O)NR⁴R⁵, SO₂NR⁴R⁵, C₁-C₆-alkylcarbonyl, fluorinated C₁-C₆-alkylcarbonyl, C₁-C₆-alkylcarbonylamino, fluorinated C₁-C₆-alkylcarbonylamino, C₁-C₆-alkylcarbonyloxy, fluorinated C₁-C₆-alkylcarbonyloxy, C₁-C₆-alkoxycarbonyl, C₁-C₆-alkylthio, fluorinated C₁-C₆-alkylthio, C₁-C₆-alkylsulfinyl, C₁-C₆-alkylsulfonyl, fluorinated C₁-C₆-alkylsulfinyl, fluorinated C₁-C₆-alkylsulfonyl, phenylsulfonyl, phenyl, phenoxy, benzyloxy and a 3- to 7-membered heterocyclic radical, wherein the five last mentioned radicals may carry 1, 2, 3 or 4 radicals selected from halogen, cyano, OH, oxo, CN, and the radicals R^a,

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R^b being, independently from each other, selected from halogen, cyano, nitro, OH, methyl, methoxy, fluoromethyl, difluoromethyl, trifluoromethyl, fluoromethoxy, difluoromethoxy and trifluoromethoxy,

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the radical R^a and one radical R^b, if present and bound to two adjacent carbon atoms of phenyl, may form a 5- or 6-membered heterocyclic or carbocyclic ring which is fused to the phenyl ring and which is unsubstituted or which may carry 1, 2 or 3 radicals selected from halogen, NO₂, NH₂, OH, CN, C₁-C₆-alkyl, C₃-C₆-cycloalkyl, C₁-C₆-alkoxy, fluorinated C₁-C₆-alkyl, fluorinated C₃-C₆-cycloalkyl, fluorinated C₁-C₆-alkoxy, C₁-C₆-hydroxyalkyl, C₁-C₄-alkoxy-C₂-C₄-alkyl, C₁-C₆-hydroxyalkoxy, C₁-C₄-alkoxy-C₂-C₄-alkoxy, C₁-C₆-alkylcarbonyl, C₁-C₆-alkylamino, di-C₁-C₆-alkylamino, C₁-C₆-alkylaminocarbonyl, di-C₁-C₆-alkylaminocarbonyl, fluorinated C₁-C₆-alkylcarbonyl, C₁-C₆-alkylcarbonylamino, fluorinated C₁-C₆-alkylcarbonylamino, C₁-C₆-alkylcarbonyloxy, fluorinated C₁-C₆-alkylcarbonyloxy, C₁-C₆-alkoxycarbonyl, C₁-C₆-alkylthio, fluorinated C₁-C₆-alkylthio, C₁-C₆-alkylsulfinyl, C₁-C₆-alkylsulfonyl, fluorinated C₁-C₆-alkylsulfinyl and fluorinated C₁-C₆-alkylsulfonyl;

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provided that if Ar is phenyl, R^{2a} is hydrogen and R^{2b} is hydrogen and A is CH₂, Ar carries 1 radical R^a which is different from methyl, methoxy, trifluoromethyl and trifluoromethoxy, and optionally 1 or 2 radicals R^b;

35

X is N or CH;

E is CR⁶R⁷ or NR³;

R¹ is C₁-C₄-alkyl, C₃-C₄-cycloalkyl, C₃-C₄-cycloalkylmethyl, C₃-C₄-alkenyl, fluorinated C₁-C₄-alkyl, fluorinated C₃-C₄-cycloalkyl, fluorinated C₃-C₄-cycloalkylmethyl, fluorinated C₃-C₄-alkenyl, formyl or C₁-C₃-alkylcarbonyl;

5 R^{1a} is H or R^{1a} and R² or R^{1a} and R^{2a} together are (CH₂)_n with n being 1, 2, 3 or 4;

R² and R^{2a} each independently are H, CH₃, CH₂F, CHF₂ or CF₃

R³ is H or C₁-C₄-alkyl;

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R⁴, R⁵ independently of each other are selected from H, C₁-C₂-alkyl, C₁-C₂-alkoxy and fluorinated C₁-C₂-alkyl, and

15 R⁶, R⁷ independently of each other are selected from H, C₁-C₂-alkyl and fluorinated C₁-C₂-alkyl, in particular hydrogen;

and the physiologically tolerated acid addition salts of these compounds.

20 The present invention therefore relates to 6-amino(aza)indanecompounds of the general formula I and to their physiologically tolerated acid addition salts.

The present invention also relates to a pharmaceutical composition which comprises at least one 6-amino(aza)indane compound of the formula I and/or at least one physiologically tolerated acid addition salt of I, where appropriate together with physiologically acceptable carriers and/or auxiliary substances.

25 The present invention also relates to a method for treating disorders which respond to influencing by dopamine D₃ receptor antagonists or dopamine D₃ agonists, said method comprising administering an effective amount of at least one 6-amino(aza)indanecompound of the formula I and/or at least one physiologically tolerated acid addition salt of I to a subject in need thereof.

Detailed Description Of The Invention

35 The diseases which respond to the influence of dopamine D₃ receptor antagonists or agonists include, in particular, disorders and diseases of the central nervous system, in particular affective disturbances, neurotic disturbances, stress disturbances and

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somatoform disturbances and psychoses, especially schizophrenia and depression and, in addition, disturbances of kidney function, in particular kidney function disturbances which are caused by diabetes mellitus (see WO 00/67847).

- 5 According to the invention, at least one compound of the general formula I having the meanings mentioned at the outset is used for treating the above mentioned indications. Provided the compounds of the formula I of a given constitution may exist in different spatial arrangements, for example if they possess one or more centers of asymmetry, polysubstituted rings or double bonds, or as different tautomers, it is also possible to
10 use enantiomeric mixtures, in particular racemates, diastereomeric mixtures and tautomeric mixtures, preferably, however, the respective essentially pure enantiomers, diastereomers and tautomers of the compounds of formula I and/or of their salts.

- It is likewise possible to use physiologically tolerated salts of the compounds of the
15 formula I, especially acid addition salts with physiologically tolerated acids. Examples of suitable physiologically tolerated organic and inorganic acids are hydrochloric acid, hydrobromic acid, phosphoric acid, sulfuric acid, C₁-C₄-alkylsulfonic acids, such as methanesulfonic acid, aromatic sulfonic acids, such as benzenesulfonic acid and toluenesulfonic acid, oxalic acid, maleic acid, fumaric acid, lactic acid, tartaric acid, adipic
20 acid and benzoic acid. Other utilizable acids are described in Fortschritte der Arzneimittelforschung [Advances in drug research], Volume 10, pages 224 ff., Birkhäuser Verlag, Basel and Stuttgart, 1966.

- The organic moieties mentioned in the above definitions of the variables are - like the
25 term halogen - collective terms for individual listings of the individual group members. The prefix C_n-C_m indicates in each case the possible number of carbon atoms in the group.

- The term halogen denotes in each case fluorine, bromine, chlorine or iodine, in particular
30 fluorine or chlorine.

- C₁-C₄ Alkyl (and likewise in C₁-C₄ hydroxyalkyl, C₁-C₆ alkoxy-C₁-C₄-alkyl, C₁-C₄ alkyl-carbonyl, C₁-C₄ alkylcarbonylamino, C₁-C₄ alkylcarbonyloxy, C₁-C₄ alkylthio, C₁-C₄ alkyl-sulfinyl, C₁-C₄ alkylsulfonyl etc.) is a straight-chain or branched alkyl group having from
35 1 to 4 carbon atoms. Examples of an alkyl group are methyl, ethyl, n-propyl, iso-propyl, n-butyl, 2-butyl, iso-butyl or *tert*-butyl.

C₁-C₆ Alkyl (and likewise in C₁-C₆ hydroxyalkyl, C₁-C₆ alkoxy-C₁-C₄-alkyl, C₁-C₆ alkyl-carbonyl, C₁-C₆ alkylcarbonylamino, C₁-C₆ alkylcarbonyloxy, C₁-C₆ alkylthio, C₁-C₆ alkylsulfinyl, C₁-C₆ alkylsulfonyl etc.) is a straight-chain or branched alkyl group having from 1 to 6 carbon atoms. Examples include C₁-C₄ alkyl as mentioned above and also
5 pentyl, 1-methylbutyl, 2-methylbutyl, 3-methylbutyl, 2,2-dimethylpropyl, 1-ethylpropyl, hexyl, 1,1-dimethylpropyl, 1,2-dimethylpropyl, 1-methylpentyl, 2-methylpentyl, 3-methylpentyl, 4-methylpentyl, 1,1-dimethylbutyl, 1,2-dimethylbutyl, 1,3-dimethylbutyl, 2,2-dimethylbutyl, 2,3-dimethylbutyl, 3,3-dimethylbutyl, 1-ethylbutyl, 2-ethylbutyl, 1,1,2-trimethylpropyl, 1,2,2-trimethylpropyl, 1-ethyl-1-methylpropyl and 1-ethyl-2-
10 methylpropyl;

Fluorinated C₁-C₆ alkyl (and likewise in fluorinated C₁-C₆ alkylcarbonyl, fluorinated C₁-C₆ alkylcarbonylamino, fluorinated C₁-C₆ alkylcarbonyloxy, fluorinated C₁-C₆ alkylthio, fluorinated C₁-C₆ alkylsulfinyl, fluorinated C₁-C₆ alkylsulfonyl etc.) is a straight-chain or
15 branched alkyl group having from 1 to 6, in particular 1 to 4, more preferably 1 to 3 carbon atoms, wherein at least one, e.g. 1, 2, 3, 4 or all of the hydrogen atoms are replaced by a fluorine atoms such as in fluoromethyl, difluoromethyl, trifluoromethyl, (R)-1-fluoroethyl, (S)-1-fluoroethyl, 2-fluoroethyl, 1,1-difluoroethyl, 2,2-difluoroethyl, 2,2,2-trifluoroethyl, (R)-1-fluoropropyl, (S)-1-fluoropropyl, 2-fluoropropyl, 3-fluoropropyl, 1,1-difluoropropyl, 2,2-difluoropropyl, 3,3-difluoropropyl, 3,3,3-trifluoropropyl, (R)-2-fluoro-1-methylethyl, (S)-2-fluoro-1-methylethyl, (R)-2,2-difluoro-1-methylethyl, (S)-2,2-difluoro-1-methylethyl, (R)-1,2-difluoro-1-methylethyl, (S)-1,2-difluoro-1-methylethyl, (R)-2,2,2-trifluoro-1-methylethyl, (S)-2,2,2-trifluoro-1-methylethyl, 2-fluoro-1-(fluoromethyl)ethyl, 1-(difluoromethyl)-2,2-difluoroethyl, (R)-1-fluorobutyl, (S)-1-fluorobutyl, 2-fluorobutyl, 3-
20 fluorobutyl, 4-fluorobutyl, 1,1-difluorobutyl, 2,2-difluorobutyl, 3,3-difluorobutyl, 4,4-difluorobutyl, 4,4,4-trifluorobutyl, etc.;

Branched C₃-C₆ alkyl is alkyl having 3 to 6 carbon atoms at least one being a secondary or tertiary carbon atom. Examples are isopropyl, tert.-butyl, 2-butyl, isobutyl, 2-
30 pentyl, 2-hexyl, 3-methylpentyl, 1,1-dimethylbutyl, 1,2-dimethylbutyl 1-methyl-1-ethylpropyl.

C₁-C₆ Alkoxy (and likewise in C₁-C₆ alkoxy-carbonyl, C₁-C₆ alkoxy-C₁-C₄ alkyl, C₁-C₆ alkoxy-C₁-C₄ alkoxy and C₁-C₆ hydroxyalkoxy) is a straight-chain or branched alkyl
35 group having from 1 to 6, in particular 1 to 4 carbon atoms, which is bound to the remainder of the molecule via an oxygen atom. Examples include methoxy, ethoxy, n-propoxy, isopropoxy, n-butoxy, 2-butoxy, iso-butoxy, tert.-butoxy pentyloxy, 1-

methylbutoxy, 2-methylbutoxy, 3-methylbutoxy, 2,2-dimethylpropoxy, 1-ethylpropoxy, hexyloxy, 1,1-dimethylpropoxy, 1,2-dimethylpropoxy, 1-methylpentyloxy, 2-methylpentyloxy, 3-methylpentyloxy, 4-methylpentyloxy, 1,1-dimethylbutyloxy, 1,2-dimethylbutyloxy, 1,3-dimethylbutyloxy, 2,2-dimethylbutyloxy, 2,3-dimethylbutyloxy, 3,3-dimethylbutyloxy, 1-ethylbutyloxy, 2-ethylbutyloxy, 1,1,2-trimethylpropoxy, 1,2,2-trimethylpropoxy, 1-ethyl-1-methylpropoxy and 1-ethyl-2-methylpropoxy;

Fluorinated C₁-C₆ alkoxy (and likewise in fluorinated C₁-C₆ alkoxy carbonyl) is a straight-chain or branched alkoxy group having from 1 to 6, in particular 1 to 4 carbon atoms, wherein at least one, e.g. 1, 2, 3, 4 or all of the hydrogen atoms are replaced by a fluorine atoms such as in fluoromethoxy, difluoromethoxy, trifluoromethoxy, (R)-1-fluoroethoxy, (S)-1-fluoroethoxy, 2-fluoroethoxy, 1,1-difluoroethoxy, 2,2-difluoroethoxy, 2,2,2-trifluoroethoxy, (R)-1-fluoropropoxy, (S)-1-fluoropropoxy, 2-fluoropropoxy, 3-fluoropropoxy, 1,1-difluoropropoxy, 2,2-difluoropropoxy, 3,3-difluoropropoxy, 3,3,3-trifluoropropoxy, (R)-2-fluoro-1-methylethoxy, (S)-2-fluoro-1-methylethoxy, (R)-2,2-difluoro-1-methylethoxy, (S)-2,2-difluoro-1-methylethoxy, (R)-1,2-difluoro-1-methylethoxy, (S)-1,2-difluoro-1-methylethoxy, (R)-2,2,2-trifluoro-1-methylethoxy, (S)-2,2,2-trifluoro-1-methylethoxy, 2-fluoro-1-(fluoromethyl)ethoxy, 1-(difluoromethyl)-2,2-difluoroethoxy, (R)-1-fluorobutoxy, (S)-1-fluorobutoxy, 2-fluorobutoxy, 3-fluorobutoxy, 4-fluorobutoxy, 1,1-difluorobutoxy, 2,2-difluorobutoxy, 3,3-difluorobutoxy, 4,4-difluorobutoxy, 4,4,4-trifluorobutoxy, etc.;

C₃-C₆ Cycloalkyl is a cycloaliphatic radical having from 3 to 6 C atoms, such as cyclopropyl, cyclobutyl and cyclopentyl. The cycloalkyl radical may be unsubstituted or may carry 1, 2, 3 or 4 C₁-C₄ alkyl radicals, preferably a methyl radical. One alkyl radical is preferably located in the 1-position of the cycloalkyl radical, such as in 1-methylcyclopropyl or 1-methylcyclobutyl.

Fluorinated C₃-C₆ cycloalkyl is a cycloaliphatic radical having from 3 to 6 C atoms, such as cyclopropyl, cyclobutyl and cyclopentyl, wherein at least one, e.g. 1, 2, 3, 4 or all of the hydrogen atoms are replaced by a fluorine atoms such as in 1-fluorocyclopropyl, 2-fluorocyclopropyl, 2,2-difluorocyclopropyl, 1,2-difluorocyclopropyl, 2,3-difluorocyclopropyl, pentafluorocyclopropyl, 1-fluorocyclobutyl, 2-fluorocyclobutyl, 3-fluorocyclobutyl, 2,2-difluorocyclobutyl, 3,3-difluorocyclobutyl, 1,2-difluorocyclobutyl, 1,3-difluorocyclobutyl, 2,3-difluorocyclobutyl, 2,4-difluorocyclobutyl, or 1,2,2-trifluorocyclobutyl.

C₂-C₆-Alkenyl is a singly unsaturated hydrocarbon radical having 2, 3, 4, 5 or 6 C-atoms, e.g. vinyl, allyl(2-propen-1-yl), 1-propen-1-yl, 2-propen-2-yl, methallyl(2-methylprop-2-en-1-yl) and the like. C₃-C₄-Alkenyl is, in particular, allyl, 1-methylprop-2-en-1-yl, 2-buten-1-yl, 3-buten-1-yl, methallyl, 2-penten-1-yl, 3-penten-1-yl, 4-penten-1-yl, 1-methylbut-2-en-1-yl or 2-ethylprop-2-en-1-yl.

Fluorinated C₂-C₆-alkenyl is a singly unsaturated hydrocarbon radical having 2, 3, 4, 5 or 6 C-atoms, wherein at least one, e.g. 1, 2, 3, 4 or all of the hydrogen atoms are replaced by a fluorine atoms such as in 1-fluorovinyl, 2-fluorovinyl, 2,2-fluorovinyl, 3,3,3-fluoropropenyl, 1,1-difluoro-2-propenyl 1-fluoro-2-propenyl and the like.

C₁-C₆ hydroxyalkyl is an alkyl radical having from 1 to 6 carbon atoms as defined above, wherein one hydrogen atom is replaced by hydroxy. Examples comprise hydroxymethyl, 2-hydroxyethyl, 1-hydroxyethyl, 3-hydroxypropyl, 2-hydroxypropyl, 1-methyl-1-hydroxyethyl and the like.

C₁-C₆ hydroxyalkoxy is an alkoxy radical having from 1 to 6, preferably from 2 to 4 carbon atoms as defined above, wherein one hydrogen atom is replaced by hydroxy. Examples comprise 2-hydroxyethyl, 3-hydroxypropyl, 2-hydroxypropyl, 1-methyl-2-hydroxyethyl and the like.

C₁-C₆ alkoxy-C₁-C₄-alkyl is an alkyl radical having from 1 to 4 carbon atoms as defined above, wherein one hydrogen atom is replaced by C₁-C₆ alkoxy. Examples comprise methoxymethyl, 2-methoxyethyl, 1-methoxyethyl, 3-methoxypropyl, 2-methoxypropyl, 1-methyl-1-methoxyethyl, ethoxymethyl, 2-ethoxyethyl, 1-ethoxyethyl, 3-ethoxypropyl, 2-ethoxypropyl, 1-methyl-1-ethoxyethyl and the like.

C₁-C₆ alkoxy-C₁-C₄-alkoxy is an alkoxy radical having from 1 to 4 carbon atoms as defined above, wherein one hydrogen atom is replaced by C₁-C₆ alkoxy. Examples comprise methoxymethoxy, 2-methoxyethoxy, 1-methoxyethoxy, 3-methoxypropoxy, 2-methoxypropoxy, 1-methyl-1-methoxyethoxy, ethoxymethoxy, 2-ethoxyethoxy, 1-ethoxyethoxy, 3-ethoxypropoxy, 2-ethoxypropoxy, 1-methyl-1-ethoxyethoxy and the like.

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C₁-C₆ alkylcarbonyl is a radical of the formula R-C(O)-, wherein R is an alkyl radical having from 1 to 6 carbon atoms as defined above. Examples comprise acetyl, propionyl, n-butyryl, 2-methylpropionyl, pivalyl and the like.

- 5 C₁-C₆ alkylcarbonylamino is a radical of the formula R-C(O)-NH-, wherein R is an alkyl radical having from 1 to 6 carbon atoms as defined above. Examples comprise acetamido, propionamido, n-butyramido, 2-methylpropionamido, 2,2-dimethylpropionamido and the like.
- 10 C₁-C₆ alkylcarbonyloxy is a radical of the formula R-C(O)-O-, wherein R is an alkyl radical having from 1 to 6 carbon atoms as defined above. Examples comprise acetyloxy, propionyloxy, n-butyryloxy, 2-methylpropionyloxy, 2,2-dimethylpropionyloxy and the like.
- 15 C₁-C₆ alkylthio is a radical of the formula R-S-, wherein R is an alkyl radical having from 1 to 6 carbon atoms as defined above. Examples comprise methylthio, ethylthio, propylthio, butylthio, pentylthio, 1-methylbutylthio, 2-methylbutylthio, 3-methylbutylthio, 2,2-dimethylpropylthio, 1-ethylpropylthio, hexylthio, 1,1-dimethylpropylthio, 1,2-dimethylpropylthio, 1-methylpentylthio, 2-methylpentylthio, 3-methylpentylthio,
- 20 4-methylpentylthio, 1,1-dimethylbutylthio, 1,2-dimethylbutylthio, 1,3-dimethylbutylthio, 2,2-dimethylbutylthio, 2,3-dimethylbutylthio, 3,3-dimethylbutylthio, 1-ethylbutylthio, 2-ethylbutylthio, 1,1,2-trimethylpropylthio, 1,2,2-trimethylpropylthio, 1-ethyl-1-methylpropyl and 1-ethyl-2-methylpropyl;
- 25 C₁-C₆ alkylsulfinyl is a radical of the formula R-S(O)-, wherein R is an alkyl radical having from 1 to 6 carbon atoms as defined above. Examples comprise methylsulfinyl, ethylsulfinyl, propylsulfinyl, butylsulfinyl, pentylsulfinyl, 1-methylbutylsulfinyl, 2-methylbutylsulfinyl, 3-methylbutylsulfinyl, 2,2-dimethylpropylsulfinyl, 1-ethylpropylsulfinyl, hexylsulfinyl, 1,1-dimethylpropylsulfinyl, 1,2-dimethylpropylsulfinyl,
- 30 1-methylpentylsulfinyl, 2-methylpentylsulfinyl, 3-methylpentylsulfinyl, 4-methylpentylsulfinyl, 1,1-dimethylbutylsulfinyl, 1,2-dimethylbutylsulfinyl, 1,3-dimethylbutylsulfinyl, 2,2-dimethylbutylsulfinyl, 2,3-dimethylbutylsulfinyl, 3,3-dimethylbutylsulfinyl, 1-ethylbutylsulfinyl, 2-ethylbutylsulfinyl, 1,1,2-trimethylpropylsulfinyl, 1,2,2-trimethylpropylsulfinyl, 1-ethyl-1-methylpropyl and 1-ethyl-
- 35 2-methylpropyl;

C₁-C₆ alkylsulfonyl is a radical of the formula R-S(O)₂·, wherein R is an alkyl radical having from 1 to 6 carbon atoms as defined above. Examples comprise methylsulfonyl, ethylsulfonyl, propylsulfonyl, butylsulfonyl, pentylsulfonyl, 1-methylbutylsulfonyl, 2-methylbutylsulfonyl, 3-methylbutylsulfonyl, 2,2-dimethylpropylsulfonyl, 1-ethylpropylsulfonyl, hexylsulfonyl, 1,1-dimethylpropylsulfonyl, 1,2-dimethylpropylsulfonyl, 1-methylpentylsulfonyl, 2-methylpentylsulfonyl, 3-methylpentylsulfonyl, 4-methylpentylsulfonyl, 1,1-dimethylbutylsulfonyl, 1,2-dimethylbutylsulfonyl, 1,3-dimethylbutylsulfonyl, 2,2-dimethylbutylsulfonyl, 2,3-dimethylbutylsulfonyl, 3,3-dimethylbutylsulfonyl, 1-ethylbutylsulfonyl, 2-ethylbutylsulfonyl, 1,1,2-trimethylpropylsulfonyl, 1,2,2-trimethylpropylsulfonyl, 1-ethyl-1-methylpropyl and 1-ethyl-2-methylpropyl;

fluorinated C₁-C₆ alkylcarbonyl is a radical of the formula R-C(O)·, wherein R is a fluorinated alkyl radical having from 1 to 6 carbon atoms as defined above. Examples comprise fluoroacetyl, difluoroacetyl, trifluoroacetyl, (R)-1-fluoroethylcarbonyl, (S)-1-fluoroethylcarbonyl, 2-fluoroethylcarbonyl, 1,1-difluoroethylcarbonyl, 2,2-difluoroethylcarbonyl, 2,2,2-trifluoroethylcarbonyl, (R)-1-fluoropropylcarbonyl, (S)-1-fluoropropylcarbonyl, 2-fluoropropylcarbonyl, 3-fluoropropylcarbonyl, 1,1-difluoropropylcarbonyl, 2,2-difluoropropylcarbonyl, 3,3-difluoropropylcarbonyl, 3,3,3-trifluoropropylcarbonyl, (R)-2-fluoro-1-methylethylcarbonyl, (S)-2-fluoro-1-methylethylcarbonyl, (R)-2,2-difluoro-1-methylethylcarbonyl, (S)-2,2-difluoro-1-methylethylcarbonyl, (R)-1,2-difluoro-1-methylethylcarbonyl, (S)-1,2-difluoro-1-methylethylcarbonyl, (R)-2,2,2-trifluoro-1-methylethylcarbonyl, (S)-2,2,2-trifluoro-1-methylethylcarbonyl, 2-fluoro-1-(fluoromethyl)ethylcarbonyl, 1-(difluoromethyl)-2,2-difluoroethylcarbonyl, (R)-1-fluorobutylcarbonyl, (S)-1-fluorobutylcarbonyl, 2-fluorobutylcarbonyl, 3-fluorobutylcarbonyl, 4-fluorobutylcarbonyl, 1,1-difluorobutylcarbonyl, 2,2-difluorobutylcarbonyl, 3,3-difluorobutylcarbonyl, 4,4-difluorobutylcarbonyl, 4,4,4-trifluorobutylcarbonyl, etc.;

fluorinated C₁-C₆ alkylcarbonylamino is a radical of the formula R-C(O)-NH·, wherein R is a fluorinated alkyl radical having from 1 to 6 carbon atoms as defined above. Examples comprise fluoroacetamido, difluoroacetamido, trifluoroacetamido, (R)-1-fluoroethylcarbonylamino, (S)-1-fluoroethylcarbonylamino, 2-fluoroethylcarbonylamino, 1,1-difluoroethylcarbonylamino, 2,2-difluoroethylcarbonylamino, 2,2,2-trifluoroethylcarbonylamino, (R)-1-fluoropropylcarbonylamino, (S)-1-fluoropropylcarbonylamino, 2-fluoropropylcarbonylamino, 3-fluoropropylcarbonylamino, 1,1-difluoropropylcarbonylamino, 2,2-difluoropropylcarbonylamino, 3,3-difluoropropylcarbonylamino, 3,3,3-

trifluoropropylcarbonylamino, (R)-2-fluoro-1-methylethylcarbonylamino, (S)-2-fluoro-1-methylethylcarbonylamino, (R)-2,2-difluoro-1-methylethylcarbonylamino, (S)-2,2-difluoro-1-methylethylcarbonylamino, (R)-1,2-difluoro-1-methylethylcarbonylamino, (S)-1,2-difluoro-1-methylethylcarbonylamino, (R)-2,2,2-trifluoro-1-methylethylcarbonylamino, (S)-2,2,2-trifluoro-1-methylethylcarbonylamino, 2-fluoro-1-(fluoromethyl)ethylcarbonylamino, 1-(difluoromethyl)-2,2-difluoroethylcarbonylamino, (R)-1-fluorobutylcarbonylamino, (S)-1-fluorobutylcarbonylamino, 2-fluorobutylcarbonylamino, 3-fluorobutylcarbonylamino, 4-fluorobutylcarbonylamino, 1,1-difluorobutylcarbonylamino, 2,2-difluorobutylcarbonylamino, 3,3-difluorobutylcarbonylamino, 4,4-difluorobutylcarbonylamino, 4,4,4-trifluorobutylcarbonylamino, etc.,

fluorinated C₁-C₆ alkylcarbonyloxy is a radical of the formula R-C(O)-O-, wherein R is a fluorinated alkyl radical having from 1 to 6 carbon atoms as defined above fluoroacetyl, difluoroacetyl, trifluoroacetyl, (R)-1-fluoroethylcarbonyloxy, (S)-1-fluoroethylcarbonyloxy, 2-fluoroethylcarbonyloxy, 1,1-difluoroethylcarbonyloxy, 2,2-difluoroethylcarbonyloxy, 2,2,2-trifluoroethylcarbonyloxy, (R)-1-fluoropropylcarbonyloxy, (S)-1-fluoropropylcarbonyloxy, 2-fluoropropylcarbonyloxy, 3-fluoropropylcarbonyloxy, 1,1-difluoropropylcarbonyloxy, 2,2-difluoropropylcarbonyloxy, 3,3-difluoropropylcarbonyloxy, 3,3,3-trifluoropropylcarbonyloxy, (R)-2-fluoro-1-methylethylcarbonyloxy, (S)-2-fluoro-1-methylethylcarbonyloxy, (R)-2,2-difluoro-1-methylethylcarbonyloxy, (S)-2,2-difluoro-1-methylethylcarbonyloxy, (R)-1,2-difluoro-1-methylethylcarbonyloxy, (S)-1,2-difluoro-1-methylethylcarbonyloxy, (R)-2,2,2-trifluoro-1-methylethylcarbonyloxy, (S)-2,2,2-trifluoro-1-methylethylcarbonyloxy, 2-fluoro-1-(fluoromethyl)ethylcarbonyloxy, 1-(difluoromethyl)-2,2-difluoroethylcarbonyloxy, (R)-1-fluorobutylcarbonyloxy, (S)-1-fluorobutylcarbonyloxy, 2-fluorobutylcarbonyloxy, 3-fluorobutylcarbonyloxy, 4-fluorobutylcarbonyloxy, 1,1-difluorobutylcarbonyloxy, 2,2-difluorobutylcarbonyloxy, 3,3-difluorobutylcarbonyloxy, 4,4-difluorobutylcarbonyloxy, 4,4,4-trifluorobutylcarbonyloxy, etc.;

fluorinated C₁-C₆ alkylthio is a radical of the formula R-S-, wherein R is a fluorinated alkyl radical having from 1 to 6 carbon atoms as defined above. Examples comprise fluoromethylthio, difluoromethylthio, trifluoromethylthio, (R)-1-fluoroethylthio, (S)-1-fluoroethylthio, 2-fluoroethylthio, 1,1-difluoroethylthio, 2,2-difluoroethylthio, 2,2,2-trifluoroethylthio, (R)-1-fluoropropylthio, (S)-1-fluoropropylthio, 2-fluoropropylthio, 3-fluoropropylthio, 1,1-difluoropropylthio, 2,2-difluoropropylthio, 3,3-difluoropropylthio, 3,3,3-trifluoropropylthio, (R)-2-fluoro-1-methylethylthio, (S)-2-fluoro-1-methylethylthio, (R)-2,2-difluoro-1-methylethylthio, (S)-2,2-difluoro-1-methylethylthio, (R)-1,2-difluoro-1-

methylethylthio, (S)-1,2-difluoro-1-methylethylthio, (R)-2,2,2-trifluoro-1-methylethylthio, (S)-2,2,2-trifluoro-1-methylethylthio, 2-fluoro-1-(fluoromethyl)ethylthio, 1-(difluoromethyl)-2,2-difluoroethylthio, (R)-1-fluorobutylthio, (S)-1-fluorobutylthio, 2-fluorobutylthio, 3-fluorobutylthio, 4-fluorobutylthio, 1,1-difluorobutylthio, 2,2-difluorobutylthio, 3,3-difluorobutylthio, 4,4-difluorobutylthio, 4,4,4-trifluorobutylthio, etc.;

fluorinated C₁-C₆ alkylsulfinyl is a radical of the formula R-S(O)-, wherein R is a fluorinated alkyl radical having from 1 to 6 carbon atoms as defined above. Examples comprise fluoromethylsulfinyl, difluoromethylsulfinyl, trifluoromethylsulfinyl, (R)-1-fluoroethylsulfinyl, (S)-1-fluoroethylsulfinyl, 2-fluoroethylsulfinyl, 1,1-difluoroethylsulfinyl, 2,2-difluoroethylsulfinyl, 2,2,2-trifluoroethylsulfinyl, (R)-1-fluoropropylsulfinyl, (S)-1-fluoropropylsulfinyl, 2-fluoropropylsulfinyl, 3-fluoropropylsulfinyl, 1,1-difluoropropylsulfinyl, 2,2-difluoropropylsulfinyl, 3,3-difluoropropylsulfinyl, 3,3,3-trifluoropropylsulfinyl, (R)-2-fluoro-1-methylethylsulfinyl, (S)-2-fluoro-1-methylethylsulfinyl, (R)-2,2-difluoro-1-methylethylsulfinyl, (S)-2,2-difluoro-1-methylethylsulfinyl, (R)-1,2-difluoro-1-methylethylsulfinyl, (S)-1,2-difluoro-1-methylethylsulfinyl, (R)-2,2,2-trifluoro-1-methylethylsulfinyl, (S)-2,2,2-trifluoro-1-methylethylsulfinyl, 2-fluoro-1-(fluoromethyl)ethylsulfinyl, 1-(difluoromethyl)-2,2-difluoroethylsulfinyl, (R)-1-fluorobutylsulfinyl, (S)-1-fluorobutylsulfinyl, 2-fluorobutylsulfinyl, 3-fluorobutylsulfinyl, 4-fluorobutylsulfinyl, 1,1-difluorobutylsulfinyl, 2,2-difluorobutylsulfinyl, 3,3-difluorobutylsulfinyl, 4,4-difluorobutylsulfinyl, 4,4,4-trifluorobutylsulfinyl, etc.;

fluorinated C₁-C₆ alkylsulfonyl is a radical of the formula R-S(O)₂·, wherein R is a fluorinated alkyl radical having from 1 to 6 carbon atoms as defined above. Examples comprise fluoromethylsulfonyl, difluoromethylsulfonyl, trifluoromethylsulfonyl, (R)-1-fluoroethylsulfonyl, (S)-1-fluoroethylsulfonyl, 2-fluoroethylsulfonyl, 1,1-difluoroethylsulfonyl, 2,2-difluoroethylsulfonyl, 2,2,2-trifluoroethylsulfonyl, (R)-1-fluoropropylsulfonyl, (S)-1-fluoropropylsulfonyl, 2-fluoropropylsulfonyl, 3-fluoropropylsulfonyl, 1,1-difluoropropylsulfonyl, 2,2-difluoropropylsulfonyl, 3,3-difluoropropylsulfonyl, 3,3,3-trifluoropropylsulfonyl, (R)-2-fluoro-1-methylethylsulfonyl, (S)-2-fluoro-1-methylethylsulfonyl, (R)-2,2-difluoro-1-methylethylsulfonyl, (S)-2,2-difluoro-1-methylethylsulfonyl, (R)-1,2-difluoro-1-methylethylsulfonyl, (S)-1,2-difluoro-1-methylethylsulfonyl, (R)-2,2,2-trifluoro-1-methylethylsulfonyl, (S)-2,2,2-trifluoro-1-methylethylsulfonyl, 2-fluoro-1-(fluoromethyl)ethylsulfonyl, 1-(difluoromethyl)-2,2-difluoroethylsulfonyl, (R)-1-fluorobutylsulfonyl, (S)-1-fluorobutylsulfonyl, 2-fluorobutylsulfonyl, 3-fluorobutylsulfonyl, 4-fluorobutylsulfonyl, 1,1-difluorobutylsulfonyl,

2,2-difluorobutylsulfonyl, 3,3-difluorobutylsulfonyl, 4,4-difluorobutylsulfonyl, 4,4,4-trifluorobutylsulfonyl, etc.

3- to 7-membered heterocyclic radicals comprise saturated heterocyclic radicals, which generally have 3-, 4-, 5-, 6- or 7 ring forming atoms (ring members), unsaturated non-aromatic heterocyclic radicals, which generally have 5-, 6- or 7 ring forming atoms, and heteroaromatic radicals, which generally have 5-, 6- or 7 ring forming atoms. The heterocyclic radicals may be bound via a carbon atom (C-bound) or an nitrogen atom (N-bound). Preferred heterocyclic radicals comprise 1 nitrogen atom as ring member atom and optionally 1, 2 or 3 further heteroatoms as ring members, which are selected, independently of each other from O, S and N. Likewise preferred heterocyclic radicals comprise 1 heteroatom as ring member, which is selected from O, S and N, and optionally 1, 2 or 3 further nitrogen atoms as ring members.

Examples of 3- to 7-membered, saturated heterocyclic radicals comprise 1- or 2-aziridinyl, 1-, 2- or 3-azetidiny, 1-, 2- or 3-pyrrolidinyl, 1-, 2-, 3- or 4-piperidinyl, 1-, 2- or 3-morpholinyl, 1-, 2- or 3-thiomorpholinyl, 1-, 2- or 3-piperazinyl, 1-, 2- or 4-oxazolidinyl, 1-, 3- or 4-isoxazolidinyl, 2-oxiranyl, 2- or 3-oxetanyl, 2- or 3-oxolanyl, 2-, 3- or 4-oxanyl, 1,3-dioxolan-2- or 4-yl and the like, which may be unsubstituted or which may carry 1, 2 or 3 of the aforementioned radicals R^a and/or R^b.

Unsaturated non-aromatic heterocyclic radicals, are heterocyclic radicals which generally have 5-, 6- or 7 ring forming atoms and which have 1 or 2 doublebonds that do not form an aromatic p-electron system. Examples are 2,3-dihydropyrrolyl, 3,4-dihydropyrrolyl, 2,3-dihydrofuranyl, 3,4-dihydrofuranyl, 2,3-dihydrothiophenyl, 3,4-dihydrothiophenyl, 1,2-dihydropyridinyl, 2,3-Dihydropyridinyl, 3,4-dihydropyridinyl, 1,2,3,4-tetrahydropyridinyl, 2,3,4,5-tetrahydropyridinyl, and the like.

5- or 6-membered heteroaromatic radicals are heteroaromatic cyclic radicals, wherein the cyclic radical has 5 or 6 atoms which form the ring (ring members) and wherein generally 1, 2, 3 or 4 ring member atoms are selected from O, S and N, the other ring member atoms being carbon atoms. The heteroaromatic radicals may be bound via a carbon atom (C-bound) or an nitrogen atom (N-bound). Preferred heteroaromatic radicals comprise 1 nitrogen atom as ring member atom and optionally 1, 2 or 3 further heteroatoms as ring members, which are selected, independently of each other from O, S and N. Likewise preferred heteroaromatic radicals comprise 1 heteroatom as ring member, which is selected from O, S and N, and optionally 1, 2 or 3 further nitrogen

atoms as ring members. Examples of 5- or 6-membered heteroaromatic radicals comprise 2-, 3-, or 4-pyridyl, 2-, 4- or 5-pyrimidinyl, pyrazinyl, 3- or 4-pyridazinyl, 2- or 3-thienyl, 2- or 3-furyl, 1-, 2- or 3-pyrrolyl, 1-, 2- or 4-imidazolyl, 1-, 3- or 4-pyrazolyl, 1- or 3-[1,2,4]-triazolyl, 1- or 4-[1,2,3]-triazolyl, 1-, 2- or 5-tetrazolyl, 2-, 3- or 5-oxazolyl, 3-, 4- or 5-isoxazolyl, 2-, 3- or 5-thiazolyl, 3-, 4- or 5-isothiazolyl, 4- or 5-[1,2,3]-oxadiazolyl, [1,2,5]-oxadiazolyl (= furazanyl), 3- or 5-[1,2,4]-oxadizolyl, [1,3,4]-oxadizolyl, 4- or 5-[1,2,3]-thiadiazolyl, [1,2,5]-thiadiazolyl, 3- or 5-[1,2,4]-thiadizolyl or [1,3,4]-thiadiazolyl, which may be unsubstituted or which may carry 1, 2 or 3 of the aforementioned radicals R^a and/or R^b.

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Preferably, Ar is phenyl or an aromatic 5- or 6-membered C-bound heteroaromatic radical, comprising 1 nitrogen atom as ring member and 0, 1, 2 or 3 further heteroatoms, independently of each other, selected from O, S and N, as ring members which may be unsubstituted or which may carry 1, 2 or 3 of the aforementioned radicals R^a and/or R^b. Amongst these heteroaromatic radicals those are preferred, which comprise 1, 2 or 3 nitrogen atoms and no further heteroatom as ring members, or 1 or 2 nitrogen atoms and 1 atom, selected from O and S, as ring members. However, thienyl and furyl are likewise preferred. Particularly preferred radicals Ar are 2- or 3-thienyl, 2-, 3- or 4-pyridyl, 2-, 4- or 5-pyrimidinyl, 2-, 3- or 5-thiazolyl, 1,2,4-triazol-3-yl, 1,2,3-triazol-4-yl, 1,3,4-thiadiazol-2-yl, in particular 2-thienyl, 2-pyrimidinyl, 5-pyrimidinyl, 2-pyridinyl and more particularly phenyl which may be unsubstituted or which may carry 1, 2 or 3 of the aforementioned radicals R^a and/or R^b.

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25 A skilled person will appreciate that the moiety -E-SO₂-Ar can be bound to any of the carbon atoms of the aromatic moiety, except for the bridgehead carbon atoms. Preferably the moiety -E-SO₂-Ar is located in the 2- or 3-position of the indane nucleus.

Preferably the aromatic radical Ar carries one radical R^a and optionally one or two further radicals R^b selected from methyl, fluorinated methyl, halogen, in particular fluorine or chlorine.

30

The aforementioned 5-membered heteroaromatic radicals Ar preferably one radical R^a in the 3-position (related to the position of the SO₂-radical) and optionally one or two further radicals R^b, which are preferably selected from halogen, in particular fluorine or chlorine.

35

Phenyl and the aforementioned 6-membered heteroaromatic radicals Ar preferably carry one radical R^a in the 4-position (related to the position of the SO_2 -radical) and optionally one or two further radicals R^b , which are preferably selected from halogen, in particular fluorine or chlorine.

5

In a very preferred embodiment of the invention Ar is phenyl that carries a radical R^a in the 4-position of the phenyl ring and optionally 1 or 2 further radicals R^b , which are preferably selected from halogen, in particular from fluorine or chlorine.

10 In another preferred embodiment of the invention Ar is 2-pyrimidinyl that carries a radical R^a in the 5-position of the pyrimidine ring and optionally 1 or 2 further radicals R^b , which are preferably selected from halogen, in particular from fluorine or chlorine.

15 In a further preferred embodiment of the invention Ar is 5-pyrimidinyl that carries a radical R^a in the 2-position of the pyrimidine ring and optionally 1 or 2 further radicals R^b , which are preferably selected from halogen, in particular from fluorine or chlorine.

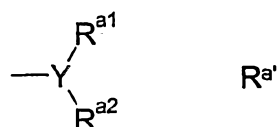
20 In a further preferred embodiment of the invention Ar is 2-thienyl that carries a radical R^a in the 3-position of the thiophene ring and optionally 1 or 2 further radicals R^b , which are preferably selected from halogen, in particular from fluorine or chlorine.

Preferably Ar carries 1 radical R^a which is different from CH_3 , OCH_3 , CF_3 , OCF_3 , NH_2 , SO_2NH_2 , acetamido, C_2 - C_6 -alkoxy or acetyl.

25 In a preferred embodiment Ar carries 1 radical R^a which selected from the group consisting of C_2 - C_6 -alkyl, C_3 - C_6 -cycloalkyl, C_2 - C_6 -alkoxy, fluorinated C_2 - C_6 -alkyl, fluorinated C_3 - C_6 -cycloalkyl, fluorinated C_2 - C_6 -alkoxy, NR^4R^5 , 1-aziridinyl, azetidin-1-yl, pyrrolidin-1-yl or piperidin-1-yl, wherein the last four mentioned radicals may be fluorinated, a phenyl group and an aromatic 5- or 6-membered C-bound heteroaromatic radical,
30 comprising 1 nitrogen atom as ring member and 0, 1, 2 or 3 further heteroatoms, independently of each other, selected from O, S and N, wherein the last two mentioned radicals may carry 1, 2, 3 or 4 radicals selected from Halogen and the radicals R^a , and wherein Ar may carry 1 or 2 further radicals R^b , which are independently from each other selected from halogen, cyano, methyl, fluoromethyl, difluoromethyl, trifluoromethyl, difluoromethoxy and trifluoromethoxy. In this embodiment R^4 , R^5 are, inde-
35 pendently of each other, preferably selected from H, C_1 - C_2 -alkyl and fluorinated C_1 - C_2 -

alkyl. Preferably one of the radicals R^4 or R^5 is different from hydrogen. One of the radicals R^4 or R^5 may also be C_1 - C_2 -alkoxy.

- 5 In a very preferred embodiment, the radical Ar preferably carries one radical R^a , which has the formula R^a



wherein

- 10 Y is N, CH or CF,
 R^{a1} and R^{a2} are independently of each other selected from C_1 - C_2 -alkyl, C_1 - C_2 -alkoxy, fluorinated C_1 - C_2 -alkyl, provided for Y being CH or CF one of the radicals R^{a1} or R^{a2} may also be hydrogen or fluorine, or
 R^{a1} and R^{a2} together form a radical $(CH_2)_m$ wherein 1 or 2 of the hydrogen atoms may
 15 be replaced by fluorine, hydroxy, oxo, C_1 - C_2 -alkyl or C_1 - C_2 -alkoxy, wherein one CH_2 moiety may be replaced by O, S, S=O, SO_2 or $N-R^c$, R^c being hydrogen or C_1 - C_2 -alkyl and wherein m is 2, 3, 4, 5 or 6;

In particular

- 20 R^{a1} and R^{a2} are independently of each other selected from C_1 - C_2 -alkyl, in particular methyl, fluorinated C_1 - C_2 -alkyl, in particular fluoromethyl, difluoromethyl or trifluoromethyl, provided for Y being CH or CF one of the radicals R^{a1} or R^{a2} may also be hydrogen or fluorine, or
 R^{a1} and R^{a2} form a radical $(CH_2)_m$ wherein 1 or 2 of the hydrogen atoms may be re-
 25 placed by fluorine and wherein m is 2, 3 or 4, in particular CH_2 - CH_2 , CHF - CH_2 , CF_2 - CH_2 , CH_2 - CH_2 - CH_2 , CHF - CH_2 - CH_2 , CF_2 - CH_2 - CH_2 , CH_2 - CHF - CH_2 , CH_2 - CF_2 - CH_2 .

- 30 In case R^{a1} and R^{a2} are different from each other, the radical of the aforementioned formula R^a may have either (R)- or (S)-configuration with regard to the Y-moiety.

Examples for preferred radicals of the formula R^a comprise isopropyl, (R)-1-fluoroethyl, (S)-1-fluoroethyl, 2-fluoroethyl, 1,1-difluoroethyl, 2,2-difluoroethyl, 2,2,2-trifluoroethyl, (R)-1-fluoropropyl, (S)-1-fluoropropyl, 2-fluoropropyl, 3-fluoropropyl, 1,1-difluoropropyl,

2,2-difluoropropyl, 3,3-difluoropropyl, 3,3,3-trifluoropropyl, (R)-2-fluoro-1-methylethyl, (S)-2-fluoro-1-methylethyl, (R)-2,2-difluoro-1-methylethyl, (S)-2,2-difluoro-1-methylethyl, (R)-1,2-difluoro-1-methylethyl, (S)-1,2-difluoro-1-methylethyl, (R)-2,2,2-trifluoro-1-methylethyl, (S)-2,2,2-trifluoro-1-methylethyl, 2-fluoro-1-(fluoromethyl)ethyl, 1-(difluoromethyl)-2,2-difluoroethyl, 1-fluoro-1-methylethyl cyclopropyl, cyclobutyl, 1-fluorocyclopropyl, 2,2-difluorocyclopropyl and 2-fluorocyclopropyl.

Also preferred are radicals R^a wherein one of R^{a1} or R^{a2} is C_1 - C_2 -alkoxy and the other of R^{a1} or R^{a2} is selected from H, C_1 - C_2 -alkyl, in particular methyl, fluorinated C_1 - C_2 -alkyl, in particular fluoromethyl, difluoromethyl or trifluoromethyl. Examples comprise N-methoxy-N-methylamino, N-methoxyamino and N-ethoxyamino.

Preferred radicals of the formula R^a also comprise those wherein Y is nitrogen and wherein R^{a1} and R^{a2} form a radical $(CH_2)_m$ wherein 1 or 2 of the hydrogen atoms may be replaced by fluorine, methyl, trifluoromethyl, methoxy or oxo and wherein m is 2, 3, 4 or 5. Examples comprise azetidin-1-yl, 2-methylazetidin-1-yl, (S)-2-methylazetidin-1-yl, (R)-2-methylazetidin-1-yl, 3-fluoroazetidin-1-yl, 3-methoxyazetidin-1-yl, 3-hydroxyazetidin-1-yl, pyrrolidin-1-yl, (S)-2-fluoropyrrolidin-1-yl, (R)-2-fluoropyrrolidin-1-yl, 3-fluoropyrrolidin-1-yl, (S)-3-fluoropyrrolidin-1-yl, (R)-3-fluoropyrrolidin-1-yl, 2,2-difluoropyrrolidin-1-yl, 3,3-difluoropyrrolidin-1-yl, 2-methylpyrrolidin-1-yl, (S)-2-methylpyrrolidin-1-yl, (R)-2-methylpyrrolidin-1-yl, 3-methylpyrrolidin-1-yl, (S)-3-methylpyrrolidin-1-yl, (R)-3-methylpyrrolidin-1-yl, 2,2-dimethylpyrrolidin-1-yl, 3,3-dimethylpyrrolidin-1-yl, 2-trifluoromethylpyrrolidin-1-yl, (S)-2-trifluoromethylpyrrolidin-1-yl, (R)-2-trifluoromethylpyrrolidin-1-yl, 3-trifluoromethylpyrrolidin-1-yl, (S)-3-trifluoromethylpyrrolidin-1-yl, (R)-3-trifluoromethylpyrrolidin-1-yl, 2-oxopyrrolidin-1-yl, piperidin-1-yl, 2-methylpiperidin-1-yl, (S)-2-methylpiperidin-1-yl and (R)-2-methylpiperidin-1-yl.

Likewise preferred are radicals R^a , wherein R^{a1} and R^{a2} together form a radical $(CH_2)_m$ wherein 1 or 2 of the hydrogen atoms may be replaced by fluorine, hydroxy, oxo, C_1 - C_2 -alkyl or C_1 - C_2 -alkoxy, wherein one CH_2 moiety is replaced by O, S, S=O, SO_2 or $N-R^c$, R^c being hydrogen or C_1 - C_2 -alkyl and wherein m is 2, 3, 4, 5 or 6. Examples for preferred radicals of the formula R^a also comprise 4-morpholinyl, 4-thiomorpholinyl, 4-(1,1-dioxo)thiomorpholinyl, piperazin-1-yl, 4-methylpiperazin-1-yl, 2-oxo-oxazolidin-3-yl, pyrrolidin-2-yl, (S)-pyrrolidin-2-yl, (R)-pyrrolidin-2-yl, pyrrolidin-3-yl, (S)-pyrrolidin-3-yl, (R)-pyrrolidin-3-yl, 2-fluoropyrrolidin-1-yl, 1-methylpyrrolidin-2-yl, (S)-1-methylpyrrolidin-2-yl, (R)-1-methylpyrrolidin-2-yl, 1-methylpyrrolidin-3-yl, (S)-1-methylpyrrolidin-3-yl and (R)-1-methylpyrrolidin-3-yl.

Amongst the radicals of the formula R^a those are preferred which carry 1, 2, 3 or 4, in particular 1, 2 or 3 fluorine atoms.

5 In a further preferred embodiment Ar carries one radical R^a , which is selected from 5- or 6-membered heteroaromatic radicals having as ring members 1 heteroatom selected from O, S and N and which may further have 1, 2 or 3 nitrogen atoms as ring members, and wherein the 5- or 6-membered heteroaromatic radical may carry 1, 2 or 3 substituents selected from halogen, NO_2 , NH_2 , OH, CN, C_1 - C_6 -alkyl, C_3 - C_6 -cycloalkyl, C_1 - C_6 -alkoxy, fluorinated C_1 - C_6 -alkyl, fluorinated C_3 - C_6 -cycloalkyl, fluorinated C_1 - C_6 -alkoxy, C_1 - C_6 -hydroxyalkyl, C_1 - C_4 -alkoxy- C_2 - C_4 -alkyl, C_1 - C_6 -hydroxyalkoxy, C_1 - C_4 -alkoxy- C_2 - C_4 -alkoxy, C_1 - C_6 -alkylcarbonyl, C_1 - C_6 -alkylamino, di- C_1 - C_6 -alkylamino, C_1 - C_6 -alkylaminocarbonyl, di- C_1 - C_6 -alkylaminocarbonyl, fluorinated C_1 - C_6 -alkylcarbonyl, C_1 - C_6 -alkylcarbonylamino, fluorinated C_1 - C_6 -alkylcarbonylamino, C_1 - C_6 -alkylcarbonyloxy, fluorinated C_1 - C_6 -alkylcarbonyloxy, C_1 - C_6 -alkoxycarbonyl, C_1 - C_6 -alkylthio, fluorinated C_1 - C_6 -alkylthio, C_1 - C_6 -alkylsulfinyl, C_1 - C_6 -alkylsulfonyl, fluorinated C_1 - C_6 -alkylsulfinyl and fluorinated C_1 - C_6 -alkylsulfonyl. Amongst these radicals R^a , preference is given to radicals selected from 2-, 3-, or 4-pyridyl, 2-, 4- or 5-pyrimidinyl, pyrazinyl, 3- or 4-pyridazinyl, 2- or 3-thienyl, 2- or 3-furyl, 1-, 2- or 3-pyrrolyl, 1-, 2- or 4-imidazolyl, 1-, 3- or 4-pyrazolyl, 1- or 3-[1,2,4]-triazolyl, 1- or 4-[1,2,3]-triazolyl, 1-, 2- or 5-tetrazolyl, 2-, 3- or 5-oxazolyl, 3-, 4- or 5-isoxazolyl, 2-, 3- or 5-thiazolyl, 3-, 4- or 5-isothiazolyl, 4- or 5-[1,2,3]-oxadiazolyl, [1,2,5]-oxadiazolyl (= furazanyl), 3- or 5-[1,2,4]-oxadiazolyl, [1,3,4]-oxadiazolyl, 4- or 5-[1,2,3]-thiadiazolyl, [1,2,5]-thiadiazolyl, 3- or 5-[1,2,4]-thiadiazolyl or [1,3,4]-thiadiazolyl, in particular from 2- or 3-furanyl, 2- or 3-thienyl, 1-, 2- or 3-pyrrolyl, pyrazolyl, imidazolyl, oxazolyl, isoxazolyl, 1,3,4-thiadiazolyl, 1,2,4-triazolyl, 1,2,3-triazolyl and tetrazolyl, where the heteroaromatic radical may be unsubstituted or may carry 1 to 3 substituents as given above. Preferred substituents on heteroaromatic R^a are selected from halogen, C_1 - C_4 -alkyl, C_1 - C_4 -alkoxy, fluorinated C_1 - C_4 -alkyl and fluorinated C_1 - C_4 -alkoxy.

30

In a further preferred embodiment Ar carries 1 radical R^a which selected from the group consisting of CHF_2 , CH_2F , $OCHF_2$ and OCH_2F , with $OCHF_2$ being preferred. In this embodiment Ar may also carry 1 or 2 further radicals R^b , which are independently from each other selected from halogen, cyano, methyl, fluoromethyl, difluoromethyl, trifluoromethyl, difluoromethoxy and trifluoromethoxy. Preferably Ar carries no further radicals R^b . In this embodiment Ar is preferably phenyl which carries 1 radical R^a which selected from the group consisting of CHF_2 , CH_2F , $OCHF_2$ and OCH_2F , with $OCHF_2$

35

being preferred. In this embodiment Ar is preferably phenyl, which carries R^a in the 4 position with respect to the SO₂-group.

In another embodiment of the invention, Ar carries 1 radical R^a which selected from the group consisting of C₂-C₆-alkenyl, fluorinated C₂-C₆-alkenyl, C₁-C₆-hydroxyalkyl, C₁-C₆-alkoxy-C₁-C₄-alkyl, C₁-C₆-hydroxyalkoxy, C₁-C₆-alkoxy-C₁-C₄-alkoxy, COOH, CH₂NR⁴R⁵, ONR⁴R⁵, NHC(O)NR⁴R⁵, C(O)NR⁴R⁵, SO₂NR⁴R⁵, C₁-C₆-alkylcarbonyl, fluorinated C₂-C₆-alkylcarbonyl, C₁-C₆-alkylcarbonylamino, fluorinated C₁-C₆-alkylcarbonylamino, C₁-C₆-alkylcarbonyloxy, fluorinated C₁-C₆-alkylcarbonyloxy, C₁-C₆-alkoxycarbonyl, C₁-C₆-alkylthio, fluorinated C₁-C₆-alkylthio, C₁-C₆-alkylsulfinyl, C₁-C₆-alkylsulfonyl, fluorinated C₁-C₆-alkylsulfinyl, fluorinated C₁-C₆-alkylsulfonyl, phenylsulfonyl, phenoxy, benzyloxy and a 5- or 6-membered N-bound heteroaromatic radical, wherein the four last mentioned radicals may carry 1, 2, 3 or 4 radicals selected from halogen, NO₂, NH₂, OH, CN, C₁-C₆-alkyl, C₃-C₆-cycloalkyl, C₁-C₆-alkoxy, fluorinated C₁-C₆-alkyl, fluorinated C₃-C₆-cycloalkyl, fluorinated C₁-C₆-alkoxy, C₁-C₆-hydroxyalkyl, C₁-C₄-alkoxy-C₂-C₄-alkyl, C₁-C₆-hydroxyalkoxy, C₁-C₄-alkoxy-C₂-C₄-alkoxy, C₁-C₆-alkylcarbonyl, C₁-C₆-alkylamino, di-C₁-C₆-alkylamino, C₁-C₆-alkylaminocarbonyl, di-C₁-C₆-alkylaminocarbonyl, fluorinated C₁-C₆-alkylcarbonyl, C₁-C₆-alkylcarbonylamino, fluorinated C₁-C₆-alkylcarbonylamino, C₁-C₆-alkylcarbonyloxy, fluorinated C₁-C₆-alkylcarbonyloxy, C₁-C₆-alkoxycarbonyl, C₁-C₆-alkylthio, fluorinated C₁-C₆-alkylthio, C₁-C₆-alkylsulfinyl, C₁-C₆-alkylsulfonyl, fluorinated C₁-C₆-alkylsulfinyl and fluorinated C₁-C₆-alkylsulfonyl.

In another embodiment of the invention, Ar is phenyl, which carries 1 radical R^a and at least one radical R^b and wherein R^a and one radical R^b are bound to two adjacent carbon atoms of phenyl and form a 5- or 6-membered heterocyclic or carbocyclic ring which is fused to the phenyl ring and which is unsubstituted or which may carry 1, 2 or 3 radicals as given above. Examples of a phenyl ring fused to a saturated or unsaturated 5- or 6-membered carbocyclic or heterocyclic ring comprise indenyl, indanyl, naphthyl, tetralin, benzofuranyl, 2,3-dihydrobenzofuranyl, benzothienyl, indolyl, indazolyl, benzimidazolyl, benzoxathiazolyl, benzoxadiazolyl, benzothiadiazolyl, benzoxazinyl, dihydrobenzoxazinyl, chinolinyl, isochinolinyl, tetrahydroisochinolinyl, chromenyl, chromanyl and the like, which may be unsubstituted or which may carry 1, 2 or 3 of the aforementioned radicals. Preferred substituents for the saturated or unsaturated 5- or 6-membered carbocyclic or heterocyclic ring fused to the phenyl ring are selected from halogen, C₁-C₄-alkyl, C₁-C₄-alkoxy, fluorinated C₁-C₄-alkyl and fluorinated C₁-C₄-alkoxy.

The radical R¹ is preferably C₂-C₄-alkyl, C₃-C₄-cycloalkyl, C₃-C₄-cycloalkylmethyl, C₃-C₄-alkenyl, fluorinated C₁-C₄-alkyl, fluorinated C₃-C₄-cycloalkyl, fluorinated C₃-C₄-cycloalkylmethyl, fluorinated C₃-C₄-alkenyl, formyl or C₁-C₃-alkylcarbonyl, in particular C₂-C₄-alkyl, C₃-C₄-cycloalkyl, C₃-C₄-alkenyl, fluorinated C₁-C₄-alkyl, fluorinated C₃-C₄-cycloalkyl, more preferably n-propyl, fluorinated linear C₂-C₃-alkyl or 1-propen-3-yl, in particular n-propyl or 1-propen-3-yl.

One preferred embodiment of the invention relates to compounds of the formula I, wherein X is CH. Another embodiment of the invention, relates to compounds of the formula I, wherein X is N.

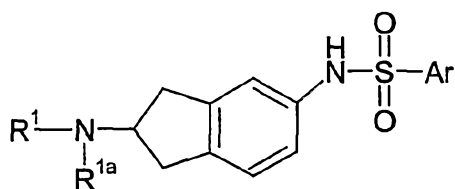
Preferably the moiety E is N-R³, wherein R³ is as defined above. R³ is in particular H or methyl and most preferred H.

One preferred embodiment of the invention relates to compounds, wherein R^{1a} is hydrogen and R² and R^{2a} have the meanings given above. In particular R² and/or R^{2a} is (are) also hydrogen. For R² or R^{2a} being different from hydrogen the radicals R² (or R^{2a}) and NR¹R^{1a} may be located *cis-* or *trans*.

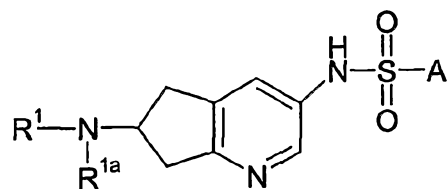
Another preferred embodiment of the invention relates to compounds, wherein R^{1a} and R² or R^{1a} and R^{2a} together form a moiety (CH₂)_n, wherein n is as defined above and in particular 2 or 3. Thereby a fused ring is formed, which may be *trans*-fused or *cis*-fused.

The carbon atom of the (aza)indane core that carries the radical NR¹R^{1a} may have (R) or (S) configuration.

Particularly preferred are compounds of the formula I, wherein R² and R^{2a} are hydrogen and E is NH. These compounds are hereinafter referred to as compounds Ia (X = CH) and compounds Ib (X = N). Thus a particular preferred object of the invention are compounds of the formulae Ia and Ib and the pharmaceutically acceptable salts thereof:



(la)



(lb)

including their S-enantiomers (compounds S-1a and S-1b), their R-enantiomers (R-1a and R-1b) and mixtures of S- and R-enantiomers (R/S-1a and R/S-1b). In formulae 1a and 1b, 5 R^{1a}, R¹ and R² have the meanings as given above. R^{1a} is preferably hydrogen.

Examples of preferred compounds of the formula I are given in the following tables A-1 and A-2

10 Table A-1

Compounds of the formulae S-1a, R-1a and S/R-1a, wherein R¹ and Ar have the meanings given in one row of table A.

Table A-2

15 Compounds of the formulae S-1b, R-1b and S/R-1b, wherein R^{1a} is hydrogen and R¹ and Ar have the meanings given in one row of table A.

A further embodiment of the invention relates to compounds of the formula I, wherein R^{1a} and R² together are 1,3-propandiyl, R^{2a} is hydrogen and E is NH. These compounds are hereinafter referred to as compounds 1c (X = CH) and compounds 1d (X = N). Examples of compounds of the formulae 1c and 1d are given in the following tables A-3 and A-4

25 Table A-3

Compounds of the formula 1c, wherein R¹ and Ar have the meanings given in one row of table A.

Table A-4

30 Compounds of the formula 1d, wherein R^{1a} is hydrogen and R¹ and Ar have the meanings given in one row of table A.

Table A:

No.	R ¹	Ar
1.	propyl	4-ethylphenyl
2.	propyl	4-propylphenyl
3.	propyl	4-isopropylphenyl
4.	propyl	4-sec-butylphenyl
5.	propyl	4-isobutylphenyl
6.	propyl	4-(1,1-dimethylpropyl)-phenyl
7.	propyl	4-vinylphenyl
8.	propyl	4-isopropenylphenyl
9.	propyl	4-(fluoromethyl)phenyl
10.	propyl	3-(fluoromethyl)phenyl
11.	propyl	2-(fluoromethyl)phenyl
12.	propyl	4-(difluoromethyl)phenyl
13.	propyl	3-(difluoromethyl)phenyl
14.	propyl	2-(difluoromethyl)phenyl
15.	propyl	4-(trifluoromethyl)phenyl
16.	propyl	3-(trifluoromethyl)phenyl
17.	propyl	2-(trifluoromethyl)phenyl
18.	propyl	4-(1-fluoroethyl)-phenyl
19.	propyl	4-((S)-1-fluoroethyl)-phenyl
20.	propyl	4-((R)-1-fluoroethyl)-phenyl
21.	propyl	4-(2-fluoroethyl)-phenyl
22.	propyl	4-(1,1-difluoroethyl)-phenyl
23.	propyl	4-(2,2-difluoroethyl)-phenyl
24.	propyl	4-(2,2,2-trifluoroethyl)-phenyl
25.	propyl	4-(3-fluoropropyl)-phenyl
26.	propyl	4-(2-fluoropropyl)-phenyl
27.	propyl	4-((S)-2-fluoropropyl)-phenyl
28.	propyl	4-((R)-2-fluoropropyl)-phenyl
29.	propyl	4-(3,3-difluoropropyl)-phenyl
30.	propyl	4-(3,3,3-trifluoropropyl)-phenyl
31.	propyl	4-(1-fluoro-1-methylethyl)-phenyl
32.	propyl	4-(2-fluoro-1-methylethyl)-phenyl
33.	propyl	4-((S)-2-fluoro-1-methylethyl)-phenyl
34.	propyl	4-((R)-2-fluoro-1-methylethyl)-phenyl
35.	propyl	4-(2,2-difluoro-1-methylethyl)-phenyl
36.	propyl	4-((S)-2,2-difluoro-1-methylethyl)-phenyl
37.	propyl	4-((R)-2,2-difluoro-1-methylethyl)-phenyl
38.	propyl	4-(2,2,2-trifluoro-1-methylethyl)-phenyl
39.	propyl	4-((S)-2,2,2-trifluoro-1-methylethyl)-phenyl

No.	R ¹	Ar
40.	propyl	4-((R)-2,2,2-trifluoro-1-methylethyl)-phenyl
41.	propyl	4-(2-fluoro-1-fluoromethylethyl)-phenyl
42.	propyl	4-(1-difluoromethyl-2,2-difluoroethyl)-phenyl
43.	propyl	4-(1,1-dimethyl-2-fluoroethyl)-phenyl
44.	propyl	4-ethoxyphenyl
45.	propyl	4-propoxyphenyl
46.	propyl	4-isopropoxyphenyl
47.	propyl	4-butoxyphenyl
48.	propyl	4-(fluoromethoxy)-phenyl
49.	propyl	4-(difluoromethoxy)-phenyl
50.	propyl	4-(2-fluoroethoxy)-phenyl
51.	propyl	4-(2,2-difluoroethoxy)-phenyl
52.	propyl	4-(2,2,2-trifluoroethoxy)-phenyl
53.	propyl	4-(1,1,2,2-tetrafluoroethoxy)-phenyl
54.	propyl	4-cyclopropylphenyl
55.	propyl	4-cyclobutylphenyl
56.	propyl	4-cyclopentylphenyl
57.	propyl	4-(2,2-difluorocyclopropyl)-phenyl
58.	propyl	2-fluoro-4-isopropylphenyl
59.	propyl	3-fluoro-4-isopropylphenyl
60.	propyl	4-(1-hydroxy-1-methylethyl)-phenyl
61.	propyl	4-(2-hydroxy-2-methylpropyl)-phenyl
62.	propyl	4-acetylphenyl
63.	propyl	4-carboxyphenyl
64.	propyl	4-(O-benzyl)-phenyl
65.	propyl	4-(2-methoxyethoxy)-phenyl
66.	propyl	4-(CH ₂ -N(CH ₃) ₂)-phenyl
67.	propyl	4-(NH-CO-NH ₂)-phenyl
68.	propyl	4-(methylsulfanyl)-phenyl
69.	propyl	4-(fluoromethylsulfanyl)-phenyl
70.	propyl	4-(difluoromethylsulfanyl)-phenyl
71.	propyl	4-(trifluoromethylsulfanyl)-phenyl
72.	propyl	4-(methylsulfonyl)-phenyl
73.	propyl	4-(N-methoxy-N-methyl-amino)-phenyl
74.	propyl	4-(methoxyamino)-phenyl
75.	propyl	4-(ethoxyamino)-phenyl
76.	propyl	4-(N-methylaminooxy)-phenyl
77.	propyl	4-(N,N-dimethylaminooxy)-phenyl
78.	propyl	4-(azetidin-1-yl)-phenyl
79.	propyl	4-(2-methylazetidin-1-yl)-phenyl
80.	propyl	4-((S)-2-methylazetidin-1-yl)-phenyl

No.	R ¹	Ar
81.	propyl	4-((R)-2-methylazetidin-1-yl)-phenyl
82.	propyl	4-(3-fluoroazetidin-1-yl)-phenyl
83.	propyl	4-(3-methoxyazetidin-1-yl)-phenyl
84.	propyl	4-(3-hydroxyazetidin-1-yl)-phenyl
85.	propyl	4-(pyrrolidin-1-yl)-phenyl
86.	propyl	4-(pyrrolidin-2-yl)-phenyl
87.	propyl	4-((S)-pyrrolidin-2-yl)-phenyl
88.	propyl	4-((R)-pyrrolidin-2-yl)-phenyl
89.	propyl	4-(pyrrolidin-3-yl)-phenyl
90.	propyl	4-((S)-pyrrolidin-3-yl)-phenyl
91.	propyl	4-((R)-pyrrolidin-3-yl)-phenyl
92.	propyl	4-(2-fluoropyrrolidin-1-yl)-phenyl
93.	propyl	4-((S)-2-fluoropyrrolidin-1-yl)-phenyl
94.	propyl	4-((R)-2-fluoropyrrolidin-1-yl)-phenyl
95.	propyl	4-(3-fluoropyrrolidin-1-yl)-phenyl
96.	propyl	4-((S)-3-fluoropyrrolidin-1-yl)-phenyl
97.	propyl	4-((R)-3-fluoropyrrolidin-1-yl)-phenyl
98.	propyl	4-(2,2-difluoropyrrolidin-1-yl)-phenyl
99.	propyl	4-(3,3-difluoropyrrolidin-1-yl)-phenyl
100.	propyl	4-(2-methylpyrrolidin-1-yl)-phenyl
101.	propyl	4-((S)-2-methylpyrrolidin-1-yl)-phenyl
102.	propyl	4-((R)-2-methylpyrrolidin-1-yl)-phenyl
103.	propyl	4-(3-methylpyrrolidin-1-yl)-phenyl
104.	propyl	4-((S)-3-methylpyrrolidin-1-yl)-phenyl
105.	propyl	4-((R)-3-methylpyrrolidin-1-yl)-phenyl
106.	propyl	4-(1-methylpyrrolidin-2-yl)-phenyl
107.	propyl	4-((S)-1-methylpyrrolidin-2-yl)-phenyl
108.	propyl	4-((R)-1-methylpyrrolidin-2-yl)-phenyl
109.	propyl	4-(1-methylpyrrolidin-3-yl)-phenyl
110.	propyl	4-((S)-1-methylpyrrolidin-3-yl)-phenyl
111.	propyl	4-((R)-1-methylpyrrolidin-3-yl)-phenyl
112.	propyl	4-(2,2-dimethylpyrrolidin-1-yl)-phenyl
113.	propyl	4-(3,3-dimethylpyrrolidin-1-yl)-phenyl
114.	propyl	4-(2-trifluoromethylpyrrolidin-1-yl)-phenyl
115.	propyl	4-((S)-2-trifluoromethylpyrrolidin-1-yl)-phenyl
116.	propyl	4-((R)-2-trifluoromethylpyrrolidin-1-yl)-phenyl
117.	propyl	4-(3-trifluoromethylpyrrolidin-1-yl)-phenyl
118.	propyl	4-((S)-3-trifluoromethylpyrrolidin-1-yl)-phenyl
119.	propyl	4-((R)-3-trifluoromethylpyrrolidin-1-yl)-phenyl
120.	propyl	4-(2-oxopyrrolidin-1-yl)-phenyl
121.	propyl	4-(2-oxo-oxazolidin-3-yl)-phenyl

No.	R ¹	Ar
122.	propyl	4-(piperidin-1-yl)-phenyl
123.	propyl	4-(2-methylpiperidin-1-yl)-phenyl
124.	propyl	4-((S)-2-methylpiperidin-1-yl)-phenyl
125.	propyl	4-((R)-2-methylpiperidin-1-yl)-phenyl
126.	propyl	4-(piperazin-1-yl)-phenyl
127.	propyl	4-(4-methylpiperazin-1-yl)-phenyl
128.	propyl	4-(morpholin-4-yl)-phenyl
129.	propyl	4-(thiomorpholin-4-yl)-phenyl
130.	propyl	4-(1-oxo-thiomorpholin-4-yl)-phenyl
131.	propyl	4-(1,1-dioxo-thiomorpholin-4-yl)-phenyl
132.	propyl	4-(pyrrol-1-yl)-phenyl
133.	propyl	4-(pyrrol-2-yl)-phenyl
134.	propyl	4-(pyrrol-3-yl)-phenyl
135.	propyl	4-(1-methylpyrrol-2-yl)-phenyl
136.	propyl	4-(1-methylpyrrol-3-yl)-phenyl
137.	propyl	4-(furan-2-yl)-phenyl
138.	propyl	4-(furan-3-yl)-phenyl
139.	propyl	4-(thiophen-2-yl)-phenyl
140.	propyl	4-(thiophen-3-yl)-phenyl
141.	propyl	4-(5-propylthien-2-yl)-phenyl
142.	propyl	4-(pyrazol-1-yl)-phenyl
143.	propyl	4-(pyrazol-3-yl)-phenyl
144.	propyl	4-(pyrazol-4-yl)-phenyl
145.	propyl	4-(1-methyl-1H-pyrazol-4-yl)-phenyl
146.	propyl	4-(1-ethyl-1H-pyrazol-4-yl)-phenyl
147.	propyl	4-(1-methyl-1H-pyrazol-5-yl)-phenyl
148.	propyl	4-(1H-imidazol-2-yl)-phenyl
149.	propyl	4-(imidazol-1-yl)-phenyl
150.	propyl	4-(1-methylimidazol-2-yl)-phenyl
151.	propyl	4-(oxazol-2-yl)-phenyl
152.	propyl	4-(oxazol-4-yl)-phenyl
153.	propyl	4-(oxazol-5-yl)-phenyl
154.	propyl	4-(isoxazol-3-yl)-phenyl
155.	propyl	4-(isoxazol-4-yl)-phenyl
156.	propyl	4-(isoxazol-5-yl)-phenyl
157.	propyl	4-([1,2,3]-triazol-1-yl)-phenyl
158.	propyl	4-([1,2,4]-triazol-1-yl)-phenyl
159.	propyl	4-([1,2,3]-triazol-2-yl)-phenyl
160.	propyl	4-(4H-[1,2,4]-triazol-3-yl)-phenyl
161.	propyl	4-([1,2,4]-triazol-4-yl)-phenyl
162.	propyl	4-(2H-[1,2,3]-triazol-4-yl)-phenyl

No.	R ¹	Ar
163.	propyl	4-(4-methyl-4H-[1,2,4]-triazol-3-yl)-phenyl
164.	propyl	4-(2-methyl-2H-[1,2,3]-triazol-4-yl)-phenyl
165.	propyl	4-([1,3,4]-oxadiazol-2-yl)-phenyl
166.	propyl	4-([1,2,4]-oxadiazol-3-yl)-phenyl
167.	propyl	4-([1,2,4]-oxadiazol-5-yl)-phenyl
168.	propyl	4-([1,2,3]-oxadiazol-4-yl)-phenyl
169.	propyl	4-([1,2,3]-oxadiazol-5-yl)-phenyl
170.	propyl	4-([1,2,3]-thiadiazol-4-yl)-phenyl
171.	propyl	4-(1H-tetrazol-5-yl)-phenyl
172.	propyl	4-(tetrazol-1-yl)-phenyl
173.	propyl	4-(2-methyl-2H-tetrazol-5-yl)-phenyl
174.	propyl	4-(1-methyl-1H-tetrazol-5-yl)-phenyl
175.	propyl	4-furazan-3-yl-phenyl
176.	propyl	4-(pyrid-2-yl)-phenyl
177.	propyl	4-(pyrid-3-yl)-phenyl
178.	propyl	4-(pyrid-4-yl)-phenyl
179.	propyl	4-(pyrimidin-2-yl)-phenyl
180.	propyl	4-(pyrimidin-4-yl)-phenyl
181.	propyl	4-(pyrimidin-5-yl)-phenyl
182.	propyl	5-isopropylthiophen-2-yl
183.	propyl	2-chlorothiophen-5-yl
184.	propyl	2,5-dichlorothiophen-4-yl
185.	propyl	2,3-dichlorothiophen-5-yl
186.	propyl	2-chloro-3-nitrothiophen-5-yl
187.	propyl	2-(phenylsulfonyl)-thiophen-5-yl
188.	propyl	2-(pyridin-2-yl)thiophen-5-yl
189.	propyl	2-(5-(trifluoromethyl)isoxazol-3-yl)-thiophen-5-yl
190.	propyl	2-(2-methylthiazol-4-yl)-thiophen-5-yl
191.	propyl	1-methyl-1H-imidazol-4-yl
192.	propyl	1,2-dimethyl-1H-imidazol-4-yl
193.	propyl	3,5-dimethylisoxazol-4-yl
194.	propyl	thiazol-2-yl
195.	propyl	4-methylthiazol-2-yl
196.	propyl	4-isopropylthiazol-2-yl
197.	propyl	4-trifluoromethylthiazol-2-yl
198.	propyl	5-methylthiazol-2-yl
199.	propyl	5-isopropylthiazol-2-yl
200.	propyl	5-trifluoromethylthiazol-2-yl
201.	propyl	2,4-dimethylthiazol-5-yl
202.	propyl	2-acetamido-4-methylthiazol-5-yl
203.	propyl	4H-[1,2,4]triazol-3-yl

No.	R ¹	Ar
204.	propyl	5-methyl-4H-[1,2,4]triazol-3-yl
205.	propyl	4-methyl-4H-[1,2,4]triazol-3-yl
206.	propyl	5-isopropyl-4H-[1,2,4]triazol-3-yl
207.	propyl	5-trifluoromethyl-4H-[1,2,4]triazol-3-yl
208.	propyl	4,5-dimethyl-4H-[1,2,4]triazol-3-yl
209.	propyl	5-isopropyl-4-methyl-4H-[1,2,4]triazol-3-yl
210.	propyl	5-trifluoromethyl-4-methyl-4H-[1,2,4]triazol-3-yl
211.	propyl	[1,3,4]thiadiazol-2-yl
212.	propyl	5-methyl-[1,3,4]thiadiazol-2-yl
213.	propyl	5-isopropyl-[1,3,4]thiadiazol-2-yl
214.	propyl	5-trifluoromethyl-[1,3,4]thiadiazol-2-yl
215.	propyl	3-bromo-2-chloropyrid-5-yl
216.	propyl	2-(4-morpholino)-pyrid-5-yl
217.	propyl	2-phenoxy-pyrid-5-yl
218.	propyl	(2-isopropyl)-pyrimidin-5-yl
219.	propyl	(5-isopropyl)-pyrimidin-2-yl
220.	propyl	8-quinolyl
221.	propyl	5-isoquinolyl
222.	propyl	2-(2,2,2-trifluoroacetyl)-1,2,3,4-tetrahydroisoquinolin-7-yl
223.	propyl	5-chloro-3-methylbenzothiophen-2-yl
224.	propyl	3,4-dihydro-4-methyl-2H-benzo[b][1,4]oxazinyl
225.	propyl	benzothiazol-6-yl
226.	propyl	benzo[2,1,3]oxadiazol-4-yl
227.	propyl	5-chlorobenzo[1,2,5]oxadiazolyl
228.	propyl	7-chlorobenzo[2,1,3]oxadiazol-4-yl
229.	propyl	benzo[2,1,3]thiadiazol-4-yl
230.	ethyl	4-propylphenyl
231.	ethyl	4-ethylphenyl
232.	ethyl	4-isopropylphenyl
233.	ethyl	4-sec-butylphenyl
234.	ethyl	4-isobutylphenyl
235.	ethyl	4-(1,1-dimethylpropyl)-phenyl
236.	ethyl	4-vinylphenyl
237.	ethyl	4-isopropenylphenyl
238.	ethyl	4-(fluoromethyl)phenyl
239.	ethyl	3-(fluoromethyl)phenyl
240.	ethyl	2-(fluoromethyl)phenyl
241.	ethyl	4-(difluoromethyl)phenyl

No.	R ¹	Ar
242.	ethyl	3-(difluoromethyl)phenyl
243.	ethyl	2-(difluoromethyl)phenyl
244.	ethyl	4-(trifluoromethyl)phenyl
245.	ethyl	3-(trifluoromethyl)phenyl
246.	ethyl	2-(trifluoromethyl)phenyl
247.	ethyl	4-(1-fluoroethyl)-phenyl
248.	ethyl	4-((S)-1-fluoroethyl)-phenyl
249.	ethyl	4-((R)-1-fluoroethyl)-phenyl
250.	ethyl	4-(2-fluoroethyl)-phenyl
251.	ethyl	4-(1,1-difluoroethyl)-phenyl
252.	ethyl	4-(2,2-difluoroethyl)-phenyl
253.	ethyl	4-(2,2,2-trifluoroethyl)-phenyl
254.	ethyl	4-(3-fluoropropyl)-phenyl
255.	ethyl	4-(2-fluoropropyl)-phenyl
256.	ethyl	4-((S)-2-fluoropropyl)-phenyl
257.	ethyl	4-((R)-2-fluoropropyl)-phenyl
258.	ethyl	4-(3,3-difluoropropyl)-phenyl
259.	ethyl	4-(3,3,3-trifluoropropyl)-phenyl
260.	ethyl	4-(1-fluoro-1-methylethyl)-phenyl
261.	ethyl	4-(2-fluoro-1-methylethyl)-phenyl
262.	ethyl	4-((S)-2-fluoro-1-methylethyl)-phenyl
263.	ethyl	4-((R)-2-fluoro-1-methylethyl)-phenyl
264.	ethyl	4-(2,2-difluoro-1-methylethyl)-phenyl
265.	ethyl	4-((S)-2,2-difluoro-1-methylethyl)-phenyl
266.	ethyl	4-((R)-2,2-difluoro-1-methylethyl)-phenyl
267.	ethyl	4-(2,2,2-trifluoro-1-methylethyl)-phenyl
268.	ethyl	4-((S)-2,2,2-trifluoro-1-methylethyl)-phenyl
269.	ethyl	4-((R)-2,2,2-trifluoro-1-methylethyl)-phenyl
270.	ethyl	4-(2-fluoro-1-fluoromethylethyl)-phenyl
271.	ethyl	4-(1-difluoromethyl-2,2-difluoroethyl)-phenyl
272.	ethyl	4-(1,1-dimethyl-2-fluoroethyl)-phenyl
273.	ethyl	4-ethoxyphenyl
274.	ethyl	4-propoxyphenyl
275.	ethyl	4-isopropoxyphenyl

No.	R ¹	Ar
276.	ethyl	4-butoxyphenyl
277.	ethyl	4-(fluoromethoxy)-phenyl
278.	ethyl	4-(difluoromethoxy)-phenyl
279.	ethyl	4-(2-fluoroethoxy)-phenyl
280.	ethyl	4-(2,2-difluoroethoxy)-phenyl
281.	ethyl	4-(2,2,2-trifluoroethoxy)-phenyl
282.	ethyl	4-(1,1,2,2-tetrafluoroethoxy)-phenyl
283.	ethyl	4-cyclopropylphenyl
284.	ethyl	4-cyclobutylphenyl
285.	ethyl	4-cyclopentylphenyl
286.	ethyl	4-(2,2-difluorocyclopropyl)-phenyl
287.	ethyl	2-fluoro-4-isopropylphenyl
288.	ethyl	3-fluoro-4-isopropylphenyl
289.	ethyl	4-(1-hydroxy-1-methylethyl)-phenyl
290.	ethyl	4-(2-hydroxy-2-methylpropyl)-phenyl
291.	ethyl	4-acetylphenyl
292.	ethyl	4-carboxyphenyl
293.	ethyl	4-(O-benzyl)-phenyl
294.	ethyl	4-(2-methoxyethoxy)-phenyl
295.	ethyl	4-(CH ₂ -N(CH ₃) ₂)-phenyl
296.	ethyl	4-(NH-CO-NH ₂)-phenyl
297.	ethyl	4-(methylsulfanyl)-phenyl
298.	ethyl	4-(fluoromethylsulfanyl)-phenyl
299.	ethyl	4-(difluoromethylsulfanyl)-phenyl
300.	ethyl	4-(trifluoromethylsulfanyl)-phenyl
301.	ethyl	4-(methylsulfonyl)-phenyl
302.	ethyl	4-(N-methoxy-N-methyl-amino)-phenyl
303.	ethyl	4-(methoxyamino)-phenyl
304.	ethyl	4-(ethoxyamino)-phenyl
305.	ethyl	4-(N-methylaminooxy)-phenyl
306.	ethyl	4-(N,N-dimethylaminooxy)-phenyl
307.	ethyl	4-(azetidin-1-yl)-phenyl
308.	ethyl	4-(2-methylazetidin-1-yl)-phenyl
309.	ethyl	4-((S)-2-methylazetidin-1-yl)-phenyl

No.	R ¹	Ar
310.	ethyl	4-((R)-2-methylazetidin-1-yl)-phenyl
311.	ethyl	4-(3-fluoroazetidin-1-yl)-phenyl
312.	ethyl	4-(3-methoxyazetidin-1-yl)-phenyl
313.	ethyl	4-(3-hydroxyazetidin-1-yl)-phenyl
314.	ethyl	4-(pyrrolidin-1-yl)-phenyl
315.	ethyl	4-(pyrrolidin-2-yl)-phenyl
316.	ethyl	4-((S)-pyrrolidin-2-yl)-phenyl
317.	ethyl	4-((R)-pyrrolidin-2-yl)-phenyl
318.	ethyl	4-(pyrrolidin-3-yl)-phenyl
319.	ethyl	4-((S)-pyrrolidin-3-yl)-phenyl
320.	ethyl	4-((R)-pyrrolidin-3-yl)-phenyl
321.	ethyl	4-(2-fluoropyrrolidin-1-yl)-phenyl
322.	ethyl	4-((S)-2-fluoropyrrolidin-1-yl)-phenyl
323.	ethyl	4-((R)-2-fluoropyrrolidin-1-yl)-phenyl
324.	ethyl	4-(3-fluoropyrrolidin-1-yl)-phenyl
325.	ethyl	4-((S)-3-fluoropyrrolidin-1-yl)-phenyl
326.	ethyl	4-((R)-3-fluoropyrrolidin-1-yl)-phenyl
327.	ethyl	4-(2,2-difluoropyrrolidin-1-yl)-phenyl
328.	ethyl	4-(3,3-difluoropyrrolidin-1-yl)-phenyl
329.	ethyl	4-(2-methylpyrrolidin-1-yl)-phenyl
330.	ethyl	4-((S)-2-methylpyrrolidin-1-yl)-phenyl
331.	ethyl	4-((R)-2-methylpyrrolidin-1-yl)-phenyl
332.	ethyl	4-(3-methylpyrrolidin-1-yl)-phenyl
333.	ethyl	4-((S)-3-methylpyrrolidin-1-yl)-phenyl
334.	ethyl	4-((R)-3-methylpyrrolidin-1-yl)-phenyl
335.	ethyl	4-(1-methylpyrrolidin-2-yl)-phenyl
336.	ethyl	4-((S)-1-methylpyrrolidin-2-yl)-phenyl
337.	ethyl	4-((R)-1-methylpyrrolidin-2-yl)-phenyl
338.	ethyl	4-(1-methylpyrrolidin-3-yl)-phenyl
339.	ethyl	4-((S)-1-methylpyrrolidin-3-yl)-phenyl
340.	ethyl	4-((R)-1-methylpyrrolidin-3-yl)-phenyl
341.	ethyl	4-(2,2-dimethylpyrrolidin-1-yl)-phenyl
342.	ethyl	4-(3,3-dimethylpyrrolidin-1-yl)-phenyl
343.	ethyl	4-(2-trifluoromethylpyrrolidin-1-yl)-phenyl

No.	R ¹	Ar
344.	ethyl	4-((S)-2-trifluoromethylpyrrolidin-1-yl)-phenyl
345.	ethyl	4-((R)-2-trifluoromethylpyrrolidin-1-yl)-phenyl
346.	ethyl	4-(3-trifluoromethylpyrrolidin-1-yl)-phenyl
347.	ethyl	4-((S)-3-trifluoromethylpyrrolidin-1-yl)-phenyl
348.	ethyl	4-((R)-3-trifluoromethylpyrrolidin-1-yl)-phenyl
349.	ethyl	4-(2-oxopyrrolidin-1-yl)-phenyl
350.	ethyl	4-(2-oxo-oxazolidin-3-yl)-phenyl
351.	ethyl	4-(piperidin-1-yl)-phenyl
352.	ethyl	4-(2-methylpiperidin-1-yl)-phenyl
353.	ethyl	4-((S)-2-methylpiperidin-1-yl)-phenyl
354.	ethyl	4-((R)-2-methylpiperidin-1-yl)-phenyl
355.	ethyl	4-(piperazin-1-yl)-phenyl
356.	ethyl	4-(4-methylpiperazin-1-yl)-phenyl
357.	ethyl	4-(morpholin-4-yl)-phenyl
358.	ethyl	4-(thiomorpholin-4-yl)-phenyl
359.	ethyl	4-(1-oxo-thiomorpholin-4-yl)-phenyl
360.	ethyl	4-(1,1-dioxo-thiomorpholin-4-yl)-phenyl
361.	ethyl	4-(pyrrol-1-yl)-phenyl
362.	ethyl	4-(pyrrol-2-yl)-phenyl
363.	ethyl	4-(pyrrol-3-yl)-phenyl
364.	ethyl	4-(1-methylpyrrol-2-yl)-phenyl
365.	ethyl	4-(1-methylpyrrol-3-yl)-phenyl
366.	ethyl	4-(furan-2-yl)-phenyl
367.	ethyl	4-(furan-3-yl)-phenyl
368.	ethyl	4-(thiophen-2-yl)-phenyl
369.	ethyl	4-(thiophen-3-yl)-phenyl
370.	ethyl	4-(5-propylthien-2-yl)-phenyl
371.	ethyl	4-(pyrazol-1-yl)-phenyl
372.	ethyl	4-(pyrazol-3-yl)-phenyl
373.	ethyl	4-(pyrazol-4-yl)-phenyl
374.	ethyl	4-(1-methyl-1H-pyrazol-4-yl)-phenyl
375.	ethyl	4-(1-ethyl-1H-pyrazol-4-yl)-phenyl
376.	ethyl	4-(1-methyl-1H-pyrazol-5-yl)-phenyl
377.	ethyl	4-(1H-imidazol-2-yl)-phenyl

No.	R ¹	Ar
378.	ethyl	4-(imidazol-1-yl)-phenyl
379.	ethyl	4-(1-methylimidazol-2-yl)-phenyl
380.	ethyl	4-(oxazol-2-yl)-phenyl
381.	ethyl	4-(oxazol-4-yl)-phenyl
382.	ethyl	4-(oxazol-5-yl)-phenyl
383.	ethyl	4-(isoxazol-3-yl)-phenyl
384.	ethyl	4-(isoxazol-4-yl)-phenyl
385.	ethyl	4-(isoxazol-5-yl)-phenyl
386.	ethyl	4-([1,2,3]-triazol-1-yl)-phenyl
387.	ethyl	4-([1,2,4]-triazol-1-yl)-phenyl
388.	ethyl	4-([1,2,3]-triazol-2-yl)-phenyl
389.	ethyl	4-(4H-[1,2,4]-triazol-3-yl)-phenyl
390.	ethyl	4-([1,2,4]-triazol-4-yl)-phenyl
391.	ethyl	4-(2H-[1,2,3]-triazol-4-yl)-phenyl
392.	ethyl	4-(4-methyl-4H-[1,2,4]-triazol-3-yl)-phenyl
393.	ethyl	4-(2-methyl-2H-[1,2,3]-triazol-4-yl)-phenyl
394.	ethyl	4-([1,3,4]-oxadiazol-2-yl)-phenyl
395.	ethyl	4-([1,2,4]-oxadiazol-3-yl)-phenyl
396.	ethyl	4-([1,2,4]-oxadiazol-5-yl)-phenyl
397.	ethyl	4-([1,2,3]-oxadiazol-4-yl)-phenyl
398.	ethyl	4-([1,2,3]-oxadiazol-5-yl)-phenyl
399.	ethyl	4-([1,2,3]-thiadiazol-4-yl)-phenyl
400.	ethyl	4-(1H-tetrazol-5-yl)-phenyl
401.	ethyl	4-(tetrazol-1-yl)-phenyl
402.	ethyl	4-(2-methyl-2H-tetrazol-5-yl)-phenyl
403.	ethyl	4-(1-methyl-1H-tetrazol-5-yl)-phenyl
404.	ethyl	4-furazan-3-yl-phenyl
405.	ethyl	4-(pyrid-2-yl)-phenyl
406.	ethyl	4-(pyrid-3-yl)-phenyl
407.	ethyl	4-(pyrid-4-yl)-phenyl
408.	ethyl	4-(pyrimidin-2-yl)-phenyl
409.	ethyl	4-(pyrimidin-4-yl)-phenyl
410.	ethyl	4-(pyrimidin-5-yl)-phenyl
411.	ethyl	5-isopropylthiophen-2-yl

No.	R ¹	Ar
412.	ethyl	2-chlorothiophen-5-yl
413.	ethyl	2,5-dichlorothiophen-4-yl
414.	ethyl	2,3-dichlorothiophen-5-yl
415.	ethyl	2-chloro-3-nitrothiophen-5-yl
416.	ethyl	2-(phenylsulfonyl)-thiophen-5-yl
417.	ethyl	2-(pyridin-2-yl)thiophen-5-yl
418.	ethyl	2-(5-(trifluoromethyl)isoxazol-3-yl)-thiophen-5-yl
419.	ethyl	2-(2-methylthiazol-4-yl)-thiophen-5-yl
420.	ethyl	1-methyl-1H-imidazol-4-yl
421.	ethyl	1,2-dimethyl-1H-imidazol-4-yl
422.	ethyl	3,5-dimethylisoxazol-4-yl
423.	ethyl	thiazol-2-yl
424.	ethyl	4-methylthiazol-2-yl
425.	ethyl	4-isopropylthiazol-2-yl
426.	ethyl	4-trifluoromethylthiazol-2-yl
427.	ethyl	5-methylthiazol-2-yl
428.	ethyl	5-isopropylthiazol-2-yl
429.	ethyl	5-trifluoromethylthiazol-2-yl
430.	ethyl	2,4-dimethylthiazol-5-yl
431.	ethyl	2-acetamido-4-methylthiazol-5-yl
432.	ethyl	4H-[1,2,4]triazol-3-yl
433.	ethyl	5-methyl-4H-[1,2,4]triazol-3-yl
434.	ethyl	4-methyl-4H-[1,2,4]triazol-3-yl
435.	ethyl	5-isopropyl-4H-[1,2,4]triazol-3-yl
436.	ethyl	5-trifluoromethyl-4H-[1,2,4]triazol-3-yl
437.	ethyl	4,5-dimethyl-4H-[1,2,4]triazol-3-yl
438.	ethyl	5-isopropyl-4-methyl-4H-[1,2,4]triazol-3-yl
439.	ethyl	5-trifluoromethyl-4-methyl-4H-[1,2,4]triazol-3-yl
440.	ethyl	[1,3,4]thiadiazol-2-yl
441.	ethyl	5-methyl-[1,3,4]thiadiazol-2-yl
442.	ethyl	5-isopropyl-[1,3,4]thiadiazol-2-yl
443.	ethyl	5-trifluoromethyl-[1,3,4]thiadiazol-2-yl
444.	ethyl	3-bromo-2-chloropyrid-5-yl
445.	ethyl	2-(4-morpholino)-pyrid-5-yl

No.	R ¹	Ar
446.	ethyl	2-phenoxy-pyrid-5-yl
447.	ethyl	(2-isopropyl)-pyrimidin-5-yl
448.	ethyl	(5-isopropyl)-pyrimidin-2-yl
449.	ethyl	8-quinolyl
450.	ethyl	5-isoquinolyl
451.	ethyl	2-(2,2,2-trifluoroacetyl)-1,2,3,4-tetrahydroisoquinolin-7-yl
452.	ethyl	5-chloro-3-methylbenzothiophen-2-yl
453.	ethyl	3,4-dihydro-4-methyl-2H-benzo[b][1,4]oxazinyl
454.	ethyl	benzothiazol-6-yl
455.	ethyl	benzo[2,1,3]oxadiazol-4-yl
456.	ethyl	5-chlorobenzo[1,2,5]oxadiazolyl
457.	ethyl	7-chlorobenzo[2,1,3]oxadiazol-4-yl
458.	ethyl	benzo[2,1,3]thiadiazol-4-yl
459.	methyl	4-ethylphenyl
460.	methyl	4-propylphenyl
461.	methyl	4-isopropylphenyl
462.	methyl	4-sec-butylphenyl
463.	methyl	4-isobutylphenyl
464.	methyl	4-(1,1-dimethylpropyl)-phenyl
465.	methyl	4-vinylphenyl
466.	methyl	4-isopropenylphenyl
467.	methyl	4-(fluoromethyl)phenyl
468.	methyl	3-(fluoromethyl)phenyl
469.	methyl	2-(fluoromethyl)phenyl
470.	methyl	4-(difluoromethyl)phenyl
471.	methyl	3-(difluoromethyl)phenyl
472.	methyl	2-(difluoromethyl)phenyl
473.	methyl	4-(trifluoromethyl)phenyl
474.	methyl	3-(trifluoromethyl)phenyl
475.	methyl	2-(trifluoromethyl)phenyl
476.	methyl	4-(1-fluoroethyl)-phenyl
477.	methyl	4-((S)-1-fluoroethyl)-phenyl
478.	methyl	4-((R)-1-fluoroethyl)-phenyl
479.	methyl	4-(2-fluoroethyl)-phenyl

No.	R ¹	Ar
480.	methyl	4-(1,1-difluoroethyl)-phenyl
481.	methyl	4-(2,2-difluoroethyl)-phenyl
482.	methyl	4-(2,2,2-trifluoroethyl)-phenyl
483.	methyl	4-(3-fluoropropyl)-phenyl
484.	methyl	4-(2-fluoropropyl)-phenyl
485.	methyl	4-((S)-2-fluoropropyl)-phenyl
486.	methyl	4-((R)-2-fluoropropyl)-phenyl
487.	methyl	4-(3,3-difluoropropyl)-phenyl
488.	methyl	4-(3,3,3-trifluoropropyl)-phenyl
489.	methyl	4-(1-fluoro-1-methylethyl)-phenyl
490.	methyl	4-(2-fluoro-1-methylethyl)-phenyl
491.	methyl	4-((S)-2-fluoro-1-methylethyl)-phenyl
492.	methyl	4-((R)-2-fluoro-1-methylethyl)-phenyl
493.	methyl	4-(2,2-difluoro-1-methylethyl)-phenyl
494.	methyl	4-((S)-2,2-difluoro-1-methylethyl)-phenyl
495.	methyl	4-((R)-2,2-difluoro-1-methylethyl)-phenyl
496.	methyl	4-(2,2,2-trifluoro-1-methylethyl)-phenyl
497.	methyl	4-((S)-2,2,2-trifluoro-1-methylethyl)-phenyl
498.	methyl	4-((R)-2,2,2-trifluoro-1-methylethyl)-phenyl
499.	methyl	4-(2-fluoro-1-fluoromethylethyl)-phenyl
500.	methyl	4-(1-difluoromethyl-2,2-difluoroethyl)-phenyl
501.	methyl	4-(1,1-dimethyl-2-fluoroethyl)-phenyl
502.	methyl	4-ethoxyphenyl
503.	methyl	4-propoxyphenyl
504.	methyl	4-isopropoxyphenyl
505.	methyl	4-butoxyphenyl
506.	methyl	4-(fluoromethoxy)-phenyl
507.	methyl	4-(difluoromethoxy)-phenyl
508.	methyl	4-(2-fluoroethoxy)-phenyl
509.	methyl	4-(2,2-difluoroethoxy)-phenyl
510.	methyl	4-(2,2,2-trifluoroethoxy)-phenyl
511.	methyl	4-(1,1,2,2-tetrafluoroethoxy)-phenyl
512.	methyl	4-cyclopropylphenyl
513.	methyl	4-cyclobutylphenyl

No.	R ¹	Ar
514.	methyl	4-cyclopentylphenyl
515.	methyl	4-(2,2-difluorocyclopropyl)-phenyl
516.	methyl	2-fluoro-4-isopropylphenyl
517.	methyl	3-fluoro-4-isopropylphenyl
518.	methyl	4-(1-hydroxy-1-methylethyl)-phenyl
519.	methyl	4-(2-hydroxy-2-methylpropyl)-phenyl
520.	methyl	4-acetylphenyl
521.	methyl	4-carboxyphenyl
522.	methyl	4-(O-benzyl)-phenyl
523.	methyl	4-(2-methoxyethoxy)-phenyl
524.	methyl	4-(CH ₂ -N(CH ₃) ₂)-phenyl
525.	methyl	4-(NH-CO-NH ₂)-phenyl
526.	methyl	4-(methylsulfanyl)-phenyl
527.	methyl	4-(fluoromethylsulfanyl)-phenyl
528.	methyl	4-(difluoromethylsulfanyl)-phenyl
529.	methyl	4-(trifluoromethylsulfanyl)-phenyl
530.	methyl	4-(methylsulfonyl)-phenyl
531.	methyl	4-(N-methoxy-N-methyl-amino)-phenyl
532.	methyl	4-(methoxyamino)-phenyl
533.	methyl	4-(ethoxyamino)-phenyl
534.	methyl	4-(N-methylaminooxy)-phenyl
535.	methyl	4-(N,N-dimethylaminooxy)-phenyl
536.	methyl	4-(azetidin-1-yl)-phenyl
537.	methyl	4-(2-methylazetidin-1-yl)-phenyl
538.	methyl	4-((S)-2-methylazetidin-1-yl)-phenyl
539.	methyl	4-((R)-2-methylazetidin-1-yl)-phenyl
540.	methyl	4-(3-fluoroazetidin-1-yl)-phenyl
541.	methyl	4-(3-methoxyazetidin-1-yl)-phenyl
542.	methyl	4-(3-hydroxyazetidin-1-yl)-phenyl
543.	methyl	4-(pyrrolidin-1-yl)-phenyl
544.	methyl	4-(pyrrolidin-2-yl)-phenyl
545.	methyl	4-((S)-pyrrolidin-2-yl)-phenyl
546.	methyl	4-((R)-pyrrolidin-2-yl)-phenyl
547.	methyl	4-(pyrrolidin-3-yl)-phenyl

No.	R ¹	Ar
548.	methyl	4-((S)-pyrrolidin-3-yl)-phenyl
549.	methyl	4-((R)-pyrrolidin-3-yl)-phenyl
550.	methyl	4-(2-fluoropyrrolidin-1-yl)-phenyl
551.	methyl	4-((S)-2-fluoropyrrolidin-1-yl)-phenyl
552.	methyl	4-((R)-2-fluoropyrrolidin-1-yl)-phenyl
553.	methyl	4-(3-fluoropyrrolidin-1-yl)-phenyl
554.	methyl	4-((S)-3-fluoropyrrolidin-1-yl)-phenyl
555.	methyl	4-((R)-3-fluoropyrrolidin-1-yl)-phenyl
556.	methyl	4-(2,2-difluoropyrrolidin-1-yl)-phenyl
557.	methyl	4-(3,3-difluoropyrrolidin-1-yl)-phenyl
558.	methyl	4-(2-methylpyrrolidin-1-yl)-phenyl
559.	methyl	4-((S)-2-methylpyrrolidin-1-yl)-phenyl
560.	methyl	4-((R)-2-methylpyrrolidin-1-yl)-phenyl
561.	methyl	4-(3-methylpyrrolidin-1-yl)-phenyl
562.	methyl	4-((S)-3-methylpyrrolidin-1-yl)-phenyl
563.	methyl	4-((R)-3-methylpyrrolidin-1-yl)-phenyl
564.	methyl	4-(1-methylpyrrolidin-2-yl)-phenyl
565.	methyl	4-((S)-1-methylpyrrolidin-2-yl)-phenyl
566.	methyl	4-((R)-1-methylpyrrolidin-2-yl)-phenyl
567.	methyl	4-(1-methylpyrrolidin-3-yl)-phenyl
568.	methyl	4-((S)-1-methylpyrrolidin-3-yl)-phenyl
569.	methyl	4-((R)-1-methylpyrrolidin-3-yl)-phenyl
570.	methyl	4-(2,2-dimethylpyrrolidin-1-yl)-phenyl
571.	methyl	4-(3,3-dimethylpyrrolidin-1-yl)-phenyl
572.	methyl	4-(2-trifluoromethylpyrrolidin-1-yl)-phenyl
573.	methyl	4-((S)-2-trifluoromethylpyrrolidin-1-yl)-phenyl
574.	methyl	4-((R)-2-trifluoromethylpyrrolidin-1-yl)-phenyl
575.	methyl	4-(3-trifluoromethylpyrrolidin-1-yl)-phenyl
576.	methyl	4-((S)-3-trifluoromethylpyrrolidin-1-yl)-phenyl
577.	methyl	4-((R)-3-trifluoromethylpyrrolidin-1-yl)-phenyl
578.	methyl	4-(2-oxopyrrolidin-1-yl)-phenyl
579.	methyl	4-(2-oxo-oxazolidin-3-yl)-phenyl
580.	methyl	4-(piperidin-1-yl)-phenyl
581.	methyl	4-(2-methylpiperidin-1-yl)-phenyl

No.	R ¹	Ar
582.	methyl	4-((S)-2-methylpiperidin-1-yl)-phenyl
583.	methyl	4-((R)-2-methylpiperidin-1-yl)-phenyl
584.	methyl	4-(piperazin-1-yl)-phenyl
585.	methyl	4-(4-methylpiperazin-1-yl)-phenyl
586.	methyl	4-(morpholin-4-yl)-phenyl
587.	methyl	4-(thiomorpholin-4-yl)-phenyl
588.	methyl	4-(1-oxo-thiomorpholin-4-yl)-phenyl
589.	methyl	4-(1,1-dioxo-thiomorpholin-4-yl)-phenyl
590.	methyl	4-(pyrrol-1-yl)-phenyl
591.	methyl	4-(pyrrol-2-yl)-phenyl
592.	methyl	4-(pyrrol-3-yl)-phenyl
593.	methyl	4-(1-methylpyrrol-2-yl)-phenyl
594.	methyl	4-(1-methylpyrrol-3-yl)-phenyl
595.	methyl	4-(furan-2-yl)-phenyl
596.	methyl	4-(furan-3-yl)-phenyl
597.	methyl	4-(thiophen-2-yl)-phenyl
598.	methyl	4-(thiophen-3-yl)-phenyl
599.	methyl	4-(5-propylthien-2-yl)-phenyl
600.	methyl	4-(pyrazol-1-yl)-phenyl
601.	methyl	4-(pyrazol-3-yl)-phenyl
602.	methyl	4-(pyrazol-4-yl)-phenyl
603.	methyl	4-(1-methyl-1H-pyrazol-4-yl)-phenyl
604.	methyl	4-(1-ethyl-1H-pyrazol-4-yl)-phenyl
605.	methyl	4-(1-methyl-1H-pyrazol-5-yl)-phenyl
606.	methyl	4-(1H-imidazol-2-yl)-phenyl
607.	methyl	4-(imidazol-1-yl)-phenyl
608.	methyl	4-(1-methylimidazol-2-yl)-phenyl
609.	methyl	4-(oxazol-2-yl)-phenyl
610.	methyl	4-(oxazol-4-yl)-phenyl
611.	methyl	4-(oxazol-5-yl)-phenyl
612.	methyl	4-(isoxazol-3-yl)-phenyl
613.	methyl	4-(isoxazol-4-yl)-phenyl
614.	methyl	4-(isoxazol-5-yl)-phenyl
615.	methyl	4-([1,2,3]-triazol-1-yl)-phenyl

No.	R ¹	Ar
616.	methyl	4-([1,2,4]-triazol-1-yl)-phenyl
617.	methyl	4-([1,2,3]-triazol-2-yl)-phenyl
618.	methyl	4-(4H-[1,2,4]-triazol-3-yl)-phenyl
619.	methyl	4-([1,2,4]-triazol-4-yl)-phenyl
620.	methyl	4-(2H-[1,2,3]-triazol-4-yl)-phenyl
621.	methyl	4-(4-methyl-4H-[1,2,4]-triazol-3-yl)-phenyl
622.	methyl	4-(2-methyl-2H-[1,2,3]-triazol-4-yl)-phenyl
623.	methyl	4-([1,3,4]-oxadiazol-2-yl)-phenyl
624.	methyl	4-([1,2,4]-oxadiazol-3-yl)-phenyl
625.	methyl	4-([1,2,4]-oxadiazol-5-yl)-phenyl
626.	methyl	4-([1,2,3]-oxadiazol-4-yl)-phenyl
627.	methyl	4-([1,2,3]-oxadiazol-5-yl)-phenyl
628.	methyl	4-([1,2,3]-thiadiazol-4-yl)-phenyl
629.	methyl	4-(1H-tetrazol-5-yl)-phenyl
630.	methyl	4-(tetrazol-1-yl)-phenyl
631.	methyl	4-(2-methyl-2H-tetrazol-5-yl)-phenyl
632.	methyl	4-(1-methyl-1H-tetrazol-5-yl)-phenyl
633.	methyl	4-furazan-3-yl-phenyl
634.	methyl	4-(pyrid-2-yl)-phenyl
635.	methyl	4-(pyrid-3-yl)-phenyl
636.	methyl	4-(pyrid-4-yl)-phenyl
637.	methyl	4-(pyrimidin-2-yl)-phenyl
638.	methyl	4-(pyrimidin-4-yl)-phenyl
639.	methyl	4-(pyrimidin-5-yl)-phenyl
640.	methyl	5-isopropylthiophen-2-yl
641.	methyl	2-chlorothiophen-5-yl
642.	methyl	2,5-dichlorothiophen-4-yl
643.	methyl	2,3-dichlorothiophen-5-yl
644.	methyl	2-chloro-3-nitrothiophen-5-yl
645.	methyl	2-(phenylsulfonyl)-thiophen-5-yl
646.	methyl	2-(pyridin-2-yl)thiophen-5-yl
647.	methyl	2-(5-(trifluoromethyl)isoxazol-3-yl)-thiophen-5-yl
648.	methyl	2-(2-methylthiazol-4-yl)-thiophen-5-yl
649.	methyl	1-methyl-1H-imidazol-4-yl

No.	R ¹	Ar
650.	methyl	1,2-dimethyl-1H-imidazol-4-yl
651.	methyl	3,5-dimethylisoxazol-4-yl
652.	methyl	thiazol-2-yl
653.	methyl	4-methylthiazol-2-yl
654.	methyl	4-isopropylthiazol-2-yl
655.	methyl	4-trifluoromethylthiazol-2-yl
656.	methyl	5-methylthiazol-2-yl
657.	methyl	5-isopropylthiazol-2-yl
658.	methyl	5-trifluoromethylthiazol-2-yl
659.	methyl	2,4-dimethylthiazol-5-yl
660.	methyl	2-acetamido-4-methylthiazol-5-yl
661.	methyl	4H-[1,2,4]triazol-3-yl
662.	methyl	5-methyl-4H-[1,2,4]triazol-3-yl
663.	methyl	4-methyl-4H-[1,2,4]triazol-3-yl
664.	methyl	5-isopropyl-4H-[1,2,4]triazol-3-yl
665.	methyl	5-trifluoromethyl-4H-[1,2,4]triazol-3-yl
666.	methyl	4,5-dimethyl-4H-[1,2,4]triazol-3-yl
667.	methyl	5-isopropyl-4-methyl-4H-[1,2,4]triazol-3-yl
668.	methyl	5-trifluoromethyl-4-methyl-4H-[1,2,4]triazol-3-yl
669.	methyl	[1,3,4]thiadiazol-2-yl
670.	methyl	5-methyl-[1,3,4]thiadiazol-2-yl
671.	methyl	5-isopropyl-[1,3,4]thiadiazol-2-yl
672.	methyl	5-trifluoromethyl-[1,3,4]thiadiazol-2-yl
673.	methyl	3-bromo-2-chloropyrid-5-yl
674.	methyl	2-(4-morpholino)-pyrid-5-yl
675.	methyl	2-phenoxy-pyrid-5-yl
676.	methyl	(2-isopropyl)-pyrimidin-5-yl
677.	methyl	(5-isopropyl)-pyrimidin-2-yl
678.	methyl	8-quinolyl
679.	methyl	5-isoquinolyl
680.	methyl	2-(2,2,2-trifluoroacetyl)-1,2,3,4-tetrahydroisoquinolin-7-yl
681.	methyl	5-chloro-3-methylbenzothiophen-2-yl
682.	methyl	3,4-dihydro-4-methyl-2H-benzo[b][1,4]oxazinyl
683.	methyl	benzothiazol-6-yl

No.	R ¹	Ar
684.	methyl	benzo[2,1,3]oxadiazol-4-yl
685.	methyl	5-chlorobenzo[1,2,5]oxadiazolyl
686.	methyl	7-chlorobenzo[2,1,3]oxadiazol-4-yl
687.	methyl	benzo[2,1,3]thiadiazol-4-yl
688.	3-fluoropropyl	4-ethylphenyl
689.	3-fluoropropyl	4-propylphenyl
690.	3-fluoropropyl	4-isopropylphenyl
691.	3-fluoropropyl	4-sec-butylphenyl
692.	3-fluoropropyl	4-isobutylphenyl
693.	3-fluoropropyl	4-(1,1-dimethylpropyl)-phenyl
694.	3-fluoropropyl	4-vinylphenyl
695.	3-fluoropropyl	4-isopropenylphenyl
696.	3-fluoropropyl	4-(fluoromethyl)phenyl
697.	3-fluoropropyl	3-(fluoromethyl)phenyl
698.	3-fluoropropyl	2-(fluoromethyl)phenyl
699.	3-fluoropropyl	4-(difluoromethyl)phenyl
700.	3-fluoropropyl	3-(difluoromethyl)phenyl
701.	3-fluoropropyl	2-(difluoromethyl)phenyl
702.	3-fluoropropyl	4-(trifluoromethyl)phenyl
703.	3-fluoropropyl	3-(trifluoromethyl)phenyl
704.	3-fluoropropyl	2-(trifluoromethyl)phenyl
705.	3-fluoropropyl	4-(1-fluoroethyl)-phenyl
706.	3-fluoropropyl	4-((S)-1-fluoroethyl)-phenyl
707.	3-fluoropropyl	4-((R)-1-fluoroethyl)-phenyl
708.	3-fluoropropyl	4-(2-fluoroethyl)-phenyl
709.	3-fluoropropyl	4-(1,1-difluoroethyl)-phenyl
710.	3-fluoropropyl	4-(2,2-difluoroethyl)-phenyl
711.	3-fluoropropyl	4-(2,2,2-trifluoroethyl)-phenyl
712.	3-fluoropropyl	4-(3-fluoropropyl)-phenyl
713.	3-fluoropropyl	4-(2-fluoropropyl)-phenyl
714.	3-fluoropropyl	4-((S)-2-fluoropropyl)-phenyl
715.	3-fluoropropyl	4-((R)-2-fluoropropyl)-phenyl
716.	3-fluoropropyl	4-(3,3-difluoropropyl)-phenyl
717.	3-fluoropropyl	4-(3,3,3-trifluoropropyl)-phenyl
718.	3-fluoropropyl	4-(1-fluoro-1-methylethyl)-phenyl

No.	R ¹	Ar
719.	3-fluoropropyl	4-(2-fluoro-1-methylethyl)-phenyl
720.	3-fluoropropyl	4-((S)-2-fluoro-1-methylethyl)-phenyl
721.	3-fluoropropyl	4-((R)-2-fluoro-1-methylethyl)-phenyl
722.	3-fluoropropyl	4-(2,2-difluoro-1-methylethyl)-phenyl
723.	3-fluoropropyl	4-((S)-2,2-difluoro-1-methylethyl)-phenyl
724.	3-fluoropropyl	4-((R)-2,2-difluoro-1-methylethyl)-phenyl
725.	3-fluoropropyl	4-(2,2,2-trifluoro-1-methylethyl)-phenyl
726.	3-fluoropropyl	4-((S)-2,2,2-trifluoro-1-methylethyl)-phenyl
727.	3-fluoropropyl	4-((R)-2,2,2-trifluoro-1-methylethyl)-phenyl
728.	3-fluoropropyl	4-(2-fluoro-1-fluoromethylethyl)-phenyl
729.	3-fluoropropyl	4-(1-difluoromethyl-2,2-difluoroethyl)-phenyl
730.	3-fluoropropyl	4-(1,1-dimethyl-2-fluoroethyl)-phenyl
731.	3-fluoropropyl	4-ethoxyphenyl
732.	3-fluoropropyl	4-propoxyphenyl
733.	3-fluoropropyl	4-isopropoxyphenyl
734.	3-fluoropropyl	4-butoxyphenyl
735.	3-fluoropropyl	4-(fluoromethoxy)-phenyl
736.	3-fluoropropyl	4-(difluoromethoxy)-phenyl
737.	3-fluoropropyl	4-(2-fluoroethoxy)-phenyl
738.	3-fluoropropyl	4-(2,2-difluoroethoxy)-phenyl
739.	3-fluoropropyl	4-(2,2,2-trifluoroethoxy)-phenyl
740.	3-fluoropropyl	4-(1,1,2,2-tetrafluoroethoxy)-phenyl
741.	3-fluoropropyl	4-cyclopropylphenyl
742.	3-fluoropropyl	4-cyclobutylphenyl
743.	3-fluoropropyl	4-cyclopentylphenyl
744.	3-fluoropropyl	4-(2,2-difluorocyclopropyl)-phenyl
745.	3-fluoropropyl	2-fluoro-4-isopropylphenyl
746.	3-fluoropropyl	3-fluoro-4-isopropylphenyl
747.	3-fluoropropyl	4-(1-hydroxy-1-methylethyl)-phenyl
748.	3-fluoropropyl	4-(2-hydroxy-2-methylpropyl)-phenyl
749.	3-fluoropropyl	4-acetylphenyl
750.	3-fluoropropyl	4-carboxyphenyl
751.	3-fluoropropyl	4-(O-benzyl)-phenyl
752.	3-fluoropropyl	4-(2-methoxyethoxy)-phenyl

No.	R ¹	Ar
753.	3-fluoropropyl	4-(CH ₂ -N(CH ₃) ₂)-phenyl
754.	3-fluoropropyl	4-(NH-CO-NH ₂)-phenyl
755.	3-fluoropropyl	4-(methylsulfanyl)-phenyl
756.	3-fluoropropyl	4-(fluoromethylsulfanyl)-phenyl
757.	3-fluoropropyl	4-(difluoromethylsulfanyl)-phenyl
758.	3-fluoropropyl	4-(trifluoromethylsulfanyl)-phenyl
759.	3-fluoropropyl	4-(methylsulfonyl)-phenyl
760.	3-fluoropropyl	4-(N-methoxy-N-methyl-amino)-phenyl
761.	3-fluoropropyl	4-(methoxyamino)-phenyl
762.	3-fluoropropyl	4-(ethoxyamino)-phenyl
763.	3-fluoropropyl	4-(N-methylaminooxy)-phenyl
764.	3-fluoropropyl	4-(N,N-dimethylaminooxy)-phenyl
765.	3-fluoropropyl	4-(azetidin-1-yl)-phenyl
766.	3-fluoropropyl	4-(2-methylazetidin-1-yl)-phenyl
767.	3-fluoropropyl	4-((S)-2-methylazetidin-1-yl)-phenyl
768.	3-fluoropropyl	4-((R)-2-methylazetidin-1-yl)-phenyl
769.	3-fluoropropyl	4-(3-fluoroazetidin-1-yl)-phenyl
770.	3-fluoropropyl	4-(3-methoxyazetidin-1-yl)-phenyl
771.	3-fluoropropyl	4-(3-hydroxyazetidin-1-yl)-phenyl
772.	3-fluoropropyl	4-(pyrrolidin-1-yl)-phenyl
773.	3-fluoropropyl	4-(pyrrolidin-2-yl)-phenyl
774.	3-fluoropropyl	4-((S)-pyrrolidin-2-yl)-phenyl
775.	3-fluoropropyl	4-((R)-pyrrolidin-2-yl)-phenyl
776.	3-fluoropropyl	4-(pyrrolidin-3-yl)-phenyl
777.	3-fluoropropyl	4-((S)-pyrrolidin-3-yl)-phenyl
778.	3-fluoropropyl	4-((R)-pyrrolidin-3-yl)-phenyl
779.	3-fluoropropyl	4-(2-fluoropyrrolidin-1-yl)-phenyl
780.	3-fluoropropyl	4-((S)-2-fluoropyrrolidin-1-yl)-phenyl
781.	3-fluoropropyl	4-((R)-2-fluoropyrrolidin-1-yl)-phenyl
782.	3-fluoropropyl	4-(3-fluoropyrrolidin-1-yl)-phenyl
783.	3-fluoropropyl	4-((S)-3-fluoropyrrolidin-1-yl)-phenyl
784.	3-fluoropropyl	4-((R)-3-fluoropyrrolidin-1-yl)-phenyl
785.	3-fluoropropyl	4-(2,2-difluoropyrrolidin-1-yl)-phenyl
786.	3-fluoropropyl	4-(3,3-difluoropyrrolidin-1-yl)-phenyl

No.	R ¹	Ar
787.	3-fluoropropyl	4-(2-methylpyrrolidin-1-yl)-phenyl
788.	3-fluoropropyl	4-((S)-2-methylpyrrolidin-1-yl)-phenyl
789.	3-fluoropropyl	4-((R)-2-methylpyrrolidin-1-yl)-phenyl
790.	3-fluoropropyl	4-(3-methylpyrrolidin-1-yl)-phenyl
791.	3-fluoropropyl	4-((S)-3-methylpyrrolidin-1-yl)-phenyl
792.	3-fluoropropyl	4-((R)-3-methylpyrrolidin-1-yl)-phenyl
793.	3-fluoropropyl	4-(1-methylpyrrolidin-2-yl)-phenyl
794.	3-fluoropropyl	4-((S)-1-methylpyrrolidin-2-yl)-phenyl
795.	3-fluoropropyl	4-((R)-1-methylpyrrolidin-2-yl)-phenyl
796.	3-fluoropropyl	4-(1-methylpyrrolidin-3-yl)-phenyl
797.	3-fluoropropyl	4-((S)-1-methylpyrrolidin-3-yl)-phenyl
798.	3-fluoropropyl	4-((R)-1-methylpyrrolidin-3-yl)-phenyl
799.	3-fluoropropyl	4-(2,2-dimethylpyrrolidin-1-yl)-phenyl
800.	3-fluoropropyl	4-(3,3-dimethylpyrrolidin-1-yl)-phenyl
801.	3-fluoropropyl	4-(2-trifluoromethylpyrrolidin-1-yl)-phenyl
802.	3-fluoropropyl	4-((S)-2-trifluoromethylpyrrolidin-1-yl)-phenyl
803.	3-fluoropropyl	4-((R)-2-trifluoromethylpyrrolidin-1-yl)-phenyl
804.	3-fluoropropyl	4-(3-trifluoromethylpyrrolidin-1-yl)-phenyl
805.	3-fluoropropyl	4-((S)-3-trifluoromethylpyrrolidin-1-yl)-phenyl
806.	3-fluoropropyl	4-((R)-3-trifluoromethylpyrrolidin-1-yl)-phenyl
807.	3-fluoropropyl	4-(2-oxopyrrolidin-1-yl)-phenyl
808.	3-fluoropropyl	4-(2-oxo-oxazolidin-3-yl)-phenyl
809.	3-fluoropropyl	4-(piperidin-1-yl)-phenyl
810.	3-fluoropropyl	4-(2-methylpiperidin-1-yl)-phenyl
811.	3-fluoropropyl	4-((S)-2-methylpiperidin-1-yl)-phenyl
812.	3-fluoropropyl	4-((R)-2-methylpiperidin-1-yl)-phenyl
813.	3-fluoropropyl	4-(piperazin-1-yl)-phenyl
814.	3-fluoropropyl	4-(4-methylpiperazin-1-yl)-phenyl
815.	3-fluoropropyl	4-(morpholin-4-yl)-phenyl
816.	3-fluoropropyl	4-(thiomorpholin-4-yl)-phenyl
817.	3-fluoropropyl	4-(1-oxo-thiomorpholin-4-yl)-phenyl
818.	3-fluoropropyl	4-(1,1-dioxo-thiomorpholin-4-yl)-phenyl
819.	3-fluoropropyl	4-(pyrrol-1-yl)-phenyl
820.	3-fluoropropyl	4-(pyrrol-2-yl)-phenyl

No.	R ¹	Ar
821.	3-fluoropropyl	4-(pyrrol-3-yl)-phenyl
822.	3-fluoropropyl	4-(1-methylpyrrol-2-yl)-phenyl
823.	3-fluoropropyl	4-(1-methylpyrrol-3-yl)-phenyl
824.	3-fluoropropyl	4-(furan-2-yl)-phenyl
825.	3-fluoropropyl	4-(furan-3-yl)-phenyl
826.	3-fluoropropyl	4-(thiophen-2-yl)-phenyl
827.	3-fluoropropyl	4-(thiophen-3-yl)-phenyl
828.	3-fluoropropyl	4-(5-propylthien-2-yl)-phenyl
829.	3-fluoropropyl	4-(pyrazol-1-yl)-phenyl
830.	3-fluoropropyl	4-(pyrazol-3-yl)-phenyl
831.	3-fluoropropyl	4-(pyrazol-4-yl)-phenyl
832.	3-fluoropropyl	4-(1-methyl-1H-pyrazol-4-yl)-phenyl
833.	3-fluoropropyl	4-(1-ethyl-1H-pyrazol-4-yl)-phenyl
834.	3-fluoropropyl	4-(1-methyl-1H-pyrazol-5-yl)-phenyl
835.	3-fluoropropyl	4-(1H-imidazol-2-yl)-phenyl
836.	3-fluoropropyl	4-(imidazol-1-yl)-phenyl
837.	3-fluoropropyl	4-(1-methylimidazol-2-yl)-phenyl
838.	3-fluoropropyl	4-(oxazol-2-yl)-phenyl
839.	3-fluoropropyl	4-(oxazol-4-yl)-phenyl
840.	3-fluoropropyl	4-(oxazol-5-yl)-phenyl
841.	3-fluoropropyl	4-(isoxazol-3-yl)-phenyl
842.	3-fluoropropyl	4-(isoxazol-4-yl)-phenyl
843.	3-fluoropropyl	4-(isoxazol-5-yl)-phenyl
844.	3-fluoropropyl	4-([1,2,3]-triazol-1-yl)-phenyl
845.	3-fluoropropyl	4-([1,2,4]-triazol-1-yl)-phenyl
846.	3-fluoropropyl	4-([1,2,3]-triazol-2-yl)-phenyl
847.	3-fluoropropyl	4-(4H-[1,2,4]-triazol-3-yl)-phenyl
848.	3-fluoropropyl	4-([1,2,4]-triazol-4-yl)-phenyl
849.	3-fluoropropyl	4-(2H-[1,2,3]-triazol-4-yl)-phenyl
850.	3-fluoropropyl	4-(4-methyl-4H-[1,2,4]-triazol-3-yl)-phenyl
851.	3-fluoropropyl	4-(2-methyl-2H-[1,2,3]-triazol-4-yl)-phenyl
852.	3-fluoropropyl	4-([1,3,4]-oxadiazol-2-yl)-phenyl
853.	3-fluoropropyl	4-([1,2,4]-oxadiazol-3-yl)-phenyl
854.	3-fluoropropyl	4-([1,2,4]-oxadiazol-5-yl)-phenyl

No.	R ¹	Ar
855.	3-fluoropropyl	4-([1,2,3]-oxadiazol-4-yl)-phenyl
856.	3-fluoropropyl	4-([1,2,3]-oxadiazol-5-yl)-phenyl
857.	3-fluoropropyl	4-([1,2,3]-thiadiazol-4-yl)-phenyl
858.	3-fluoropropyl	4-(1H-tetrazol-5-yl)-phenyl
859.	3-fluoropropyl	4-(tetrazol-1-yl)-phenyl
860.	3-fluoropropyl	4-(2-methyl-2H-tetrazol-5-yl)-phenyl
861.	3-fluoropropyl	4-(1-methyl-1H-tetrazol-5-yl)-phenyl
862.	3-fluoropropyl	4-furazan-3-yl-phenyl
863.	3-fluoropropyl	4-(pyrid-2-yl)-phenyl
864.	3-fluoropropyl	4-(pyrid-3-yl)-phenyl
865.	3-fluoropropyl	4-(pyrid-4-yl)-phenyl
866.	3-fluoropropyl	4-(pyrimidin-2-yl)-phenyl
867.	3-fluoropropyl	4-(pyrimidin-4-yl)-phenyl
868.	3-fluoropropyl	4-(pyrimidin-5-yl)-phenyl
869.	3-fluoropropyl	5-isopropylthiophen-2-yl
870.	3-fluoropropyl	2-chlorothiophen-5-yl
871.	3-fluoropropyl	2,5-dichlorothiophen-4-yl
872.	3-fluoropropyl	2,3-dichlorothiophen-5-yl
873.	3-fluoropropyl	2-chloro-3-nitrothiophen-5-yl
874.	3-fluoropropyl	2-(phenylsulfonyl)-thiophen-5-yl
875.	3-fluoropropyl	2-(pyridin-2-yl)thiophen-5-yl
876.	3-fluoropropyl	2-(5-(trifluoromethyl)isoxazol-3-yl)-thiophen-5-yl
877.	3-fluoropropyl	2-(2-methylthiazol-4-yl)-thiophen-5-yl
878.	3-fluoropropyl	1-methyl-1H-imidazol-4-yl
879.	3-fluoropropyl	1,2-dimethyl-1H-imidazol-4-yl
880.	3-fluoropropyl	3,5-dimethylisoxazol-4-yl
881.	3-fluoropropyl	thiazol-2-yl
882.	3-fluoropropyl	4-methylthiazol-2-yl
883.	3-fluoropropyl	4-isopropylthiazol-2-yl
884.	3-fluoropropyl	4-trifluoromethylthiazol-2-yl
885.	3-fluoropropyl	5-methylthiazol-2-yl
886.	3-fluoropropyl	5-isopropylthiazol-2-yl
887.	3-fluoropropyl	5-trifluoromethylthiazol-2-yl
888.	3-fluoropropyl	2,4-dimethylthiazol-5-yl

No.	R ¹	Ar
889.	3-fluoropropyl	2-acetamido-4-methylthiazol-5-yl
890.	3-fluoropropyl	4H-[1,2,4]triazol-3-yl
891.	3-fluoropropyl	5-methyl-4H-[1,2,4]triazol-3-yl
892.	3-fluoropropyl	4-methyl-4H-[1,2,4]triazol-3-yl
893.	3-fluoropropyl	5-isopropyl-4H-[1,2,4]triazol-3-yl
894.	3-fluoropropyl	5-trifluoromethyl-4H-[1,2,4]triazol-3-yl
895.	3-fluoropropyl	4,5-dimethyl-4H-[1,2,4]triazol-3-yl
896.	3-fluoropropyl	5-isopropyl-4-methyl-4H-[1,2,4]triazol-3-yl
897.	3-fluoropropyl	5-trifluoromethyl-4-methyl-4H-[1,2,4]triazol-3-yl
898.	3-fluoropropyl	[1,3,4]thiadiazol-2-yl
899.	3-fluoropropyl	5-methyl-[1,3,4]thiadiazol-2-yl
900.	3-fluoropropyl	5-isopropyl-[1,3,4]thiadiazol-2-yl
901.	3-fluoropropyl	5-trifluoromethyl-[1,3,4]thiadiazol-2-yl
902.	3-fluoropropyl	3-bromo-2-chloropyrid-5-yl
903.	3-fluoropropyl	2-(4-morpholino)-pyrid-5-yl
904.	3-fluoropropyl	2-phenoxy-pyrid-5-yl
905.	3-fluoropropyl	(2-isopropyl)-pyrimidin-5-yl
906.	3-fluoropropyl	(5-isopropyl)-pyrimidin-2-yl
907.	3-fluoropropyl	8-quinolyl
908.	3-fluoropropyl	5-isoquinolyl
909.	3-fluoropropyl	2-(2,2,2-trifluoroacetyl)-1,2,3,4-tetrahydroisoquinolin-7-yl
910.	3-fluoropropyl	5-chloro-3-methylbenzothiophen-2-yl
911.	3-fluoropropyl	3,4-dihydro-4-methyl-2H-benzo[b][1,4]oxazinyll
912.	3-fluoropropyl	benzothiazol-6-yl
913.	3-fluoropropyl	benzo[2,1,3]oxadiazol-4-yl
914.	3-fluoropropyl	5-chlorobenzo[1,2,5]oxadiazolyl
915.	3-fluoropropyl	7-chlorobenzo[2,1,3]oxadiazol-4-yl
916.	3-fluoropropyl	benzo[2,1,3]thiadiazol-4-yl
917.	2-fluoroethyl	4-ethylphenyl
918.	2-fluoroethyl	4-propylphenyl
919.	2-fluoroethyl	4-isopropylphenyl
920.	2-fluoroethyl	4-sec-butylphenyl
921.	2-fluoroethyl	4-isobutylphenyl
922.	2-fluoroethyl	4-(1,1-dimethylpropyl)-phenyl

No.	R ¹	Ar
923.	2-fluoroethyl	4-vinylphenyl
924.	2-fluoroethyl	4-isopropenylphenyl
925.	2-fluoroethyl	4-(fluoromethyl)phenyl
926.	2-fluoroethyl	3-(fluoromethyl)phenyl
927.	2-fluoroethyl	2-(fluoromethyl)phenyl
928.	2-fluoroethyl	4-(difluoromethyl)phenyl
929.	2-fluoroethyl	3-(difluoromethyl)phenyl
930.	2-fluoroethyl	2-(difluoromethyl)phenyl
931.	2-fluoroethyl	4-(trifluoromethyl)phenyl
932.	2-fluoroethyl	3-(trifluoromethyl)phenyl
933.	2-fluoroethyl	2-(trifluoromethyl)phenyl
934.	2-fluoroethyl	4-(1-fluoroethyl)-phenyl
935.	2-fluoroethyl	4-((S)-1-fluoroethyl)-phenyl
936.	2-fluoroethyl	4-((R)-1-fluoroethyl)-phenyl
937.	2-fluoroethyl	4-(2-fluoroethyl)-phenyl
938.	2-fluoroethyl	4-(1,1-difluoroethyl)-phenyl
939.	2-fluoroethyl	4-(2,2-difluoroethyl)-phenyl
940.	2-fluoroethyl	4-(2,2,2-trifluoroethyl)-phenyl
941.	2-fluoroethyl	4-(3-fluoropropyl)-phenyl
942.	2-fluoroethyl	4-(2-fluoropropyl)-phenyl
943.	2-fluoroethyl	4-((S)-2-fluoropropyl)-phenyl
944.	2-fluoroethyl	4-((R)-2-fluoropropyl)-phenyl
945.	2-fluoroethyl	4-(3,3-difluoropropyl)-phenyl
946.	2-fluoroethyl	4-(3,3,3-trifluoropropyl)-phenyl
947.	2-fluoroethyl	4-(1-fluoro-1-methylethyl)-phenyl
948.	2-fluoroethyl	4-(2-fluoro-1-methylethyl)-phenyl
949.	2-fluoroethyl	4-((S)-2-fluoro-1-methylethyl)-phenyl
950.	2-fluoroethyl	4-((R)-2-fluoro-1-methylethyl)-phenyl
951.	2-fluoroethyl	4-(2,2-difluoro-1-methylethyl)-phenyl
952.	2-fluoroethyl	4-((S)-2,2-difluoro-1-methylethyl)-phenyl
953.	2-fluoroethyl	4-((R)-2,2-difluoro-1-methylethyl)-phenyl
954.	2-fluoroethyl	4-(2,2,2-trifluoro-1-methylethyl)-phenyl
955.	2-fluoroethyl	4-((S)-2,2,2-trifluoro-1-methylethyl)-phenyl
956.	2-fluoroethyl	4-((R)-2,2,2-trifluoro-1-methylethyl)-phenyl

No.	R ¹	Ar
957.	2-fluoroethyl	4-(2-fluoro-1-fluoromethylethyl)-phenyl
958.	2-fluoroethyl	4-(1-difluoromethyl-2,2-difluoroethyl)-phenyl
959.	2-fluoroethyl	4-(1,1-dimethyl-2-fluoroethyl)-phenyl
960.	2-fluoroethyl	4-ethoxyphenyl
961.	2-fluoroethyl	4-propoxyphenyl
962.	2-fluoroethyl	4-isopropoxyphenyl
963.	2-fluoroethyl	4-butoxyphenyl
964.	2-fluoroethyl	4-(fluoromethoxy)-phenyl
965.	2-fluoroethyl	4-(difluoromethoxy)-phenyl
966.	2-fluoroethyl	4-(2-fluoroethoxy)-phenyl
967.	2-fluoroethyl	4-(2,2-difluoroethoxy)-phenyl
968.	2-fluoroethyl	4-(2,2,2-trifluoroethoxy)-phenyl
969.	2-fluoroethyl	4-(1,1,2,2-tetrafluoroethoxy)-phenyl
970.	2-fluoroethyl	4-cyclopropylphenyl
971.	2-fluoroethyl	4-cyclobutylphenyl
972.	2-fluoroethyl	4-cyclopentylphenyl
973.	2-fluoroethyl	4-(2,2-difluorocyclopropyl)-phenyl
974.	2-fluoroethyl	2-fluoro-4-isopropylphenyl
975.	2-fluoroethyl	3-fluoro-4-isopropylphenyl
976.	2-fluoroethyl	4-(1-hydroxy-1-methylethyl)-phenyl
977.	2-fluoroethyl	4-(2-hydroxy-2-methylpropyl)-phenyl
978.	2-fluoroethyl	4-acetylphenyl
979.	2-fluoroethyl	4-carboxyphenyl
980.	2-fluoroethyl	4-(O-benzyl)-phenyl
981.	2-fluoroethyl	4-(2-methoxyethoxy)-phenyl
982.	2-fluoroethyl	4-(CH ₂ -N(CH ₃) ₂)-phenyl
983.	2-fluoroethyl	4-(NH-CO-NH ₂)-phenyl
984.	2-fluoroethyl	4-(methylsulfanyl)-phenyl
985.	2-fluoroethyl	4-(fluoromethylsulfanyl)-phenyl
986.	2-fluoroethyl	4-(difluoromethylsulfanyl)-phenyl
987.	2-fluoroethyl	4-(trifluoromethylsulfanyl)-phenyl
988.	2-fluoroethyl	4-(methylsulfonyl)-phenyl
989.	2-fluoroethyl	4-(N-methoxy-N-methyl-amino)-phenyl
990.	2-fluoroethyl	4-(methoxyamino)-phenyl

No.	R ¹	Ar
991.	2-fluoroethyl	4-(ethoxyamino)-phenyl
992.	2-fluoroethyl	4-(N-methylaminoxy)-phenyl
993.	2-fluoroethyl	4-(N,N-dimethylaminoxy)-phenyl
994.	2-fluoroethyl	4-(azetidin-1-yl)-phenyl
995.	2-fluoroethyl	4-(2-methylazetidin-1-yl)-phenyl
996.	2-fluoroethyl	4-((S)-2-methylazetidin-1-yl)-phenyl
997.	2-fluoroethyl	4-((R)-2-methylazetidin-1-yl)-phenyl
998.	2-fluoroethyl	4-(3-fluoroazetidin-1-yl)-phenyl
999.	2-fluoroethyl	4-(3-methoxyazetidin-1-yl)-phenyl
1000.	2-fluoroethyl	4-(3-hydroxyazetidin-1-yl)-phenyl
1001.	2-fluoroethyl	4-(pyrrolidin-1-yl)-phenyl
1002.	2-fluoroethyl	4-(pyrrolidin-2-yl)-phenyl
1003.	2-fluoroethyl	4-((S)-pyrrolidin-2-yl)-phenyl
1004.	2-fluoroethyl	4-((R)-pyrrolidin-2-yl)-phenyl
1005.	2-fluoroethyl	4-(pyrrolidin-3-yl)-phenyl
1006.	2-fluoroethyl	4-((S)-pyrrolidin-3-yl)-phenyl
1007.	2-fluoroethyl	4-((R)-pyrrolidin-3-yl)-phenyl
1008.	2-fluoroethyl	4-(2-fluoropyrrolidin-1-yl)-phenyl
1009.	2-fluoroethyl	4-((S)-2-fluoropyrrolidin-1-yl)-phenyl
1010.	2-fluoroethyl	4-((R)-2-fluoropyrrolidin-1-yl)-phenyl
1011.	2-fluoroethyl	4-(3-fluoropyrrolidin-1-yl)-phenyl
1012.	2-fluoroethyl	4-((S)-3-fluoropyrrolidin-1-yl)-phenyl
1013.	2-fluoroethyl	4-((R)-3-fluoropyrrolidin-1-yl)-phenyl
1014.	2-fluoroethyl	4-(2,2-difluoropyrrolidin-1-yl)-phenyl
1015.	2-fluoroethyl	4-(3,3-difluoropyrrolidin-1-yl)-phenyl
1016.	2-fluoroethyl	4-(2-methylpyrrolidin-1-yl)-phenyl
1017.	2-fluoroethyl	4-((S)-2-methylpyrrolidin-1-yl)-phenyl
1018.	2-fluoroethyl	4-((R)-2-methylpyrrolidin-1-yl)-phenyl
1019.	2-fluoroethyl	4-(3-methylpyrrolidin-1-yl)-phenyl
1020.	2-fluoroethyl	4-((S)-3-methylpyrrolidin-1-yl)-phenyl
1021.	2-fluoroethyl	4-((R)-3-methylpyrrolidin-1-yl)-phenyl
1022.	2-fluoroethyl	4-(1-methylpyrrolidin-2-yl)-phenyl
1023.	2-fluoroethyl	4-((S)-1-methylpyrrolidin-2-yl)-phenyl
1024.	2-fluoroethyl	4-((R)-1-methylpyrrolidin-2-yl)-phenyl

NO.	R'	Ar
1025.	2-fluoroethyl	4-(1-methylpyrrolidin-3-yl)-phenyl
1026.	2-fluoroethyl	4-((S)-1-methylpyrrolidin-3-yl)-phenyl
1027.	2-fluoroethyl	4-((R)-1-methylpyrrolidin-3-yl)-phenyl
1028.	2-fluoroethyl	4-(2,2-dimethylpyrrolidin-1-yl)-phenyl
1029.	2-fluoroethyl	4-(3,3-dimethylpyrrolidin-1-yl)-phenyl
1030.	2-fluoroethyl	4-(2-trifluoromethylpyrrolidin-1-yl)-phenyl
1031.	2-fluoroethyl	4-((S)-2-trifluoromethylpyrrolidin-1-yl)-phenyl
1032.	2-fluoroethyl	4-((R)-2-trifluoromethylpyrrolidin-1-yl)-phenyl
1033.	2-fluoroethyl	4-(3-trifluoromethylpyrrolidin-1-yl)-phenyl
1034.	2-fluoroethyl	4-((S)-3-trifluoromethylpyrrolidin-1-yl)-phenyl
1035.	2-fluoroethyl	4-((R)-3-trifluoromethylpyrrolidin-1-yl)-phenyl
1036.	2-fluoroethyl	4-(2-oxopyrrolidin-1-yl)-phenyl
1037.	2-fluoroethyl	4-(2-oxo-oxazolidin-3-yl)-phenyl
1038.	2-fluoroethyl	4-(piperidin-1-yl)-phenyl
1039.	2-fluoroethyl	4-(2-methylpiperidin-1-yl)-phenyl
1040.	2-fluoroethyl	4-((S)-2-methylpiperidin-1-yl)-phenyl
1041.	2-fluoroethyl	4-((R)-2-methylpiperidin-1-yl)-phenyl
1042.	2-fluoroethyl	4-(piperazin-1-yl)-phenyl
1043.	2-fluoroethyl	4-(4-methylpiperazin-1-yl)-phenyl
1044.	2-fluoroethyl	4-(morpholin-4-yl)-phenyl
1045.	2-fluoroethyl	4-(thiomorpholin-4-yl)-phenyl
1046.	2-fluoroethyl	4-(1-oxo-thiomorpholin-4-yl)-phenyl
1047.	2-fluoroethyl	4-(1,1-dioxo-thiomorpholin-4-yl)-phenyl
1048.	2-fluoroethyl	4-(pyrrol-1-yl)-phenyl
1049.	2-fluoroethyl	4-(pyrrol-2-yl)-phenyl
1050.	2-fluoroethyl	4-(pyrrol-3-yl)-phenyl
1051.	2-fluoroethyl	4-(1-methylpyrrol-2-yl)-phenyl
1052.	2-fluoroethyl	4-(1-methylpyrrol-3-yl)-phenyl
1053.	2-fluoroethyl	4-(furan-2-yl)-phenyl
1054.	2-fluoroethyl	4-(furan-3-yl)-phenyl
1055.	2-fluoroethyl	4-(thiophen-2-yl)-phenyl
1056.	2-fluoroethyl	4-(thiophen-3-yl)-phenyl
1057.	2-fluoroethyl	4-(5-propylthien-2-yl)-phenyl
1058.	2-fluoroethyl	4-(pyrazol-1-yl)-phenyl

No.	R ¹	Ar
1059.	2-fluoroethyl	4-(pyrazol-3-yl)-phenyl
1060.	2-fluoroethyl	4-(pyrazol-4-yl)-phenyl
1061.	2-fluoroethyl	4-(1-methyl-1H-pyrazol-4-yl)-phenyl
1062.	2-fluoroethyl	4-(1-ethyl-1H-pyrazol-4-yl)-phenyl
1063.	2-fluoroethyl	4-(1-methyl-1H-pyrazol-5-yl)-phenyl
1064.	2-fluoroethyl	4-(1H-imidazol-2-yl)-phenyl
1065.	2-fluoroethyl	4-(imidazol-1-yl)-phenyl
1066.	2-fluoroethyl	4-(1-methylimidazol-2-yl)-phenyl
1067.	2-fluoroethyl	4-(oxazol-2-yl)-phenyl
1068.	2-fluoroethyl	4-(oxazol-4-yl)-phenyl
1069.	2-fluoroethyl	4-(oxazol-5-yl)-phenyl
1070.	2-fluoroethyl	4-(isoxazol-3-yl)-phenyl
1071.	2-fluoroethyl	4-(isoxazol-4-yl)-phenyl
1072.	2-fluoroethyl	4-(isoxazol-5-yl)-phenyl
1073.	2-fluoroethyl	4-([1,2,3]-triazol-1-yl)-phenyl
1074.	2-fluoroethyl	4-([1,2,4]-triazol-1-yl)-phenyl
1075.	2-fluoroethyl	4-([1,2,3]-triazol-2-yl)-phenyl
1076.	2-fluoroethyl	4-(4H-[1,2,4]-triazol-3-yl)-phenyl
1077.	2-fluoroethyl	4-([1,2,4]-triazol-4-yl)-phenyl
1078.	2-fluoroethyl	4-(2H-[1,2,3]-triazol-4-yl)-phenyl
1079.	2-fluoroethyl	4-(4-methyl-4H-[1,2,4]-triazol-3-yl)-phenyl
1080.	2-fluoroethyl	4-(2-methyl-2H-[1,2,3]-triazol-4-yl)-phenyl
1081.	2-fluoroethyl	4-([1,3,4]-oxadiazol-2-yl)-phenyl
1082.	2-fluoroethyl	4-([1,2,4]-oxadiazol-3-yl)-phenyl
1083.	2-fluoroethyl	4-([1,2,4]-oxadiazol-5-yl)-phenyl
1084.	2-fluoroethyl	4-([1,2,3]-oxadiazol-4-yl)-phenyl
1085.	2-fluoroethyl	4-([1,2,3]-oxadiazol-5-yl)-phenyl
1086.	2-fluoroethyl	4-([1,2,3]-thiadiazol-4-yl)-phenyl
1087.	2-fluoroethyl	4-(1H-tetrazol-5-yl)-phenyl
1088.	2-fluoroethyl	4-(tetrazol-1-yl)-phenyl
1089.	2-fluoroethyl	4-(2-methyl-2H-tetrazol-5-yl)-phenyl
1090.	2-fluoroethyl	4-(1-methyl-1H-tetrazol-5-yl)-phenyl
1091.	2-fluoroethyl	4-furazan-3-yl-phenyl
1092.	2-fluoroethyl	4-(pyrid-2-yl)-phenyl

No.	R ¹	Ar
1093.	2-fluoroethyl	4-(pyrid-3-yl)-phenyl
1094.	2-fluoroethyl	4-(pyrid-4-yl)-phenyl
1095.	2-fluoroethyl	4-(pyrimidin-2-yl)-phenyl
1096.	2-fluoroethyl	4-(pyrimidin-4-yl)-phenyl
1097.	2-fluoroethyl	4-(pyrimidin-5-yl)-phenyl
1098.	2-fluoroethyl	5-isopropylthiophen-2-yl
1099.	2-fluoroethyl	2-chlorothiophen-5-yl
1100.	2-fluoroethyl	2,5-dichlorothiophen-4-yl
1101.	2-fluoroethyl	2,3-dichlorothiophen-5-yl
1102.	2-fluoroethyl	2-chloro-3-nitrothiophen-5-yl
1103.	2-fluoroethyl	2-(phenylsulfonyl)-thiophen-5-yl
1104.	2-fluoroethyl	2-(pyridin-2-yl)thiophen-5-yl
1105.	2-fluoroethyl	2-(5-(trifluoromethyl)isoxazol-3-yl)-thiophen-5-yl
1106.	2-fluoroethyl	2-(2-methylthiazol-4-yl)-thiophen-5-yl
1107.	2-fluoroethyl	1-methyl-1H-imidazol-4-yl
1108.	2-fluoroethyl	1,2-dimethyl-1H-imidazol-4-yl
1109.	2-fluoroethyl	3,5-dimethylisoxazol-4-yl
1110.	2-fluoroethyl	thiazol-2-yl
1111.	2-fluoroethyl	4-methylthiazol-2-yl
1112.	2-fluoroethyl	4-isopropylthiazol-2-yl
1113.	2-fluoroethyl	4-trifluoromethylthiazol-2-yl
1114.	2-fluoroethyl	5-methylthiazol-2-yl
1115.	2-fluoroethyl	5-isopropylthiazol-2-yl
1116.	2-fluoroethyl	5-trifluoromethylthiazol-2-yl
1117.	2-fluoroethyl	2,4-dimethylthiazol-5-yl
1118.	2-fluoroethyl	2-acetamido-4-methylthiazol-5-yl
1119.	2-fluoroethyl	4H-[1,2,4]triazol-3-yl
1120.	2-fluoroethyl	5-methyl-4H-[1,2,4]triazol-3-yl
1121.	2-fluoroethyl	4-methyl-4H-[1,2,4]triazol-3-yl
1122.	2-fluoroethyl	5-isopropyl-4H-[1,2,4]triazol-3-yl
1123.	2-fluoroethyl	5-trifluoromethyl-4H-[1,2,4]triazol-3-yl
1124.	2-fluoroethyl	4,5-dimethyl-4H-[1,2,4]triazol-3-yl
1125.	2-fluoroethyl	5-isopropyl-4-methyl-4H-[1,2,4]triazol-3-yl
1126.	2-fluoroethyl	5-trifluoromethyl-4-methyl-4H-[1,2,4]triazol-3-yl

No.	R ¹	Ar
1127.	2-fluoroethyl	[1,3,4]thiadiazol-2-yl
1128.	2-fluoroethyl	5-methyl-[1,3,4]thiadiazol-2-yl
1129.	2-fluoroethyl	5-isopropyl-[1,3,4]thiadiazol-2-yl
1130.	2-fluoroethyl	5-trifluoromethyl-[1,3,4]thiadiazol-2-yl
1131.	2-fluoroethyl	3-bromo-2-chloropyrid-5-yl
1132.	2-fluoroethyl	2-(4-morpholino)-pyrid-5-yl
1133.	2-fluoroethyl	2-phenoxy-pyrid-5-yl
1134.	2-fluoroethyl	(2-isopropyl)-pyrimidin-5-yl
1135.	2-fluoroethyl	(5-isopropyl)-pyrimidin-2-yl
1136.	2-fluoroethyl	8-quinolyl
1137.	2-fluoroethyl	5-isoquinolyl
1138.	2-fluoroethyl	2-(2,2,2-trifluoroacetyl)-1,2,3,4-tetrahydroisoquinolin-7-yl
1139.	2-fluoroethyl	5-chloro-3-methylbenzothiophen-2-yl
1140.	2-fluoroethyl	3,4-dihydro-4-methyl-2H-benzo[b][1,4]oxazinyl
1141.	2-fluoroethyl	benzothiazol-6-yl
1142.	2-fluoroethyl	benzo[2,1,3]oxadiazol-4-yl
1143.	2-fluoroethyl	5-chlorobenzo[1,2,5]oxadiazolyl
1144.	2-fluoroethyl	7-chlorobenzo[2,1,3]oxadiazol-4-yl
1145.	2-fluoroethyl	benzo[2,1,3]thiadiazol-4-yl
1146.	cyclopropylmethyl	4-ethylphenyl
1147.	cyclopropylmethyl	4-propylphenyl
1148.	cyclopropylmethyl	4-isopropylphenyl
1149.	cyclopropylmethyl	4-sec-butylphenyl
1150.	cyclopropylmethyl	4-isobutylphenyl
1151.	cyclopropylmethyl	4-(1,1-dimethylpropyl)-phenyl
1152.	cyclopropylmethyl	4-vinylphenyl
1153.	cyclopropylmethyl	4-isopropenylphenyl
1154.	cyclopropylmethyl	4-(fluoromethyl)phenyl
1155.	cyclopropylmethyl	3-(fluoromethyl)phenyl
1156.	cyclopropylmethyl	2-(fluoromethyl)phenyl
1157.	cyclopropylmethyl	4-(difluoromethyl)phenyl
1158.	cyclopropylmethyl	3-(difluoromethyl)phenyl
1159.	cyclopropylmethyl	2-(difluoromethyl)phenyl
1160.	cyclopropylmethyl	4-(trifluoromethyl)phenyl

No.	R ¹	Ar
1161.	cyclopropylmethyl	3-(trifluoromethyl)phenyl
1162.	cyclopropylmethyl	2-(trifluoromethyl)phenyl
1163.	cyclopropylmethyl	4-(1-fluoroethyl)-phenyl
1164.	cyclopropylmethyl	4-((S)-1-fluoroethyl)-phenyl
1165.	cyclopropylmethyl	4-((R)-1-fluoroethyl)-phenyl
1166.	cyclopropylmethyl	4-(2-fluoroethyl)-phenyl
1167.	cyclopropylmethyl	4-(1,1-difluoroethyl)-phenyl
1168.	cyclopropylmethyl	4-(2,2-difluoroethyl)-phenyl
1169.	cyclopropylmethyl	4-(2,2,2-trifluoroethyl)-phenyl
1170.	cyclopropylmethyl	4-(3-fluoropropyl)-phenyl
1171.	cyclopropylmethyl	4-(2-fluoropropyl)-phenyl
1172.	cyclopropylmethyl	4-((S)-2-fluoropropyl)-phenyl
1173.	cyclopropylmethyl	4-((R)-2-fluoropropyl)-phenyl
1174.	cyclopropylmethyl	4-(3,3-difluoropropyl)-phenyl
1175.	cyclopropylmethyl	4-(3,3,3-trifluoropropyl)-phenyl
1176.	cyclopropylmethyl	4-(1-fluoro-1-methylethyl)-phenyl
1177.	cyclopropylmethyl	4-(2-fluoro-1-methylethyl)-phenyl
1178.	cyclopropylmethyl	4-((S)-2-fluoro-1-methylethyl)-phenyl
1179.	cyclopropylmethyl	4-((R)-2-fluoro-1-methylethyl)-phenyl
1180.	cyclopropylmethyl	4-(2,2-difluoro-1-methylethyl)-phenyl
1181.	cyclopropylmethyl	4-((S)-2,2-difluoro-1-methylethyl)-phenyl
1182.	cyclopropylmethyl	4-((R)-2,2-difluoro-1-methylethyl)-phenyl
1183.	cyclopropylmethyl	4-(2,2,2-trifluoro-1-methylethyl)-phenyl
1184.	cyclopropylmethyl	4-((S)-2,2,2-trifluoro-1-methylethyl)-phenyl
1185.	cyclopropylmethyl	4-((R)-2,2,2-trifluoro-1-methylethyl)-phenyl
1186.	cyclopropylmethyl	4-(2-fluoro-1-fluoromethylethyl)-phenyl
1187.	cyclopropylmethyl	4-(1-difluoromethyl-2,2-difluoroethyl)-phenyl
1188.	cyclopropylmethyl	4-(1,1-dimethyl-2-fluoroethyl)-phenyl
1189.	cyclopropylmethyl	4-ethoxyphenyl
1190.	cyclopropylmethyl	4-propoxyphenyl
1191.	cyclopropylmethyl	4-isopropoxyphenyl
1192.	cyclopropylmethyl	4-butoxyphenyl
1193.	cyclopropylmethyl	4-(fluoromethoxy)-phenyl
1194.	cyclopropylmethyl	4-(difluoromethoxy)-phenyl

No.	R ¹	Ar
1195.	cyclopropylmethyl	4-(2-fluoroethoxy)-phenyl
1196.	cyclopropylmethyl	4-(2,2-difluoroethoxy)-phenyl
1197.	cyclopropylmethyl	4-(2,2,2-trifluoroethoxy)-phenyl
1198.	cyclopropylmethyl	4-(1,1,2,2-tetrafluoroethoxy)-phenyl
1199.	cyclopropylmethyl	4-cyclopropylphenyl
1200.	cyclopropylmethyl	4-cyclobutylphenyl
1201.	cyclopropylmethyl	4-cyclopentylphenyl
1202.	cyclopropylmethyl	4-(2,2-difluorocyclopropyl)-phenyl
1203.	cyclopropylmethyl	2-fluoro-4-isopropylphenyl
1204.	cyclopropylmethyl	3-fluoro-4-isopropylphenyl
1205.	cyclopropylmethyl	4-(1-hydroxy-1-methylethyl)-phenyl
1206.	cyclopropylmethyl	4-(2-hydroxy-2-methylpropyl)-phenyl
1207.	cyclopropylmethyl	4-acetylphenyl
1208.	cyclopropylmethyl	4-carboxyphenyl
1209.	cyclopropylmethyl	4-(O-benzyl)-phenyl
1210.	cyclopropylmethyl	4-(2-methoxyethoxy)-phenyl
1211.	cyclopropylmethyl	4-(CH ₂ -N(CH ₃) ₂)-phenyl
1212.	cyclopropylmethyl	4-(NH-CO-NH ₂)-phenyl
1213.	cyclopropylmethyl	4-(methylsulfanyl)-phenyl
1214.	cyclopropylmethyl	4-(fluoromethylsulfanyl)-phenyl
1215.	cyclopropylmethyl	4-(difluoromethylsulfanyl)-phenyl
1216.	cyclopropylmethyl	4-(trifluoromethylsulfanyl)-phenyl
1217.	cyclopropylmethyl	4-(methylsulfonyl)-phenyl
1218.	cyclopropylmethyl	4-(N-methoxy-N-methyl-amino)-phenyl
1219.	cyclopropylmethyl	4-(methoxyamino)-phenyl
1220.	cyclopropylmethyl	4-(ethoxyamino)-phenyl
1221.	cyclopropylmethyl	4-(N-methylaminooxy)-phenyl
1222.	cyclopropylmethyl	4-(N,N-dimethylaminooxy)-phenyl
1223.	cyclopropylmethyl	4-(azetidin-1-yl)-phenyl
1224.	cyclopropylmethyl	4-(2-methylazetidin-1-yl)-phenyl
1225.	cyclopropylmethyl	4-((S)-2-methylazetidin-1-yl)-phenyl
1226.	cyclopropylmethyl	4-((R)-2-methylazetidin-1-yl)-phenyl
1227.	cyclopropylmethyl	4-(3-fluoroazetidin-1-yl)-phenyl
1228.	cyclopropylmethyl	4-(3-methoxyazetidin-1-yl)-phenyl

No.	R ¹	Ar
1229.	cyclopropylmethyl	4-(3-hydroxyazetidin-1-yl)-phenyl
1230.	cyclopropylmethyl	4-(pyrrolidin-1-yl)-phenyl
1231.	cyclopropylmethyl	4-(pyrrolidin-2-yl)-phenyl
1232.	cyclopropylmethyl	4-((S)-pyrrolidin-2-yl)-phenyl
1233.	cyclopropylmethyl	4-((R)-pyrrolidin-2-yl)-phenyl
1234.	cyclopropylmethyl	4-(pyrrolidin-3-yl)-phenyl
1235.	cyclopropylmethyl	4-((S)-pyrrolidin-3-yl)-phenyl
1236.	cyclopropylmethyl	4-((R)-pyrrolidin-3-yl)-phenyl
1237.	cyclopropylmethyl	4-(2-fluoropyrrolidin-1-yl)-phenyl
1238.	cyclopropylmethyl	4-((S)-2-fluoropyrrolidin-1-yl)-phenyl
1239.	cyclopropylmethyl	4-((R)-2-fluoropyrrolidin-1-yl)-phenyl
1240.	cyclopropylmethyl	4-(3-fluoropyrrolidin-1-yl)-phenyl
1241.	cyclopropylmethyl	4-((S)-3-fluoropyrrolidin-1-yl)-phenyl
1242.	cyclopropylmethyl	4-((R)-3-fluoropyrrolidin-1-yl)-phenyl
1243.	cyclopropylmethyl	4-(2,2-difluoropyrrolidin-1-yl)-phenyl
1244.	cyclopropylmethyl	4-(3,3-difluoropyrrolidin-1-yl)-phenyl
1245.	cyclopropylmethyl	4-(2-methylpyrrolidin-1-yl)-phenyl
1246.	cyclopropylmethyl	4-((S)-2-methylpyrrolidin-1-yl)-phenyl
1247.	cyclopropylmethyl	4-((R)-2-methylpyrrolidin-1-yl)-phenyl
1248.	cyclopropylmethyl	4-(3-methylpyrrolidin-1-yl)-phenyl
1249.	cyclopropylmethyl	4-((S)-3-methylpyrrolidin-1-yl)-phenyl
1250.	cyclopropylmethyl	4-((R)-3-methylpyrrolidin-1-yl)-phenyl
1251.	cyclopropylmethyl	4-(1-methylpyrrolidin-2-yl)-phenyl
1252.	cyclopropylmethyl	4-((S)-1-methylpyrrolidin-2-yl)-phenyl
1253.	cyclopropylmethyl	4-((R)-1-methylpyrrolidin-2-yl)-phenyl
1254.	cyclopropylmethyl	4-(1-methylpyrrolidin-3-yl)-phenyl
1255.	cyclopropylmethyl	4-((S)-1-methylpyrrolidin-3-yl)-phenyl
1256.	cyclopropylmethyl	4-((R)-1-methylpyrrolidin-3-yl)-phenyl
1257.	cyclopropylmethyl	4-(2,2-dimethylpyrrolidin-1-yl)-phenyl
1258.	cyclopropylmethyl	4-(3,3-dimethylpyrrolidin-1-yl)-phenyl
1259.	cyclopropylmethyl	4-(2-trifluoromethylpyrrolidin-1-yl)-phenyl
1260.	cyclopropylmethyl	4-((S)-2-trifluoromethylpyrrolidin-1-yl)-phenyl
1261.	cyclopropylmethyl	4-((R)-2-trifluoromethylpyrrolidin-1-yl)-phenyl
1262.	cyclopropylmethyl	4-(3-trifluoromethylpyrrolidin-1-yl)-phenyl

No.	R ¹	Ar
1263.	cyclopropylmethyl	4-((S)-3-trifluoromethylpyrrolidin-1-yl)-phenyl
1264.	cyclopropylmethyl	4-((R)-3-trifluoromethylpyrrolidin-1-yl)-phenyl
1265.	cyclopropylmethyl	4-(2-oxopyrrolidin-1-yl)-phenyl
1266.	cyclopropylmethyl	4-(2-oxo-oxazolidin-3-yl)-phenyl
1267.	cyclopropylmethyl	4-(piperidin-1-yl)-phenyl
1268.	cyclopropylmethyl	4-(2-methylpiperidin-1-yl)-phenyl
1269.	cyclopropylmethyl	4-((S)-2-methylpiperidin-1-yl)-phenyl
1270.	cyclopropylmethyl	4-((R)-2-methylpiperidin-1-yl)-phenyl
1271.	cyclopropylmethyl	4-(piperazin-1-yl)-phenyl
1272.	cyclopropylmethyl	4-(4-methylpiperazin-1-yl)-phenyl
1273.	cyclopropylmethyl	4-(morpholin-4-yl)-phenyl
1274.	cyclopropylmethyl	4-(thiomorpholin-4-yl)-phenyl
1275.	cyclopropylmethyl	4-(1-oxo-thiomorpholin-4-yl)-phenyl
1276.	cyclopropylmethyl	4-(1,1-dioxo-thiomorpholin-4-yl)-phenyl
1277.	cyclopropylmethyl	4-(pyrrol-1-yl)-phenyl
1278.	cyclopropylmethyl	4-(pyrrol-2-yl)-phenyl
1279.	cyclopropylmethyl	4-(pyrrol-3-yl)-phenyl
1280.	cyclopropylmethyl	4-(1-methylpyrrol-2-yl)-phenyl
1281.	cyclopropylmethyl	4-(1-methylpyrrol-3-yl)-phenyl
1282.	cyclopropylmethyl	4-(furan-2-yl)-phenyl
1283.	cyclopropylmethyl	4-(furan-3-yl)-phenyl
1284.	cyclopropylmethyl	4-(thiophen-2-yl)-phenyl
1285.	cyclopropylmethyl	4-(thiophen-3-yl)-phenyl
1286.	cyclopropylmethyl	4-(5-propylthien-2-yl)-phenyl
1287.	cyclopropylmethyl	4-(pyrazol-1-yl)-phenyl
1288.	cyclopropylmethyl	4-(pyrazol-3-yl)-phenyl
1289.	cyclopropylmethyl	4-(pyrazol-4-yl)-phenyl
1290.	cyclopropylmethyl	4-(1-methyl-1H-pyrazol-4-yl)-phenyl
1291.	cyclopropylmethyl	4-(1-ethyl-1H-pyrazol-4-yl)-phenyl
1292.	cyclopropylmethyl	4-(1-methyl-1H-pyrazol-5-yl)-phenyl
1293.	cyclopropylmethyl	4-(1H-imidazol-2-yl)-phenyl
1294.	cyclopropylmethyl	4-(imidazol-1-yl)-phenyl
1295.	cyclopropylmethyl	4-(1-methylimidazol-2-yl)-phenyl
1296.	cyclopropylmethyl	4-(oxazol-2-yl)-phenyl

No.	R ¹	Ar
1297.	cyclopropylmethyl	4-(oxazol-4-yl)-phenyl
1298.	cyclopropylmethyl	4-(oxazol-5-yl)-phenyl
1299.	cyclopropylmethyl	4-(isoxazol-3-yl)-phenyl
1300.	cyclopropylmethyl	4-(isoxazol-4-yl)-phenyl
1301.	cyclopropylmethyl	4-(isoxazol-5-yl)-phenyl
1302.	cyclopropylmethyl	4-([1,2,3]-triazol-1-yl)-phenyl
1303.	cyclopropylmethyl	4-([1,2,4]-triazol-1-yl)-phenyl
1304.	cyclopropylmethyl	4-([1,2,3]-triazol-2-yl)-phenyl
1305.	cyclopropylmethyl	4-(4H-[1,2,4]-triazol-3-yl)-phenyl
1306.	cyclopropylmethyl	4-([1,2,4]-triazol-4-yl)-phenyl
1307.	cyclopropylmethyl	4-(2H-[1,2,3]-triazol-4-yl)-phenyl
1308.	cyclopropylmethyl	4-(4-methyl-4H-[1,2,4]-triazol-3-yl)-phenyl
1309.	cyclopropylmethyl	4-(2-methyl-2H-[1,2,3]-triazol-4-yl)-phenyl
1310.	cyclopropylmethyl	4-([1,3,4]-oxadiazol-2-yl)-phenyl
1311.	cyclopropylmethyl	4-([1,2,4]-oxadiazol-3-yl)-phenyl
1312.	cyclopropylmethyl	4-([1,2,4]-oxadiazol-5-yl)-phenyl
1313.	cyclopropylmethyl	4-([1,2,3]-oxadiazol-4-yl)-phenyl
1314.	cyclopropylmethyl	4-([1,2,3]-oxadiazol-5-yl)-phenyl
1315.	cyclopropylmethyl	4-([1,2,3]-thiadiazol-4-yl)-phenyl
1316.	cyclopropylmethyl	4-(1H-tetrazol-5-yl)-phenyl
1317.	cyclopropylmethyl	4-(tetrazol-1-yl)-phenyl
1318.	cyclopropylmethyl	4-(2-methyl-2H-tetrazol-5-yl)-phenyl
1319.	cyclopropylmethyl	4-(1-methyl-1H-tetrazol-5-yl)-phenyl
1320.	cyclopropylmethyl	4-furazan-3-yl-phenyl
1321.	cyclopropylmethyl	4-(pyrid-2-yl)-phenyl
1322.	cyclopropylmethyl	4-(pyrid-3-yl)-phenyl
1323.	cyclopropylmethyl	4-(pyrid-4-yl)-phenyl
1324.	cyclopropylmethyl	4-(pyrimidin-2-yl)-phenyl
1325.	cyclopropylmethyl	4-(pyrimidin-4-yl)-phenyl
1326.	cyclopropylmethyl	4-(pyrimidin-5-yl)-phenyl
1327.	cyclopropylmethyl	5-isopropylthiophen-2-yl
1328.	cyclopropylmethyl	2-chlorothiophen-5-yl
1329.	cyclopropylmethyl	2,5-dichlorothiophen-4-yl
1330.	cyclopropylmethyl	2,3-dichlorothiophen-5-yl

No.	R ¹	Ar
1331.	cyclopropylmethyl	2-chloro-3-nitrothiophen-5-yl
1332.	cyclopropylmethyl	2-(phenylsulfonyl)-thiophen-5-yl
1333.	cyclopropylmethyl	2-(pyridin-2-yl)thiophen-5-yl
1334.	cyclopropylmethyl	2-(5-(trifluoromethyl)isoxazol-3-yl)-thiophen-5-yl
1335.	cyclopropylmethyl	2-(2-methylthiazol-4-yl)-thiophen-5-yl
1336.	cyclopropylmethyl	1-methyl-1H-imidazol-4-yl
1337.	cyclopropylmethyl	1,2-dimethyl-1H-imidazol-4-yl
1338.	cyclopropylmethyl	3,5-dimethylisoxazol-4-yl
1339.	cyclopropylmethyl	thiazol-2-yl
1340.	cyclopropylmethyl	4-methylthiazol-2-yl
1341.	cyclopropylmethyl	4-isopropylthiazol-2-yl
1342.	cyclopropylmethyl	4-trifluoromethylthiazol-2-yl
1343.	cyclopropylmethyl	5-methylthiazol-2-yl
1344.	cyclopropylmethyl	5-isopropylthiazol-2-yl
1345.	cyclopropylmethyl	5-trifluoromethylthiazol-2-yl
1346.	cyclopropylmethyl	2,4-dimethylthiazol-5-yl
1347.	cyclopropylmethyl	2-acetamido-4-methylthiazol-5-yl
1348.	cyclopropylmethyl	4H-[1,2,4]triazol-3-yl
1349.	cyclopropylmethyl	5-methyl-4H-[1,2,4]triazol-3-yl
1350.	cyclopropylmethyl	4-methyl-4H-[1,2,4]triazol-3-yl
1351.	cyclopropylmethyl	5-isopropyl-4H-[1,2,4]triazol-3-yl
1352.	cyclopropylmethyl	5-trifluoromethyl-4H-[1,2,4]triazol-3-yl
1353.	cyclopropylmethyl	4,5-dimethyl-4H-[1,2,4]triazol-3-yl
1354.	cyclopropylmethyl	5-isopropyl-4-methyl-4H-[1,2,4]triazol-3-yl
1355.	cyclopropylmethyl	5-trifluoromethyl-4-methyl-4H-[1,2,4]triazol-3-yl
1356.	cyclopropylmethyl	[1,3,4]thiadiazol-2-yl
1357.	cyclopropylmethyl	5-methyl-[1,3,4]thiadiazol-2-yl
1358.	cyclopropylmethyl	5-isopropyl-[1,3,4]thiadiazol-2-yl
1359.	cyclopropylmethyl	5-trifluoromethyl-[1,3,4]thiadiazol-2-yl
1360.	cyclopropylmethyl	3-bromo-2-chloropyrid-5-yl
1361.	cyclopropylmethyl	2-(4-morpholino)-pyrid-5-yl
1362.	cyclopropylmethyl	2-phenoxy-pyrid-5-yl
1363.	cyclopropylmethyl	(2-isopropyl)-pyrimidin-5-yl
1364.	cyclopropylmethyl	(5-isopropyl)-pyrimidin-2-yl

No.	R ¹	Ar
1365.	cyclopropylmethyl	8-quinolyl
1366.	cyclopropylmethyl	5-isoquinolyl
1367.	cyclopropylmethyl	2-(2,2,2-trifluoroacetyl)-1,2,3,4-tetrahydroisoquinolin-7-yl
1368.	cyclopropylmethyl	5-chloro-3-methylbenzothiophen-2-yl
1369.	cyclopropylmethyl	3,4-dihydro-4-methyl-2H-benzo[b][1,4]oxazinyl
1370.	cyclopropylmethyl	benzothiazol-6-yl
1371.	cyclopropylmethyl	benzo[2,1,3]oxadiazol-4-yl
1372.	cyclopropylmethyl	5-chlorobenzo[1,2,5]oxadiazolyl
1373.	cyclopropylmethyl	7-chlorobenzo[2,1,3]oxadiazol-4-yl
1374.	cyclopropylmethyl	benzo[2,1,3]thiadiazol-4-yl
1375.	1-propen-3-yl	4-ethylphenyl
1376.	1-propen-3-yl	4-propylphenyl
1377.	1-propen-3-yl	4-isopropylphenyl
1378.	1-propen-3-yl	4-sec-butylphenyl
1379.	1-propen-3-yl	4-isobutylphenyl
1380.	1-propen-3-yl	4-(1,1-dimethylpropyl)-phenyl
1381.	1-propen-3-yl	4-vinylphenyl
1382.	1-propen-3-yl	4-isopropenylphenyl
1383.	1-propen-3-yl	4-(fluoromethyl)phenyl
1384.	1-propen-3-yl	3-(fluoromethyl)phenyl
1385.	1-propen-3-yl	2-(fluoromethyl)phenyl
1386.	1-propen-3-yl	4-(difluoromethyl)phenyl
1387.	1-propen-3-yl	3-(difluoromethyl)phenyl
1388.	1-propen-3-yl	2-(difluoromethyl)phenyl
1389.	1-propen-3-yl	4-(trifluoromethyl)phenyl
1390.	1-propen-3-yl	3-(trifluoromethyl)phenyl
1391.	1-propen-3-yl	2-(trifluoromethyl)phenyl
1392.	1-propen-3-yl	4-(1-fluoroethyl)-phenyl
1393.	1-propen-3-yl	4-((S)-1-fluoroethyl)-phenyl
1394.	1-propen-3-yl	4-((R)-1-fluoroethyl)-phenyl
1395.	1-propen-3-yl	4-(2-fluoroethyl)-phenyl
1396.	1-propen-3-yl	4-(1,1-difluoroethyl)-phenyl
1397.	1-propen-3-yl	4-(2,2-difluoroethyl)-phenyl
1398.	1-propen-3-yl	4-(2,2,2-trifluoroethyl)-phenyl

No.	R ¹	Ar
1399.	1-propen-3-yl	4-(3-fluoropropyl)-phenyl
1400.	1-propen-3-yl	4-(2-fluoropropyl)-phenyl
1401.	1-propen-3-yl	4-((S)-2-fluoropropyl)-phenyl
1402.	1-propen-3-yl	4-((R)-2-fluoropropyl)-phenyl
1403.	1-propen-3-yl	4-(3,3-difluoropropyl)-phenyl
1404.	1-propen-3-yl	4-(3,3,3-trifluoropropyl)-phenyl
1405.	1-propen-3-yl	4-(1-fluoro-1-methylethyl)-phenyl
1406.	1-propen-3-yl	4-(2-fluoro-1-methylethyl)-phenyl
1407.	1-propen-3-yl	4-((S)-2-fluoro-1-methylethyl)-phenyl
1408.	1-propen-3-yl	4-((R)-2-fluoro-1-methylethyl)-phenyl
1409.	1-propen-3-yl	4-(2,2-difluoro-1-methylethyl)-phenyl
1410.	1-propen-3-yl	4-((S)-2,2-difluoro-1-methylethyl)-phenyl
1411.	1-propen-3-yl	4-((R)-2,2-difluoro-1-methylethyl)-phenyl
1412.	1-propen-3-yl	4-(2,2,2-trifluoro-1-methylethyl)-phenyl
1413.	1-propen-3-yl	4-((S)-2,2,2-trifluoro-1-methylethyl)-phenyl
1414.	1-propen-3-yl	4-((R)-2,2,2-trifluoro-1-methylethyl)-phenyl
1415.	1-propen-3-yl	4-(2-fluoro-1-fluoromethylethyl)-phenyl
1416.	1-propen-3-yl	4-(1-difluoromethyl-2,2-difluoroethyl)-phenyl
1417.	1-propen-3-yl	4-(1,1-dimethyl-2-fluoroethyl)-phenyl
1418.	1-propen-3-yl	4-ethoxyphenyl
1419.	1-propen-3-yl	4-propoxyphenyl
1420.	1-propen-3-yl	4-isopropoxyphenyl
1421.	1-propen-3-yl	4-butoxyphenyl
1422.	1-propen-3-yl	4-(fluoromethoxy)-phenyl
1423.	1-propen-3-yl	4-(difluoromethoxy)-phenyl
1424.	1-propen-3-yl	4-(2-fluoroethoxy)-phenyl
1425.	1-propen-3-yl	4-(2,2-difluoroethoxy)-phenyl
1426.	1-propen-3-yl	4-(2,2,2-trifluoroethoxy)-phenyl
1427.	1-propen-3-yl	4-(1,1,2,2-tetrafluoroethoxy)-phenyl
1428.	1-propen-3-yl	4-cyclopropylphenyl
1429.	1-propen-3-yl	4-cyclobutylphenyl
1430.	1-propen-3-yl	4-cyclopentylphenyl
1431.	1-propen-3-yl	4-(2,2-difluorocyclopropyl)-phenyl
1432.	1-propen-3-yl	2-fluoro-4-isopropylphenyl

No.	R ¹	Ar
1433.	1-propen-3-yl	3-fluoro-4-isopropylphenyl
1434.	1-propen-3-yl	4-(1-hydroxy-1-methylethyl)-phenyl
1435.	1-propen-3-yl	4-(2-hydroxy-2-methylpropyl)-phenyl
1436.	1-propen-3-yl	4-acetylphenyl
1437.	1-propen-3-yl	4-carboxyphenyl
1438.	1-propen-3-yl	4-(O-benzyl)-phenyl
1439.	1-propen-3-yl	4-(2-methoxyethoxy)-phenyl
1440.	1-propen-3-yl	4-(CH ₂ -N(CH ₃) ₂)-phenyl
1441.	1-propen-3-yl	4-(NH-CO-NH ₂)-phenyl
1442.	1-propen-3-yl	4-(methylsulfanyl)-phenyl
1443.	1-propen-3-yl	4-(fluoromethylsulfanyl)-phenyl
1444.	1-propen-3-yl	4-(difluoromethylsulfanyl)-phenyl
1445.	1-propen-3-yl	4-(trifluoromethylsulfanyl)-phenyl
1446.	1-propen-3-yl	4-(methylsulfonyl)-phenyl
1447.	1-propen-3-yl	4-(N-methoxy-N-methyl-amino)-phenyl
1448.	1-propen-3-yl	4-(methoxyamino)-phenyl
1449.	1-propen-3-yl	4-(ethoxyamino)-phenyl
1450.	1-propen-3-yl	4-(N-methylaminooxy)-phenyl
1451.	1-propen-3-yl	4-(N,N-dimethylaminooxy)-phenyl
1452.	1-propen-3-yl	4-(azetidin-1-yl)-phenyl
1453.	1-propen-3-yl	4-(2-methylazetidin-1-yl)-phenyl
1454.	1-propen-3-yl	4-((S)-2-methylazetidin-1-yl)-phenyl
1455.	1-propen-3-yl	4-((R)-2-methylazetidin-1-yl)-phenyl
1456.	1-propen-3-yl	4-(3-fluoroazetidin-1-yl)-phenyl
1457.	1-propen-3-yl	4-(3-methoxyazetidin-1-yl)-phenyl
1458.	1-propen-3-yl	4-(3-hydroxyazetidin-1-yl)-phenyl
1459.	1-propen-3-yl	4-(pyrrolidin-1-yl)-phenyl
1460.	1-propen-3-yl	4-(pyrrolidin-2-yl)-phenyl
1461.	1-propen-3-yl	4-((S)-pyrrolidin-2-yl)-phenyl
1462.	1-propen-3-yl	4-((R)-pyrrolidin-2-yl)-phenyl
1463.	1-propen-3-yl	4-(pyrrolidin-3-yl)-phenyl
1464.	1-propen-3-yl	4-((S)-pyrrolidin-3-yl)-phenyl
1465.	1-propen-3-yl	4-((R)-pyrrolidin-3-yl)-phenyl
1466.	1-propen-3-yl	4-(2-fluoropyrrolidin-1-yl)-phenyl

No.	R ¹	Ar
1467.	1-propen-3-yl	4-((S)-2-fluoropyrrolidin-1-yl)-phenyl
1468.	1-propen-3-yl	4-((R)-2-fluoropyrrolidin-1-yl)-phenyl
1469.	1-propen-3-yl	4-(3-fluoropyrrolidin-1-yl)-phenyl
1470.	1-propen-3-yl	4-((S)-3-fluoropyrrolidin-1-yl)-phenyl
1471.	1-propen-3-yl	4-((R)-3-fluoropyrrolidin-1-yl)-phenyl
1472.	1-propen-3-yl	4-(2,2-difluoropyrrolidin-1-yl)-phenyl
1473.	1-propen-3-yl	4-(3,3-difluoropyrrolidin-1-yl)-phenyl
1474.	1-propen-3-yl	4-(2-methylpyrrolidin-1-yl)-phenyl
1475.	1-propen-3-yl	4-((S)-2-methylpyrrolidin-1-yl)-phenyl
1476.	1-propen-3-yl	4-((R)-2-methylpyrrolidin-1-yl)-phenyl
1477.	1-propen-3-yl	4-(3-methylpyrrolidin-1-yl)-phenyl
1478.	1-propen-3-yl	4-((S)-3-methylpyrrolidin-1-yl)-phenyl
1479.	1-propen-3-yl	4-((R)-3-methylpyrrolidin-1-yl)-phenyl
1480.	1-propen-3-yl	4-(1-methylpyrrolidin-2-yl)-phenyl
1481.	1-propen-3-yl	4-((S)-1-methylpyrrolidin-2-yl)-phenyl
1482.	1-propen-3-yl	4-((R)-1-methylpyrrolidin-2-yl)-phenyl
1483.	1-propen-3-yl	4-(1-methylpyrrolidin-3-yl)-phenyl
1484.	1-propen-3-yl	4-((S)-1-methylpyrrolidin-3-yl)-phenyl
1485.	1-propen-3-yl	4-((R)-1-methylpyrrolidin-3-yl)-phenyl
1486.	1-propen-3-yl	4-(2,2-dimethylpyrrolidin-1-yl)-phenyl
1487.	1-propen-3-yl	4-(3,3-dimethylpyrrolidin-1-yl)-phenyl
1488.	1-propen-3-yl	4-(2-trifluoromethylpyrrolidin-1-yl)-phenyl
1489.	1-propen-3-yl	4-((S)-2-trifluoromethylpyrrolidin-1-yl)-phenyl
1490.	1-propen-3-yl	4-((R)-2-trifluoromethylpyrrolidin-1-yl)-phenyl
1491.	1-propen-3-yl	4-(3-trifluoromethylpyrrolidin-1-yl)-phenyl
1492.	1-propen-3-yl	4-((S)-3-trifluoromethylpyrrolidin-1-yl)-phenyl
1493.	1-propen-3-yl	4-((R)-3-trifluoromethylpyrrolidin-1-yl)-phenyl
1494.	1-propen-3-yl	4-(2-oxopyrrolidin-1-yl)-phenyl
1495.	1-propen-3-yl	4-(2-oxo-oxazolidin-3-yl)-phenyl
1496.	1-propen-3-yl	4-(piperidin-1-yl)-phenyl
1497.	1-propen-3-yl	4-(2-methylpiperidin-1-yl)-phenyl
1498.	1-propen-3-yl	4-((S)-2-methylpiperidin-1-yl)-phenyl
1499.	1-propen-3-yl	4-((R)-2-methylpiperidin-1-yl)-phenyl
1500.	1-propen-3-yl	4-(piperazin-1-yl)-phenyl

No.	R ¹	Ar
1501.	1-propen-3-yl	4-(4-methylpiperazin-1-yl)-phenyl
1502.	1-propen-3-yl	4-(morpholin-4-yl)-phenyl
1503.	1-propen-3-yl	4-(thiomorpholin-4-yl)-phenyl
1504.	1-propen-3-yl	4-(1-oxo-thiomorpholin-4-yl)-phenyl
1505.	1-propen-3-yl	4-(1,1-dioxo-thiomorpholin-4-yl)-phenyl
1506.	1-propen-3-yl	4-(pyrrol-1-yl)-phenyl
1507.	1-propen-3-yl	4-(pyrrol-2-yl)-phenyl
1508.	1-propen-3-yl	4-(pyrrol-3-yl)-phenyl
1509.	1-propen-3-yl	4-(1-methylpyrrol-2-yl)-phenyl
1510.	1-propen-3-yl	4-(1-methylpyrrol-3-yl)-phenyl
1511.	1-propen-3-yl	4-(furan-2-yl)-phenyl
1512.	1-propen-3-yl	4-(furan-3-yl)-phenyl
1513.	1-propen-3-yl	4-(thiophen-2-yl)-phenyl
1514.	1-propen-3-yl	4-(thiophen-3-yl)-phenyl
1515.	1-propen-3-yl	4-(5-propylthien-2-yl)-phenyl
1516.	1-propen-3-yl	4-(pyrazol-1-yl)-phenyl
1517.	1-propen-3-yl	4-(pyrazol-3-yl)-phenyl
1518.	1-propen-3-yl	4-(pyrazol-4-yl)-phenyl
1519.	1-propen-3-yl	4-(1-methyl-1H-pyrazol-4-yl)-phenyl
1520.	1-propen-3-yl	4-(1-ethyl-1H-pyrazol-4-yl)-phenyl
1521.	1-propen-3-yl	4-(1-methyl-1H-pyrazol-5-yl)-phenyl
1522.	1-propen-3-yl	4-(1H-imidazol-2-yl)-phenyl
1523.	1-propen-3-yl	4-(imidazol-1-yl)-phenyl
1524.	1-propen-3-yl	4-(1-methylimidazol-2-yl)-phenyl
1525.	1-propen-3-yl	4-(oxazol-2-yl)-phenyl
1526.	1-propen-3-yl	4-(oxazol-4-yl)-phenyl
1527.	1-propen-3-yl	4-(oxazol-5-yl)-phenyl
1528.	1-propen-3-yl	4-(isoxazol-3-yl)-phenyl
1529.	1-propen-3-yl	4-(isoxazol-4-yl)-phenyl
1530.	1-propen-3-yl	4-(isoxazol-5-yl)-phenyl
1531.	1-propen-3-yl	4-([1,2,3]-triazol-1-yl)-phenyl
1532.	1-propen-3-yl	4-([1,2,4]-triazol-1-yl)-phenyl
1533.	1-propen-3-yl	4-([1,2,3]-triazol-2-yl)-phenyl
1534.	1-propen-3-yl	4-(4H-[1,2,4]-triazol-3-yl)-phenyl

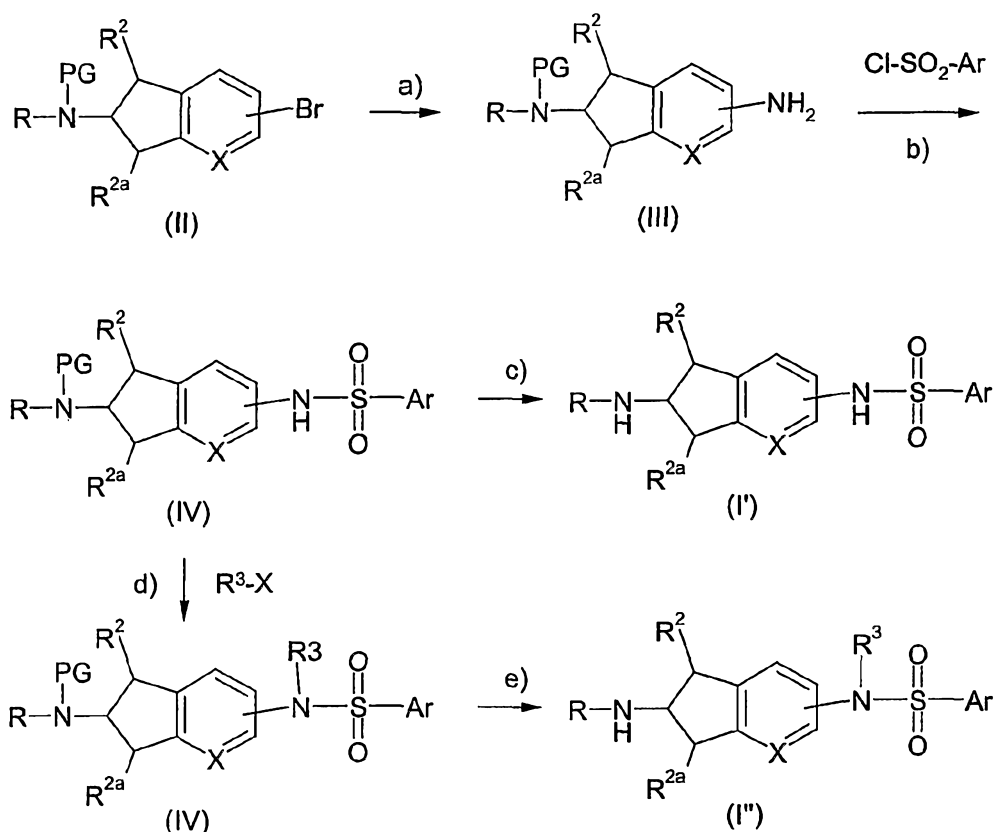
No.	R ¹	Ar
1535.	1-propen-3-yl	4-([1,2,4]-triazol-4-yl)-phenyl
1536.	1-propen-3-yl	4-(2H-[1,2,3]-triazol-4-yl)-phenyl
1537.	1-propen-3-yl	4-(4-methyl-4H-[1,2,4]-triazol-3-yl)-phenyl
1538.	1-propen-3-yl	4-(2-methyl-2H-[1,2,3]-triazol-4-yl)-phenyl
1539.	1-propen-3-yl	4-([1,3,4]-oxadiazol-2-yl)-phenyl
1540.	1-propen-3-yl	4-([1,2,4]-oxadiazol-3-yl)-phenyl
1541.	1-propen-3-yl	4-([1,2,4]-oxadiazol-5-yl)-phenyl
1542.	1-propen-3-yl	4-([1,2,3]-oxadiazol-4-yl)-phenyl
1543.	1-propen-3-yl	4-([1,2,3]-oxadiazol-5-yl)-phenyl
1544.	1-propen-3-yl	4-([1,2,3]-thiadiazol-4-yl)-phenyl
1545.	1-propen-3-yl	4-(1H-tetrazol-5-yl)-phenyl
1546.	1-propen-3-yl	4-(tetrazol-1-yl)-phenyl
1547.	1-propen-3-yl	4-(2-methyl-2H-tetrazol-5-yl)-phenyl
1548.	1-propen-3-yl	4-(1-methyl-1H-tetrazol-5-yl)-phenyl
1549.	1-propen-3-yl	4-furazan-3-yl-phenyl
1550.	1-propen-3-yl	4-(pyrid-2-yl)-phenyl
1551.	1-propen-3-yl	4-(pyrid-3-yl)-phenyl
1552.	1-propen-3-yl	4-(pyrid-4-yl)-phenyl
1553.	1-propen-3-yl	4-(pyrimidin-2-yl)-phenyl
1554.	1-propen-3-yl	4-(pyrimidin-4-yl)-phenyl
1555.	1-propen-3-yl	4-(pyrimidin-5-yl)-phenyl
1556.	1-propen-3-yl	5-isopropylthiophen-2-yl
1557.	1-propen-3-yl	2-chlorothiophen-5-yl
1558.	1-propen-3-yl	2,5-dichlorothiophen-4-yl
1559.	1-propen-3-yl	2,3-dichlorothiophen-5-yl
1560.	1-propen-3-yl	2-chloro-3-nitrothiophen-5-yl
1561.	1-propen-3-yl	2-(phenylsulfonyl)-thiophen-5-yl
1562.	1-propen-3-yl	2-(pyridin-2-yl)thiophen-5-yl
1563.	1-propen-3-yl	2-(5-(trifluoromethyl)isoxazol-3-yl)-thiophen-5-yl
1564.	1-propen-3-yl	2-(2-methylthiazol-4-yl)-thiophen-5-yl
1565.	1-propen-3-yl	1-methyl-1H-imidazol-4-yl
1566.	1-propen-3-yl	1,2-dimethyl-1H-imidazol-4-yl
1567.	1-propen-3-yl	3,5-dimethylisoxazol-4-yl
1568.	1-propen-3-yl	thiazol-2-yl

No.	R ¹	Ar
1569.	1-propen-3-yl	4-methylthiazol-2-yl
1570.	1-propen-3-yl	4-isopropylthiazol-2-yl
1571.	1-propen-3-yl	4-trifluoromethylthiazol-2-yl
1572.	1-propen-3-yl	5-methylthiazol-2-yl
1573.	1-propen-3-yl	5-isopropylthiazol-2-yl
1574.	1-propen-3-yl	5-trifluoromethylthiazol-2-yl
1575.	1-propen-3-yl	2,4-dimethylthiazol-5-yl
1576.	1-propen-3-yl	2-acetamido-4-methylthiazol-5-yl
1577.	1-propen-3-yl	4H-[1,2,4]triazol-3-yl
1578.	1-propen-3-yl	5-methyl-4H-[1,2,4]triazol-3-yl
1579.	1-propen-3-yl	4-methyl-4H-[1,2,4]triazol-3-yl
1580.	1-propen-3-yl	5-isopropyl-4H-[1,2,4]triazol-3-yl
1581.	1-propen-3-yl	5-trifluoromethyl-4H-[1,2,4]triazol-3-yl
1582.	1-propen-3-yl	4,5-dimethyl-4H-[1,2,4]triazol-3-yl
1583.	1-propen-3-yl	5-isopropyl-4-methyl-4H-[1,2,4]triazol-3-yl
1584.	1-propen-3-yl	5-trifluoromethyl-4-methyl-4H-[1,2,4]triazol-3-yl
1585.	1-propen-3-yl	[1,3,4]thiadiazol-2-yl
1586.	1-propen-3-yl	5-methyl-[1,3,4]thiadiazol-2-yl
1587.	1-propen-3-yl	5-isopropyl-[1,3,4]thiadiazol-2-yl
1588.	1-propen-3-yl	5-trifluoromethyl-[1,3,4]thiadiazol-2-yl
1589.	1-propen-3-yl	3-bromo-2-chloropyrid-5-yl
1590.	1-propen-3-yl	2-(4-morpholino)-pyrid-5-yl
1591.	1-propen-3-yl	2-phenoxy-pyrid-5-yl
1592.	1-propen-3-yl	(2-isopropyl)-pyrimidin-5-yl
1593.	1-propen-3-yl	(5-isopropyl)-pyrimidin-2-yl
1594.	1-propen-3-yl	8-quinolyl
1595.	1-propen-3-yl	5-isoquinolyl
1596.	1-propen-3-yl	2-(2,2,2-trifluoroacetyl)-1,2,3,4-tetrahydroisoquinolin-7-yl
1597.	1-propen-3-yl	5-chloro-3-methylbenzothiophen-2-yl
1598.	1-propen-3-yl	3,4-dihydro-4-methyl-2H-benzo[b][1,4]oxazinyl
1599.	1-propen-3-yl	benzothiazol-6-yl
1600.	1-propen-3-yl	benzo[2,1,3]oxadiazol-4-yl
1601.	1-propen-3-yl	5-chlorobenzo[1,2,5]oxadiazolyl
1602.	1-propen-3-yl	7-chlorobenzo[2,1,3]oxadiazol-4-yl

No.	R ¹	Ar
1603.	1-propen-3-yl	benzo[2,1,3]thiadiazol-4-yl

The compounds of the formula I where E is NH and R^{1a} is hydrogen can be prepared by analogy to methods which are well known in the art, e.g. from the international patent applications cited in the introductory part. A preferred method for the preparation of compounds I is outlined in scheme 1:

Scheme 1



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In scheme 1, R², R^{2a}, X and Ar have the meanings as given above. R has one of the meanings given for R¹ or may also be hydrogen. PG is an amino-protecting group such as tert.-butoxycarbonyl. Suitable protecting groups are disclosed, for example, in P. Kocienski, *Protecting Groups*, Thieme-Verlag, Stuttgart 2000, Chapter 6.

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In step a) of scheme 1, compound II is reacted with lithium bis(trimethylsilyl)amide in the presence of a palladium(0) compound such as tris(dibenzylideneacetone)-

dipalladium(0) in the presence of a tri(substituted)phosphine, e.g. a triarylphosphine such as triphenylphosphine or tritolyphosphine, tri(cyclo)alkylphosphine such as tris-n-butylphosphine, tris(tert.-butyl)phosphine or tris(cyclohexylphosphine) according to the method described in Organic Letters (2001), 3(17), 2729-2732 and outlined below.

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The thus obtained compound III is reacted with an arylchlorosulfonylchloride Cl-SO₂-Ar, preferably in the presence of a base, according to standard procedures in the art to obtain compound IV. The reaction depicted in scheme 1 step b) takes place under the reaction conditions which are customary for preparing arylsulfonamide compounds or arylsulfonic esters, respectively, and which are described, for example, in J. March, Advanced Organic Chemistry, 3rd edition, John Wiley & Sons, New York, 1985 p 444 and the literature cited therein, European Journal of Medicinal Chemistry (1977), 12(1), 81-66, European J. Org. Chem. 2002 (13), pp. 2094-2108, Tetrahedron 2001, 57 (27) pp. 5885-5895, Bioorganic and Medicinal Chemistry Letters, 2000, 10(8), pp. 835-838 and Synthesis 2000 (1), pp. 103-108. The reaction customarily takes place in an inert solvent, for example in an ether, such as diethyl ether, diisopropyl ether, methyl tert-butyl ether or tetrahydrofuran, a halohydrocarbon, such as dichloromethane, an aliphatic or cycloaliphatic hydrocarbon, such as pentane, hexane or cyclohexane, or an aromatic hydrocarbon, such as toluene, xylene, cumene and the like, or in a mixture of the abovementioned solvents. The reaction of III with Cl-SO₂-Ar is customarily carried out in the presence of an auxiliary base. Suitable bases are inorganic bases, such as sodium carbonate or potassium carbonate, or sodium hydrogen-carbonate or potassium hydrogencarbonate, and organic bases, for example trialkylamines, such as triethylamine, or pyridine compounds, such as pyridine, lutidine and the like. The latter compounds can at the same time serve as solvents. The auxiliary base is customarily employed in at least equimolar quantities, based on the amine compound II.

If R in compound I' or I'' is allyl the allyl group can be cleaved to obtain a compound I' or I'' wherein R is hydrogen. The cleavage of the allyl group is achieved, for example, by reacting I [R¹ = allyl] with an allyl trapping agent, such as mercaptobenzoic acid or 1,3-dimethylbarbituric acid, in the presence of catalytic quantities of palladium (0) compounds or palladium compounds which are able to form a palladium(0) compound under reaction conditions, e.g. palladium dichloride, tetrakis(triphenylphosphine)-palladium(0) or tris(dibenzylideneacetone)dipalladium(0), advantageously in combination with phosphine ligands, e.g. triarylphosphines, such as triphenylphosphine, trialkylphosphines, such as tributylphosphine, and cycloalkylphosphines, such as tricyclo-

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hexylphosphine, and especially with phosphine chelate ligands, such as 2,2'-bis(diphenylphosphino)-1,1'-binaphthyl or 1,4-bis(diphenylphosphino)butane, using methods known from the literature (with regard to eliminating N-allyl in the presence of mercaptobenzoic acid, see WO 94/24088; with regard to eliminating in the presence of
5 1,3-dimethylbarbituric acid, see J. Am. Chem. Soc. 2001, 123 (28), pp. 6801-6808 and J. Org. Chem 2002, 67(11) pp. 3718-3723). Alternatively, the cleavage of N-allyl can also be effected by reacting in the presence of rhodium compounds, such as tris(triphenylphosphine)chlororhodium(I), using methods known from the literature (see J. Chem. Soc., Perkin Transaction I: Organic and Bio-Organic Chemistry 1999 (21) pp.
10 3089-3104 and Tetrahedron Asymmetry 1997, 8(20), pp. 3387 - 3391).

The resulting compound I' or I'' [R¹ = H] can then be reacted, in a known manner, in the sense of an alkylation, with a compound R¹-X. In this compound, R¹ is C₁-C₄-alkyl, C₃-C₆-cycloalkyl, C₁-C₄-haloalkyl, C₁-C₄-alkoxy-C₁-C₄-alkyl or C₃-C₆-cycloalkyl-C₁-C₄-alkyl
15 and X is a nucleophilically displaceable leaving group, e.g. halogen, trifluoroacetate, alkylsulfonate, arylsulfonate, alkyl sulfate and the like. The reaction conditions which are required for the alkylation have been adequately disclosed, e.g. in Bioorganic and Medicinal Chemistry Lett. 2002, 12(7), pp. 2443-2446 and also 2002, 12(5), pp. 1917-1919.

20 The alkylation of I' and I'' [R = H] can also be achieved, in the sense of a reductive amination, by reacting I [R¹ = H] with a suitable ketone or aldehyde in the presence of a reducing agent, e.g. in the presence of a borohydride such as sodium borohydride, sodium cyanoborohydride or sodium triacetoxyborohydride. The skilled person is familiar with the reaction conditions which are required for a reductive amination, e.g. from
25 Bioorganic and Medicinal Chemistry Lett. 2002, 12(5), pp. 795-798 and 12(7) pp. 1269-1273.

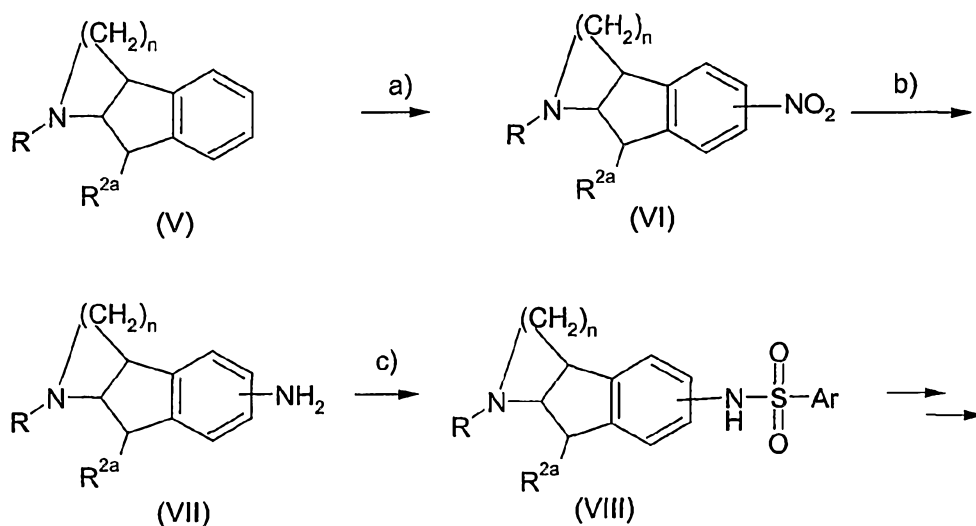
In case R in formula I' or I'' is hydrogen, compound I' can be reacted with an acyl halide
30 to obtain a compound of the formula I wherein R¹ is C₁-C₃-alkylcarbonyl. The carbonyl group in these compounds can be reduced with diborane to obtain compounds of the general formula I, wherein R is C₂-C₄-alkyl. The carbonyl group can also be reacted with a fluorinating agent to obtain a compound I wherein R¹ is 1,1-difluoroalkyl. J. Acylation and reduction can be achieved by standard methods, which are discussed in J.
35 March, Advanced Organic Chemistry, 3rd ed. J. Wiley & Sons, New York 1985, p.370 and 373 (acylation) and p. 1099 f. and in the literature cited in this publication (with

regard to acylation, see also Synth. Commun. 1986, 16, p. 267, and with regard to reduction, see also J. Heterocycl. Chem. 1979, 16, p. 1525).

As an alternative, compounds II can also be reacted with an arylsulfonylamide
 5 Ar-SO₂-NH₂ or the lithium salt thereof in the presence of a palladium(0) compound such as tris(dibenzylideneacetone)dipalladium(0) in the presence of a tri(substituted)phosphine, e.g. a triarylphosphine such as triphenylphosphine or tritolylphosphine, tri(cyclo)alkylphosphine such as tris-n-butylphosphine, tris(tert-butyl)phosphine or tris(cyclohexylphosphine), preferably in the presence of a base such
 10 as sodium hydride according to the method described in J. Org. Chem., 68 (2993) pp 8274-8276.

Compounds of the formula I, wherein R^{1a} and R² together are (CH₂)_n with n being 2 or 3 can be prepared in manner similar to the method outlined in scheme 1 starting from a
 15 compound of the formula V, by the method outlined in scheme 2:

Scheme 2:



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In scheme 2, R^{2a}, n and Ar have the meanings given above. R is a radical R¹ or an amino protecting group. In particular R¹ is C₁-C₃-alkylcarbonyl.

The reaction depicted in step a) in scheme 2 takes place under the reaction conditions
 25 which are customary for a nitration of an aromatic radical and which are described, for

example, in J. March, *Advanced Organic Chemistry*, 3rd ed., John Wiley & Sons, New York 1985, pp 468-470 and the literature cited therein).

In step b), the nitro group in VI is reduced to the NH₂ group in VII. Subsequently, in
5 step c), the NH₂ group can be converted into a -NR³H group, in which R³ has the
meanings different from hydrogen which are specified for R³. The reaction conditions
which are required for step b) correspond to the customary conditions for reducing
aromatic nitro groups which have been described extensively in the literature (see, for
example, J. March, *Advanced Organic Chemistry*, 3rd ed., J. Wiley & Sons, New-York,
10 1985, p. 1183 and the literature cited in this reference). The reduction is achieved, for
example, by reacting the nitro compound VI with a metal such as iron, zinc or tin under
acidic reaction conditions, i.e. using nascent hydrogen, or using a complex hydride
such as lithium aluminum hydride or sodium borohydride, preferably in the presence of
transition metal compounds of nickel or cobalt such as NiCl₂(P(phenyl)₃)₂, or
15 CoCl₂, (see Ono et al. *Chem. Ind. (London)*, 1983 p.480), or using NaBH₂S₃ (see Lalan-
cette et al. *Can. J. Chem.* 49, 1971, p. 2990), with it being possible to carry out these
reductions, depending on the given reagent, in substance or in a solvent or diluent.
Alternatively, the reduction of VI to VII can be carried out with hydrogen in the presence
of a transition metal catalyst, e.g. using hydrogen in the presence of catalysts based on
20 platinum, palladium, nickel, ruthenium or rhodium. The catalysts can contain the transi-
tion metal in elemental form or in the form of a complex compound, of a salt or of an
oxide of the transition metal, with it being possible, for the purpose of modifying the
activity, to use customary coligands, e.g. organic phosphine compounds, such as
triphenylphosphine, tricyclohexylphosphine or tri-n-butylphosphines or phosphites. The
25 catalyst is customarily employed in quantities of from 0.001 to 1 mol per mol of com-
pound VI, calculated as catalyst metal. In a preferred variant, the reduction is effected
using tin(II) chloride in analogy with the methods described in *Bioorganic and Medicinal
Chemistry Letters*, 2002, 12(15), pp. 1917-1919 and *J. Med. Chem.* 2002, 45(21), pp.
4679-4688. The reaction of VII with tin(II) chloride is preferably carried out in an inert
30 organic solvent, preferably an alcohol such as methanol, ethanol, isopropanol or bu-
tanol.

Step c) in scheme 2 corresponds to step b) in scheme 1, which can be performed in
analogous manner. Thereby a compound of the general formula VIII is obtained which
35 for R = R¹ corresponds to formula I, wherein R^{1a} and R² form a (CH₂)_n moiety.

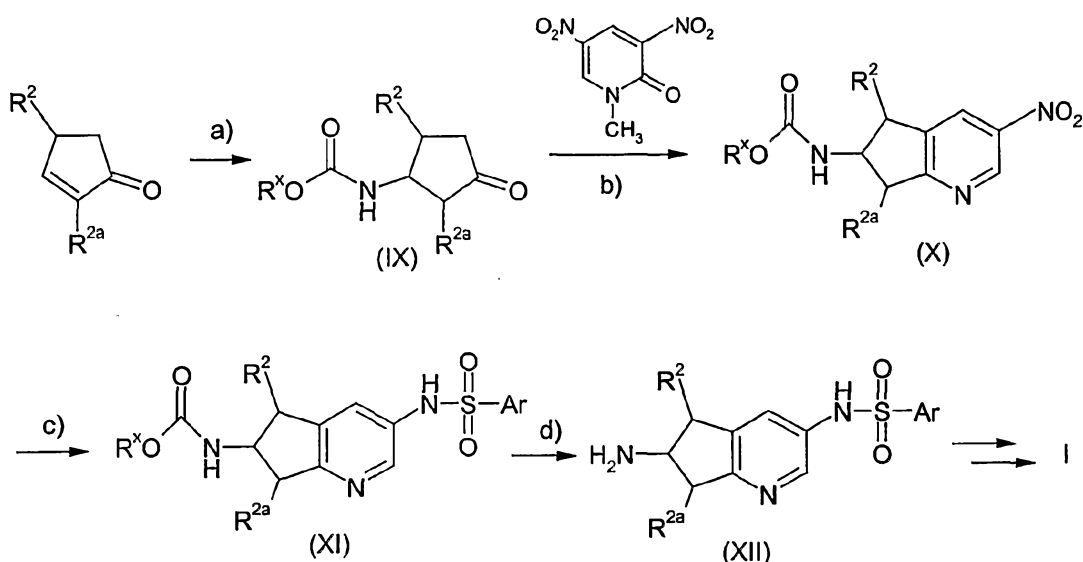
The radical R in the thus obtained compounds VIII can be transformed into other radicals by the methods outlined in connection with scheme 1.

Compounds of the formula V are known in the art. They can also be prepared from (aza)indene according to the method outlined in Synlett. 1993, pp. 595-597, optionally followed by debenzoylation step and an introduction of the radical R.

Compounds of the formula I, where X is N and E is NH can be also obtained by the synthetic approach outlined in scheme 3:

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Scheme 3:



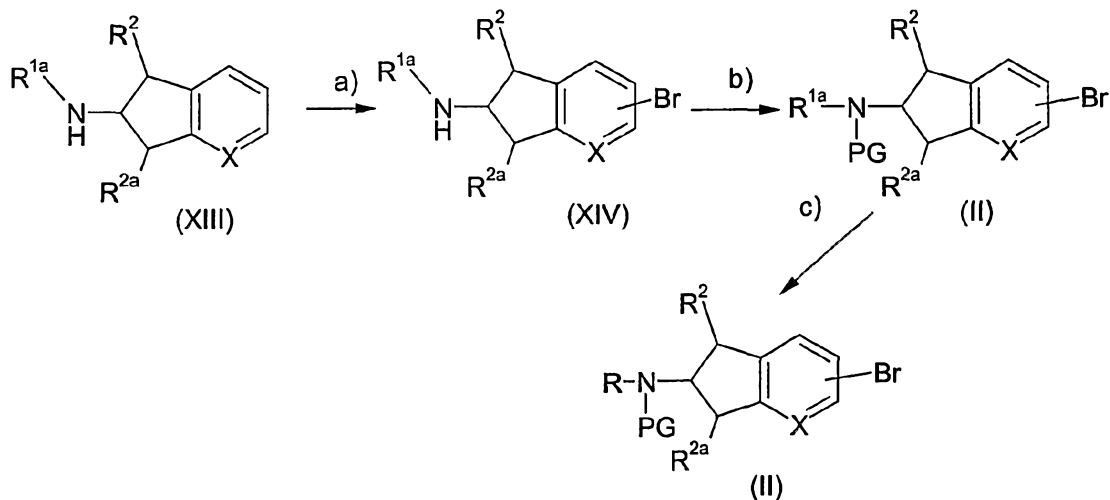
Starting from cyclopent-2-enone, selective Michael addition of a carbamate $R^xO-C(O)-NH_2$, in the presence of bismuth nitrate, generates the requisite β -amino ketone IX (step a, see e.g. (*J. Org. Chem.* **2003**, *68*, 2109-2114)). In step b), compound IX undergoes Tohda reaction with dinitropyridone to give the azabicyclic nitro derivative X (step c), see e.g. (*Bull. Chem. Soc. Jpn.* **1990**, *63*, 2820-2827; *J. Med. Chem.* **1996**, *39*, 2844-2851; *Synth. Commun.* **2001**, *31*, 787-797; *Bioorg. Med. Chem. Lett.* **2003**, *13*, 529-532). This generates a mixture of the 5- and 7-amino isomers which can be separated as either the amino or sulfonamide product. The mixture can then be reduced to the amine by the methods disclosed for step b in scheme 2, e.g. via tin chloride or catalytic hydrogenation (e.g. Pd-C/ H_2) and subsequently converted to the desired sulfonamide by reaction with the appropriate sulfonyl chloride as outlined for step b) in scheme 1 to yield a compound of the formula XI. The amine XII may be generated by cleavage

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of the carbamate in the presence of an acid such as trifluoroacetic acid and converted to the target N-alkyl derivatives by processes of alkylation, acylation/reduction or reductive amination as outlined for scheme 1.

- 5 Compounds of the formula II are known in the art. They can also be prepared from 6-amino(aza)indanes of the formula XIII by the synthetic scheme outlined in scheme 4:

Scheme 4:



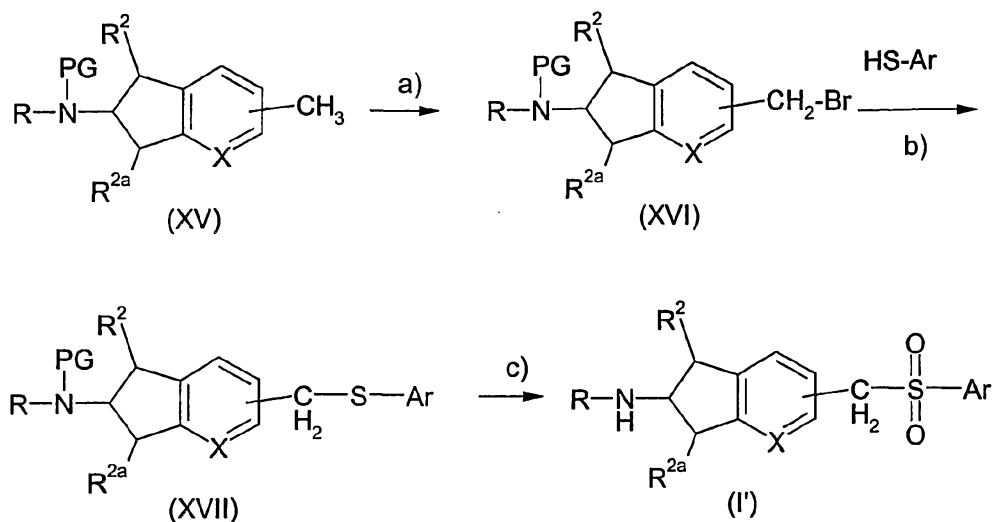
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In scheme 4, R^{1a} , R^2 , R^{2a} , PG and X have the meanings given above. R is a radical R^1 , which is different from alkenyl or fluorinated alkenyl. In step a) the compound XIII is reacted with bromine to obtain compound XIV. The enantiomerically pure (S)- or (R)-aminoindanes XIV are e.g. prepared via crystallization of the racemic bromo-indan-2-yl-amine XIV with either (S)- or (R)-10-camphersulfonic acid (Adv. Synth. Catal., 2001, 343, 5, 461-472). In step b) a protective group PG is introduced by standard methods. For R^{1a} being hydrogen, the radical R is introduced by standard alkylation or acylation methods (step c).

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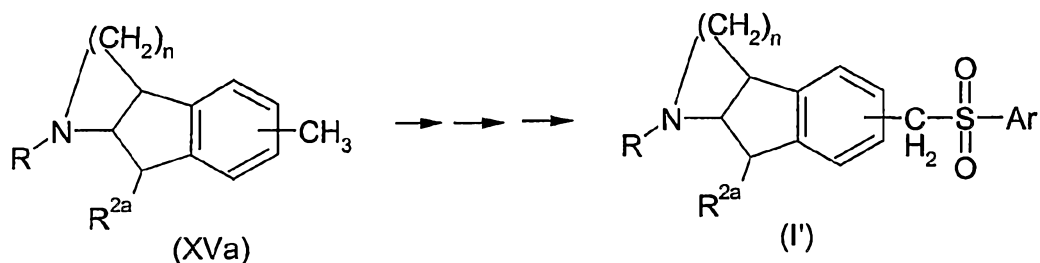
- 20 The compounds of the formula I where E is CH_2 can be prepared as outlined in schemes 5a and 5b:

Scheme 5a:



Scheme 5b:

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In schemes 5a and 5b, n , R^2 , R^{2a} , PG, Ar and X have the meanings given above. R is a radical R^1 or hydrogen. According to scheme 5a, the methyl group in compound XV is selectively brominated to yield compound XVI, which is reacted in step b) with mercapto compound HS-Ar in the presence of a base, such as sodium hydride or sodium alkoxide or with an alkali metal salt thereof thereby yielding thioether compound XVII. The thioether moiety in compound is oxidized to a sulfone moiety, e.g. by oxone, and the protective group PG is cleaved, thereby obtaining compound I', wherein the group R can be transformed as outlined for scheme 1. A similar reaction sequence can be applied to the compounds of the general formula XVa (scheme 5b).

A skilled person will readily appreciate that compounds of the formula I can also be obtained from structurally similar compounds by functional group interconversion. In particular N-bound radicals R^a can be introduced into compounds of the formula I by

reacting the corresponding halogen compound, i.e. a compound of the formula I, which instead of R^a carries a halogen atom, in particular a bromine or iodine atom, with a primary or secondary amine in the presence of a base, preferably also in the presence of a palladium catalyst in terms of a Buchwald-Hartwig reaction.

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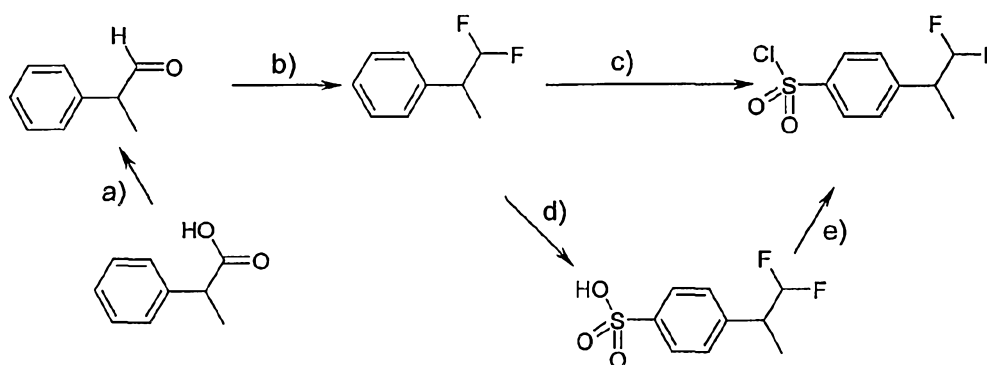
If not indicated otherwise, the above-described reactions are generally carried out in a solvent at temperatures between room temperature and the boiling temperature of the solvent employed. Alternatively, the activation energy which is required for the reaction can be introduced into the reaction mixture using microwaves, something which has proved to be of value, in particular, in the case of the reactions catalyzed by transition metals (with regard to reactions using microwaves, see *Tetrahedron* 2001, 57, p. 9199 ff. p. 9225 ff. and also, in a general manner, "Microwaves in Organic Synthesis", André Loupy (Ed.), Wiley-VCH 2002.

15 The sulfonylchlorides Cl-SO₂-Ar are either commercially available or can be prepared according to standard synthetic methods. Sulfonylchlorides containing a fluorinated radical R^a may be prepared by different synthetic routes, e.g. by reacting suitable hydroxy or oxo precursor (e.g. a compound Cl-SO₂-Ar, carrying a hydroxy or oxo substituted radical) with fluorinating reagents like DAST (diethylaminosulfurtrifluoride), morpholine-DAST, deoxo-fluor (bis(2-methoxyethyl)aminosulfur trifluoride), Ishikawa's reagent (N,N-diethyl-(1,1,2,3,3,3-hexafluoropropyl)amine; *Journal of Fluorine Chemistry*, 1989, 43, 371-377). More conventionally, the hydroxy group of an aromatic compound which carries a hydroxy substituted radical but not a chlorosulfonyl group, is transformed into a leaving group which is then replaced by a fluoride ion (*J. Org. Chem.*, 25 1994, 59, 2898-22901; *Tetrahedron Letters*, 1998, 7305-6; *J. Org. Chem.*, 1998, 63, 9587-9589, *Synthesis*, 1987, 920-21)). Subsequent direct chlorosulfonylation with chlorosulfonic acid (*Heterocycles*, 2001, 55, 9, 1789-1803; *J. Org. Chem.*, 2000, 65, 1399-1406) or a two step process preparing first the sulfonic acid derivatives which are then transformed to the sulfonylchlorides with e.g. chlorosulfonic acid, phosphorour pentachloride (*Eur. J. Med. Chem.*, 2002, 36, 809-828) and the like, yields the desired sulfonylchloride (*Tetrahedron Letters*, 1991, 33,50 7787-7788)) Sulfonylchlorides may also be prepared by diazotation of suitable amine precursor Ar-NH₂ with sodium nitrite under acidic conditions and reaction with sulfur dioxide in acetic acid (scheme (iii); *J. Org. Chem.*, 1960, 25, 1824-26;); by oxidation of suitable heteroaryl-thiols HS-Ar or heteroaryl-benzyl-thioethers C₆H₅-CH₂-S-Ar with chlorine (*Synthesis*, 1998, 36-38; *J. Am. Chem. Soc.*, 1950, 74, 4890-92;) directly to the corresponding sulfonyl chlorides. The further are known in the art or may be prepared by standard methods. E.g. mer-

capto-pyrimidines or pyrimidinyl-benzylthioether precursors can e.g. be prepared according to literature (Chemische Berichte, 1960, 1208-11; Chemische Berichte, 1960, 95, 230-235; Collection Czechoslow. Chem. Comm., 1959, 24, 1667-1671; Austr. J. Chem., 1966, 19, 2321-30; Chemiker-Zeitung, 101, 6, 1977, 305-7; Tetrahedron, 2002, 58, 887-890; Synthesis, 1983, 641-645.

In the following schemes 6 to 8 several routes are shown which are suitable to prepare benzenesulfonyl chlorides carrying a fluorinated propyl radical.

10 Scheme 6:

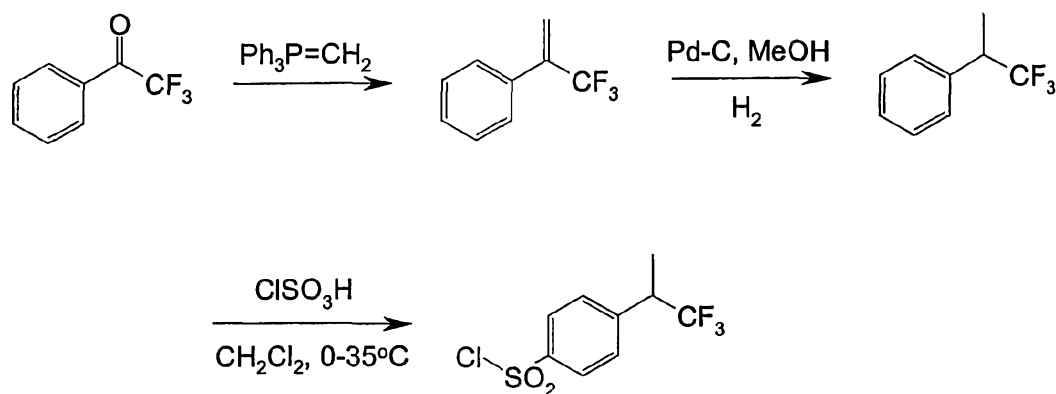


The 4-(1,1-difluoro-2-propyl)benzene-1-sulfonyl chloride intermediate can be prepared from the commercially available 2-phenylpropanoic acid. In the first step a) the 2-phenylpropanoic acid is converted to the alkyl ester by esterification with an alcohol (e.g. methanol or ethanol) under acid catalysis (e.g. HCl, SO₂Cl₂). The ester can be reduced to the corresponding 2-phenylpropanal by a reducing agent such as DIBAL (diisobutylaluminium hydride). The aldehyde is converted to the 1,1-difluoro-2-propyl derivative by reaction with a suitable fluorinating reagent like DAST (diethylaminosulfur trifluoride), morpholine-DAST, deoxo-fluor (bis(2-methoxyethyl)aminosulfur trifluoride), Ishikawa's reagent (N,N-diethyl-(1,1,2,3,3,3-hexafluoropropyl)amine; Journal of Fluorine Chemistry, 1989, 43, 371-377) (step b). The thus obtained 1,1-difluoro-2-phenylpropane can be converted into 4-(1,1-difluoro-2-propyl)benzenesulfonyl chloride by either direct chlorosulfonylation with chlorosulfonic acid (Heterocycles, 2001, 55, 9, 1789-1803; J. Org. Chem., 2000, 65, 1399-1406) (step c) or by a two step process preparing first the sulfonic acid derivatives (step d) which are then transformed to the sulfonylchlorides (step e) by reaction with e.g. chlorosulfonic acid, phosphorous pentachloride (Eur. J. Med. Chem., 2002, 36, 809-828); through diazotisation of suitable amine precursors with sodium nitrite under acidic conditions and reaction with

sulfur dioxide in acetic acid (J. Org. Chem., 1960, 25, 1824-26); oxidation of suitable heteroaryl-thiols or heteroaryl-benzyl-thioethers with chlorine (Synthesis, 1998, 36-38; J. Am. Chem. Soc., 1950, 74, 4890-92) directly to the corresponding sulfonyl chlorides.

- 5 The synthesis shown in scheme 6 can also be performed using (R)-2-phenylpropanoic acid and (S)-2-phenylpropanoic acid respectively to give the corresponding chiral 4-(1,1-difluoropropan-2-yl)benzene-1-sulfonyl chlorides.

Scheme 7:



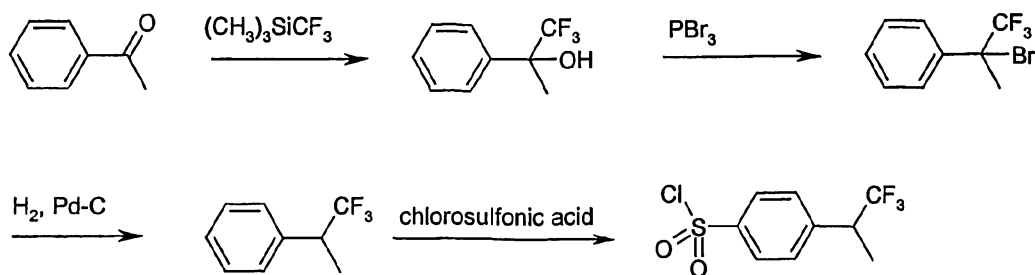
10

- 4-(1,1,1-Trifluoropropan-2-yl)benzene-1-sulfonyl chloride intermediate can be prepared from the commercially available 2,2,2-trifluoro-1-phenylethanone by a synthetic route shown in scheme 7. The ketone can be converted to the 3,3,3-trifluoro-2-phenylpropene by a Wittig reaction with a suitable ylide such as methylene-triphenylphosphane (prepared by reaction of methyltriphenylphosphonium halide and a suitable base such as lithium diisopropylamide or potassium tert-butoxide) or according to a Horner-Emmons reaction by reacting the ketone with a suitable phosphonate such as diethyl methylphosphonate and a suitable base such as lithium diisopropylamide or potassium tert-butoxide. The thus obtained 3,3,3-trifluoro-2-phenylpropene can then be reduced to the saturated alkane by catalytic hydrogenation (eg Pd-C) followed by conversion to the sulfonyl chloride by the methods described in scheme 6.

- 25 The synthesis of scheme 7 can also be performed using a chiral catalyst for the alkene hydrogenation to allow the preparation of the corresponding chiral 4-(1,1,1-trifluoropropan-2-yl)benzene-1-sulfonyl chlorides.

Scheme 8:

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The 4-(1,1,1-trifluoropropan-2-yl)benzene-1-sulfonyl chloride can be also prepared
 5 from the commercially available 1-phenyl-ethanone by a four step procedure as shown
 in scheme 8. The ketone can be converted to the trifluoromethyl hydroxyl intermediate
 by reaction with trimethyl-trifluoromethyl-silane (Journal of Organic Chemistry, 2000,
 65, 8848-8856; Journal of Fluorine Chemistry, 2003, 122, 243-246) which can then be
 converted to the trifluoromethyl bromide (Journal of the American Chemical Society,
 10 1987, 109, 2435-4). Dehalogenation by catalytic hydrogenation (eg Pd-C) can then be
 followed by conversion to the sulfonyl chloride by the methods discussed above.

Examples of solvents which can be used are ethers, such as diethyl ether, diisopropyl
 ether, methyl *tert*-butyl ether or tetrahydrofuran, aprotic polar solvent, such as dimethyl-
 15 formamide, dimethyl sulfoxide, dimethoxyethane, and acetonitrile, aromatic hydrocar-
 bons, such as toluene and xylene, ketones, such as acetone or methyl ethyl ketone,
 halohydrocarbons, such as dichloromethane, trichloromethane and dichloroethane,
 esters, such as ethyl acetate and methyl butyrate, carboxylic acids, such as acetic acid
 or propionic acid, and alcohols, such as methanol, ethanol, *n*-propanol, isopropanol, *n*-
 20 butanol, isobutanol, 2-butanol and *tert*.-butanol.

If desired, it is possible for a base to be present in order to neutralize protons which are
 released in the reactions. Suitable bases include inorganic bases, such as sodium car-
 bonate, potassium carbonate, sodium hydrogen carbonate or potassium hydrogen car-
 25 bonate, and, in addition, alkoxides, such as sodium methoxide or sodium ethoxide,
 alkali metal hydrides, such as sodium hydride, and also organometallic compounds,
 such as butyllithium compounds or alkylmagnesium compounds, or organic nitrogen
 bases, such as triethylamine or pyridine. The latter compounds can at the same time
 serve as solvents.

30

The crude product is isolated in a customary manner, for example by filtering, distilling off the solvent or extracting from the reaction mixture, etc. The resulting compounds can be purified in a customary manner, for example by means of recrystallizing from a solvent, by means of chromatography or by means of converting into an acid addition salt.

The acid addition salts are prepared in a customary manner by mixing the free base with a corresponding acid, where appropriate in solution in an organic solvent, for example a lower alcohol, such as methanol, ethanol or propanol, an ether, such as methyl *tert*-butyl ether or diisopropyl ether, a ketone, such as acetone or methyl ethyl ketone, or an ester, such as ethyl acetate.

The compounds according to the invention of the formula I are surprisingly highly selective dopamine D₃ receptor ligands which, because of their low affinity for other receptors such as D₁ receptors, D₄ receptors, α 1-adrenergic and/or α 2-adrenergic receptors, muscarinergic receptors, histamine receptors, opiate receptors and, in particular, dopamine D₂ receptors, give rise to fewer side-effects than do the classic neuroleptics, which are D₂ receptor antagonists. A compound of the invention can be a dopamine D₃ receptor agonist, including partial agonistic activity, or a dopamine D₃ receptor antagonist, including partial antagonistic activity.

The high affinity of the compounds according to the invention for D₃ receptors is reflected in very low in-vitro receptor binding constants (K_i(D₃) values) of as a rule less than 50 nM (nmol/l), preferably of less than 10 nM and, in particular of less than 5 nM. The displacement of [¹²⁵I]-iodosulpride can, for example, be used in receptor binding studies for determining binding affinities for D₃ receptors.

The selectivity of the compounds according to the invention, i.e. the ratio K_i(D₂)/K_i(D₃) of the receptor binding constants, is as a rule at least 50, preferably at least 100, even better at least 150. The displacement of [³H]SCH23390, [¹²⁵I] idosulpride or [¹²⁵I] spiperone can be used, for example, for carrying out receptor binding studies on D₁, D₂ and D₄ receptors.

Because of their binding profile, the compounds can be used for treating diseases which respond to dopamine D₃ receptor ligands (or which are susceptible to treatment with a dopamine D₃ receptor ligand, respectively), i.e. they are effective for treating those medical disorders or diseases in which exerting an influence on (modulating) the

dopamine D₃ receptors leads to an improvement in the clinical picture or to the disease being cured. Examples of these diseases are disorders or diseases of the central nervous system.

5 Disorders or diseases of the central nervous system are understood as meaning disorders which affect the spinal chord and, in particular, the brain. Within the meaning of the invention, the term "disorder" denotes disturbances and/or anomalies which are as a rule regarded as being pathological conditions or functions and which can manifest themselves in the form of particular signs, symptoms and/or malfunctions. While the
10 treatment according to the invention can be directed toward individual disorders, i.e. anomalies or pathological conditions, it is also possible for several anomalies, which may be causatively linked to each other, to be combined into patterns, i.e. syndromes, which can be treated in accordance with the invention.

15 The disorders which can be treated in accordance with the invention are, in particular, psychiatric and neurological disturbances. These disturbances include, in particular, organic disturbances, including symptomatic disturbances, such as psychoses of the acute exogenous reaction type or attendant psychoses of organic or exogenous cause, e.g., in association with metabolic disturbances, infections and endocrinopathologies;
20 endogenous psychoses, such as schizophrenia and schizotypic and delusional disturbances; affective disturbances, such as depressions, mania and/or manic-depressive conditions; and also mixed forms of the above-described disturbances; neurotic and somatoform disturbances and also disturbances in association with stress; dissociative disturbances, e.g. loss of consciousness, clouding of consciousness, double con-
25 sciousness and personality disturbances; disturbances in attention and waking/sleeping behavior, such as behavioral disturbances and emotional disturbances whose onset lies in childhood and youth, e.g. hyperactivity in children, intellectual deficits, in particular attention disturbances (attention deficit disorders), memory disturbances and cognitive disturbances, e.g. impaired learning and memory (impaired cog-
30 nitive function), dementia, narcolepsy and sleep disturbances, e.g. restless legs syndrome; development disturbances; anxiety states, delirium; sexlife disturbances, e.g. impotence in men; eating disturbances, e.g. anorexia or bulimia; addiction; and other unspecified psychiatric disturbances.

35 The disorders which can be treated in accordance with the invention also include Parkinson's disease and epilepsy and, in particular, the affective disturbances connected thereto.

The addiction diseases include psychic disorders and behavioral disturbances which are caused by the abuse of psychotropic substances, such as pharmaceuticals or narcotics, and also other addiction diseases, such as addiction to gaming (impulse control disorders not elsewhere classified). Examples of addictive substances are: opioids (e.g. morphine, heroin and codeine), cocaine; nicotine; alcohol; substances which interact with the GABA chloride channel complex, sedatives, hypnotics and tranquilizers, for example benzodiazepines; LSD; cannabinoids; psychomotor stimulants, such as 3,4-methylenedioxy-N-methylamphetamine (ecstasy); amphetamine and amphetamine-like substances such as methylphenidate and other stimulants including caffeine. Addictive substances which come particularly into consideration are opioids, cocaine, amphetamine or amphetamine-like substances, nicotine and alcohol.

With regard to the treatment of addiction diseases, particular preference is given to those compounds according to the invention of the formula I which themselves do not possess any psychotropic effect. This can also be observed in a test using rats, which, after having been administered compounds which can be used in accordance with the invention, reduce their self administration of psychotropic substances, for example cocaine.

According to another aspect of the present invention, the compounds according to the invention are suitable for treating disorders whose causes can at least partially be attributed to an anomalous activity of dopamine D₃ receptors.

According to another aspect of the present invention, the treatment is directed, in particular, toward those disorders which can be influenced, within the sense of an expedient medicinal treatment, by the binding of preferably exogeneously administered binding partners (ligands) to dopamine D₃ receptors.

The diseases which can be treated with the compounds according to the invention are frequently characterized by progressive development, i.e. the above-described conditions change over the course of time; as a rule, the severity increases and conditions may possibly merge into each other or other conditions may appear in addition to those which already exist.

The compounds according to the invention can be used to treat a large number of signs, symptoms and/or malfunctions which are connected with the disorders of the

central nervous system and, in particular, the abovementioned conditions. These signs, symptoms and/or malfunctions include, for example, a disturbed relationship to reality, lack of insight and ability to meet customary social norms or the demands made by life, changes in temperament, changes in individual drives, such as hunger, sleep, thirst, etc., and in mood, disturbances in the ability to observe and combine, changes in personality, in particular emotional lability, hallucinations, ego-disturbances, distractedness, ambivalence, autism, depersonalization and false perceptions, delusional ideas, chanting speech, lack of synkinesia, short-step gait, flexed posture of trunk and limbs, tremor, poverty of facial expression, monotonous speech, depressions, apathy, impeded spontaneity and decisiveness, impoverished association ability, anxiety, nervous agitation, stammering, social phobia, panic disturbances, withdrawal symptoms in association with dependency, manifold syndromes, states of excitation and confusion, dysphoria, dyskinetic syndromes and tic disorders, e.g. Huntington's chorea and Gilles-de-la-Tourette's syndrome, vertigo syndromes, e.g. peripheral positional, rotational and oscillatory vertigo, melancholia, hysteria, hypochondria and the like.

Within the meaning of the invention, a treatment also includes a preventive treatment (prophylaxis), in particular as relapse prophylaxis or phase prophylaxis, as well as the treatment of acute or chronic signs, symptoms and/or malfunctions. The treatment can be orientated symptomatically, for example as the suppression of symptoms. It can be effected over a short period, be orientated over the medium term or can be a long-term treatment, for example within the context of a maintenance therapy.

Therefore the compounds according to the invention are preferentially suitable for treating diseases of the central nervous system, in particular for treating affective disorders; neurotic disturbances, stress disturbances and somatoform disturbances and psychoses, and, in particular, for treating schizophrenia and depression. Because of their high selectivity with regard to the D_3 receptor, the compounds I according to the invention are also suitable for treating disturbances of kidney function, in particular disturbances of kidney function which are caused by diabetes mellitus (see WO 00/67847) and, especially, diabetic nephropathy.

Within the context of the treatment, the use according to the invention of the described compounds involves a method. In this method, an effective quantity of one or more compounds, as a rule formulated in accordance with pharmaceutical and veterinary practice, is administered to the individual to be treated, preferably a mammal, in particular a human being, productive animal or domestic animal. Whether such a treat-

ment is indicated, and in which form it is to take place, depends on the individual case and is subject to medical assessment (diagnosis) which takes into consideration signs, symptoms and/or malfunctions which are present, the risks of developing particular signs, symptoms and/or malfunctions, and other factors.

5

As a rule, the treatment is effected by means of single or repeated daily administration, where appropriate together, or alternating, with other active compounds or active compound-containing preparations such that a daily dose of preferably from about 0.1 to 1000 mg/kg of bodyweight, in the case of oral administration, or of from about 0.1 to 100 mg/kg of bodyweight, in the case of parenteral administration, is supplied to an individual to be treated.

The invention also relates to the production of pharmaceutical compositions for treating an individual, preferably a mammal, in particular a human being, productive animal or domestic animal. Thus, the ligands are customarily administered in the form of pharmaceutical compositions which comprise a pharmaceutically acceptable excipient together with at least one compound according to the invention and, where appropriate, other active compounds. These compositions can, for example, be administered orally, rectally, transdermally, subcutaneously, intravenously, intramuscularly or intranasally.

20

Examples of suitable pharmaceutical formulations are solid medicinal forms, such as powders, granules, tablets, in particular film tablets, lozenges, sachets, cachets, sugar-coated tablets, capsules, such as hard gelatin capsules and soft gelatin capsules, suppositories or vaginal medicinal forms, semisolid medicinal forms, such as ointments, creams, hydrogels, pastes or plasters, and also liquid medicinal forms, such as solutions, emulsions, in particular oil-in-water emulsions, suspensions, for example lotions, injection preparations and infusion preparations, and eyedrops and eardrops. Implanted release devices can also be used for administering inhibitors according to the invention. In addition, it is also possible to use liposomes or microspheres.

30

When producing the compositions, the compounds according to the invention are optionally mixed or diluted with one or more excipients. Excipients can be solid, semisolid or liquid materials which serve as vehicles, carriers or medium for the active compound.

35

Suitable excipients are listed in the specialist medicinal monographs. In addition, the formulations can comprise pharmaceutically acceptable carriers or customary auxiliary

substances, such as glidants; wetting agents; emulsifying and suspending agents; pre-
servatives; antioxidants; antiirritants; chelating agents; coating auxiliaries; emulsion
stabilizers; film formers; gel formers; odor masking agents; taste corrigents; resin; hy-
drocolloids; solvents; solubilizers; neutralizing agents; diffusion accelerators; pigments;
5 quaternary ammonium compounds; refatting and overfatting agents; raw materials for
ointments, creams or oils; silicone derivatives; spreading auxiliaries; stabilizers; steri-
lants; suppository bases; tablet auxiliaries, such as binders, fillers, glidants, disinte-
grants or coatings; propellants; drying agents; opacifiers; thickeners; waxes; plasticiz-
ers and white mineral oils. A formulation in this regard is based on specialist knowledge
10 as described, for example, in Fiedler, H.P., Lexikon der Hilfsstoffe für Pharmazie, Kos-
metik und angrenzende Gebiete [Encyclopedia of auxiliary substances for pharmacy,
cosmetics and related fields], 4th edition, Aulendorf: ECV-Editio-Kantor-Verlag, 1996.

The following examples serve to explain the invention without limiting it.

15

The compounds were either characterized via proton-NMR in d₆-dimethylsulfoxid or d-
chloroform on a 400 MHz or 500 MHz NMR instrument (Bruker AVANCE), or by mass
spectrometry, generally recorded via HPLC-MS in a fast gradient on C18-material
(electrospray-ionisation (ESI) mode), or melting point.

20

The magnetic nuclear resonance spectral properties (NMR) refer to the chemical shifts
(δ) expressed in parts per million (ppm). The relative area of the shifts in the ¹H NMR
spectrum corresponds to the number of hydrogen atoms for a particular functional type
in the molecule. The nature of the shift, as regards multiplicity, is indicated as
25 singlet (s), broad singlet (s. br.), doublet (d), broad doublet (d br.), triplet (t), broad trip-
let (t br.), quartet (q), quintet (quint.) and multiplet (m).

Preparation Examples

30

I. Intermediates

a. Synthesis of sulfonyl chlorides

a.1 4-((S)-2-Fluoro-1-methyl-ethyl)-benzenesulfonyl chloride

35

a.1.1 Toluene-4-sulfonic acid (S)-2-phenyl-propyl ester

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To a solution of 20 g of (S)-(-)-2-phenyl-1-propanol in 240 ml of dichloromethane was added in portions 28 g of p-toluenesulfonyl chloride (146.8 mmol). After stirring for 18 h at room temperature, the organic phase was washed with 100 ml of water, dried over magnesium sulfate, filtered, and the solvent evaporated under reduced pressure to yield 43 g of the title compound.

¹H-NMR (CDCl₃, 400 Hz): δ [ppm] 7.65 (d, 2H), 7.15-7.3 (m, 5H), 7.1 (d, 2H), 4.0-4.1 (m, 2H), 3.1 (m, 1H), 2.4 (s, 3H), 1.3 (d, 3H).

a.1.2 ((S)-2-Fluoro-1-methyl-ethyl)-benzene

9.62 g of toluene-4-sulfonic acid (S)-2-phenyl-propyl ester (33.13 mmol) were dissolved in 80 ml of polyethyleneglycol 400. 9.62 g of potassium fluoride (165.6 mmol) were added and the reaction mixture was stirred at 50°C for 3 days and another 2 days at 55-70°C. The reaction was treated with 150 ml of saturated aqueous sodium chloride solution, extracted three times with diethyl ether, and the combined organic layers were dried over magnesium sulfate, filtered, and the solvent was evaporated under reduced pressure. The crude product was purified via silica gel chromatography using cyclohexane/ethyl acetate 15% as eluent. 2.85 g of the desired product were isolated, containing ~ 25% of the elimination side product.

¹H-NMR (CDCl₃, 400 Hz): δ [ppm] 7.2-7.4 (m, 5H), 4.3-4.6 (several m, 2H), 3.15 (m, 1H), 1.3 (m, 3H).

a.1.3 4-((S)-2-Fluoro-1-methyl-ethyl)-benzenesulfonyl chloride

3.5 g of ((S)-2-fluoro-1-methyl-ethyl)-benzene (25.32 mmol) were dissolved in 80 ml of dichloromethane. At 0-5°C, 11.81 g of chlorosulfonic acid (101.31 mmol), dissolved in 20 ml of dichloromethane, were added dropwise. The reaction mixture was stirred for 30 min at room temperature and 2 h at 30°C. The solvent was evaporated. 150 ml of diethyl ether were added to the residue, washed once with 150 ml water, and the organic layer was dried over magnesium sulfate, filtered, and the solvent evaporated under reduced pressure. The crude product was purified via silica gel chromatography with n-heptane-dichloromethane (6:4) as eluent to give 1.5 g of the title compound.

¹H-NMR (CDCl₃, 400 Hz): δ [ppm] 8.0 (d, 2H), 7.5 (d, 2H), 4.5 (dd, 2H), 3.25 (m, 1H), 1.4 (d, 3H).

a.2 4-((R)-2-Fluoro-1-methyl-ethyl)-benzenesulfonyl chloride**a.2.1 Toluene-4-sulfonic acid (R)-2-phenyl-propyl ester**

5 Following the procedure analogous to that used for the synthesis of toluene-4-sulfonic acid (S)-2-phenyl-propyl ester, but using (R)-2-phenyl-1-propanol, the title compound was prepared

a.2.2 ((R)-2-Fluoro-1-methyl-ethyl)-benzene

10

The title compound was prepared as described above for the synthesis of ((S)-2-fluoro-1-methyl-ethyl)-benzene, but using toluene-4-sulfonic acid (R)-2-phenyl-propyl ester instead of toluene-4-sulfonic acid (S)-2-phenyl-propyl ester.

15 ¹H-NMR (CDCl₃, 400 Hz): δ [ppm] 7.2-7.4 (m, 5H), 4.3-4.6 (several m, 2H), 3.15 (m, 1H), 1.3 (m, 3H).

a.2.3 4-((R)-2-Fluoro-1-methyl-ethyl)-benzenesulfonyl chloride

20 1.3 g of ((R)-2-fluoro-1-methyl-ethyl)-benzene (9.4 mmol) were dissolved in 50 ml of dichloromethane. At 0-5°C, 1.1 g of chlorosulfonic acid (9.4 mmol), dissolved in 10 ml of dichloromethane, were added dropwise. The reaction mixture was stirred for 20 min at 0-5°C and then added to a solution of 2.15 g of phosphorous pentachloride dissolved in 40 ml of dichloromethane. The reaction mixture was stirred for 30 min at 0-5°C and 1 h at room temperature. The solvent was evaporated, 100 ml of diethyl ether were added, the mixture was washed once with 150 ml of water, and the organic layer dried over magnesium sulfate, filtered, and the solvent evaporated under reduced pressure. The crude product was purified via silica gel chromatography with *n*-heptane-dichloromethane (1:1) as eluent to give 0.261 g of the title compound.

30 ¹H-NMR (CDCl₃, 400 Hz): δ [ppm] 8.0 (d, 2H), 7.5 (d, 2H), 4.5 (dd, 2H), 3.25 (m, 1H), 1.4 (d, 3H).

a.3 4-(2-Fluoro-1-methyl-ethyl)-benzenesulfonyl chloride

35 Following the procedures analogous to that used for the preparation of 4-((S)-2-fluoro-1-methyl-ethyl)-benzenesulfonyl chloride, but starting with 2-phenyl-1-propanol in step a.3.1, the title compound was prepared.

¹H-NMR (CDCl₃, 400 Hz): δ [ppm] 8.0 (d, 2H), 7.5 (d, 2H), 4.5 (dd, 2H), 3.25 (m, 1H), 1.4 (d, 3H).

a.4 4-(2-Fluoro-1-fluoromethyl-ethyl)-benzenesulfonyl chloride

5

a.4.1 (2-Fluoro-1-fluoromethyl-ethyl)-benzene

4 g of 3-phenylglutaric acid (19.21 mmol) were suspended in 350 ml of dichloromethane. At room temperature, 6.5 g of xenon difluoride (38.42 mmol) were added and the reaction mixture was stirred at room temperature for 18 h. The organic phase was washed once with 975 ml of 6% aqueous sodium hydrogencarbonate, dried over magnesium sulfate, filtered, and the solvent evaporated. The remaining residue was distilled at a bath temperature of 123°C at 21 mm to yield 0.78 g of the title compound that contained ~ 50% of 4-(2-Fluoro-1-methyl-ethyl)-benzene.

10

15

¹H-NMR (CDCl₃, 400 Hz): δ [ppm] 7.2-7.4 (m, 5H), 4.6-4.8 (dd, 4H), 3.3 (m, 1H).

a.4.2 4-(2-Fluoro-1-fluoromethyl-ethyl)-benzenesulfonyl chloride

Following the procedures analogous to that used for the preparation of 4-((S)-2-fluoro-1-methyl-ethyl)-benzenesulfonyl chloride, but using 5 equivalents. of chlorosulfonic acid, 0,12 g of the title compound were obtained.

20

¹H-NMR (CDCl₃, 400 Hz): δ [ppm] 8.05 (d, 2H), 7.55 (d, 2H), 4.75 (dd, 4H), 3.4 (m, 1H).

25

a.5 4-(3,3,3-Trifluoropropyl)-benzenesulfonyl chloride

2.9 g were obtained from commercially available (3,3,3-trifluoropropyl)-benzene following the procedure used for the synthesis of 4-((S)-2-fluoro-1-methyl-ethyl)-benzenesulfonyl chloride described above.

30

¹H-NMR (CDCl₃, 400 Hz): δ [ppm] 8.0 (d, 2H), 7.45 (d, 2H), 3.0 (t, 2H), 2.45 (m, 2H).

a.6 4-(2,2,2-Trifluoroethyl)-benzenesulfonyl chloride

35

The product was obtained from commercially available (2,2,2-trifluoroethyl)-benzene following the procedure as described in J. Org. Chem., 1960, 25, 1824-26.

$^1\text{H-NMR}$ (CDCl_3 , 400 Hz): δ [ppm] 8.05 (d, 2H), 7.55 (d, 2H), 3.5 (q, 2H).

a.7 4-(3-Fluoropropyl)-benzenesulfonyl chloride

5 a.7.1 (3-Fluoropropyl)-benzene

15 15.6 g of diethylaminosulfurtrifluoride (DAST, 96.91 mmol) were dissolved in 18 ml of dichloromethane. At 0-5°C, 12 g of 3-phenyl-1-propanol (88.1 mmol) dissolved in 30 ml of dichloromethane, were added dropwise. The reaction mixture was stirred for 18 h, and, after addition of 30 ml of dichloromethane, poured onto 100 ml of ice water. The organic layer was separated, dried over magnesium sulfate, filtered, and the solvent evaporated. The crude product was purified by distillation at a bath temperature of 106°C at 20 mm to yield 7.4 g of the title compound.

15 $^1\text{H-NMR}$ (CDCl_3 , 400 Hz): δ [ppm] 7.1-7.3 (m, 5H), 4.4 (dt, 2H), 2.7 (m, 2H). 2.0 (m, 2H).

a.7.2 4-(3-Fluoropropyl)-benzenesulfonyl chloride

20 4.1 g of (3-fluoro-propyl)-benzene (29.67 mmol) were dissolved in 40 ml of dichloromethane. At 0-5°C, 6.91 g of chlorosulfonic acid (59.34 mmol), dissolved in 10 ml of dichloromethane, were added dropwise. The reaction mixture was stirred for 45 min at 0-5°C and then added to a solution of 6.8 g of phosphorous pentachloride (32.63 mmol) dissolved in 50 ml of dichloromethane. The reaction mixture was stirred for 1 h at 5-10°C. The solvent was evaporated, 150 ml of diethyl ether added, washed once with 150 ml of ice water, and the organic layer dried over magnesium sulfate, filtered, and the solvent evaporated under reduced pressure. The crude product was purified via silica gel chromatography with n-heptane-dichloromethane (11:9) as eluent to give 5.5 g of the title compound.

30 $^1\text{H-NMR}$ (CDCl_3 , 400 Hz): δ [ppm] 7.95 (d, 2H), 7.45 (d, 2H), 4.5 (dt, 2H), 2.9 (t, 2H), 2.05 (m, 2H).

a.8 4-(2,2-Difluoro-cyclopropyl)-benzenesulfonyl chloride

35 2.07 g of were obtained from commercially available (2,2-difluorocyclopropyl)-benzene following the procedure used for the synthesis of (3-fluoropropyl)-benzenesulfonyl chloride with the exception that only 1.1 equivalents of phospho-

rous pentachloride were used.

¹H-NMR (CDCl₃, 400 Hz): δ [ppm] 8.0 (d, 2H), 7.45 (d, 2H), 2.85 (m, 1H), 2.0 (m, 1H), 1.75 (m, 1H).

5 a.9 3-Bromo-4-trifluoromethoxy-benzenesulfonyl chloride

2.0 g of 1-bromo-2-(trifluoro-methoxy)benzene (8.3 mmol) were dissolved in 30 ml of dichloromethane. At 0-5°C, 1.06 g of chlorosulfonic acid (9.13 mmol), dissolved in 3 ml of dichloromethane, were added dropwise. The reaction mixture was stirred for 30 min at room temperature. Additional 5.5 equivalents of chlorosulfonic in dichloromethane were added to drive the reaction to completion. Standard work-up was followed and silica gel chromatography with n-heptane-dichloromethane (6:4) as eluent gave 2.19 g of the title compound.

¹H-NMR (CDCl₃, 400 Hz): δ [ppm] 8.3 (d, 1H), 8.05 (dd, 1H), 7.5 (dd, 1H).

15

a.10 4-(2-Fluoroethyl)-benzenesulfonylchloride

a.10.1 (2-Fluoroethyl)-benzene

20 6.8 g of were obtained from commercially available 2-phenyl-ethanol following the procedure used for the synthesis of (3-fluoropropyl)-benzene.

¹H-NMR (CDCl₃, 400 Hz): δ [ppm] 7.1-7.3 (m, 5H), 4.6 (m, 1H), 4.45 (m, 1H), 2.95 (m, 1H), 2.9 (m, 1H).

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a.10.2 4-(2-Fluoroethyl)-benzenesulfonyl chloride

3.55 g were obtained following the procedure used for the synthesis of 4-((R)-2-fluoro-1-methyl-ethyl)-benzenesulfonyl chloride.

30 ¹H-NMR (CDCl₃, 400 Hz): δ [ppm] 8.0 (d, 2H), 7.5 (d, 2H), 4.7 (dt, 2H), 3.05-3.2 (dt, 2H).

a.11 5-Propylthiophene-2-sulfonyl chloride

35 Following the procedures analogous to that used for the preparation of (3-fluoropropyl)-benzenesulfonyl chloride, but using only 1 equivalent of phosphorous pentachloride, the title compound was prepared.

$^1\text{H-NMR}$ (CDCl_3 , 400 Hz): δ [ppm] 7.7 (d, 1H), 6.85 (d, 1H), 2.9 (t, 2H), 1.75 (m, 2H), 1.0 (t, 3H).

5 a.12 4-(1-Methyl-1H-pyrazol-4-yl)-benzenesulfonyl chloride

a.12.1 1-Methyl-4-phenyl-1H-pyrazole

10 1 g of 2-phenylmalonaldehyde (6.75 mmol) were dissolved in 25 ml of ethanol. 0.36 ml of N-methyl-hydrazine (6.75 mmol) were added, the reaction mixture was stirred under reflux for 4 h, the solvent evaporated under reduced pressure to yield 1.09 g of the product.

ESI-MS: 159.1 [M+H]⁺

$^1\text{H-NMR}$ (CDCl_3 , 400 Hz): δ [ppm] 7.75 (s, 1H), 7.6 (s, 1H), 7.45 (d, 2H), 7.35 (t, 2H), 7.2 (t, 1H), 3.9 (s, 3H)

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a.12.2 4-(1-Methyl-1H-pyrazol-4-yl)-benzenesulfonyl chloride

20 0.5 g of 1-methyl-4-phenyl-1H-pyrazole (3.16 mmol) were dissolved in 20ml of dichloromethane. At 0°C, 0.232 ml of chlorosulfonic acid were added and the reaction mixture was stirred for 1 h under ice cooling. Additional 0.7 ml of chlorosulfonic acid were added, the mixture was stirred at 0°C for 30 minutes and then 90 minutes at 50°C. The two phases were separated and the lower layer put on ice, extracted twice with diethyl ether, dried over magnesium sulfate, filtered, and the solvent evaporated under reduced pressure to yield 0.496 g of the product.

25 $^1\text{H-NMR}$ (CDCl_3 , 400 Hz): δ [ppm] 8.0 (d, 2H), 7.85 (s, 1H), 7.75 (s, 1H), 7.65 (d, 2H), 4.0 (s, 3H).

30 a.13 4-(1,1,1-Trifluoropropan-2-yl)benzenesulfonyl chloride and
2-(1,1,1-trifluoropropan-2-yl)benzenesulfonyl chloride

Prepared on a 14 g scale following the procedure outlined in Scheme 7. 2-(1,1,1-Trifluoropropan-2-yl)benzenesulfonyl chloride is a by-product of the reaction.

35 4-(1,1,1-Trifluoropropan-2-yl)benzenesulfonyl chloride:

MS (ESI) m/z : 273.1 [M+H]⁺

$^1\text{H-NMR}$ (DMSO): δ [ppm] 7.62 (d, 2H), 7.33 (d, 2H), 3.81 (m, 1H), 1.42 (d, 3H).

2-(1,1,1-Trifluoropropan-2-yl)benzenesulfonyl chloride:

MS (ESI) m/z : 273.1 [M+H]⁺

- 5 a.14 4-(1,1-Difluoropropan-2-yl)benzenesulfonyl chloride and
2-(1,1-Difluoropropan-2-yl)benzene-1-sulfonyl chloride

Prepared on an 11 g scale following the procedure outlined in Scheme 6. 2-(1,1-Difluoropropan-2-yl)benzene-1-sulfonyl chloride is a by-product of the reaction.

10

4-(1,1-Difluoropropan-2-yl)benzenesulfonyl chloride:

MS (ESI) m/z : 255.0 [M+H]⁺

¹H-NMR (DMSO): δ [ppm] 8.03 (d, 2H), 7.55 (d, 2H), 5.88 (dt, 1H), 3.34 (m, 1H),
1.47 (d, 3H).

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¹³C-NMR (DMSO): δ [ppm] 146.43, 143.54, 129.77, 127.28, 117.06 (t), 43.76,
13.78.

2-(1,1-difluoropropan-2-yl)benzene-1-sulfonyl chloride:

Isolated by chromatography on 110 mg scale.

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MS (ESI) m/z : 255.0 [M+H]⁺

¹H-NMR (DMSO-d₆): δ [ppm] 8.15 (d, 1H), 7.77 (t, 1H), 7.70 (d, 1H), 7.54 (t, 1H),
5.99 (dt, 1H), 4.43 (m, 1H), 1.51 (d, 3H).

¹³C-NMR (DMSO-d₆): δ [ppm] 143.45, 138.63, 135.53, 130.93, 129.04, 128.17,
116.61 (t), 38.38, 13.68.

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II. Preparation of the compounds I

EXAMPLE 1

4-Isopropyl-N-((*R*)-2-propylamino-indan-5-yl)-benzenesulfonamide

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1.1 5-Bromo-indan-2-ylamine hydrobromide

52.5 g of indan-2-ylamine (310 mmol) were dissolved in 260 ml of water and warmed to 60°C. 52.9 g of bromine (331.5 mmol) were added within 1 h. After stirring at 60-63°C for 1 h, 47.5 ml of 50% hydrogen bromide solution were added within 5 minutes, followed by 10 minutes stirring. The reaction mixture was stirred for 1 h at room temperature, the suspension filtered and the precipitate

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washed 3 times with 6 ml isopropanol each. The filter cake was dried in vacuo to yield 69.6 of the crude bromo compound. This material was suspended in 150 ml of water, warmed to 100°C and an additional 30 ml water added to get a clear solution. Stirring continued for 3 h at room temperature. The precipitate was filtered off, washed three times with 10 ml cold water and then dried in vacuo at 50°C for 15 h to yield 58.9 g of the crystalline product.

ESI-MS: 211.9/213.9 [M+H]⁺

¹H-NMR (DMSO-d₆): δ [ppm] 7.9-8.2 (broad, 3H), 7.5 (s, 1H), 7.4 (m, 1H), 7.25 (m, 1H), 4.0 (m, 1H), 3.2-3.35 (m, 2H), 2.85-3.0 (m, 2H).

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1.2 (R)-5-Bromo-indan-2-ylamine

25 g of 5-bromo-indan-2-ylamine hydrobromide (85.32 mmol) and 9.85 ml of 4-methylmorpholin (89.59 mmol) were dissolved in 53 ml of methanol. The mixture was heated to 60°C and a solution of 25.77 g of (1S)-(+)-campher-10-sulfonic acid (110.92 mmol) in 42 ml of methanol added within 25 minutes. The reaction mixture was stirred for 10 minutes at 60°C and then allowed to cool down to room temperature over a 2 h time period, with stirring continuing for another 2 h. The precipitate was filtered, washed twice with 20 ml of ethyl acetate/methanol (2:1) and 20 ml of water, and finally dried at 50°C under vacuo for 15 h to give 13.3 g of the salt.

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This material was dissolved in 100 ml of 1 N aqueous sodium hydroxide and extracted three times with 250 ml of diethyl ether each. The combined organic layers were dried over magnesium sulfate, filtered, and the solvent evaporated under reduced pressure to yield 5.95 g of the indane as free base. The enantiomeric purity was checked via chiral HPLC on a DAICEL Chiralcel OJ column (4.6 x 250 mm) using n-hexane:isopropanol:triethylamine (90:10:0.1) as eluent: 98 % (R) – 2 % (S).

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1.3 ((R)-5-Bromo-indan-2-yl)-carbamic acid tert-butyl ester

5.95 g of (R)-5-bromo-indan-2-ylamine (28.05 mmol) were dissolved in 100 ml of dichloromethane. 12 ml of triethylamine (86.2 mmol) and 7.65 g of di-tert.-butyldicarbonate (35.07 mmol) were added, the reaction mixture stirred for 1 h at room temperature and extracted twice with 50 ml of water each. The organic phase was dried over magnesium sulfate, filtered, and the solvent evaporated

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under reduced pressure to yield 10.6 g of product. This material was redissolved in diethyl ether, washed with water, the aqueous phase reextracted with diethyl ether, and the combined organic layers dried over magnesium sulfate, filtered, and the solvent evaporated under reduced pressure to yield 9.4 g of product.

5 $^1\text{H-NMR}$ (CDCl_3): δ [ppm] 7.35 (s, 1H), 7.25 (m, 1H), 7.05 (m, 1H), 4.7 (s, broad, 1H), 4.4 (s, broad, 1H), 3.1-3.3 (m, 2H), 2.65-2.8 (m, 2H), 1.35-1.55 (9H).

1.4 ((R)-5-Bromo-indan-2-yl)-propyl-carbamic acid tert-butyl ester

10 3 g of ((R)-5-Bromo-indan-2-yl)-carbamic acid tert-butyl ester (9.61 mmol) were dissolved in 20 ml of dimethylformamide and 0.442 g of sodium hydride (60 % in mineral oil) (11.05 mmol) added. Stirring continued for 14 minutes before 1.3 g of propylbromide (10.57 mmol) were added. The reaction mixture was stirred at room temperature for 15 h and at 40°C for 3h. An additional equivalent of sodium hydride and 0.7 ml propylbromide were added followed by stirring for 2 h at 40°C
15 and 15 h at room temperature. The solvent was evaporated under reduced pressure, the residue treated with water and extracted three times with diethyl ether. The combined organic layers were washed once with water, dried over magnesium sulfate, filtered, and the solvent evaporated under reduced pressure to yield 3.77 g of crude product which was used in the subsequent reaction without further purification.

20 ESI-MS: 378.0 $[\text{M}+\text{Na}]^+$

$^1\text{H-NMR}$ (CDCl_3): δ [ppm] 7.2-7.35 (m, 2H), 7.05 (m, 1H), 4.65 (s, broad, 1H), 2.9-3.3 (several m, 6H), 1.2-1.65 (several m, 11H), 0.85 (m, 3H).

25 1.5 ((R)-5-amino-indan-2-yl)-propyl-carbamic acid tert-butyl ester

3.77 g of ((R)-5-Bromo-indan-2-yl)-propyl-carbamic acid tert-butyl ester (3.84 mmol) were dissolved in 70 ml toluene under argon. 0.1 g of tris(dibenzylideneacetone)dipalladium(0) (0.11 mmol) and 0.116 g of tri-tert.butylphosphin (0.58 mmol) were added and stirring continued for 15 minutes at room temperature. 8.5 ml of 1 molar bis-(trimethylsilyl)lithiumamide in tetrahydrofuran (8.45 mmol) were added within 10 minutes and the reaction mixture stirred at 100°C for 3 h. After cooling to room temperature, 25 ml of 1 N hydrochloric acid and 25 ml of water were added, the phases separated, the organic phase washed again with 10 ml of 1 N hydrochloric acid. The combined aqueous
35 phases were adjusted to alkaline pH with 50% aqueous sodium hydroxide, ex-

tracted three times with diethyl ether, the combined organic phases dried over magnesium sulfate, filtered, and the solvent evaporated under reduced pressure to yield 0.58 g of crude product which was used in the subsequent reaction without further purification.

5 ESI-MS: 291.1 [M+H]⁺, 235.1 [M-tBu+H]⁺, 191.1 [M-Boc+H]⁺

1.6 (R)-5-(4-Isopropyl-benzenesulfonylamino)-indan-2-yl]-propyl-carbamic acid tert-butyl ester

10 0.58 g of ((R)-5-amino-indan-2-yl)-propyl-carbamic acid tert-butyl ester (2.0 mmol) were dissolved in 20 ml of tetrahydrofuran and 0.393 mg of 4-isopropyl-benzenesulfonylchloride (1.8 mmol) and 0.83 ml of triethylamine (6 mmol) added. After stirring for 18 h at room temperature, the solvent was evaporated under reduced pressure, the remaining material partitioned between diethyl ether and water, the aqueous layer reextracted with diethylether, and the combined organic layers dried over magnesium sulfate, filtered, and the solvent evaporated. The crude material was purified via silica gel chromatography with cyclohexane-ethyl acetate (12.5 %) as eluent. Fractions combining the product were combined and the solvent removed under reduced pressure to yield 0.584 g of product.

15 ESI-MS: 495.2 [M+Na]⁺, 417.1 [M-tBu+H]⁺, 373.1 [M-Boc+H]⁺

1.7 4-Isopropyl-N-((R)-2-propylamino-indan-5-yl)-benzenesulfonamide

25 0.58 g of (R)-5-(4-Isopropyl-benzenesulfonylamino)-indan-2-yl]-propyl-carbamic acid tert-butyl ester (1.24 mmol) were dissolved in 10 ml of dichloromethane and 0.5 ml of trifluoroacetic acid (6.53 mmol) added. The reaction was stirred for 15 at room temperature and the solvents evaporated under reduced pressure. The residue was taken up in water, adjusted to alkaline pH with 1 N aqueous sodium hydroxide and extracted three times with diethyl ether. The combined organic layers were dried over magnesium sulfate, filtered, and the solvent evaporated to yield 0.365 g of product.

ESI-MS: 373.1 [M+H]⁺

30 ¹H-NMR (CDCl₃): δ [ppm] 7.65 (d, 2H), 7.25 (d, 2H), 7.0 (m, 1H), 6.9 (s, 1H), 6.8 (m, 1H), 3.65 (m, 1H), 3.05 (m, 2H), 2.9 (m, 1H), 2.6-2.7 (m, 4H), 1.5 (m, 2H), 1.2 (m, 6H), 0.9 (m, 3H).

EXAMPLE 2**4-Isopropyl-N-((S)-2-propylamino-indan-5-yl)-benzenesulfonamide hydrochloride****2.1 (S)-5-Bromo-indan-2-ylamine**

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2.93 g of (S)-5-bromo-indan-2-ylamine were prepared as described for the (R)-enantiomer starting from 12.5 of racemic 5-bromo-indan-2-ylamine and the corresponding (1R)-(-)-campher-sulfonic acid. The enantiomeric purity was checked via chiral HPLC on a DAICEL Chiralcel OJ column (4.6 x 250 mm) using n-

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hexane:isopropanol:triethylamine (90:10:0.1) as eluent: 99 % (S) – 1 % (R).

2.2 ((S)-5-Bromo-indan-2-yl)-carbamic acid tert-butyl ester

4.81 g of ((S)-5-Bromo-indan-2-yl)-carbamic acid tert-butyl ester were prepared as described for the (R)-enantiomer.

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ESI-MS: 336.0 [M+Na]⁺, 255.9 [M-tBu+H]⁺, 211.9 [M-Boc+H]⁺

2.3 ((S)-5-Bromo-indan-2-yl)-propyl-carbamic acid tert-butyl ester

4.55 g of ((S)-5-Bromo-indan-2-yl)-propyl-carbamic acid tert-butyl ester were prepared as described for the (R)-enantiomer.

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ESI-MS: 378.0 [M+Na]⁺

¹H-NMR (CDCl₃): δ [ppm] 7.2-7.35 (m, 2H), 7.05 (m, 1H), 4.65 (s, broad, 1H), 2.9-3.3 (several m, 6H), 1.2-1.65 (several m, 11H), 0.85 (m, 3H).

25

2.4 ((S)-5-amino-indan-2-yl)-propyl-carbamic acid tert-butyl ester

0.59 g of ((S)-5-amino-indan-2-yl)-propyl-carbamic acid tert-butyl ester were prepared as described for the (R)-enantiomer.

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2.5 (S)-5-(4-Isopropyl-benzenesulfonylamino)-indan-2-yl]-propyl-carbamic acid tert-butyl ester

0.381 g of (S)-5-(4-Isopropyl-benzenesulfonylamino)-indan-2-yl]-propyl-carbamic acid tert-butyl ester were prepared as described for the (R)-enantiomer.

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ESI-MS: 495.2 [M+Na]⁺, 417.1 [M-tBu+H]⁺, 371.1 [M-Boc+H]⁺

2.6 4-Isopropyl-N-((S)-2-propylamino-indan-5-yl)-benzenesulfonamide hydrochloride

0.28 g of 4-Isopropyl-N-((S)-2-propylamino-indan-5-yl)-benzenesulfonamide were prepared as described for the (R)-enantiomer.

5 ESI-MS: 373.1 [M+H]⁺

¹H-NMR (DMSO-d₆): δ [ppm] 10.25 (s, 1H), 9.3 (s, broad, 2H), 7.7 (d, 2H), 7.4 (d, 2H), 7.1 (m, 1H), 7.0 (m, 1H), 6.9 (m, 1H), 3.9 (m, 1H), 2.75-3.5 (several m, 7H), 1.65 (m, 2H), 1.2 (m, 6H), 0.9 (m, 3H).

10 EXAMPLE 3

4-Isopropyl-N-methyl-N-((S)-2-propylamino-indan-5-yl)-benzenesulfonamide

3.1 {(S)-5-[(4-Isopropyl-benzenesulfonyl)-methyl-amino]-indan-2-yl}-propyl-carbamic acid tert-butyl ester

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0.68 mmol of ((S)-5-Bromo-indan-2-yl)-propyl-carbamic acid tert-butyl ester were dissolved in 2.5 ml of trifluoromethylbenzene. 0.077 mg of tris-(dibenzylidenacetone)-dipalladium(0) (0.08 mmol) and 0.068 mg of tri-tert-butylphosphine (0.34 mmol) were added. 0.362 mg of 4-isopropyl-benzene-N-methyl-sulfonamide (1.7 mmol) dissolved in 2.5 ml of trifluoromethylbenzene were treated with 0.068 mg of sodium hydride (60% in mineral oil), and the resulting suspension added to the indane solution. The reaction mixture was stirred at 150°C for 1 h in the microwave (CEM), the solvent evaporated under reduced pressure, water added and the aqueous phase extracted twice with diethyl ether.

20 The combined organic layers were dried over magnesium sulfate, filtered, and the solvent evaporated to yield 1 g of a brownish oil that was further purified via silica gel chromatography using cyclohexane/ethyl acetate 7.5 % as eluent. Fractions containing the product were combined and the solvent evaporated to yield 0.197 g of the product.

25 ESI-MS: 509.2 [M+Na]⁺, 431.1 [M-tBu+H]⁺, 387.1 [M-Boc+H]⁺

30

3.2 4-Isopropyl-N-methyl-N-((S)-2-propylamino-indan-5-yl)-benzenesulfonamide

0.117 g of 4-Isopropyl-N-methyl-N-((S)-2-propylamino-indan-5-yl)-benzenesulfonamide were prepared as described for the N-desmethyl compound by treatment with trifluoro acetic acid in dichloromethane.

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ESI-MS: 387.1 [M+H]⁺

¹H-NMR (DMSO): δ [ppm] 9.4 (s, broad, 2H), 7.45 (m, 4H), 7.2 (m, 1H), 7.0 (m, 1H), 6.85 (m, 1H), 3.95 (m, 1H), 2.8-3.45 (several m, 10H), 1.8 (m, 2H), 1.2 (m, 6H), 0.9 (m, 3H).

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EXAMPLE 4

trans-4-Isopropyl-N-(1-propyl-2,3,4,4a,9,9a-hexahydro-1H-indeno[2,1-b]pyridin-6-yl)-benzenesulfonamide

10 4.1 *trans*-2,3,4,4a,9,9a-hexahydro-1-propyl-1H-indeno[2,1-b]pyridine

A solution of *trans*-2,3,4,4a,9,9a-hexahydro-1H-indeno[2,1-b]pyridinium hydrochloride (3.00 g, 14.3 mmol) and triethylamine (4.36 g, 43.1 mmol) in 95 ml of N,N-dimethylformamide was stirred at room temperature and bromopropane
15 (1.85 g, 15.04 mmol) added dropwise. After the mixture was stirred for 18 h at room temperature, the solvent was removed and ethyl acetate / water were added. The organic layer was washed with water and dried over MgSO₄. The filtrate was concentrated to give a yellow oil (11.66 g, 82%).

MS (ESI⁺) m/z = 216.1 [M+H]⁺

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4.2 *trans*-2,3,4,4a,9,9a-hexahydro-7-nitro-1-propyl-1H-indeno[2,1-b] pyridine and 6-nitro isomer

Trans-2,3,4,4a,9,9a-hexahydro-1-propyl-1H-indeno[2,1-b]pyridine (2.50 g, 11.6
25 mmol) was dissolved in nitromethane (30 ml) and cooled to 5°C. A solution of concentrated H₂SO₄ (11.3 ml), nitric acid (1.0 ml, 65%) and water (1.80 ml) was added dropwise over 30 mins. After stirring for a further 2 hours, the solution was poured into water and extracted with ethyl acetate. The organic phase was dried over MgSO₄, filtered, and the filtrate was evaporated in vacuo to give the
30 product as an orange oil (3.00 g, 99%).

MS (ESI) m/z: 261.1 [M+H]⁺

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4.3 *trans*-2,3,4,4a,9,9a-Hexahydro-1-propyl-1H-indeno[2,1-b]pyridin-7-amine and 6-amino isomer

The mixture of nitro compounds (3.00 g, 11.5 mmol) was dissolved in methanol (100 ml) and tin chloride (10.7 g, 47.6 mmol) added. The solution was heated to reflux for 3 h and then evaporated. The residue was partitioned between ethyl acetate and NaOH (2M), and the organic phase separated and dried over
5 MgSO₄. The filtered solution was concentrated and the residue separated by preparative HPLC (20-90% methanol) to give a mixture of the 6-amino and 7-amino isomers (1.59 g, 58%). A small quantity of the desired 7-amino isomer was obtained pure as a yellow oil and characterized.

MS (ESI) m/z: 231.1 [M+H]⁺

10 ¹H-NMR (DMSO): δ [ppm] 6.84 (d, 1H), 6.35 (s, 1H), 6.32 (d, 1H), 3.02 (m, 1H) 2.79 (m, 1H), 2.60 (m, 1H), 2.45 (m, 2H), 2.10 (m, 3H), 1.73 (m, 1H), 1.61 (m, 2H), 1.47 (m, 2H), 1.14 (m, 2H), 0.87 (t, 3H).

¹³C-NMR (DMSO): δ [ppm] 172.1, 147.3, 145.4, 141.2, 132.1, 127.4, 124.5, 121.7, 111.7, 110.8, 108.0, 73.7, 57.2, 53.3, 48.5, 47.7, 36.1, 35.1, 27.0, 26.6,
15 25.6, 21.2, 19.1, 12.0.

4.4 4-Isopropyl-N-((4aS,9aS)-1-propyl-2,3,4,4a,9,9a-hexahydro-1H-indeno[2,1-b]pyridin-6-yl)-benzenesulfonamide and 4-Isopropyl-N-((4aR,9aR)-1-propyl-2,3,4,4a,9,9a-hexahydro-1H-indeno[2,1-b]pyridin-6-yl)-benzenesulfonamide

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The mixture of amines (200 mg, 0.87 mmol) was dissolved in pyridine-dichloromethane (1:2, 15 ml) and cooled to 5°C. 4-Isopropylbenzenesulfonyl chloride (200 mg, 0.91 mmol) was added and the solution stirred at 5°C for 18h. Solution was evaporated, partitioned between ethyl acetate and water, and the
25 organic phase separated and dried over MgSO₄. The filtered solution was concentrated and separated by preparative chiral HPLC (20-95% methanol) to give the pure (RR) and (SS) products and a mixed fraction (92 mg, 22%). The 1st product was obtained as a colorless oil (21 mg, 5%) and is 4-isopropyl-N-((4aS,9aS)-1-propyl-2,3,4,4a,9,9a-hexahydro-1H-indeno[2,1-b]pyridin-6-yl)-
30 benzenesulfonamide; the 2nd product, 4-isopropyl-N-((4aR,9aR)-1-propyl-2,3,4,4a,9,9a-hexahydro-1H-indeno[2,1-b]pyridin-6-yl)-benzenesulfonamide, was obtained as a colorless oil (8.5 mg, 2%).

35 4-Isopropyl-N-((4aS,9aS)-1-propyl-2,3,4,4a,9,9a-hexahydro-1H-indeno[2,1-b]pyridin-6-yl)-benzenesulfonamide:

MS (ESI) m/z: 413.1 [M+H]⁺

¹H-NMR (DMSO): δ [ppm] 7.69 (d, 2H), 7.42 (d, 2H), 7.14 (d, 1H), 6.94 (m, 2H), 3.60 (d, 1H), 3.30 (m, 1H), 3.15 (m, 2H), 2.90 (m, 4H), 2.65 (m, 4H), 2.22 (m, 1H), 1.91 (m, 1H), 1.70 (m, 2H), 1.22 (d, 6H), 0.88 (t, 3H);

5 4-Isopropyl-N-((4aR,9aR)-1-propyl-2,3,4,4a,9,9a-hexahydro-1H-indeno[2,1-b]pyridin-6-yl)-benzenesulfonamide:

MS (ESI) m/z: 413.1 [M+H]⁺

¹H-NMR (DMSO): δ [ppm] 7.68 (d, 2H), 7.41 (d, 2H), 7.14 (m, 2H), 6.94 (m, 1H), 3.61 (d, 1H), 3.22 (m, 2H), 3.13 (m, 1H), 2.92 (m, 5H), 2.31 (m, 2H), 1.95 (m, 2H), 1.74 (m, 2H), 1.40 (m, 2H), 1.19 (d, 6H), 0.93 (t, 3H).

EXAMPLE 5 (reference example)

N-((R)-2-Amino-indan-5-yl)-4-(2,2-difluoro-cyclopropyl)-benzenesulfonamide

15 Following the standard sulphonamide coupling procedure analogous to that described above and TFA deprotection of the BOC-group as described above the title compound was prepared. Yield for the two steps: 65%.

MS (ESI) m/z: 365.1 [M+H]⁺

¹H-NMR (DMSO): δ [ppm] 10.24 (s, 1H), 8.00 (br s, 2H), 7.71 (d, 2H), 7.48 (d, 20 2H), 7.12 (d, 1H), 7.02 (s, 1H), 6.96 (d, 1H), 3.96 (m, 1H), 3.14 (m, 3H), 2.83 (m, 2H), 2.01 (m, 2H).

EXAMPLE 6

N-((R)-2-Allylamino-indan-5-yl)-4-(2,2-difluoro-cyclopropyl)-benzenesulfonamide

25 Following the standard sulphonamide coupling procedure analogous to that described above and TFA deprotection of the BOC-group as described above the title compound was prepared. Yield for the two steps: 33%.

MS (ESI) m/z: 405.1 [M+H]⁺

¹H-NMR (MeOD): δ [ppm] 7.66 (d, 1H), 7.60 (d, 1H), 7.22 (m, 2H), 6.98 (d, 1H), 30 6.94 (s, 1H), 6.79 (d, 1H), 5.82 (m, 1H), 5.30 (m, 2H), 3.81 (m, 1H), 3.42 (m, 4H), 3.06 (m, 2H), 2.80 (m, 2H), 1.81 (m, 1H), 1.67 (m, 1H).

EXAMPLE 7

35 N-((R)-2-Dipropylamino-indan-5-yl)-4-isopropyl-benzenesulfonamide hydrochloride

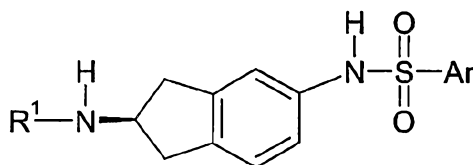
Following the standard sulphonamide coupling procedure analogous to that described above and TFA deprotection of the BOC-group as described above the title compound was prepared.

ESI-MS: 415.3 [M+H]⁺

- 5 ¹H-NMR (DMSO-d₆, 400 Hz): δ [ppm] 11.0 (bs, 1H), 10.2 (s, 1H), 7.7 (d, 2H), 7.4 (d, 2H), 7.05 (d, 1H), 7.0 (s, 1H), 6.9 (d, 1H), 4.1 (m, 1H), 3.1-3.3 (m, 4H), 2.85-3.05 (m, 5H), 1.7 (m, 4H), 1.15 (d, 6H), 0.9 (t, 6H).

- 10 The compounds of the general formula I.1 and 1.2 ((R)- and (S)-isomers of compounds I with R^{1a} = H; R² = H, R^{2a} = H, X = CH; E = NH) and the compounds of the general formula I.3 (compounds I with R^{1a} and R² together are -CH₂-CH₂-CH₂-, X = CH; E = NH) listed in Table 1, 2 and 3 below can be prepared in an analogous manner.

Table 1:



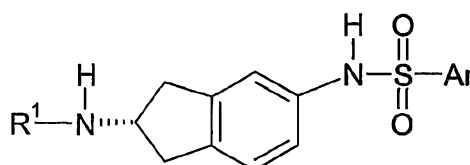
(I.1)

15

Ex#	R ¹	Ar	spectroscopic data/ melting point [°C]
8	propyl	4-(1-fluoro-1-methyl-ethyl)phenyl	
9	propyl	4-(2-fluoro-ethyl)phenyl	
10	propyl	4-(2,2,2-trifluoroethyl)phenyl	
11	propyl	4-(1,1-difluoroethyl)phenyl	
12	propyl	4-(2,2-difluorocyclopropyl)phenyl	
13	propyl	4-((R)-1-fluoro-ethyl)phenyl	
14	propyl	4-((S)-1-fluoro-ethyl)phenyl	
15	propyl	4-(1-difluoromethyl-2,2-difluoro-ethyl)phenyl	
16	propyl	4-((S)-2,2,2-trifluoro-1-methyl-ethyl)phenyl	
17	propyl	4-((R)-2,2,2-Trifluoro-1-methyl-ethyl)phenyl	
18	propyl	4-((S)-2,2-difluoro-1-methyl-ethyl)phenyl	
19	propyl	4-((R)-2,2-difluoro-1-methyl-ethyl)phenyl	
20	propyl	(5-isopropyl)pyrimidyl-2-yl	

Ex#	R ¹	Ar	spectroscopic data/ melting point [°C]
21	propyl	(2-isopropyl)pyrimidyl-5-yl	
22	propyl	(5-isopropyl)thiophen-2-yl	
23	ethyl	4-isopropyl-phenyl	
24	methyl	4-isopropyl-phenyl	
25	2-fluoro-ethyl	4-isopropyl-phenyl	
26	allyl	4-isopropyl-phenyl	
27	3-fluoro-propyl	4-isopropyl-phenyl	
28	propyl	4-cyclopropyl-phenyl	
29	propyl	4-cyclobutyl-phenyl	
30	propyl	4-((R)-2-fluoro-1-methyl-ethyl)phenyl	
31	propyl	4-((S)-2-Fluoro-1-methyl-ethyl)phenyl	
32	propyl	4-(2-fluoro-1-fluoromethyl-ethyl)phenyl	

Table 2:



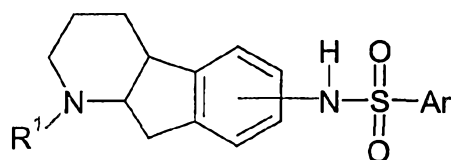
5

Ex#	R ¹	Ar	spectroscopic data/ melting point [°C]
33	propyl	4-((R)-2-fluoro-1-methyl-ethyl)phenyl	
34	propyl	4-((S)-2-fluoro-1-methyl-ethyl)phenyl	
35	propyl	4-(2-fluoro-1-fluoromethyl-ethyl)phenyl	
36	propyl	4-(1-fluoro-1-methyl-ethyl)phenyl	
37	propyl	4-(2-fluoro-ethyl)phenyl	
38	propyl	4-(2,2,2-trifluoroethyl)phenyl	
39	propyl	4-(1,1-difluoroethyl)phenyl	

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Ex#	R ¹	Ar	spectroscopic data/ melting point [°C]
40	propyl	4-(2,2-difluorocyclopropyl)phenyl	
41	propyl	4-((R)-1-fluoro-ethyl)phenyl	
42	propyl	4-((S)-1-fluoro-ethyl)phenyl	
43	propyl	4-(1-difluoromethyl-2,2-difluoro-ethyl)phenyl	
44	propyl	4-((S)-2,2,2-trifluoro-1-methyl-ethyl)phenyl	
45	propyl	4-((R)-2,2,2-trifluoro-1-methyl-ethyl)phenyl	
46	propyl	4-((S)-2,2-difluoro-1-methyl-ethyl)phenyl	
47	propyl	4-((R)-2,2-difluoro-1-methyl-ethyl)phenyl	
48	propyl	(5-isopropyl)pyrimidyl-2-yl	
49	propyl	(2-isopropyl)pyrimidyl-5-yl	
50	propyl	(5-isopropyl)thiophen-2-yl	
51	ethyl	4-isopropyl-phenyl	
52	methyl	4-isopropyl-phenyl	
53	2-fluoro-ethyl	4-isopropyl-phenyl	
54	allyl	4-isopropyl-phenyl	
55	3-fluoro-propyl	4-isopropyl-phenyl	
56	propyl	4-cyclopropyl-phenyl	
57	propyl	4-cyclobutyl-phenyl	

Table 3:



(I.3)

Ex#	R ¹	Ar	spectroscopic data/ melting point [°C]
58	propyl	4-((R)-2-fluoro-1-methyl-ethyl)phenyl	
59	propyl	4-((S)-2-fluoro-1-methyl-ethyl)phenyl	

Ex#	R ¹	Ar	spectroscopic data/ melting point [°C]
60	propyl	4-(2-fluoro-1-fluoromethyl-ethyl)phenyl	
61	propyl	4-(1-fluoro-1-methyl-ethyl)phenyl	
62	propyl	4-(2-fluoro-ethyl)phenyl	
63	propyl	4-(2,2,2-trifluoroethyl)phenyl	
64	propyl	4-(1,1-difluoroethyl)phenyl	
65	propyl	4-(2,2-difluorocyclopropyl)phenyl	
66	propyl	4-((R)-1-fluoro-ethyl)phenyl	
67	propyl	4-((S)-1-fluoro-ethyl)phenyl	
68	propyl	4-(1-difluoromethyl-2,2-difluoro-ethyl)phenyl	
69	propyl	4-((S)-2,2,2-trifluoro-1-methyl-ethyl)phenyl	
70	propyl	4-((R)-2,2,2-trifluoro-1-methyl-ethyl)phenyl	
71	propyl	4-((S)-2,2-difluoro-1-methyl-ethyl)phenyl	
72	propyl	4-((R)-2,2-difluoro-1-methyl-ethyl)phenyl	
73	propyl	(5-isopropyl)pyrimidyl-2-yl	
74	propyl	(2-isopropyl)pyrimidyl-5-yl	
75	propyl	(5-isopropyl)thiophen-2-yl	
76	ethyl	4-isopropyl-phenyl	
77	methyl	4-isopropyl-phenyl	
78	2-fluoro-ethyl	4-isopropyl-phenyl	
79	allyl	4-isopropyl-phenyl	
80	3-fluoro-propyl	4-isopropyl-phenyl	
81	propyl	4-cyclopropyl-phenyl	
82	propyl	4-cyclobutyl-phenyl	

Examples of galenic administration forms

5 A) Tablets

Tablets of the following composition are pressed on a tablet press in the customary manner:

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- 40 mg of substance from Example 8
120 mg of corn starch
13.5 mg of gelatin
45 mg of lactose
- 5 2.25 mg of Aerosil® (chemically pure silicic acid in submicroscopically fine dispersion)
6.75 mg of potato starch (as a 6% paste)

B) Sugar-coated tablets

- 10 20 mg of substance from Example 8
60 mg of core composition
70 mg of saccharification composition

15 The core composition consists of 9 parts of corn starch, 3 parts of lactose and 1 part of 60:40 vinylpyrrolidone/vinyl acetate copolymer. The saccharification composition consists of 5 parts of cane sugar, 2 parts of corn starch, 2 parts of calcium carbonate and 1 part of talc. The sugar-coated tablets which had been prepared in this way are subsequently provided with a gastric juice-resistant coating.

20 Biological investigations

Receptor binding studies:

25 The substance to be tested was either dissolved in methanol/Chremophor® (BASF-AG) or in dimethyl sulfoxide and then diluted with water to the desired concentration.

Dopamine D₃ receptor:

30 The assay mixture (0.250 ml) was composed of membranes derived from ~ 10⁶ HEK-293 cells possessing stably expressed human dopamine D₃ receptors, 0.1 nM [¹²⁵I]-iodosulpride and incubation buffer (total binding) or, in addition, test substance (inhibition curve) or 1 μM spiperone (nonspecific binding). Each assay mixture was run in triplicate.

35 The incubation buffer contained 50 mM tris, 120 mM NaCl, 5 mM KCl, 2 mM CaCl₂, 2 mM MgCl₂ and 0.1% bovine serum albumin, 10 μM quinolone and 0.1% ascorbic acid (prepared fresh daily). The buffer was adjusted to pH 7.4 with HCl.

Dopamine D_{2L} receptor:

5 The assay mixture (1 ml) was composed of membranes from ~ 10⁸ HEK-293 cells possessing stably expressed human dopamine D_{2L} receptors (long isoform) and 0.01 nM [¹²⁵I] iodospiperone and incubation buffer (total binding) or, in addition, test substance (inhibition curve) or 1 μM haloperidol (nonspecific binding). Each assay mixture was run in triplicate.

10 The incubation buffer contained 50 mM tris, 120 mM NaCl, 5 mM KCl, 2 mM CaCl₂, 2 mM MgCl₂ and 0.1% bovine serum albumin. The buffer was adjusted to pH 7.4 with HCl.

Measurement and analysis:

15 After having been incubated at 25°C for 60 minutes, the assay mixtures were filtered through a Whatman GF/B glass fiber filter under vacuum using a cell collecting device. The filters were transferred to scintillation vials using a filter transfer system. After 4 ml of Ultima Gold[®] (Packard) have been added, the samples
20 were shaken for one hour and the radioactivity was then counted in a Beta-Counter (Packard, Tricarb 2000 or 2200CA). The cpm values were converted into dpm using a standard quench series and the program belonging to the instrument.

25 The inhibition curves were analyzed by means of iterative nonlinear regression analysis using the Statistical Analysis System (SAS) which is similar to the "LIGAND" program described by Munson and Rodbard.

30 The results of the receptor binding studies are expressed as receptor binding constants K_i(D₂) and K_i(D₃), respectively, as herein before described, and given in table 4.

35 In these tests, the compounds according to the invention exhibit very good affinities for the D₃ receptor (< 10 nM, frequently < 5 nM) and bind selectively to the D₃ receptor.

The results of the binding tests are given in table 4.

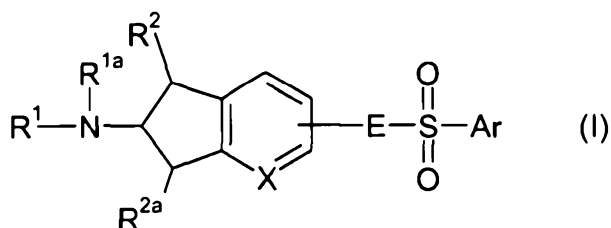
Table 4:

Example	$K_i(D3)^*$ [nM]	$K_i(D2)^*$ [nM]	$K_i(D2)^*/ K_i(D3)^*$
1	4.0	257	64
2	6.7	132	20
3	7,0	157	22
4 (<i>SS</i>)-isomer	1.6		17
4 (<i>RR</i>)-isomer	9.4		134
7	0.26	51	195

* Receptor binding constants obtained according to the assays described herein before

The claims defining the invention are as follows:

1. A 6-amino(aza)indane compound of the formula I



5 wherein

Ar is phenyl or an aromatic 5- or 6-membered C-bound heteroaromatic radical, wherein Ar carries 1 radical R^a and wherein Ar may also carry 1 or 2 radicals R^b ;

10 R^a being selected from the group consisting of C_1 - C_6 -alkyl, C_2 - C_6 -alkenyl, fluorinated C_2 - C_6 -alkenyl, C_3 - C_6 -cycloalkyl, C_1 - C_6 -alkoxy, fluorinated C_3 - C_6 -cycloalkyl, fluorinated C_1 - C_6 -alkoxy, C_1 - C_6 -hydroxyalkyl, C_1 - C_6 -alkoxy- C_1 - C_4 -alkyl, C_1 - C_6 -hydroxyalkoxy, C_1 - C_6 -alkoxy- C_1 - C_4 -alkoxy, COOH, NR^4R^5 , $CH_2NR^4R^5$, ONR^4R^5 , $NHC(O)NR^4R^5$, $SO_2NR^4R^5$, C_1 - C_6 -alkylcarbonyl, fluorinated C_1 - C_6 -alkylcarbonyl, C_1 - C_6 -alkylcarbonylamino, fluorinated C_1 - C_6 -alkylcarbonylamino, C_1 - C_6 -alkylcarbonyloxy, fluorinated C_1 - C_6 -alkylcarbonyloxy, C_1 - C_6 -alkoxycarbonyl, C_1 - C_6 -alkylthio, fluorinated C_1 - C_6 -alkylthio, C_1 - C_6 -alkylsulfinyl, C_1 - C_6 -alkylsulfonyl, fluorinated C_1 - C_6 -alkylsulfinyl, fluorinated C_1 - C_6 -alkylsulfonyl, phenylsulfonyl, phenyl, phenoxy, benzyloxy and a 3- to 7-membered heterocyclic radical, wherein the five last mentioned radicals may carry 1, 2, 3 or 4 radicals selected from halogen, cyano, OH, oxo, CN, fluorinated C_1 - C_6 -alkyl, $C(O)NR^4R^5$, and the radicals R^a ,

25 R^b being, independently from each other, selected from halogen, cyano, nitro, OH, methyl, methoxy, fluoromethyl, difluoromethyl, trifluoromethyl, fluormethoxy, difluoromethoxy and trifluoromethoxy,

30 the radical R^a and one radical R^b , if present and bound to two adjacent carbon atoms of phenyl, may form a 5- or 6-membered heterocyclic or carbocyclic ring which is fused to the phenyl ring and which is unsubsti-

tuted or which may carry 1, 2 or 3 radicals selected from halogen, NO₂, NH₂, OH, CN, C₁-C₆-alkyl, C₃-C₆-cycloalkyl, C₁-C₆-alkoxy, fluorinated C₁-C₆-alkyl, fluorinated C₃-C₆-cycloalkyl, fluorinated C₁-C₆-alkoxy, C₁-C₆-hydroxyalkyl, C₁-C₄-alkoxy-C₂-C₄-alkyl, C₁-C₆-hydroxyalkoxy, C₁-C₄-alkoxy-C₂-C₄-alkoxy, C₁-C₆-alkylcarbonyl, C₁-C₆-alkylamino, di-C₁-C₆-alkylamino, C₁-C₆-alkylaminocarbonyl, di-C₁-C₆-alkylaminocarbonyl, fluorinated C₁-C₆-alkylcarbonyl, C₁-C₆-alkylcarbonylamino, fluorinated C₁-C₆-alkylcarbonylamino, C₁-C₆-alkylcarbonyloxy, fluorinated C₁-C₆-alkylcarbonyloxy, C₁-C₆-alkoxycarbonyl, C₁-C₆-alkylthio, fluorinated C₁-C₆-alkylthio, C₁-C₆-alkylsulfinyl, C₁-C₆-alkylsulfonyl, fluorinated C₁-C₆-alkylsulfinyl and fluorinated C₁-C₆-alkylsulfonyl,

provided that if Ar is phenyl, R^{2a} is hydrogen and R² is hydrogen, Ar carries 1 radical R^a which is different from methyl, methoxy, and trifluoromethoxy, and optionally 1 or 2 radicals R^b;

X is N or CH;

E is CR⁶R⁷ or NR³;

R¹ is C₁-C₄-alkyl, C₃-C₄-cycloalkyl, C₃-C₄-cycloalkylmethyl, C₃-C₄-alkenyl, fluorinated C₁-C₄-alkyl, fluorinated C₃-C₄-cycloalkyl, fluorinated C₃-C₄-cycloalkylmethyl, fluorinated C₃-C₄-alkenyl, formyl or C₁-C₃-alkylcarbonyl;

R^{1a} is H or R^{1a} and R² or R^{1a} and R^{2a} together are (CH₂)_n with n being 1, 2, 3 or 4;

R² and R^{2a} each independently are H, CH₃, CH₂F, CHF₂ or CF₃;

R³ is H or C₁-C₄-alkyl;

R⁴, R⁵ independently of each other are selected from H, C₁-C₂-alkyl, C₁-C₂-alkoxy and fluorinated C₁-C₂-alkyl;

R⁶, R⁷ independently of each other are selected from H, C₁-C₂-alkyl and fluorinated C₁-C₂-alkyl;

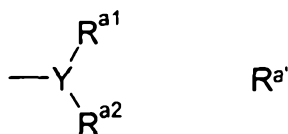
and the physiologically tolerated acid addition salts of these compounds.

2. A 6-amino(aza)indane compound of the formula I as defined in claim 1, wherein

Ar is phenyl or an aromatic 5- or 6-membered C-bound heteroaromatic radical, comprising 1 nitrogen atom as ring member and 0, 1, 2 or 3 further heteroatoms, independently of each other, selected from O, S and N, as ring members, wherein Ar carries 1 radical R^a which is selected from the group consisting of C₂-C₆-alkyl, C₃-C₆-cycloalkyl, C₂-C₆-alkoxy, fluorinated C₂-C₆-alkyl,

- 5 fluorinated C₃-C₆-cycloalkyl, fluorinated C₂-C₆-alkoxy, NR⁴R⁵, 1-aziridinyl, azetidin-1-yl, pyrrolidin-1-yl or piperidin-1-yl, wherein the last four mentioned radicals may be fluorinated, a phenyl group and an aromatic 5- or 6-membered C-bound heteroaromatic radical, comprising 1 nitrogen atom as ring member and 0, 1, 2 or 3 further heteroatoms, independently of each other, selected from O, S and N, wherein the last two mentioned radicals may carry 1, 2, 3 or 4 radicals selected from Halogen and the radicals R^a, and wherein Ar may carry 1 or 2 further radicals R^b, which are independently from each other selected from halogen, cyano, methyl, fluoromethyl, difluoromethyl, trifluoromethyl, difluoromethoxy and trifluoromethoxy; and wherein
- 10 E is CH₂ or NR³, R³ being H or C₁-C₄-alkyl, and
 R¹ is C₂-C₄-alkyl, C₃-C₄-cycloalkyl, C₃-C₄-cycloalkylmethyl, C₃-C₄-alkenyl, fluorinated C₁-C₄-alkyl, fluorinated C₃-C₄-cycloalkyl, fluorinated C₃-C₄-cycloalkylmethyl, fluorinated C₃-C₄-alkenyl, formyl or C₁-C₃-alkylcarbonyl;
- 15 R⁴, R⁵ are, independently of each other, selected from H, C₁-C₂-alkyl and fluorinated C₁-C₂-alkyl; and
 X, R^{1a}, R² and R^{2a} are as defined in claim 1.
3. The compounds as claimed in claim 1 or 2, wherein Ar carries one radical R^a of the formula R^a

20



- wherein
- Y is N, CH or CF,
- 25 R^{a1} and R^{a2} are independently of each other selected from C₁-C₂-alkyl, C₁-C₂-alkoxy, fluorinated C₁-C₂-alkyl, provided for Y being CH or CF one of the radicals R^{a1} or R^{a2} may also be hydrogen or fluorine, or
 R^{a1} and R^{a2} together form a radical (CH₂)_m wherein 1 or 2 of the hydrogen atoms may be replaced by fluorine, hydroxy, oxo, C₁-C₂-alkyl or C₁-C₂-alkoxy, wherein one CH₂ moiety may be replaced by O, S, S=O, SO₂ or N-R^c, R^c being hydrogen or C₁-C₂-alkyl and wherein m is 2, 3, 4, 5 or 6;
- 30 4. The compounds as claimed in claim 3, wherein the radical R^a is selected from isopropyl, (R)-1-fluoroethyl, (S)-1-fluoroethyl, 2-fluoroethyl, 1,1-difluoroethyl, 2,2-

- 5 difluoroethyl, 2,2,2-trifluoroethyl, (R)-1-fluoropropyl, (S)-1-fluoropropyl, 2-fluoropropyl, 3-fluoropropyl, 1,1-difluoropropyl, 2,2-difluoropropyl, 3,3-difluoropropyl, 3,3,3-trifluoropropyl, (R)-2-fluoro-1-methylethyl, (S)-2-fluoro-1-methylethyl, (R)-2,2-difluoro-1-methylethyl, (S)-2,2-difluoro-1-methylethyl, (R)-1,2-difluoro-1-methylethyl, (S)-1,2-difluoro-1-methylethyl, (R)-2,2,2-trifluoro-1-methylethyl, (S)-2,2,2-trifluoro-1-methylethyl, 2-fluoro-1-(fluoromethyl)ethyl, 1-(difluoromethyl)-2,2-difluoroethyl, 1-fluoro-1-methylethyl, cyclopropyl, cyclobutyl, 1-fluorocyclopropyl, 2,2-difluorocyclopropyl and 2-fluorocyclopropyl.
- 10 5. The compounds as claimed in claim 3, wherein the radical R^a is selected from 4-morpholinyl, 4-thiomorpholinyl, 4-(1,1-dioxo)thiomorpholinyl, piperazin-1-yl, 4-methylpiperazin-1-yl, azetidin-1-yl, 2-methylazetidin-1-yl, (S)-2-methylazetidin-1-yl, (R)-2-methylazetidin-1-yl, 3-fluoroazetidin-1-yl, 3-methoxyazetidin-1-yl, 3-hydroxyazetidin-1-yl, pyrrolidin-1-yl, pyrrolidin-2-yl, (S)-pyrrolidin-2-yl, (R)-pyrrolidin-2-yl, pyrrolidin-3-yl, (S)-pyrrolidin-3-yl, (R)-pyrrolidin-3-yl, 2-
- 15 fluoropyrrolidin-1-yl, (S)-2-fluoropyrrolidin-1-yl, (R)-2-fluoropyrrolidin-1-yl, 3-fluoropyrrolidin-1-yl, (S)-3-fluoropyrrolidin-1-yl, (R)-3-fluoropyrrolidin-1-yl, 2,2-difluoropyrrolidin-1-yl, 3,3-difluoropyrrolidin-1-yl, 2-methylpyrrolidin-1-yl, (S)-2-methylpyrrolidin-1-yl, (R)-2-methylpyrrolidin-1-yl, 3-methylpyrrolidin-1-yl, (S)-3-methylpyrrolidin-1-yl, (R)-3-methylpyrrolidin-1-yl, 1-methylpyrrolidin-2-yl, (S)-1-
- 20 methylpyrrolidin-2-yl, (R)-1-methylpyrrolidin-2-yl, 1-methylpyrrolidin-3-yl, (S)-1-methylpyrrolidin-3-yl, (R)-1-methylpyrrolidin-3-yl, 2,2-dimethylpyrrolidin-1-yl, 3,3-dimethylpyrrolidin-1-yl, 2-trifluoromethylpyrrolidin-1-yl, (S)-2-trifluoromethylpyrrolidin-1-yl, (R)-2-trifluoromethylpyrrolidin-1-yl, 3-
- 25 trifluoromethylpyrrolidin-1-yl, (S)-3-trifluoromethylpyrrolidin-1-yl, (R)-3-trifluoromethylpyrrolidin-1-yl, 2-oxopyrrolidin-1-yl, 2-oxo-oxazolidin-3-yl, piperidin-1-yl, 2-methylpiperidin-1-yl, (S)-2-methylpiperidin-1-yl and (R)-2-methylpiperidin-1-yl.
6. The compounds as claimed in any one of the claims 3, 4, or 5, wherein the radical R^a carries 1, 2, 3 or 4 fluorine atoms.
- 30 7. The compounds as claimed in claim 1, wherein Ar carries one radical R^a , which is selected from $OCHF_2$.
8. The compounds as claimed in claim 1, wherein Ar carries one radical R^a , which is selected from 5- or 6-membered heteroaromatic radicals having as ring members 1 heteroatom selected from O, S and N and which may further have 1, 2 or 3 nitrogen

- atoms as ring members, and wherein the 5- or 6-membered heteroaromatic radical may carry 1, 2 or 3 substituents selected from halogen, NO₂, NH₂, OH, CN, C₁-C₆-alkyl, C₃-C₆-cycloalkyl, C₁-C₆-alkoxy, fluorinated C₁-C₆-alkyl, fluorinated C₃-C₆-cycloalkyl, fluorinated C₁-C₆-alkoxy, C₁-C₆-hydroxyalkyl, C₁-C₄-alkoxy-C₂-C₄-alkyl, C₁-C₆-hydroxyalkoxy, C₁-C₄-alkoxy-C₂-C₄-alkoxy, C₁-C₆-alkylcarbonyl, C₁-C₆-alkylamino, di-C₁-C₆-alkylamino, C₁-C₆-alkylaminocarbonyl, di-C₁-C₆-alkylaminocarbonyl, fluorinated C₁-C₆-alkylcarbonyl, C₁-C₆-alkylcarbonylamino, fluorinated C₁-C₆-alkylcarbonylamino, C₁-C₆-alkylcarbonyloxy, fluorinated C₁-C₆-alkylcarbonyloxy, C₁-C₆-alkoxycarbonyl, C₁-C₆-alkylthio, fluorinated C₁-C₆-alkylthio, C₁-C₆-alkylsulfinyl, C₁-C₆-alkylsulfonyl, fluorinated C₁-C₆-alkylsulfinyl and fluorinated C₁-C₆-alkylsulfonyl.
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9. The compounds as claimed in claim 8, wherein Ar carries one heteroaromatic radical R^a, which is selected from furanyl, thienyl, pyrrolyl, pyrazolyl, imidazolyl, oxazolyl, isoxazolyl, 1,3,4-thiadiazolyl, 1,2,4-triazolyl, 1,2,3-triazolyl and tetrazolyl, where the heteroaromatic radical may be unsubstituted or may carry 1 to 3 substituents selected from halogen, C₁-C₄-alkyl, C₁-C₄-alkoxy, fluorinated C₁-C₄-alkyl and fluorinated C₁-C₄-alkoxy.
- 15
10. The compounds as claimed in any one of the preceding claims, wherein Ar is phenyl.
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11. The compounds as claimed in any one of the preceding claims, wherein Ar is phenyl that carries a radical R^a in the 4-position of the phenyl ring.
12. The compounds as claimed in any one of the preceding claims, wherein E is NR³.
13. The compounds as claimed in any one of the preceding claims, wherein E is CH₂.
14. The compounds as claimed in any one of the preceding claims, wherein R^{1a}, R² and R^{2a} are hydrogen.
- 25
15. The compounds as claimed in any one of the preceding claims, wherein R¹ is n-propyl or 1-propen-3-yl.
16. 4-(Difluoromethoxy)-N-(2-propylaminoindan-5-yl)-benzenesulfonamide;
4-(1,1,2,2-Tetrafluoroethoxy)-N-(2-propylaminoindan-5-yl)-benzenesulfonamide;
30 4-(2,2,2-Trifluoroethoxy)-N-(2-propylaminoindan-5-yl)-benzenesulfonamide;
4-(2,2-Difluoroethoxy)-N-(2-propylaminoindan-5-yl)-benzenesulfonamide;
4-(2-Fluoroethoxy)-N-(2-propylaminoindan-5-yl)-benzenesulfonamide;
4-(2,2,2-Trifluoroethyl)-N-(2-propylaminoindan-5-yl)-benzenesulfonamide;
4-(2-Fluoro-1-methylethyl)-N-(2-propylaminoindan-5-yl)-benzenesulfonamide;

4-Ethyl-N-(2-propylaminoindan-5-yl)-benzenesulfonamide;

6-(3-Fluoropropoxy)-pyridine-3-sulfonic acid (2-propylamino-indan-5-yl)-amide.

17. A pharmaceutical composition comprising at least one compound of the formula I
or a pharmaceutically acceptable salt thereof as claimed in any one of the preceding
5 claims, optionally together with at least one physiologically acceptable carrier or
auxiliary substance.
18. A method for treating a medical disorder susceptible to treatment with a dopamine
D3 receptor ligand, said method comprising administering an effective amount of at
least one compound of the formula I or a pharmaceutically acceptable salt thereof as
10 claimed in any one of the preceding claims to a subject in need thereof.
19. The method as claimed in claim 18, wherein the medical disorder is a disease of the
central nervous system.
20. The use of a compound of the formula I or a pharmaceutically acceptable salt
thereof as claimed in any one of the preceding claims for preparing a pharmaceuti-
15 cal composition for the treatment of a medical disorder susceptible to treatment with
a dopamine D3 receptor ligand.
21. The use as claimed in claim 20, wherein the medical disorder is a disease of the cen-
tral nervous system.

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