

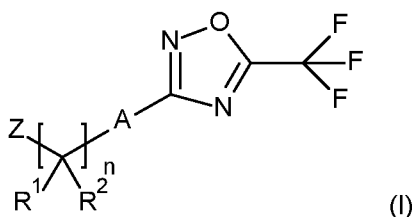
Process for the preparation of microbiocidal oxadiazole derivatives

The present invention relates to a process for the preparation of microbiocidal oxadiazole derivatives suitable for use, e.g., as active ingredients, which have microbiocidal activity, in particular, fungicidal activity.

The formation of substituted 3-aryl-5-trifluoromethyl-1,2,4-oxadiazoles is described in WO 2017/055473 by reaction of amidoximes with trifluoroacetic anhydride in the presence of a base in a suitable solvent.

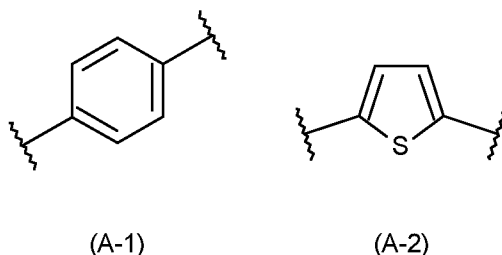
Among drawbacks of this reaction, mention can be made of irreversible hydrolysis via degradation of the 5-trifluoromethyl-1,2,4-oxadiazole group that may result in the formation of by-products, thus lowering chemical yields of the oxadiazole derivatives thereby provided.

According to the present invention, there is provided a process for the preparation of a compound of Formula (I):



wherein

A is A-1 or A-2:



wherein each of A-1 and A-2 is optionally substituted by 1 or 2 substituents independently selected from halogen, C₁₋₄alkyl, C₁₋₄haloalkyl, C₁₋₄alkoxy, and C₁₋₄haloalkoxy;

n is 0, 1 or 2;

R¹ and R² are independently selected from hydrogen, halogen, cyano, hydroxy, C₁₋₄alkyl, C₁₋₄alkoxy, and C₁₋₄haloalkyl; or

R¹ and R², together with the carbon atom to which they are bonded, form a cyclopropyl ring;

Z is Z¹ or Z²:

Z¹ is hydrogen, halogen, cyano, -OH, or -SH;

5 Z² is C₁₋₄alkyl, C₁₋₄haloalkyl, C₁₋₄alkoxy, C₁₋₄haloalkoxy, -COOH, -C(=W)-X, -NR³R⁴, -NR³-C(=W)-X, -S(=O)₂-R⁵, or -NR³-S(=O)₂-R⁵; or

10 Z² is C₃₋₈cycloalkyl, C₃₋₈cycloalkylC₁₋₂alkyl, heterocyclyl, heterocyclylC₁₋₂alkyl, phenyl, phenylC₁₋₂alkyl, heteroaryl, heteroarylC₁₋₂alkyl, or heterodiaryl, wherein the heterocyclyl moiety is a 4- to 7-membered non-aromatic ring which comprises 1, 2 or 3 heteroatoms or groups individually selected from O, S, N, NR⁶, C(=O) and S(=O)₂, and the heteroaryl moiety is a 5- or 6-membered monocyclic aromatic ring which comprises 1, 2, 3, or 4 heteroatoms individually selected from N, O and S; wherein any of said cycloalkyl, heterocyclyl, phenyl, heteroaryl or heterodiaryl is optionally substituted by 1 or 2 substituents, which may be the same or different, selected from R⁷;

15 W is O or S;

20 X is halogen, -NR³R⁴, R⁵, -NR³-[CR⁸R⁹]_m-CR¹⁰(=NR⁵), -C(=O)-NR³R⁴, -C(=O)-R⁵, -C(=N-C₁₋₄alkoxy)-R⁵, or -OR¹¹;

25 R³ and R⁴ are independently selected from hydrogen, C₁₋₄alkyl, C₁₋₄haloalkyl, C₁₋₄alkoxy, hydroxyC₁₋₄alkyl, C₁₋₄alkoxyC₁₋₄alkyl, C₁₋₄haloalkoxy, C₁₋₂haloalkoxyC₁₋₄alkyl, C₂₋₄alkenyl, C₂₋₆alkynyl, C₃₋₄alkenyloxy, C₃₋₄alkynyloxy, C₁₋₄alkylcarbonyloxy, N-C₁₋₄alkylamino, and N,N-diC₁₋₄alkylamino; or

30 R³ and R⁴ are independently selected from C₃₋₈cycloalkyl, C₃₋₈cycloalkylC₁₋₂alkyl, heterocyclyl, heterocyclylC₁₋₂alkyl, phenyl, phenylC₁₋₂alkyl, heteroaryl, and heteroarylC₁₋₂alkyl, wherein the heterocyclyl moiety is a 4- to 6-membered non-aromatic ring which comprises 1, 2 or 3 heteroatoms or groups individually selected from O, S, N, NR⁶, C(=O) and S(=O)₂, and the heteroaryl moiety is a 5- or 6-membered monocyclic aromatic ring which comprises 1, 2, 3, or 4 heteroatoms individually selected from N, O and S; wherein any of said cycloalkyl, heterocyclyl, phenyl or heteroaryl is optionally substituted by 1 or 2 substituents, which may be the same or different, selected from R⁷; or

35 R³ and X, together with the nitrogen atom to which R³ is attached, and together with the group -C(=W), form a heterocyclyl, heterocyclylC₁₋₆alkyl, heteroaryl, heteroarylC₁₋₂alkyl, or heterodiaryl, wherein the heterocyclyl moiety is a 4- to 7-membered non-aromatic ring which comprises 1, 2 or 3 heteroatoms or groups individually selected from O, S, N, NR⁶, C(=O) and S(=O)₂, and the heteroaryl moiety is a 5- or 6-membered monocyclic aromatic ring which comprises 1, 2, 3, or 4 heteroatoms individually selected from N, O and S; wherein any of said

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heterocyclyl, heteroaryl or heterodiaryl is optionally substituted by 1 or 2 substituents, which may be the same or different, selected from R⁷;

R⁵ is C₁₋₄alkyl, C₁₋₄haloalkyl, hydroxyC₁₋₄alkyl, cyanoC₁₋₄alkyl, C₂₋₄alkenyl, C₂₋₆alkynyl, C₁₋₄alkoxy, C₁₋₄haloalkoxy, or C₁₋₄alkoxyC₁₋₄alkyl, or C₁₋₂haloalkoxyC₁₋₄alkyl; or

R⁵ is C₃₋₈cycloalkyl, C₃₋₈cycloalkylC₁₋₂alkyl, heterocyclyl, heterocyclylC₁₋₆alkyl, phenyl, phenylC₁₋₂alkyl, heteroaryl, heteroarylC₁₋₂alkyl, or heterodiaryl, wherein the heterocyclyl moiety is a 4- to 6-membered non-aromatic ring which comprises 1, 2 or 3 heteroatoms or groups individually selected from O, S, N, NR⁶, C(=O) and S(=O)₂, and the heteroaryl moiety is a 5- or 6-membered monocyclic aromatic ring which comprises 1, 2, 3, or 4 heteroatoms individually selected from N, O and S; wherein any of said cycloalkyl, heterocyclyl, phenyl, heteroaryl or heterodiaryl is optionally substituted by 1 or 2 substituents, which may be the same or different, selected from R⁷;

R⁶ is hydrogen, C₁₋₄alkyl, C₁₋₄alkoxy, formyl, C₁₋₄alkylcarbonyl, C₁₋₄alkoxycarbonyl, N-C₁₋₄alkylaminocarbonyl, N,N-diC₁₋₄alkylaminocarbonyl, C₁₋₄alkylsulfonyl, N-C₁₋₄alkylaminosulfonyl, or N,N-diC₁₋₄alkylaminosulfonyl;

R⁷ is halogen, cyano, hydroxy, C₁₋₄alkyl, C₂₋₄alkenyl, C₂₋₆alkynyl, C₁₋₄haloalkyl, C₂₋₄haloalkenyl, C₁₋₄alkoxy, C₁₋₄haloalkoxy, C₃₋₄alkenyloxy, C₃₋₄alkynyloxy, N-C₁₋₄alkylamino, N,N-diC₁₋₄alkylamino, C₁₋₄alkylcarbonyl, C₁₋₄alkoxycarbonyl, aminocarbonyl, C₁₋₄alkylcarbonylaminoC₁₋₄alkyl, N-C₁₋₄alkylaminocarbonyl, N,N-diC₁₋₄alkylaminocarbonyl, C₁₋₄alkoxycarbonylamino, N-C₁₋₄alkoxyaminocarbonyl, N-C₁₋₄alkyl-N-C₁₋₄alkoxyaminocarbonyl, C₃₋₈cycloalkylaminocarbonyl, N-C₃₋₈cycloalkylC₁₋₂alkylaminocarbonyl, N-C₁₋₄alkoxyC₁₋₄alkylaminocarbonyl, N-C₁₋₄alkoxyC₁₋₄alkylimino, C₁₋₄alkylsulfonyl, or C₁₋₄alkylsulfanyl;

m is 0, 1 or 2;

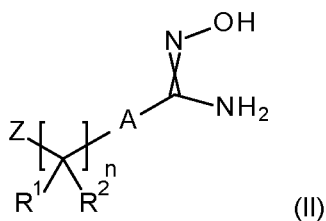
R⁸ and R⁹ are independently selected from hydrogen, halogen, cyano, C₁₋₄alkyl, and C₁₋₄haloalkyl; or

R⁸ and R⁹, together with the carbon atom to which they are bonded, form a cyclopropyl ring;

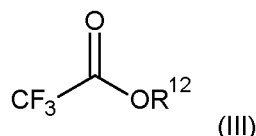
R¹⁰ is hydrogen, C₁₋₆alkyl, C₂₋₄alkenyl, C₂₋₆alkynyl, C₁₋₄haloalkyl, C₃₋₈cycloalkyl, or phenyl;

R¹¹ is C₁₋₈alkyl, C₁₋₄haloalkyl, hydroxyC₁₋₆alkyl, C₁₋₄alkoxyC₁₋₆alkyl, C₁₋₂haloalkoxyC₁₋₄alkyl, C₂₋₄alkenyl, C₂₋₆alkynyl, or C₁₋₄alkylcarbonyloxyC₁₋₄alkyl;

said process comprising the step of reacting a compound of Formula (II):



wherein A, n, R¹, R² and Z are as defined for the compound of Formula (I), with a compound of Formula (III):



wherein R¹² is C₁₋₄alkyl.

Surprisingly, it has been now found that the process of the invention advantageously provides
10 a mean to produce compounds of Formula (I) at high isolated yields.

The compounds of Formula (I) can be used in the agricultural sector and related fields of use, e.g., as active ingredients for controlling plant pests or on non-living materials for the control of spoilage microorganisms or organisms potentially harmful to man. The novel compounds are distinguished by
15 excellent activity at low rates of application, by being well tolerated by plants and by being environmentally safe. They have very useful curative, preventive and systemic properties and can be used for protecting numerous cultivated plants. The compounds of Formula (I) can be used to inhibit or destroy the pests that occur on plants or parts of plants (fruit, blossoms, leaves, stems, tubers, roots) of different crops of useful plants, while at the same time protecting also those parts of the plants that grow
20 later, e.g., from phytopathogenic microorganisms.

The compounds of Formula (I) have, for practical purposes, a very advantageous level of biological activity for protecting plants against diseases that are caused by fungi. Thus, the compound of Formula (I) is particularly suitable for use as a fungicide. The term "fungicide" as used herein means
25 a compound that controls, modifies, or prevents the growth of fungi. According to this particular aspect of the invention, the use may exclude methods for the treatment of the human or animal body by surgery or therapy.

The compounds of Formula (I) are for example, effective against fungi and fungal vectors of
30 disease as well as phytopathogenic bacteria and viruses.

As used herein, the term "halogen" or "halo" refers to fluorine (fluoro), chlorine (chloro), bromine (bromo) or iodine (iodo), preferably fluorine, chlorine or bromine.

As used herein, cyano means a -CN group.

As used herein, amino means an -NH₂ group.

As used herein, hydroxy means an -OH group.

As used herein, the term "C₁₋₆alkyl" refers to a straight or branched hydrocarbon chain radical consisting solely of carbon and hydrogen atoms, containing no unsaturation, having from one to six carbon atoms, and which is attached to the rest of the molecule by a single bond. The terms "C₁₋₄alkyl" and "C₁₋₂alkyl" are to be construed accordingly. A "C₁₋₆alkylene", C₁₋₄alkylene or "C₁₋₂alkylene" group refers to the corresponding definition of C₁₋₆alkyl, C₁₋₄alkyl or C₁₋₂alkyl, respectively, except that such radical is attached to the rest of the molecule by two single bonds. Examples of C₁₋₆alkyl include, but are not limited to, methyl, ethyl, iso-propyl, n-propyl and tert-butyl.

As used herein, the term "C₁₋₄alkoxy" refers to a radical of the formula -OR_a where R_a is a C₁₋₄alkyl radical as generally defined above. Examples of C₁₋₄alkoxy include, but are not limited to, methoxy, ethoxy and propoxy.

As used herein, the term "C₁₋₄alkoxyC₁₋₄alkyl" refers to radical of the formula R_b-O-R_a- where R_b is a C₁₋₄alkyl radical as generally defined above, and R_a is a C₁₋₄alkylene radical as generally defined above.

As used herein, the term "C₁₋₄alkylsulfanyl" refers to a radical of the formula -SR_a where R_a is a C₁₋₄alkyl radical as generally defined above.

As used herein, the term "C₁₋₄alkylsulfynyl" refers to a radical of the formula -S(-O)R_a where R_a is a C₁₋₄alkyl radical as generally defined above.

As used herein, the term "C₁₋₄alkylsulfonyl" refers to a radical of the formula -S(O)₂R_a where R_a is a C₁₋₄alkyl radical as generally defined above.

As used herein, the term "C₂₋₄alkenyl" refers to a straight or branched hydrocarbon chain radical group consisting solely of carbon and hydrogen atoms, containing at least one double bond that can be of either the (E)- or (Z)-configuration, having from two to four carbon atoms, which is attached to the rest of the molecule by a single bond. The term "C₃₋₄alkenyl" is to be construed accordingly. Examples of C₂₋₄alkenyl include, but are not limited to, ethenyl and prop-1-enyl.

As used herein, the term "C₂₋₆alkynyl" refers to a straight or branched hydrocarbon chain radical group consisting solely of carbon and hydrogen atoms, containing at least one triple bond, having from two to four carbon atoms, and which is attached to the rest of the molecule by a single bond. The term "C₃₋₆alkynyl" is to be construed accordingly. Examples of C₃₋₆alkynyl include, but are not limited to, ethynyl, prop-1-ynyl, propargyl (prop-2-ynyl), but-1-ynyl and 3-methyl-but-1-ynyl.

As used herein, the term "C₃₋₄alkenyloxy" refers to a radical of the formula -OR_a where R_a is a C₃₋₄alkenyl radical as generally defined above.

As used herein, the term "C₃₋₄alkynyloxy" refers to a radical of the formula -OR_a where R_a is a C₃₋₄alkynyl radical as generally defined above.

As used herein, the term "C₁₋₄alkoxycarbonyl" refers to a radical of the formula -C(O)OR_a where R_a is a C₁₋₄alkyl radical as generally defined above.

As used herein, the term "C₁₋₄alkylcarbonyl" refers to a radical of the formula -C(O)R_a where R_a is a C₁₋₄alkyl radical as generally defined above.

As used herein, the term "formyl" refers to a radical of the formula -C(O)H.

As used herein, the term "C₁₋₄alkylcarbonyloxy" refers to a radical of the formula -OC(O)R_a where R_a is a C₁₋₄alkyl radical as generally defined above.

As used herein, the term "C₁₋₄haloalkoxy" refers to a C₁₋₄alkoxy group as defined above substituted by one or more of the same or different halogen atoms. Examples of C₁₋₄haloalkoxy include, but are not limited to, fluoromethoxy, difluoromethoxy, trifluoromethoxy, fluoroethoxy and trifluoroethoxy.

As used herein, the term "C₁₋₂haloalkoxyC₁₋₄alkyl" refers to a C₁₋₄alkyl radical as defined above substituted by a C₁₋₂haloalkoxy group as defined above.

As used herein, the term "C₁₋₄haloalkyl" refers to a C₁₋₄alkyl radical as generally defined above substituted by one or more of the same or different halogen atoms. Examples of C₁₋₄haloalkyl include, but are not limited to fluoromethyl, difluoromethyl, trifluoromethyl, fluoroethyl and trifluoroethyl.

As used herein, the term "C₂₋₄haloalkenyl" refers to a C₂₋₄alkenyl radical as generally defined above substituted by one or more of the same or different halogen atoms.

As used herein, the term "C₃₋₈cycloalkyl" refers to a stable, monocyclic or bi-cyclic ring radical which is saturated or partially unsaturated and contains 3 to 8 carbon atoms. C₃₋₈cycloalkyl is to be construed accordingly. Examples of C₃₋₈cycloalkyl include, but are not limited to, cyclopropyl, cyclobutyl, cyclopentyl and cyclohexyl.

As used herein, the term "C₃₋₈cycloalkylC₁₋₂alkyl" refers to a C₃₋₈cycloalkyl ring as defined above attached to the rest of the molecule by a C₁₋₂alkylene radical as defined above. The terms "C₃₋₈cycloalkylC₁₋₂alkyl" and "C₃₋₄cycloalkylC₁₋₂alkyl" are to be construed accordingly. Examples of C₃₋₈cycloalkylC₁₋₂alkyl include, but are not limited to cyclopropyl-methyl, cyclobutyl-ethyl, and cyclopentyl-propyl.

As used herein, the term "C₃₋₈cycloalkylaminocarbonyl" refers to a radical of the formula -C(O)NR_a where R_a is a C₃₋₈cycloalkyl radical as generally defined above.

As used herein, the term "N-C₃₋₈cycloalkylC₁₋₂alkylaminocarbonyl" refers to a radical of the formula -C(O)NR_a where R_a is a C₃₋₈cycloalkylC₁₋₂alkylene radical as defined above.

As used herein, the term "C₁₋₄alkoxycarbonylamino" refers to a radical of the formula -NH-C(O)-O-R_a where R_a is a C₁₋₄alkyl radical as defined above.

As used herein, the term "C₁₋₄alkoxycarbonylaminoC₁₋₄alkyl" refers to a radical of the formula -R_aC(O)NHR_b where R_a is a C₁₋₄alkoxy radical as defined above and R_b is a C₁₋₄alkylene radical as defined above.

As used herein, the term "C₁₋₄alkylcarbonyloxy" refers to a radical of the formula -OC(O)R_a where R_a is a C₁₋₄alkyl as generally defined above.

As used herein, the term "C₁₋₄alkylcarbonyloxyC₁₋₄alkyl" refers to a radical of the formula -R_aOC(O)R_b where R_a is a C₁₋₄alkylene radical as generally defined above and R_b is a C₁₋₄alkyl as generally defined above.

As used herein, oxo means an =O group, e.g., a ketonyl (-C(O)-), sulfinyl (-S(O)-) or sulfonyl (-S(O)₂-) oxygen.

As used herein, aminocarbonyl means an -C(O)NH₂ radical.

As used herein, the term "N-C₁₋₄alkylamino" refers to a radical of the formula -NH-R_a where R_a is a C₁₋₄alkyl radical as defined above.

As used herein, the term "N,N-diC₁₋₄alkylamino" refers to a radical of the formula -N(R_a)R_a where each R_a is a C₁₋₄alkyl radical, which may be the same or different, as defined above.

As used herein, the term "N,N-diC₁₋₄alkylaminocarbonyl" refers to a radical of the formula -C(O)NR_a(R_a) where each R_a is a C₁₋₄alkyl radical, which may be the same or different, as generally defined above.

As used herein, the term "N-C₁₋₄alkylaminocarbonyl" refers to a radical of the formula -C(O)NHR_a where R_a is a C₁₋₄alkyl radical as generally defined above.

As used herein, the term "N-C₁₋₄alkoxyC₁₋₄alkylaminocarbonyl" refers to a radical of the formula -C(O)NHR_aOR_b where R_a is a C₁₋₄alkylene radical as generally defined above, and R_b is a C₁₋₄alkyl radical as generally defined above.

As used herein, the term "N-C₁₋₄alkoxyaminocarbonyl" refers to a radical of the formula -C(O)NHOR_a where R_a is a C₁₋₄alkyl radical as generally defined above.

As used herein, the term "N-C₁₋₄alkyl-N-C₁₋₄alkoxyaminocarbonyl" refers to a radical of the formula -C(O)N(R_a)OR_b where R_a is a C₁₋₄alkyl radical as generally defined above, and R_b is a C₁₋₄alkyl radical (same or different to R_a) as generally defined above.

As used herein, the term "C₁₋₄alkylcarbonylaminoC₁₋₄alkyl" refers to a radical of the formula R_b-C(O)NHR_a- where R_b is a C₁₋₄alkyl radical, and R_a is a C₁₋₄alkylene radical as generally defined above.

As used herein, the term "N-C₁₋₄alkoxyC₁₋₄alkylimino" refers to a radical of the formula -C(N)OR_a where R_a is a C₁₋₄alkyl radical as generally defined above.

As used herein, the term "phenylC₁₋₂alkyl" refers to a phenyl ring attached to the rest of the molecule by a C₁₋₂alkylene radical as defined above.

As used herein, the term "aryl" refers to an aromatic ring system consisting solely of carbon and hydrogen atoms which may be mono-, bi- or tricyclic. Examples of such ring systems include phenyl, naphthalenyl, anthracenyl, indenyl or phenanthrenyl.

As used herein, the term "heteroaryl" (unless defined otherwise) refers to a 5- or 6-membered aromatic monocyclic ring radical which comprises 1, 2, 3 or 4 heteroatoms individually selected from nitrogen, oxygen and sulfur. The heteroaryl radical may be bonded via a carbon atom or a heteroatom. Examples of heteroaryl include, but are not limited to, furyl, pyrrolyl, thienyl, pyrazolyl, imidazolyl, thiazolyl, isothiazolyl, oxazolyl, isoxazolyl, triazolyl, tetrazolyl, pyrazinyl, pyridazinyl, pyrimidyl or pyridyl.

As used herein, the term "heteroarylC₁₋₂alkyl" refers to a heteroaryl ring attached to the rest of the molecule by a C₁₋₂alkylene radical as defined above.

As used herein, the term "heterodiaryl" (unless defined otherwise) refers to a stable 9- or 10-membered bicyclic aromatic ring system which comprises 1, 2, 3 or 4 heteroatoms individually selected from nitrogen, oxygen and sulfur. The heterodiaryl radical may be bonded to the rest of the molecule via a carbon atom or heteroatom. Examples of heterodiaryl include, but are not limited to, indolyl, indazolyl, benzimidazolyl, pyrrolopyridinyl or triazolopyridinyl.

As used herein, the term "heterocyclyl" or "heterocyclic" (unless defined otherwise) refers to a stable 4-, 5-, 6- or 7-membered non-aromatic monocyclic ring radical which comprises 1, 2, or 3, heteroatoms individually selected from nitrogen, oxygen and sulfur or groups individually selected from NR⁶, C(=O) and S(=O)₂, wherein R⁶ is as defined above. The heterocyclyl radical may be bonded to the rest of the molecule via a carbon atom or heteroatom. Examples of heterocyclyl include, but are not limited to, azetidiny, oxetanyl, pyrrolinyl, pyrrolidyl, thietanyl, tetrahydrofuranyl, tetrahydrothienyl, tetrahydrothiopyranyl, piperidyl, piperazinyl, tetrahydropyranyl, morpholinyl or perhydroazepinyl.

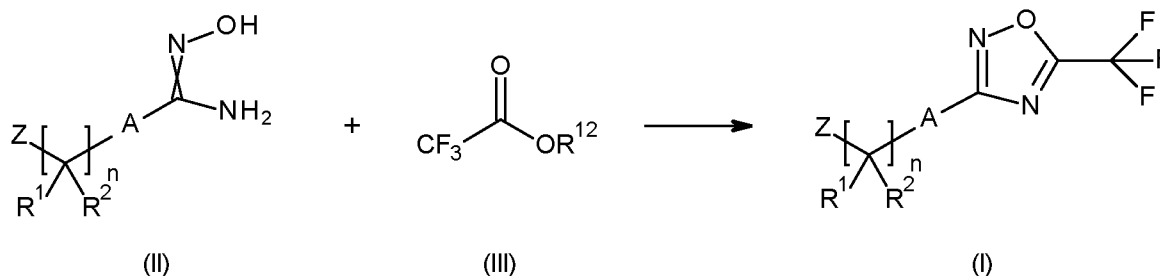
As used herein, the term "heterocyclylC₁₋₆alkyl" refers to a heterocyclyl ring attached to the rest of the molecule by a C₁₋₆alkylene radical as defined above. The terms "heterocyclylC₁₋₄alkyl" and "heterocyclylC₁₋₂alkyl" are to be construed accordingly.

5 The compounds of Formula (I) can be made by the process of the invention as shown in the following Schemes 1 to 13, in which, unless otherwise stated, the definition of each variable is as defined above for a compound of Formula (I).

10 The designations of n, m, A-1, A-2, R¹, R², R³, R⁴, R⁵, R⁶, R⁷, R⁸, R⁹, R¹⁰, R¹¹, Z (Z¹, Z²), W and X, with reference to the compounds of Formula (I) obtained by the process of the present invention, apply generally to the compounds of any of Formulae (I-A), (I-B), or (I-a), as well as to the compounds of Formula (II), including the compounds of any of Formulae (II-A), (II-1), (II-2), (II-3) or (II-4), or each of the compounds of Formulae (IV), (V), (VI), (VII), (VIII), (IX) or (X), including the compounds of any of Formulae (VII-A) or (VII-a).

15

The compound of Formula (I) is prepared according to the process of the invention, said process comprising the step of reacting a compound of Formula (II) with a compound of Formula (III). This reaction is shown in Scheme 1.



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Scheme 1

For the purpose of the present invention, the compound of Formula (II) is used in the process of the invention in any of its tautomeric forms with different (E)/(Z)-configurations.

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Examples of compounds of Formula (III) suitable for use in the process of the invention include those wherein R¹² is selected from methyl, ethyl, n-propyl, iso-propyl, n-butyl, sec-butyl, tert-butyl, and iso-butyl. Preferably, R¹² in the compound of Formula (III) is methyl or ethyl. The compound of Formula (III) is more preferably methyl 2,2,2-trifluoroacetate or ethyl 2,2,2-trifluoroacetate.

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In an embodiment of the process of the invention, the compound of Formula (I) is advantageously prepared from a compound of Formula (II) via reaction with an amount of from 1.0 to 2.0 equivalents of a compound of Formula (III).

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In a preferred embodiment of the invention, the process of the invention is carried out in the presence of at least one base.

According to one embodiment, the process of the invention is carried out in the presence of at least one base and, optionally, at least one solvent.

Examples of suitable bases include inorganic bases and organic bases. Preferred bases are selected from the group consisting of tertiary amines, substituted or non-substituted pyridine, bicyclic amines and mixtures thereof, NaH, alkali metal C₁₋₆alkoxylates and alkaline earth metal C₁₋₆alkoxylates such as, for instance, sodium methoxide, sodium ethoxide, sodium tert-butoxide, potassium tert-butoxide, potassium pentoxide, potassium carbonate (K₂CO₃) and sodium carbonate (Na₂CO₃).

More preferably, the process of the invention is carried out in the presence of at least one base selected from the group consisting of alkali metal C₁₋₆alkoxylates and alkaline earth metal C₁₋₆alkoxylates. Even more preferably, the process of the invention is carried out in the presence of sodium tert-butoxide or potassium tert-butoxide.

As used herein, the term "alkali metal" refers to the elements in group 1 of the Periodic Table, preferably to lithium (Li), sodium (Na), or potassium (K).

As used herein, the term "alkaline earth metal" refers to the elements in group 2 of the Periodic Table, preferably to magnesium (Mg), or calcium (Ca).

Examples of suitable solvents include, for instance, methanol, ethanol, tert-butanol, tetrahydrofuran, 2-methyltetrahydrofuran, N,N-dimethylformamide, dimethylsulfoxide, pyridine, pyrrolidine, N-methyl-2-pyrrolidone, toluene, and dioxane.

Typical reaction concentrations are usually in the range from 0.5 M to 2.0 M. Very good results have been obtained when the process of the invention is carried out at a concentration of 0.7 M.

The process of the invention is usually carried out at a temperature from 0°C to 60°C, preferably from 0°C to 40°C, more preferably from 0°C to 25°C. Very good results have been obtained when the process of the invention is carried out at a temperature from 0°C to 25°C.

The process of the invention is usually carried out at a pressure from 1 atm to 5 atm.

Typical reaction times are usually in the range from 1 to 16 hours. Very good results have been obtained when the process of the invention is carried out at reaction times of 1 to 2 hours.

A reaction mixture is generally obtained from the process of the invention, said process comprising the step of reacting a compound of Formula (II) with a compound of Formula (III), preferably in the presence of at least one base and, optionally, at least one solvent.

The process of the invention typically further comprises the step of isolating the compound of Formula (I) using an aqueous medium. The compound of Formula (I) is advantageously isolated from the reaction mixture using an aqueous medium, typically by an extractive work-up.

In a preferred embodiment of the process of the invention, the aqueous medium is an aqueous acidic medium. The aqueous acidic medium is generally prepared by addition of one or more acids to the aqueous medium. Preferably, the process of the invention further comprises the step of isolating the compound of Formula (I) using an aqueous acidic medium.

It has been found that an aqueous acidic medium during reaction work-up may provide the most suitable medium for purification of compounds of Formula (I). In particular, it has been surprisingly found that an improvement in the isolated yield can be obtained by adding an aqueous acidic medium to the reaction mixture.

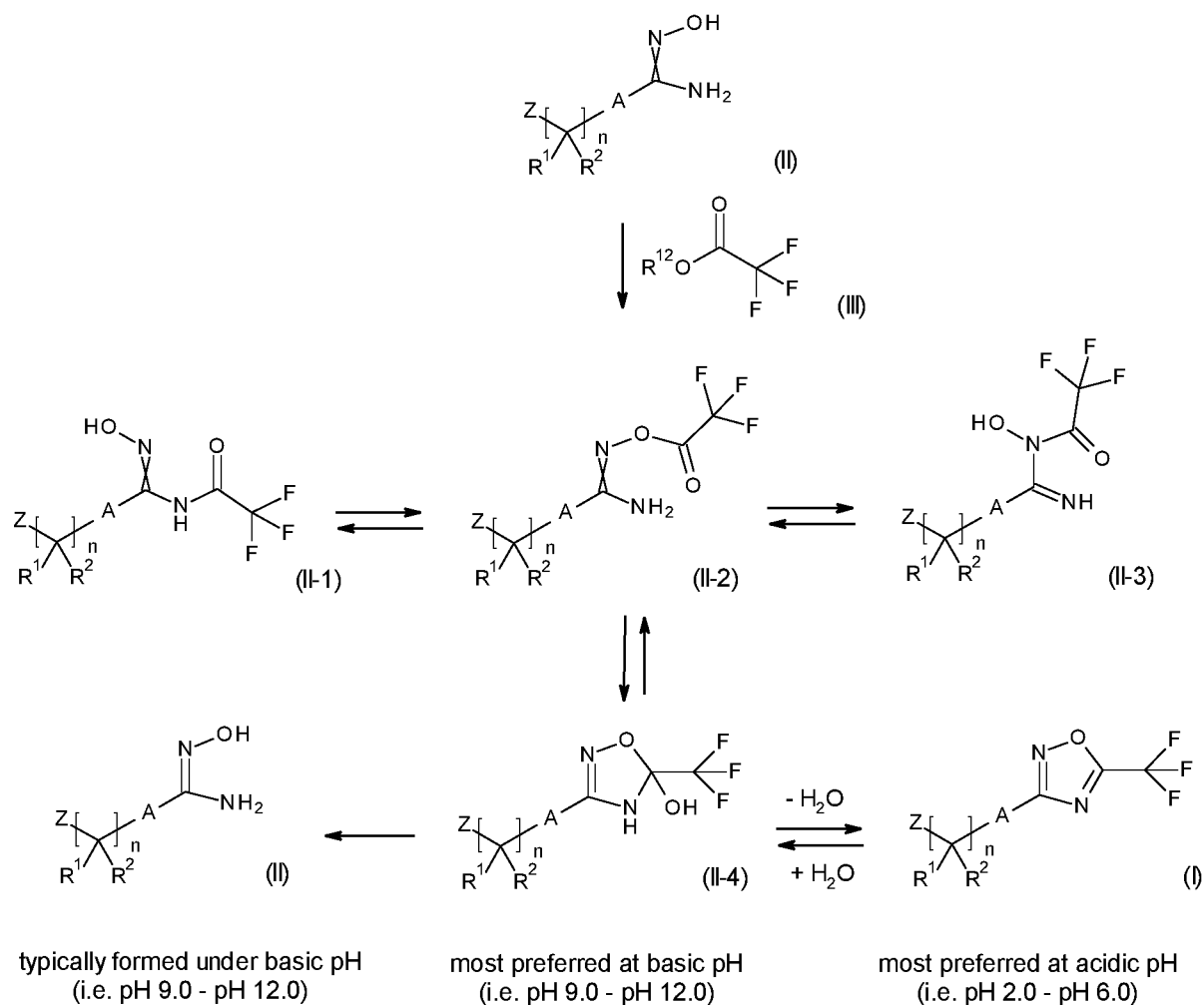
The aqueous acidic medium typically comprises an acid selected from the group consisting of acetic acid, citric acid, sulfuric acid, chloridric acid (HCl), HCl/water, HCl/dioxane. Preferably, the aqueous acidic medium comprises citric acid.

The aqueous acidic medium preferably has a pH of from 2.0 to 6.0, more preferably of from 4.9 to 5.9.

The present invention also relates to intermediates of any of Formulae (II-1), (II-2), (II-3) and (II-4) which are typically formed in the process of the invention from the step of reacting a compound of Formula (II) with a compound of Formula (III). The intermediates so obtained may be characterized by any suitable analytical techniques such as NMR and IR spectroscopy.

It is understood that, when in an aqueous medium, the compound of Formula (I) according to the invention may be present in a reversible equilibrium with the corresponding hydrated intermediate of Formula (II-4). This dynamic equilibrium may be important for the biological activity of the compounds of Formula (I). This reaction is shown in Scheme 2.

It is also understood that using an aqueous acidic medium it is advantageously possible avoiding both the reverse hydration equilibrium affording an intermediate of Formula (II-4) and hydrosis via cleavage of the trifluoroacetyl group that results in decomposition of a compound of Formula (I) to a compound of Formula (II).



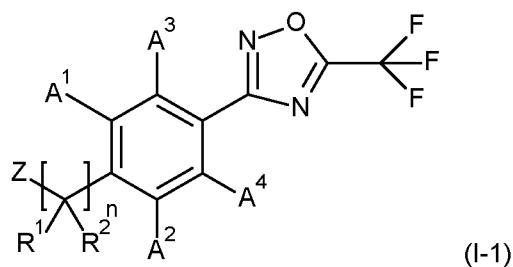
Scheme 2

5 The following list provides definitions, including preferred definitions, for substituents n , m , A-1, A-2, R^1 , R^2 , R^3 , R^4 , R^5 , R^6 , R^7 , R^8 , R^9 , R^{10} , R^{11} , Z (Z^1 , Z^2), W , and X with reference to the compounds of Formula (I). For any of these substituents, any of the definitions given below may be combined with any definitions of any other substituent given below or elsewhere in the present invention.

10 Preferably, n in the compound of Formula (I) is 0 or 1.

In a preferred embodiment, the present invention relates to a process for the preparation of a compound of Formula (I), wherein Z is Z^2 , hereinafter referred to as compound of Formula (I-A).

15 Table 1.1: This table discloses 206 specific compounds of Formula (I-1):



wherein n is 1, A¹, A², A³, A⁴, R¹ and R² are hydrogen, and Z is as defined below in Table 1.

5 Table 1

Compound no.	Z	Compound no.	Z
1.001	(3-pyridyl)triazol-1-yl	1.104	ethyl 2-[1-pyrazol-3-yl]pyridine-3-carboxylate
1.002	(4-chlorophenyl)tetrazol-2-yl	1.105	ethyl 3-(difluoromethyl)-pyrazol-1-yl-4-carboxylate
1.003	(4-methoxyphenyl)triazol-1-yl	1.106	ethyl 3-(trifluoromethyl)-pyrazol-1-yl-4-carboxylate
1.004	[(5-chloro-3-methoxy-2-pyridyl)-oxymethyl]triazol-1-yl	1.107	ethyl 4-phenyl-pyrazol-1-yl-3-carboxylate
1.005	[1-(2,6-diethylphenyl)-5-methyl-pyrazol-4-yl]triazol-1-yl	1.108	ethyl 5-(difluoromethyl)-pyrazol-1-yl-4-carboxylate
1.006	[1-triazol-4-yl]methyl acetate	1.109	ethyl 5-cyclopropyl-pyrazol-1-yl-3-carboxylate
1.007	1,2,4-triazol-1-yl	1.110	ethyl 5-cyclopropyl-pyrazol-2-yl-3-carboxylate
1.008	1,2,4-triazol-1-yl-3-carbonitrile	1.111	ethyl 5-methyl-imidazol-3-yl-4-carboxylate
1.009	1,2,4-triazol-2-yl-3-amine	1.112	ethyl 5-propyl-imidazol-3-yl-4-carboxylate
1.010	1,2,4-triazol-2-yl-3-carbonitrile	1.113	ethyl 5-propyl-imidazol-4-yl-4-carboxylate
1.011	1,2,4-triazol-4-yl	1.114	ethyl pyrazol-1-yl-4-carboxylate
1.012	1,2,4-triazol-4-yl-3-amine	1.115	imidazo-1-yl-carbonitrile
1.013	1-[pyrrol-2-yl]ethanone	1.116	imidazol-1-yl
1.014	1H-triazol-4-ylmethyl acetate	1.117	imidazol-1-yl-4,5-dicarbonitrile
1.015	2-(4-pyridyl)benzimidazol-1-yl	1.118	imidazol-1-yl-4-carbaldehyde
1.016	2-(trifluoromethyl)benzimidazol-1-yl	1.119	imidazol-3-yl-4-carbaldehyde
1.017	2,4-dimethylimidazol-1-yl	1.120	indazol-1-yl
1.018	2-bromoimidazol-1-yl	1.121	indazol-1-yl-3-carbonitrile

1.019	2-ethylbenzimidazol-1-yl	1.122	indazol-2-yl
1.020	2-isopropylimidazol-1-yl	1.123	methyl 1,2,4-triazol-1-yl-3-carboxylate
1.021	2-methylimidazol-1-yl	1.124	methyl 1,2,4-triazol-2-yl-3-carboxylate
1.022	2-phenylimidazol-1-yl	1.125	methyl 1,2,4-triazol-4-yl-3-carboxylate
1.023	3-(cyano)-1,2,4-triazol-1-yl	1.126	methyl 1H-1,2,4-triazole-3-carboxylate
1.024	3-(trifluoromethyl)-1,2,4-triazol-1-yl	1.127	methyl 1H-1,2,4-triazole-5-carboxylate
1.025	3-(trifluoromethyl)pyrazol-1-yl	1.128	methyl 2-methyl-pyrrole-1-yl-3-carboxylate
1.026	3,4,5-trimethylpyrazol-1-yl	1.129	methyl 3-(methoxymethyl)-pyrazol-1-yl-4-carboxylate
1.027	3,5-bis(difluoromethyl)pyrazol-1-yl	1.130	methyl 3-cyclopropyl-pyrazol-4-yl-4-carboxylate
1.028	3,5-bis(trifluoromethyl)pyrazol-1-yl	1.131	methyl 3-imidazol-3-yl-4-carboxylate
1.029	3,5-dimethylpyrazol-1-yl	1.132	methyl 5-(methoxymethyl)-pyrazol-1-yl-4-carboxylate
1.030	3,5-ethylpyrazol-1-yl	1.133	methyl 5-cyclopropyl-pyrazol-1-yl-4-carboxylate"
1.031	3-[4-[[4-(1-ethyl-3-methyl-pyrazol-4-yl)triazol-1-yl	1.134	methyl imidazol-1-yl-4-carboxylate
1.032	3-[4-[[4-(1-ethyl-5-methyl-pyrazol-4-yl)triazol-1-yl	1.135	methyl indazol-1-yl-4-carboxylate
1.033	3-benzylsulfanyl-1,2,4-triazol-1-yl	1.136	methyl indazol-2-yl-4-carboxylate
1.034	3-benzylsulfanyl-1,2,4-triazol-4-yl	1.137	methyl indol-1-yl-4-carboxylate
1.035	3-bromo-5-methoxy-1,2,4-triazol-1-yl	1.138	methyl pyrazol-yl-e-4-carboxylate
1.036	3-chloropyrazol-1-yl	1.139	N-(2-methoxyethyl) pyrazol-1-yl 4-carboxamide
1.037	3-ethylsulfanyl-1,2,4-triazol-1-yl	1.140	N-(cyclopropylmethyl) pyrazol-4-yl-4-carboxamide
1.038	3-propylsulfanyl-1,2,4-triazol-1-yl	1.141	N,N-dimethyl-1,2,4-triazol-1-yl-3-amine
1.039	4-(1-ethyl-3-methylpyrazol-4-yl)triazol-1-yl	1.142	N,N-dimethyl-pyrazol-1-yl-4-carboxamide
1.040	4-(1-ethyl-5-methylpyrazol-4-yl)triazol-1-yl	1.143	N-[1-methyl-1-(1H-triazol-4-yl)ethyl]benzamide
1.041	4-(2-pyridyl)triazol-1-yl	1.144	N-2-[1-[imidazol-4-yl]ethyl] acetamide
1.042	4-(3-methylimidazol-4-yl)triazol-1-yl	1.145	N-cyclopropyl-pyrazol-1-yl-4-carboxamide
1.043	4-(3-methylimidazol-4-yl)triazol-1-yl	1.146	N-methyl-pyrazol-yl-4-carboxamide

1.044	4-(3-pyridyl)triazol-1-yl	1.147	N-prop-2-ynyl pyrazol-1-yl-4-carboxamide
1.045	4-(3-thienyl)triazol-1-yl	1.148	pyrazol-1-yl
1.046	4-(4-fluorophenyl)triazol-1-yl	1.149	pyrazol-1-yl-3-carbaldehyde
1.047	4-(4-methoxyphenyl)triazol-1-yl	1.150	pyrazol-1-yl-4-carbonitrile
1.048	4-(ethoxymethyl)triazol-1-yl	1.151	pyrazol-1-yl-4-carboxylic acid
1.049	4-(phenoxymethyl)triazol-1-yl	1.152	pyrrol-1-yl-2-carbaldehyde
1.050	4-(p-tolyl)triazol-1-yl	1.153	pyrrol-1-yl-3-carbonitrile
1.051	4-(triazolo[4,5-b]pyridin-1-yl	1.154	pyrrolo[2,3-b]pyridin-1-yl
1.052	4-(triazolo[4,5-b]pyridin-3-yl	1.155	pyrrolo[3,2-b]pyridin-1-yl-2-carbonitrile
1.053	4-(triazolo[4,5-b]pyridin-4-yl	1.156	pyrrolo[3,2-b]pyridin-4-yl-2-carbonitrile
1.054	4-(trifluoromethyl)imidazol-1-yl	1.157	tert-butyl N-(1H-triazol-4-ylmethyl)carbamate
1.055	4-(trifluoromethyl)pyrazol-1-yl	1.158	triazol-1-yl
1.056	4,5-dichloroimidazol-1-yl	1.159	triazol-2-yl
1.057	4-[(5-chloro-3-methoxy-2-pyridyl)oxymethyl]triazol-1-yl	1.160	triazolo[4,5-b]pyridin-2-yl
1.058	4-bromo-2-methyl-imidazol-1-yl	1.161	trimethyl-triazol-4-yl silane
1.059	4-bromoimidazol-1-yl	1.162	1,2,4-triazol-1-yl-3-carbonitrile
1.060	4-bromopyrazol-1-yl	1.163	N,N-diethyl-pyrazol-1-yl-4-carboxamide
1.061	4-chlorobenzimidazol-1-yl	1.164	N-methoxy-N-methyl-pyrazol-1-yl-4-carboxamide
1.062	4-chlorophenyl)imidazol-1-yl	1.165	morpholino-[pyrazol-4-yl]methanone
1.063	4-chloropyrazol-1-yl	1.166	tert-butyl pyrazol-1-yl-4-carboxylate
1.064	4-cyclopentyltriazol-1-yl	1.167	isopropyl pyrazol-1-yl-4-carboxylate
1.065	4-cyclopropyltriazol-1-yl	1.168	propyl pyrazol-1-yl-4-carboxylate
1.066	4-fluorophenyl)imidazol-1-yl	1.169	2-(dimethylamino)ethyl pyrazol-1-yl-4-carboxylate
1.067	4-iodoimidazol-1-yl	1.170	N-methoxy-pyrazol-1-yl-4-carboxamide
1.068	4-iodopyrazol-1-yl	1.171	N-ethyl-pyrazol-1-yl-4-carboxamide
1.069	4-isobutyltriazol-1-yl	1.172	pyrazol-1-yl-4-carboxamide
1.070	4-methylimidazol-1-yl	1.173	methyl triazol-1-yl-4-carboxylate
1.071	4-phenylimidazol-1-yl	1.174	triazol-1-yl-4-carboxylic acid
1.072	4-phenyltriazol-1-yl	1.175	N-methyl-triazol-1-yl-4-carboxamide
1.073	4-pyrazol-1-yl	1.176	pyrazol-1-yl-4-carbaldehyde
1.074	4-tert-butyltriazol-1-yl	1.177	N-ethyl-1-triazol-1-yl-4-carboxamide
1.075	4-trimethylsilyltriazol-1-yl	1.178	N-methoxy-N-methyl-triazol-1-yl-4-carboxamide
1.076	5-(cyano)-1,2,4-triazol-1-yl	1.179	ethyl triazol-1-yl-4-carboxylate

1.077	5-(trifluoromethyl)-1,2,4-triazol-1-yl	1.180	N-methoxy-triazol-1-yl-4-carboxamide
1.078	5,5-dimethyl-4H-oxazol-2-yl	1.181	isopropyl triazol-1-yl-4-carboxylate
1.079	5,6-dichlorobenzotriazol-1-yl	1.182	methyl triazol-3-yl-4-carboxylate
1.080	5,6-dihydrocyclopenta[c]pyrrol-1-yl-4-one	1.183	N,N-dimethyl-triazol-1-yl-4-carboxamide
1.081	5-bromo-3-methoxy-1,2,4-triazol-1-yl	1.184	N-(4-methoxyphenyl)-triazol-1-yl-4-carboxamide
1.082	5-chloro-3-(trifluoromethyl)-1,2,4-triazol-1-yl	1.185	N-(4-chlorophenyl)-triazol-1-yl-4-carboxamide
1.083	5-chlorobenzotriazol-2-yl	1.186	N-(4-pyridyl)-triazol-1-yl-4-carboxamide
1.084	5-ethylsulfanyl-1,2,4-triazol-1-yl	1.187	N-methoxy-pyrazol-1-yl-4-methanimine
1.085	5-iodoimidazol-1-yl	1.188	N-ethoxy-pyrazol-1-yl-4-methanimine
1.086	5-methoxy-1,2,4-triazol-1-yl-3-amine	1.189	N-propoxy-pyrazol-1-yl-4-methanimine
1.087	5-methoxy-1,2,4-triazol-2-yl-3-amine	1.190	N-isopropoxy-pyrazol-1-yl-4-methanimine
1.088	5-methoxyindol-1-yl	1.191	N-benzyloxy-pyrazol-1-yl-4-methanimine
1.089	5-methyl-3-(trifluoromethyl)pyrazol-1-yl	1.192	N-prop-2-ynoxy-pyrazol-1-yl-4-methanimine
1.090	5-methylindol-1-yl	1.193	N-methyl-triazol-3-yl-4-carboxamide
1.091	5-methyl-pyrazol-1-yl-3-carbonitrile	1.194	N-methoxy-pyrrolidin-1-yl-3-imine
1.092	5-methyl-pyrazol-1-yl-3-ol	1.195	N-methoxy-piperidin-1-yl-4-imine
1.093	5-phenylimidazol-1-yl	1.196	5-methylsulfonyl-1,2,4-triazol-1-yl
1.094	5-phenyltriazol-1-yl	1.197	5-methylsulfinyl-1,2,4-triazol-1-yl
1.095	5-propylsulfanyl-1,2,4-triazol-1-yl	1.198	3-methylsulfonyl-1,2,4-triazol-1-yl
1.096	6-chloro-5-fluoro-benzimidazol-1-yl	1.199	3-methylsulfinyl-1,2,4-triazol-1-yl
1.097	6-chloroindol-1-yl	1.200	5-methylsulfanyl-1,2,4-triazol-1-yl
1.098	6-fluoroindol-1-yl	1.201	3-methylsulfanyl-1,2,4-triazol-1-yl
1.099	6-methoxypyrid-3-yl	1.202	1-piperidin-1-yl
1.100	7-chlorobenzimidazol-1-yl	1.203	4-morpholin-1-yl
1.101	benzotriazol-1-yl	1.204	4-thiomorpholin-1-yl
1.102	benzotriazol-2-yl	1.205	4-methylsulfonyl-piperazin-1-yl
1.103	dimethyl imidazol-1-yl-4,5-dicarboxylate	1.206	2,6-dimethyl-4-morpholin-1-yl

Each of Tables 1.2 to 1.11 (which follow Table 1.1) make available 206 individual compounds of Formula (I-1) wherein n, A¹, A², A³, A⁴, R¹ and R² are as specifically defined in Tables 1.2 to 1.11, which refer to Table 1 wherein Z is specifically defined.

- 5 Table 1.2: This table discloses 206 specific compounds of Formula (I-1) wherein n is 1, A², A³, A⁴, R¹ and R² are hydrogen, A¹ is fluorine and Z is as defined above in Table 1.

Table 1.3: This table discloses 206 specific compounds of Formula (I-1) wherein n is 1, A², A³, A⁴, R¹ and R² are hydrogen, A¹ is chlorine and Z is as defined above in Table 1.

10

Table 1.4: This table discloses 206 specific compounds of Formula (I-1) wherein n is 1, A², A³, A⁴, R¹ and R² are hydrogen, A¹ is methyl and Z is as defined above in Table 1.

- Table 1.5: This table discloses 206 specific compounds of Formula (I-1) wherein n is 1, A¹, A², A⁴, R¹ and R² are hydrogen, A³ is fluorine and Z is as defined above in Table 1.

Table 1.6: This table discloses 206 specific compounds of Formula (I-1) wherein n is 1, A², A⁴, R¹ and R² are hydrogen, A¹ and A³ are fluorine and Z is as defined above in Table 1.

- 20 Table 1.7: This table discloses 206 specific compounds of Formula (I-1) wherein n is 1, A³, A⁴, R¹ and R² are hydrogen, A¹ and A² are fluorine and Z is as defined above in Table 1.

Table 1.8: This table discloses 206 specific compounds of Formula (I-1) wherein n is 1, A², A³, R¹ and R² are hydrogen, A¹ and A⁴ are fluorine and Z is as defined above in Table 1.

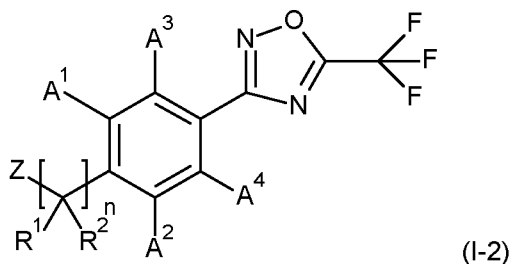
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Table 1.9: This table discloses 206 specific compounds of Formula (I-1) wherein n is 1, A¹, A², R¹ and R² are hydrogen, A³ and A⁴ are fluorine and Z is as defined above in Table 1.

- Table 1.10: This table discloses 206 specific compounds of Formula (I-1) wherein n is 1, A¹, A², A³, A⁴ and R¹ are hydrogen, R² is methyl and Z is as defined above in Table 1.

Table 1.11: This table discloses 206 specific compounds of Formula (I-1) wherein n is 1, A¹, A², A⁴ and R¹ are hydrogen, A³ is fluorine, R² is methyl and Z is as defined above in Table 1.

- 35 Table 2.1: This table discloses 58 specific compounds of Formula (I-2):



wherein n is 1, A¹, A², A³, A⁴, R¹ and R² are hydrogen, and Z is as defined below in Table 2.

Table 2

Compound no.	Z	Compound no.	Z
2.001	pyrrolidin-2-one	2.030	4-acetylpiperazin-2-one
2.002	piperidin-2-one	2.031	oxazinan-3-one
2.003	morpholin-3-one	2.032	N-methoxy-N-methyl-3-oxopiperazine-1-carboxamide
2.004	4,4-dimethyl-isoxazolidin-3-one	2.033	4-(cyclopropanecarbonyl)-piperazin-2-one
2.005	5,5-dimethyl-isoxazolidin-3-one	2.034	4-methylsulfonylpiperazin-2-one
2.006	3-methyl-pyrrolidin-2-one	2.035	N,N-dimethyl-3-oxopiperazine-1-sulfonamide
2.007	4-methyl-pyrrolidin-2-one	2.036	oxazolidin-2-one
2.008	3-azabicyclo[2.2.1]hept-5-en-2-one	2.037	1-methyl-imidazolidin-2-one
2.009	3-methyl-piperidin-2-one	2.038	3-methyl-imidazolidine-2,4-dione
2.010	4,4-dimethyl-piperidine-2,6-dione	2.039	1-methyl-hexahydropyrimidin-2-one
2.011	5-methyl-pyrrolidin-2-one	2.040	piperidine-2,6-dione
2.012	6-methyl-piperidin-2-one	2.041	1-methyl-imidazolidine-2,4-dione
2.013	3-azabicyclo[2.2.2]octan-2-one	2.042	pyrrolidine-2,5-dione
2.014	3,3-dimethyl-piperidin-2-one	2.043	4-acetyl-piperazine-2,6-dione
2.015	4-methyl-piperidin-2-one	2.044	N,N-dimethyl-3,5-dioxopiperazine-1-carboxamide
2.016	5-methyl-piperidin-2-one	2.045	ethyl 3,5-dioxo-piperazine-1-carboxylate
2.017	3-methoxy-piperidin-2-one	2.046	N-methyl-3,5-dioxopiperazine-1-carboxamide
2.018	4-(trifluoromethyl)-azetidin-2-one	2.047	4-methylsulfonyl-piperazine-2,6-dione
2.019	5-(difluoromethyl)-pyrrolidin-2-one	2.048	N,N-dimethyl-3,5-dioxopiperazine-1-sulfonamide
2.020	azetidin-2-one	2.049	piperazin-4-ium-2,6-dione
2.021	3-azabicyclo[2.2.1]heptan-2-one	2.050	4,4-dimethyl-isoxazolidin-3-one
2.022	4-azaspiro[2.5]octan-5-one	2.051	imidazolidine-2,4-dione
2.023	1-methyl-piperazine-2,5-dione	2.052	azepan-2-one
2.024	4-azaspiro[2.4]heptan-5-one	2.053	piperazin-4-ium-2-one
2.025	(tert-butyl 3-oxo-piperazine-1-carboxylate)	2.054	tert-butyl 3,5-dioxopiperazine-1-carboxylate
2.026	4-(2-methoxyacetyl)-piperazin-2-one	2.055	1-methyl-tetrazol-5-one

2.027	ethyl 3-oxopiperazine-1-carboxylate	2.056	1,2-thiazolidine 1,1-dioxide
2.028	N-methyl-3-oxopiperazine-1-carboxamide	2.057	2-methyl-1,2,6-thiadiazinane 1,1-dioxide
2.029	N,N-dimethyl-3-oxopiperazine-1-carboxamide	2.058	1-methoxy-imidazolidin-2-one

Each of Tables 2.2 and 2.3 (which follow Table 2.1) make available 58 individual compounds of Formula (I-2) wherein n, A¹, A², A³, A⁴, R¹ and R² are as specifically defined in Tables 2.2 and 2.3, which refer to Table 2 wherein Z is specifically defined.

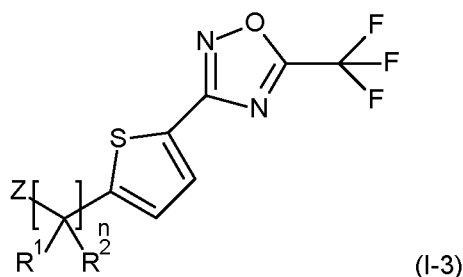
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Table 2.2: This table discloses 58 specific compounds of Formula (I-2) wherein n is 1, A², A³, A⁴, R¹ and R² are hydrogen, A¹ is fluorine and Z is as defined above in Table 2.

Table 2.3: This table discloses 58 specific compounds of Formula (I-2) wherein n is 1, A¹, A², A⁴, R¹ and

10 R² are hydrogen, A³ is fluorine and Z is as defined above in Table 2.

Table 3.1: This table discloses 373 specific compounds of Formula (I-3):



15 wherein n is 1, R¹ and R² are hydrogen, and Z is as defined below in Table 3.

Table 3

Compound no.	Z	Compound no.	Z
3.001	2H-pyrazole-3-carboxylic acid	3.188	methyl 1H-1,2,4-triazole-3-carboxylate
3.002	methyl 2H-pyrazole-3-carboxylate	3.189	ethyl 1H-1,2,4-triazole-3-carboxylate
3.003	ethyl 2H-pyrazole-3-carboxylate	3.190	propyl 1H-1,2,4-triazole-3-carboxylate
3.004	propyl 2H-pyrazole-3-carboxylate	3.191	prop-2-enyl 1H-1,2,4-triazole-3-carboxylate
3.005	prop-2-enyl 2H-pyrazole-3-carboxylate	3.192	prop-2-ynyl 1H-1,2,4-triazole-3-carboxylate
3.006	prop-2-ynyl 2H-pyrazole-3-carboxylate	3.193	tert-butyl 1H-1,2,4-triazole-3-carboxylate

3.007	tert-butyl 2H-pyrazole-3-carboxylate	3.194	isopropyl 1H-1,2,4-triazole-3-carboxylate
3.008	isopropyl 2H-pyrazole-3-carboxylate	3.195	2-(dimethylamino)ethyl 1H-1,2,4-triazole-3-carboxylate
3.009	2-(dimethylamino)ethyl 2H-pyrazole-3-carboxylate	3.196	2-methoxyethyl 1H-1,2,4-triazole-3-carboxylate
3.010	2-methoxyethyl 2H-pyrazole-3-carboxylate	3.197	cyclopropyl 1H-1,2,4-triazole-3-carboxylate
3.011	cyclopropyl 2H-pyrazole-3-carboxylate	3.198	cyclopropylmethyl 1H-1,2,4-triazole-3-carboxylate
3.012	cyclopropylmethyl 2H-pyrazole-3-carboxylate	3.199	1H-1,2,4-triazole-3-carboxamide
3.013	2H-pyrazole-3-carboxamide	3.200	N-methyl-1H-1,2,4-triazole-3-carboxamide
3.014	N-methyl-2H-pyrazole-3-carboxamide	3.201	N-ethyl-1H-1,2,4-triazole-3-carboxamide
3.015	N-ethyl-2H-pyrazole-3-carboxamide	3.202	N-propyl-1H-1,2,4-triazole-3-carboxamide
3.016	N-propyl-2H-pyrazole-3-carboxamide	3.203	N-isopropyl-1H-1,2,4-triazole-3-carboxamide
3.017	N-isopropyl-2H-pyrazole-3-carboxamide	3.204	N-prop-2-enyl-1H-1,2,4-triazole-3-carboxamide
3.018	N-prop-2-enyl-2H-pyrazole-3-carboxamide	3.205	N-prop-2-ynyl-1H-1,2,4-triazole-3-carboxamide
3.019	N-prop-2-ynyl-2H-pyrazole-3-carboxamide	3.206	N-cyclopropyl-1H-1,2,4-triazole-3-carboxamide
3.020	N-cyclopropyl-2H-pyrazole-3-carboxamide	3.207	N-(cyclopropylmethyl)-1H-1,2,4-triazole-3-carboxamide
3.021	N-(cyclopropylmethyl)-2H-pyrazole-3-carboxamide	3.208	N-(2-methoxyethyl)-1H-1,2,4-triazole-3-carboxamide
3.022	N-(2-methoxyethyl)-2H-pyrazole-3-carboxamide	3.209	N-methoxy-1H-1,2,4-triazole-3-carboxamide
3.023	N-methoxy-2H-pyrazole-3-carboxamide	3.210	N-ethoxy-1H-1,2,4-triazole-3-carboxamide
3.024	N-ethoxy-2H-pyrazole-3-carboxamide	3.211	N-prop-2-enyloxy-1H-1,2,4-triazole-3-carboxamide
3.025	N-prop-2-enyloxy-2H-pyrazole-3-carboxamide	3.212	N-methoxy-N-methyl-1H-1,2,4-triazole-3-carboxamide
3.026	N-methoxy-N-methyl-2H-pyrazole-3-carboxamide	3.213	N-ethoxy-N-methyl-1H-1,2,4-triazole-3-carboxamide
3.027	N-ethoxy-N-methyl-2H-pyrazole-3-carboxamide	3.214	N,N-dimethyl-1H-1,2,4-triazole-3-carboxamide
3.028	N,N-dimethyl-2H-pyrazole-3-carboxamide	3.215	N,N-diethyl-1H-1,2,4-triazole-3-carboxamide
3.029	N,N-diethyl-2H-pyrazole-3-carboxamide	3.216	N-ethyl-N-methyl-1H-1,2,4-triazole-3-carboxamide

3.030	N-ethyl-N-methyl-2H-pyrazole-3-carboxamide	3.217	N-prop-2-enyl-N-methyl-1H-1,2,4-triazole-3-carboxamide
3.031	N-prop-2-enyl-N-methyl-2H-pyrazole-3-carboxamide	3.218	3H-triazole-4-carboxylic acid
3.032	1H-pyrazole-3-carboxylic acid	3.219	methyl 3H-triazole-4-carboxylate
3.033	methyl 1H-pyrazole-3-carboxylate	3.220	ethyl 3H-triazole-4-carboxylate
3.034	ethyl 1H-pyrazole-3-carboxylate	3.221	propyl 3H-triazole-4-carboxylate
3.035	propyl 1H-pyrazole-3-carboxylate	3.222	prop-2-enyl 3H-triazole-4-carboxylate
3.036	prop-2-enyl 1H-pyrazole-3-carboxylate	3.223	prop-2-ynyl 3H-triazole-4-carboxylate
3.037	prop-2-ynyl 1H-pyrazole-3-carboxylate	3.224	tert-butyl 3H-triazole-4-carboxylate
3.038	tert-butyl 1H-pyrazole-3-carboxylate	3.225	isopropyl 3H-triazole-4-carboxylate
3.039	isopropyl 1H-pyrazole-3-carboxylate	3.226	2-(dimethylamino)ethyl 3H-triazole-4-carboxylate
3.040	2-(dimethylamino)ethyl 1H-pyrazole-3-carboxylate	3.227	2-methoxyethyl 3H-triazole-4-carboxylate
3.041	2-methoxyethyl 1H-pyrazole-3-carboxylate	3.228	cyclopropyl 3H-triazole-4-carboxylate
3.042	cyclopropyl 1H-pyrazole-3-carboxylate	3.229	cyclopropylmethyl 3H-triazole-4-carboxylate
3.043	cyclopropylmethyl 1H-pyrazole-3-carboxylate	3.230	3H-triazole-4-carboxamide
3.044	1H-pyrazole-3-carboxamide	3.231	N-methyl-3H-triazole-4-carboxamide
3.045	N-methyl-1H-pyrazole-3-carboxamide	3.232	N-ethyl-3H-triazole-4-carboxamide
3.046	N-ethyl-1H-pyrazole-3-carboxamide	3.233	N-propyl-3H-triazole-4-carboxamide
3.047	N-propyl-1H-pyrazole-3-carboxamide	3.234	N-isopropyl-3H-triazole-4-carboxamide
3.048	N-isopropyl-1H-pyrazole-3-carboxamide	3.235	N-prop-2-enyl-3H-triazole-4-carboxamide
3.049	N-prop-2-enyl-1H-pyrazole-3-carboxamide	3.236	N-prop-2-ynyl-3H-triazole-4-carboxamide
3.050	N-prop-2-ynyl-1H-pyrazole-3-carboxamide	3.237	N-cyclopropyl-3H-triazole-4-carboxamide
3.051	N-cyclopropyl-1H-pyrazole-3-carboxamide	3.238	N-(cyclopropylmethyl)-3H-triazole-4-carboxamide
3.052	N-(cyclopropylmethyl)-1H-pyrazole-3-carboxamide	3.239	N-(2-methoxyethyl)-3H-triazole-4-carboxamide
3.053	N-(2-methoxyethyl)-1H-pyrazole-3-carboxamide	3.240	N-methoxy-3H-triazole-4-carboxamide

3.054	N-methoxy-1H-pyrazole-3-carboxamide	3.241	N-ethoxy-3H-triazole-4-carboxamide
3.055	N-ethoxy-1H-pyrazole-3-carboxamide	3.242	N-prop-2-enyloxy-3H-triazole-4-carboxamide
3.056	N-prop-2-enyloxy-1H-pyrazole-3-carboxamide	3.243	N-methoxy-N-methyl-3H-triazole-4-carboxamide
3.057	N-methoxy-N-methyl-1H-pyrazole-3-carboxamide	3.244	N-ethoxy-N-methyl-3H-triazole-4-carboxamide
3.058	N-ethoxy-N-methyl-1H-pyrazole-3-carboxamide	3.245	N,N-dimethyl-3H-triazole-4-carboxamide
3.059	N,N-dimethyl-1H-pyrazole-3-carboxamide	3.246	N,N-diethyl-3H-triazole-4-carboxamide
3.060	N,N-diethyl-1H-pyrazole-3-carboxamide	3.247	N-ethyl-N-methyl-3H-triazole-4-carboxamide
3.061	N-ethyl-N-methyl-1H-pyrazole-3-carboxamide	3.248	N-prop-2-enyl-N-methyl-3H-triazole-4-carboxamide
3.062	N-prop-2-enyl-N-methyl-1H-pyrazole-3-carboxamide	3.249	2H-triazole-4-carboxylic acid
3.063	1H-imidazole-2-carboxylic acid	3.250	methyl 2H-triazole-4-carboxylate
3.064	methyl 1H-imidazole-2-carboxylate	3.251	ethyl 2H-triazole-4-carboxylate
3.065	ethyl 1H-imidazole-2-carboxylate	3.252	propyl 2H-triazole-4-carboxylate
3.066	propyl 1H-imidazole-2-carboxylate	3.253	prop-2-enyl 2H-triazole-4-carboxylate
3.067	prop-2-enyl 1H-imidazole-2-carboxylate	3.254	prop-2-ynyl 2H-triazole-4-carboxylate
3.068	prop-2-ynyl 1H-imidazole-2-carboxylate	3.255	tert-butyl 2H-triazole-4-carboxylate
3.069	tert-butyl 1H-imidazole-2-carboxylate	3.256	isopropyl 2H-triazole-4-carboxylate
3.070	isopropyl 1H-imidazole-2-carboxylate	3.257	2-(dimethylamino)ethyl 2H-triazole-4-carboxylate
3.071	2-(dimethylamino)ethyl 1H-imidazole-2-carboxylate	3.258	2-methoxyethyl 2H-triazole-4-carboxylate
3.072	2-methoxyethyl 1H-imidazole-2-carboxylate	3.259	cyclopropyl 2H-triazole-4-carboxylate
3.073	cyclopropyl 1H-imidazole-2-carboxylate	3.260	cyclopropylmethyl 2H-triazole-4-carboxylate
3.074	cyclopropylmethyl 1H-imidazole-2-carboxylate	3.261	2H-triazole-4-carboxamide
3.075	1H-imidazole-2-carboxamide	3.262	N-methyl-2H-triazole-4-carboxamide
3.076	N-methyl-1H-imidazole-2-carboxamide	3.263	N-ethyl-2H-triazole-4-carboxamide
3.077	N-ethyl-1H-imidazole-2-carboxamide	3.264	N-propyl-2H-triazole-4-carboxamide

3.078	N-propyl-1H-imidazole-2-carboxamide	3.265	N-isopropyl-2H-triazole-4-carboxamide
3.079	N-isopropyl-1H-imidazole-2-carboxamide	3.266	N-prop-2-enyl-2H-triazole-4-carboxamide
3.080	N-prop-2-enyl-1H-imidazole-2-carboxamide	3.267	N-prop-2-ynyl-2H-triazole-4-carboxamide
3.081	N-prop-2-ynyl-1H-imidazole-2-carboxamide	3.268	N-cyclopropyl-2H-triazole-4-carboxamide
3.082	N-cyclopropyl-1H-imidazole-2-carboxamide	3.269	N-(cyclopropylmethyl)-2H-triazole-4-carboxamide
3.083	N-(cyclopropylmethyl)-1H-imidazole-2-carboxamide	3.270	N-(2-methoxyethyl)-2H-triazole-4-carboxamide
3.084	N-(2-methoxyethyl)-1H-imidazole-2-carboxamide	3.271	N-methoxy-2H-triazole-4-carboxamide
3.085	N-methoxy-1H-imidazole-2-carboxamide	3.272	N-ethoxy-2H-triazole-4-carboxamide
3.086	N-ethoxy-1H-imidazole-2-carboxamide	3.273	N-prop-2-enyloxy-2H-triazole-4-carboxamide
3.087	N-prop-2-enyloxy-1H-imidazole-2-carboxamide	3.274	N-methoxy-N-methyl-2H-triazole-4-carboxamide
3.088	N-methoxy-N-methyl-1H-imidazole-2-carboxamide	3.275	N-ethoxy-N-methyl-2H-triazole-4-carboxamide
3.089	N-ethoxy-N-methyl-1H-imidazole-2-carboxamide	3.276	N,N-dimethyl-2H-triazole-4-carboxamide
3.090	N,N-dimethyl-1H-imidazole-2-carboxamide	3.277	N,N-diethyl-2H-triazole-4-carboxamide
3.091	N,N-diethyl-1H-imidazole-2-carboxamide	3.278	N-ethyl-N-methyl-2H-triazole-4-carboxamide
3.092	N-ethyl-N-methyl-1H-imidazole-2-carboxamide	3.279	N-prop-2-enyl-N-methyl-2H-triazole-4-carboxamide
3.093	N-prop-2-enyl-N-methyl-1H-imidazole-2-carboxamide	3.280	1H-triazole-4-carboxylic acid
3.094	1H-imidazole-4-carboxylic acid	3.281	methyl 1H-triazole-4-carboxylate
3.095	methyl 1H-imidazole-4-carboxylate	3.282	ethyl 1H-triazole-4-carboxylate
3.096	ethyl 1H-imidazole-4-carboxylate	3.283	propyl 1H-triazole-4-carboxylate
3.097	propyl 1H-imidazole-4-carboxylate	3.284	prop-2-enyl 1H-triazole-4-carboxylate
3.098	prop-2-enyl 1H-imidazole-4-carboxylate	3.285	prop-2-ynyl 1H-triazole-4-carboxylate
3.099	prop-2-ynyl 1H-imidazole-4-carboxylate	3.286	tert-butyl 1H-triazole-4-carboxylate
3.100	tert-butyl 1H-imidazole-4-carboxylate	3.287	isopropyl 1H-triazole-4-carboxylate
3.101	isopropyl 1H-imidazole-4-carboxylate	3.288	2-(dimethylamino)ethyl 1H-triazole-4-carboxylate

3.102	2-(dimethylamino)ethyl 1H-imidazole-4-carboxylate	3.289	2-methoxyethyl 1H-triazole-4-carboxylate
3.103	2-methoxyethyl 1H-imidazole-4-carboxylate	3.290	cyclopropyl 1H-triazole-4-carboxylate
3.104	cyclopropyl 1H-imidazole-4-carboxylate	3.291	cyclopropylmethyl 1H-triazole-4-carboxylate
3.105	cyclopropylmethyl 1H-imidazole-4-carboxylate	3.292	1H-triazole-4-carboxamide
3.106	1H-imidazole-4-carboxamide	3.293	N-methyl-1H-triazole-4-carboxamide
3.107	N-methyl-1H-imidazole-4-carboxamide	3.294	N-ethyl-1H-triazole-4-carboxamide
3.108	N-ethyl-1H-imidazole-4-carboxamide	3.295	N-propyl-1H-triazole-4-carboxamide
3.109	N-propyl-1H-imidazole-4-carboxamide	3.296	N-isopropyl-1H-triazole-4-carboxamide
3.110	N-isopropyl-1H-imidazole-4-carboxamide	3.297	N-prop-2-enyl-1H-triazole-4-carboxamide
3.111	N-prop-2-enyl-1H-imidazole-4-carboxamide	3.298	N-prop-2-ynyl-1H-triazole-4-carboxamide
3.112	N-prop-2-ynyl-1H-imidazole-4-carboxamide	3.299	N-cyclopropyl-1H-triazole-4-carboxamide
3.113	N-cyclopropyl-1H-imidazole-4-carboxamide	3.300	N-(cyclopropylmethyl)-1H-triazole-4-carboxamide
3.114	N-(cyclopropylmethyl)-1H-imidazole-4-carboxamide	3.301	N-(2-methoxyethyl)-1H-triazole-4-carboxamide
3.115	N-(2-methoxyethyl)-1H-imidazole-4-carboxamide	3.302	N-methoxy-1H-triazole-4-carboxamide
3.116	N-methoxy-1H-imidazole-4-carboxamide	3.303	N-ethoxy-1H-triazole-4-carboxamide
3.117	N-ethoxy-1H-imidazole-4-carboxamide	3.304	N-prop-2-enyloxy-1H-triazole-4-carboxamide
3.118	N-prop-2-enyloxy-1H-imidazole-4-carboxamide	3.305	N-methoxy-N-methyl-1H-triazole-4-carboxamide
3.119	N-methoxy-N-methyl-1H-imidazole-4-carboxamide	3.306	N-ethoxy-N-methyl-1H-triazole-4-carboxamide
3.120	N-ethoxy-N-methyl-1H-imidazole-4-carboxamide	3.307	N,N-dimethyl-1H-triazole-4-carboxamide
3.121	N,N-dimethyl-1H-imidazole-4-carboxamide	3.308	N,N-diethyl-1H-triazole-4-carboxamide
3.122	N,N-diethyl-1H-imidazole-4-carboxamide	3.309	N-ethyl-N-methyl-1H-triazole-4-carboxamide
3.123	N-ethyl-N-methyl-1H-imidazole-4-carboxamide	3.310	N-prop-2-enyl-N-methyl-1H-triazole-4-carboxamide
3.124	N-prop-2-enyl-N-methyl-1H-imidazole-4-carboxamide	3.311	1H-tetrazole-5-carboxylic acid

3.125	3H-imidazole-4-carboxylic acid	2.312	methyl 1H-tetrazole-5-carboxylate
3.126	methyl 3H-imidazole-4-carboxylate	3.313	ethyl 1H-tetrazole-5-carboxylate
3.127	ethyl 3H-imidazole-4-carboxylate	3.314	propyl 1H-tetrazole-5-carboxylate
3.128	propyl 3H-imidazole-4-carboxylate	3.315	prop-2-enyl 1H-tetrazole-5-carboxylate
3.129	prop-2-enyl 3H-imidazole-4-carboxylate	3.316	prop-2-ynyl 1H-tetrazole-5-carboxylate
3.130	prop-2-ynyl 3H-imidazole-4-carboxylate	3.317	tert-butyl 1H-tetrazole-5-carboxylate
3.131	tert-butyl 3H-imidazole-4-carboxylate	3.318	isopropyl 1H-tetrazole-5-carboxylate
3.132	isopropyl 3H-imidazole-4-carboxylate	3.319	2-(dimethylamino)ethyl 1H-tetrazole-5-carboxylate
3.133	2-(dimethylamino)ethyl 3H-imidazole-4-carboxylate	3.320	2-methoxyethyl 1H-tetrazole-5-carboxylate
3.134	2-methoxyethyl 3H-imidazole-4-carboxylate	3.321	cyclopropyl 1H-tetrazole-5-carboxylate
3.135	cyclopropyl 3H-imidazole-4-carboxylate	3.322	cyclopropylmethyl 1H-tetrazole-5-carboxylate
3.136	cyclopropylmethyl 3H-imidazole-4-carboxylate	3.323	1H-tetrazole-5-carboxamide
3.137	3H-imidazole-4-carboxamide	3.324	N-methyl-1H-tetrazole-5-carboxamide
3.138	N-methyl-3H-imidazole-4-carboxamide	3.325	N-ethyl-1H-tetrazole-5-carboxamide
3.139	N-ethyl-3H-imidazole-4-carboxamide	3.326	N-propyl-1H-tetrazole-5-carboxamide
3.140	N-propyl-3H-imidazole-4-carboxamide	3.327	N-isopropyl-1H-tetrazole-5-carboxamide
3.141	N-isopropyl-3H-imidazole-4-carboxamide	3.328	N-prop-2-enyl-1H-tetrazole-5-carboxamide
3.142	N-prop-2-enyl-3H-imidazole-4-carboxamide	3.329	N-prop-2-ynyl-1H-tetrazole-5-carboxamide
3.143	N-prop-2-ynyl-3H-imidazole-4-carboxamide	3.330	N-cyclopropyl-1H-tetrazole-5-carboxamide
3.144	N-cyclopropyl-3H-imidazole-4-carboxamide	3.331	N-(cyclopropylmethyl)-1H-tetrazole-5-carboxamide
3.145	N-(cyclopropylmethyl)-3H-imidazole-4-carboxamide	3.332	N-(2-methoxyethyl)-1H-tetrazole-5-carboxamide
3.146	N-(2-methoxyethyl)-3H-imidazole-4-carboxamide	3.333	N-methoxy-1H-tetrazole-5-carboxamide
3.147	N-methoxy-3H-imidazole-4-carboxamide	3.334	N-ethoxy-1H-tetrazole-5-carboxamide
3.148	N-ethoxy-3H-imidazole-4-carboxamide	3.335	N-prop-2-enyloxy-1H-tetrazole-5-carboxamide

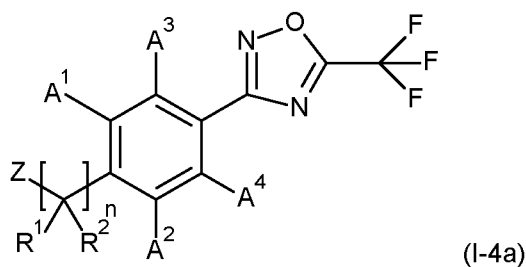
3.149	N-prop-2-enyloxy-3H-imidazole-4-carboxamide	3.336	N-methoxy-N-methyl-1H-tetrazole-5-carboxamide
3.150	N-methoxy-N-methyl-3H-imidazole-4-carboxamide	3.337	N-ethoxy-N-methyl-1H-tetrazole-5-carboxamide
3.151	N-ethoxy-N-methyl-3H-imidazole-4-carboxamide	3.338	N,N-dimethyl-1H-tetrazole-5-carboxamide
3.152	N,N-dimethyl-3H-imidazole-4-carboxamide	3.339	N,N-diethyl-1H-tetrazole-5-carboxamide
3.153	N,N-diethyl-3H-imidazole-4-carboxamide	3.340	N-ethyl-N-methyl-1H-tetrazole-5-carboxamide
3.154	N-ethyl-N-methyl-3H-imidazole-4-carboxamide	3.341	N-prop-2-enyl-N-methyl-1H-tetrazole-5-carboxamide
3.155	N-prop-2-enyl-N-methyl-3H-imidazole-4-carboxamide	3.342	2H-tetrazole-5-carboxylic acid
3.156	2H-1,2,4-triazole-3-carboxylic acid	3.343	methyl 2H-tetrazole-5-carboxylate
3.157	methyl 2H-1,2,4-triazole-3-carboxylate	3.344	ethyl 2H-tetrazole-5-carboxylate
3.158	ethyl 2H-1,2,4-triazole-3-carboxylate	3.345	propyl 2H-tetrazole-5-carboxylate
3.159	propyl 2H-1,2,4-triazole-3-carboxylate	3.346	prop-2-enyl 2H-tetrazole-5-carboxylate
3.160	prop-2-enyl 2H-1,2,4-triazole-3-carboxylate	3.347	prop-2-ynyl 2H-tetrazole-5-carboxylate
3.161	prop-2-ynyl 2H-1,2,4-triazole-3-carboxylate	3.348	tert-butyl 2H-tetrazole-5-carboxylate
3.162	tert-butyl 2H-1,2,4-triazole-3-carboxylate	3.349	isopropyl 2H-tetrazole-5-carboxylate
3.163	isopropyl 2H-1,2,4-triazole-3-carboxylate	3.350	2-(dimethylamino)ethyl 2H-tetrazole-5-carboxylate
3.164	2-(dimethylamino)ethyl 2H-1,2,4-triazole-3-carboxylate	3.351	2-methoxyethyl 2H-tetrazole-5-carboxylate
3.165	2-methoxyethyl 2H-1,2,4-triazole-3-carboxylate	3.352	cyclopropyl 2H-tetrazole-5-carboxylate
3.166	cyclopropyl 2H-1,2,4-triazole-3-carboxylate	3.353	cyclopropylmethyl 2H-tetrazole-5-carboxylate
3.167	cyclopropylmethyl 2H-1,2,4-triazole-3-carboxylate	3.354	2H-tetrazole-5-carboxamide
3.168	2H-1,2,4-triazole-3-carboxamide	3.355	N-methyl-2H-tetrazole-5-carboxamide
3.169	N-methyl-2H-1,2,4-triazole-3-carboxamide	3.356	N-ethyl-2H-tetrazole-5-carboxamide
3.170	N-ethyl-2H-1,2,4-triazole-3-carboxamide	3.357	N-propyl-2H-tetrazole-5-carboxamide
3.171	N-propyl-2H-1,2,4-triazole-3-carboxamide	3.358	N-isopropyl-2H-tetrazole-5-carboxamide

3.172	N-isopropyl-2H-1,2,4-triazole-3-carboxamide	3.359	N-prop-2-enyl-2H-tetrazole-5-carboxamide
3.173	N-prop-2-enyl-2H-1,2,4-triazole-3-carboxamide	3.360	N-prop-2-ynyl-2H-tetrazole-5-carboxamide
3.174	N-prop-2-ynyl-2H-1,2,4-triazole-3-carboxamide	3.361	N-cyclopropyl-2H-tetrazole-5-carboxamide
3.175	N-cyclopropyl-2H-1,2,4-triazole-3-carboxamide	3.362	N-(cyclopropylmethyl)-2H-tetrazole-5-carboxamide
3.176	N-(cyclopropylmethyl)-2H-1,2,4-triazole-3-carboxamide	3.363	N-(2-methoxyethyl)-2H-tetrazole-5-carboxamide
3.177	N-(2-methoxyethyl)-2H-1,2,4-triazole-3-carboxamide	3.364	N-methoxy-2H-tetrazole-5-carboxamide
3.178	N-methoxy-2H-1,2,4-triazole-3-carboxamide	3.365	N-ethoxy-2H-tetrazole-5-carboxamide
3.179	N-ethoxy-2H-1,2,4-triazole-3-carboxamide	3.366	N-prop-2-enyloxy-2H-tetrazole-5-carboxamide
3.180	N-prop-2-enyloxy-2H-1,2,4-triazole-3-carboxamide	3.367	N-methoxy-N-methyl-2H-tetrazole-5-carboxamide
3.181	N-methoxy-N-methyl-2H-1,2,4-triazole-3-carboxamide	3.368	N-ethoxy-N-methyl-2H-tetrazole-5-carboxamide
3.182	N-ethoxy-N-methyl-2H-1,2,4-triazole-3-carboxamide	3.369	N,N-dimethyl-2H-tetrazole-5-carboxamide
3.183	N,N-dimethyl-2H-1,2,4-triazole-3-carboxamide	3.370	N,N-diethyl-2H-tetrazole-5-carboxamide
3.184	N,N-diethyl-2H-1,2,4-triazole-3-carboxamide	3.371	N-ethyl-N-methyl-2H-tetrazole-5-carboxamide
3.185	N-ethyl-N-methyl-2H-1,2,4-triazole-3-carboxamide	3.372	N-prop-2-enyl-N-methyl-2H-tetrazole-5-carboxamide
3.186	N-prop-2-enyl-N-methyl-2H-1,2,4-triazole-3-carboxamide	3.373	ethyl 1H-pyrazole-4-carboxylate
3.187	1H-1,2,4-triazole-3-carboxylic acid		

Table 3.2: This table discloses a specific compound of Formula (I-3) wherein n is 1, R¹ and R² are hydrogen, and Z is N-(2-methoxyethyl)-1H-pyrazole-4-carboxamide.

- 5 Table 3.3: This table discloses 373 specific compounds of Formula (I-3) wherein n is 1, R¹ is hydrogen, R² is methyl and Z is as defined above in Table 3.

Table 4.1a: This table discloses 139 specific compounds of Formula (I-4a):



wherein n is 0, A¹, A², A³, A⁴, R¹ and R² are hydrogen, and Z is -C(=W)-R⁵, wherein W is O and R⁵ is as defined below in Table 4.

5

Table 4

Compound no.	R ⁵	Compound no.	R ⁵
4.001	2-fluorophenyl	4.071	5-pyrimidinyl
4.002	3-fluorophenyl	4.072	1H-imidazol-2-yl
4.003	4-fluorophenyl	4.073	1H-imidazol-5-yl
4.004	2-chlorophenyl	4.074	2-methyl-1H-imidazol-5-yl
4.005	3-chlorophenyl	4.075	2-ethyl-1H-imidazol-5-yl
4.006	4-chlorophenyl	4.076	5-methyl-1H-imidazol-2-yl
4.007	2-cyanophenyl	4.077	5-ethyl-1H-imidazol-2-yl
4.008	3-cyanophenyl	4.078	1,2-dimethylimidazol-5-yl
4.009	4-cyanophenyl	4.079	2-cyano-1-methyl-imidazol-5-yl
4.010	2-methylphenyl	4.080	1,5-dimethylimidazol-2-yl
4.011	3-methylphenyl	4.081	4-methylimidazol-2-yl
4.012	4-methylphenyl	4.082	5-methylimidazol-2-yl
4.013	2-trifluorophenyl	4.083	4-ethylimidazol-2-yl
4.014	3-trifluorophenyl	4.084	5-ethylimidazol-2-yl
4.015	4-trifluorophenyl	4.085	2-furyl
4.016	2-difluorophenyl	4.086	3-furyl
4.017	3-difluorophenyl	4.087	5-methyl-2-furyl
4.018	4-difluorophenyl	4.088	5-ethyl-2-furyl
4.019	2-methoxyphenyl	4.089	5-chloro-2-furyl
4.020	3-methoxyphenyl	4.090	5-cyano-2-furyl
4.021	4-methoxyphenyl	4.091	1-methyltetrazol-5-yl
4.022	2-difluoromethoxyphenyl	4.092	3,4-dihydro-2H-pyrrol-5-yl
4.023	3-difluoromethoxyphenyl	4.093	2-oxo-3,4-dihydropyrrol-5-yl
4.024	4-difluoromethoxyphenyl	4.094	1H-pyrrolidin-3-yl
4.025	2-trifluoromethoxyphenyl	4.095	1-acyl-pyrrolidin-4-yl
4.026	3-trifluoromethoxyphenyl	4.096	tetrahydrofuran-3-yl
4.027	4-trifluoromethoxyphenyl	4.097	tetrahydrofuran-2-yl

4.028	2-pyridyl	4.098	2-methyl-1,2,4-triazol-3-yl
4.029	3-pyridyl	4.099	2-ethyl-1,2,4-triazol-3-yl
4.030	4-pyridyl	4.100	3-methyl-1,2,4-oxadiazol-5-yl
4.031	2-thiazolyl	4.101	3-ethyl-1,2,4-oxadiazol-5-yl
4.032	4-thiazolyl	4.102	2-thienyl
4.033	5-thiazolyl	4.103	3-thienyl
4.034	4-methylthiazol-2-yl	4.104	5-methyl-2-thienyl
4.035	5-methylthiazol-2-yl	4.105	5-ethyl-2-thienyl
4.036	4-ethylthiazol-2-yl	4.106	5-chloro-2-thienyl
4.037	5-ethylthiazol-2-yl	4.107	5-cyano-2-thienyl
4.038	2-methylthiazol-4-yl	4.108	oxazol-2-yl
4.039	2-ethylthiazol-4-yl	4.109	oxazol-4-yl
4.040	1-methylpyrazol-3-yl	4.110	oxazol-5-yl
4.041	1-ethylpyrazol-3-yl	4.111	4-methyloxazol-2-yl
4.042	1-methylpyrazol-4-yl	4.112	5-methyloxazol-2-yl
4.043	1-ethylpyrazol-4-yl	4.113	4-ethyloxazol-2-yl
4.044	1H-pyrazol-3-yl	4.114	5-ethyloxazol-2-yl
4.045	1-methylpyrazol-3-yl	4.115	2-methyloxazol-4-yl
4.046	1,5-dimethylpyrazol-3-yl	4.116	2-ethyloxazol-4-yl
4.047	1-acylpyrazol-3-yl	4.117	cyclopropyl
4.048	5-methylisoxazol-3-yl	4.118	cyclobutyl
4.049	5-ethylisoxazol-3-yl	4.119	cyclopentyl
4.050	5-isopropylisoxazol-3-yl	4.120	cyclohexyl
4.051	3-methylisoxazol-5-yl	4.121	methyl
4.052	3-ethylisoxazol-5-yl	4.122	ethyl
4.053	3-isopropylisoxazol-5-yl	4.123	propyl
4.054	5-methylisoxazol-3-yl	4.124	isopropyl
4.055	5-ethylisoxazol-3-yl	4.125	butyl
4.056	5-isopropylisoxazol-3-yl	4.126	isobutyl
4.057	5-methyl-1H-pyrazol-3-yl	4.127	sec-butyl
4.058	5-ethyl-1H-pyrazol-3-yl	4.128	pentyl
4.059	4,5-dihydroisoxazol-3-yl	4.129	prop-2-en-1-yl
4.060	5,5-dimethyl-4H-isoxazol-3-yl	4.130	prop-2-yn-1-yl
4.061	4,4-dimethyl-4H-isoxazol-3-yl	4.131	2-methoxyethyl
4.062	3,3-dimethyl-2H-isoxazol-5-yl	4.132	2-ethoxyethyl
4.063	2-pyrimidinyl	4.133	2-isopropoxyethyl
4.064	4-pyrimidinyl	4.134	but-2-ynl
4.065	3-methylisothiazol-5-yl	4.135	propyn-2-ynl
4.066	3-ethylisothiazol-5-yl	4.136	pentyn-2-ynl
4.067	4-methyl-2-pyridyl	4.137	isoxazol-5-yl

4.068	5-methyl-3-pyridyl	4.138	isoxazol-4-yl
4.069	5-methyl-2-pyridyl	4.139	isoxazol-3-yl
4.070	3-methyl-4-pyridyl		

Each of Tables 4.2a to 4.5a (which follow Table 4.1a) make available 139 individual compounds of Formula (I-4a) wherein n, A¹, A², A³, A⁴, R¹ and R² are as specifically defined in Tables 4.2a to 4.5a, which refer to Table 4 wherein R⁵ is specifically defined.

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Table 4.2a: This table discloses 139 specific compounds of Formula (I-4a) wherein n is 0, A², A³, A⁴, R¹ and R² are hydrogen, A¹ is fluorine, and Z is -C(=W)-R⁵, wherein W is O and R⁵ is as defined above in Table 4.

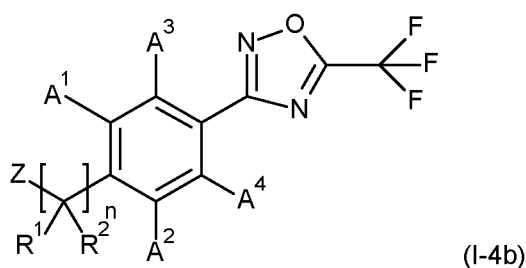
10 Table 4.3a: This table discloses 139 specific compounds of Formula (I-4a) wherein n is 0, A¹, A², A⁴, R¹ and R² are hydrogen, A³ is fluorine, and Z is -C(=W)-R⁵, wherein W is O and R⁵ is as defined above in Table 4.

Table 4.4a: This table discloses 139 specific compounds of Formula (I-4a) wherein n is 0, A², A⁴, R¹ and R² are hydrogen, A¹ and A³ are fluorine, and Z is -C(=W)-R⁵, wherein W is O and R⁵ is as defined above in Table 4.

Table 4.5a: This table discloses 139 specific compounds of Formula (I-4a) wherein n is 0, A³, A⁴, R¹ and R² are hydrogen, A¹ and A² are fluorine, and Z is -C(=W)-R⁵, wherein W is O and R⁵ is as defined above in Table 4.

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Table 4.1b: This table discloses 139 specific compounds of Formula (I-4b):



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wherein n is 1, A¹, A², A³, A⁴ and R¹ are hydrogen, R² is hydroxy and Z is R⁵, wherein R⁵ is as defined above in Table 4.

Each of Tables 4.2b to 4.5b (which follow Table 4.1b) make available 139 individual compounds of Formula (I-4b) wherein n, A¹, A², A³, A⁴, R¹ and R² are as specifically defined in Tables 4.2b to 4.5b, which refer to Table 4 wherein R⁵ is specifically defined.

30

Table 4.2b: This table discloses 139 specific compounds of Formula (I-4b) wherein n is 1, A², A³, A⁴ and R¹ are hydrogen, R² is hydroxy, A¹ is fluorine, and Z is R⁵ as defined above in Table 4.

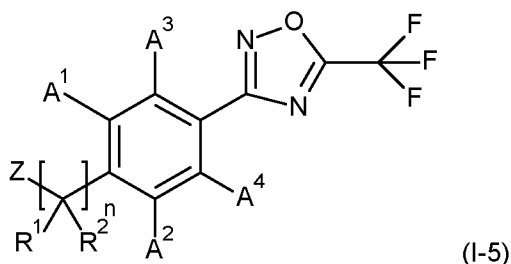
Table 4.3b: This table discloses 139 specific compounds of Formula (I-4b) wherein n is 1, A¹, A², A⁴ and R¹ are hydrogen, R² is hydroxy, A³ is fluorine, and Z is R⁵ as defined above in Table 4.

Table 4.4b: This table discloses 139 specific compounds of Formula (I-4b) wherein n is 1, A², A⁴ and R¹ are hydrogen, R² is hydroxy, A¹ and A³ are fluorine, and Z is R⁵ as defined above in Table 4.

Table 4.5b: This table discloses 139 specific compounds of Formula (I-4b) wherein n is 1, A³, A⁴ and R¹ are hydrogen, R² is hydroxy, A¹ and A² are fluorine, and Z is R⁵ as defined above in Table 4.

Table 4.6b: This table discloses a specific compound of Formula (I-4b) wherein n is 1, A¹, A², A³, A⁴ and R¹ are hydrogen, R² is hydroxy and Z is 5-methylpyrazin-2-yl.

Table 5.1: This table discloses 40 specific compounds of Formula (I-5):



wherein n is 0, A¹, A², A³, A⁴, R¹ and R² are hydrogen, and Z is -C(=O)-C(=O)-NR³R⁴, wherein R³ is hydrogen and R⁴ is as defined below in Table 5.

Table 5

Compound No.	R ⁴	Compound No.	R ⁴
5.001	methyl	5.021	6-methoxy-2-pyridyl
5.002	ethyl	5.022	cyanomethyl
5.003	propyl	5.023	oxetan-3-yl
5.004	isopropyl	5.024	2,2-dimethylhydrazino
5.005	butyl	5.025	(2-fluorophenyl)methyl
5.006	2-methoxyethyl	5.026	(acetamido)methyl
5.007	allyl	5.027	acetyl
5.008	prop-2-ynyl	5.028	allyloxy
5.009	cyclopropyl	5.029	benzyloxy
5.010	cyclopropylmethyl	5.030	methoxy

5.011	2-acetamidoethyl	5.031	ethoxy
5.012	2-dimethylaminoethyl	5.032	phenyl
5.013	2-ethyl-3-oxo-isoxazolidin-4-yl	5.033	(3-methyl-2-thienyl)methyl
5.014	2-fluoroethyl	5.034	2-(tert-butoxycarbonylamino)ethyl
5.015	2-methylsulfanylethyl	5.035	1,4-dioxan-2-ylmethyl
5.016	hydrogen	5.036	2,2-difluoroethoxy
5.017	2,2-difluorocyclopentyl	5.037	2,2-difluoroethyl
5.018	2-methoxy-2-oxo-ethyl	5.038	2,2-dimethoxyethyl
5.019	prop-2-ynoxy	5.039	2-(methylamino)-2-oxo-ethyl
5.020	prop-2-ynyl	5.040	isobutyl

Each of Tables 5.2 to 5.5 (which follow Table 5.1) make available 40 individual compounds of Formula (I-5) wherein n, A¹, A², A³, A⁴, R¹ and R² are as specifically defined in Tables 5.2 to 5.5, which refer to Table 5 wherein R⁴ is specifically defined.

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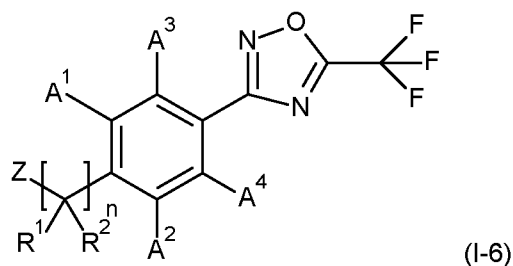
Table 5.2: This table discloses 40 specific compounds of Formula (I-5) wherein A², A³, A⁴, R¹ and R² are hydrogen, A¹ is fluorine, and Z is -C(=O)-C(=O)-NR³R⁴, wherein R³ is hydrogen and R⁴ is as defined above in Table 5.

10 Table 5.3: This table discloses 40 specific compounds of Formula (I-5) wherein A¹, A², A⁴, R¹ and R² are hydrogen, A³ is fluorine, and Z is -C(=O)-C(=O)-NR³R⁴, wherein R³ is hydrogen and R⁴ is as defined above in Table 5.

Table 5.4: This table discloses 40 specific compounds of Formula (I-5) wherein A¹, A², A³, A⁴, R¹ and R² are hydrogen, and Z is -C(=O)-C(=O)-NR³R⁴, wherein R³ is methyl and R⁴ is as defined above in Table 5.

Table 5.5: This table discloses 40 specific compounds of Formula (I-5) wherein A¹, A², A³, A⁴, R¹ and R² are hydrogen, and Z is -C(=O)-C(=O)-NR³R⁴, wherein R³ is methoxy and R⁴ is as defined above in Table 5.

Table 6.1: This table discloses 149 specific compounds of Formula (I-6):



wherein n is 1, A¹, A², A³, A⁴, R¹ and R² are hydrogen, and Z is -NR³-C(=W)-X, wherein R³ is methyl, W is O and X is as defined below in Table 6.

Table 6

Compound no.	X	Compound no.	X
6.001	methyl	6.076	2-fluoroethyl
6.002	ethyl	6.077	1-fluoroethyl
6.003	propyl	6.078	chloromethyl
6.004	isopropyl	6.079	2-chloroethyl
6.005	butyl	6.080	2-chloro-1,1-dimethylethyl
6.006	sec-butyl	6.081	2-(methylamino)-2-oxo-ethyl
6.007	2-methylbutyl	6.082	2-(ethylamino)-2-oxo-ethyl
6.008	tert-butyl	6.083	2-(tert-butylamino)-2-oxo-ethyl
6.009	isobutyl	6.084	2-(isopropylamino)-2-oxo-ethyl
6.010	pentyl	6.085	acetamidomethyl
6.011	1-ethylpropyl	6.086	acetamidoethyl
6.012	2-ethylbutyl	6.087	1-methyl-3-oxo-butyl
6.013	2,2-dimethylpropyl	6.088	3-methoxy-1-methyl-3-oxo-propyl
6.014	1,1-dimethylbutyl	6.089	3-methoxy-3-oxo-propyl
6.015	2,2-dimethylbutyl	6.090	phenyl
6.016	1-ethyl-1-methylpropyl	6.091	2-chlorophenyl
6.017	but-2-enyl	6.092	2-fluorophenyl
6.018	2-methylpropenyl	6.093	3-fluorophenyl
6.019	ethenyl	6.094	4-fluorophenyl
6.020	propen-2-yl	6.095	3,5-difluorophenyl
6.021	allyl	6.096	4-pyrimidinyl
6.022	1-methylallyl	6.097	thiazol-5-yl
6.023	2-methylallyl	6.098	oxazol-5-yl
6.024	1,1-dimethylallyl	6.099	isoxazol-3-yl
6.025	1-methylprop-1-enyl	6.100	2-pyridyl
6.026	but-1-enyl	6.101	benzyl
6.027	3-methylbut-2-enyl	6.102	3-chlorophenylmethyl
6.028	(E)-1,1-dimethylbut-2-enyl	6.103	3-fluorophenylmethyl
6.029	but-3-enyl	6.104	2-pyridylmethyl
6.030	prop-2-ynyl	6.105	cyclopentyl
6.031	but-3-ynyl	6.106	cyclohexyl
6.032	but-2-ynyl	6.107	cyclopentylmethyl
6.033	1-methylprop-2-ynyl	6.108	cyclohexylmethyl
6.034	1-methylbut-2-ynyl	6.109	cyclopropylmethyl

6.035	1,1-dimethylprop-2-ynyl	6.110	cyclopropyl
6.036	cyanomethyl	6.111	1-chlorocycloprop-1-yl
6.037	2-cyanoethyl	6.112	1-cyanocycloprop-1-yl
6.038	3-cyanopropyl	6.113	1-fluorocycloprop-1-yl
6.039	1-ethoxymethyl	6.114	1-methylcyclopropyl
6.040	1-methoxymethyl	6.115	1-trifluoromethylcycloprop-1-yl
6.041	difluoromethoxymethyl	6.116	2-cyanocyclopropyl
6.042	1-difluoromethoxyethyl	6.117	2-fluorocyclopropyl
6.043	1-methoxyethyl	6.118	2-methylcyclopropyl
6.044	1-methoxyisopropyl	6.119	2,2-dichlorocyclopropyl
6.045	1-ethyloxyisopropyl	6.120	2,2-difluorocyclopropyl
6.046	1-difluoromethoxyisopropyl	6.121	2,2-dimethylcyclopropyl
6.047	2-methoxyethyl	6.122	2,2,3,3-tetramethylcyclopropyl
6.048	2-(difluoromethoxy)ethyl	6.123	2,2-dichloro-1-methyl-cyclopropyl
6.049	3-methoxypropyl	6.124	cyclobutyl
6.050	4-methoxybutyl	6.125	1-methylcyclobutyl
6.051	2-ethoxyethyl	6.126	1-(trifluoromethyl)cyclobutyl
6.052	1-ethoxyethyl	6.127	1-cyanocyclobut-1-yl
6.053	2-methoxypropyl	6.128	cyclobutylmethyl
6.054	1-(methoxymethyl)propyl	6.129	2,2-difluorocyclopropylmethyl
6.055	2-methoxy-1,1-dimethyl-ethyl	6.130	tetrahydrothiopyran-2-yl
6.056	2-methoxyethoxymethyl	6.131	tetrahydrothiopyran-3-yl
6.057	1-acetoxymethyl	6.132	tetrahydrothiopyran-4-yl
6.058	2-acetoxyethyl	6.133	oxetan-3-yl
6.059	2-acetoxy-1,1-dimethyl-ethyl	6.134	3-cyanooxetan-3-yl
6.060	2,2-diethoxyethyl	6.135	3-methyloxetan-3-yl
6.061	2,2-dimethoxyethyl	6.136	3-trifluoromethyloxetan-3-yl
6.062	hydroxymethyl	6.137	oxetan-2-yl
6.063	1-hydroxyethyl	6.138	oxetan-3-ylmethyl
6.064	1-hydroxyisopropyl	6.139	oxetan-2-ylmethyl
6.065	2-hydroxyethyl	6.140	tetrahydrofuran-2-yl
6.066	2-hydroxypropyl	6.141	tetrahydrofuran-3-yl
6.067	3-hydroxypropyl	6.142	tetrahydrofuran-2-ylmethyl
6.068	2-hydroxy-1,1-dimethyl-ethyl	6.143	tetrahydropyran-2-yl
6.069	2-hydroxy-2-methyl-propyl	6.144	tetrahydropyran-3-yl
6.070	trifluoromethyl	6.145	tetrahydropyran-4-yl
6.071	2,2,2-trifluoroethyl	6.146	2-methyl-1,3-dioxolan-2-yl
6.072	3,3,3-trifluoropropyl	6.147	1,3-dioxolan-2-yl
6.073	4,4,4-trifluorobutyl	6.148	1-acetylpyrrolidin-2-yl
6.074	fluoromethyl	6.149	1-imidazolyl

6.075	difluoromethyl		
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Each of Tables 6.2 to 6.11 (which follow Table 6.1) make available 149 individual compounds of Formula (I-6) wherein n, A¹, A², A³, A⁴, R¹ and R² are as specifically defined in Tables 6.2 to 6.11, which refer to Table 6 wherein X is specifically defined.

5

Table 6.2: This table discloses 149 specific compounds of Formula (I-6) wherein n is 1, A¹, A², A³, A⁴, R¹ and R² are hydrogen, and Z is -NR³-C(=W)-X, wherein R³ is ethyl, W is O and X is as defined above in Table 6.

10 Table 6.3: This table discloses 149 specific compounds of Formula (I-6) wherein n is 1, A¹, A², A³, A⁴, R¹ and R² are hydrogen, and Z is -NR³-C(=W)-X, wherein R³ is i-propyl, W is O and X is as defined above in Table 6.

15 Table 6.4: This table discloses 149 specific compounds of Formula (I-6) wherein n is 1, A¹, A², A³, A⁴, R¹ and R² are hydrogen, and Z is -NR³-C(=W)-X, wherein R³ is cyclopropyl, W is O and X is as defined above in Table 6.

20 Table 6.5: This table discloses 149 specific compounds of Formula (I-6) wherein n is 1, A¹, A², A³, A⁴, R¹ and R² are hydrogen, and Z is -NR³-C(=W)-X, wherein R³ is 2-methoxyethyl, W is O and X is as defined above in Table 6.

Table 6.6: This table discloses 149 specific compounds of Formula (I-6) wherein n is 1, A¹, A², A³, A⁴, R¹ and R² are hydrogen, and Z is -NR³-C(=W)-X, wherein R³ is 2,2,2-trifluoroethyl, W is O and X is as defined above in Table 6.

25

Table 6.7: This table discloses 149 specific compounds of Formula (I-6) wherein n is 1, A¹, A², A³, A⁴, R¹ and R² are hydrogen, and Z is -NR³-C(=W)-X, wherein R³ is methoxy, W is O and X is as defined above in Table 6.

30 Table 6.8: This table discloses 149 specific compounds of Formula (I-6) wherein n is 1, A², A³, A⁴, R¹ and R² are hydrogen, A¹ is fluorine, and Z is -NR³-C(=W)-X, wherein R³ is methoxy, W is O and X is as defined above in Table 6.

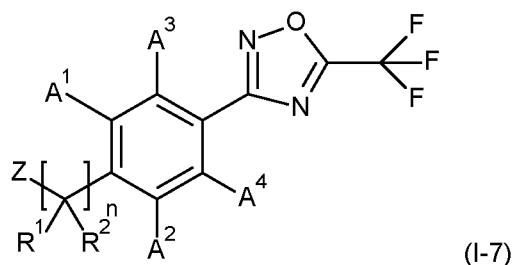
35 Table 6.9: This table discloses 149 specific compounds of Formula (I-6) wherein n is 1, A¹, A², A⁴, R¹ and R² are hydrogen, A³ is fluorine, and Z is -NR³-C(=W)-X, wherein R³ is methoxy, W is O and X is as defined above in Table 6.

40 Table 6.10: This table discloses 149 specific compounds of Formula (I-6) wherein n is 1, A², A⁴, R¹ and R² are hydrogen, A¹ and A³ are fluorine, and Z is -NR³-C(=W)-X, wherein R³ is methoxy, W is O and X is as defined above in Table 6.

Table 6.11: This table discloses 149 specific compounds of Formula (I-6) wherein n is 1, A¹, A², A³, A⁴, R¹ and R² are hydrogen, and Z is -NR³-C(=W)-X, wherein R³ is ethoxy, W is O and X is as defined above in Table 6.

5

Table 7.1: This table discloses 100 specific compounds of Formula (I-7):



wherein n is 1, A¹, A², A³, A⁴, R¹ and R² are hydrogen, and Z is -NR³-C(=W)-NR³R⁴, wherein R³ is methyl,

10 W is O and R⁴ is as defined below in Table 7.

Table 7

Compound no.	R ⁴	Compound no.	R ⁴
7.001	methyl	7.051	tetrahydrofuran-3-ylmethyl
7.002	ethyl	7.052	tetrahydropyran-2-ylmethyl
7.003	propyl	7.053	tetrahydropyran-3-ylmethyl
7.004	isopropyl	7.054	benzyl
7.005	butyl	7.055	furylmethyl
7.006	sec-butyl	7.056	1-methoxymethylcyclopropyl
7.007	tert-butyl	7.057	1-ethoxycarbonylcyclopropyl
7.008	isobutyl	7.058	1-hydroxycyclopropylmethyl
7.009	pentyl	7.059	cyclopropyl-1-ethyl
7.010	allyl	7.060	2,2-dimethylpropyl
7.011	2-methylallyl	7.061	cyano
7.012	1,1-dimethylallyl	7.062	1-methylprop-2-ynyl
7.013	prop-2-ynyl	7.063	1-methylbut-2-ynyl
7.014	2-acetoxyethyl	7.064	1,1-dimethylprop-2-ynyl
7.015	2-hydroxyethyl	7.065	cyanomethyl
7.016	2-hydroxypropyl	7.066	2-cyanoethyl
7.017	3-hydroxypropyl	7.067	3-cyanopropyl
7.018	2,2-difluoroethyl	7.068	1-methoxymethyl
7.019	2,2,2-trifluoroethyl	7.069	2-methoxyethyl
7.020	3,3,3-trifluoropropyl	7.070	3-methoxypropyl
7.021	4,4,4-trifluorobutyl	7.071	4-methoxybutyl

7.022	but-3-ynyl	7.072	1-methoxyethyl
7.023	but-2-ynyl	7.073	1-(methoxymethyl)propyl
7.024	2-cyanoethyl	7.074	2-methoxy-1,1-dimethylethyl
7.025	2-methoxyethyl	7.075	2-methoxyethoxymethyl
7.026	2-ethoxyethyl	7.076	1-acetoxymethyl
7.027	2-methoxypropyl	7.077	2-acetoxy-1,1-dimethylethyl
7.028	1-methoxy-4-piperidyl	7.078	2,2-diethoxyethyl
7.029	oxetan-3-yl	7.079	2,2-dimethoxyethyl
7.030	phenyl	7.080	hydroxymethyl
7.031	pyrid-2-yl	7.081	2-hydroxypropyl
7.032	pyrid-3-yl	7.082	2-hydroxy-1,1-dimethylethyl
7.033	pyrid-4-yl	7.083	2-hydroxy-2-methylpropyl
7.034	phenylmethyl	7.084	trifluoromethyl
7.035	pyrid-2-ylmethyl	7.085	fluoromethyl
7.036	cyclopropyl	7.086	difluoromethyl
7.037	1-cyanocyclopropyl	7.087	2-fluoroethyl
7.038	1-fluorocyclopropyl	7.088	2-chloroethyl
7.039	1-methylcyclopropyl	7.089	3-chloropropyl
7.040	cyclobutyl	7.090	methoxy
7.041	cyclopentyl	7.091	ethoxy
7.042	cyclohexyl	7.092	propoxy
7.043	cyclopropylmethyl	7.093	isopropoxy
7.044	cyclobutylmethyl	7.094	butoxy
7.045	cyclopentylmethyl	7.095	sec-butoxy
7.046	cyclohexylmethyl	7.096	isobutoxy
7.047	tetrahydrofuran-3-yl	7.097	allyloxy
7.048	tetrahydropyran-3-yl	7.098	prop-2-ynyloxy
7.049	tetrahydropyran-4-yl	7.099	ethoxycarbonylmethyl
7.050	tetrahydrofuran-2-ylmethyl	7.100	methylaminocarbonylmethyl

Each of Tables 7.2 to 7.7 (which follow Table 7.1) make available 100 individual compounds of Formula (I-7) wherein n, A¹, A², A³, A⁴, R¹, R² and R³ are as specifically defined in Tables 7.2 to 7.7, which refer to Table 7 wherein R⁴ is specifically defined.

5

Table 7.2: This table discloses 100 specific compounds of Formula (I-7) wherein n is 1, A¹, A², A³, A⁴, R¹ and R² are hydrogen, and Z is -NR³-C(=W)-NR³R⁴, wherein R³ is ethyl, W is O and R⁴ is as defined above in Table 7.

Table 7.3: This table discloses 100 specific compounds of Formula (I-7) wherein n is 1, A¹, A², A³, A⁴, R¹ and R² are hydrogen, and Z is -NR³-C(=W)-NR³R⁴, wherein R³ is i-propyl, W is O and R⁴ is as defined above in Table 7.

5 Table 7.4: This table discloses 100 specific compounds of Formula (I-7) wherein n is 1, A¹, A², A³, A⁴, R¹ and R² are hydrogen, and Z is -NR³-C(=W)-NR³R⁴, wherein R³ is cyclopropyl, W is O and R⁴ is as defined above in Table 7.

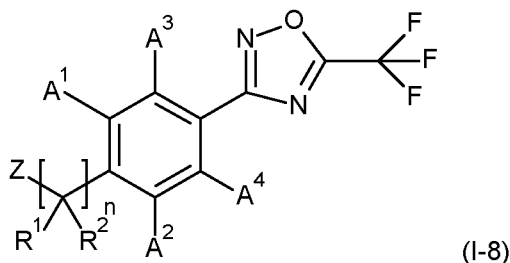
Table 7.5: This table discloses 100 specific compounds of Formula (I-7) wherein n is 1, A¹, A², A³, A⁴,
10 R¹ and R² are hydrogen, and Z is -NR³-C(=W)-NR³R⁴, wherein R³ is methoxy, W is O and R⁴ is as defined above in Table 7.

Table 7.6: This table discloses 100 specific compounds of Formula (I-7) wherein n is 1, A², A³, A⁴, R¹ and R² are hydrogen, A¹ is fluorine, and Z is -NR³-C(=W)-NR³R⁴, wherein R³ is methoxy, W is O and R⁴
15 is as defined above in Table 7.

Table 7.7: This table discloses 100 specific compounds of Formula (I-7) wherein n is 1, A¹, A², A⁴, R¹ and R² are hydrogen, A³ is fluorine, and Z is -NR³-C(=W)-NR³R⁴, wherein R³ is methoxy, W is O and R⁴ is as defined above in Table 7.

20

Table 8.1: This table discloses 107 specific compounds of Formula (I-8):



wherein n is 1, A¹, A², A³, A⁴, R¹ and R² are hydrogen, and Z is -NR³-C(=W)-X, wherein R³ is hydrogen,
25 W is O and X is as defined below in Table 8.

Table 8

Compound no.	R ⁴	Compound no.	R ⁴
8.001	methyl	8.055	2,2,2-trifluoroethyl
8.002	ethyl	8.056	3,3,3-trifluoropropyl
8.003	propyl	8.057	4,4,4-trifluorobutyl
8.004	isopropyl	8.058	fluoromethyl
8.005	butyl	8.059	difluoromethyl
8.006	sec-butyl	8.060	2-fluoroethyl

8.007	tert-butyl	8.061	3-fluoropropyl
8.008	isobutyl	8.062	4-fluorobutyl
8.009	pentyl	8.063	1-fluoroethyl
8.010	1-ethylpropyl	8.064	2-fluoropropyl
8.011	2-ethylbutyl	8.065	chloromethyl
8.012	2,2-dimethylpropyl	8.066	2-chloroethyl
8.013	1,1-dimethylbutyl	8.067	methylsulfanylmethyl
8.014	2,2-dimethylbutyl	8.068	methylsulfonylmethyl
8.015	ethenyl	8.069	2-methylsulfanylethyl
8.016	propen-2-yl	8.070	2-methylsulfonylethyl
8.017	allyl	8.071	methanesulfonamidomethyl
8.018	(E)-but-2-enyl	8.072	methanesulfonamidoethyl
8.019	2-methylallyl	8.073	2-(methylamino)-2-oxo-ethyl
8.020	1,1-dimethylallyl	8.074	2-(ethylamino)-2-oxo-ethyl
8.021	3-methylbut-2-enyl	8.075	acetamidomethyl
8.022	(E)-1,1-dimethylbut-2-enyl	8.076	acetamidoethyl
8.023	but-3-enyl	8.077	1-methyl-3-oxo-butyl
8.024	prop-2-ynyl	8.078	3-methoxy-1-methyl-3-oxo-propyl
8.025	but-3-ynyl	8.079	3-methoxy-3-oxo-propyl
8.026	but-2-ynyl	8.080	1-hydroxyethyl
8.027	1-methylprop-2-ynyl	8.081	difluoromethoxymethyl
8.028	1-methylbut-2-ynyl	8.082	1-difluoromethoxyethyl
8.029	1,1-dimethylprop-2-ynyl	8.083	2-difluoromethoxyethyl
8.030	cyanomethyl	8.084	prop-2-enyl
8.031	2-cyanoethyl	8.085	but-2-enyl
8.032	3-cyanopropyl	8.086	5,5,5-trifluoropentyl
8.033	1-methoxymethyl	8.087	2-methylpropenyl
8.034	2-methoxyethyl	8.088	2-methylbutyl
8.035	3-methoxypropyl	8.089	2-methoxy-1,1-dimethylethyl
8.036	4-methoxybutyl	8.090	2-hydroxy-2-methylpropyl
8.037	2-ethoxyethyl	8.091	2-hydroxy-1,1-dimethylethyl
8.038	1-methoxyethyl	8.092	2-chloro-1,1-dimethylethyl
8.039	2-methoxypropyl	8.093	2-acetoxy-1,1-dimethylethyl
8.040	1-(methoxymethyl)propyl	8.094	2-(trifluoromethyl)butyl
8.041	2-methoxy-1,1-dimethyl-ethyl	8.095	2-(difluoromethoxy)methyl
8.042	2-methoxyethoxymethyl	8.096	2-(difluoromethoxy)ethyl
8.043	1-acetoxymethyl	8.097	1-methoxymethyl
8.044	2-acetoxyethyl	8.098	1-methylpropyl
8.045	2-acetoxy-1,1-dimethyl-ethyl	8.099	1-methylallyl
8.046	2,2-diethoxyethyl	8.100	1-hydroxymethyl

8.047	2,2-dimethoxyethyl	8.101	1-hydroxy-1-methylethyl
8.048	hydroxymethyl	8.102	1-ethyl-1-methylpropyl
8.049	2-hydroxyethyl	8.103	1-cyanomethyl
8.050	2-hydroxypropyl	8.104	1-acetamidomethyl
8.051	3-hydroxypropyl	8.105	1-(chloromethyl)-2-hydroxy-1-methylethyl
8.052	2-hydroxy-1,1-dimethyl-ethyl	8.106	(E)-but-1-enyl
8.053	2-hydroxy-2-methyl-propyl	8.107	(E)-1-methylprop-1-enyl
8.054	trifluoromethyl		

Each of Tables 8.2 to 8.4 (which follow Table 8.1) make available 107 individual compounds of Formula (I-8) wherein n, A¹, A², A³, A⁴, R¹, R² and R³ are as specifically defined in Tables 8.2 to 8.4, which refer to Table 8 wherein R⁴ is specifically defined.

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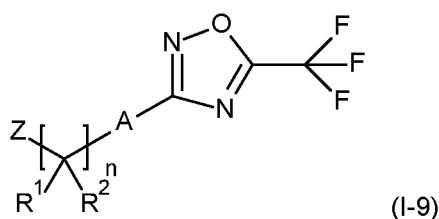
Table 8.2: This table discloses 107 specific compounds of Formula (I-8) wherein n is 1, A², A³, A⁴, R¹ and R² are hydrogen, A¹ is fluorine, and Z is -NR³-C(=W)-X, wherein R³ is hydrogen, W is O and X is as defined above in Table 8.

10 **Table 8.3:** This table discloses 107 specific compounds of Formula (I-8) wherein n is 1, A¹, A², A⁴, R¹ and R² are hydrogen, A³ is fluorine, and Z is -NR³-C(=W)-X, wherein R³ is hydrogen, W is O and X is as defined above in Table 8.

Table 8.4: This table discloses 107 specific compounds of Formula (I-8) wherein n is 1, A², A⁴, R¹ and R² are hydrogen, A¹ and A³ are fluorine, and Z is -NR³-C(=W)-X, wherein R³ is hydrogen, W is O and X is as defined above in Table 8.

15

Table 9.1: This table discloses 36 specific compounds of Formula (I-9):



20

wherein n is 1, A is A-1, R¹ is hydrogen, R² is methoxy and Z is -C(=O)-NR³R⁴, wherein -NR³R⁴ is as defined below in Table 9.

Table 9

Compound no.	-NR ³ R ⁴	Compound no.	-NR ³ R ⁴
9.001	N-methylamino	9.019	N-oxetan-3-yl-N-methoxyamino

9.002	N-ethylamino	9.020	N-cyclopropylmethyl-N-methylamino
9.003	N-propylamino	9.021	N-1-cyclopropylethyl-N-methylamino
9.004	N-isopropylamino	9.022	azetidiny
9.005	N-methoxyamino	9.023	N-[2-(dimethylamino)ethyl]-N-methylamino
9.006	N-ethoxyamino	9.024	N-(2-cyanoethyl)-N-ethylamino
9.007	N-methyl-N-methoxyamino	9.025	N-(cyclopropylmethyl)-N-propylamino
9.008	N-methyl-N-propyn-2-ylamino	9.026	N,N-(di-2-methoxyethyl)amino
9.009	N-methyl-N-3,3,3-trifluoromethylamino	9.027	N-methyl-N-cyanomethylamino
9.010	N,N-dimethylamino	9.028	N-methyl-N-prop-2-enylamino
9.011	N-ethyl-N-methylamino	9.029	N,N-diethylamino
9.012	cyclopropylamino	9.030	isoxazolidinyl
9.013	cyclopropylmethylamino	9.031	N,N-(di-prop-2-enyl)amino
9.014	N-2-methoxyethyl-N-methylamino	9.032	N-cyclopropyl-N-(2,2-difluoroethyl)amino
9.015	N-propen-2-ylamino	9.033	N-ethoxy-N-isopropylamino
9.016	N-propyn-2-ylamino	9.034	morpholinyl
9.017	pyrrolidinyl	9.035	amino
9.018	piperidinyl	9.036	(N,N-di-methylamine)amino

Each of Tables 9.2 to 9.4 (which follow Table 9.1) make available 36 individual compounds of the Formula (I-9) wherein n, A, R¹, R², R³ and R⁴ are as specifically defined in Tables 9.2 to 9.4, which refer to Table 9 wherein -NR³R⁴ is specifically defined.

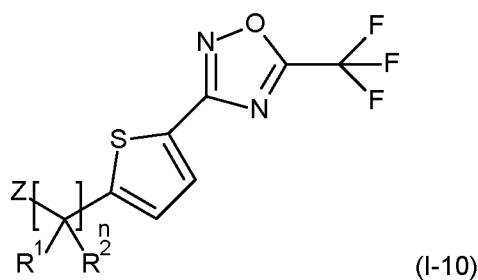
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Table 9.2: This table discloses 36 specific compounds of Formula (I-9) wherein n is 1, A is A-1, R¹ is hydrogen, R² is ethoxy, and Z is -C(=O)-NR³R⁴, wherein -NR³R⁴ is as defined above in Table 9.

Table 9.3: This table discloses 36 specific compounds of Formula (I-9) wherein n is 1, A is A-2, R¹ is hydrogen, R² is methoxy, and Z is -C(=O)-NR³R⁴, wherein -NR³R⁴ is as defined above in Table 9.

Table 9.4: This table discloses 36 specific compounds of Formula (I-9) wherein n is 1, A is A-2, R¹ is hydrogen, R² is ethoxy, and Z is -C(=O)-NR³R⁴, wherein -NR³R⁴ is as defined above in Table 9.

15 Table 10.1: This table discloses 37 specific compounds of Formula (I-10):



wherein n is 0, and Z is -C(=O)-R⁵, wherein R⁵ is as defined below in Table 10.

5 **Table 10**

Compound No.	R ⁵	Compound No.	R ⁵
10.001	2-thiazolyl	10.020	3-methyl-1,2,4-oxadiazol-5-yl
10.002	4-thiazolyl	10.021	3-ethyl-1,2,4-oxadiazol-5-yl
10.003	5-thiazolyl	10.022	3-cyano-1,2,4-oxadiazol-5-yl
10.004	4-methylthiazol-2-yl	10.023	2-thienyl
10.005	5-methylthiazol-2-yl	10.024	3-thienyl
10.006	4-ethylthiazol-2-yl	10.025	5-methyl-2-thienyl
10.007	5-ethylthiazol-2-yl	10.026	5-ethyl-2-thienyl
10.008	2-methylthiazol-4-yl	10.027	5-chloro-2-thienyl
10.009	2-ethylthiazol-4-yl	10.028	5-cyano-2-thienyl
10.010	5-methylisoxazol-3-yl	10.029	oxazol-2-yl
10.011	5-ethylisoxazol-3-yl	10.030	oxazol-4-yl
10.012	5-isopropylisoxazol-3-yl	10.031	oxazol-5-yl
10.013	3-methylisoxazol-5-yl	10.032	4-methyloxazol-2-yl
10.014	3-ethylisoxazol-5-yl	10.033	5-methyloxazol-2-yl
10.015	3-isopropylisoxazol-5-yl	10.034	4-ethyloxazol-2-yl
10.016	3-methylisothiazol-5-yl	10.035	5-ethyloxazol-2-yl
10.017	3-ethylisothiazol-5-yl	10.036	2-methyloxazol-4-yl
10.018	2-methyl-1,2,4-triazol-3-yl	10.037	5-methylpyrazin-2-yl
10.019	2-ethyl-1,2,4-triazol-3-yl		

Table 10.2: This table discloses 37 specific compounds of Formula (I-10) wherein n is 1, R¹ is hydrogen, R² is hydroxy, and Z is R⁵, wherein R⁵ is as defined above in Table 10.

10 Table 10.3: This table discloses a specific compound of Formula (I-10) wherein n is 1, R¹ is hydrogen, R² is hydroxy, and Z is 5-methylpyrid-2-yl.

According to an embodiment of the process of the invention, a compound of Formula (I), wherein Z is Z¹, hereinafter referred to as compound of Formula (I-B), is advantageously used in the process for the preparation of a compound of Formula (I-A) to obtain valuable intermediates. Thus, the process of the invention may further comprise the step of reacting an intermediate compound of Formula (I-B), wherein Z is Z¹, to obtain a compound of Formula (I-A), wherein Z is Z².

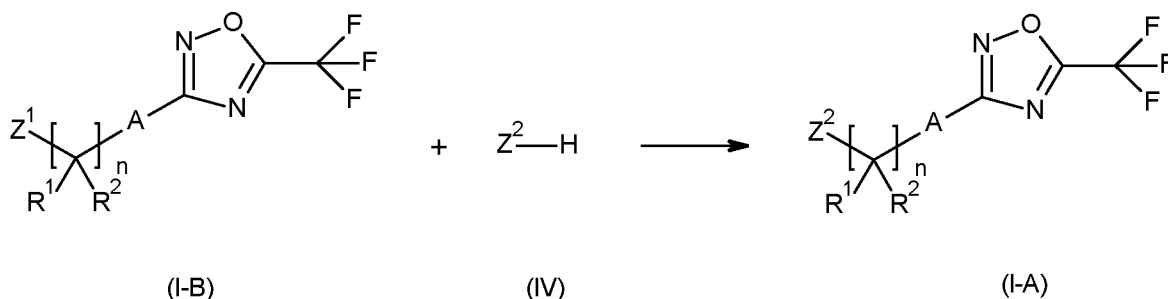
Also, the present invention further relates to intermediate compounds of Formula (I-B), wherein Z is Z¹.

In particular, a compound of Formula (I-B), wherein Z¹ is hydrogen, can be reacted with a halogenating agent, optionally in the presence of a radical initiator such as dibenzoyl peroxide or azobisisobutyronitrile (AIBN), to obtain an intermediate compound of Formula (I-B), wherein Z¹ is a halogen, preferably Cl, Br or I.

Examples of suitable halogenating agents include, for instance, brominating agents such as bromine or N-bromosuccinimide. The reaction is typically carried out at a temperature from 55°C to 100°C. For related examples, see WO 2017/055473; WO 2018/177894; Liu, S. *et al Synthesis* **(2001)**, 14, 2078; and Kompella, A. *et al Org. Proc. Res. Dev.* **(2012)**, 16, 1794.

Preferably, n in the compound of Formula (I-A) is 0 or 1. Preferably, n in the compound of Formula (I-B) is 0 or 1.

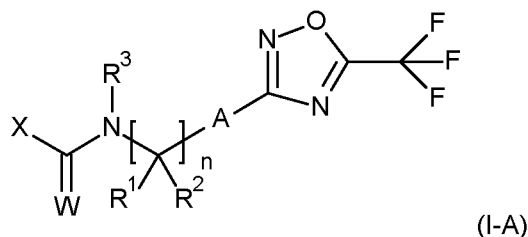
The compound of Formula (I-A), wherein Z is Z², can be prepared from a compound of Formula (I-B) via reaction with a compound of Formula (IV), typically in the presence of a base. In some cases, a better reaction performance may be gained from the use of a catalyst (e.g., NaI or 4-dimethylaminopyridine) and with microwave irradiation. For related examples, see WO 2013/132253; and Garcia, M. *et al Org. Biomol. Chem.* **(2004)**, 11, 1633. This reaction is shown in Scheme 3.



Scheme 3

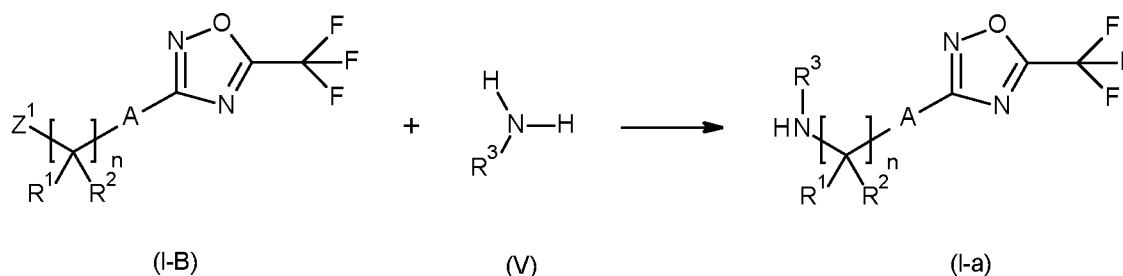
It has been found that the compound of Formula (I-B), wherein n is 1 and Z¹ is Br, is particularly reactive towards compounds of Formula (IV).

In one embodiment, the present invention relates to a process for the preparation of a compound of Formula (I-A), wherein Z^2 is $-NR^3-C(=W)-X$:



5

The compound of Formula (I-A), wherein Z^2 is preferably $-NR^3-C(=W)-X$, can be prepared from a compound of Formula (I-B), wherein Z^1 is a halogen, via reaction with a compound of Formula (V) or a salt thereof, wherein R^3 is as defined above for a compound of Formula (I), to obtain a compound of
 10 Formula (I-a) or a salt thereof. For related examples, see Miyawaki, K. *et al Heterocycles* (**2001**), 54, 887; WO 2003/028729; WO 2017/055473; WO 2018/177894; and WO 2013/066839. This reaction is shown in Scheme 4.



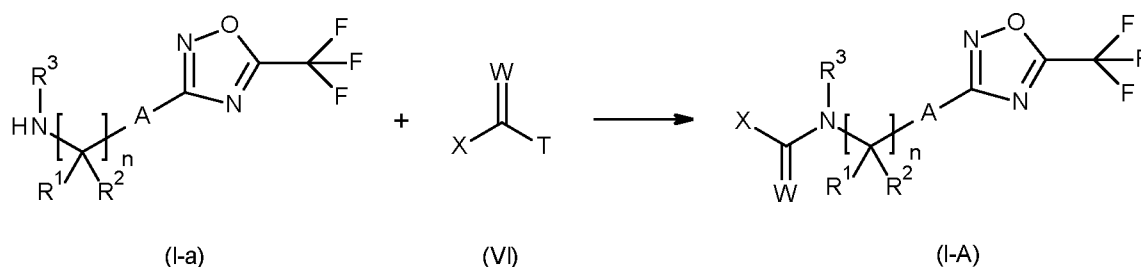
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Scheme 4

When Z^1 in the compound of Formula (I-B) is a halogen, it is preferably chlorine or bromine.

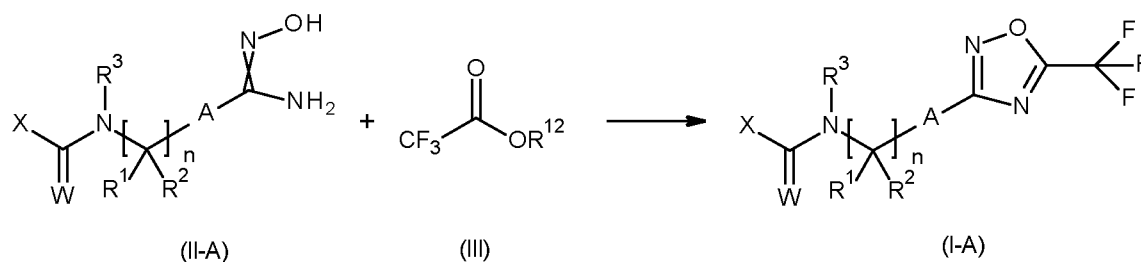
The compound of Formula (I-a) or a salt thereof can be further reacted with a compound of
 20 Formula (VI), wherein X and W are as defined above for a compound of Formula (I) and T is halogen, hydroxy or C_{1-4} alkoxy, to obtain a compound of Formula (I-A), wherein Z^2 is $-NR^3-C(=W)-X$. For related examples, see Nelson, T. D *et al Tetrahedron Lett.* (**2004**), 45, 8917; Senthil, K. *et al Pest. Res. Journal* (**2009**), 21, 133; Crich, D., Zou, Y. *J. Org. Chem.* (**2005**), 70, 3309; WO 2018/177894; and WO 2017/055473. This reaction is shown in Scheme 5.

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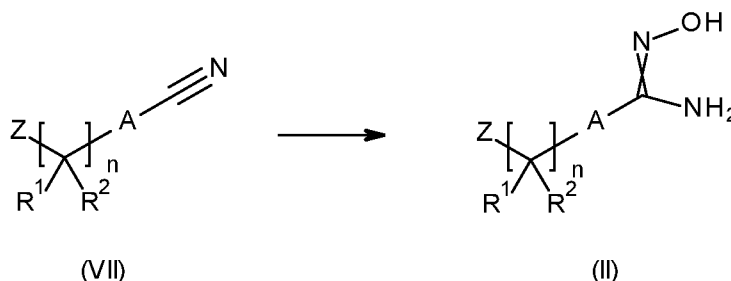
Scheme 5

Additionally, the compound of Formula (I-A), wherein Z^2 is $-NR^3-C(=W)-X$, can be prepared according to the process of the invention from a compound of Formula (II), wherein Z is $-NR^3-C(=W)-X$, hereinafter referred to as compound of Formula (II-A), via reaction with a compound of Formula (III). This reaction is shown in Scheme 6.



Scheme 6

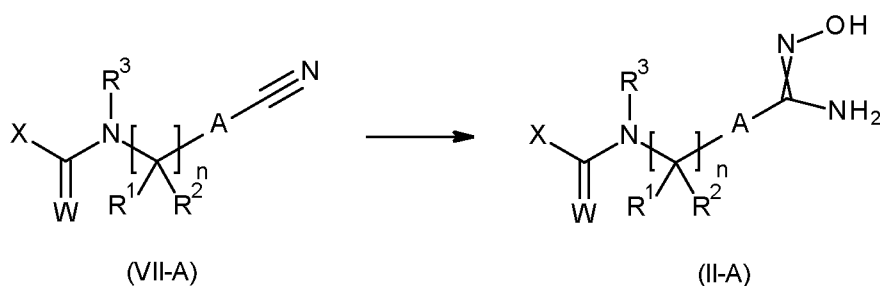
The compound of Formula (II) can be prepared from a compound of Formula (VII) via reaction with hydroxylamine or a salt thereof, such as hydroxylamine hydrochloride salt, optionally in the presence of one or more bases. This reaction is shown in Scheme 7.



Scheme 7

Similarly, a compound of Formula (II), wherein Z is hydrogen, can be prepared from a compound of Formula (VII), wherein Z is hydrogen, via reaction with hydroxylamine or a salt thereof, such as hydroxylamine hydrochloride salt, optionally in the presence of one or more bases. This reaction is shown in Scheme 7.

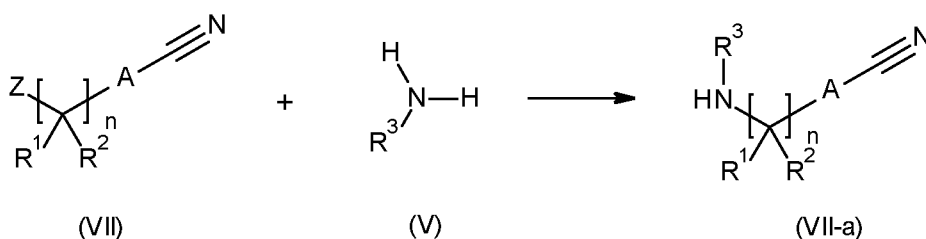
In particular, a compound of Formula (II-A), wherein Z is $-NR^3-C(=W)-X$, can be prepared from a compound of Formula (VII), wherein Z is $-NR^3-C(=W)-X$, hereinafter referred to as compound of Formula (VII-A), via reaction with hydroxylamine or a salt thereof, such as hydroxylamine hydrochloride salt, optionally in the presence of one or more bases. This reaction is shown in Scheme 8.



Scheme 8

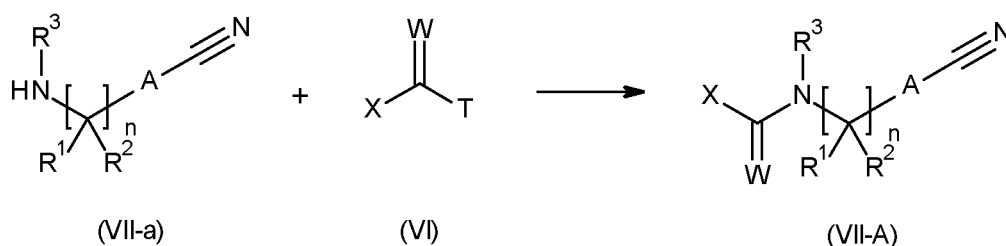
Examples of suitable bases include, for instance, trimethylamine. The reaction can be carried out in a solvent, such as methanol. The reaction is typically carried out at a temperature from 0°C to 100°C. For related examples, see Kitamura, S. *et al Chem. Pharm. Bull.* (2001), 49, 268; and WO 2013/066838.

The compound of Formula (VII-A), wherein Z is -NR³-C(=W)-X, can be prepared from a compound of Formula (VII), wherein Z is a halogen, via reaction with a compound of Formula (V) or a salt thereof, wherein R³ is as defined above for a compound of Formula (I), to obtain an intermediate compound of Formula (VII-a) or a salt thereof. For related examples, see Miyawaki, K. *et al Heterocycles* (2001), 54, 887; and WO 2018/177894. This reaction is shown in Scheme 9.



Scheme 9

The compound of Formula (VII-a) or a salt thereof can be further reacted with a compound of Formula (VI), wherein X and W are as defined above for a compound of Formula (I) and T is halogen, hydroxy or C₁₋₄alkoxy, to obtain a compound of Formula (VII-A), wherein Z is -NR³-C(=W)-X. For related examples, see WO 2018/177894. This reaction is shown in Scheme 10.

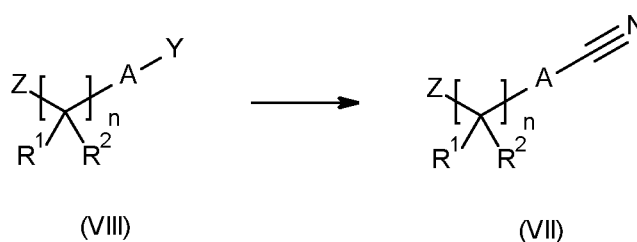


Scheme 10

The compound of Formula (II), wherein Z is a halogen, can be prepared from a compound of Formula (II), wherein Z is hydrogen, via reaction with a halogenating agent, optionally in the presence of a radical initiator such as dibenzoyl peroxide or azobisisobutyronitrile (AIBN). Examples of suitable halogenating agents include, for instance, brominating agents such as bromine or N-bromosuccinimide.

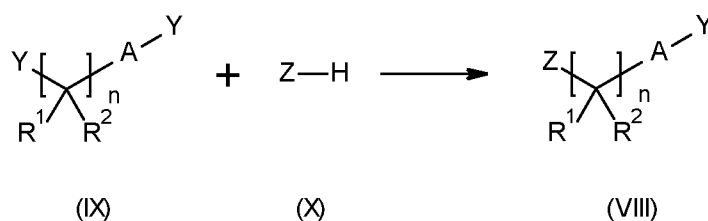
- 5 The reaction is typically carried out at a temperature from 55°C to 100°C. For related examples, see *J. Am. Chem. Soc.* **1951**, 73, 455.

Additionally, the compound of Formula (VII) can be prepared from a compound of Formula (VIII), wherein Y is a halogen, preferably Cl, Br or I, via metal-promoted reaction with a suitable cyanide reagent, such as Pd(0)/Zn(CN)₂ or CuCN, in a suitable solvent (e.g., dimethylformamide or N-methylpyrrolidone). The reaction is typically carried out at a temperature from 100°C to 120°C. For related examples, see US 2007/0155739; and WO 2009/022746. This reaction is shown in Scheme 11.



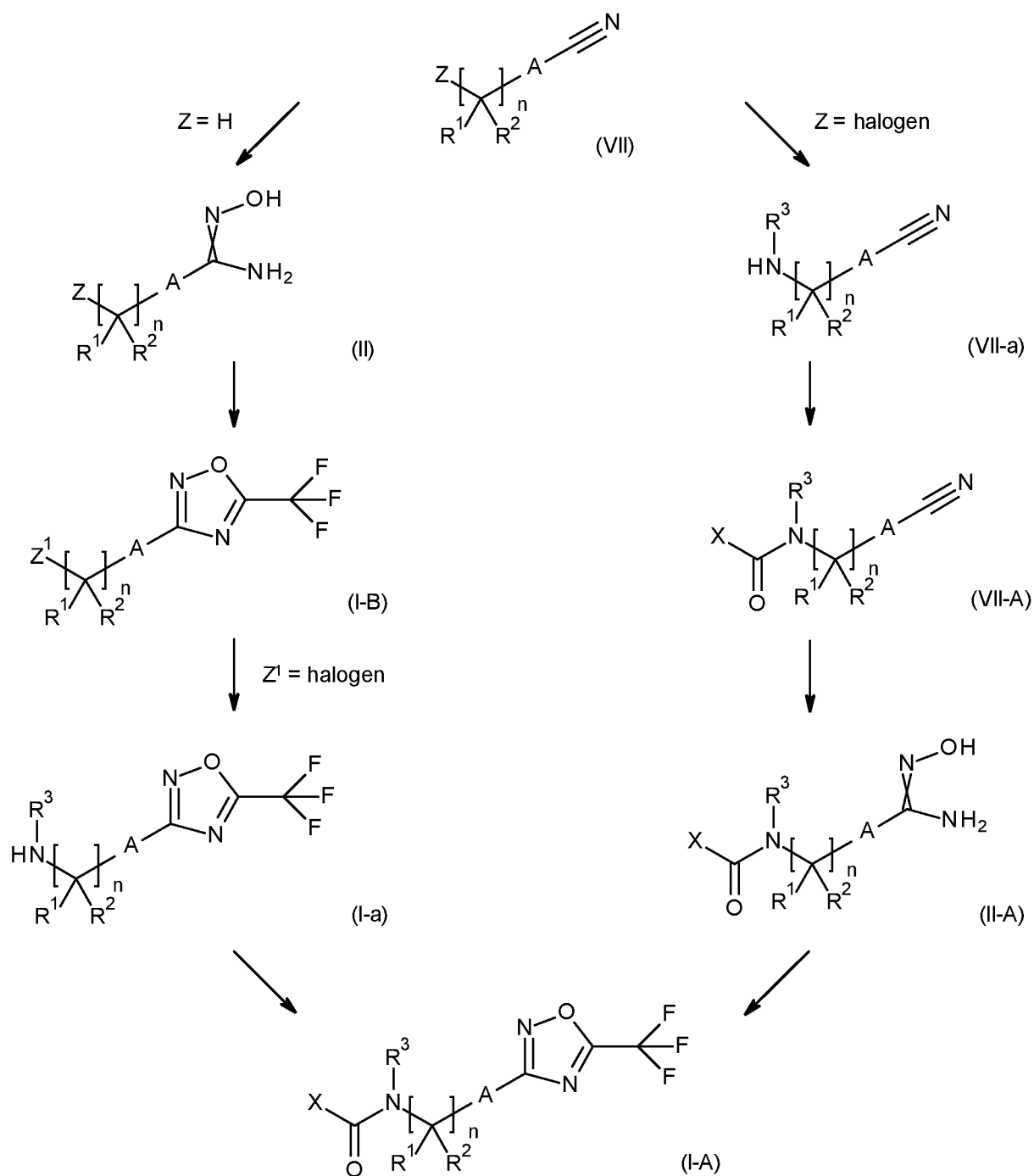
Scheme 11

Compounds of Formula (VIII), wherein n is preferably 1, can be prepared from compounds of Formula (IX), wherein Y is a halogen, preferably Cl, Br or I, via reaction with a compound of Formula (X), in the presence of a base (e.g. K₂CO₃, Cs₂CO₃, or NaH) in a suitable solvent (e.g. dimethylformamide or tetrahydrofuran). The reaction is typically carried out at a temperature from 25°C to 110°C. In some cases, a better reaction performance may be gained from the use of a catalyst (e.g., NaI or 4-dimethylaminopyridine) and with microwave irradiation. For related examples, see WO 2013/132253; WO 2018/177894; and Garcia, M. *et al Org. Biomol. Chem.* (**2004**), 11, 1633. This reaction is shown in Scheme 12.



Scheme 12

The process for the preparation of the compound of Formula (I-A), wherein Z² is -NR³-C(=W)-X, is preferably carried out according to any the following pathways. These reactions are shown in Scheme 13.

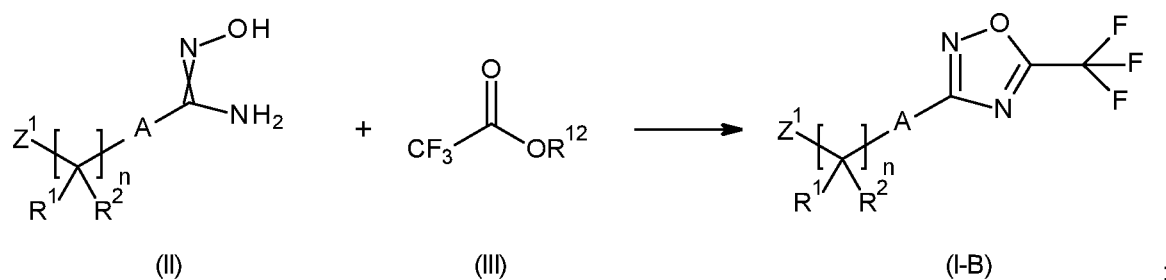


Scheme 13

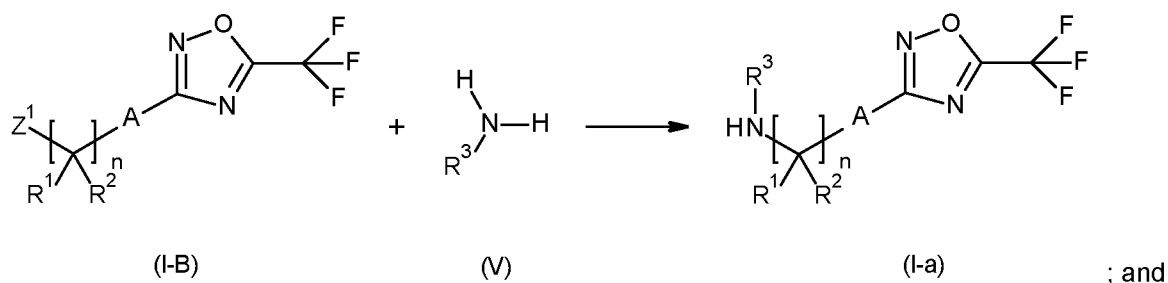
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According to one embodiment of the invention, the process for the preparation of the compound of Formula (I-A), wherein Z^2 is $-NR^3-C(=W)-X$, typically comprises:

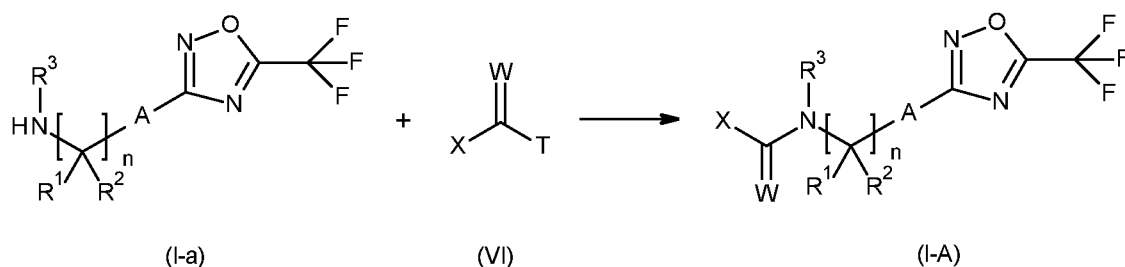
- (A-1) a step of reacting a compound of Formula (II), wherein A, n, R^1 , R^2 and Z^1 are as defined for the compound of Formula (I), with a compound of Formula (III), wherein R^{12} is C_{1-4} alkyl, to obtain a compound of Formula (I-B):



(A-2) a step of reacting a compound of Formula (I-B), wherein Z^1 is a halogen, with a compound of Formula (V) or a salt thereof, wherein R^3 is as defined above for a compound of Formula (I), to obtain an intermediate compound of Formula (I-a) or a salt thereof:

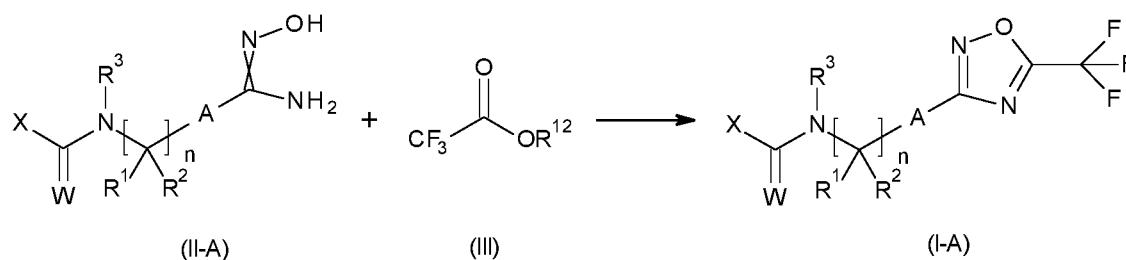


(A-3) a step of reacting a compound of Formula (I-a) or a salt thereof with a compound of Formula (VI), wherein X and W are as defined above for a compound of Formula (I) and T is halogen, hydroxy or C_{1-4} alkoxy:



The compound of Formula (II) of this embodiment of the invention can be prepared as described above.

According to a further embodiment of the invention, the process for the preparation of the compound of Formula (I-A), wherein Z^2 is $-\text{NR}^3-\text{C}(=\text{W})-\text{X}$, typically comprises a step of reacting a compound of Formula (II-A), wherein A , n , R^1 , R^2 , R^3 , X and W are as defined above for the compound of Formula (I), with a compound of Formula (III), wherein R^{12} is C_{1-4} alkyl:



The compound of Formula (II-A) of this embodiment of the invention can be prepared as described above.

5

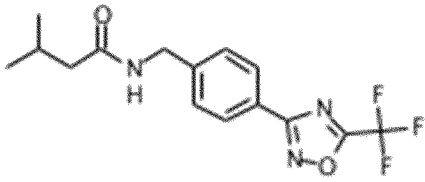
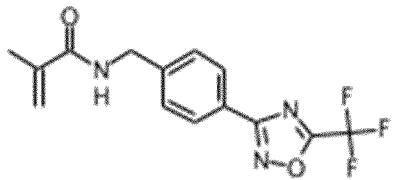
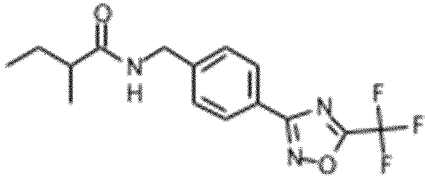
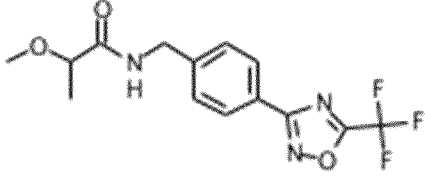
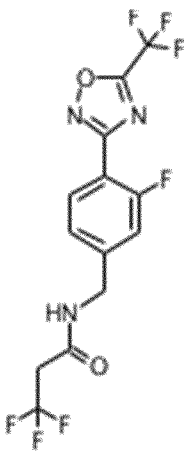
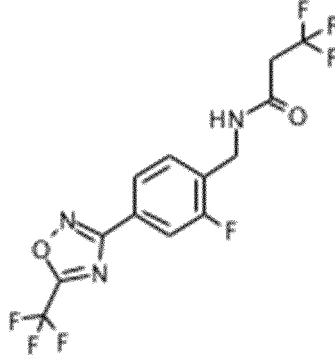
Preferred groups and values for the substituents n , m , A-1, A-2, R^1 , R^2 , R^3 , R^4 , R^5 , R^6 , R^7 , R^8 , R^9 , R^{10} , R^{11} , Z (Z^1 , Z^2), W, and X in the compounds of Formula (I) are, in any combination thereof, as set out below in Tables A-E.

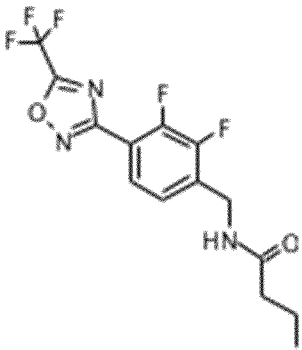
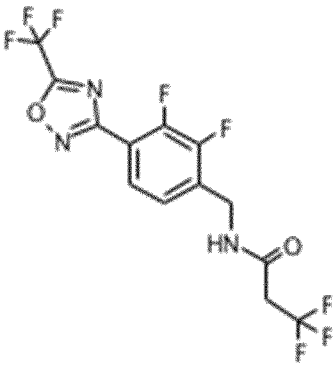
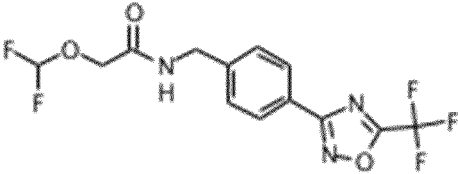
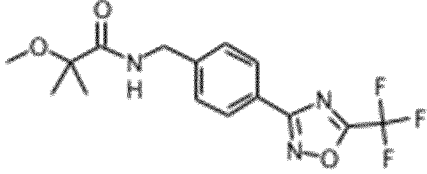
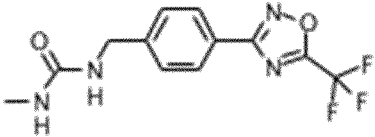
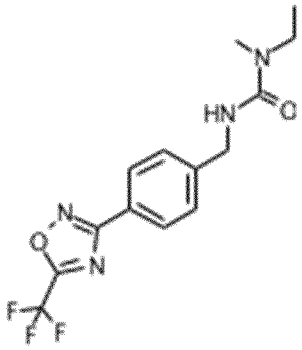
10 According to an embodiment of the process of the invention, a compound of Formula (I) is selected from compounds no. A.01, A.02, A.03, A.04, A.05, A.06, A.07, A.08, A.09, A.10, A.11, A.12, A.13, A.14, A.15, A.16, A.17, or A.18 as defined in the Table A below. More preferably, a compound of Formula (I) is selected from compounds no. A.01, A.08, A.09, A.10, A.11, A.17, or A.18 as defined in the Table A below.

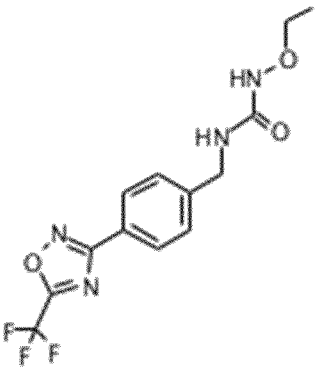
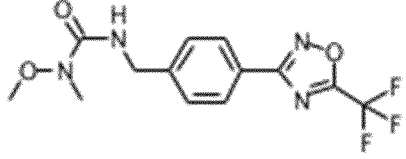
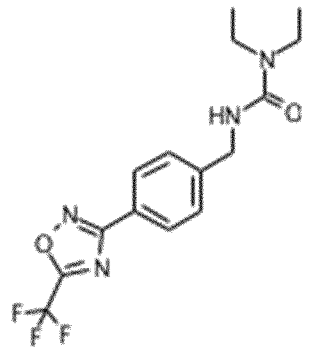
15

Table A

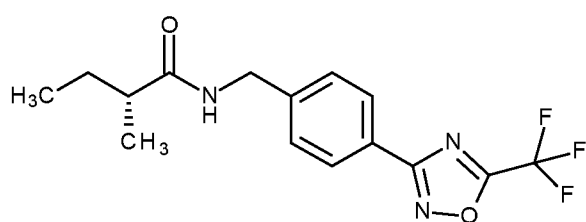
Compound number	Compound Structure	IUPAC name
A.01		N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]propanamide
A.02		2,2-dimethyl-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]but-3-ynamide
A.03		N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]butanamide

A.04		3-methyl-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]butanamide
A.05		2-methyl-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]prop-2-enamide
A.06		2-methyl-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]butanamide
A.07		2-methoxy-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]propanamide
A.08		3,3,3-trifluoro-N-[[3-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]propanamide
A.09		3,3,3-trifluoro-N-[[2-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]propanamide

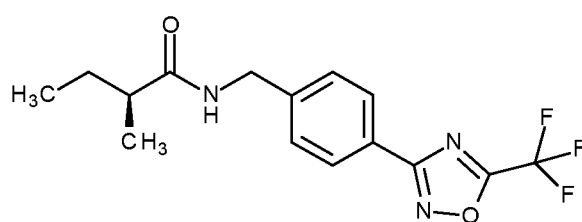
A.10		N-[[2,3-difluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]butanamide
A.11		N-[[2,3-difluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]-3,3,3-trifluoro-propanamide
A.12		2-(difluoromethoxy)-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]acetamide
A.13		2-methoxy-2-methyl-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]propanamide
A.14		1-methyl-3-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]urea
A.15		1-ethyl-1-methyl-3-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]urea

A.16		1-ethoxy-3-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]urea
A.17		1-methoxy-1-methyl-3-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]urea
A.18		1,1-diethyl-3-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]urea

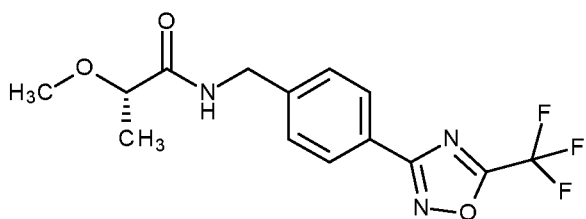
The presence of an asymmetric carbon atom in compounds A.04 and A.07 means that these compounds may occur in chiral enantiomeric forms, i.e., (R)- and (S)-enantiomers as depicted below.



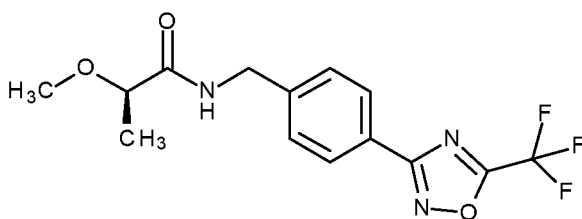
A.04(a)



A.04(b)



A.07(a)

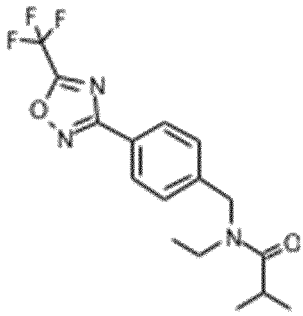
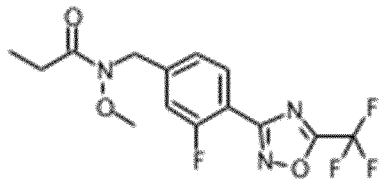
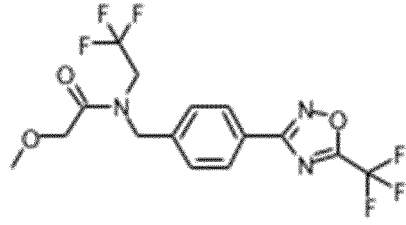
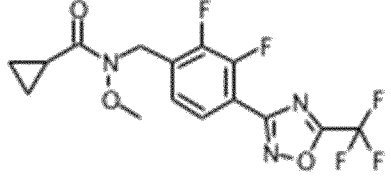
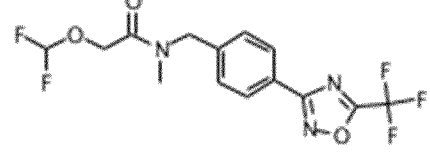
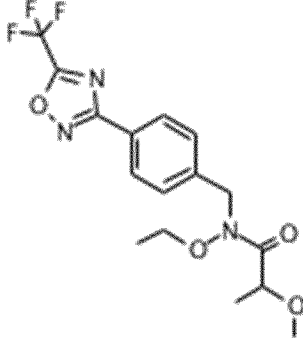


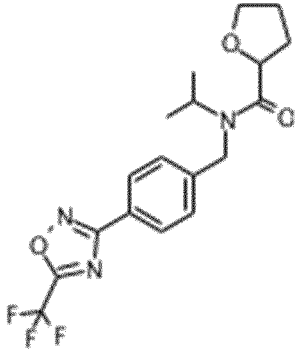
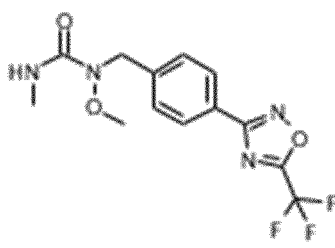
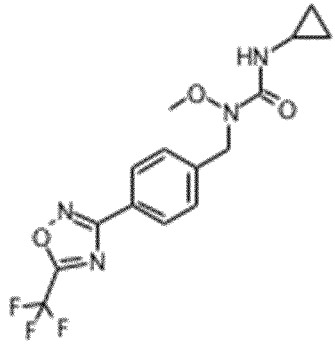
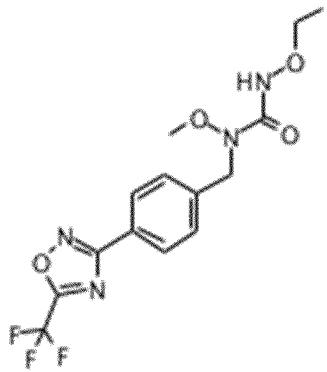
A.07(b)

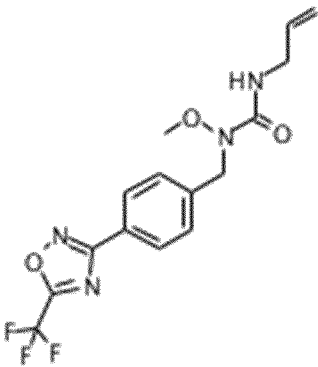
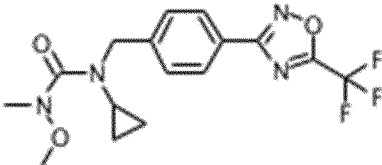
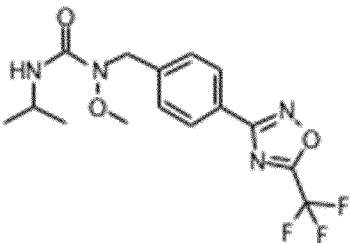
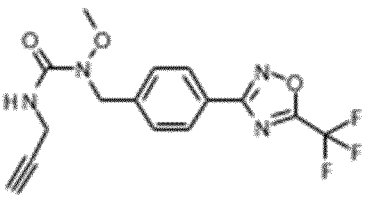
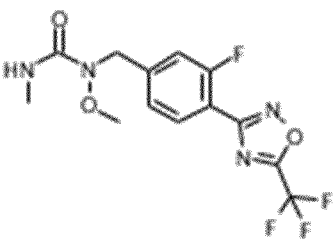
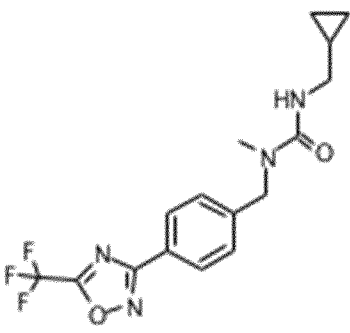
According to an embodiment of the process of the invention, a compound of Formula (I) is selected from compounds no. B.01, B.02, B.03, B.04, B.05, B.06, B.07, B.08, B.09, B.10, B.11, B.12, B.13, B.14, B.15, B.16, B.17, B.18, B.19, B.20, B.21, B.22, B.23, B.24, or B.25 as defined in the Table B below. More preferably, a compound of Formula (I) is selected from compounds no. B.01, B.04, B.07, B.14, B.24, or B.25 as defined in the Table B below.

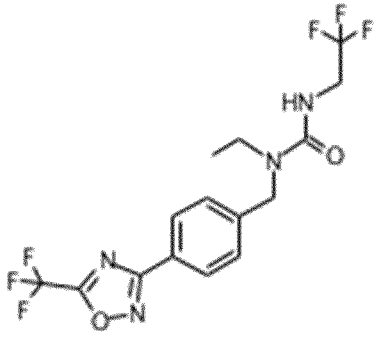
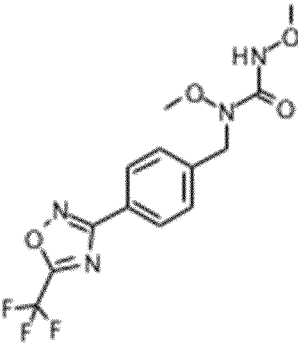
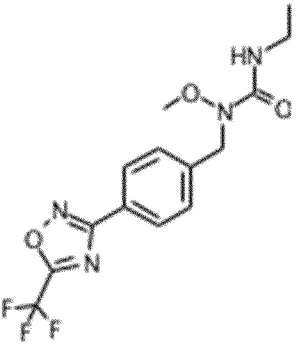
Table B

Compound number	Compound structure	IUPAC name
B.01		N-methoxy-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]cyclopropanecarboxamide
B.02		N-methoxy-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]pent-4-ynamide
B.03		N-methoxy-2-methyl-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]prop-2-enamide
B.04		N,2-dimethoxy-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]propanamide
B.05		N-cyclopropyl-3,3,3-trifluoro-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]propanamide
B.06		2,2-difluoro-N-(2-methoxyethyl)-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]cyclopropanecarboxamide

B.07		N-ethyl-2-methyl-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]propanamide
B.08		N-[[3-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]-N-methoxypropanamide
B.09		2-methoxy-N-(2,2,2-trifluoroethyl)-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]acetamide
B.10		N-[[2,3-difluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]-N-methoxy-cyclopropanecarboxamide
B.11		2-(difluoromethoxy)-N-methyl-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]acetamide
B.12		N-ethoxy-2-methoxy-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]propanamide

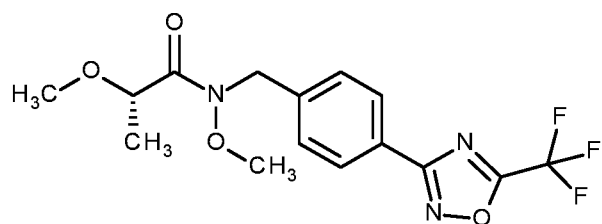
B.13		N-isopropyl-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]tetrahydrofuran-2-carboxamide
B.14		1-methoxy-3-methyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]urea
B.15		3-cyclopropyl-1-methoxy-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]urea
B.16		3-ethoxy-1-methoxy-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]urea

B.17		3-allyl-1-methoxy-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]urea
B.18		1-cyclopropyl-3-methoxy-3-methyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]urea
B.19		3-isopropyl-1-methoxy-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]urea
B.20		1-methoxy-3-prop-2-ynyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]urea
B.21		1-[[3-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]-1-methoxy-3-methyl-urea
B.22		3-(cyclopropylmethyl)-1-methyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]urea

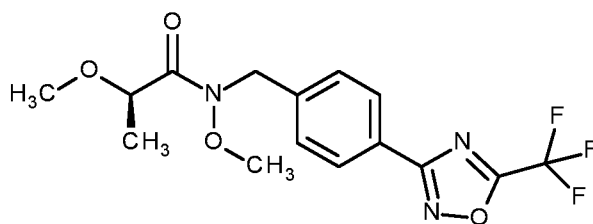
B.23		1-ethyl-3-(2,2,2-trifluoroethyl)-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]urea
B.24		1,3-dimethoxy-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]urea
B.25		3-ethyl-1-methoxy-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]urea

The presence of an asymmetric carbon atom in compounds B.04, B.06, B.12 and B.13 means that these compounds may occur in chiral enantiomeric forms, i.e., (R)- and (S)-enantiomers as depicted

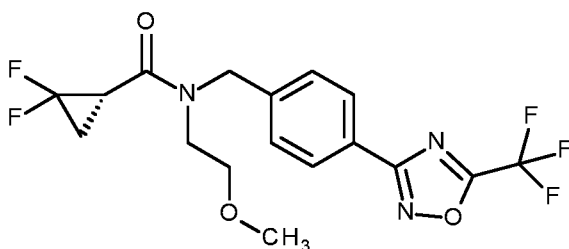
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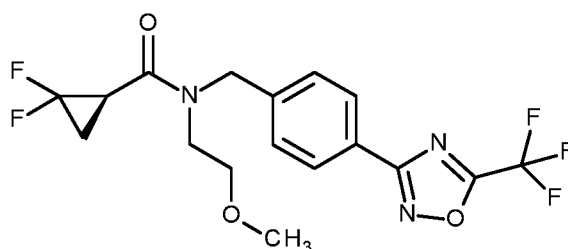
B.04(a)



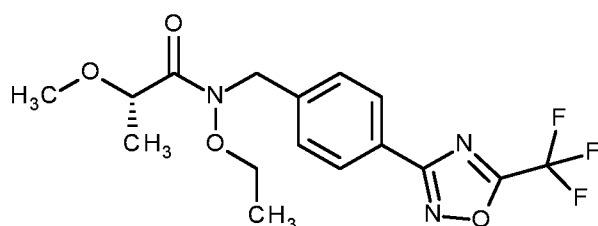
B.04(b)



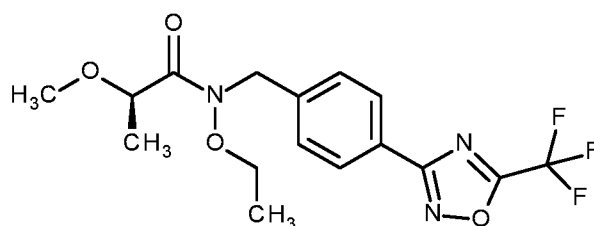
B.06(a)



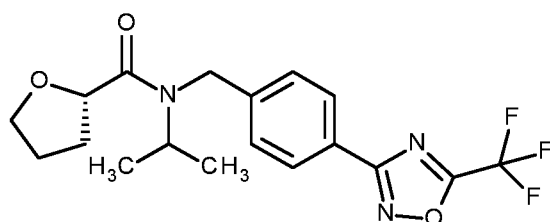
B.06(b)



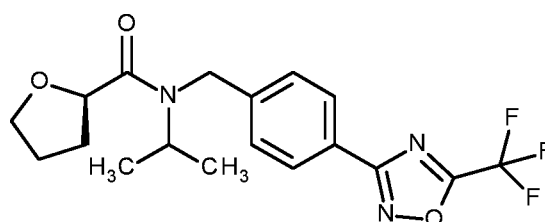
B.12(a)



B.12(b)



B.13(a)

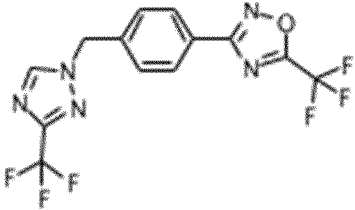
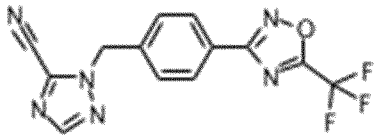
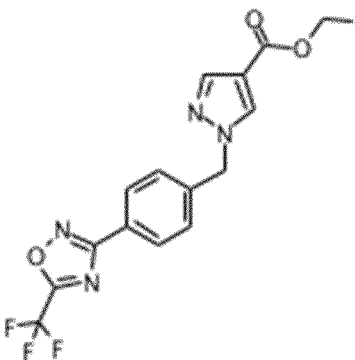
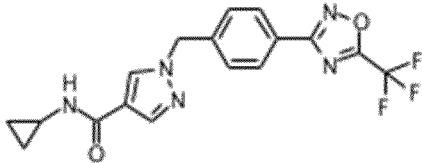
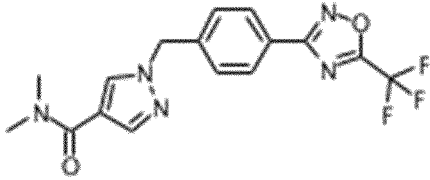
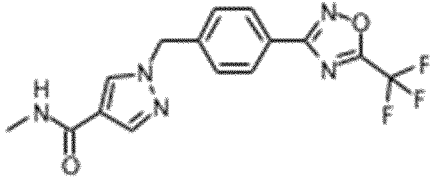
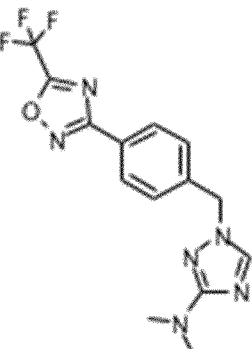


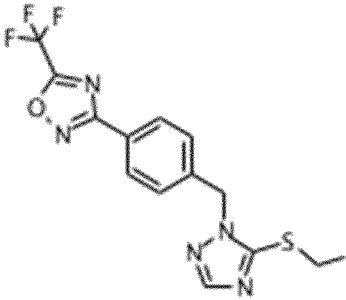
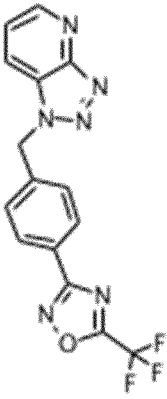
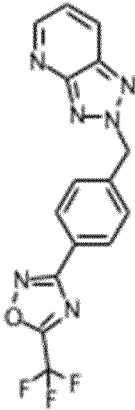
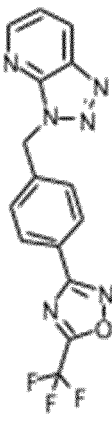
B.13(b)

According to an embodiment of the process of the invention, a compound of Formula (I) is selected from compounds no. C.01, C.02, C.03, C.04, C.05, C.06, C.07, C.08, C.09, C.10, C.11, C.12, C.13, C.14, C.15, C.16, C.17, C.18, C.19, C.20, or C.21 as defined in the Table C below. More preferably, a compound of Formula (I) is selected from compounds no. C.03, C.06, C.07, C.15, C.16, or C.17 as defined in the Table C below.

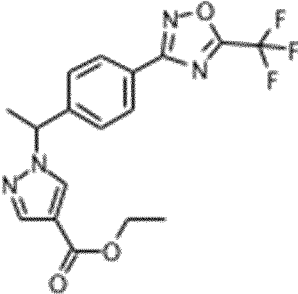
Table C

Compound number	Compound structure	IUPAC name
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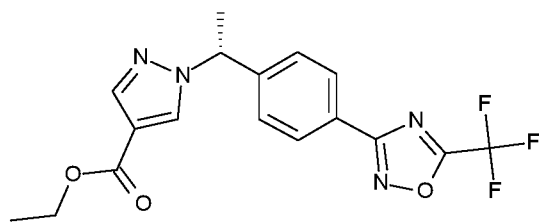
C.01		5-(trifluoromethyl)-3-[4-[[3-(trifluoromethyl)-1,2,4-triazol-1-yl]methyl]phenyl]-1,2,4-oxadiazole
C.02		2-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]-1,2,4-triazole-3-carbonitrile
C.03		ethyl 1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]pyrazole-4-carboxylate
C.04		<i>N</i> -cyclopropyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]pyrazole-4-carboxamide
C.05		<i>N,N</i> -dimethyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]pyrazole-4-carboxamide
C.06		<i>N</i> -methyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]pyrazole-4-carboxamide
C.07		<i>N,N</i> -dimethyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]-1,2,4-triazol-3-amine

C.08		3-[4-[(5-ethylsulfanyl-1,2,4-triazol-1-yl)methyl]phenyl]-5-(trifluoromethyl)-1,2,4-oxadiazole
C.09		3-[4-(triazolo[4,5-b]pyridin-1-ylmethyl)phenyl]-5-(trifluoromethyl)-1,2,4-oxadiazole
C.10		3-[4-(triazolo[4,5-b]pyridin-2-ylmethyl)phenyl]-5-(trifluoromethyl)-1,2,4-oxadiazole
C.11		3-[4-(triazolo[4,5-b]pyridin-3-ylmethyl)phenyl]-5-(trifluoromethyl)-1,2,4-oxadiazole

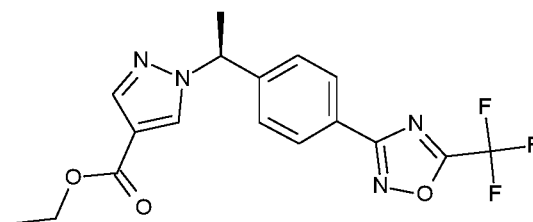
C.12		methyl 1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]pyrazole-4-carboxylate
C.13		ethyl 1-[[3-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]pyrazole-4-carboxylate
C.14		<i>N,N</i> -diethyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]pyrazole-4-carboxamide
C.15		<i>N</i> -methoxy- <i>N</i> -methyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]pyrazole-4-carboxamide
C.16		propyl 1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]pyrazole-4-carboxylate
C.17		<i>N</i> -methoxy-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]pyrazole-4-carboxamide
C.18		<i>N</i> -ethyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]pyrazole-4-carboxamide
C.19		1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]pyrazole-4-carboxamide
C.20		<i>N</i> -methoxy-1-[1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]pyrazol-4-yl]methanimine

C.21		ethyl 1-[1-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]ethyl]pyrazole-4-carboxylate
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The presence of an asymmetric carbon atom in compound C.21 means that these compounds may occur in chiral enantiomeric forms, i.e., (R)- and (S)-enantiomers as depicted below.



C.21(a)

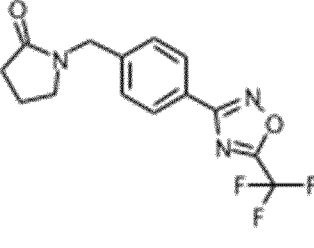
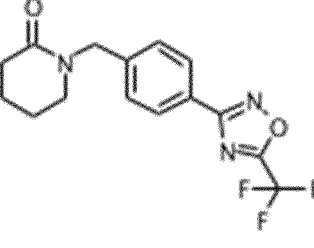


C.21(b)

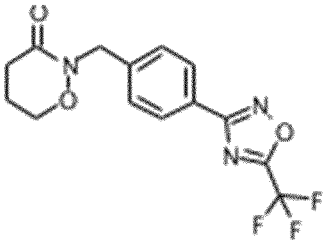
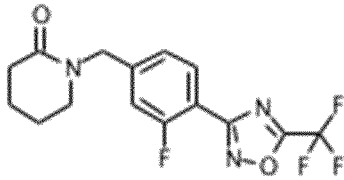
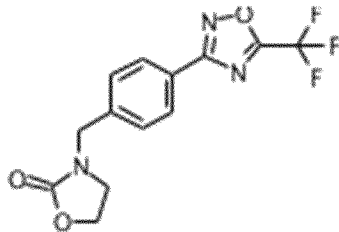
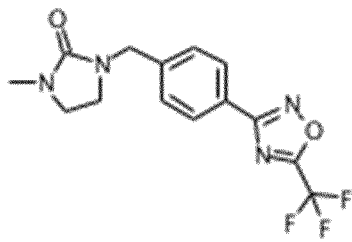
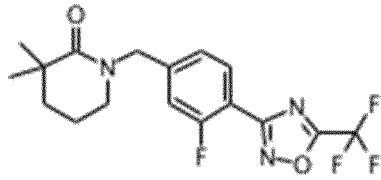
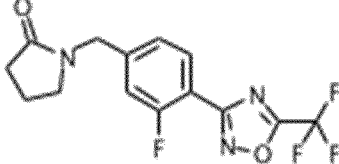
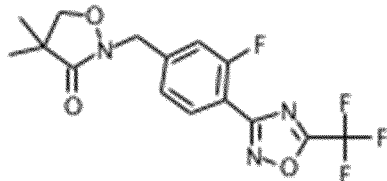
- 5 According to an embodiment of the process of the invention, a compound of Formula (I) is selected from compounds no. D.01, D.02, D.03, D.04, D.05, D.06, D.07, D.08, D.09, D.10, D.11, D.12, D.13, D.14, D.15, D.16, D.17, D.18, or D.19 as defined in the Table D below. More preferably, a compound of Formula (I) is selected from compounds no. D.01, D.02, D.03, D.04, D.05, D.06, D.07, D.10, or D.19 as defined in the Table D below.

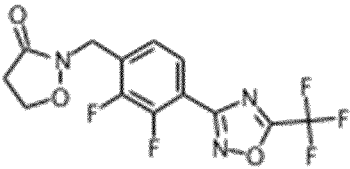
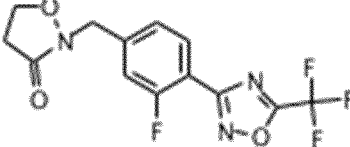
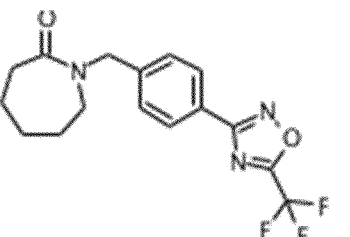
10

Table D

Compound number	Compound structure	IUPAC name
D.01		1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]pyrrolidin-2-one
D.02		1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]piperidin-2-one

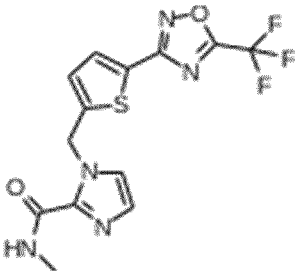
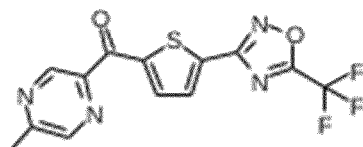
D.03		4-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]morpholin-3-one
D.04		4,4-dimethyl-2-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]isoxazolidin-3-one
D.05		2-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]isoxazolidin-3-one
D.06		5,5-dimethyl-2-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]isoxazolidin-3-one
D.07		3,3-dimethyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]piperidin-2-one
D.08		1-[[2-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]pyrrolidin-2-one
D.09		1-[[2-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]piperidin-2-one

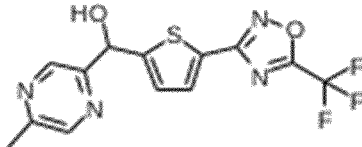
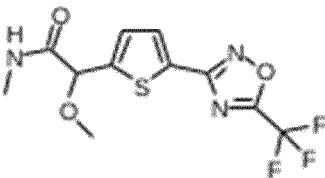
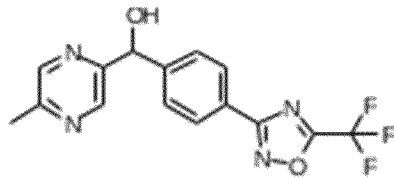
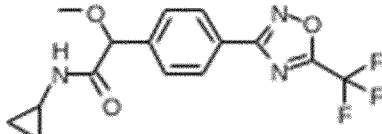
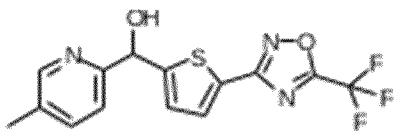
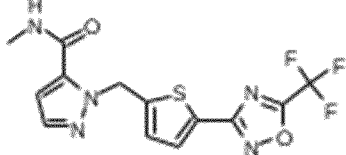
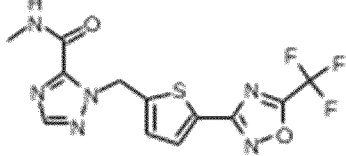
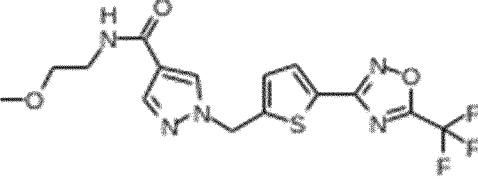
D.10		2-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]oxazinan-3-one
D.11		1-[[3-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]piperidin-2-one
D.12		3-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]oxazolidin-2-one
D.13		1-methyl-3-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]imidazolidin-2-one
D.14		1-[[3-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]-3,3-dimethyl-piperidin-2-one
D.15		1-[[3-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]pyrrolidin-2-one
D.16		2-[[3-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]-4,4-dimethyl-isoxazolidin-3-one

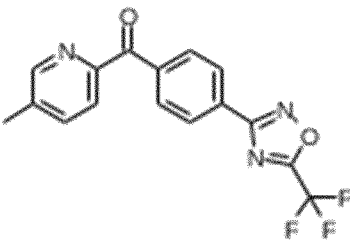
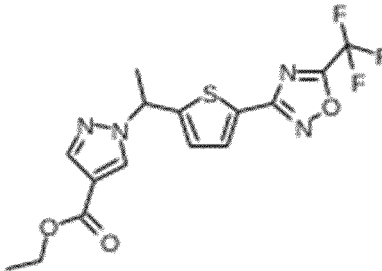
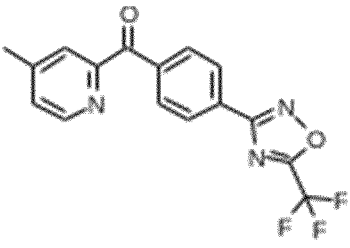
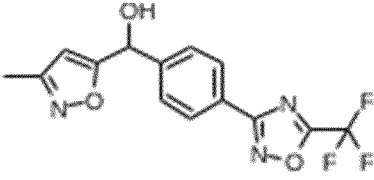
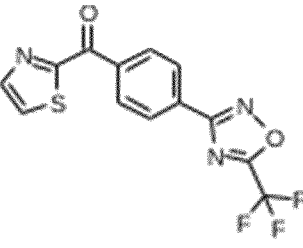
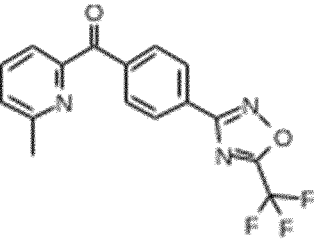
D.17		2-[[2,3-difluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]isoxazolidin-3-one
D.18		2-[[3-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]isoxazolidin-3-one
D.19		1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]azepan-2-one

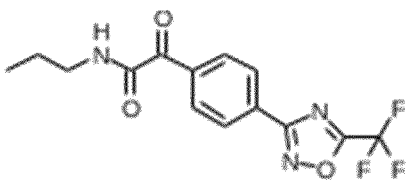
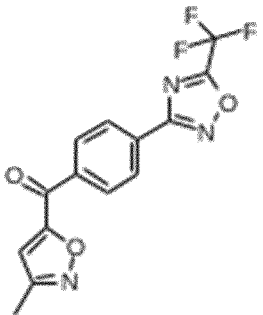
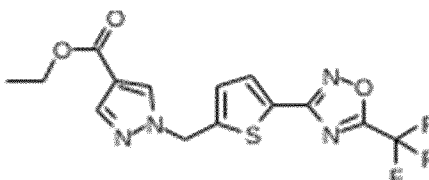
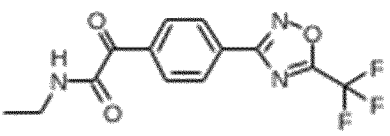
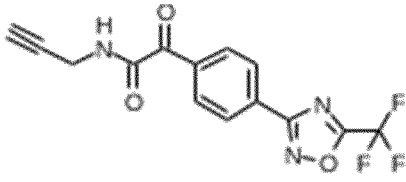
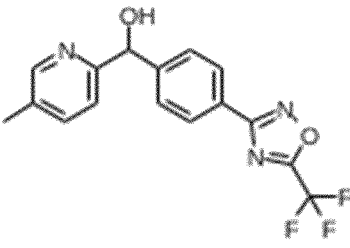
According to an embodiment of the process of the invention, a compound of Formula (I) is selected from compounds no. E.01, E.02, E.03, E.04, E.05, E.06, E.07, E.08, E.09, E.10, E.11, E.12, E.13, E.14, E.15, E.16, E.17, E.18, E.19, E.20, E.21, or E.22 as defined in the Table E below. More preferably, a compound of Formula (I) is selected from compounds no. E.01, E.02, E.03, E.05, E.10, E.12, E.13, E.14, E.15, E.16, E.17, E.18, E.19, E.20, or E.22 as defined in the Table E below.

Table E

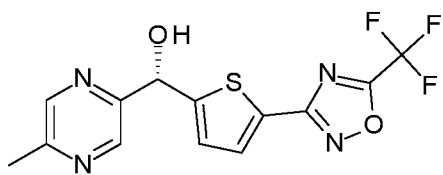
Compound number	IUPAC name	Compound structure
E.01		N-methyl-1-[[5-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]-2-thienyl]methyl]imidazole-2-carboxamide
E.02		(5-methylpyrazin-2-yl)-[5-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]-2-thienyl]methanone

Compound number	IUPAC name	Compound structure	
E.03			(5-methylpyrazin-2-yl)-[5-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]-2-thienyl]methanol
E.04			2-methoxy-N-methyl-2-[5-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]-2-thienyl]acetamide
E.05			(5-methylpyrazin-2-yl)-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methanol
E.06			N-cyclopropyl-2-methoxy-2-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]acetamide
E.07			(5-methyl-2-pyridyl)-[5-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]-2-thienyl]methanol
E.08			N-methyl-2-[[5-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]-2-thienyl]methyl]pyrazole-3-carboxamide
E.09			N-methyl-2-[[5-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]-2-thienyl]methyl]-1,2,4-triazole-3-carboxamide
E.10			N-(2-methoxyethyl)-1-[[5-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]-2-thienyl]methyl]pyrazole-4-carboxamide

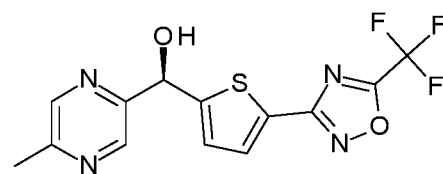
Compound number	IUPAC name	Compound structure
E.11		 (5-methyl-2-pyridyl)-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methanone
E.12		 ethyl 1-[1-[5-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]-2-thienyl]ethyl]pyrazole-4-carboxylate
E.13		 (4-methyl-2-pyridyl)-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methanone
E.14		 (3-methylisoxazol-5-yl)-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methanol
E.15		 thiazol-2-yl-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methanone
E.16		 (6-methyl-2-pyridyl)-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methanone

Compound number	IUPAC name	Compound structure
E.17		2-oxo-N-propyl-2-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]acetamide
E.18		(3-methylisoxazol-5-yl)-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methanone
E.19		ethyl 1-[[5-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]-2-thienyl]methyl]pyrazole-4-carboxylate
E.20		N-ethyl-2-oxo-2-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]acetamide
E.21		2-oxo-N-prop-2-ynyl-2-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]acetamide
E.22		(5-methyl-2-pyridyl)-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methanol

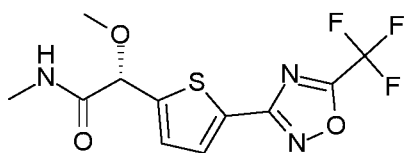
The presence of an asymmetric carbon atom in compound E.03, E.04, E.05, E.06, E.07, E.12, E.14 and E.22 means that these compounds may occur in chiral enantiomeric forms, i.e., (R)- and (S)-enantiomers as depicted below.



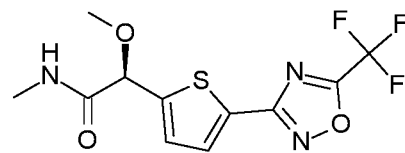
E.03(a)



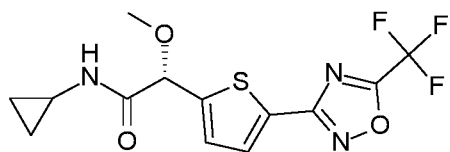
E.03(b)



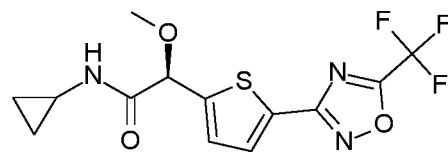
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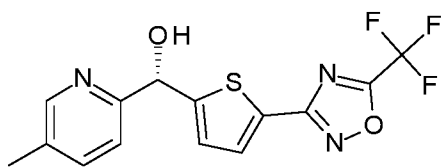
E.04(b)



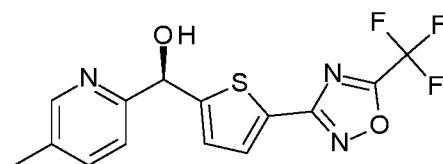
E.06(a)



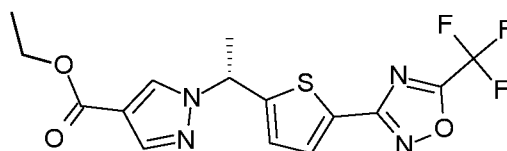
E.06(b)



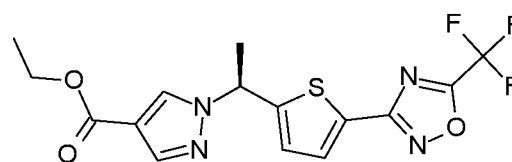
E.07(a)



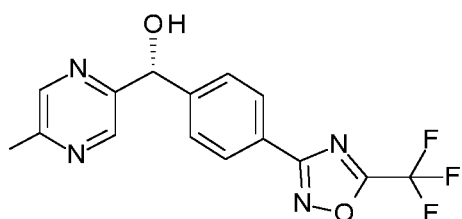
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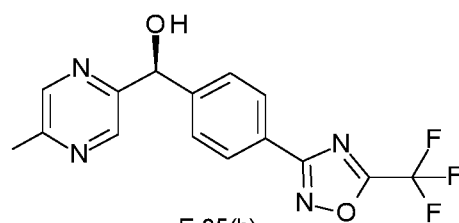
E.12(a)



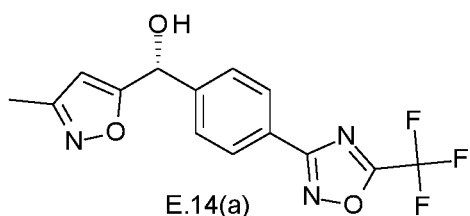
E.12(b)



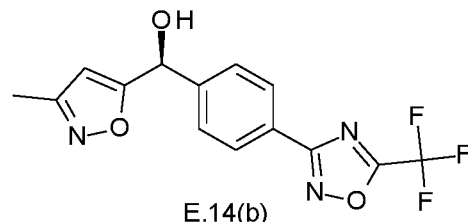
E.05(a)



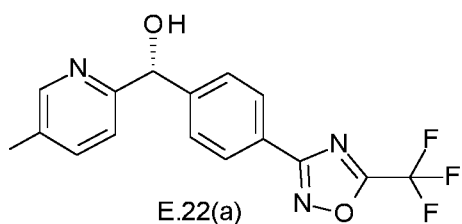
E.05(b)



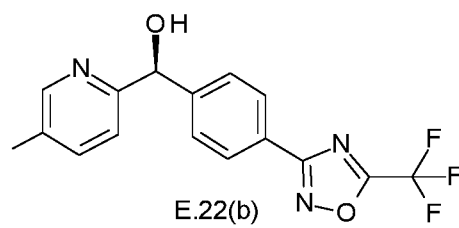
E.14(a)



E.14(b)



E.22(a)



E.22(b)

Enantiomerically pure final compounds may be obtained from racemic starting materials as appropriate via standard physical separation techniques, such as reverse phase chiral chromatography, or through stereoselective synthetic techniques, e.g., by using chiral starting materials.

5

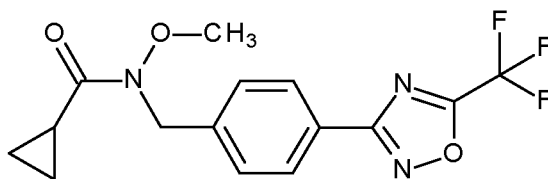
EXAMPLES

Preparation examples

10 The Examples which follow serve to illustrate the invention. The compounds of Formula (I) may be prepared according to the synthetic techniques described above.

The preparation of N-[[4-(N-hydroxycarbamimidoyl)phenyl]methyl]-N-methoxy-cyclopropanecarboxamide and N'-hydroxy-4-methyl-benzamidine are detailed in WO 2018/177894 and
15 WO 2017/055473.

Example 1: This example illustrates the preparation of N-methoxy-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]cyclopropanecarboxamide.



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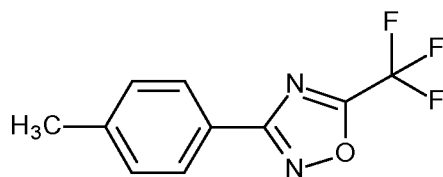
To a 50 mL flask was added N-[[4-(N-hydroxycarbamimidoyl)phenyl]methyl]-N-methoxy-cyclopropanecarboxamide (89% purity, 0.20 g, 0.7 mmol) and tetrahydrofuran (2 mL) and 4Å molecular sieves (150 mg). After cooling to 0°C, sodium tert-butoxide (0.1 g, 1 mmol) was introduced portionwise
25 over 5 minutes. To the resultant suspension, ethyl 2,2,2-trifluoroacetate (0.58 g, 4.40 mmol) was added dropwise over 5 minutes and the ice bath was removed. After 2 hours, water (20 mL) and ethyl acetate (40 mL) were introduced and the contents were stirred for 10 minutes, the layers were separated, and the aqueous layer was extracted with ethyl acetate. The total combined organic layer was dried over sodium sulfate, filtered, and concentrated under reduced pressure to afford 0.18 g (60 % yield, 82%
30 purity) of the title compound as a brown amorphous solid.

¹H NMR (400 MHz, CDCl₃) δ ppm: 8.09 (d, 2H), 7.53 (d, 2H), 4.87 (s, 2H), 3.73 (s, 3H), 2.19 (m, 1H), 1.05 (m, 2H), 0.86 (m, 2H).

¹⁹F NMR (400 MHz, CDCl₃) δ ppm: -65.33 (s).

35

Example 2: This example illustrates the preparation of 3-(p-tolyl)-5-(trifluoromethyl)-1,2,4-oxadiazole:



To a 50 mL flask was added N'-hydroxy-4-methyl-benzamidine (96% purity, 1.0 g, 6.39 mmol), tetrahydrofuran (10 mL), 4Å molecular sieves (150 mg). After cooling to 0°C, a 1M tetrahydrofuran solution of potassium tert-butoxide (6.39 mL, 6.39 mmol) was introduced dropwise. To the resultant suspension, ethyl 2,2,2-trifluoroacetate (0.58 g, 4.40 mmol) was added over 5 minutes and the ice bath was removed. After 1 hour, the reaction conversion was 92% complete with a reaction mixture having a pH of 10.3 (measured using a pH meter). Citric acid (50 g) was added portionwise, and the contents stirred for 10 minutes to achieve a pH 5.9 reaction mixture. The crude reaction contents were filtered over celite, washed twice with tetrahydrofuran (20 mL), and the filtrate was concentrated under reduced pressure. The resultant crude mass was diluted with dichloromethane (20 mL) and water (5 mL). The layers were separated and the aqueous layer was extracted twice with dichloromethane. The total combined organic layer was dried over sodium sulfate and concentrated under reduced pressure to afford 1.22 g of the title compound as a pale yellow liquid (80% yield, QNMR purity 96%).

¹H NMR (400 MHz, CDCl₃) δ ppm: 8.00 (d, 2H), 7.32 (d, 2H), 2.45 (s, 3H).

¹⁹F NMR (400 MHz, CDCl₃) δ ppm: -65.41 (s).

The Table T1 below depicts additional variations of the conditions of reaction detailed in 3-(p-tolyl)-5-(trifluoromethyl)-1,2,4-oxadiazole.

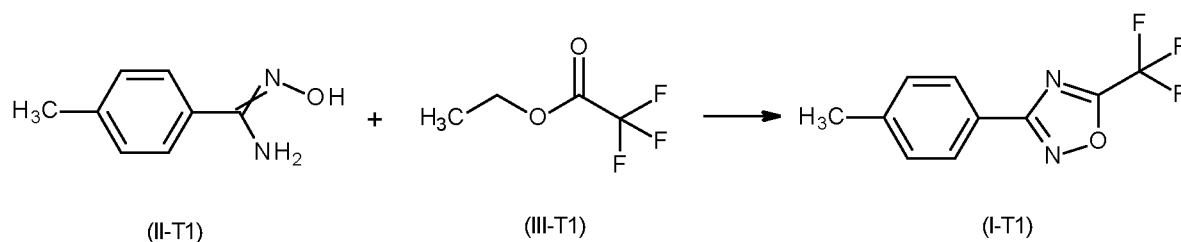
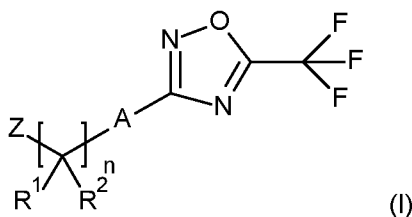


Table T1:

No.	III-T1 (eq)	Scale (gm)	Base/acid	Base/acid (eq)	Solvent (0.7M)	Time (h)	Temp. (°C)	HPLC I-T1 conversion	Work-up acid	Yield I-T1 (%)	Purity (%)
1	2	1	KO ^t Bu (1M THF)	1	THF	2	24	93	-	68	95
2	2	1	KO ^t Bu (1M THF)	1	THF	1	24	92	citric acid	80	96

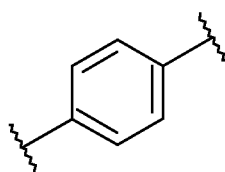
CLAIMS:

1. A process for the preparation of a compound of Formula (I):

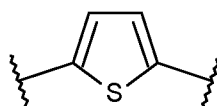


5 wherein

A is A-1 or A-2:



(A-1)



(A-2)

10 wherein each of A-1 and A-2 is optionally substituted by 1 or 2 substituents independently selected from halogen, C₁₋₄alkyl, C₁₋₄haloalkyl, C₁₋₄alkoxy, and C₁₋₄haloalkoxy;

n is 0, 1 or 2;

15 R¹ and R² are independently selected from hydrogen, halogen, cyano, hydroxy, C₁₋₄alkyl, C₁₋₄alkoxy, and C₁₋₄haloalkyl; or

R¹ and R², together with the carbon atom to which they are bonded, form a cyclopropyl ring;

20 Z is Z¹ or Z²:

Z¹ is hydrogen, halogen, cyano, -OH, or -SH;

25 Z² is C₁₋₄alkyl, C₁₋₄haloalkyl, C₁₋₄alkoxy, C₁₋₄haloalkoxy, -COOH, -C(=W)-X, -NR³R⁴, -NR³-C(=W)-X, -S(=O)₂-R⁵, or -NR³-S(=O)₂-R⁵; or

30 Z² is C₃₋₈cycloalkyl, C₃₋₈cycloalkylC₁₋₂alkyl, heterocyclyl, heterocyclylC₁₋₂alkyl, phenyl, phenylC₁₋₂alkyl, heteroaryl, heteroarylC₁₋₂alkyl, or heterodiaryl, wherein the heterocyclyl moiety is a 4- to 7-membered non-aromatic ring which comprises 1, 2 or 3 heteroatoms or groups individually selected from O, S, N, NR⁶, C(=O) and S(=O)₂, and the heteroaryl moiety is a 5- or 6-membered monocyclic aromatic ring which comprises 1, 2, 3, or 4 heteroatoms individually selected from N, O and S; wherein any of said cycloalkyl, heterocyclyl, phenyl, heteroaryl or heterodiaryl is

optionally substituted by 1 or 2 substituents, which may be the same or different, selected from R^7 ;

W is O or S;

X is halogen, $-NR^3R^4$, R^5 , $-NR^3-[CR^8R^9]_m-CR^{10}(=NR^5)$, $-C(=O)-NR^3R^4$, $-C(=O)-R^5$, $-C(=N-C_{1-4}alkoxy)-R^5$, or $-OR^{11}$;

R^3 and R^4 are independently selected from hydrogen, $C_{1-4}alkyl$, $C_{1-4}haloalkyl$, $C_{1-4}alkoxy$, hydroxy $C_{1-4}alkyl$, $C_{1-4}alkoxyC_{1-4}alkyl$, $C_{1-4}haloalkoxy$, $C_{1-2}haloalkoxyC_{1-4}alkyl$, $C_{2-6}alkenyl$, $C_{2-6}alkynyl$, $C_{3-4}alkenyloxy$, $C_{3-4}alkynyloxy$, $C_{1-4}alkylcarbonyloxy$, N- $C_{1-4}alkylamino$, and N,N-di $C_{1-4}alkylamino$; or

R^3 and R^4 are independently selected from $C_{3-8}cycloalkyl$, $C_{3-8}cycloalkylC_{1-2}alkyl$, heterocyclyl, heterocyclyl $C_{1-2}alkyl$, phenyl, phenyl $C_{1-2}alkyl$, heteroaryl, and heteroaryl $C_{1-2}alkyl$, wherein the heterocyclyl moiety is a 4- to 6-membered non-aromatic ring which comprises 1, 2 or 3 heteroatoms or groups individually selected from O, S, N, NR^6 , $C(=O)$ and $S(=O)_2$, and the heteroaryl moiety is a 5- or 6-membered monocyclic aromatic ring which comprises 1, 2, 3, or 4 heteroatoms individually selected from N, O and S; wherein any of said cycloalkyl, heterocyclyl, phenyl or heteroaryl is optionally substituted by 1 or 2 substituents, which may be the same or different, selected from R^7 ; or

R^3 and X, together with the nitrogen atom to which R^3 is attached, and together with the group $-C(=W)$, form a heterocyclyl, heterocyclyl $C_{1-6}alkyl$, heteroaryl, heteroaryl $C_{1-2}alkyl$, or heterodiaryl, wherein the heterocyclyl moiety is a 4- to 7-membered non-aromatic ring which comprises 1, 2 or 3 heteroatoms or groups individually selected from O, S, N, NR^6 , $C(=O)$ and $S(=O)_2$, and the heteroaryl moiety is a 5- or 6-membered monocyclic aromatic ring which comprises 1, 2, 3, or 4 heteroatoms individually selected from N, O and S; wherein any of said heterocyclyl, heteroaryl or heterodiaryl is optionally substituted by 1 or 2 substituents, which may be the same or different, selected from R^7 ;

R^5 is $C_{1-4}alkyl$, $C_{1-4}haloalkyl$, hydroxy $C_{1-4}alkyl$, cyano $C_{1-4}alkyl$, $C_{2-4}alkenyl$, $C_{2-6}alkynyl$, $C_{1-4}alkoxy$, $C_{1-4}haloalkoxy$, or $C_{1-4}alkoxyC_{1-4}alkyl$, or $C_{1-2}haloalkoxyC_{1-4}alkyl$; or

R^5 is $C_{3-8}cycloalkyl$, $C_{3-8}cycloalkylC_{1-2}alkyl$, heterocyclyl, heterocyclyl $C_{1-6}alkyl$, phenyl, phenyl $C_{1-2}alkyl$, heteroaryl, heteroaryl $C_{1-2}alkyl$, or heterodiaryl, wherein the heterocyclyl moiety is a 4- to 6-membered non-aromatic ring which comprises 1, 2 or 3 heteroatoms or groups individually selected from O, S, N, NR^6 , $C(=O)$ and $S(=O)_2$, and the heteroaryl moiety is a 5- or 6-membered monocyclic aromatic ring which comprises 1, 2, 3, or 4 heteroatoms individually selected from N, O and S; wherein any of said cycloalkyl, heterocyclyl, phenyl, heteroaryl or heterodiaryl is

optionally substituted by 1 or 2 substituents, which may be the same or different, selected from R^7 ;

R^6 is hydrogen, C_{1-4} alkyl, C_{1-4} alkoxy, formyl, C_{1-4} alkylcarbonyl, C_{1-4} alkoxycarbonyl, N- C_{1-4} alkylaminocarbonyl, N,N-di- C_{1-4} alkylaminocarbonyl, C_{1-4} alkylsulfonyl, N- C_{1-4} alkylaminosulfonyl, or N,N-di- C_{1-4} alkylaminosulfonyl;

R^7 is halogen, cyano, hydroxy, C_{1-4} alkyl, C_{2-4} alkenyl, C_{2-6} alkynyl, C_{1-4} haloalkyl, C_{2-4} haloalkenyl, C_{1-4} alkoxy, C_{1-4} haloalkoxy, C_{3-4} alkenyloxy, C_{3-4} alkynyloxy, N- C_{1-4} alkylamino, N,N-di- C_{1-4} alkylamino, C_{1-4} alkylcarbonyl, C_{1-4} alkoxycarbonyl, aminocarbonyl, C_{1-4} alkylcarbonylamino, C_{1-4} alkyl, N- C_{1-4} alkylaminocarbonyl, N,N-di- C_{1-4} alkylaminocarbonyl, C_{1-4} alkoxycarbonylamino, N- C_{1-4} alkoxyaminocarbonyl, N- C_{1-4} alkyl-N- C_{1-4} alkoxyaminocarbonyl, C_{3-8} cycloalkylaminocarbonyl, N- C_{3-8} cycloalkyl- C_{1-2} alkylaminocarbonyl, N- C_{1-4} alkoxy- C_{1-4} alkylaminocarbonyl, N- C_{1-4} alkoxy- C_{1-4} alkylimino, C_{1-4} alkylsulfonyl, or C_{1-4} alkylsulfanyl;

m is 0, 1 or 2;

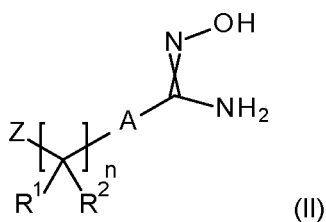
R^8 and R^9 are independently selected from hydrogen, halogen, cyano, C_{1-4} alkyl, and C_{1-4} haloalkyl; or

R^8 and R^9 , together with the carbon atom to which they are bonded, form a cyclopropyl ring;

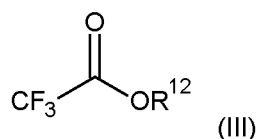
R^{10} is hydrogen, C_{1-6} alkyl, C_{2-4} alkenyl, C_{2-6} alkynyl, C_{1-4} haloalkyl, C_{3-8} cycloalkyl, or phenyl;

R^{11} is C_{1-8} alkyl, C_{1-4} haloalkyl, hydroxy- C_{1-6} alkyl, C_{1-4} alkoxy- C_{1-6} alkyl, C_{1-2} haloalkoxy- C_{1-4} alkyl, C_{2-4} alkenyl, C_{2-6} alkynyl, or C_{1-4} alkylcarbonyloxy- C_{1-4} alkyl;

said process comprising the step of reacting a compound of Formula (II):



wherein A, n, R^1 , R^2 and Z are as defined for the compound of Formula (I), with a compound of Formula (III):



wherein R^{12} is C_{1-4} alkyl.

2. The process according to claim 1, wherein the process is carried out in the presence of at least one base.

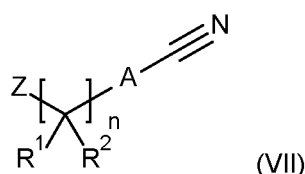
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3. The process according to claim 2, wherein the base is selected from the group consisting of alkali metal C_{1-6} alkoxylates and alkaline earth metal C_{1-6} alkoxylates.

4. The process according to claim 2 or 3, wherein the base is sodium tert-butoxide or potassium tert-butoxide.

10

5. The process according to any one of claims 1 to 4, said process further comprising the step of reacting a compound of Formula (VII):



15

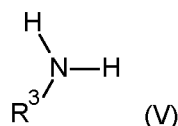
wherein A, n, R^1 , R^2 and Z are defined as in the compound of Formula (I), with hydroxylamine or a salt thereof to obtain the compound of Formula (II).

6. The process according to any one of claims 1 to 5, wherein n in the compound of Formula (I) is 0 or 1.

20

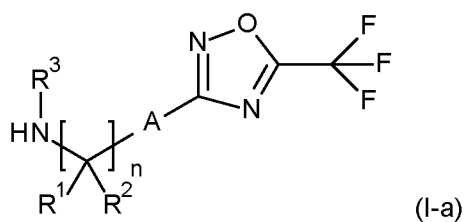
7. The process according to any one of claims 1 to 6, said process further comprising the step of reacting an intermediate compound of Formula (I-B), wherein Z is Z^1 , to obtain a compound of Formula (I-A), wherein Z is Z^2 .

- 25 8. The process according to any one of claims 1 to 7, said process further comprising the step of reacting the compound of Formula (I-B), wherein Z^1 is a halogen, with an amine of Formula (V) or a salt thereof:



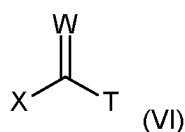
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wherein R^3 is defined as in the compound of Formula (I), to obtain a compound of Formula (I-a) or a salt thereof:

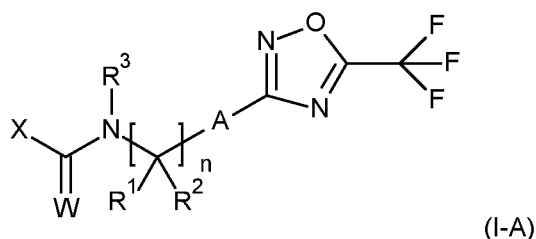


wherein A, n, R¹, R² and R³ are defined as in the compound of Formula (I).

- 5 9. The process according to claim 8, said process further comprising the step of reacting the compound of Formula (I-a) or a salt thereof with a compound of Formula (VI):

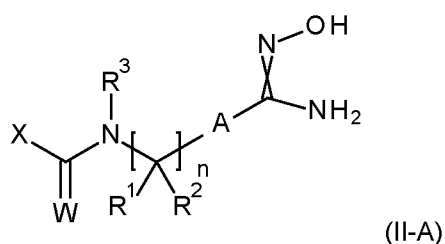


- 10 wherein X and W are defined as in the compound of Formula (I) and T is halogen, hydroxy or C₁₋₄alkoxy, to obtain a compound of Formula (I-A):

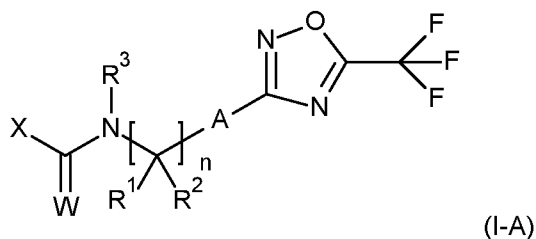


wherein A, n, R¹, R², R³, X and W are defined as in the compound of Formula (I).

- 15 10. The process according to any one of claims 1 to 6, said process comprising the step of reacting a compound of Formula (II-A):

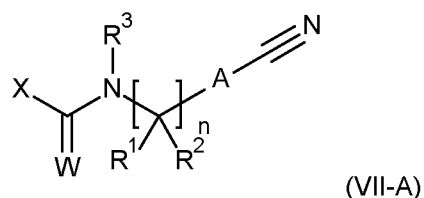


- 20 wherein A, n, R¹, R², R³, X and W are defined as in the compound of Formula (I), with a compound of Formula (III), wherein R¹² is C₁₋₄alkyl, to obtain a compound of formula (I-A):



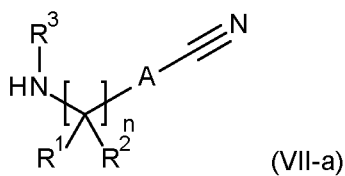
wherein A, n, R¹, R², R³, X and W are defined as in the compound of Formula (I).

11. The process according to claim 10, said process further comprising the step of reacting a compound of Formula (VII-A):

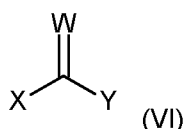


wherein A, n, R¹, R², R³, X and W are defined as in the compound of Formula (I), with hydroxylamine or a salt thereof to obtain the compound of Formula (II-A).

12. The process according to claim 10 or 11, said process further comprising the step of reacting a compound of Formula (VII-a) or a salt thereof:



wherein A, n, R¹, R² and R³ are defined as in the compound of Formula (I), with a compound of Formula (VI):



wherein X and W are defined as in the compound of Formula (I) and T is halogen, hydroxy or C₁₋₄alkoxy, to obtain the compound of Formula (VII-A).

13. The process according to any one of claims 1 to 12, said process further comprising the step of isolating the compound of Formula (I) using an aqueous acidic medium.

14. The process according to claim 13, wherein the aqueous acidic medium comprises citric acid.

15. The process according to claim 13 or 14, wherein the aqueous acidic medium has a pH of from 2.0 to 6.0.

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2020/060746

A. CLASSIFICATION OF SUBJECT MATTER INV. C07D271/06 C07D413/04 C07D413/10 C07D413/12 C07D413/14 C07D417/10 C07D471/04 ADD. According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) C07D Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EPO-Internal, WPI Data		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2017/222951 A1 (MERCK SHARP & DOHME [US]) 28 December 2017 (2017-12-28) scheme 1; claim 1; examples 1, 2, 16, 25, 27, 28, ... example 29 -----	1-15
X	WO 2018/177894 A1 (SYNGENTA PARTICIPATIONS AG [CH]) 4 October 2018 (2018-10-04) cited in the application schemes 1, 3, 4, 8, 18, 26, 27; claim 1; examples 1, 5-10 -----	1-15
X	WO 2018/184985 A1 (SYNGENTA PARTICIPATIONS AG [CH]) 11 October 2018 (2018-10-11) schemes 1, 3, 4, 8, 18-20; claim 1; example 1 ----- -/--	1-15
☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
* Special categories of cited documents : "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 25 May 2020		Date of mailing of the international search report 04/06/2020
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016		Authorized officer Ladenburger, Claude

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2020/060746

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2017/055473 A1 (SYNGENTA PARTICIPATIONS AG [CH]) 6 April 2017 (2017-04-06) cited in the application schemes 1, 3, 4, 8; claim 1; examples 2, 6, 9, 11, 12, 14 -----	1-15

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2020/060746

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2017222951 A1	28-12-2017	EP 3475275 A1 US 2019185462 A1 WO 2017222951 A1	01-05-2019 20-06-2019 28-12-2017
WO 2018177894 A1	04-10-2018	BR 112019020253 A2 CA 3055680 A1 CL 2019002773 A1 CN 110461159 A CO 2019010300 A2 EP 3599859 A1 KR 20190134674 A UY 37657 A WO 2018177894 A1	22-04-2020 04-10-2018 27-12-2019 15-11-2019 09-10-2019 05-02-2020 04-12-2019 31-10-2018 04-10-2018
WO 2018184985 A1	11-10-2018	BR 112019020739 A2 WO 2018184985 A1	28-04-2020 11-10-2018
WO 2017055473 A1	06-04-2017	BR 112018006623 A2 CL 2018000834 A1 CN 108137570 A CO 2018003840 A2 EP 3356358 A1 JP 2018531246 A US 2018273494 A1 UY 36925 A WO 2017055473 A1 ZA 201801828 B	23-10-2018 06-07-2018 08-06-2018 10-07-2018 08-08-2018 25-10-2018 27-09-2018 28-04-2017 06-04-2017 30-01-2019