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(54) Titre : NOUVEAUX LIGANDS DU RECEPTEUR VANILLOIDE ET LEUR UTILISATION POUR LA FABRICATION DE
MEDICAMENTS

(54) Title: NOVEL VANILLOID RECEPTOR LIGANDS AND THE USE THEREOF FOR THE PRODUCTION OF
PHARMACEUTICALS

(57) **Abrégé/Abstract:**

The present invention relates to novel vanilloid receptor ligands, a method for the production thereof, pharmaceuticals containing said compounds, and the use of said compounds for the production of pharmaceuticals.



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Abstract

The present invention relates to novel vanilloid receptor ligands, to methods for producing them, to pharmaceuticals containing these compounds and to the use of these compounds for the production of pharmaceuticals.

Novel vanilloid receptor ligands and the use thereof for the production of pharmaceuticals

The present invention relates to novel vanilloid receptor ligands, to methods for producing them, to pharmaceuticals containing these compounds and to the use of these compounds for the production of pharmaceuticals.

The treatment of pain, in particular neuropathic pain, is of great medical significance. There is a worldwide need for effective pain treatments. The urgency of the requirement for effective therapeutic methods for providing tailored and targeted treatment of chronic and non-chronic pain, this being taken to mean pain treatment which is effective and satisfactory from the patient's standpoint, is also evident from the large number of scientific papers relating to applied analgesia and to basic nociception research which have appeared in recent times.

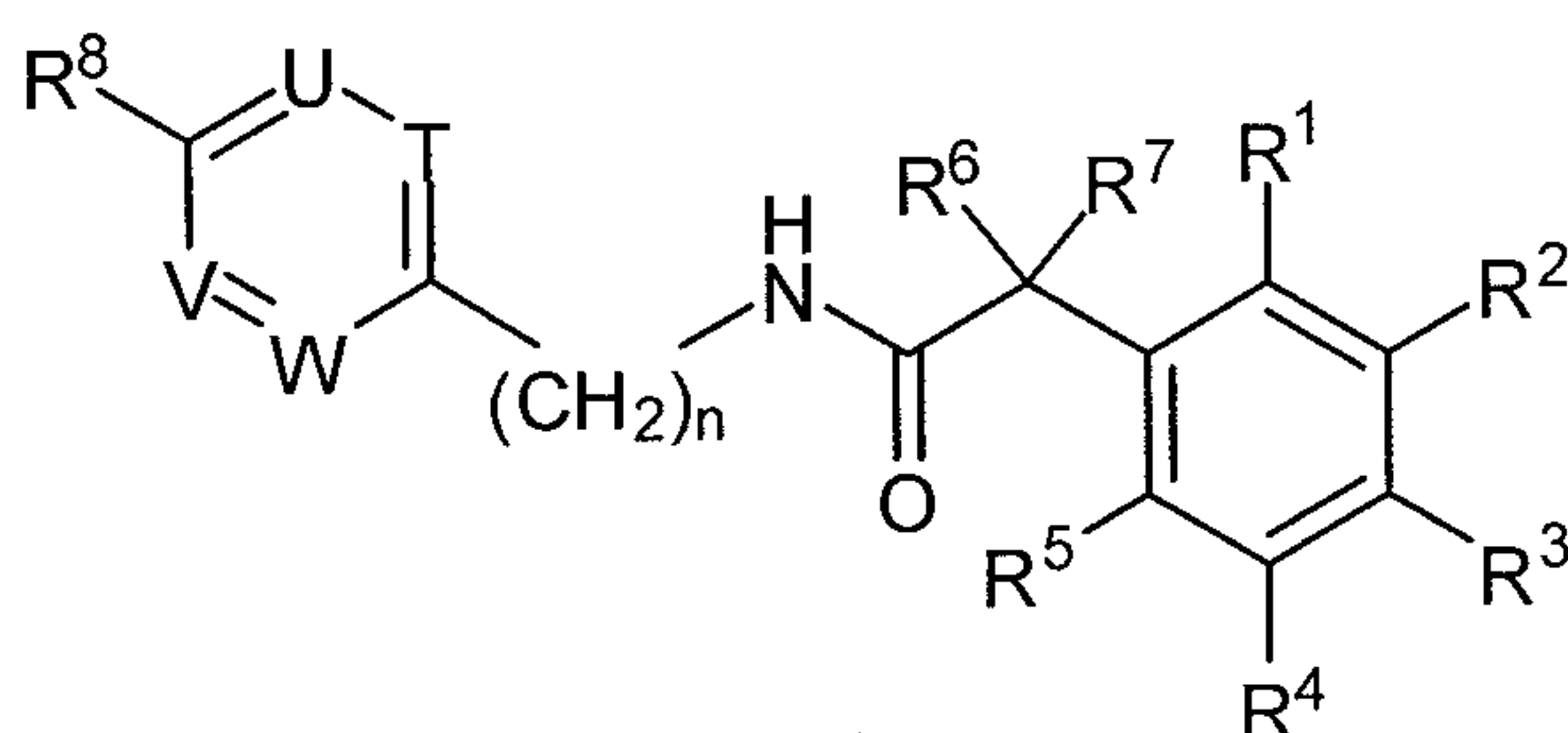
One suitable approach to the treatment of pain, in particular of pain selected from the group consisting of acute pain, chronic pain, neuropathic pain and visceral pain, particularly preferably of neuropathic pain, is the vanilloid receptor subtype 1 (VR1/TRPV1), which is often also known as the capsaicin receptor. This receptor is stimulated inter alia by vanilloids such as for example capsaicin, heat and protons and plays a central role in the genesis of pain. It is furthermore of significance to numerous other physiological and pathophysiological processes, such as for example migraine; depression; neurodegenerative diseases; cognitive disorders; anxiety states; epilepsy; coughing; diarrhoea; pruritus; inflammation; disorders of the cardiovascular system; disorders of food intake; dependency on medicines; abuse of medicines and in particular urinary incontinence.

One object of the present invention was accordingly to provide novel compounds which are suitable in particular as pharmacological active ingredients in pharmaceuticals, preferably in pharmaceuticals for the treatment of disorders or diseases which are mediated at least in part by vanilloid receptors 1 (VR1/TRPV1 receptors).

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It has surprisingly now been found that the substituted compounds of the general formula I stated below display excellent affinity for the vanilloid receptor of the subtype 1 (VR1/TRPV1 receptor) and are therefore suitable in particular for the prevention and/or treatment of disorders or diseases which are mediated at least in part by vanilloid receptors 1 (VR1/TRPV1). Likewise the substituted compounds of the general formula I stated below exhibit anti-inflammatory activity.

The present invention accordingly provides substituted compounds of the general formula I



I,

in which

n denotes 0, 1, 2, 3 or 4;

R¹ and R² together denote a residue selected from the group consisting of

-CH=N-NH-; -CH=N-NR⁷¹-; -S-C(=S)-NH-; -O-C(=S)-NH-; -S-C(=O)-NH-; -O-C(=O)-NH-; -S-C(=S)-NR⁶³-; -O-C(=S)-NR⁶³-; -S-C(=O)-NR⁶³-; -O-C(=O)-NR⁶³-; -S-CH=N-; -S-CR²⁹=N-; -N=CH-O-; -N=CR³⁰-O-; -NH-C(=O)-NH-; -NH-C(=S)-NH-; -NR⁶⁶-C(=O)-NR⁶⁵-; -NR⁶⁶-C(=S)-NR⁶⁵-; -O-CH₂-C(=O)-NH-; -O-CH₂-O-; -O-CH₂-CH₂-O-; -O-CH₂-CH₂-CH₂-O-; -O-CH₂-CH₂-NH- and -CH=CH-N=CH-, which is attached in any desired direction to the parent structure,

or R² and R³ together denote a residue selected from the group

consisting of -CH=N-NH-; -CR²⁸=N-NH-; -CH=N-NR⁶²-; -CR²⁸=N-NR⁶²-; -S-C(=S)-NH-; -O-C(=S)-NH-; -S-C(=O)-NH-; -O-C(=O)-NH-; -S-C(=S)-NR⁶³-; -O-C(=S)-NR⁶³-; -S-C(=O)-NR⁶³-; -O-C(=O)-NR⁶³-; -S-CH=N-; -S-CR²⁹=N-; -N=CH-O-; -N=CR³⁰-O-; -N=CH-NH-; -N=CH-NR⁶⁴-; -NH-C(=O)-NH-; -NH-

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C(=S)-NH-; -NR⁶⁶-C(=O)-NR⁶⁵-; -NR⁶⁶-C(=S)-NR⁶⁵-; -N=N-NH-; -N=N-NR⁶⁷-; -O-CH₂-C(=O)-NH-; -O-CH₂-O-; CH₂-CH₂-NH-; -CH₂-CH₂-CH₂-NH-; -CH₂-C(=O)-NH, -CH₂-CH₂-C(=O)-NH-; -O-CH₂-CH₂-O-; -O-CH₂-CH₂-CH₂-O-; -N=N-CH=CH-; -N=CH-N=CH; -N=CH-CH=N-; -CH=CH-CH=N-; -CH=CH-N=CH-; -CH=N-N=CH-, -N=N-CR⁶⁸=CR⁶⁹-; -N=CR⁶⁸-N=CR⁶⁹-; -N=CR⁶⁸-CR⁶⁹=N-; -CR⁶⁸=CR⁶⁹-CH=N-; -CR⁶⁸=CR⁶⁹-N=CR⁷⁰-; -CR⁶⁸=N-N=CR⁶⁹- and -O-CH₂-CH₂-NH-, which is attached in any desired direction to the parent structure,

or R³ and R⁴ together denote a residue selected from the group

consisting of -CH=N-NH-; -CR²⁸=N-NH-; -CH=N-NR⁶²-; -CR²⁸=N-NR⁶²-; -S-C(=S)-NH-; -O-C(=S)-NH-; -S-C(=O)-NH-; -O-C(=O)-NH-; -S-C(=S)-NR⁶³-; -O-C(=S)-NR⁶³-; -S-C(=O)-NR⁶³-; -O-C(=O)-NR⁶³-; -S-CH=N-; -S-CR²⁹=N-; -N=CH-O-; -N=CR³⁰-O-; -N=CH-NH-; -N=CH-NR⁶⁴-; -NH-C(=O)-NH-; -NH-C(=S)-NH-; -NR⁶⁶-C(=O)-NR⁶⁵-; -NR⁶⁶-C(=S)-NR⁶⁵-; -N=N-NH-; -N=N-NR⁶⁷-; -O-CH₂-C(=O)-NH-; -O-CH₂-O-; -CH₂-CH₂-NH-, -CH₂-CH₂-CH₂-NH, -CH₂-C(=O)-NH, -CH₂-CH₂-C(=O)-NH-; -O-CH₂-CH₂-O-; -O-CH₂-CH₂-CH₂-O-; -N=N-CH=CH-; -N=CH-N=CH; -N=CH-CH=N-; -CH=CH-CH=N-; -CH=CH-N=CH-; -CH=N-N=CH-, -N=N-CR⁶⁸=CR⁶⁹-; -N=CR⁶⁸-N=CR⁶⁹-; -N=CR⁶⁸-CR⁶⁹=N-; -CR⁶⁸=CR⁶⁹-CH=N-; -CR⁶⁸=CR⁶⁹-N=CR⁷⁰-; -CR⁶⁸=N-N=CR⁶⁹- and -O-CH₂-CH₂-NH-, which is attached in any desired direction to the parent structure,

or R⁴ and R⁵ together denote a residue selected from the group consisting of -CH=N-

NH-; -CH=N-NR⁷¹-; -S-C(=S)-NH-; -O-C(=S)-NH-; -S-C(=O)-NH-; -O-C(=O)-NH-; -S-C(=S)-NR⁶³-; -O-C(=S)-NR⁶³-; -S-C(=O)-NR⁶³-; -O-C(=O)-NR⁶³-; -S-CH=N-; -S-CR²⁹=N-; -N=CH-O-; -N=CR³⁰-O-; -NH-C(=O)-NH-; -NH-C(=S)-NH-; -NR⁶⁶-C(=O)-NR⁶⁵-; -NR⁶⁶-C(=S)-NR⁶⁵-; -O-CH₂-C(=O)-NH-; -O-CH₂-O-; -O-CH₂-CH₂-O-; -O-CH₂-CH₂-CH₂-O-; -O-CH₂-CH₂-NH- and -CH=CH-N=CH-, which is attached in any desired direction to the parent structure,

or R¹ and R² or R² and R³ or R³ and R⁴ or R⁴ and R⁵ together with the carbon atoms joining them together form a 4-, 5-, 6- or 7-membered ring which is saturated, unsaturated or aromatic, has 1, 2 or 3 nitrogen atoms as ring members and is unsubstituted or substituted with 1, 2 or 3 residues mutually independently selected from the group consisting of F, Cl, Br, I, =O, -CN, -CF₃, -SF₅, -OH, -

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O-C₁₋₅-alkyl, -NH₂, -NO₂, -O-CF₃, -S-CF₃, -SH, -S-C₁₋₅-alkyl, -C₁₋₅-alkyl, -C(=O)-OH, -C(=O)-O-C₁₋₅-alkyl, -NH-C₁₋₅-alkyl, -N(C₁₋₅-alkyl)₂, -NH-S(=O)₂-C₁₋₅-alkyl, -NH-C(=O)-O-C₁₋₅-alkyl, -C(=O)-H, -C(=O)-C₁₋₅-alkyl, -C(=O)-NH₂, -C(=O)-NH-C₁₋₅-alkyl, -C(=O)-N-(C₁₋₅-alkyl)₂, -O-phenyl, -O-benzyl, phenyl and benzyl, wherein in each case the cyclic moiety of the residues -O-phenyl, -O-benzyl, phenyl and benzyl may be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, -OH, -CF₃, -SF₅, -CN, -NO₂, -C₁₋₅ alkyl, -O-C₁₋₅-alkyl, -O-CF₃, -S-CF₃, phenyl and -O-benzyl,

and the remaining residues R¹, R², R³, R⁴ and R⁵, mutually independently, in each case denote

H; F; Cl; Br; I; -SF₅; -NO₂; -CN; -NH₂; -OH; -SH; -C(=O)-NH₂; -S(=O)₂-NH₂; -C(=O)-NH-OH; -C(=O)-OH; -C(=O)-H; -S(=O)₂-OH; -C(=NH)-NH₂; -C(=NH)-NH-R⁹; -N=C(NH₂)₂; -N=C(NHR¹⁰)(NHR¹¹); -O-P(=O)₂-O-R¹²; -NHR¹³; -NR¹⁴R¹⁵; -NH-C(=O)-R¹³; -OR¹⁶; -SR¹⁷; -C(=O)-NHR¹⁸; -C(=O)-NR¹⁹R²⁰; -S(=O)₂-NHR²¹; -S(=O)₂-NR²²R²³; -C(=O)-OR²⁴; -C(=O)-R²⁵; -S(=O)-R²⁶; -S(=O)₂-R²⁷ or denote a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue;

R⁶ denotes H or a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue;

R⁷ denotes hydrogen or -OH;

or R⁶ and R⁷ in each case together with the carbon atom joining them together as a ring member form a saturated or unsaturated, unsubstituted or at least monosubstituted 3-, 4-, 5- or 6- or 7-membered cycloaliphatic residue;

R⁸ denotes -SF₅; -O-CF₃; -CF₃; -O-CFH₂; -O-CF₂H; -CFH₂; -CF₂H; or denotes an unsubstituted or at least monosubstituted tert-butyl residue;

T denotes C-R³⁵ and U denotes C-R³⁶ V denotes N and W denotes C-R³⁸

or

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T denotes C-R³⁵ and U denotes N and V denotes C-R³⁷ and W denotes C-R³⁸
or

T denotes N and U denotes C-R³⁶ and V denotes C-R³⁷ and W denotes C-R³⁸
or

T denotes N and U denotes N and V denotes C-R³⁷ and W denotes C-R³⁸
or

T denotes N and U denotes C-R³⁶ and V denotes N and W denotes C-R³⁸
or

T denotes C-R³⁵ and U denotes N and V denotes N and W denotes C-R³⁸
or

T denotes C-R³⁵ and U denotes C-R³⁶ and V denotes C-R³⁷ and W denotes C-R³⁸;

R⁹, R¹⁰, R¹¹, R¹², R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸, R¹⁹, R²⁰, R²¹, R²², R²³, R²⁴, R²⁵,
R²⁶ and R²⁷, mutually independently, in each case

denote a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue;

denote an unsaturated or saturated, unsubstituted or at least monosubstituted 3-, 4-, 5-, 6-, 7-, 8- or 9-membered cycloaliphatic residue optionally comprising at least one heteroatom as a ring member, which residue may be fused with a saturated or unsaturated, unsubstituted or at least monosubstituted mono- or polycyclic ring system and/or be attached via a linear or branched, unsubstituted or at least monosubstituted C₁₋₆ alkylene group or 2- to 6-membered heteroalkylene group;

or denote an unsubstituted or at least monosubstituted 5- to 14-membered aryl or heteroaryl residue, which may be fused with a saturated or unsaturated, unsubstituted or at least monosubstituted mono- or polycyclic ring system and/or be attached via a linear or branched, unsubstituted or at least monosubstituted C₁₋₆ alkylene group or 2- to 6-membered heteroalkylene group;

R²⁸ denotes F; Cl; Br; I; -SF₅; -NO₂; -CF₃; -CN; -NH₂ or denotes a linear or

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branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue;

R²⁹ and R³⁰, mutually independently, in each case denote -NH-C(=O)-R³¹; -NH₂; -NH-S(=O)₂-R³²; -NH-C(=O)-O-R³³; -S-R³⁴ or denote a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue;

R³¹, R³², R³³ and R³⁴, mutually independently, in each case denote a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue;

R³⁵, R³⁶ and R³⁷, mutually independently, in each case denote H; F; Cl; Br; I; -SF₅; -NO₂; -CF₃; -CN; -NH₂; -OH; -SH; -C(=O)-NH₂; -S(=O)₂-NH₂; -C(=O)-NH-OH; -C(=O)-OH; -C(=O)-H; -S(=O)₂-OH; -NHR¹³; -NR¹⁴R¹⁵; -NH-C(=O)-R¹³; -OR¹⁶; -SR¹⁷; -C(=O)-NHR¹⁸; -C(=O)-NR¹⁹R²⁰; -S(=O)₂-NHR²¹; -S(=O)₂-NR²²R²³; -C(=O)-OR²⁴; -C(=O)-R²⁵; -S(=O)-R²⁶; -S(=O)₂-R²⁷;

denote a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue;

or denote an unsubstituted or at least monosubstituted 5- to 14-membered aryl or heteroaryl residue, which may be fused with a saturated or unsaturated, unsubstituted or at least monosubstituted mono- or polycyclic ring system and/or be attached via a linear or branched, unsubstituted or at least monosubstituted C₁₋₆ alkylene group or C₂₋₆ alkenylene group or C₂₋₆ alkynylene group;

R³⁸ denotes H; F; Cl; Br; I; -SF₅; -NO₂; -CF₃; -CF₂Cl; -CN; -NH₂; -OH; -SH; -C(=O)-NH₂; -S(=O)₂-NH₂; -C(=O)-NH-OH; -C(=O)-OH; -C(=O)-H; -S(=O)₂-OH; -NHR³⁹; -NR⁴⁰R⁴¹; -OR⁴²; -SR⁴³; -C(=O)-NHR⁴⁴; -C(=O)-NR⁴⁵R⁴⁶; -S(=O)₂-NHR⁴⁷; -S(=O)₂-NR⁴⁸R⁴⁹; -C(=O)-OR⁵⁰; -C(=O)-R⁵¹; -S(=O)-R⁵²; -S(=O)₂-R⁵³; -C(=NH)-NH₂; -C(=NH)-NH-R⁵⁴; -N=C(NH₂)₂; -N=C(NHR⁵⁵)(NHR⁵⁶);

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denotes a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue;

denotes an unsaturated or saturated, unsubstituted or at least monosubstituted 3-, 4-, 5-, 6-, 7-, 8- or 9-membered cycloaliphatic residue optionally comprising at least one heteroatom as a ring member, which residue is in each case attached to the parent structure via a carbon atom in the ring of the cycloaliphatic residue and may be fused with a saturated or unsaturated, unsubstituted or at least monosubstituted mono- or polycyclic ring system and/or be attached via a linear or branched, unsubstituted or at least monosubstituted C₁₋₆ alkylene group or C₂₋₆ alkenylene group or C₂₋₆ alkynylene group;

or denotes an unsubstituted or at least monosubstituted 5- to 14-membered aryl or heteroaryl residue, which may be fused with a saturated or unsaturated, unsubstituted or at least monosubstituted mono- or polycyclic ring system and/or be attached via a linear or branched, unsubstituted or at least monosubstituted C₁₋₆ alkylene group or C₂₋₆ alkenylene group or C₂₋₆ alkynylene group;

R³⁹, R⁴⁰, R⁴¹, R⁴², R⁴³, R⁴⁴, R⁴⁵, R⁴⁶, R⁴⁷, R⁴⁸, R⁴⁹, R⁵⁰, R⁵¹, R⁵², R⁵³, R⁵⁴, R⁵⁵ and R⁵⁶, mutually independently, in each case

denote a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue;

denote an unsaturated or saturated, unsubstituted or at least monosubstituted 3-, 4-, 5-, 6-, 7-, 8- or 9-membered cycloaliphatic residue optionally comprising at least one heteroatom as a ring member, which residue may be fused with a saturated or unsaturated, unsubstituted or at least monosubstituted mono- or polycyclic ring system and/or be attached via a linear or branched, unsubstituted or at least monosubstituted C₁₋₆ alkylene group or 2- to 6-membered heteroalkylene group;

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or denote an unsubstituted or at least monosubstituted 5- to 14-membered aryl or heteroaryl residue, which may be fused with a saturated or unsaturated, unsubstituted or at least monosubstituted mono- or polycyclic ring system and/or be attached via a linear or branched, unsubstituted or at least monosubstituted C₁₋₆ alkylene group or 2- to 6-membered heteroalkylene group;

or

R⁴⁰ and R⁴¹ in each case together with the nitrogen atom joining them together as a ring member form a saturated or unsaturated, unsubstituted 4-, 5-, 6-, 7-, 8- or 9-membered heterocycloaliphatic residue or 4-, 5-, 6-, 7-, 8- or 9-membered heterocycloaliphatic residue substituted with 1, 2, 3, 4 or 5 residues R⁵⁷ and optionally comprising at least one further heteroatom as a ring member, which heterocycloaliphatic residue may be fused with a saturated or unsaturated, unsubstituted or at least monosubstituted mono- or polycyclic ring system;

R⁵⁷ denotes -NHR⁵⁸, -NR⁵⁹R⁶⁰ denotes a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue;

R⁵⁸, R⁵⁹ and R⁶⁰, mutually independently, in each case denote -C(=O)-R⁶¹; denote a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue

or denote an unsubstituted or at least monosubstituted 5- to 14-membered aryl or heteroaryl residue, which may be fused with a saturated or unsaturated, unsubstituted or at least monosubstituted mono- or polycyclic ring system and/or be attached via a linear or branched, unsubstituted or at least monosubstituted C₁₋₆ alkylene group or C₂₋₆ alkenylene group or C₂₋₆ alkynylene group;

R⁶¹ denotes a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue;

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R^{62} , R^{63} , R^{64} , R^{65} , R^{66} and R^{67} , mutually independently, in each case denote a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C_{1-10} residue;

R^{68} , R^{69} and R^{70} , mutually independently, in each case denote F, Cl, Br, I, or denote a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C_{1-10} residue;

and

R^{71} denotes an unsubstituted or at least monosubstituted 5- to 14-membered aryl or heteroaryl residue, which may be fused with a saturated or unsaturated, unsubstituted or at least monosubstituted mono- or polycyclic ring system and/or be attached via a linear or branched, unsubstituted or at least monosubstituted C_{1-6} alkylene group or C_{2-6} alkenylene group or C_{2-6} alkynylene group;

in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates;

wherein

the above-stated aliphatic C_{1-10} residues and tert-butyl residues may optionally in each case be substituted with 1, 2, 3, 4, 5, 6, 7, 8 or 9 substituents mutually independently selected from the group consisting of F, Cl, Br, I, -CN, -NO₂, -OH, -NH₂, -SH, -O(C_{1-5} -alkyl), -S(C_{1-5} -alkyl), -NH(C_{1-5} -alkyl), -N(C_{1-5} -alkyl)(C_{1-5} -alkyl), -C(=O)-O- C_{1-5} -alkyl, -O-C(=O)- C_{1-5} -alkyl, -O-phenyl, phenyl, -OCF₃ and -SCF₃;

the above-stated 2- to 6-membered heteroalkylene groups, C_{1-6} alkylene groups and C_{2-6} alkenylene groups and C_{2-6} alkynylene groups may optionally in each case be

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substituted with 1, 2, 3, 4, 5, 6, 7, 8 or 9 substituents mutually independently selected from the group consisting of F, Cl, Br, I, -CN, -NO₂, -OH, -NH₂, -SH, -O(C₁₋₅-alkyl), -S(C₁₋₅-alkyl), -NH(C₁₋₅-alkyl), -N(C₁₋₅-alkyl)(C₁₋₅-alkyl), -OCF₃ and -SCF₃;

the above-stated heteroalkylene groups in each case optionally comprise 1, 2 or 3 heteroatom(s) mutually independently selected from the group consisting of oxygen, sulfur and nitrogen (NH) as chain link(s);

the above-stated (hetero)cycloaliphatic residues may optionally be substituted in each case with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of -C₁₋₆-alkylene-OH, =CH₂, -O-C₁₋₅-alkylene-oxetanyl, -C₁₋₅-alkylene-O-C₁₋₅-alkylene-oxetanyl, -CH₂-NH-C₁₋₅-alkyl, -CH₂-N(C₁₋₅-alkyl),₂, -N[-C(=O)-C₁₋₅-alkyl]-phenyl, -CH₂-O-C₁₋₅-alkyl, oxo (=O), thioxo (=S), F, Cl, Br, I, -CN, -CF₃, -SF₅, -OH, -O-C₁₋₅-alkyl, -O-C(=O)-C₁₋₅-alkyl, -NH₂, -NO₂, -O-CF₃, -S-CF₃, -SH, -S-C₁₋₅-alkyl, -C₁₋₅-alkyl, -C(=O)-C₁₋₅-alkyl, -C(=O)-OH, -C(=O)-O-C₁₋₅-alkyl, -NH-C₁₋₅-alkyl, -N(C₁₋₅-alkyl)₂, -NH-phenyl, -N(-C₁₋₅-alkyl)-phenyl, cyclohexyl, cyclopentyl, (4,5)-dihydroisoxazolyl, thiazolyl, (1,2,5)-thiadiazolyl, thiophenyl, phenethyl, piperidinyl, pyrrolidinyl, -(CH₂)-pyridinyl, pyridinyl, -O-phenyl, -O-benzyl, phenyl and benzyl, wherein in each case the cyclic moiety of the residues oxetanyl, (4,5)-dihydroisoxazolyl, thiazolyl, (1,2,5)-thiadiazolyl, thiophenyl, phenethyl, -N[-C(=O)-C₁₋₅-alkyl]-phenyl, -NH-phenyl, -N(-C₁₋₅-alkyl)-phenyl, -(CH₂)-pyridinyl, pyridinyl, -O-phenyl, -O-benzyl, phenyl and benzyl may be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, -OH, -CF₃, -SF₅, -CN, -NO₂, -C₁₋₅ alkyl, -O-C₁₋₅-alkyl, -O-CF₃, -S-CF₃, phenyl and -O-benzyl,

and unless otherwise stated the above-stated (hetero)cycloaliphatic residues may in each case optionally comprise 1, 2 or 3 (further) heteroatom(s) mutually independently selected from the group consisting of oxygen, nitrogen and sulfur;

the rings of the above-stated mono- or polycyclic ring systems may in each case optionally be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of oxo (=O), thioxo (=S), F, Cl, Br, I, -CN, -CF₃, -SF₅, -OH, -O-C₁₋₅-alkyl, -NH₂, -NO₂, -O-CF₃, -S-CF₃, -SH, -S-C₁₋₅-alkyl, -C₁₋₅-alkyl, -

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C(=O)-C₁₋₅-alkyl, -C(=O)-OH, -C(=O)-O-C₁₋₅-alkyl, -NH-C₁₋₅-alkyl, -N(C₁₋₅-alkyl)₂, -O-phenyl, -O-benzyl, phenyl and benzyl, wherein in each case the cyclic moiety of the residues -O-phenyl, -O-benzyl, phenyl and benzyl may be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, -OH, -CF₃, -SF₅, -CN, -NO₂, -C₁₋₅-alkyl, -O-C₁₋₅-alkyl, -O-CF₃, -S-CF₃, phenyl and -O-benzyl,

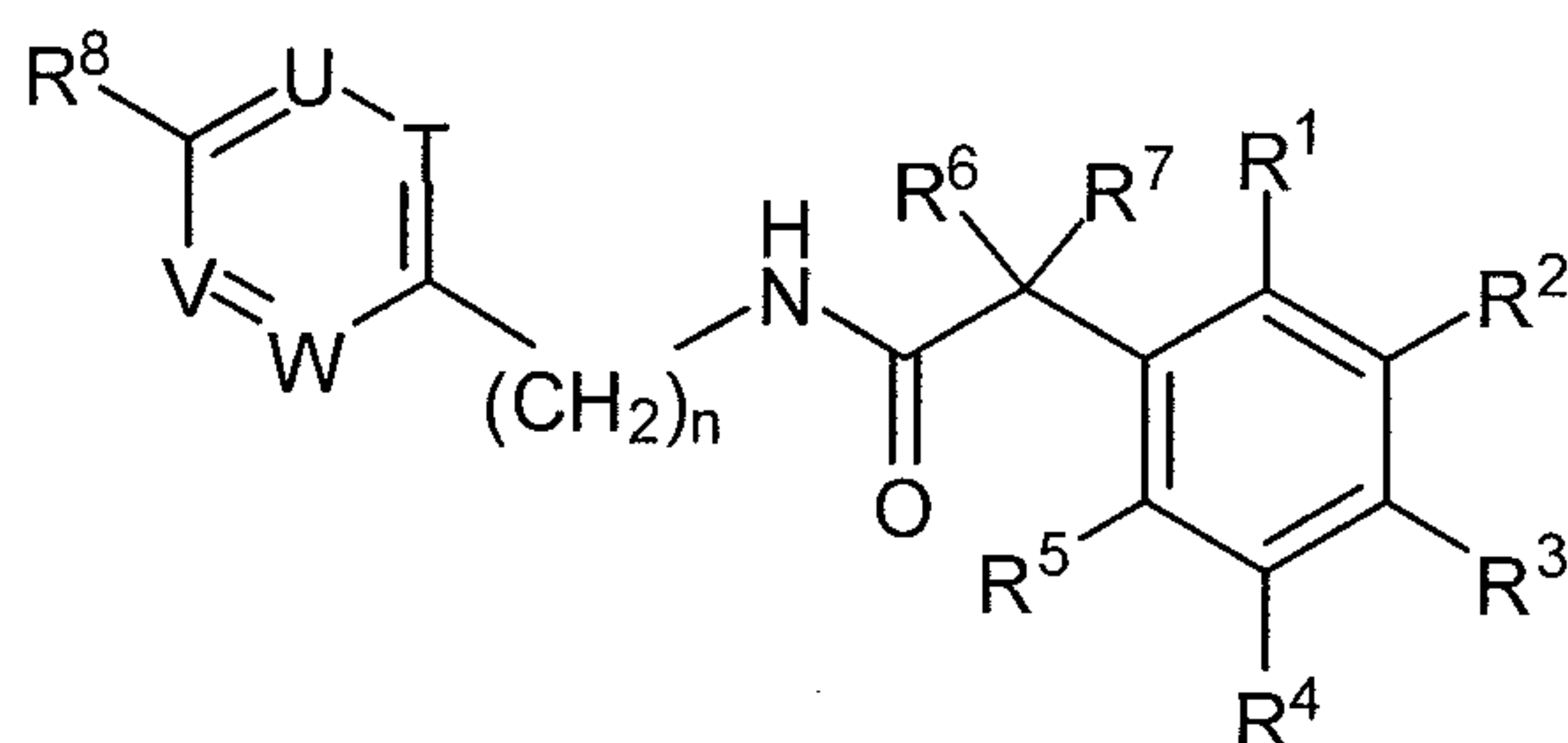
and the rings of the above-stated mono- or polycyclic ring systems are in each case 5-, 6- or 7-membered and may in each case optionally comprise 1, 2, 3, 4 or 5 heteroatom(s) as ring member(s), which are mutually independently selected from the group consisting of oxygen, nitrogen and sulfur;

and the above-stated aryl or heteroaryl residues may optionally be substituted in each case with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, I, -CN, -CF₃, -SF₅, -OH, -O-C₁₋₅-alkyl, -NH₂, -NO₂, -O-CF₃, -S-CF₃, -SH, -S-C₁₋₅-alkyl, -C₁₋₅-alkyl, -C(=O)-OH, -C(=O)-C₁₋₅-alkyl, -NH-C₁₋₅-alkyl, -N(C₁₋₅-alkyl)₂, -NH-S(=O)₂-C₁₋₅-alkyl, -NH-C(=O)-O-C₁₋₅-alkyl, -C(=O)-H, -C(=O)-C₁₋₅-alkyl, -C(=O)-NH₂, -C(=O)-NH-C₁₋₅-alkyl, -C(=O)-N-(C₁₋₅-alkyl)₂, -O-phenyl, -O-benzyl, phenyl and benzyl, wherein in each case the cyclic moiety of the residues -O-phenyl, -O-benzyl, phenyl and benzyl may be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, -OH, -CF₃, -SF₅, -CN, -NO₂, -C₁₋₅-alkyl, -O-C₁₋₅-alkyl, -O-CF₃, -S-CF₃, phenyl and -O-benzyl,

and

the above-stated heteroaryl residues in each case optionally comprise 1, 2, 3, 4 or 5 heteroatom(s) mutually independently selected from the group consisting of oxygen, nitrogen and sulfur as ring member(s).

The present invention furthermore provides substituted compounds of the general formula I



I,

in which

n denotes 0, 1, 2, 3 or 4;

R^1 and R^2 together denote a residue selected from the group consisting of

-CH=N-NH-; -CH=N-NR⁷¹-; -S-C(=S)-NH-; -O-C(=S)-NH-; -S-C(=O)-NH-; -O-C(=O)-NH-; -S-C(=S)-NR⁶³-; -O-C(=S)-NR⁶³-; -S-C(=O)-NR⁶³-; -O-C(=O)-NR⁶³-; -S-CH=N-; -S-CR²⁹=N-; -N=CH-O-; -N=CR³⁰-O-; -NH-C(=O)-NH-; -NH-C(=S)-NH-; -NR⁶⁶-C(=O)-NR⁶⁵-; -NR⁶⁶-C(=S)-NR⁶⁵-; -O-CH₂-C(=O)-NH-; -O-CH₂-O-; -O-CH₂-CH₂-O-; -O-CH₂-CH₂-CH₂-O-; -O-CH₂-CH₂-NH- and -CH=CH-N=CH-, which is attached in any desired direction to the parent structure,

or R^2 and R^3 together denote a residue selected from the group

consisting of -CH=N-NH-; -CR²⁸=N-NH-; -CH=N-NR⁶²-; -CR²⁸=N-NR⁶²-; -S-C(=S)-NH-; -O-C(=S)-NH-; -S-C(=O)-NH-; -O-C(=O)-NH-; -S-C(=S)-NR⁶³-; -O-C(=S)-NR⁶³-; -S-C(=O)-NR⁶³-; -O-C(=O)-NR⁶³-; -S-CH=N-; -S-CR²⁹=N-; -N=CH-O-; -N=CR³⁰-O-; -N=CH-NH-; -N=CH-NR⁶⁴-; -NH-C(=O)-NH-; -NH-C(=S)-NH-; -NR⁶⁶-C(=O)-NR⁶⁵-; -NR⁶⁶-C(=S)-NR⁶⁵-; -N=N-NH-; -N=N-NR⁶⁷-; -O-CH₂-C(=O)-NH-; -O-CH₂-O-; CH₂-CH₂-NH-; -CH₂-CH₂-CH₂-NH-; -CH₂-C(=O)-NH-; -CH₂-CH₂-C(=O)-NH-; -O-CH₂-CH₂-O-; -O-CH₂-CH₂-CH₂-O-; -N=N-CH=CH-; -N=CH-N=CH-; -N=CH-CH=N-; -CH=CH-CH=N-; -CH=CH-N=CH-; -CH=N-N=CH-; -N=N-CR⁶⁸=CR⁶⁹-; -N=CR⁶⁸-N=CR⁶⁹-; -N=CR⁶⁸-CR⁶⁹=N-; -CR⁶⁸=CR⁶⁹-CH=N-; -CR⁶⁸=CR⁶⁹-N=CR⁷⁰-; -CR⁶⁸=N-N=CR⁶⁹- and -O-CH₂-CH₂-NH-, which is attached in any desired direction to the parent structure,

or R^3 and R^4 together denote a residue selected from the group

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consisting of $-\text{CH}=\text{N}-\text{NH}-$; $-\text{CR}^{28}=\text{N}-\text{NH}-$; $-\text{CH}=\text{N}-\text{NR}^{62}-$; $-\text{CR}^{28}=\text{N}-\text{NR}^{62}-$; $-\text{S}-\text{C}(=\text{S})-\text{NH}-$; $-\text{O}-\text{C}(=\text{S})-\text{NH}-$; $-\text{S}-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{C}(=\text{O})-\text{NH}-$; $-\text{S}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{S}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{S}-\text{CH}=\text{N}-$; $-\text{S}-\text{CR}^{29}=\text{N}-$; $-\text{N}=\text{CH}-\text{O}-$; $-\text{N}=\text{CR}^{30}-\text{O}-$; $-\text{N}=\text{CH}-\text{NH}-$; $-\text{N}=\text{CH}-\text{NR}^{64}-$; $-\text{NH}-\text{C}(=\text{O})-\text{NH}-$; $-\text{NH}-\text{C}(=\text{S})-\text{NH}-$; $-\text{NR}^{66}-\text{C}(=\text{O})-\text{NR}^{65}-$; $-\text{NR}^{66}-\text{C}(=\text{S})-\text{NR}^{65}-$; $-\text{N}=\text{N}-\text{NH}-$; $-\text{N}=\text{N}-\text{NR}^{67}-$; $-\text{O}-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{O}-$; $-\text{CH}_2-\text{CH}_2-\text{NH}-$; $-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{NH}-$; $-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{CH}_2-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{N}=\text{N}-\text{CH}=\text{CH}-$; $-\text{N}=\text{CH}-\text{N}=\text{CH}-$; $-\text{N}=\text{CH}-\text{CH}=\text{N}-$; $-\text{CH}=\text{CH}-\text{CH}=\text{N}-$; $-\text{CH}=\text{CH}-\text{N}=\text{CH}-$; $-\text{CH}=\text{N}-\text{N}=\text{CH}-$; $-\text{N}=\text{N}-\text{CR}^{68}=\text{CR}^{69}-$; $-\text{N}=\text{CR}^{68}-\text{N}=\text{CR}^{69}-$; $-\text{N}=\text{CR}^{68}-\text{CR}^{69}=\text{N}-$; $-\text{CR}^{68}=\text{CR}^{69}-\text{CH}=\text{N}-$; $-\text{CR}^{68}=\text{CR}^{69}-\text{N}=\text{CR}^{70}-$; $-\text{CR}^{68}=\text{N}-\text{N}=\text{CR}^{69}-$ and $-\text{O}-\text{CH}_2-\text{CH}_2-\text{NH}-$, which is attached in any desired direction to the parent structure,

or R^4 and R^5 together denote a residue selected from the group consisting of $-\text{CH}=\text{N}-\text{NH}-$; $-\text{CH}=\text{N}-\text{NR}^{71}-$; $-\text{S}-\text{C}(=\text{S})-\text{NH}-$; $-\text{O}-\text{C}(=\text{S})-\text{NH}-$; $-\text{S}-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{C}(=\text{O})-\text{NH}-$; $-\text{S}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{S}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{S}-\text{CH}=\text{N}-$; $-\text{S}-\text{CR}^{29}=\text{N}-$; $-\text{N}=\text{CH}-\text{O}-$; $-\text{N}=\text{CR}^{30}-\text{O}-$; $-\text{NH}-\text{C}(=\text{O})-\text{NH}-$; $-\text{NH}-\text{C}(=\text{S})-\text{NH}-$; $-\text{NR}^{66}-\text{C}(=\text{O})-\text{NR}^{65}-$; $-\text{NR}^{66}-\text{C}(=\text{S})-\text{NR}^{65}-$; $-\text{O}-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{NH}-$ and $-\text{CH}=\text{CH}-\text{N}=\text{CH}-$, which is attached in any desired direction to the parent structure,

and the remaining residues R^1 , R^2 , R^3 , R^4 and R^5 , mutually independently, in each case denote

H ; F ; Cl ; Br ; I ; $-\text{SF}_5$; $-\text{NO}_2$; $-\text{CN}$; $-\text{NH}_2$; $-\text{OH}$; $-\text{SH}$; $-\text{C}(=\text{O})-\text{NH}_2$; $-\text{S}(=\text{O})_2-\text{NH}_2$; $-\text{C}(=\text{O})-\text{NH}-\text{OH}$; $-\text{C}(=\text{O})-\text{OH}$; $-\text{C}(=\text{O})-\text{H}$; $-\text{S}(=\text{O})_2-\text{OH}$; $-\text{C}(=\text{NH})-\text{NH}_2$; $-\text{C}(=\text{NH})-\text{NH}-\text{R}^9$; $-\text{N}=\text{C}(\text{NH}_2)_2$; $-\text{N}=\text{C}(\text{NHR}^{10})(\text{NHR}^{11})$; $-\text{O}-\text{P}(=\text{O})_2-\text{O}-\text{R}^{12}$; $-\text{NHR}^{13}$; $-\text{NR}^{14}\text{R}^{15}$; $-\text{NH}-\text{C}(=\text{O})-\text{R}^{13}$; $-\text{OR}^{16}$; $-\text{SR}^{17}$; $-\text{C}(=\text{O})-\text{NHR}^{18}$; $-\text{C}(=\text{O})-\text{NR}^{19}\text{R}^{20}$; $-\text{S}(=\text{O})_2-\text{NHR}^{21}$; $-\text{S}(=\text{O})_2-\text{NR}^{22}\text{R}^{23}$; $-\text{C}(=\text{O})-\text{OR}^{24}$; $-\text{C}(=\text{O})-\text{R}^{25}$; $-\text{S}(=\text{O})-\text{R}^{26}$; $-\text{S}(=\text{O})_2-\text{R}^{27}$ or denote a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C_{1-10} residue;

R^6 denotes H or a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C_{1-10} residue;

R^7 denotes hydrogen or $-\text{OH}$;

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or R^6 and R^7 in each case together with the carbon atom joining them together as a ring member form a saturated or unsaturated, unsubstituted or at least monosubstituted 3-, 4-, 5- or 6- or 7-membered cycloaliphatic residue;

R^8 denotes $-SF_5$; $-O-CF_3$; $-CF_3$; $-O-CFH_2$; $-O-CF_2H$; $-CFH_2$; $-CF_2H$; or denotes an unsubstituted or at least monosubstituted tert-butyl residue;

T denotes $C-R^{35}$ and U denotes $C-R^{36}$ V denotes N and W denotes $C-R^{38}$

or

T denotes $C-R^{35}$ and U denotes N and V denotes $C-R^{37}$ and W denotes $C-R^{38}$

or

T denotes N and U denotes $C-R^{36}$ and V denotes $C-R^{37}$ and W denotes $C-R^{38}$

or

T denotes N and U denotes N and V denotes $C-R^{37}$ and W denotes $C-R^{38}$

or

T denotes N and U denotes $C-R^{36}$ and V denotes N and W denotes $C-R^{38}$

or

T denotes $C-R^{35}$ and U denotes N and V denotes N and W denotes $C-R^{38}$

or

T denotes $C-R^{35}$ and U denotes $C-R^{36}$ and V denotes $C-R^{37}$ and W denotes $C-R^{38}$;

R^9 , R^{10} , R^{11} , R^{12} , R^{13} , R^{14} , R^{15} , R^{16} , R^{17} , R^{18} , R^{19} , R^{20} , R^{21} , R^{22} , R^{23} , R^{24} , R^{25} , R^{26} and R^{27} , mutually independently, in each case

denote a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C_{1-10} residue;

denote an unsaturated or saturated, unsubstituted or at least monosubstituted 3-, 4-, 5-, 6-, 7-, 8- or 9-membered cycloaliphatic residue optionally comprising at least one heteroatom as a ring member, which residue may be fused with a saturated or unsaturated, unsubstituted or at least monosubstituted mono- or polycyclic ring system and/or be attached via a linear or branched,

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unsubstituted or at least monosubstituted C₁₋₆ alkylene group or 2- to 6-membered heteroalkylene group;

or denote an unsubstituted or at least monosubstituted 5- to 14-membered aryl or heteroaryl residue, which may be fused with a saturated or unsaturated, unsubstituted or at least monosubstituted mono- or polycyclic ring system and/or be attached via a linear or branched, unsubstituted or at least monosubstituted C₁₋₆ alkylene group or 2- to 6-membered heteroalkylene group;

R²⁸ denotes F; Cl; Br; I; -SF₅; -NO₂; -CF₃; -CN; -NH₂ or denotes a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue;

R²⁹ and R³⁰, mutually independently, in each case denote -NH-C(=O)-R³¹; -NH₂; -NH-S(=O)₂-R³²; -NH-C(=O)-O-R³³; -S-R³⁴ or denote a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue;

R³¹, R³², R³³ and R³⁴, mutually independently, in each case denote a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue;

R³⁵, R³⁶ and R³⁷, mutually independently, in each case denote H; F; Cl; Br; I; -SF₅; -NO₂; -CF₃; -CN; -NH₂; -OH; -SH; -C(=O)-NH₂; -S(=O)₂-NH₂; -C(=O)-NH-OH; -C(=O)-OH; -C(=O)-H; -S(=O)₂-OH; -NHR¹³; -NR¹⁴R¹⁵; -NH-C(=O)-R¹³; -OR¹⁶; -SR¹⁷; -C(=O)-NHR¹⁸; -C(=O)-NR¹⁹R²⁰; -S(=O)₂-NHR²¹; -S(=O)₂-NR²²R²³; -C(=O)-OR²⁴; -C(=O)-R²⁵; -S(=O)-R²⁶; -S(=O)₂-R²⁷;

denote a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue;

or denote an unsubstituted or at least monosubstituted 5- to 14-membered aryl or heteroaryl residue, which may be fused with a saturated or unsaturated,

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unsubstituted or at least monosubstituted mono- or polycyclic ring system and/or be attached via a linear or branched, unsubstituted or at least monosubstituted C₁₋₆ alkylene group or C₂₋₆ alkenylene group or C₂₋₆ alkynylene group;

R³⁸ denotes H; F; Cl; Br; I; -SF₅; -NO₂; -CF₃; -CF₂Cl; -CN; -NH₂; -OH; -SH; -C(=O)-NH₂; -S(=O)₂-NH₂; -C(=O)-NH-OH; -C(=O)-OH; -C(=O)-H; -S(=O)₂-OH; -NHR³⁹; -NR⁴⁰R⁴¹; -OR⁴²; -SR⁴³; -C(=O)-NHR⁴⁴; -C(=O)-NR⁴⁵R⁴⁶; -S(=O)₂-NHR⁴⁷; -S(=O)₂-NR⁴⁸R⁴⁹; -C(=O)-OR⁵⁰; -C(=O)-R⁵¹; -S(=O)-R⁵²; -S(=O)₂-R⁵³; -C(=NH)-NH₂; -C(=NH)-NH-R⁵⁴; -N=C(NH₂)₂; -N=C(NHR⁵⁵)(NHR⁵⁶);

denotes a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue;

denotes an unsaturated or saturated, unsubstituted or at least monosubstituted 3-, 4-, 5-, 6-, 7-, 8- or 9-membered cycloaliphatic residue optionally comprising at least one heteroatom as a ring member, which residue is in each case attached to the parent structure via a carbon atom in the ring of the cycloaliphatic residue and may be fused with a saturated or unsaturated, unsubstituted or at least monosubstituted mono- or polycyclic ring system and/or be attached via a linear or branched, unsubstituted or at least monosubstituted C₁₋₆ alkylene group or C₂₋₆ alkenylene group or C₂₋₆ alkynylene group;

or denotes an unsubstituted or at least monosubstituted 5- to 14-membered aryl or heteroaryl residue, which may be fused with a saturated or unsaturated, unsubstituted or at least monosubstituted mono- or polycyclic ring system and/or be attached via a linear or branched, unsubstituted or at least monosubstituted C₁₋₆ alkylene group or C₂₋₆ alkenylene group or C₂₋₆ alkynylene group;

R³⁹, R⁴⁰, R⁴¹, R⁴², R⁴³, R⁴⁴, R⁴⁵, R⁴⁶, R⁴⁷, R⁴⁸, R⁴⁹, R⁵⁰, R⁵¹, R⁵², R⁵³, R⁵⁴, R⁵⁵ and R⁵⁶, mutually independently, in each case

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denote a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue;

denote an unsaturated or saturated, unsubstituted or at least monosubstituted 3-, 4-, 5-, 6-, 7-, 8- or 9-membered cycloaliphatic residue optionally comprising at least one heteroatom as a ring member, which residue may be fused with a saturated or unsaturated, unsubstituted or at least monosubstituted mono- or polycyclic ring system and/or be attached via a linear or branched, unsubstituted or at least monosubstituted C₁₋₆ alkylene group or 2- to 6-membered heteroalkylene group;

or denote an unsubstituted or at least monosubstituted 5- to 14-membered aryl or heteroaryl residue, which may be fused with a saturated or unsaturated, unsubstituted or at least monosubstituted mono- or polycyclic ring system and/or be attached via a linear or branched, unsubstituted or at least monosubstituted C₁₋₆ alkylene group or 2- to 6-membered heteroalkylene group;

or

R⁴⁰ and R⁴¹ in each case together with the nitrogen atom joining them together as a ring member form a saturated or unsaturated, unsubstituted 4-, 5-, 6-, 7-, 8- or 9-membered heterocycloaliphatic residue or 4-, 5-, 6-, 7-, 8- or 9-membered heterocycloaliphatic residue substituted with 1, 2, 3, 4 or 5 residues R⁵⁷ and optionally comprising at least one further heteroatom as a ring member, which heterocycloaliphatic residue may be fused with a saturated or unsaturated, unsubstituted or at least monosubstituted mono- or polycyclic ring system;

R⁵⁷ denotes -NHR⁵⁸, -NR⁵⁹R⁶⁰ denotes a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue;

R⁵⁸, R⁵⁹ and R⁶⁰, mutually independently, in each case denote -C(=O)-R⁶¹; denote a

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linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue

or denote an unsubstituted or at least monosubstituted 5- to 14-membered aryl or heteroaryl residue, which may be fused with a saturated or unsaturated, unsubstituted or at least monosubstituted mono- or polycyclic ring system and/or be attached via a linear or branched, unsubstituted or at least monosubstituted C₁₋₆ alkylene group or C₂₋₆ alkenylene group or C₂₋₆ alkynylene group;

R⁶¹ denotes a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue;

R⁶², R⁶³, R⁶⁴, R⁶⁵, R⁶⁶ and R⁶⁷, mutually independently, in each case denote a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue;

R⁶⁸, R⁶⁹ and R⁷⁰, mutually independently, in each case denote F, Cl, Br, I, or denote a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue;

and

R⁷¹ denotes an unsubstituted or at least monosubstituted 5- to 14-membered aryl or heteroaryl residue, which may be fused with a saturated or unsaturated, unsubstituted or at least monosubstituted mono- or polycyclic ring system and/or be attached via a linear or branched, unsubstituted or at least monosubstituted C₁₋₆ alkylene group or C₂₋₆ alkenylene group or C₂₋₆ alkynylene group;

in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any

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desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates;

wherein

the above-stated aliphatic C₁₋₁₀ residues and tert-butyl residues may optionally in each case be substituted with 1, 2, 3, 4, 5, 6, 7, 8 or 9 substituents mutually independently selected from the group consisting of F, Cl, Br, I, -CN, -NO₂, -OH, -NH₂, -SH, -O(C₁₋₅-alkyl), -S(C₁₋₅-alkyl), -NH(C₁₋₅-alkyl), -N(C₁₋₅-alkyl)(C₁₋₅-alkyl), -C(=O)-O-C₁₋₅-alkyl, -O-C(=O)-C₁₋₅-alkyl, -O-phenyl, phenyl, -OCF₃ and -SCF₃;

the above-stated 2- to 6-membered heteroalkylene groups, C₁₋₆ alkylene groups and C₂₋₆ alkenylene groups and C₂₋₆ alkynylene groups may optionally in each case be substituted with 1, 2, 3, 4, 5, 6, 7, 8 or 9 substituents mutually independently selected from the group consisting of F, Cl, Br, I, -CN, -NO₂, -OH, -NH₂, -SH, -O(C₁₋₅-alkyl), -S(C₁₋₅-alkyl), -NH(C₁₋₅-alkyl), -N(C₁₋₅-alkyl)(C₁₋₅-alkyl), -OCF₃ and -SCF₃;

the above-stated heteroalkylene groups in each case optionally comprise 1, 2 or 3 heteroatom(s) mutually independently selected from the group consisting of oxygen, sulfur and nitrogen (NH) as chain link(s);

the above-stated (hetero)cycloaliphatic residues may optionally be substituted in each case with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of -C₁₋₆-alkylene-OH, =CH₂, -O-C₁₋₅-alkylene-oxetanyl, -C₁₋₅-alkylene-O-C₁₋₅-alkylene-oxetanyl, -CH₂-NH-C₁₋₅-alkyl, -CH₂-N(C₁₋₅-alkyl),₂, -N[-C(=O)-C₁₋₅-alkyl]-phenyl, -CH₂-O-C₁₋₅-alkyl, oxo (=O), thioxo (=S), F, Cl, Br, I, -CN, -CF₃, -SF₅, -OH, -O-C₁₋₅-alkyl, -O-C(=O)-C₁₋₅-alkyl, -NH₂, -NO₂, -O-CF₃, -S-CF₃, -SH, -S-C₁₋₅-alkyl, -C₁₋₅-alkyl, -C(=O)-C₁₋₅-alkyl, -C(=O)-OH, -C(=O)-O-C₁₋₅-alkyl, -NH-C₁₋₅-alkyl, -N(C₁₋₅-alkyl)₂, -NH-phenyl, -N(-C₁₋₅-alkyl)-phenyl, cyclohexyl, cyclopentyl, (4,5)-dihydroisoxazolyl, thiazolyl, (1,2,5)-thiadiazolyl, thiophenyl, phenethyl, piperidinyl, pyrrolidinyl, -(CH₂)-pyridinyl, pyridinyl, -O-phenyl, -O-benzyl, phenyl and benzyl, wherein in each case the cyclic moiety of the residues oxetanyl, (4,5)-dihydroisoxazolyl, thiazolyl, (1,2,5)-thiadiazolyl, thiophenyl, phenethyl, -N[-C(=O)-C₁₋₅-alkyl]-phenyl, -NH-phenyl, -N(-C₁₋₅-alkyl)-phenyl, -(CH₂)-pyridinyl, pyridinyl, -O-

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phenyl, -O-benzyl, phenyl and benzyl may be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, -OH, -CF₃, -SF₅, -CN, -NO₂, -C₁₋₅ alkyl, -O-C₁₋₅-alkyl, -O-CF₃, -S-CF₃, phenyl and -O-benzyl,

and unless otherwise stated the above-stated (hetero)cycloaliphatic residues may in each case optionally comprise 1, 2 or 3 (further) heteroatom(s) mutually independently selected from the group consisting of oxygen, nitrogen and sulfur;

the rings of the above-stated mono- or polycyclic ring systems may in each case optionally be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of oxo (=O), thioxo (=S), F, Cl, Br, I, -CN, -CF₃, -SF₅, -OH, -O-C₁₋₅-alkyl, -NH₂, -NO₂, -O-CF₃, -S-CF₃, -SH, -S-C₁₋₅-alkyl, -C₁₋₅-alkyl, -C(=O)-C₁₋₅-alkyl, -C(=O)-OH, -C(=O)-O-C₁₋₅-alkyl, -NH-C₁₋₅-alkyl, -N(C₁₋₅-alkyl)₂, -O-phenyl, -O-benzyl, phenyl and benzyl, wherein in each case the cyclic moiety of the residues -O-phenyl, -O-benzyl, phenyl and benzyl may be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, -OH, -CF₃, -SF₅, -CN, -NO₂, -C₁₋₅-alkyl, -O-C₁₋₅-alkyl, -O-CF₃, -S-CF₃, phenyl and -O-benzyl,

and the rings of the above-stated mono- or polycyclic ring systems are in each case 5-, 6- or 7-membered and may in each case optionally comprise 1, 2, 3, 4 or 5 heteroatom(s) as ring member(s), which are mutually independently selected from the group consisting of oxygen, nitrogen and sulfur;

and the above-stated aryl or heteroaryl residues may optionally be substituted in each case with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, I, -CN, -CF₃, -SF₅, -OH, -O-C₁₋₅-alkyl, -NH₂, -NO₂, -O-CF₃, -S-CF₃, -SH, -S-C₁₋₅-alkyl, -C₁₋₅-alkyl, -C(=O)-OH, -C(=O)-C₁₋₅-alkyl, -NH-C₁₋₅-alkyl, -N(C₁₋₅-alkyl)₂, -NH-S(=O)₂-C₁₋₅-alkyl, -NH-C(=O)-O-C₁₋₅-alkyl, -C(=O)-H, -C(=O)-C₁₋₅-alkyl, -C(=O)-NH₂, -C(=O)-NH-C₁₋₅-alkyl, -C(=O)-N-(C₁₋₅-alkyl)₂, -O-phenyl, -O-benzyl, phenyl and benzyl, wherein in each case the cyclic moiety of the residues -O-phenyl, -O-benzyl, phenyl and benzyl may be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl,

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Br, -OH, -CF₃, -SF₅, -CN, -NO₂, -C₁₋₅-alkyl, -O-C₁₋₅-alkyl, -O-CF₃, -S-CF₃, phenyl and -O-benzyl,

and

the above-stated heteroaryl residues in each case optionally comprise 1, 2, 3, 4 or 5 heteroatom(s) mutually independently selected from the group consisting of oxygen, nitrogen and sulfur as ring member(s).

The term "heteroalkylene" denotes an alkylene chain in which one or more C atoms have in each case been replaced by a heteroatom mutually independently selected from the group consisting of oxygen, sulfur and nitrogen (NH). Heteroalkylene groups may preferably comprise 1, 2 or 3 heteroatom(s), particularly preferably one heteroatom, mutually independently selected from the group consisting of oxygen, sulfur and nitrogen (NH) as chain link(s). Heteroalkylene groups may preferably be 2- to 6-membered, particularly preferably 2- or 3-membered.

Mention may be made by way of example of heteroalkylene groups such as -CH₂-CH₂-O-CH₂-, -CH₂-CH(CH₃)-O-CH₂-, -(CH₂)-O-, -(CH₂)₂-O-, -(CH₂)₃-O-, -(CH₂)₄-O-, -O-(CH₂)-, -O-(CH₂)₂-, -O-(CH₂)₃-, -O-(CH₂)₄-, -C(C₂H₅)(H)-O-, -O-C(C₂H₅)(H)-, -CH₂-O-CH₂-, -CH₂-S-CH₂-, -CH₂-NH-CH₂-, -CH₂-NH- and -CH₂-CH₂-NH-CH₂-CH₂.

If one or more of the above-stated substituents comprise a linear or branched C₁₋₆ alkylene group, this may preferably be selected from the group consisting of -(CH₂)-, -(CH₂)₂-, -C(H)(CH₃)-, -(CH₂)₃-, -(CH₂)₄-, -(CH₂)₅-, -C(H)(C(H)(CH₃)₂)- and -C(C₂H₅)(H)-.

Saturated or unsaturated C₁₋₁₀ aliphatic residues may denote a -C₁₋₁₀ alkyl, C₂₋₁₀ alkenyl or C₂₋₁₀ alkynyl residue. C₂₋₁₀ alkenyl residues comprise at least one, preferably 1, 2, 3 or 4 C-C double bonds and C₂₋₁₀ alkynyl residues comprise at least one, preferably 1, 2, 3 or 4 C-C triple bonds.

Preference is given to -C₁₋₁₀ alkyl residues selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl, 3-

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methyl-but-1-yl, 2-pentyl, 3-pentyl, sec-pentyl, neopentyl, 4-methyl-penta-1-yl, (3,3)-dimethyl-but-1-yl, n-hexyl, n-heptyl, 2-heptyl, 3-heptyl, 4-heptyl, n-octyl, n-nonyl, 2-nonyl, 3-nonyl, 4-nonyl, 5-nonyl and (2,6)-dimethyl-hept-4-yl, which may optionally be substituted with 1, 2, 3, 4, 5, 6, 7, 8 or 9 substituents mutually independently selected from the group consisting of -O-phenyl, -O-C(=O)-CH₃, -O-C(=O)-C₂H₅, -O-C(=O)-CH(CH₃)₂, -O-C(=O)-C(CH₃)₃, -C(=O)-O-CH₃, -C(=O)-O-C₂H₅, -C(=O)-O-CH(CH₃)₂, -C(=O)-O-C(CH₃)₃, F, Cl, Br, I, -CN, -NO₂, -OH, -NH₂, -SH, -O-CH₃, -O-C₂H₅, -O-CH(CH₃)₂, -O-C(CH₃)₃, -S-CH₃, -S-C₂H₅, -S-CH(CH₃)₂, -S-C(CH₃)₃, -NH-CH₃, -NH-C₂H₅, -NH-C(CH₃)₃, -N(CH₃)₂, -N(C₂H₅)₂, -N(CH₃)(C₂H₅), -OCF₃ and -SCF₃.

Likewise preferred are C₂₋₁₀ alkenyl residues selected from the group consisting of vinyl, 1-propenyl, 2-propenyl, 1-butenyl, 2-butenyl, 3-butenyl, 2-methyl-propen-1-yl, 3-methyl-but-2-en-1-yl, (3,3)-dimethyl-but-1-enyl, 2-methyl-buten-2-yl, 1-pentenyl, 2-pentenyl, 3-pentenyl, 4-pentenyl, 1-hexenyl, 1-heptenyl and 1-octenyl, which may optionally be substituted with 1, 2 or 3 substituents mutually independently selected from the group consisting of F, Cl, Br, I, -CN, -NO₂, -OH, -NH₂, -SH, -O-CH₃, -O-C₂H₅, -O-CH(CH₃)₂, -O-C(CH₃)₃, -S-CH₃, -S-C₂H₅, -S-CH(CH₃)₂, -S-C(CH₃)₃, -NH-CH₃, -NH-C₂H₅, -NH-C(CH₃)₃, -N(CH₃)₂, -N(C₂H₅)₂, -N(CH₃)(C₂H₅), -OCF₃ and -SCF₃.

Preference is further given to C₂₋₁₀ alkynyl residues selected from the group consisting of (3,3)-dimethyl-but-1-ynyl, 4-methyl-pent-1-ynyl, 1-hexynyl, ethynyl, 1-propynyl, 2-propynyl, 1-butylnyl, 2-butylnyl, 3-butylnyl, 1-pentylnyl, 2-pentylnyl, 3-pentylnyl and 4-pentylnyl, which may optionally be substituted with 1, 2 or 3 substituents mutually independently selected from the group consisting of F, Cl, Br, I, -CN, -NO₂, -OH, -NH₂, -SH, -O-CH₃, -O-C₂H₅, -O-CH(CH₃)₂, -O-C(CH₃)₃, -S-CH₃, -S-C₂H₅, -S-CH(CH₃)₂, -S-C(CH₃)₃, -NH-CH₃, -NH-C₂H₅, -NH-C(CH₃)₃, -N(CH₃)₂, -N(C₂H₅)₂, -N(CH₃)(C₂H₅), -OCF₃ and -SCF₃.

Particularly preferred optionally substituted C₁₋₁₀ aliphatic residues are selected from the group consisting of methyl, -CF₃, -CHF₂, -CH₂F, -CF₂Cl, -CCl₂F, -CCl₃, -CBr₃, -CH₂-CN, -CH₂-O-CH₃, -CH₂-O-CF₃, -CH₂-SF₃, -CH₂-NH₂, -CH₂-OH, -CH₂-SH, -CH₂-NH-CH₃, -CH₂-N(CH₃)₂, -CH₂-N(C₂H₅)₂, -CH₂-N(CH₃)(C₂H₅), ethyl, -CF₂-CH₃, -CHF-CF₂Cl, -CF₂-CFCl₂, -CFCl-CF₂Cl, -CFCl-CFCl₂, -CH₂-CH₂-NH₂, -CH₂-CH₂-OH, -CH₂-CH₂-SH, -CH₂-CH₂-NH-CH₃, -CH₂-CH₂-N(CH₃)₂, -CH₂-CH₂-N(C₂H₅)₂, -CH₂-CH₂-

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N(CH₃)(C₂H₅), -CH₂-CF₃, -C₂F₅, -CH₂-CCl₃, -CH₂-CBr₃, -CH₂-CH₂-CN, n-propyl, -CH₂-CH₂-CH₂-OH, -CH₂-CH₂-CH₂-SH, -CH₂-CH₂-CH₂-NH₂, -CH₂-CH₂-CH₂-NH-CH₃, -CH₂-CH₂-CH₂-N(CH₃)₂, -CH₂-CH₂-CH₂-N(C₂H₅)₂, -CH₂-CH₂-CH₂-N(CH₃)(C₂H₅), -CH₂-CH₂-O-CH₃, -CF₂-CF₂-CF₃, -CF(CF₃)₂, isopropyl, -CH₂-CH₂-CH₂-CN, -CH₂-O-CH₂-CH₃, -CH₂-CH₂-SF₃, -CH₂-CH₂-OCF₃, -CH(CH₃)(O-CH₃), -CH(CH₃)(S-CH₃), n-butyl, -CF₂-CF₂-CF₂-CF₃, -CH₂-CH₂-CH₂-CH₂-CN, -CH₂-CH₂-CH₂-CF₃, -CH₂-CH₂-CH₂-CH₂-CF₃, -CH₂-O-C(=O)-CH₃, -CH₂-O-C(=O)-C₂H₅, -CH₂-O-C(=O)-CH(CH₃)₂, -CH₂-O-C(=O)-C(CH₃)₃, -CH₂-C(=O)-O-CH₃, -CH₂-C(=O)-O-C₂H₅, -CH₂-C(=O)-O-C(CH₃)₃, -CH₂-CH₂-O-CH₃, -CH₂-CH₂-O-C₂H₅, -CH₂-CH₂-O-phenyl, -CH₂-CH₂-CH₂-O-CH₃, sec-butyl, isobutyl, tert-butyl, n-pentyl, sec-pentyl, neo-pentyl, n-hexyl, vinyl, 1-propenyl, 2-propenyl, 1-butenyl, 2-butenyl, 3-butenyl, 2-methyl-buten-2-yl, (1,1,2)-trifluoro-1-butenyl, 1-pentenyl, 2-pentenyl, 3-pentenyl, 4-pentenyl, -CF=CF₂, -CCl=CCl₂, -CH₂-CF=CF₂, -CH₂-CCl=CCl₂, -C≡C-I, -C≡C-F and -C≡C-Cl.

If one or more of the above-stated substituents denote a (hetero)cycloaliphatic residue, which may optionally be fused with a saturated or unsaturated, unsubstituted or at least monosubstituted mono- or polycyclic ring system, the latter may preferably be selected from the group consisting of cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, cycloheptyl, cyclopentenyl, cyclohexenyl, cycloheptenyl, imidazolidinyl, tetrahydrofuranyl, tetrahydrothiophenyl, pyrrolidinyl, piperidinyl, morpholinyl, piperazinyl, thiomorpholinyl, tetrahydropyranyl, oxetanyl, (1,2,3,6)-tetrahydropyridinyl, azepanyl, azocanyl, diazepanyl, dithiolanyl, (1,3,4,5)-tetrahydropyrido[4,3-b]indolyl, (3,4)-dihydro-1H-isoquinolinyl, (1,3,4,9)-tetrahydro-[b]-carbolinyl and (1,3)-thiazolidinyl.

Examples which may be mentioned of suitable (hetero)cycloaliphatic residues which may be unsubstituted or mono- or polysubstituted and are fused with a mono- or bicyclic ring system are (4,5,6,7)-tetrahydroisoxazolo[5,4-c]pyridinyl, (2,3)-dihydro-1H-indenyl, 3-aza-bicyclo[3.1.1]heptyl, 3-aza-bicyclo[3.2.1]octyl, 6-aza-bicyclo[3.3.1]heptyl, 8-aza-bicyclo[3.2.1]octyl, isoindolyl, indolyl, (1,2,3,4)-tetrahydroquinolinyl, (1,2,3,4)-tetrahydroisoquinolinyl, (2,3)-dihydro-1H-isoindolyl, (1,2,3,4)-tetrahydronaphthyl, (2,3)-dihydro-benzo[1.4]dioxinyl, benzo[1.3]dioxolyl, (1,4)-benzodioxanyl, (2,3)-dihydrothieno[3,4-b][1.4]dioxinyl, (3,4)-dihydro-2H-benzo[1.4]oxazinyl, octahydro-1H-isoindolyl and octahydro-pyrrolo[3,4c]pyrrolyl.

For the purposes of the present invention, (hetero)cycloaliphatic residues may, together with a further (hetero)cycloaliphatic residue, form a spirocyclic residue by way of a common carbon atom in the two rings.

Suitable spirocyclic residues which may be mentioned are, for example, a 6-aza-spiro[2.5]octyl residue, 8-azaspiro[4.5]decyl residue and a 1-oxa-2,8-diaza-spiro[4.5]dec-2-enyl residue.

Particularly preferably, the (hetero)cycloaliphatic residues may in each case optionally be substituted with 1, 2, 3, 4 or 5 substituents selected mutually independently from the group consisting of oxo (=O), thioxo (=S), F, Cl, Br, I, -CN, -CF₃, -SF₅, -OH, -O-CH₃, -O-C₂H₅, -O-CH(CH₃)₂, -O-C(CH₃)₃, -NH₂, -NO₂, -O-CF₃, -S-CF₃, -SH, -S-CH₃, -S-C₂H₅, -S-CH(CH₃)₂, -S-C(CH₃)₃, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl, -C(=O)-CH₃, -C(=O)-C₂H₅, -C(=O)-CH(CH₃)₂, -C(=O)-C(CH₃)₃, -C(=O)-OH, -C(=O)-O-CH₃, -C(=O)-O-C₂H₅, -C(=O)-O-CH(CH₃)₂, -C(=O)-O-C(CH₃)₃, -NH-CH₃, -NH-C₂H₅, -NH-C(CH₃)₃, -N(CH₃)₂, -N(C₂H₅)₂, -N(CH₃)(C₂H₅), -CH₂-OH, -CH₂-CH₂-OH, =CH₂, -CH₂-O-CH₂-oxetanyl, -O-CH₂-oxetanyl, -CH₂-N(CH₃)₂, -CH₂-N(C₂H₅)₂, -CH₂-NH-CH₃, -CH₂-NH-C₂H₅, -N-[C(=O)-C₂H₅]-phenyl, -N-[C(=O)-CH₃]-phenyl, -CH₂-O-CH₃, -CH₂-O-CH₂-CH₃, -NH-phenyl, -N(CH₃)-phenyl, -N(C₂H₅)-phenyl, -N(C₂H₅)-phenyl, -O-CH₂-CH₂-CH₂-CH₃, (4,5)-dihydroisoxazolyl, thiazolyl, (1,2,5)-thiadiazolyl, thiophenyl, phenethyl, cyclohexyl, cyclopentyl, piperidinyl, pyrrolidinyl, -O-C(=O)-CH₃, -O-C(=O)-C₂H₅, -O-C(=O)-C(CH₃)₃, -(CH₂)-pyridinyl, pyridinyl, -O-phenyl, -O-benzyl, phenyl and benzyl, wherein in each the cyclic moiety of the residues oxetanyl, (4,5)-dihydroisoxazolyl, thiazolyl, (1,2,5)-thiadiazolyl, thiophenyl, phenethyl, -N-[C(=O)-C₂H₅]-phenyl, -N-[C(=O)-CH₃]-phenyl, -NH-phenyl, -N(CH₃)-phenyl, -N(C₂H₅)-phenyl, -(CH₂)-pyridinyl, pyridinyl, -O-phenyl, -O-benzyl, phenyl and benzyl may be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group comprising F, Cl, Br, -OH, -CF₃, -SF₅, -CN, -NO₂, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, -O-CH₃, -O-C₂H₅, -O-CH(CH₃)₂, -O-C(CH₃)₃, -O-CF₃, -S-CF₃, phenyl and -O-benzyl.

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If one or more of the above-stated substituents denote an aryl residue, the latter may preferably be selected from the group consisting of phenyl and naphthyl (1-naphthyl and 2-naphthyl).

If one or more of the above-stated substituents denote a heteroaryl residue, the latter may preferably be selected from the group consisting of tetrazolyl, thiophenyl, furanyl, pyrrolyl, pyrazolyl, pyrazinyl, pyranyl, triazolyl, pyridinyl, imidazolyl, indolyl, isoindolyl, benzo[b]furanyl, benzo[b]thiophenyl, benzoxazolyl, benzisoxazolyl, thiazolyl, oxazolyl, isoxazolyl, pyridazinyl, pyrazinyl, pyrimidinyl, indazolyl, quinoxalinyl, quinolinyl and isoquinolinyl.

Examples which may be mentioned of suitable aryl- and heteroaryl residues which may be unsubstituted or mono- or polysubstituted and are fused with a mono- or bicyclic ring system are isoindolyl, indolyl, (1,2,3,4)-tetrahydroquinolinyl, (1,2,3,4)-tetrahydroisoquinolinyl, (2,3)-dihydro-1H-isoindolyl, (1,2,3,4)-tetrahydronaphthyl, (2,3)-dihydro-benzo[1.4]dioxinyl, (2,3)-dihydrothieno[3,4-b][1,4]dioxinyl, benzo[1.3]dioxolanyl and (1,4)-benzodioxanyl.

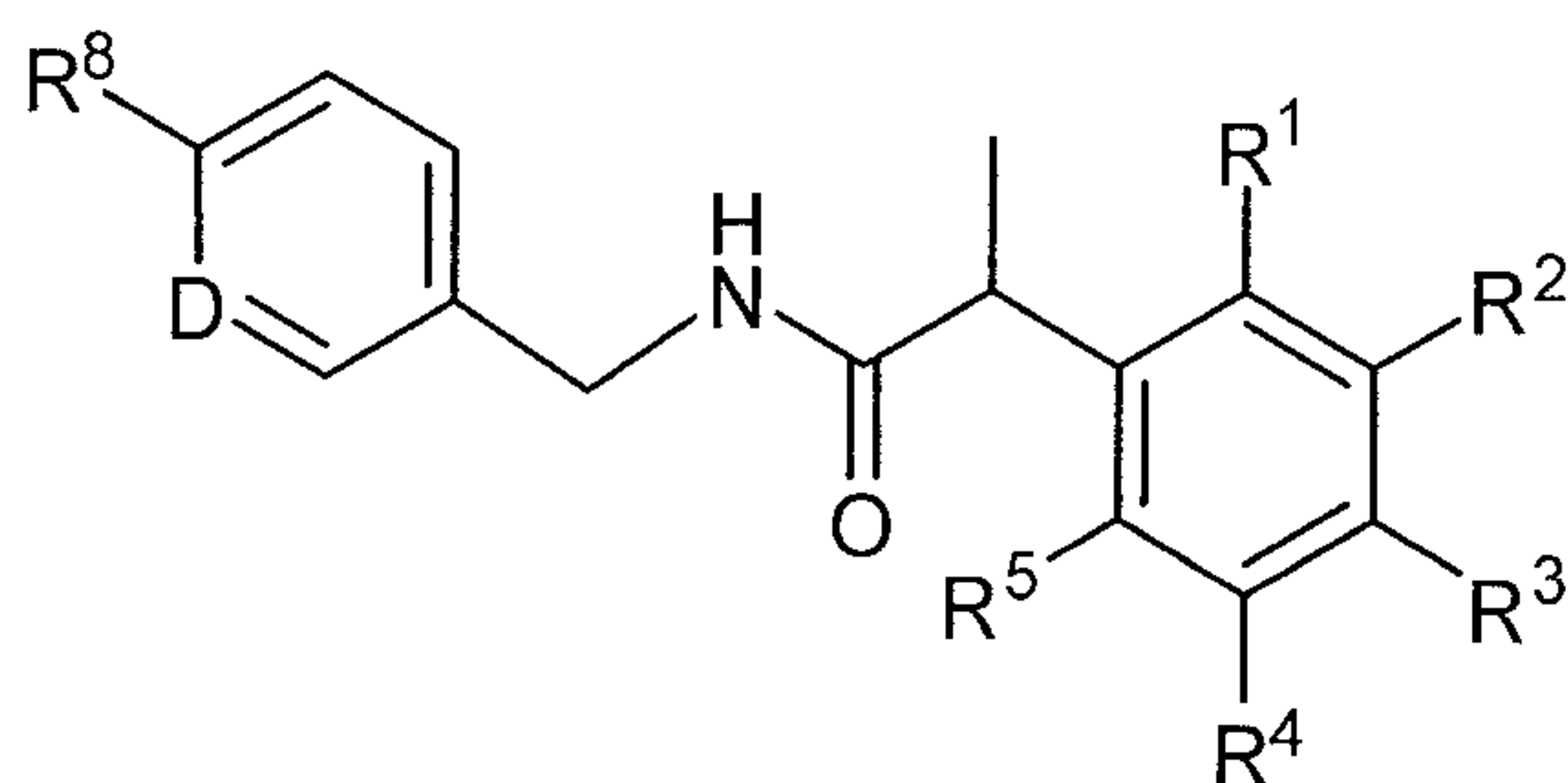
The aryl or heteroaryl residues may particularly preferably in each case optionally be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, I, -CN, -CF₃, -SF₅, -OH, -O-CH₃, -O-C₂H₅, -O-CH(CH₃)₂, -O-C(CH₃)₃, -NH₂, -NO₂, -O-CF₃, -S-CF₃, -SH, -S-CH₃, -S-C₂H₅, -S-CH(CH₃)₂, -S-C(CH₃)₃, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl, -C(=O)-OH, -C(=O)-O-CH₃, -C(=O)-O-C₂H₅, -C(=O)-O-CH(CH₃)₂, -C(=O)-O-C(CH₃)₃, -NH-CH₃, -NH-C₂H₅, -NH-C(CH₃)₃, -N(CH₃)₂, -N(C₂H₅)₂, -N(CH₃)(C₂H₅), -NH-S(=O)₂-CH₃, -NH-S(=O)₂-C₂H₅, -NH-S(=O)₂-CH(CH₃)₂, -NH-C(=O)-O-CH₃, -NH-C(=O)-O-C₂H₅, -NH-C(=O)-O-C(CH₃)₃, -C(=O)-H, -C(=O)-CH₃, -C(=O)-C₂H₅, -C(=O)-CH(CH₃)₂, -C(=O)-C(CH₃)₃, -C(=O)-NH₂, -C(=O)-NH-CH₃, -C(=O)-NH-C₂H₅, -C(=O)-N(CH₃)₂, -C(=O)-N(C₂H₅)₂, -O-phenyl, -O-benzyl, phenyl and benzyl, wherein in each case the cyclic moiety of the residues -O-phenyl, -O-benzyl, phenyl and benzyl may be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, -OH, -CF₃, -SF₅, -CN, -NO₂, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, -O-CH₃, -O-C₂H₅, -O-CH(CH₃)₂, -O-C(CH₃)₃, -O-CF₃, -S-CF₃, phenyl and -O-benzyl.

If a polycyclic ring system, such as for example a bicyclic ring system, is present, the various rings may in each case mutually independently be of a different degree of saturation, i.e. be saturated or unsaturated. A polycyclic ring system is preferably a bicyclic ring system.

Examples of aryl residues which are fused with a mono- or polycyclic ring system and may be mentioned are (1,3)-benzodioxolyl and (1,4)-benzodioxanyl.

If one or more of the above-stated substituents comprise a mono- or polycyclic ring system, the latter may preferably be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of oxo (=O), thioxo (=S), F, Cl, Br, I, -CN, -CF₃, -SF₅, -OH, -O-CH₃, -O-C₂H₅, -O-CH(CH₃)₂, -O-C(CH₃)₃, -NH₂, -NO₂, -O-CF₃, -S-CF₃, -SH, -S-CH₃, -S-C₂H₅, -S-CH(CH₃)₂, -S-C(CH₃)₃, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl, -C(=O)-OH, -C(=O)-O-CH₃, -C(=O)-O-C₂H₅, -C(=O)-O-CH(CH₃)₂, -C(=O)-O-C(CH₃)₃, -NH-CH₃, -NH-C₂H₅, -NH-C(CH₃)₃, -N(CH₃)₂, -N(C₂H₅)₂, -N(CH₃)(C₂H₅), -NH-C(=O)-O-CH₃, -NH-C(=O)-O-C₂H₅, -NH-C(=O)-O-C(CH₃)₃, -C(=O)-H, -C(=O)-CH₃, -C(=O)-C₂H₅, -C(=O)-CH(CH₃)₂, -C(=O)-C(CH₃)₃, -C(=O)-NH₂, -C(=O)-NH-CH₃, -C(=O)-NH-C₂H₅, -C(=O)-N(CH₃)₂, -C(=O)-N(C₂H₅)₂, -O-phenyl, -O-benzyl, phenyl and benzyl, wherein in each case the cyclic moiety of the residues -O-phenyl, -O-benzyl, phenyl and benzyl may be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, -OH, -CF₃, -SF₅, -CN, -NO₂, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, -O-CH₃, -O-C₂H₅, -O-CH(CH₃)₂, -O-C(CH₃)₃, -O-CF₃, -S-CF₃, phenyl and -O-benzyl.

Preferred compounds are those of the general formula Ia,



Ia,

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in which

D denotes N or CH;

R^1 and R^2 together denote a residue selected from the group consisting of $-\text{CH}=\text{N}-\text{NH}-$; $-\text{CH}=\text{N}-\text{NR}^{71}-$; $-\text{S}-\text{C}(=\text{S})-\text{NH}-$; $-\text{O}-\text{C}(=\text{S})-\text{NH}-$; $-\text{S}-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{C}(=\text{O})-\text{NH}-$; $-\text{S}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{S}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{S}-\text{CH}=\text{N}-$; $-\text{S}-\text{CR}^{29}=\text{N}-$; $-\text{N}=\text{CH}-\text{O}-$; $-\text{N}=\text{CR}^{30}-\text{O}-$; $-\text{NH}-\text{C}(=\text{O})-\text{NH}-$; $-\text{NH}-\text{C}(=\text{S})-\text{NH}-$; $-\text{NR}^{66}-\text{C}(=\text{O})-\text{NR}^{65}-$; $-\text{NR}^{66}-\text{C}(=\text{S})-\text{NR}^{65}-$; $-\text{O}-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{NH}-$ and $-\text{CH}=\text{CH}-\text{N}=\text{CH}-$, which is attached in any desired direction to the parent structure,

or R^2 and R^3 together denote a residue selected from the group consisting of $-\text{CH}=\text{N}-\text{NH}-$; $-\text{CR}^{28}=\text{N}-\text{NH}-$; $-\text{CH}=\text{N}-\text{NR}^{62}-$; $-\text{CR}^{28}=\text{N}-\text{NR}^{62}-$; $-\text{S}-\text{C}(=\text{S})-\text{NH}-$; $-\text{O}-\text{C}(=\text{S})-\text{NH}-$; $-\text{S}-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{C}(=\text{O})-\text{NH}-$; $-\text{S}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{S}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{S}-\text{CH}=\text{N}-$; $-\text{S}-\text{CR}^{29}=\text{N}-$; $-\text{N}=\text{CH}-\text{O}-$; $-\text{N}=\text{CR}^{30}-\text{O}-$; $-\text{N}=\text{CH}-\text{NH}-$; $-\text{N}=\text{CH}-\text{NR}^{64}-$; $-\text{NH}-\text{C}(=\text{O})-\text{NH}-$; $-\text{NH}-\text{C}(=\text{S})-\text{NH}-$; $-\text{NR}^{66}-\text{C}(=\text{O})-\text{NR}^{65}-$; $-\text{NR}^{66}-\text{C}(=\text{S})-\text{NR}^{65}-$; $-\text{N}=\text{N}-\text{NH}-$; $-\text{N}=\text{N}-\text{NR}^{67}-$; $-\text{O}-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{O}-$; $-\text{CH}_2-\text{CH}_2-\text{NH}-$; $-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{NH}-$; $-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{CH}_2-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{N}=\text{N}-\text{CH}=\text{CH}-$; $-\text{N}=\text{CH}-\text{N}=\text{CH}-$; $-\text{N}=\text{CH}-\text{CH}=\text{N}-$; $-\text{CH}=\text{CH}-\text{CH}=\text{N}-$; $-\text{CH}=\text{CH}-\text{N}=\text{CH}-$; $-\text{CH}=\text{N}-\text{N}=\text{CH}-$ and $-\text{O}-\text{CH}_2-\text{CH}_2-\text{NH}-$, which is attached in any desired direction to the parent structure,

or R^3 and R^4 together denote a residue selected from the group consisting of $-\text{CH}=\text{N}-\text{NH}-$; $-\text{CR}^{28}=\text{N}-\text{NH}-$; $-\text{CH}=\text{N}-\text{NR}^{62}-$; $-\text{CR}^{28}=\text{N}-\text{NR}^{62}-$; $-\text{S}-\text{C}(=\text{S})-\text{NH}-$; $-\text{O}-\text{C}(=\text{S})-\text{NH}-$; $-\text{S}-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{C}(=\text{O})-\text{NH}-$; $-\text{S}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{S}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{S}-\text{CH}=\text{N}-$; $-\text{S}-\text{CR}^{29}=\text{N}-$; $-\text{N}=\text{CH}-\text{O}-$; $-\text{N}=\text{CR}^{30}-\text{O}-$; $-\text{N}=\text{CH}-\text{NH}-$; $-\text{N}=\text{CH}-\text{NR}^{64}-$; $-\text{NH}-\text{C}(=\text{O})-\text{NH}-$; $-\text{NH}-\text{C}(=\text{S})-\text{NH}-$; $-\text{NR}^{66}-\text{C}(=\text{O})-\text{NR}^{65}-$; $-\text{NR}^{66}-\text{C}(=\text{S})-\text{NR}^{65}-$; $-\text{N}=\text{N}-\text{NH}-$; $-\text{N}=\text{N}-\text{NR}^{67}-$; $-\text{O}-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{O}-$; $-\text{CH}_2-\text{CH}_2-\text{NH}-$; $-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{NH}-$; $-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{CH}_2-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{N}=\text{N}-\text{CH}=\text{CH}-$; $-\text{N}=\text{CH}-\text{N}=\text{CH}-$; $-\text{N}=\text{CH}-\text{CH}=\text{N}-$; $-\text{CH}=\text{CH}-\text{CH}=\text{N}-$; $-\text{CH}=\text{CH}-\text{N}=\text{CH}-$; $-\text{CH}=\text{N}-\text{N}=\text{CH}-$ and $-\text{O}-\text{CH}_2-\text{CH}_2-\text{NH}-$, which is attached in any desired direction to the parent structure,

or R^4 and R^5 together denote a residue selected from the group consisting of $-\text{CH}=\text{N}-\text{NH}-$; $-\text{CH}=\text{N}-\text{NR}^{71}-$; $-\text{S}-\text{C}(=\text{S})-\text{NH}-$; $-\text{O}-\text{C}(=\text{S})-\text{NH}-$; $-\text{S}-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{C}(=\text{O})-\text{NH}-$; $-\text{S}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{S}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{S}-\text{CH}=\text{N}-$; $-\text{S}-\text{CR}^{29}=\text{N}-$; $-\text{N}=\text{CH}-\text{O}-$; $-\text{N}=\text{CR}^{30}-\text{O}-$; $-\text{NH}-\text{C}(=\text{O})-\text{NH}-$; $-\text{NH}-\text{C}(=\text{S})-\text{NH}-$; $-\text{NR}^{66}-\text{C}(=\text{O})-\text{NR}^{65}-$; $-\text{NR}^{66}-\text{C}(=\text{S})-\text{NR}^{65}-$; $-\text{O}-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{NH}-$ and $-\text{CH}=\text{CH}-\text{N}=\text{CH}-$, which is attached in any desired direction to the parent structure,

and the remaining residues R^1 , R^2 , R^3 , R^4 and R^5 , mutually independently, in each case denote H; F; Cl; Br; I; $-\text{CF}_3$; $-\text{CN}$; $-\text{OR}^{16}$; $-\text{SR}^{17}$; or denote a residue selected from the group consisting of methyl, $-\text{CF}_3$, $-\text{CHF}_2$, $-\text{CH}_2\text{F}$, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl and tert-butyl;

R^8 denotes $-\text{SF}_5$; $-\text{O}-\text{CF}_3$; $-\text{CF}_3$; tert-butyl, or $-\text{C}(\text{CH}_3)_2(\text{CH}_2\text{OH})$;

R^{16} and R^{17} , mutually independently, in each case denote a residue selected from the group consisting of methyl, $-\text{CF}_3$, $-\text{CHF}_2$, $-\text{CH}_2\text{F}$, ethyl, $-\text{CF}_2-\text{CH}_3$, $-\text{CH}_2-\text{CF}_3$, $-\text{C}_2\text{F}_5$, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl, 3-pentyl, n-heptyl, 4-heptyl, n-octyl, n-nonyl, 5-nonyl, (2,6)-dimethyl-hept-4-yl, 3-methyl-butyl, n-hexyl and (3,3)-dimethylbutyl;

R^{28} denotes F; Cl; Br; I; $-\text{CF}_3$; $-\text{CN}$; $-\text{NH}_2$ or denotes an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl and n-pentyl;

R^{29} and R^{30} , mutually independently, in each case denote $-\text{NH}-\text{C}(=\text{O})-\text{R}^{31}$; $-\text{NH}_2$; $-\text{NH}-\text{S}(=\text{O})_2-\text{R}^{32}$; $-\text{NH}-\text{C}(=\text{O})-\text{O}-\text{R}^{33}$; $-\text{S}-\text{R}^{34}$ or denote an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl;

R^{31} , R^{32} , R^{33} and R^{34} , mutually independently, in each case denote an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl;

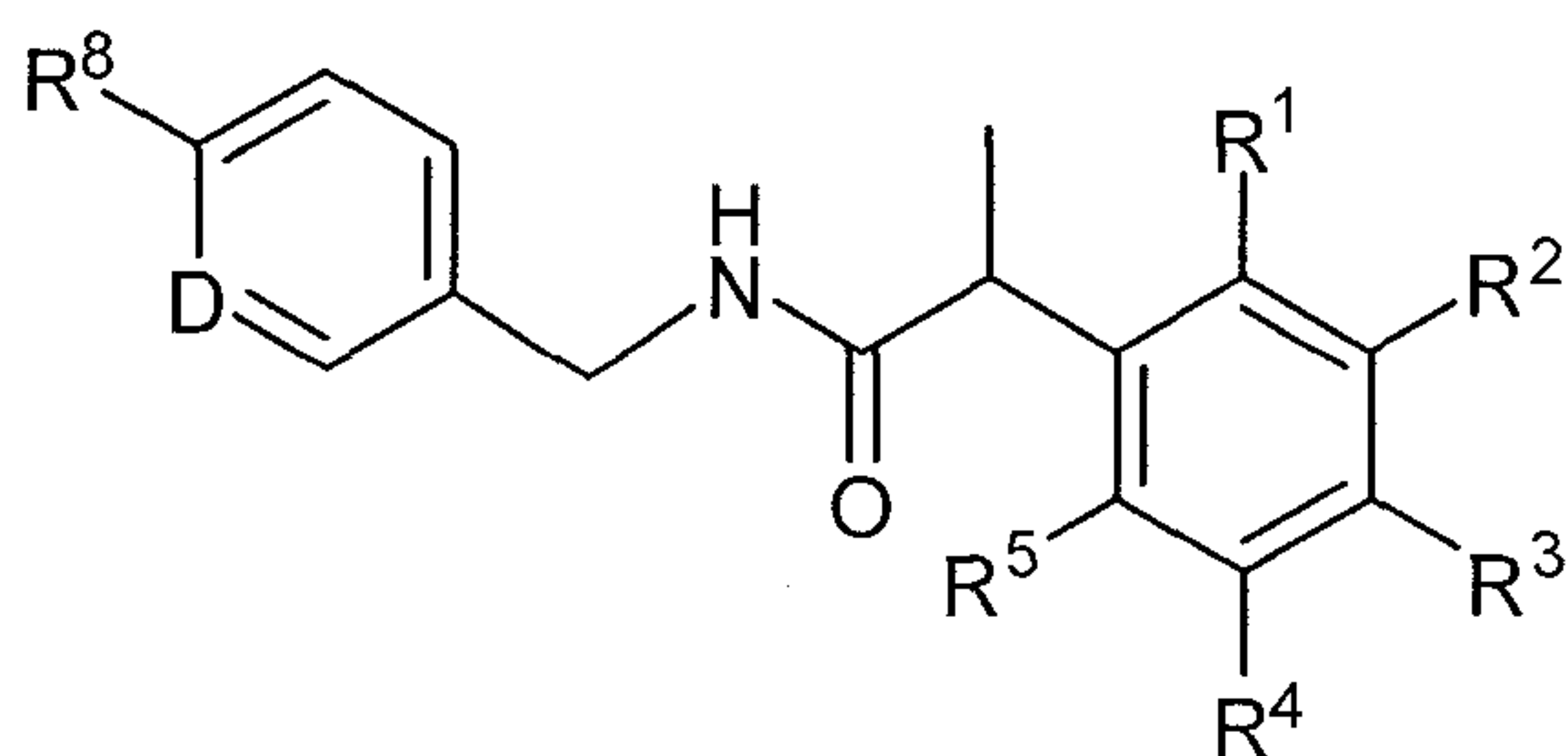
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R^{62} , R^{63} , R^{64} , R^{65} , R^{66} and R^{67} , mutually independently, in each case denote an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, tert-butyl, n-butyl, sec-butyl, and isobutyl;

R^{71} denotes a residue selected from the group consisting of phenyl, naphthyl, thiophenyl, furanyl and pyridinyl, wherein the residue can in each case be attached via a $-(CH_2)-$, $-(CH_2)_2-$ or $-(CH_2)_3-$ group and/or in each case may be unsubstituted or optionally substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, I, $-CN$, $-CF_3$, $-SF_5$, $-OH$, $-O-CH_3$, $-O-C_2H_5$, $-O-CH(CH_3)_2$, $-O-C(CH_3)_3$, $-NH_2$, $-NO_2$, $-O-CF_3$, $-S-CF_3$, $-SH$, $-S-CH_3$, $-S-C_2H_5$, $-S-CH(CH_3)_2$, $-S-C(CH_3)_3$, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, $-O$ -phenyl, $-O$ -benzyl, phenyl and benzyl;

in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates.

Particularly preferred compounds are those of the general formula Ia,



Ia,

in which

D denotes N or CH;

or R^2 and R^3 together denote a residue selected from the group consisting of $-\text{CH}=\text{N}-\text{NH}-$; $-\text{CR}^{28}=\text{N}-\text{NH}-$; $-\text{CH}=\text{N}-\text{NR}^{62}-$; $-\text{CR}^{28}=\text{N}-\text{NR}^{62}-$; $-\text{S}-\text{C}(=\text{S})-\text{NH}-$; $-\text{O}-\text{C}(=\text{S})-\text{NH}-$; $-\text{S}-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{C}(=\text{O})-\text{NH}-$; $-\text{S}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{S}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{S}-\text{CH}=\text{N}-$; $-\text{S}-\text{CR}^{29}=\text{N}-$; $-\text{N}=\text{CH}-\text{O}-$; $-\text{N}=\text{CR}^{30}-\text{O}-$; $-\text{N}=\text{CH}-\text{NH}-$; $-\text{N}=\text{CH}-\text{NR}^{64}-$; $-\text{NH}-\text{C}(=\text{O})-\text{NH}-$; $-\text{NH}-\text{C}(=\text{S})-\text{NH}-$; $-\text{NR}^{66}-\text{C}(=\text{O})-\text{NR}^{65}-$; $-\text{NR}^{66}-\text{C}(=\text{S})-\text{NR}^{65}-$; $-\text{N}=\text{N}-\text{NH}-$; $-\text{N}=\text{N}-\text{NR}^{67}-$; $-\text{O}-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{O}-$; $-\text{CH}_2-\text{CH}_2-\text{NH}-$; $-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{NH}$; $-\text{CH}_2-\text{C}(=\text{O})-\text{NH}$; $-\text{CH}_2-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{N}=\text{N}-\text{CH}=\text{CH}-$; $-\text{N}=\text{CH}-\text{N}=\text{CH}-$; $-\text{N}=\text{CH}-\text{CH}=\text{N}-$; $-\text{CH}=\text{CH}-\text{CH}=\text{N}-$; $-\text{CH}=\text{CH}-\text{N}=\text{CH}-$; $-\text{CH}=\text{N}-\text{N}=\text{CH}-$ and $-\text{O}-\text{CH}_2-\text{CH}_2-\text{NH}-$, which is attached in any desired direction to the parent structure,

or R³ and R⁴ together denote a residue selected from the group consisting of -CH=N-NH-; -CR²⁸=N-NH-; -CH=N-NR⁶²-; -CR²⁸=N-NR⁶²-; -S-C(=S)-NH-; -O-C(=S)-NH-; -S-C(=O)-NH-; -O-C(=O)-NH-; -S-C(=S)-NR⁶³-; -O-C(=S)-NR⁶³-; -S-C(=O)-NR⁶³-; -O-C(=O)-NR⁶³-; -S-CH=N-; -S-CR²⁹=N-; -N=CH-O-; -N=CR³⁰-O-; -N=CH-NH-; -N=CH-NR⁶⁴-; -NH-C(=O)-NH-; -NH-C(=S)-NH-; -NR⁶⁶-C(=O)-NR⁶⁵-; -NR⁶⁶-C(=S)-NR⁶⁵-; -N=N-NH-; -N=N-NR⁶⁷-; -O-CH₂-C(=O)-NH-; -O-CH₂-O-; -CH₂-CH₂-NH-; -CH₂-CH₂-CH₂-NH, -CH₂-C(=O)-NH, -CH₂-CH₂-C(=O)-NH-; -O-CH₂-CH₂-O-; -O-CH₂-CH₂-CH₂-O-; -N=N-CH=CH-; -N=CH-N=CH-; -N=CH-CH=N-; -CH=CH-CH=N-; -CH=CH-N=CH-; -CH=N-N=CH- and -O-CH₂-CH₂-NH-, which is attached in any desired direction to the parent structure.

or R⁴ and R⁵ together denote a residue selected from the group consisting of -CH=N-NH-; -CH=N-NR⁷¹-; -S-C(=S)-NH-; -O-C(=S)-NH-; -S-C(=O)-NH-; -O-C(=O)-NH-; -S-C(=S)-NR⁶³-; -O-C(=S)-NR⁶³-; -S-C(=O)-NR⁶³-; -O-C(=O)-NR⁶³-; -S-CH=N-; -S-CR²⁹=N-; -N=CH-O-; -N=CR³⁰-O-; -NH-C(=O)-NH-; -NH-C(=S)-NH-; -NR⁶⁶-C(=O)-

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$\text{NR}^{65}-$; $-\text{NR}^{66}-\text{C}(=\text{S})-\text{NR}^{65}-$; $-\text{O}-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{O}-$, $-\text{O}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{NH}-$ and $-\text{CH}=\text{CH}-\text{N}=\text{CH}-$, which is attached in any desired direction to the parent structure,

and the remaining residues R^1 , R^2 , R^3 , R^4 and R^5 , mutually independently, in each case denote H; $-\text{OR}^{16}$; $-\text{SR}^{17}$; or denote a residue selected from the group consisting of methyl, $-\text{CF}_3$, $-\text{CHF}_2$, $-\text{CH}_2\text{F}$, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl and tert-butyl;

R^{16} and R^{17} , mutually independently, in each case denote a residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl;

R^{28} denotes F; Cl; Br or I;

R^{29} and R^{30} , mutually independently, in each case denote $-\text{NH}-\text{C}(=\text{O})-\text{R}^{31}$; $-\text{NH}_2$; $-\text{NH}-\text{S}(=\text{O})_2-\text{R}^{32}$; $-\text{NH}-\text{C}(=\text{O})-\text{O}-\text{R}^{33}$ or $-\text{S}-\text{R}^{34}$;

R^{31} , R^{32} , R^{33} and R^{34} , mutually independently, in each case denote an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl;

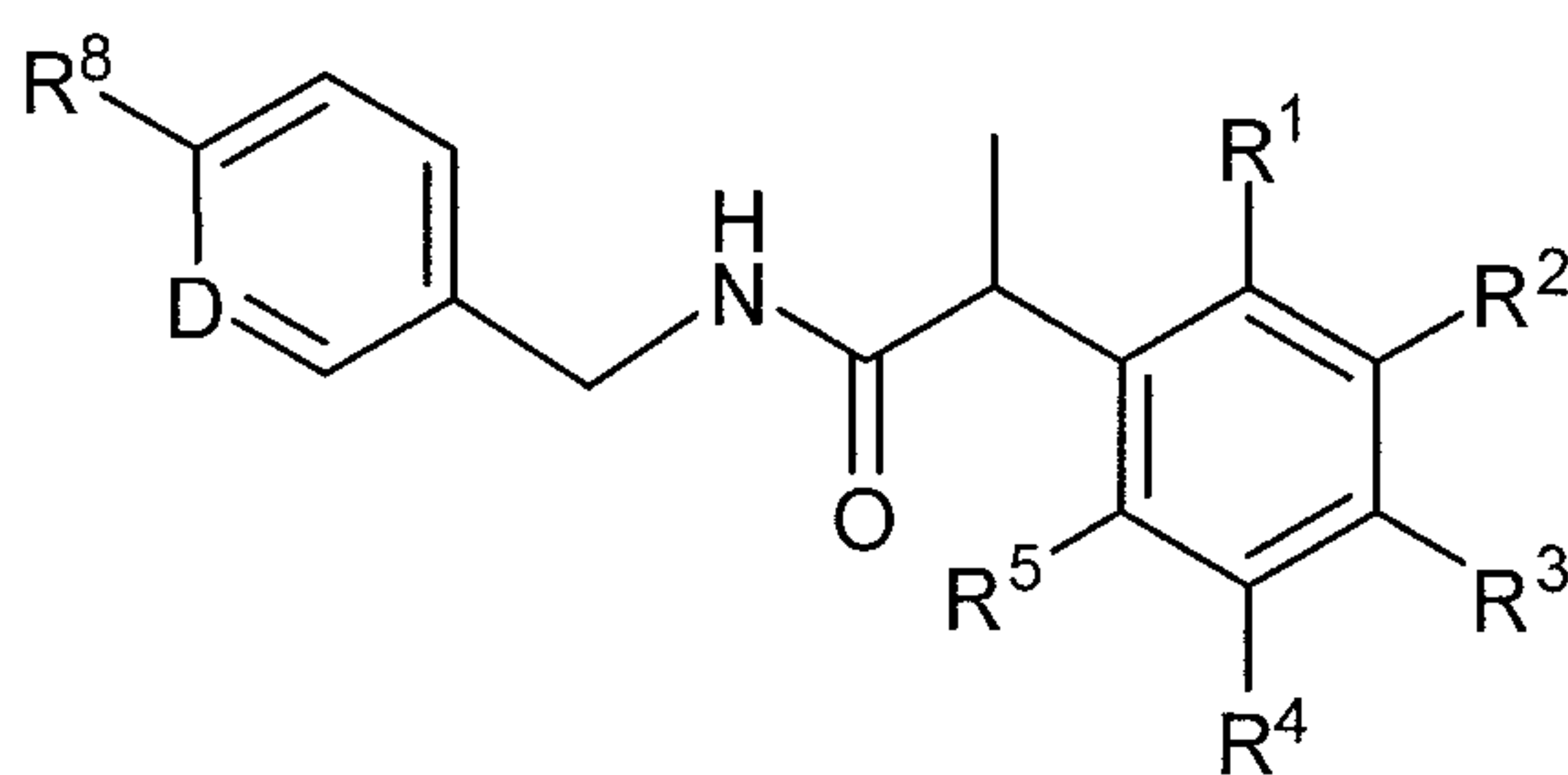
and R^{62} , R^{63} , R^{64} , R^{65} , R^{66} and R^{67} , mutually independently, in each case denote an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, tert-butyl, n-butyl, sec-butyl, and isobutyl; and

R^{71} denotes a residue selected from the group consisting of phenyl, naphthyl, thiophenyl, furanyl and pyridinyl, wherein the residue can in each case be attached via a $-(\text{CH}_2)-$, $-(\text{CH}_2)_2-$ or $-(\text{CH}_2)_3-$ group and/or in each case may be unsubstituted or optionally substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, I, $-\text{CN}$, $-\text{CF}_3$, $-\text{SF}_5$, $-\text{OH}$, $-\text{O}-\text{CH}_3$, $-\text{O}-\text{C}_2\text{H}_5$, $-\text{O}-\text{CH}(\text{CH}_3)_2$, $-\text{O}-\text{C}(\text{CH}_3)_3$, $-\text{NH}_2$, $-\text{NO}_2$, $-\text{O}-\text{CF}_3$, $-\text{S}-\text{CF}_3$, $-\text{SH}$, $-\text{S}-\text{CH}_3$, $-\text{S}-\text{C}_2\text{H}_5$, $-\text{S}-\text{CH}(\text{CH}_3)_2$, $-\text{S}-\text{C}(\text{CH}_3)_3$, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, $-\text{O}$ -phenyl, $-\text{O}$ -benzyl, phenyl and benzyl;

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in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates.

Very particularly preferred compounds are those of the general formula Ia,



Ia,

in which

D denotes N or CH;

R¹ and R² together denote a residue selected from the group consisting of -S-CH=N-; -S-CR²⁹=N-; -N=CH-O- and -N=CR³⁰-O-, which is attached in any desired direction to the parent structure,

or R² and R³ together denote a residue selected from the group consisting of -CH=N-NH-; -CR²⁸=N-NH-; -S-C(=S)-NH-; -O-C(=S)-NH-; -S-C(=O)-NH-; -O-C(=O)-NH-; -S-CH=N-; -S-CR²⁹=N-; -N=CH-O-; -N=CR³⁰-O-; -N=CH-NH-; -NH-C(=O)-NH-; -NH-C(=S)-NH-; -N=N-NH-; -O-CH₂-C(=O)-NH-; -O-CH₂-CH₂-O-; -O-CH₂-CH₂-CH₂-O-; -N=CH-CH=N-; -CH=CH-CH=N-; -CH=CH-N=CH-; -CH=N-N=CH- and -O-CH₂-CH₂-NH-, which is attached in any desired direction to the parent structure,

or R³ and R⁴ together denote a residue selected from the group

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consisting of $-\text{CH}=\text{N}-\text{NH}-$; $-\text{CR}^{28}=\text{N}-\text{NH}-$; $-\text{S}-\text{C}(=\text{S})-\text{NH}-$; $-\text{O}-\text{C}(=\text{S})-\text{NH}-$; $-\text{S}-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{C}(=\text{O})-\text{NH}-$; $-\text{S}-\text{CH}=\text{N}-$; $-\text{S}-\text{CR}^{29}=\text{N}-$; $-\text{N}=\text{CH}-\text{O}-$; $-\text{N}=\text{CR}^{30}-\text{O}-$; $-\text{N}=\text{CH}-\text{NH}-$; $-\text{NH}-\text{C}(=\text{O})-\text{NH}-$; $-\text{NH}-\text{C}(=\text{S})-\text{NH}-$; $-\text{N}=\text{N}-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{N}=\text{CH}-\text{CH}=\text{N}-$; $-\text{CH}=\text{CH}-\text{CH}=\text{N}-$; $-\text{CH}=\text{CH}-\text{N}=\text{CH}-$; $-\text{CH}=\text{N}-\text{N}=\text{CH}-$ and $-\text{O}-\text{CH}_2-\text{CH}_2-\text{NH}-$, which is attached in any desired direction to the parent structure,

or R^4 and R^5 together denote a residue selected from the group consisting of $-\text{S}-\text{CH}=\text{N}-$; $-\text{S}-\text{CR}^{29}=\text{N}-$; $-\text{N}=\text{CH}-\text{O}-$ and $-\text{N}=\text{CR}^{30}-\text{O}-$, which is attached in any desired direction to the parent structure,

and the remaining residues R^1 , R^2 , R^3 , R^4 and R^5 , mutually independently, in each case denote H; $-\text{OR}^{16}$; $-\text{SR}^{17}$; or denote a residue selected from the group consisting of methyl, $-\text{CF}_3$, $-\text{CHF}_2$, $-\text{CH}_2\text{F}$, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl and tert-butyl;

R^8 denotes $-\text{SF}_5$; $-\text{O}-\text{CF}_3$; $-\text{CF}_3$; tert-butyl, or $-\text{C}(\text{CH}_3)_2(\text{CH}_2\text{OH})$;

R^{16} and R^{17} , mutually independently, in each case denote a residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl;

R^{28} denotes F; Cl; Br or I;

R^{29} denotes $-\text{NH}-\text{C}(=\text{O})-\text{R}^{31}$; $-\text{NH}_2$; $-\text{NH}-\text{S}(=\text{O})_2-\text{R}^{32}$; $-\text{NH}-\text{C}(=\text{O})-\text{O}-\text{R}^{33}$ or $-\text{S}-\text{R}^{34}$;

R^{30} denotes $-\text{NH}_2$;

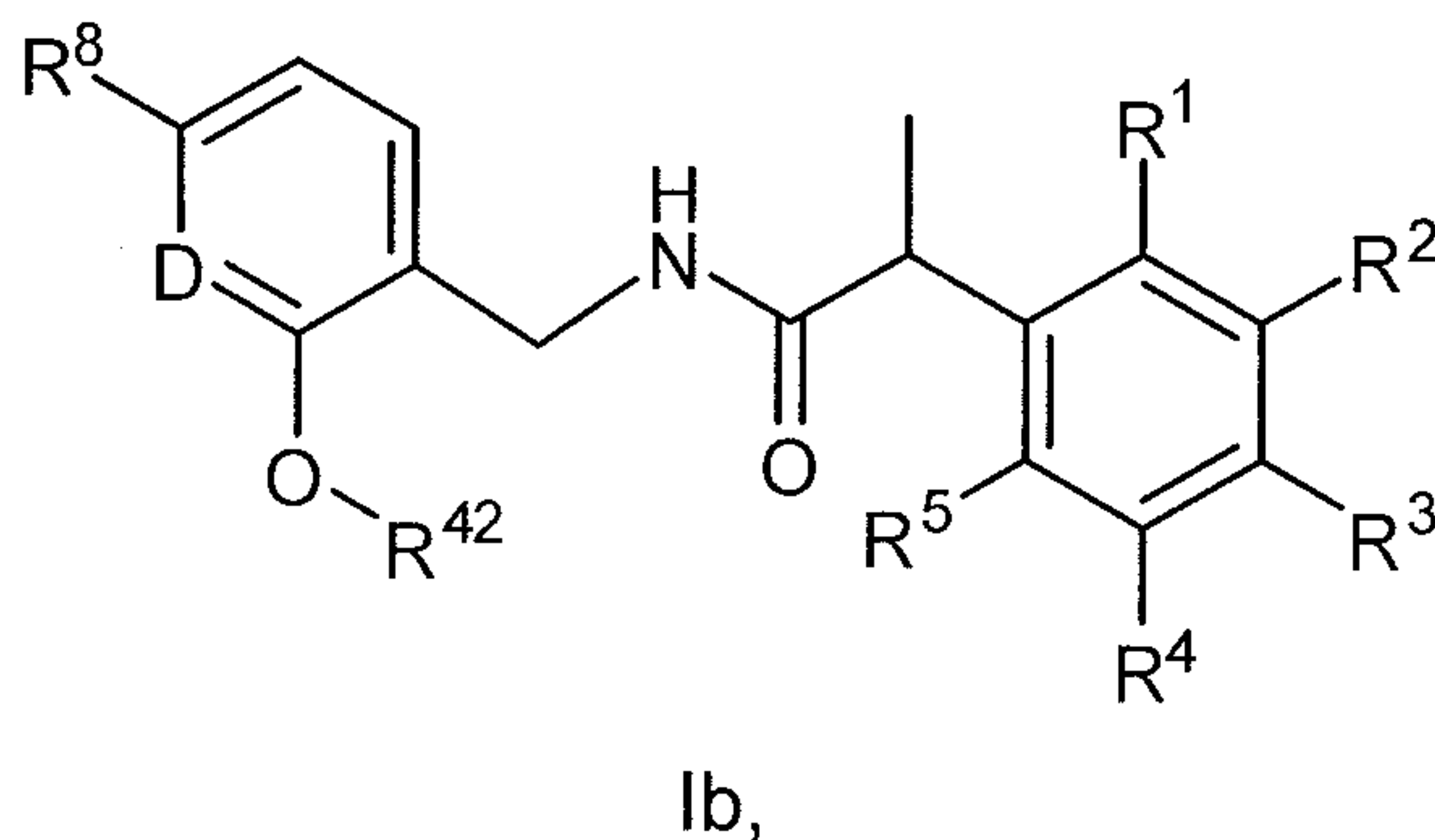
R^{31} , R^{32} , R^{33} and R^{34} , mutually independently, in each case denote an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl; and

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R^{71} denotes a phenyl residue which may be attached via a $-(CH_2)-$, $-(CH_2)_2-$ or $-(CH_2)_3$ group and/or in each case may be unsubstituted or optionally substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, I, $-CN$, $-CF_3$, $-SF_5$, $-OH$, $-O-CH_3$, $-O-C_2H_5$, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl and tert-butyl;

in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates.

Preferred compounds are those of the general formula Ib,



in which

D denotes N or CH;

R^1 and R^2 together denote a residue selected from the group consisting of $CH=N-$, $NH-$, $-CH=N-NR^{71}-$, $-S-C(=S)-NH-$, $-O-C(=S)-NH-$, $-S-C(=O)-NH-$, $-O-C(=O)-NH-$, $-S-C(=S)-NR^{63}-$, $-O-C(=S)-NR^{63}-$, $-S-C(=O)-NR^{63}-$, $-O-C(=O)-NR^{63}-$, $-S-CH=N-$, $-S-CR^{29}=N-$, $-N=CH-O-$, $-N=CR^{30}-O-$, $-NH-C(=O)-NH-$, $-NH-C(=S)-NH-$, $-NR^{66}-C(=O)-NR^{65}-$, $-NR^{66}-C(=S)-NR^{65}-$, $-O-CH_2-C(=O)-NH-$, $-O-CH_2-O-$, $-O-CH_2-CH_2-O-$, $-O-CH_2-CH_2-CH_2-O-$, $-O-CH_2-CH_2-NH-$ and $-CH=CH-N=CH-$, which is attached in any desired direction to the parent structure,

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or R^2 and R^3 together denote a residue selected from the group consisting of $-\text{CH}=\text{N}-\text{NH}-$; $-\text{CR}^{28}=\text{N}-\text{NH}-$; $-\text{CH}=\text{N}-\text{NR}^{62}-$; $-\text{CR}^{28}=\text{N}-\text{NR}^{62}-$; $-\text{S}-\text{C}(=\text{S})-\text{NH}-$; $-\text{O}-\text{C}(=\text{S})-\text{NH}-$; $-\text{S}-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{C}(=\text{O})-\text{NH}-$; $-\text{S}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{S}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{S}-\text{CH}=\text{N}-$; $-\text{S}-\text{CR}^{29}=\text{N}-$; $-\text{N}=\text{CH}-\text{O}-$; $-\text{N}=\text{CR}^{30}-\text{O}-$; $-\text{N}=\text{CH}-\text{NH}-$; $-\text{N}=\text{CH}-\text{NR}^{64}-$; $-\text{NH}-\text{C}(=\text{O})-\text{NH}-$; $-\text{NH}-\text{C}(=\text{S})-\text{NH}-$; $-\text{NR}^{66}-\text{C}(=\text{O})-\text{NR}^{65}-$; $-\text{NR}^{66}-\text{C}(=\text{S})-\text{NR}^{65}-$; $-\text{N}=\text{N}-\text{NH}-$; $-\text{N}=\text{N}-\text{NR}^{67}-$; $-\text{O}-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{O}-$; $-\text{CH}_2-\text{CH}_2-\text{NH}-$; $-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{NH}-$; $-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{CH}_2-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{N}=\text{N}-\text{CH}=\text{CH}-$; $-\text{N}=\text{CH}-\text{N}=\text{CH}-$; $-\text{N}=\text{CH}-\text{CH}=\text{N}-$; $-\text{CH}=\text{CH}-\text{CH}=\text{N}-$; $-\text{CH}=\text{CH}-\text{N}=\text{CH}-$; $-\text{CH}=\text{N}-\text{N}=\text{CH}-$ and $-\text{O}-\text{CH}_2-\text{CH}_2-\text{NH}-$, which is attached in any desired direction to the parent structure,

or R^3 and R^4 together denote a residue selected from the group consisting of $-\text{CH}=\text{N}-\text{NH}-$; $-\text{CR}^{28}=\text{N}-\text{NH}-$; $-\text{CH}=\text{N}-\text{NR}^{62}-$; $-\text{CR}^{28}=\text{N}-\text{NR}^{62}-$; $-\text{S}-\text{C}(=\text{S})-\text{NH}-$; $-\text{O}-\text{C}(=\text{S})-\text{NH}-$; $-\text{S}-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{C}(=\text{O})-\text{NH}-$; $-\text{S}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{S}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{S}-\text{CH}=\text{N}-$; $-\text{S}-\text{CR}^{29}=\text{N}-$; $-\text{N}=\text{CH}-\text{O}-$; $-\text{N}=\text{CR}^{30}-\text{O}-$; $-\text{N}=\text{CH}-\text{NH}-$; $-\text{N}=\text{CH}-\text{NR}^{64}-$; $-\text{NH}-\text{C}(=\text{O})-\text{NH}-$; $-\text{NH}-\text{C}(=\text{S})-\text{NH}-$; $-\text{NR}^{66}-\text{C}(=\text{O})-\text{NR}^{65}-$; $-\text{NR}^{66}-\text{C}(=\text{S})-\text{NR}^{65}-$; $-\text{N}=\text{N}-\text{NH}-$; $-\text{N}=\text{N}-\text{NR}^{67}-$; $-\text{O}-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{O}-$; $-\text{CH}_2-\text{CH}_2-\text{NH}-$; $-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{NH}-$; $-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{CH}_2-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{N}=\text{N}-\text{CH}=\text{CH}-$; $-\text{N}=\text{CH}-\text{N}=\text{CH}-$; $-\text{N}=\text{CH}-\text{CH}=\text{N}-$; $-\text{CH}=\text{CH}-\text{CH}=\text{N}-$; $-\text{CH}=\text{CH}-\text{N}=\text{CH}-$; $-\text{CH}=\text{N}-\text{N}=\text{CH}-$ and $-\text{O}-\text{CH}_2-\text{CH}_2-\text{NH}-$, which is attached in any desired direction to the parent structure,

or R^4 and R^5 together denote a residue selected from the group consisting of $-\text{CH}=\text{N}-\text{NH}-$; $-\text{CH}=\text{N}-\text{NR}^{71}-$; $-\text{S}-\text{C}(=\text{S})-\text{NH}-$; $-\text{O}-\text{C}(=\text{S})-\text{NH}-$; $-\text{S}-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{C}(=\text{O})-\text{NH}-$; $-\text{S}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{S}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{S}-\text{CH}=\text{N}-$; $-\text{S}-\text{CR}^{29}=\text{N}-$; $-\text{N}=\text{CH}-\text{O}-$; $-\text{N}=\text{CR}^{30}-\text{O}-$; $-\text{NH}-\text{C}(=\text{O})-\text{NH}-$; $-\text{NH}-\text{C}(=\text{S})-\text{NH}-$; $-\text{NR}^{66}-\text{C}(=\text{O})-\text{NR}^{65}-$; $-\text{NR}^{66}-\text{C}(=\text{S})-\text{NR}^{65}-$; $-\text{O}-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{NH}-$ and $-\text{CH}=\text{CH}-\text{N}=\text{CH}-$, which is attached in any desired direction to the parent structure,

and the remaining residues R^1 , R^2 , R^3 , R^4 and R^5 , mutually independently, in each case denote H; F; Cl; Br; I; $-\text{CF}_3$; $-\text{CN}$; $-\text{OR}^{16}$; $-\text{SR}^{17}$; or denote a residue selected from the group consisting of methyl, $-\text{CF}_3$, $-\text{CHF}_2$, $-\text{CH}_2\text{F}$, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl and tert-butyl;

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R^8 denotes $-SF_5$; $-O-CF_3$; $-CF_3$; tert-butyl, or $-C(CH_3)_2(CH_2OH)$;

R^{16} and R^{17} , mutually independently, in each case denote a residue selected from the group consisting of methyl, $-CF_3$, $-CHF_2$, $-CH_2F$, ethyl, $-CF_2-CH_3$, $-CH_2-CF_3$, $-C_2F_5$, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl, 3-pentyl, n-heptyl, 4-heptyl, n-octyl, n-nonyl, 5-nonyl, (2,6)-dimethyl-hept-4-yl, 3-methyl-butyl, n-hexyl and (3,3)-dimethylbutyl;

R^{28} denotes F; Cl; Br; I; $-CF_3$; $-CN$; $-NH_2$ or denotes an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl and n-pentyl;

R^{29} and R^{30} , mutually independently, in each case denote $-NH-C(=O)-R^{31}$; $-NH_2$; $-NH-S(=O)_2-R^{32}$; $-NH-C(=O)-O-R^{33}$; $-S-R^{34}$ or denote an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl;

R^{31} , R^{32} , R^{33} and R^{34} , mutually independently, in each case denote an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl;

R^{42} denotes a residue selected from the group consisting of methyl, $-CH_2-O-CH_3$, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl, 3-pentyl, n-hexyl, (3,3)-dimethylbutyl, $-CH_2-CH_2-O-CH_3$, $-CH_2-CH_2-O-C_2H_5$ and $-CH_2-CH_2-CH_2-O-CH_3$;

or denotes a residue selected from the group consisting of 2,3-dihydro-1H-indenyl, cyclopropyl, oxetanyl, cyclobutyl, cyclopentyl, cyclohexyl, imidazolidinyl, tetrahydrofuranyl, tetrahydrothiophenyl, pyrrolidinyl, piperidinyl, morpholinyl, piperazinyl, azepanyl, diazepanyl, azocanyl and thiomorpholinyl, which may in each case optionally be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl;

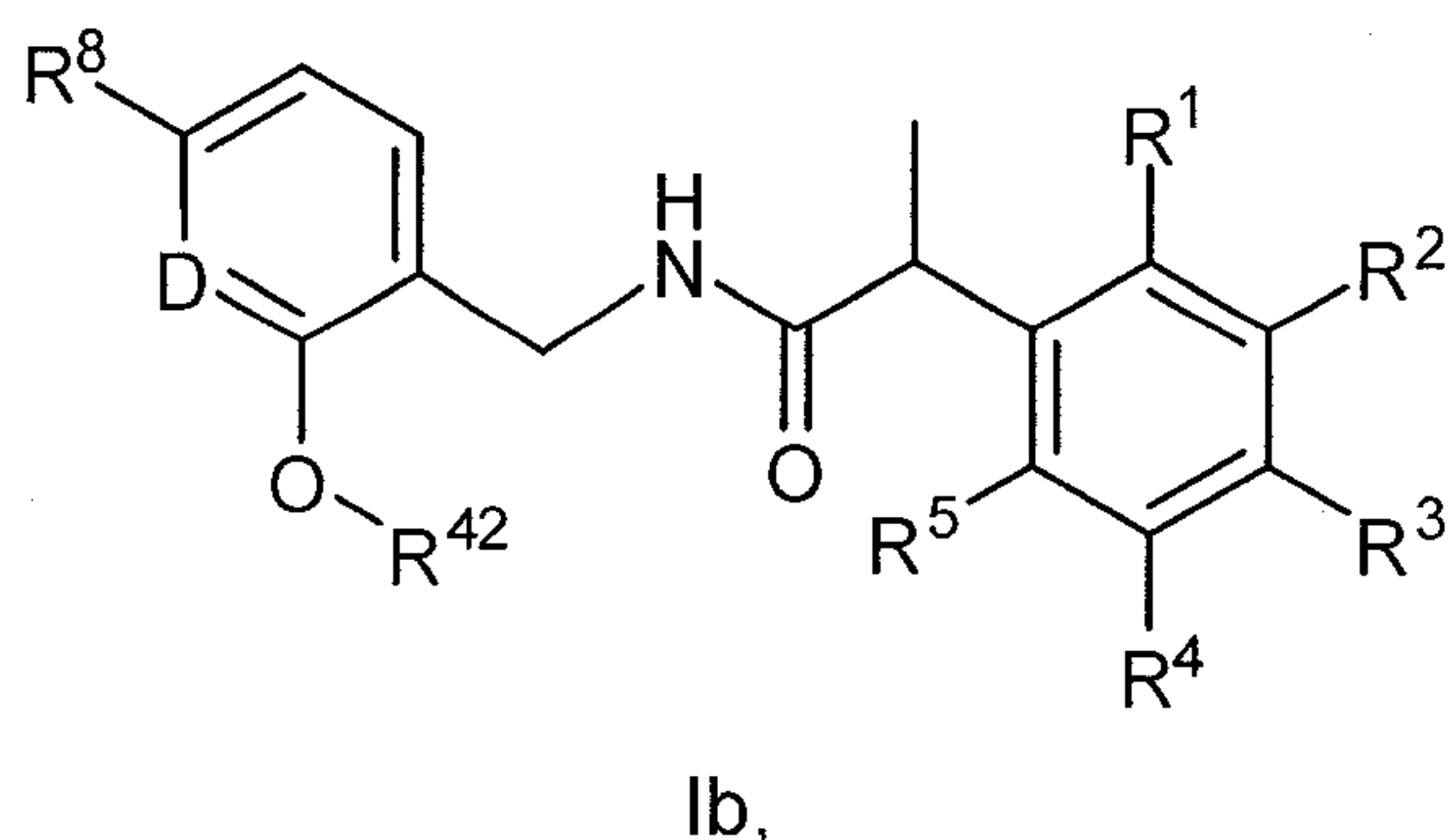
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R^{62} , R^{63} , R^{64} , R^{65} , R^{66} and R^{67} , mutually independently, in each case denote an alkyl residue selected from the group consisting of $-\text{CF}_3$, $-\text{CH}_2\text{CF}_3$, methyl, ethyl, n-propyl, isopropyl, tert-butyl, n-butyl, sec-butyl, and isobutyl;

R^{71} denotes a residue selected from the group consisting of phenyl, naphthyl, thiophenyl, furanyl and pyridinyl, wherein the residue may in each case be attached via a $-(\text{CH}_2)-$, $-(\text{CH}_2)_2-$ or $-(\text{CH}_2)_3-$ group and/or in each case may be unsubstituted or optionally substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, I, $-\text{CN}$, $-\text{CF}_3$, $-\text{SF}_5$, $-\text{OH}$, $-\text{OCH}_3$, $-\text{OC}_2\text{H}_5$, $-\text{OCH}(\text{CH}_3)_2$, $-\text{OC}(\text{CH}_3)_3$, $-\text{NH}_2$, $-\text{NO}_2$, $-\text{OCF}_3$, $-\text{SCF}_3$, $-\text{SH}$, $-\text{SCH}_3$, $-\text{SC}_2\text{H}_5$, $-\text{SCH}(\text{CH}_3)_2$, $-\text{SC}(\text{CH}_3)_3$, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, $-\text{O}$ -phenyl, $-\text{O}$ -benzyl, phenyl and benzyl;

in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates.

Particularly preferred compounds are those of the general formula Ib,



in which

D denotes N or CH;

or R² and R³ together denote a residue selected from the group consisting of -CH=N-NH-; -CR²⁸=N-NH-; -CH=N-NR⁶²-; -CR²⁸=N-NR⁶²-; -S-C(=S)-NH-; -O-C(=S)-NH-; -S-C(=O)-NH-; -O-C(=O)-NH-; -S-C(=S)-NR⁶³-; -O-C(=S)-NR⁶³-; -S-C(=O)-NR⁶³-; -O-C(=O)-NR⁶³-; -S-CH=N-; -S-CR²⁹=N-; -N=CH-O-; -N=CR³⁰-O-; -N=CH-NH-; -N=CH-NR⁶⁴-; -NH-C(=O)-NH-; -NH-C(=S)-NH-; -NR⁶⁶-C(=O)-NR⁶⁵-; -NR⁶⁶-C(=S)-NR⁶⁵-; -N=N-NH-; -N=N-NR⁶⁷-; -O-CH₂-C(=O)-NH-; -O-CH₂-O-; -CH₂-CH₂-NH-, -CH₂-CH₂-CH₂-NH-, -CH₂-C(=O)-NH-, -CH₂-CH₂-C(=O)-NH-; -O-CH₂-CH₂-O-; -O-CH₂-CH₂-CH₂-O-; -N=N-CH=CH-; -N=CH-N=CH-; -N=CH-CH=N-; -CH=CH-CH=N-; -CH=CH-N=CH-; -CH=N-N=CH- and -O-CH₂-CH₂-NH-, which is attached in any desired direction to the parent structure,

or R⁴ and R⁵ together denote a residue selected from the group consisting of -CH=N-NH-; -CH=N-NR⁷¹-; -S-C(=S)-NH-; -O-C(=S)-NH-; -S-C(=O)-NH-; -O-C(=O)-NH-; -S-C(=S)-NR⁶³-; -O-C(=S)-NR⁶³-; -S-C(=O)-NR⁶³-; -O-C(=O)-NR⁶³-; -S-CH=N-; -S-CR²⁹=N-; -N=CH-O-; -N=CR³⁰-O-; -NH-C(=O)-NH-; -NH-C(=S)-NH-; -NR⁶⁶-C(=O)-

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$\text{NR}^{65}-$; $-\text{NR}^{66}-\text{C}(=\text{S})-\text{NR}^{65}-$; $-\text{O}-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{O}-$, $-\text{O}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{NH}-$ and $-\text{CH}=\text{CH}-\text{N}=\text{CH}-$, which is attached in any desired direction to the parent structure,

and the remaining residues R^1 , R^2 , R^3 , R^4 and R^5 , mutually independently, in each case denote H; $-\text{OR}^{16}$; $-\text{SR}^{17}$; or denote a residue selected from the group consisting of methyl, $-\text{CF}_3$, $-\text{CHF}_2$, $-\text{CH}_2\text{F}$, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl and tert-butyl;

R^8 denotes $-\text{SF}_5$; $-\text{O}-\text{CF}_3$; $-\text{CF}_3$; tert-butyl, or $-\text{C}(\text{CH}_3)_2(\text{CH}_2\text{OH})$;

R^{16} and R^{17} , mutually independently, in each case denote a residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl;

R^{28} denotes F; Cl; Br or I;

R^{29} and R^{30} , mutually independently, in each case denote $-\text{NH}-\text{C}(=\text{O})-\text{R}^{31}$; $-\text{NH}_2$; $-\text{NH}-\text{S}(=\text{O})_2-\text{R}^{32}$; $-\text{NH}-\text{C}(=\text{O})-\text{O}-\text{R}^{33}$ or $-\text{S}-\text{R}^{34}$;

R^{31} , R^{32} , R^{33} and R^{34} , mutually independently, in each case denote an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl;

R^{42} denotes a residue selected from the group consisting of methyl, ethyl, n-propyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl, 3-pentyl, n-hexyl and (3,3)-dimethylbutyl;

or denotes a residue selected from the group consisting of cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl and cycloheptyl, which may in each case optionally be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl;

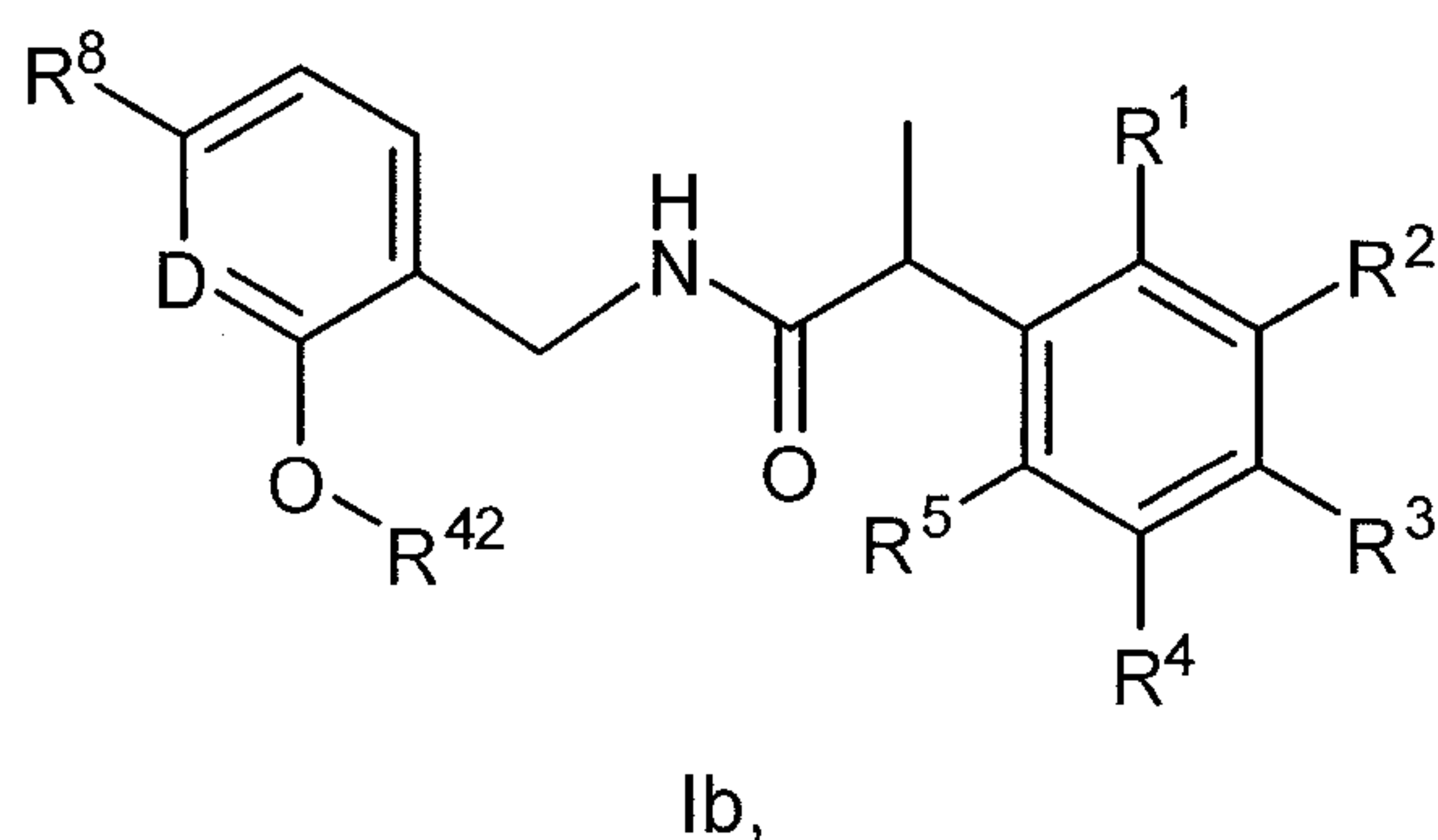
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R^{62} , R^{63} , R^{64} , R^{65} , R^{66} and R^{67} , mutually independently, in each case denote an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, tert-butyl, n-butyl, sec-butyl, and isobutyl; and

R^{71} denotes a residue selected from the group consisting of phenyl, naphthyl, thiophenyl, furanyl and pyridinyl, wherein the residue may in each case be attached via a $-(CH_2)-$, $-(CH_2)_2-$ or $-(CH_2)_3$ group and/or in each case may be unsubstituted or optionally substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, I, $-CN$, $-CF_3$, $-SF_5$, $-OH$, $-O-CH_3$, $-O-C_2H_5$, $-O-CH(CH_3)_2$, $-O-C(CH_3)_3$, $-NH_2$, $-NO_2$, $-O-CF_3$, $-S-CF_3$, $-SH$, $-S-CH_3$, $-S-C_2H_5$, $-S-CH(CH_3)_2$, $-S-C(CH_3)_3$, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, $-O$ -phenyl, $-O$ -benzyl, phenyl and benzyl;

in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates.

Very particularly preferred compounds are those of the general formula Ib,



in which

D denotes N or CH;

R^1 and R^2 together denote a residue selected from the group consisting of

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S-CH=N-; -S-CR²⁹=N-; -N=CH-O- and -N=CR³⁰-O-, which is attached in any desired direction to the parent structure,

or R² and R³ together denote a residue selected from the group consisting of -CH=N-NH-; -CR²⁸=N-NH-; -S-C(=S)-NH-; -O-C(=S)-NH-; -S-C(=O)-NH-; -O-C(=O)-NH-; -S-CH=N-; -S-CR²⁹=N-; -N=CH-O-; -N=CR³⁰-O-; -N=CH-NH-; -NH-C(=O)-NH-; -NH-C(=S)-NH-; -N=N-NH-; -O-CH₂-C(=O)-NH-; -O-CH₂-CH₂-O-; -O-CH₂-CH₂-CH₂-O-; -N=CH-CH=N-; -CH=CH-CH=N-; -CH=CH-N=CH-; -CH=N-N=CH- and -O-CH₂-CH₂-NH-, which is attached in any desired direction to the parent structure,

or R³ and R⁴ together denote a residue selected from the group consisting of -CH=N-NH-; -CR²⁸=N-NH-; -S-C(=S)-NH-; -O-C(=S)-NH-; -S-C(=O)-NH-; -O-C(=O)-NH-; -S-CH=N-; -S-CR²⁹=N-; -N=CH-O-; -N=CR³⁰-O-; -N=CH-NH-; -NH-C(=O)-NH-; -NH-C(=S)-NH-; -N=N-NH-; -O-CH₂-C(=O)-NH-; -O-CH₂-CH₂-O-; O-CH₂-CH₂-CH₂-O-; -N=CH-CH=N-; -CH=CH-CH=N-; -CH=CH-N=CH-; -CH=N-N=CH- and -O-CH₂-CH₂-NH-, which is attached in any desired direction to the parent structure,

or R⁴ and R⁵ together denote a residue selected from the group consisting of -S-CH=N-; -S-CR²⁹=N-; -N=CH-O- and -N=CR³⁰-O-, which is attached in any desired direction to the parent structure,

and the remaining residues R¹, R², R³, R⁴ and R⁵, mutually independently, in each case denote H; -OR¹⁶; -SR¹⁷; or denote a residue selected from the group consisting of methyl, -CF₃, -CHF₂, -CH₂F, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl and tert-butyl;

R⁸ denotes -SF₅; -O-CF₃; -CF₃; tert-butyl, or -C(CH₃)₂(CH₂OH);

R¹⁶ and R¹⁷, mutually independently, in each case denote a residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl;

R²⁸ denotes F; Cl; Br or I;

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R^{29} denotes $-NH-C(=O)-R^{31}$; $-NH_2$; $-NH-S(=O)_2-R^{32}$; $-NH-C(=O)-O-R^{33}$ or $-S-R^{34}$;

R^{30} denotes $-NH_2$;

R^{31} , R^{32} , R^{33} and R^{34} , mutually independently, in each case denote an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl;

R^{42} denotes a residue selected from the group consisting of methyl, ethyl, n-propyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl, 3-pentyl, n-hexyl and (3,3)-dimethylbutyl;

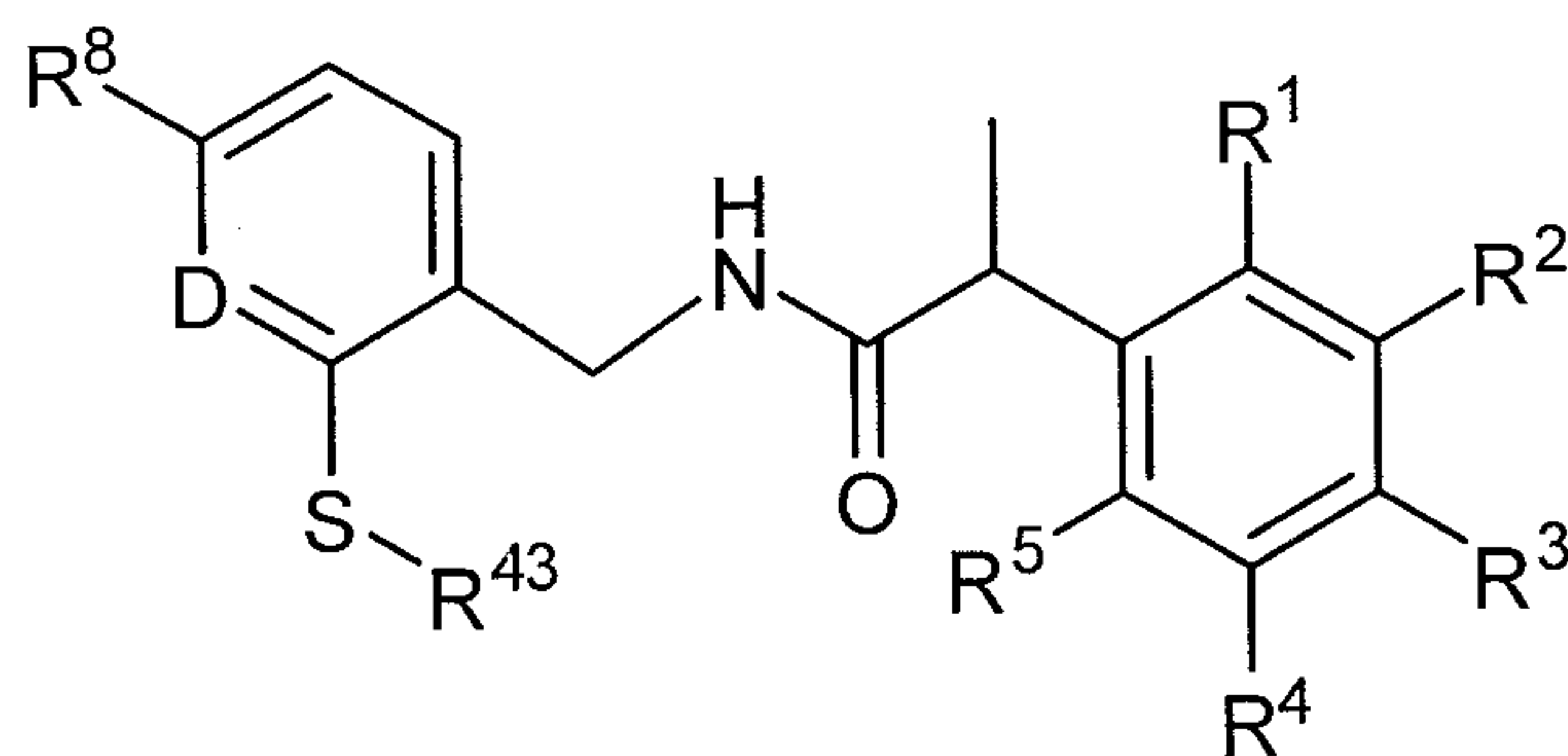
or denotes a residue selected from the group consisting of cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl and cycloheptyl, which may in each case optionally be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl;

R^{71} denotes a phenyl residue which may be attached via a $-(CH_2)-$, $-(CH_2)_2-$ or $-(CH_2)_3$ group and/or in each case may be unsubstituted or optionally substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, I, $-CN$, $-CF_3$, $-SF_5$, $-OH$, $-O-CH_3$, $-O-C_2H_5$, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl and tert-butyl;

in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates.

Preferred compounds are those of the general formula Ic,

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1c,

in which

D denotes N or CH;

R^1 and R^2 together denote a residue selected from the group consisting of $-\text{CH}=\text{N}-\text{NH}-$; $-\text{CH}=\text{N}-\text{NR}^{71}-$; $-\text{S}-\text{C}(=\text{S})-\text{NH}-$; $-\text{O}-\text{C}(=\text{S})-\text{NH}-$; $-\text{S}-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{C}(=\text{O})-\text{NH}-$; $-\text{S}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{S}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{S}-\text{CH}=\text{N}-$; $-\text{S}-\text{CR}^{29}=\text{N}-$; $-\text{N}=\text{CH}-\text{O}-$; $-\text{N}=\text{CR}^{30}-\text{O}-$; $-\text{NH}-\text{C}(=\text{O})-\text{NH}-$; $-\text{NH}-\text{C}(=\text{S})-\text{NH}-$; $-\text{NR}^{66}-\text{C}(=\text{O})-\text{NR}^{65}-$; $-\text{NR}^{66}-\text{C}(=\text{S})-\text{NR}^{65}-$; $-\text{O}-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{NH}-$ and $-\text{CH}=\text{CH}-\text{N}=\text{CH}-$, which is attached in any desired direction to the parent structure,

or R^2 and R^3 together denote a residue selected from the group consisting of $-\text{CH}=\text{N}-\text{NH}-$; $-\text{CR}^{28}=\text{N}-\text{NH}-$; $-\text{CH}=\text{N}-\text{NR}^{62}-$; $-\text{CR}^{28}=\text{N}-\text{NR}^{62}-$; $-\text{S}-\text{C}(=\text{S})-\text{NH}-$; $-\text{O}-\text{C}(=\text{S})-\text{NH}-$; $-\text{S}-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{C}(=\text{O})-\text{NH}-$; $-\text{S}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{S}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{S}-\text{CH}=\text{N}-$; $-\text{S}-\text{CR}^{29}=\text{N}-$; $-\text{N}=\text{CH}-\text{O}-$; $-\text{N}=\text{CR}^{30}-\text{O}-$; $-\text{N}=\text{CH}-\text{NH}-$; $-\text{N}=\text{CH}-\text{NR}^{64}-$; $-\text{NH}-\text{C}(=\text{O})-\text{NH}-$; $-\text{NH}-\text{C}(=\text{S})-\text{NH}-$; $-\text{NR}^{66}-\text{C}(=\text{O})-\text{NR}^{65}-$; $-\text{NR}^{66}-\text{C}(=\text{S})-\text{NR}^{65}-$; $-\text{N}=\text{N}-\text{NH}-$; $-\text{N}=\text{N}-\text{NR}^{67}-$; $-\text{O}-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{O}-$; $-\text{CH}_2-\text{CH}_2-\text{NH}-$; $-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{NH}-$; $-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{CH}_2-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{N}=\text{N}-\text{CH}=\text{CH}-$; $-\text{N}=\text{CH}-\text{N}=\text{CH}-$; $-\text{N}=\text{CH}-\text{CH}=\text{N}-$; $-\text{CH}=\text{CH}-\text{CH}=\text{N}-$; $-\text{CH}=\text{CH}-\text{N}=\text{CH}-$; $-\text{CH}=\text{N}-\text{N}=\text{CH}-$ and $-\text{O}-\text{CH}_2-\text{CH}_2-\text{NH}-$, which is attached in any desired direction to the parent structure,

or R^3 and R^4 together denote a residue selected from the group consisting of $-\text{CH}=\text{N}-\text{NH}-$; $-\text{CR}^{28}=\text{N}-\text{NH}-$; $-\text{CH}=\text{N}-\text{NR}^{62}-$; $-\text{CR}^{28}=\text{N}-\text{NR}^{62}-$; $-\text{S}-\text{C}(=\text{S})-\text{NH}-$; $-\text{O}-\text{C}(=\text{S})-\text{NH}-$; $-\text{S}-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{C}(=\text{O})-\text{NH}-$; $-\text{S}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{S}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{S}-\text{CH}=\text{N}-$; $-\text{S}-\text{CR}^{29}=\text{N}-$; $-\text{N}=\text{CH}-\text{O}-$; $-\text{N}=\text{CR}^{30}-\text{O}-$; $-\text{N}=\text{CH}-\text{NH}-$; $-\text{N}=\text{CH}-$

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NR⁶⁴-; -NH-C(=O)-NH-; -NH-C(=S)-NH-; -NR⁶⁶-C(=O)-NR⁶⁵-; -NR⁶⁶-C(=S)-NR⁶⁵-; -N=N-NH-; -N=N-NR⁶⁷-; -O-CH₂-C(=O)-NH-; -O-CH₂-O-; -CH₂-CH₂-NH-, -CH₂-CH₂-CH₂-NH-, -CH₂-C(=O)-NH-, -CH₂-CH₂-C(=O)-NH-; -O-CH₂-CH₂-O-; -O-CH₂-CH₂-CH₂-O-; -N=N-CH=CH-; -N=CH-N=CH-; -N=CH-CH=N-; -CH=CH-CH=N-; -CH=CH-N=CH-; -CH=N-N=CH- and -O-CH₂-CH₂-NH-, which is attached in any desired direction to the parent structure,

or R⁴ and R⁵ together denote a residue selected from the group consisting of -CH=N-NH-; -CH=N-NR⁷¹-; -S-C(=S)-NH-; -O-C(=S)-NH-; -S-C(=O)-NH-; -O-C(=O)-NH-; -S-C(=S)-NR⁶³-; -O-C(=S)-NR⁶³-; -S-C(=O)-NR⁶³-; -O-C(=O)-NR⁶³-; -S-CH=N-; -S-CR²⁹=N-; -N=CH-O-; -N=CR³⁰-O-; -NH-C(=O)-NH-; -NH-C(=S)-NH-; -NR⁶⁶-C(=O)-NR⁶⁵-; -NR⁶⁶-C(=S)-NR⁶⁵-; -O-CH₂-C(=O)-NH-; -O-CH₂-O-; -O-CH₂-CH₂-O-, -O-CH₂-CH₂-CH₂-O-; -O-CH₂-CH₂-NH- and -CH=CH-N=CH-, which is attached in any desired direction to the parent structure,

and the remaining residues R¹, R², R³, R⁴ and R⁵, mutually independently, in each case denote H; F; Cl; Br; I; -CF₃; -CN; -OR¹⁶; -SR¹⁷; or denote a residue selected from the group consisting of methyl, -CF₃, -CHF₂, -CH₂F, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl and tert-butyl;

R⁸ denotes -SF₅; -O-CF₃; -CF₃; tert-butyl, or -C(CH₃)₂(CH₂OH);

R¹⁶ and R¹⁷, mutually independently, in each case denote a residue selected from the group consisting of methyl, -CF₃, -CHF₂, -CH₂F, ethyl, -CF₂-CH₃, -CH₂-CF₃, -C₂F₅, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl, 3-pentyl, n-heptyl, 4-heptyl, n-octyl, n-nonyl, 5-nonyl, (2,6)-dimethyl-hept-4-yl, 3-methyl-butyl, n-hexyl and (3,3)-dimethylbutyl;

R²⁸ denotes F; Cl; Br; I; -CF₃; -CN; -NH₂ or denotes an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl and n-pentyl;

R²⁹ and R³⁰, mutually independently, in each case denote -NH-C(=O)-R³¹; -NH₂; -NH-S(=O)₂-R³²; -NH-C(=O)-O-R³³; -S-R³⁴ or denote an alkyl residue selected from the

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group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl;

R^{31} , R^{32} , R^{33} and R^{34} , mutually independently, in each case denote an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl;

R^{43} denotes a residue selected from the group consisting of methyl, $-\text{CH}_2\text{-O-CH}_3$, ethyl, n-propyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl, 3-pentyl, n-hexyl, (3,3)-dimethylbutyl, $-\text{CH}_2\text{-CH}_2\text{-O-CH}_3$, $-\text{CH}_2\text{-CH}_2\text{-O-C}_2\text{H}_5$ and $-\text{CH}_2\text{-CH}_2\text{-CH}_2\text{-O-CH}_3$;

or denotes a residue selected from the group consisting of 2,3-dihydro-1H-indenyl, cyclopropyl, oxetanyl, cyclobutyl, cyclopentyl, cyclohexyl, imidazolidinyl, tetrahydrofuranyl, tetrahydrothiophenyl, pyrrolidinyl, piperidinyl, morpholinyl, piperazinyl, azepanyl, diazepanyl, azocanyl and thiomorpholinyl, which may in each case optionally be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl;

R^{62} , R^{63} , R^{64} , R^{65} , R^{66} and R^{67} , mutually independently, in each case denote an alkyl residue selected from the group consisting of $-\text{CF}_3$, $-\text{CH}_2\text{-CF}_3$, methyl, ethyl, n-propyl, isopropyl, tert-butyl, n-butyl, sec-butyl, and isobutyl;

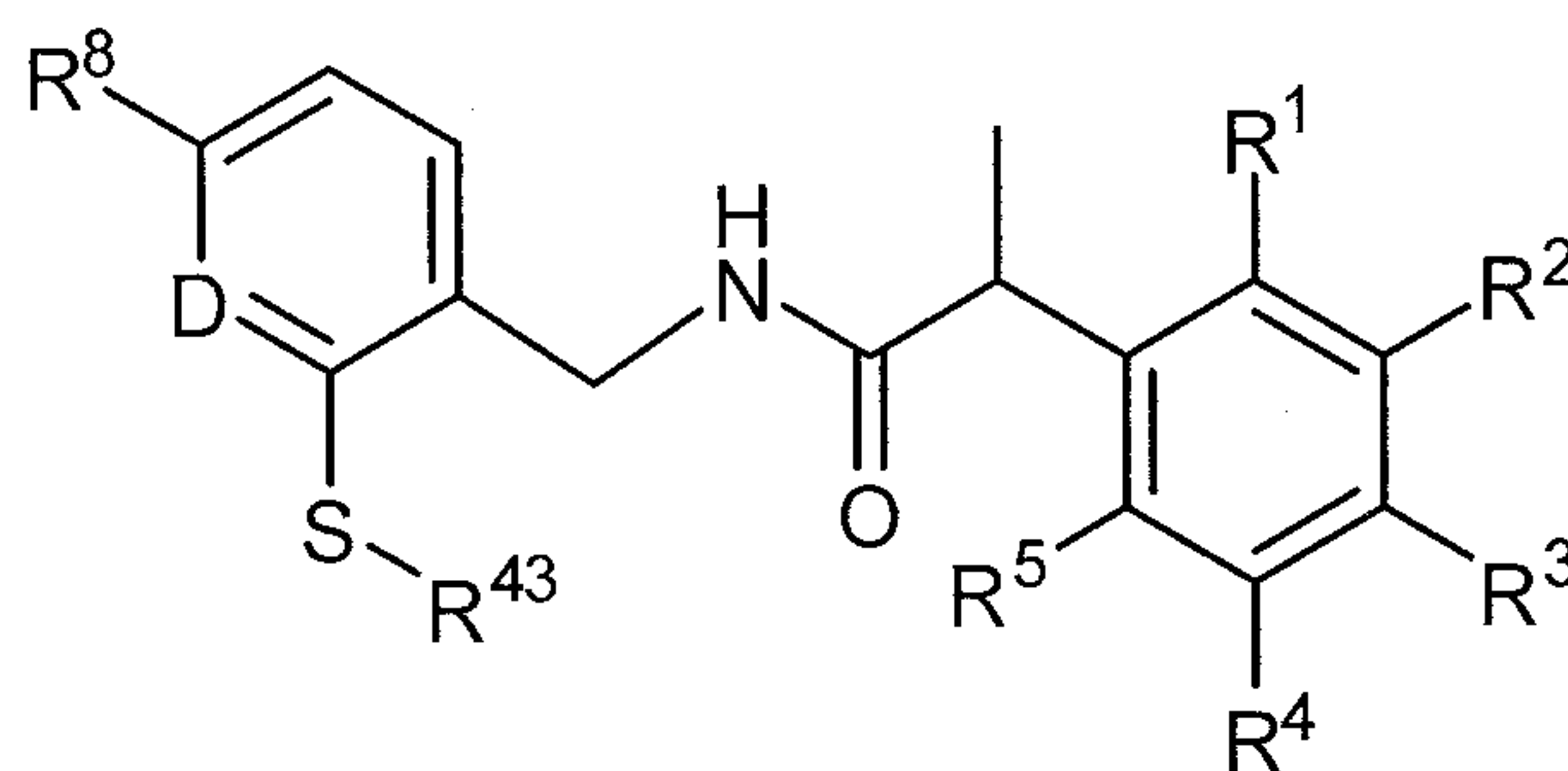
R^{71} denotes a residue selected from the group consisting of phenyl, naphthyl, thiophenyl, furanyl and pyridinyl, wherein the residue may in each case be attached via a $-(\text{CH}_2)-$, $-(\text{CH}_2)_2-$ or $-(\text{CH}_2)_3$ group and/or in each case may be unsubstituted or optionally substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, I, $-\text{CN}$, $-\text{CF}_3$, $-\text{SF}_5$, $-\text{OH}$, $-\text{O-CH}_3$, $-\text{O-C}_2\text{H}_5$, $-\text{O-CH}(\text{CH}_3)_2$, $-\text{O-C}(\text{CH}_3)_3$, $-\text{NH}_2$, $-\text{NO}_2$, $-\text{O-CF}_3$, $-\text{S-CF}_3$, $-\text{SH}$, $-\text{S-CH}_3$, $-\text{S-C}_2\text{H}_5$, $-\text{S-CH}(\text{CH}_3)_2$, $-\text{S-C}(\text{CH}_3)_3$, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, $-\text{O-phenyl}$, $-\text{O-benzyl}$, phenyl and benzyl;

in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a

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mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates.

Particularly preferred compounds are those of the general formula Ic,



Ic,

in which

D denotes N or CH;

R^1 and R^2 together denote a residue selected from the group consisting of $-\text{CH}=\text{N}-\text{NH}-$; $-\text{CH}=\text{N}-\text{NR}^{71}-$; $-\text{S}-\text{C}(=\text{S})-\text{NH}-$; $-\text{O}-\text{C}(=\text{S})-\text{NH}-$; $-\text{S}-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{C}(=\text{O})-\text{NH}-$; $-\text{S}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{S}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{S}-\text{CH}=\text{N}-$; $-\text{S}-\text{CR}^{29}=\text{N}-$; $-\text{N}=\text{CH}-\text{O}-$; $-\text{N}=\text{CR}^{30}-\text{O}-$; $-\text{NH}-\text{C}(=\text{O})-\text{NH}-$; $-\text{NH}-\text{C}(=\text{S})-\text{NH}-$; $-\text{NR}^{66}-\text{C}(=\text{O})-\text{NR}^{65}-$; $-\text{NR}^{66}-\text{C}(=\text{S})-\text{NR}^{65}-$; $-\text{O}-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{NH}-$ and $-\text{CH}=\text{CH}-\text{N}=\text{CH}-$, which is attached in any desired direction to the parent structure,

or R^2 and R^3 together denote a residue selected from the group consisting of $-\text{CH}=\text{N}-\text{NH}-$; $-\text{CR}^{28}=\text{N}-\text{NH}-$; $-\text{CH}=\text{N}-\text{NR}^{62}-$; $-\text{CR}^{28}=\text{N}-\text{NR}^{62}-$; $-\text{S}-\text{C}(=\text{S})-\text{NH}-$; $-\text{O}-\text{C}(=\text{S})-\text{NH}-$; $-\text{S}-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{C}(=\text{O})-\text{NH}-$; $-\text{S}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{S}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{S}-\text{CH}=\text{N}-$; $-\text{S}-\text{CR}^{29}=\text{N}-$; $-\text{N}=\text{CH}-\text{O}-$; $-\text{N}=\text{CR}^{30}-\text{O}-$; $-\text{N}=\text{CH}-\text{NH}-$; $-\text{N}=\text{CH}-\text{NR}^{64}-$; $-\text{NH}-\text{C}(=\text{O})-\text{NH}-$; $-\text{NH}-\text{C}(=\text{S})-\text{NH}-$; $-\text{NR}^{66}-\text{C}(=\text{O})-\text{NR}^{65}-$; $-\text{NR}^{66}-\text{C}(=\text{S})-\text{NR}^{65}-$; $-\text{N}=\text{N}-\text{NH}-$; $-\text{N}=\text{N}-\text{NR}^{67}-$; $-\text{O}-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{O}-$; $-\text{CH}_2-\text{CH}_2-\text{NH}-$; $-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{NH}-$; $-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{CH}_2-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{N}=\text{N}-\text{CH}=\text{CH}-$; $-\text{N}=\text{CH}-\text{N}=\text{CH}-$; $-\text{N}=\text{CH}-\text{CH}=\text{N}-$; $-\text{CH}=\text{CH}-\text{CH}=\text{N}-$; $-\text{CH}=\text{CH}-\text{N}=\text{CH}-$;

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-CH=N-N=CH- and -O-CH₂-CH₂-NH-, which is attached in any desired direction to the parent structure,

or R³ and R⁴ together denote a residue selected from the group consisting of -CH=N-NH-; -CR²⁸=N-NH-; -CH=N-NR⁶²-; -CR²⁸=N-NR⁶²-; -S-C(=S)-NH-; -O-C(=S)-NH-; -S-C(=O)-NH-; -O-C(=O)-NH-; -S-C(=S)-NR⁶³-; -O-C(=S)-NR⁶³-; -S-C(=O)-NR⁶³-; -O-C(=O)-NR⁶³-; -S-CH=N-; -S-CR²⁹=N-; -N=CH-O-; -N=CR³⁰-O-; -N=CH-NH-; -N=CH-NR⁶⁴-; -NH-C(=O)-NH-; -NH-C(=S)-NH-; -NR⁶⁶-C(=O)-NR⁶⁵-; -NR⁶⁶-C(=S)-NR⁶⁵-; -N=N-NH-; -N=N-NR⁶⁷-; -O-CH₂-C(=O)-NH-; -O-CH₂-O-; -CH₂-CH₂-NH-, -CH₂-CH₂-CH₂-NH, -CH₂-C(=O)-NH, -CH₂-CH₂-C(=O)-NH-; -O-CH₂-CH₂-O-; -O-CH₂-CH₂-CH₂-O-; -N=N-CH=CH-; -N=CH-N=CH-; -N=CH-CH=N-; -CH=CH-CH=N-; -CH=CH-N=CH-; -CH=N-N=CH- and -O-CH₂-CH₂-NH-, which is attached in any desired direction to the parent structure,

or R⁴ and R⁵ together denote a residue selected from the group consisting of -CH=N-NH-; -CH=N-NR⁷¹-; -S-C(=S)-NH-; -O-C(=S)-NH-; -S-C(=O)-NH-; -O-C(=O)-NH-; -S-C(=S)-NR⁶³-; -O-C(=S)-NR⁶³-; -S-C(=O)-NR⁶³-; -O-C(=O)-NR⁶³-; -S-CH=N-; -S-CR²⁹=N-; -N=CH-O-; -N=CR³⁰-O-; -NH-C(=O)-NH-; -NH-C(=S)-NH-; -NR⁶⁶-C(=O)-NR⁶⁵-; -NR⁶⁶-C(=S)-NR⁶⁵-; -O-CH₂-C(=O)-NH-; -O-CH₂-O-; -O-CH₂-CH₂-O-, -O-CH₂-CH₂-CH₂-O-; -O-CH₂-CH₂-NH- and -CH=CH-N=CH-, which is attached in any desired direction to the parent structure,

and the remaining residues R¹, R², R³, R⁴ and R⁵, mutually independently, in each case denote H; -OR¹⁶; -SR¹⁷; or denote a residue selected from the group consisting of methyl, -CF₃, -CHF₂, -CH₂F, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl and tert-butyl;

R⁸ denotes -SF₅; -O-CF₃; -CF₃; tert-butyl, or -C(CH₃)₂(CH₂OH);

R¹⁶ and R¹⁷, mutually independently, in each case denote a residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl;

R²⁸ denotes F; Cl; Br or I;

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R^{29} and R^{30} , mutually independently, in each case denote $-NH-C(=O)-R^{31}$; $-NH_2$; $-NH-S(=O)_2-R^{32}$; $-NH-C(=O)-O-R^{33}$ or $-S-R^{34}$;

R^{31} , R^{32} , R^{33} and R^{34} , mutually independently, in each case denote an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl;

R^{43} denotes a residue selected from the group consisting of methyl, ethyl, n-propyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl, 3-pentyl, n-hexyl and (3,3)-dimethylbutyl;

or denotes a residue selected from the group consisting of cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl and cycloheptyl, which may in each case optionally be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl;

R^{62} , R^{63} , R^{64} , R^{65} , R^{66} and R^{67} , mutually independently, in each case denote an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, tert-butyl, n-butyl, sec-butyl, and isobutyl; and

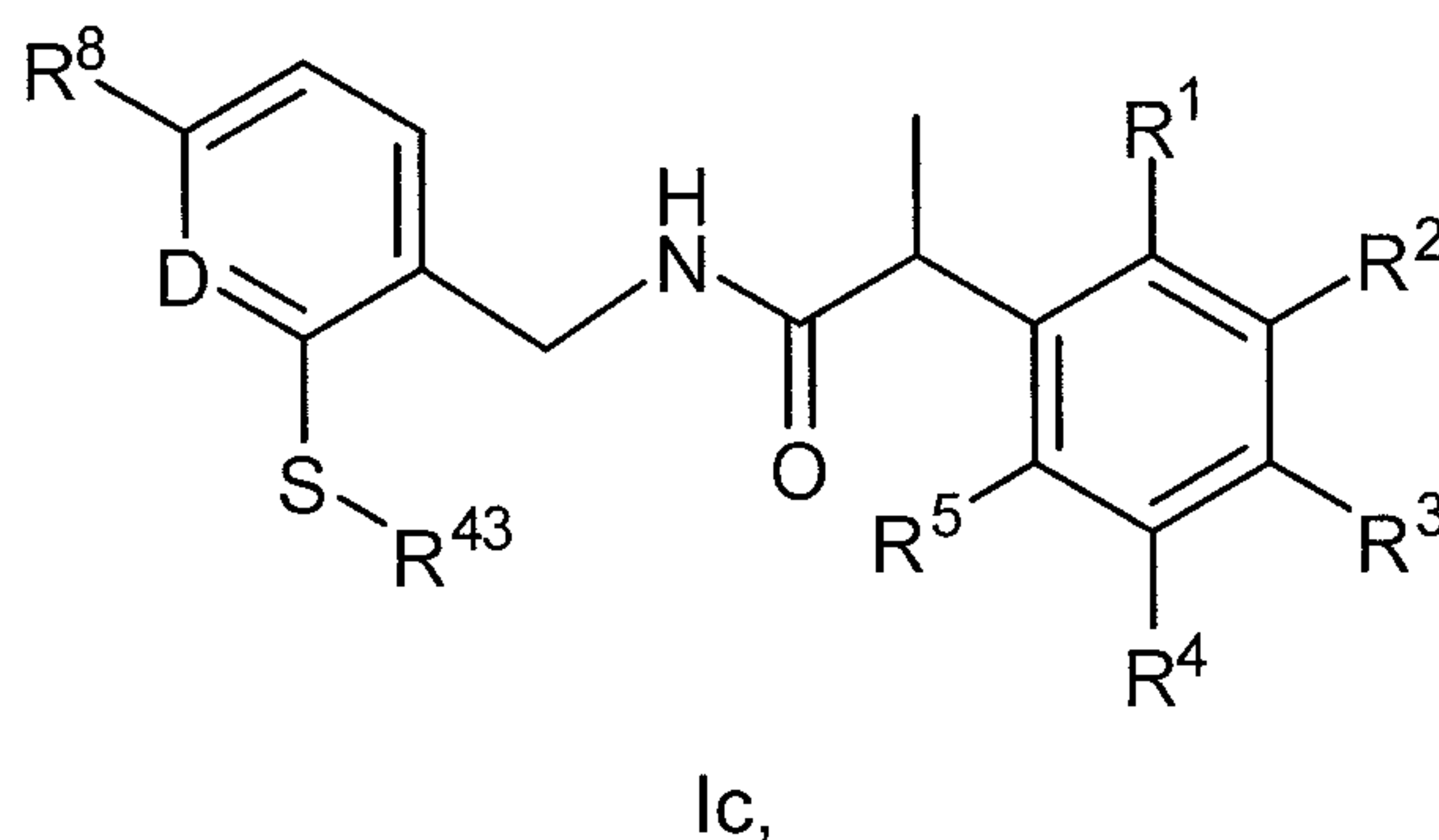
R^{71} denotes a residue selected from the group consisting of phenyl, naphthyl, thiophenyl, furanyl and pyridinyl, wherein the residue may in each case be attached via a $-(CH_2)-$, $-(CH_2)_2-$ or $-(CH_2)_3-$ group and/or in each case may be unsubstituted or optionally substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, I, $-CN$, $-CF_3$, $-SF_5$, $-OH$, $-O-CH_3$, $-O-C_2H_5$, $-O-CH(CH_3)_2$, $-O-C(CH_3)_3$, $-NH_2$, $-NO_2$, $-O-CF_3$, $-S-CF_3$, $-SH$, $-S-CH_3$, $-S-C_2H_5$, $-S-CH(CH_3)_2$, $-S-C(CH_3)_3$, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, $-O$ -phenyl, $-O$ -benzyl, phenyl and benzyl;

in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any

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desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates.

Very particularly preferred compounds are those of the general formula Ic,



in which

D denotes N or CH;

R^1 and R^2 together denote a residue selected from the group consisting of $S-CH=N-$; $-S-CR^{29}=N-$; $-N=CH-O-$ and $-N=CR^{30}-O-$, which is attached in any desired direction to the parent structure,

or R^2 and R^3 together denote a residue selected from the group consisting of $-CH=N-NH-$; $-CR^{28}=N-NH-$; $-S-C(=S)-NH-$; $-O-C(=S)-NH-$; $-S-C(=O)-NH-$; $-O-C(=O)-NH-$; $-S-CH=N-$; $-S-CR^{29}=N-$; $-N=CH-O-$; $-N=CR^{30}-O-$; $-N=CH-NH-$; $-NH-C(=O)-NH-$; $-NH-C(=S)-NH-$; $-N=N-NH-$; $-O-CH_2-C(=O)-NH-$; $-O-CH_2-CH_2-O-$; $-O-CH_2-CH_2-CH_2-O-$; $-N=CH-CH=N-$; $-CH=CH-CH=N-$; $-CH=CH-N=CH-$; $-CH=N-N=CH-$ and $-O-CH_2-CH_2-NH-$, which is attached in any desired direction to the parent structure,

or R^3 and R^4 together denote a residue selected from the group consisting of $-CH=N-NH-$; $-CR^{28}=N-NH-$; $-S-C(=S)-NH-$; $-O-C(=S)-NH-$; $-S-C(=O)-NH-$; $-O-C(=O)-NH-$; $-S-CH=N-$; $-S-CR^{29}=N-$; $-N=CH-O-$; $-N=CR^{30}-O-$; $-N=CH-NH-$; $-NH-C(=O)-NH-$; $-NH-C(=S)-NH-$; $-N=N-NH-$; $-O-CH_2-C(=O)-NH-$; $-O-CH_2-CH_2-O-$; $-O-CH_2-CH_2-CH_2-O-$; $-N=CH-CH=N-$; $-CH=CH-CH=N-$; $-CH=CH-N=CH-$; $-CH=N-N=CH-$ and $-O-CH_2-CH_2-NH-$, which is attached in any desired direction to the parent structure,

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or R^4 and R^5 together denote a residue selected from the group consisting of S-CH=N-; -S-CR²⁹=N-; -N=CH-O- and -N=CR³⁰-O-, which is attached in any desired direction to the parent structure,

and the remaining residues R^1 , R^2 , R^3 , R^4 and R^5 , mutually independently, in each case denote H; -OR¹⁶; -SR¹⁷; or denote a residue selected from the group consisting of methyl, -CF₃, -CHF₂, -CH₂F, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl and tert-butyl;

R^8 denotes -SF₅; -O-CF₃; -CF₃; tert-butyl, or -C(CH₃)₂(CH₂OH);

R^{16} and R^{17} , mutually independently, in each case denote a residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl;

R^{28} denotes F; Cl; Br or I;

R^{29} denotes -NH-C(=O)-R³¹; -NH₂; -NH-S(=O)₂-R³²; -NH-C(=O)-O-R³³ or -S-R³⁴;

R^{30} denotes -NH₂;

R^{31} , R^{32} , R^{33} and R^{34} , mutually independently, in each case denote an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl;

R^{43} denotes a residue selected from the group consisting of methyl, ethyl, n-propyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl, 3-pentyl, n-hexyl and (3,3)-dimethylbutyl;

or denotes a residue selected from the group consisting of cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl and cycloheptyl, which may in each case optionally be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl;

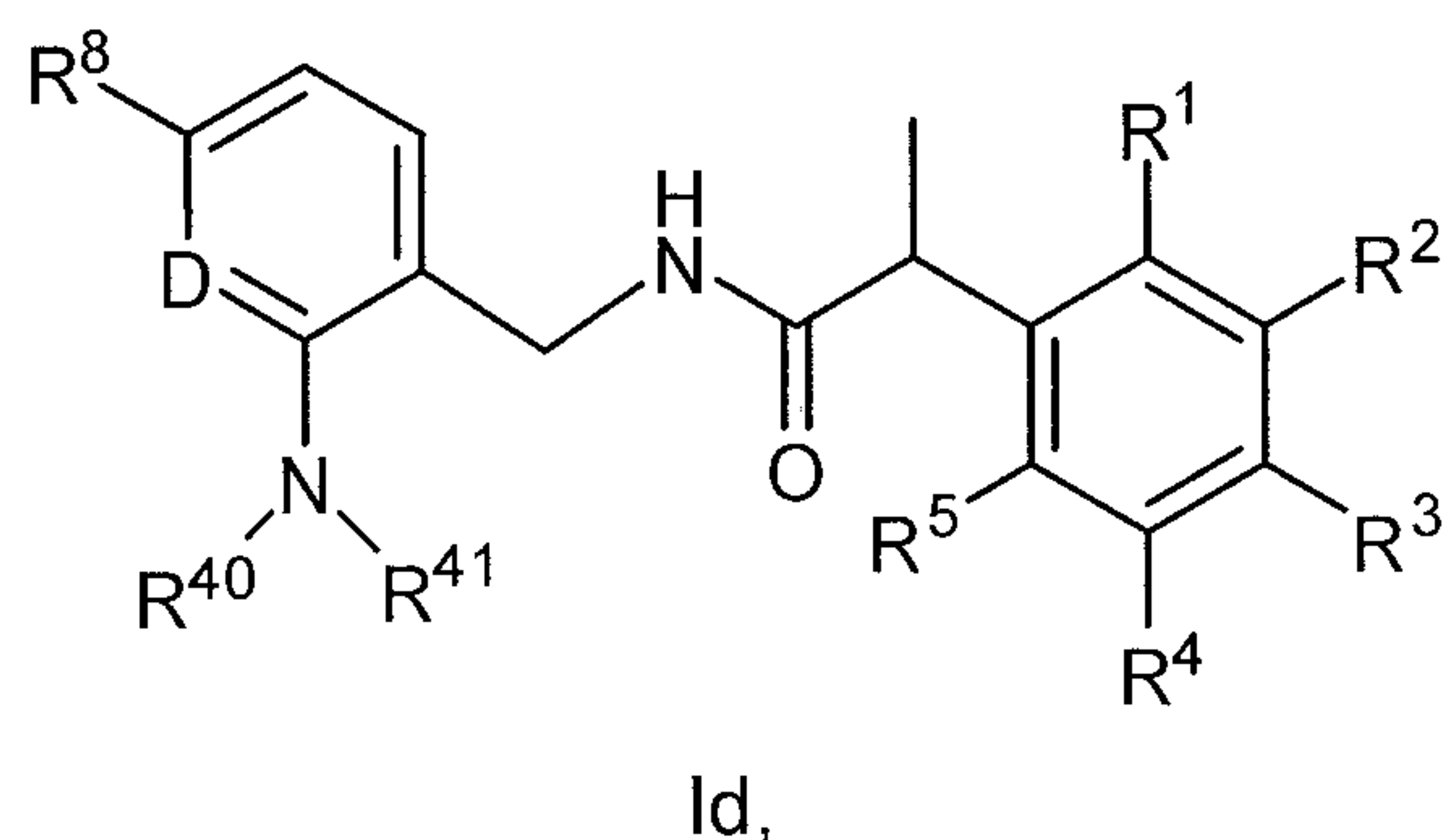
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and

R^{71} denotes a phenyl residue which may be attached via a $-(CH_2)-$, $-(CH_2)_2-$ or $-(CH_2)_3$ group and/or in each case may be unsubstituted or optionally substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, I, $-CN$, $-CF_3$, $-SF_5$, $-OH$, $-O-CH_3$, $-O-C_2H_5$, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl and tert-butyl;

in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates.

Preferred compounds are those of the general formula Id,



in which

D denotes N or CH;

R^1 and R^2 together denote a residue selected from the group consisting of $-CH=N-$, $NH-$; $-CH=N-NR^{71}-$; $-S-C(=S)-NH-$; $-O-C(=S)-NH-$; $-S-C(=O)-NH-$; $-O-C(=O)-NH-$; $-S-C(=S)-NR^{63}-$; $-O-C(=S)-NR^{63}-$; $-S-C(=O)-NR^{63}-$; $-O-C(=O)-NR^{63}-$; $-S-CH=N-$; $-S-CR^{29}=N-$; $-N=CH-O-$; $-N=CR^{30}-O-$; $-NH-C(=O)-NH-$; $-NH-C(=S)-NH-$; $-NR^{66}-C(=O)-NR^{65}-$; $-NR^{66}-C(=S)-NR^{65}-$; $-O-CH_2-C(=O)-NH-$; $-O-CH_2-O-$; $-O-CH_2-CH_2-O-$, $-O-CH_2-$

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CH₂-CH₂-O-; -O-CH₂-CH₂-NH- and -CH=CH-N=CH-, which is attached in any desired direction to the parent structure,

or R² and R³ together denote a residue selected from the group consisting of -CH=N-NH-; -CR²⁸=N-NH-; -CH=N-NR⁶²-; -CR²⁸=N-NR⁶²-; -S-C(=S)-NH-; -O-C(=S)-NH-; -S-C(=O)-NH-; -O-C(=O)-NH-; -S-C(=S)-NR⁶³-; -O-C(=S)-NR⁶³-; -S-C(=O)-NR⁶³-; -O-C(=O)-NR⁶³-; -S-CH=N-; -S-CR²⁹=N-; -N=CH-O-; -N=CR³⁰-O-; -N=CH-NH-; -N=CH-NR⁶⁴-; -NH-C(=O)-NH-; -NH-C(=S)-NH-; -NR⁶⁶-C(=O)-NR⁶⁵-; -NR⁶⁶-C(=S)-NR⁶⁵-; -N=N-NH-; -N=N-NR⁶⁷-; -O-CH₂-C(=O)-NH-; -O-CH₂-O-; -CH₂-CH₂-NH-, -CH₂-CH₂-CH₂-NH-, -CH₂-C(=O)-NH-, -CH₂-CH₂-C(=O)-NH-; -O-CH₂-CH₂-O-; -O-CH₂-CH₂-CH₂-O-; -N=N-CH=CH-; -N=CH-N=CH-; -N=CH-CH=N-; -CH=CH-CH=N-; -CH=CH-N=CH-; -CH=N-N=CH- and -O-CH₂-CH₂-NH-, which is attached in any desired direction to the parent structure,

or R³ and R⁴ together denote a residue selected from the group consisting of -CH=N-NH-; -CR²⁸=N-NH-; -CH=N-NR⁶²-; -CR²⁸=N-NR⁶²-; -S-C(=S)-NH-; -O-C(=S)-NH-; -S-C(=O)-NH-; -O-C(=O)-NH-; -S-C(=S)-NR⁶³-; -O-C(=S)-NR⁶³-; -S-C(=O)-NR⁶³-; -O-C(=O)-NR⁶³-; -S-CH=N-; -S-CR²⁹=N-; -N=CH-O-; -N=CR³⁰-O-; -N=CH-NH-; -N=CH-NR⁶⁴-; -NH-C(=O)-NH-; -NH-C(=S)-NH-; -NR⁶⁶-C(=O)-NR⁶⁵-; -NR⁶⁶-C(=S)-NR⁶⁵-; -N=N-NH-; -N=N-NR⁶⁷-; -O-CH₂-C(=O)-NH-; -O-CH₂-O-; -CH₂-CH₂-NH-, -CH₂-CH₂-CH₂-NH-, -CH₂-C(=O)-NH-, -CH₂-CH₂-C(=O)-NH-; -O-CH₂-CH₂-O-; -O-CH₂-CH₂-CH₂-O-; -N=N-CH=CH-; -N=CH-N=CH-; -N=CH-CH=N-; -CH=CH-CH=N-; -CH=CH-N=CH-; -CH=N-N=CH- and -O-CH₂-CH₂-NH-, which is attached in any desired direction to the parent structure,

or R⁴ and R⁵ together denote a residue selected from the group consisting of -CH=N-NH-; -CH=N-NR⁷¹-; -S-C(=S)-NH-; -O-C(=S)-NH-; -S-C(=O)-NH-; -O-C(=O)-NH-; -S-C(=S)-NR⁶³-; -O-C(=S)-NR⁶³-; -S-C(=O)-NR⁶³-; -O-C(=O)-NR⁶³-; -S-CH=N-; -S-CR²⁹=N-; -N=CH-O-; -N=CR³⁰-O-; -NH-C(=O)-NH-; -NH-C(=S)-NH-; -NR⁶⁶-C(=O)-NR⁶⁵-; -NR⁶⁶-C(=S)-NR⁶⁵-; -O-CH₂-C(=O)-NH-; -O-CH₂-O-; -O-CH₂-CH₂-O-, -O-CH₂-CH₂-CH₂-O-; -O-CH₂-CH₂-NH- and -CH=CH-N=CH-, which is attached in any desired direction to the parent structure,

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and the remaining residues R^1 , R^2 , R^3 , R^4 and R^5 , mutually independently, in each case denote H; F; Cl; Br; I; $-CF_3$; $-CN$; $-OR^{16}$; $-SR^{17}$; or denote a residue selected from the group consisting of methyl, $-CF_3$, $-CHF_2$, $-CH_2F$, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl and tert-butyl;

R^8 denotes $-SF_5$; $-O-CF_3$; $-CF_3$; tert-butyl, or $-C(CH_3)_2(CH_2OH)$;

R^{16} and R^{17} , mutually independently, in each case denote a residue selected from the group consisting of methyl, $-CF_3$, $-CHF_2$, $-CH_2F$, ethyl, $-CF_2-CH_3$, $-CH_2-CF_3$, $-C_2F_5$, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl, 3-pentyl, n-heptyl, 4-heptyl, n-octyl, n-nonyl, 5-nonyl, (2,6)-dimethyl-hept-4-yl, 3-methyl-butyl, n-hexyl and (3,3)-dimethylbutyl;

R^{28} denotes F; Cl; Br; I; $-CF_3$; $-CN$; $-NH_2$ or denotes an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl and n-pentyl;

R^{29} and R^{30} , mutually independently, in each case denote $-NH-C(=O)-R^{31}$; $-NH_2$; $-NH-S(=O)_2-R^{32}$; $-NH-C(=O)-O-R^{33}$; $-S-R^{34}$ or denote an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl;

R^{31} , R^{32} , R^{33} and R^{34} , mutually independently, in each case denote an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl;

R^{40} and R^{41} , mutually independently, in each case

denote a residue selected from the group consisting of methyl, $-CH_2-O-CH_3$, ethyl, n-propyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl, 3-pentyl, n-hexyl, (3,3)-dimethylbutyl, $-CH_2-CH_2-O-CH_3$, $-CH_2-CH_2-O-C_2H_5$ and $-CH_2-CH_2-CH_2-O-CH_3$;

denote a residue selected from the group consisting of 2,3-dihydro-1H-indenyl, cyclopropyl, oxetanyl, cyclobutyl, cyclopentyl, cyclohexyl, imidazolidinyl,

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tetrahydrofuranyl, tetrahydrothiophenyl, pyrrolidinyl, piperidinyl, morpholinyl, piperazinyl, azepanyl, diazepanyl, azocanyl and thiomorpholinyl, which may in each case optionally be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl;

or

R^{40} and R^{41} in each case together with the nitrogen atom joining them together as a ring member form a residue selected from the group consisting of 3-aza-bicyclo[3.1.1]heptyl, 6-aza-spiro[2.5]octyl, 3-aza-bicyclo[3.2.1]octyl, 6-aza-bicyclo[3.3.1]heptyl, 8-aza-bicyclo[3.2.1]octyl, 1-oxa-2,8-diaza-spiro[4.5]dec-2-enyl, azocanyl, isoindolyl, indolyl, (1,2,3,6)-tetrahydropyridinyl, (4,5,6,7)-tetrahydroisoxazolo[5,4-c]pyridinyl, pyrrolidinyl, piperidinyl, piperazinyl, morpholinyl, azepanyl, diazepanyl and thiomorpholinyl, the heterocycloaliphatic moiety of which may in each case be unsubstituted or substituted with 1, 2, 3, 4 or 5 residues R^{57} ;

R^{57} denotes $-NHR^{58}$, $-NR^{59}R^{60}$ or denotes an alkyl residue selected from the group consisting of $-CF_3$, $-CH_2CF_3$, methyl, ethyl, n-propyl, isopropyl, tert-butyl, n-butyl, sec-butyl and isobutyl;

R^{58} , R^{59} and R^{60} , mutually independently, in each case denote $-C(=O)-R^{61}$; denote an alkyl residue selected from the group consisting of $-CF_3$, $-CH_2CF_3$, methyl, ethyl, n-propyl, isopropyl, tert-butyl, n-butyl, sec-butyl and isobutyl;

or denote a residue selected from the group consisting of phenyl and naphthyl, wherein the residue may in each case be attached via a $-(CH_2)-$, $-(CH_2)_2-$ or $-(CH_2)_3$ group and/or may in each case be unsubstituted or optionally substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, I, $-CN$, $-CF_3$, $-O-CH_3$, $-O-C_2H_5$, $-O-CH(CH_3)_2$, $-O-C(CH_3)_3$, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl and n-pentyl;

R^{61} denotes an alkyl residue selected from the group consisting of $-CF_3$, $-CH_2CF_3$, methyl, ethyl, n-propyl, isopropyl, tert-butyl, n-butyl, sec-butyl, and isobutyl;

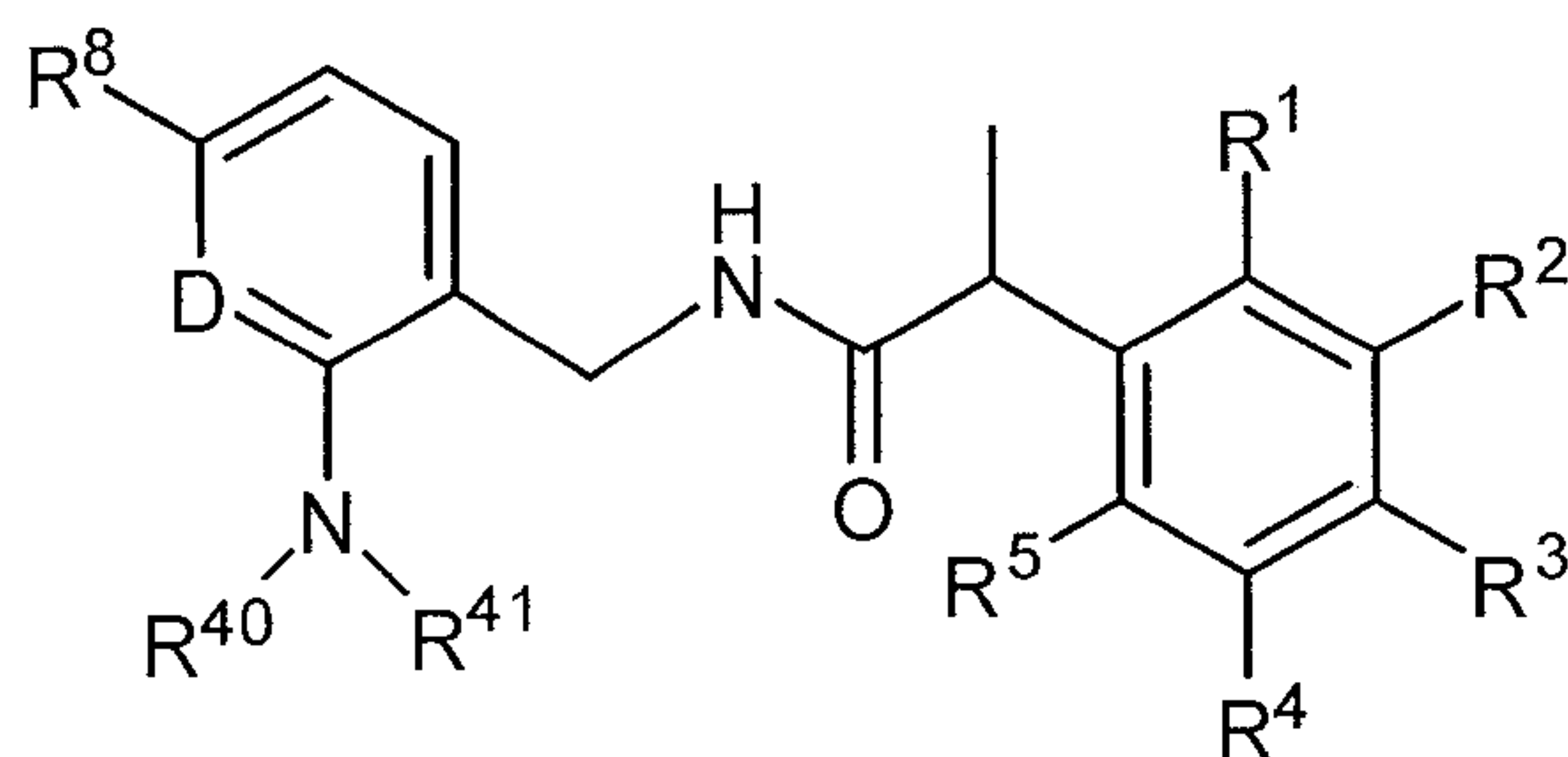
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R^{62} , R^{63} , R^{64} , R^{65} , R^{66} and R^{67} , mutually independently, in each case denote an alkyl residue selected from the group consisting of $-\text{CF}_3$, $-\text{CH}_2\text{CF}_3$, methyl, ethyl, n-propyl, isopropyl, tert-butyl, n-butyl, sec-butyl, and isobutyl; and

R^{71} denotes a residue selected from the group consisting of phenyl, naphthyl, thiophenyl, furanyl and pyridinyl, wherein the residue may in each case be attached via a $-(\text{CH}_2)-$, $-(\text{CH}_2)_2-$ or $-(\text{CH}_2)_3-$ group and/or in each case may be unsubstituted or optionally substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, I, $-\text{CN}$, $-\text{CF}_3$, $-\text{SF}_5$, $-\text{OH}$, $-\text{OCH}_3$, $-\text{OC}_2\text{H}_5$, $-\text{OCH}(\text{CH}_3)_2$, $-\text{OC}(\text{CH}_3)_3$, $-\text{NH}_2$, $-\text{NO}_2$, $-\text{OCF}_3$, $-\text{SCF}_3$, $-\text{SH}$, $-\text{SCH}_3$, $-\text{SC}_2\text{H}_5$, $-\text{SCH}(\text{CH}_3)_2$, $-\text{SC}(\text{CH}_3)_3$, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, $-\text{O}$ -phenyl, $-\text{O}$ -benzyl, phenyl and benzyl;

in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates.

Particularly preferred compounds are those of the general formula Id,



Id,

in which

D denotes N or CH;

or R⁴ and R⁵ together denote a residue selected from the group consisting of -CH=N-NH-; -CH=N-NR⁷¹-; -S-C(=S)-NH-; -O-C(=S)-NH-; -S-C(=O)-NH-; -O-C(=O)-NH-; -S-C(=S)-NR⁶³-; -O-C(=S)-NR⁶³-; -S-C(=O)-NR⁶³-; -O-C(=O)-NR⁶³-; -S-CH=N-; -S-CR²⁹=N-; -N=CH-O-; -N=CR³⁰-O-; -NH-C(=O)-NH-; -NH-C(=S)-NH-; -NR⁶⁶-C(=O)-

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$\text{NR}^{65}-$; $-\text{NR}^{66}-\text{C}(=\text{S})-\text{NR}^{65}-$; $-\text{O}-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{O}-$, $-\text{O}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{NH}-$ and $-\text{CH}=\text{CH}-\text{N}=\text{CH}-$, which is attached in any desired direction to the parent structure,

and the remaining residues R^1 , R^2 , R^3 , R^4 and R^5 , mutually independently, in each case denote H; $-\text{OR}^{16}$; $-\text{SR}^{17}$; or denote a residue selected from the group consisting of methyl, $-\text{CF}_3$, $-\text{CHF}_2$, $-\text{CH}_2\text{F}$, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl and tert-butyl;

R^8 denotes $-\text{SF}_5$; $-\text{O}-\text{CF}_3$; $-\text{CF}_3$; tert-butyl, or $-\text{C}(\text{CH}_3)_2(\text{CH}_2\text{OH})$;

R^{16} and R^{17} , mutually independently, in each case denote a residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl;

R^{28} denotes F; Cl; Br or I;

R^{29} and R^{30} , mutually independently, in each case denote $-\text{NH}-\text{C}(=\text{O})-\text{R}^{31}$; $-\text{NH}_2$; $-\text{NH}-\text{S}(=\text{O})_2-\text{R}^{32}$; $-\text{NH}-\text{C}(=\text{O})-\text{O}-\text{R}^{33}$ or $-\text{S}-\text{R}^{34}$;

R^{31} , R^{32} , R^{33} and R^{34} , mutually independently, in each case denote an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl;

R^{40} and R^{41} in each case together with the nitrogen atom joining them together as a ring member form a residue selected from the group consisting of pyrrolidinyl, piperidinyl, piperazinyl, morpholinyl and azepanyl, the heterocycloaliphatic moiety of which may in each case be unsubstituted or substituted with 1, 2, 3, 4 or 5 residues R^{57} ;

R^{57} denotes an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, tert-butyl, n-butyl, sec-butyl, and isobutyl;

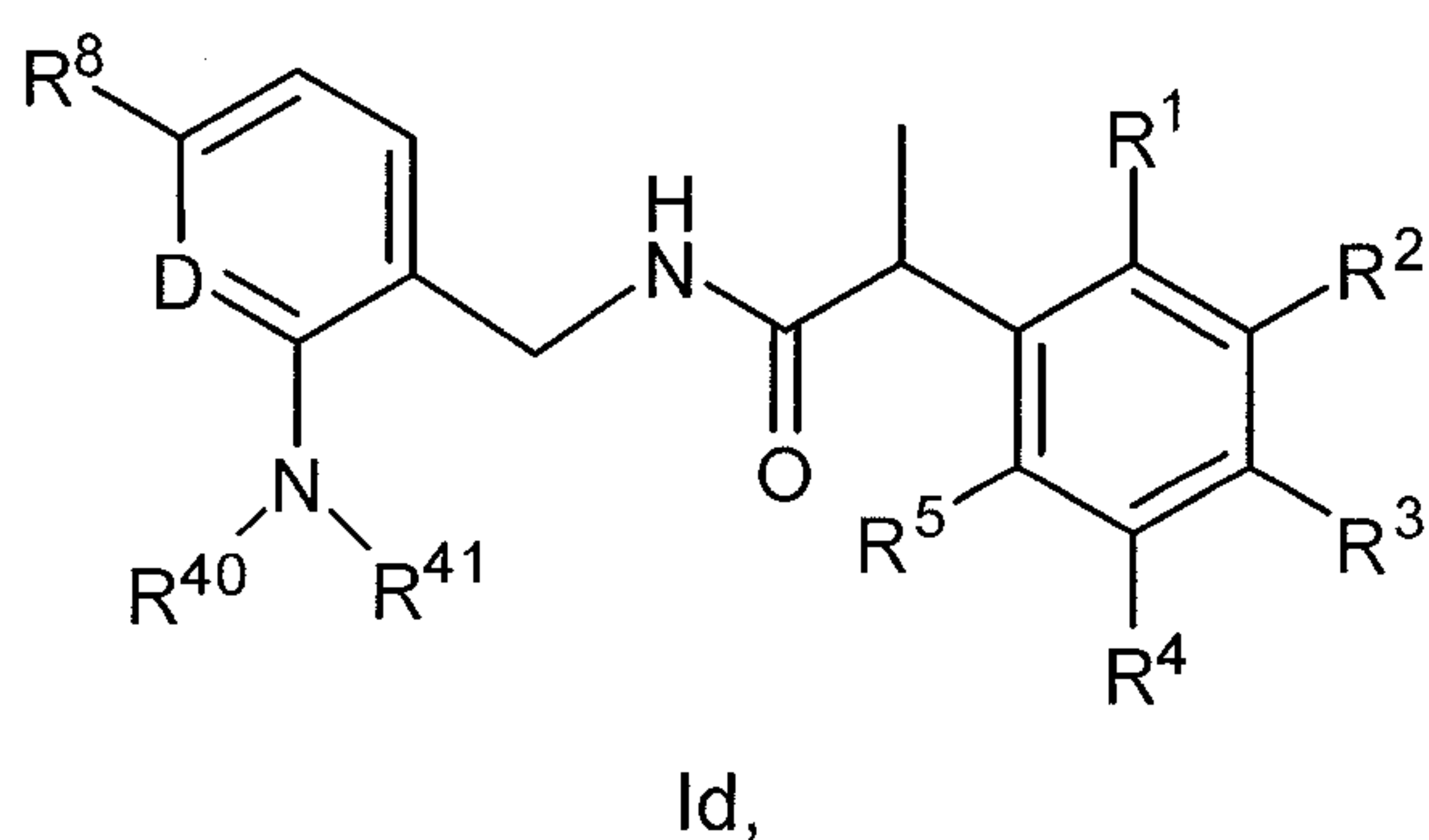
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R^{62} , R^{63} , R^{64} , R^{65} , R^{66} and R^{67} , mutually independently, in each case denote an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, tert-butyl, n-butyl, sec-butyl, and isobutyl; and

R^{71} denotes a residue selected from the group consisting of phenyl, naphthyl, thiophenyl, furanyl and pyridinyl, wherein the residue may in each case be attached via a $-(CH_2)-$, $-(CH_2)_2-$ or $-(CH_2)_3$ group and/or in each case may be unsubstituted or optionally substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, I, $-CN$, $-CF_3$, $-SF_5$, $-OH$, $-O-CH_3$, $-O-C_2H_5$, $-O-CH(CH_3)_2$, $-O-C(CH_3)_3$, $-NH_2$, $-NO_2$, $-O-CF_3$, $-S-CF_3$, $-SH$, $-S-CH_3$, $-S-C_2H_5$, $-S-CH(CH_3)_2$, $-S-C(CH_3)_3$, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, $-O$ -phenyl, $-O$ -benzyl, phenyl and benzyl;

in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates.

Very particularly preferred compounds are those of the general formula Id,



in which

D denotes N or CH;

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R^1 and R^2 together denote a residue selected from the group consisting of $S-CH=N-$; $-S-CR^{29}=N-$; $-N=CH-O-$ and $-N=CR^{30}-O-$, which is attached in any desired direction to the parent structure,

or R^2 and R^3 together denote a residue selected from the group consisting of $-CH=N-NH-$; $-CR^{28}=N-NH-$; $-S-C(=S)-NH-$; $-O-C(=S)-NH-$; $-S-C(=O)-NH-$; $-O-C(=O)-NH-$; $-S-CH=N-$; $-S-CR^{29}=N-$; $-N=CH-O-$; $-N=CR^{30}-O-$; $-N=CH-NH-$; $-NH-C(=O)-NH-$; $-NH-C(=S)-NH-$; $-N=N-NH-$; $-O-CH_2-C(=O)-NH-$; $-O-CH_2-CH_2-O-$; $-O-CH_2-CH_2-CH_2-O-$; $-N=CH-CH=N-$; $-CH=CH-CH=N-$; $-CH=CH-N=CH-$; $-CH=N-N=CH-$ and $-O-CH_2-CH_2-NH-$, which is attached in any desired direction to the parent structure,

or R^3 and R^4 together denote a residue selected from the group consisting of $-CH=N-NH-$; $-CR^{28}=N-NH-$; $-S-C(=S)-NH-$; $-O-C(=S)-NH-$; $-S-C(=O)-NH-$; $-O-C(=O)-NH-$; $-S-CH=N-$; $-S-CR^{29}=N-$; $-N=CH-O-$; $-N=CR^{30}-O-$; $-N=CH-NH-$; $-NH-C(=O)-NH-$; $-NH-C(=S)-NH-$; $-N=N-NH-$; $-O-CH_2-C(=O)-NH-$; $-O-CH_2-CH_2-O-$; $-O-CH_2-CH_2-CH_2-O-$; $-N=CH-CH=N-$; $-CH=CH-CH=N-$; $-CH=CH-N=CH-$; $-CH=N-N=CH-$ and $-O-CH_2-CH_2-NH-$, which is attached in any desired direction to the parent structure,

or R^4 and R^5 together denote a residue selected from the group consisting of $S-CH=N-$; $-S-CR^{29}=N-$; $-N=CH-O-$ and $-N=CR^{30}-O-$, which is attached in any desired direction to the parent structure,

and the remaining residues R^1 , R^2 , R^3 , R^4 and R^5 , mutually independently, in each case denote H; $-OR^{16}$; $-SR^{17}$; or denote a residue selected from the group consisting of methyl, $-CF_3$, $-CHF_2$, $-CH_2F$, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl and tert-butyl;

R^8 denotes $-SF_5$; $-O-CF_3$; $-CF_3$; tert-butyl, or $-C(CH_3)_2(CH_2OH)$;

R^{16} and R^{17} , mutually independently, in each case denote a residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl;

R^{28} denotes F; Cl; Br or I;

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R^{29} denotes $-NH-C(=O)-R^{31}$; $-NH_2$; $-NH-S(=O)_2-R^{32}$; $-NH-C(=O)-O-R^{33}$ or $-S-R^{34}$;

R^{30} denotes $-NH_2$;

R^{31} , R^{32} , R^{33} and R^{34} , mutually independently, in each case denote an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl;

R^{40} and R^{41} in each case together with the nitrogen atom joining them together as a ring member form a residue selected from the group consisting of pyrrolidinyl, piperidinyl, piperazinyl, morpholinyl and azepanyl, the heterocycloaliphatic moiety of which may in each case be unsubstituted or substituted with 1, 2, 3, 4 or 5 residues R^{57} ;

R^{57} denotes an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, tert-butyl, n-butyl, sec-butyl, and isobutyl;

R^{71} denotes a phenyl residue which may be attached via a $-(CH_2)-$, $-(CH_2)_2-$ or $-(CH_2)_3$ group and/or in each case may be unsubstituted or optionally substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, I, $-CN$, $-CF_3$, $-SF_5$, $-OH$, $-O-CH_3$, $-O-C_2H_5$, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl and tert-butyl;

in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates.

Further preferred substituted compounds according to the invention are those of the general formulae I, Ia, Ib, Ic and Id, in which

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R^1 and R^2 or R^2 and R^3 or R^3 and R^4 or R^4 and R^5 together with the carbon atoms joining them together form a 4-, 5-, 6- or 7-membered ring which is saturated, unsaturated or aromatic, has 1, 2 or 3 nitrogen atoms as ring members and is unsubstituted or substituted with 1, 2 or 3 residues mutually independently selected from the group consisting of F, Cl, Br, I, =O, -CN, -CF₃, -SF₅, -OH, -O-C₁₋₅-alkyl, -NH₂, -NO₂, -O-CF₃, -S-CF₃, -SH, -S-C₁₋₅-alkyl, -C₁₋₅-alkyl, -C(=O)-OH, -C(=O)-O-C₁₋₅-alkyl, -NH-C₁₋₅-alkyl, -N(C₁₋₅-alkyl)₂, -NH-S(=O)₂-C₁₋₅-alkyl, -NH-C(=O)-O-C₁₋₅-alkyl, -C(=O)-H, -C(=O)-C₁₋₅-alkyl, -C(=O)-NH₂, -C(=O)-NH-C₁₋₅-alkyl, -C(=O)-N-(C₁₋₅-alkyl)₂, -O-phenyl, -O-benzyl, phenyl and benzyl, wherein in each case the cyclic moiety of the residues -O-phenyl, -O-benzyl, phenyl and benzyl may be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, -OH, -CF₃, -SF₅, -CN, -NO₂, -C₁₋₅ alkyl, -O-C₁₋₅-alkyl, -O-CF₃, -S-CF₃, phenyl and -O-benzyl,

and the remaining residues R^1 , R^2 , R^3 , R^4 and R^5 , mutually independently, in each case denote

H; F; Cl; Br; I; -SF₅; -NO₂; -CN; -NH₂; -OH; -SH; -C(=O)-NH₂; -S(=O)₂-NH₂; -C(=O)-NH-OH; -C(=O)-OH; -C(=O)-H; -S(=O)₂-OH; -C(=NH)-NH₂; -C(=NH)-NH-R⁹; -N=C(NH₂)₂; -N=C(NHR¹⁰)(NHR¹¹); -O-P(=O)₂-O-R¹²; -NHR¹³; -NR¹⁴R¹⁵; -NH-C(=O)-R¹³; -OR¹⁶; -SR¹⁷; -C(=O)-NHR¹⁸; -C(=O)-NR¹⁹R²⁰; -S(=O)₂-NHR²¹; -S(=O)₂-NR²²R²³; -C(=O)-OR²⁴; -C(=O)-R²⁵; -S(=O)-R²⁶; -S(=O)₂-R²⁷ or denote a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue; and the other variables and substituents in each case have one of the meanings cited in the context of their definition,

in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates.

Further preferred substituted compounds according to the invention are those of the general formulae I, Ia, Ib, Ic and Id,

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in which

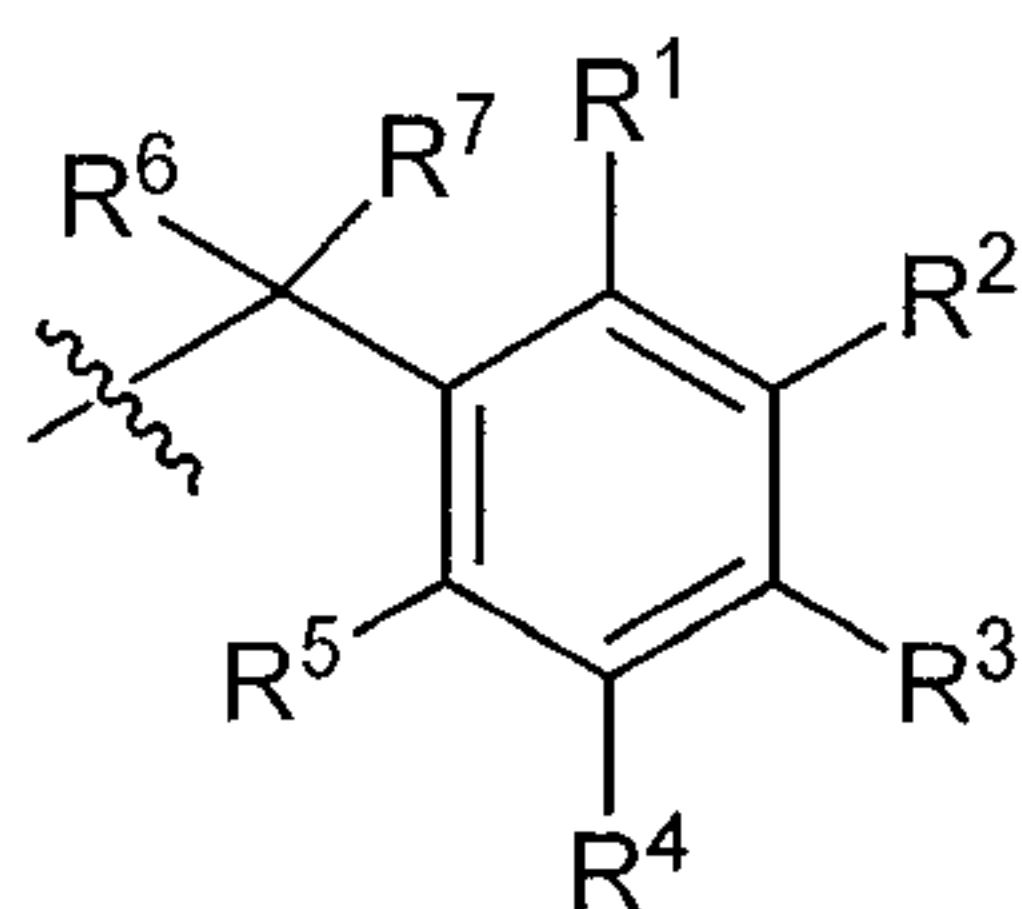
R^1 and R^2 or R^2 and R^3 or R^3 and R^4 or R^4 and R^5 together with the carbon atoms joining them together form a 4-, 5-, 6- or 7-membered ring which is saturated, unsaturated or aromatic, has 1, 2 or 3 nitrogen atoms as ring members and is unsubstituted or substituted with 1, 2 or 3 residues mutually independently selected from the group consisting of F, Cl, Br, I, OH, =O, CF_3 , OCF_3 , SCF_3 , SF_5 , O- C_{1-4} -alkyl and C_{1-4} -alkyl,

and the remaining residues R^1 , R^2 , R^3 , R^4 and R^5 , mutually independently, in each case denote

H; F; Cl; Br; I; $-SF_5$; $-NO_2$; $-CN$; $-NH_2$; $-OH$; $-SH$; $-C(=O)-NH_2$; $-S(=O)_2-NH_2$; $-C(=O)-NH-OH$; $-C(=O)-OH$; $-C(=O)-H$; $-S(=O)_2-OH$; $-C(=NH)-NH_2$; $-C(=NH)-NH-R^9$; $-N=C(NH_2)_2$; $-N=C(NHR^{10})(NHR^{11})$; $-O-P(=O)_2-O-R^{12}$; $-NHR^{13}$; $-NR^{14}R^{15}$; $-NH-C(=O)-R^{13}$; $-OR^{16}$; $-SR^{17}$; $-C(=O)-NHR^{18}$; $-C(=O)-NR^{19}R^{20}$; $-S(=O)_2-NHR^{21}$; $-S(=O)_2-NR^{22}R^{23}$; $-C(=O)-OR^{24}$; $-C(=O)-R^{25}$; $-S(=O)-R^{26}$; $-S(=O)_2-R^{27}$ or denote a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C_{1-10} residue; and the other variables and substituents in each case have one of the meanings cited in the context of their definition,

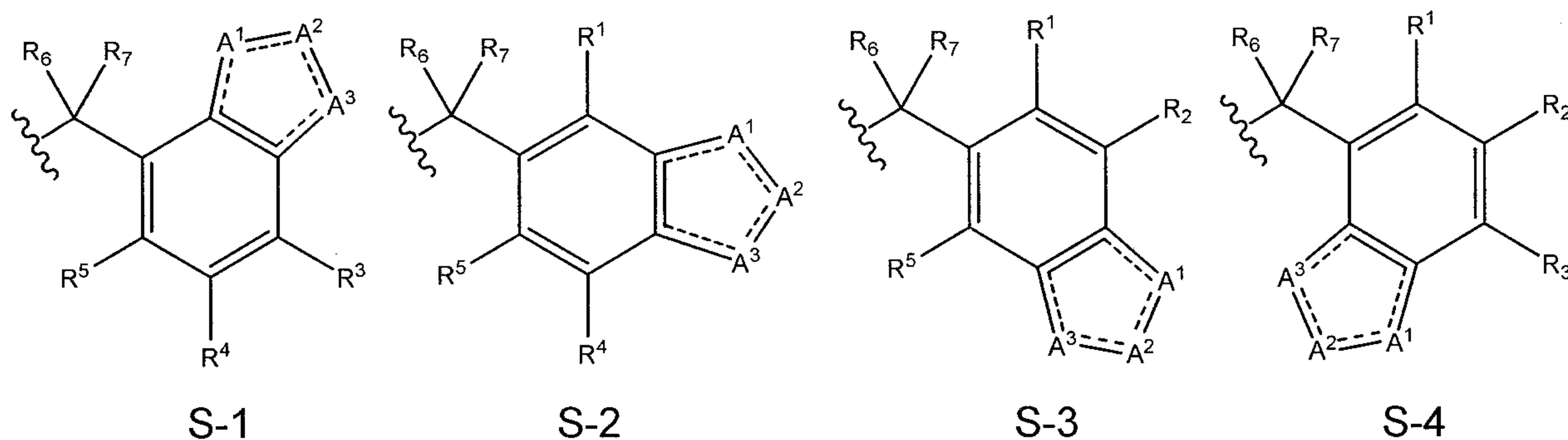
in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates.

Further preferred substituted compounds according to the invention are those of the general formulae I, Ia, Ib, Ic and Id, in which the partial structure



denotes one of the following partial structures S-1 to S-4:

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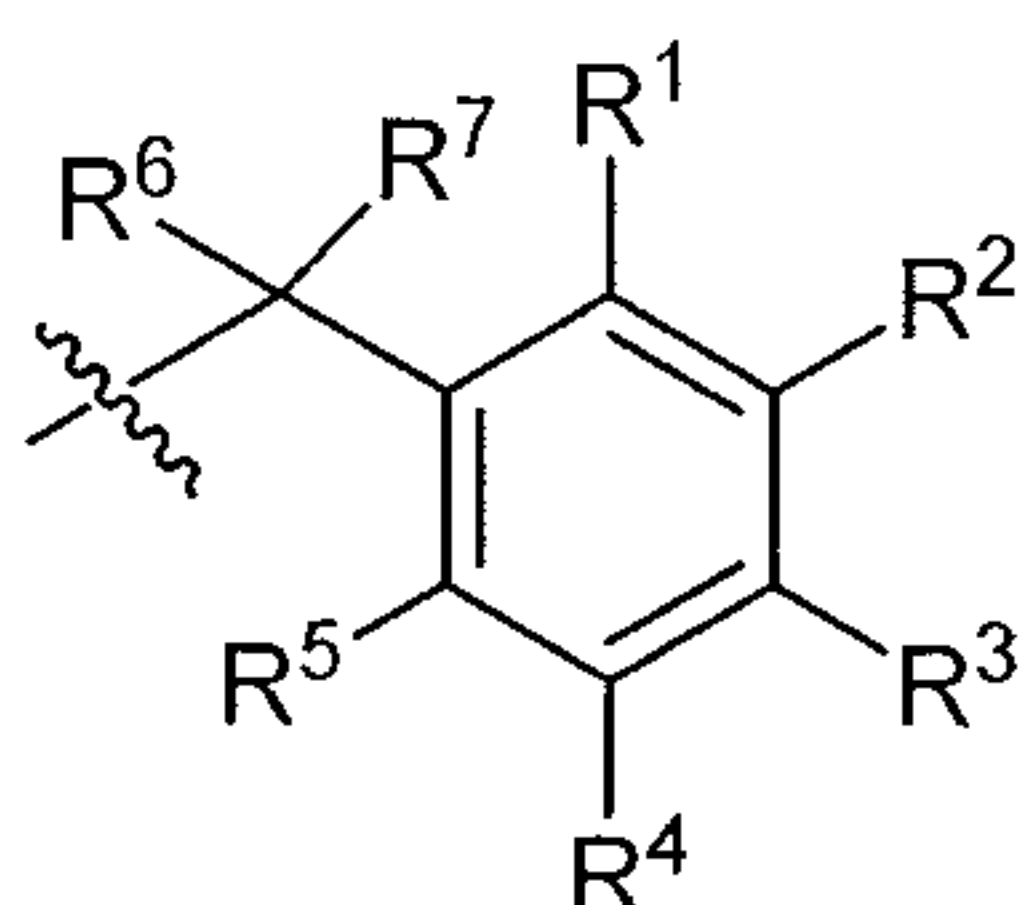


in which one, two or three of the residues A^1 , A^2 and A^3 in each case mutually independently denote an optionally substituted nitrogen atom and the other residues in each case mutually independently denote an optionally substituted carbon atom.

Preferred meanings a) to g) for A^1 , A^2 and A^3 are summarised in the following table, wherein N and C, depending on the position of any double bonds present, may be substituted, e.g. with -H:

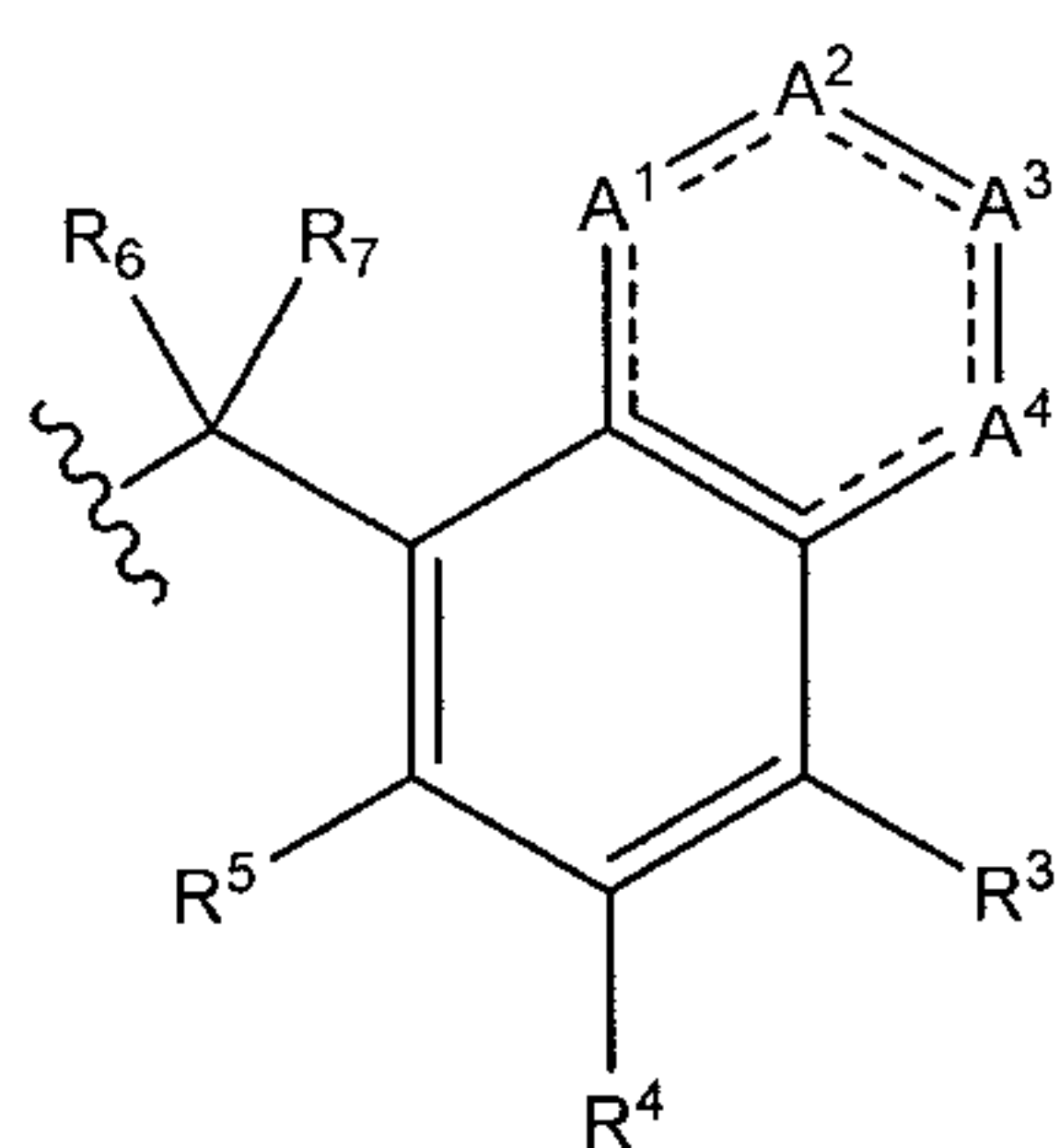
	A^1	A^2	A^3
a)	N	C	C
b)	C	N	C
c)	C	C	N
d)	N	N	C
e)	N	C	N
f)	C	N	N
g)	N	N	N

Further preferred substituted compounds according to the invention are those of the general formulae I; Ia, Ib, Ic and Id, in which the partial structure

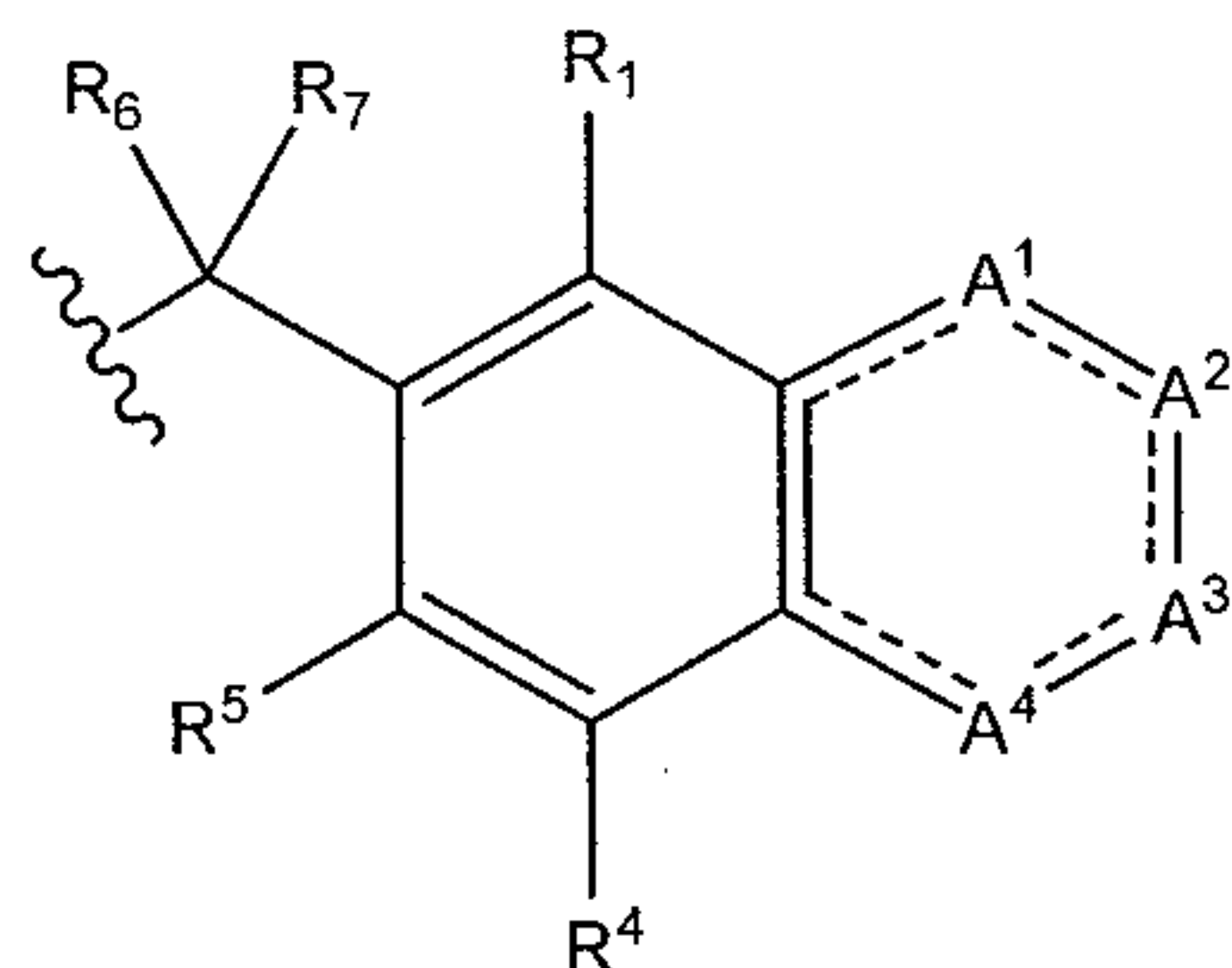


denotes one of the following partial structures S-5 to S-8:

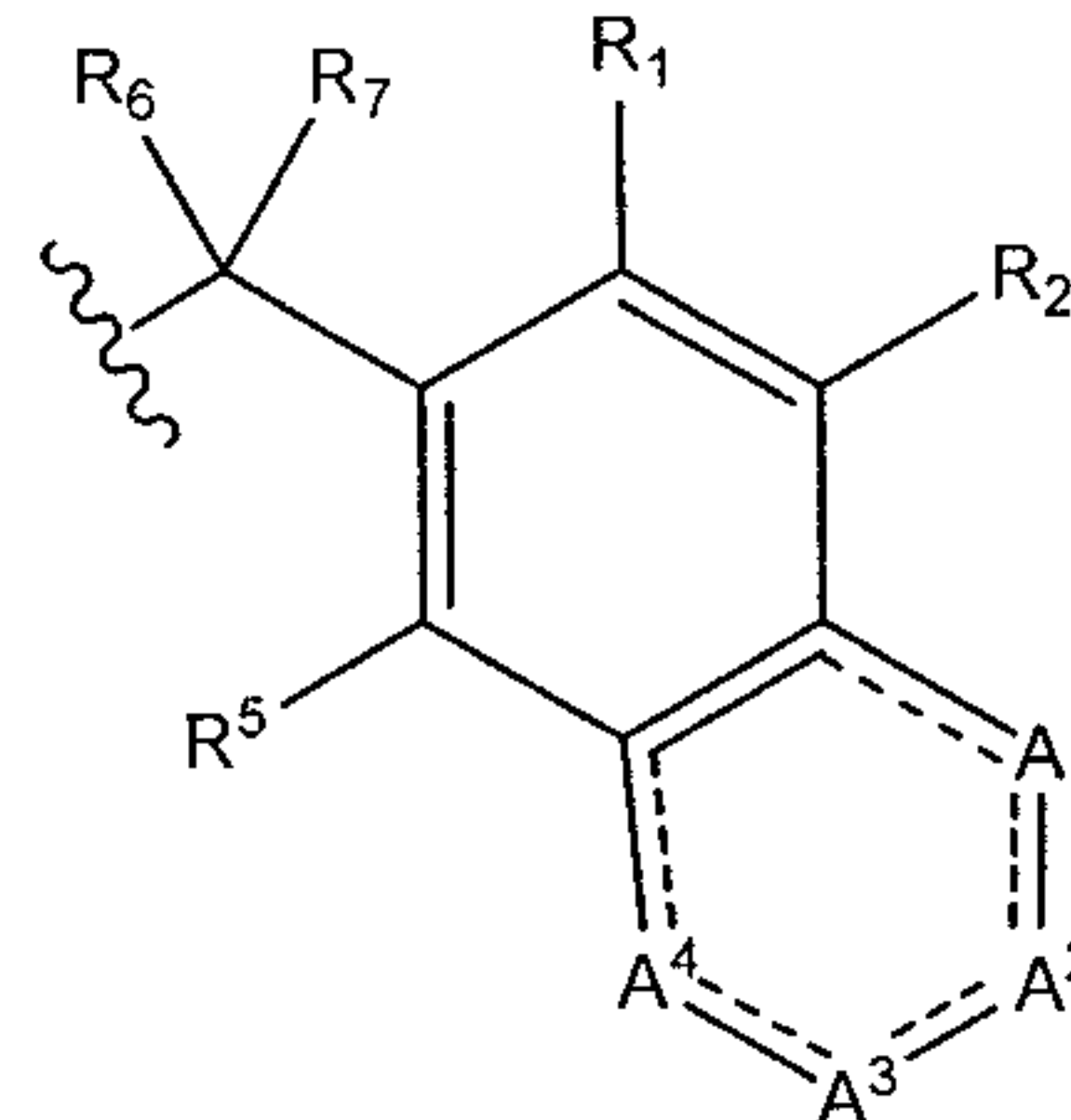
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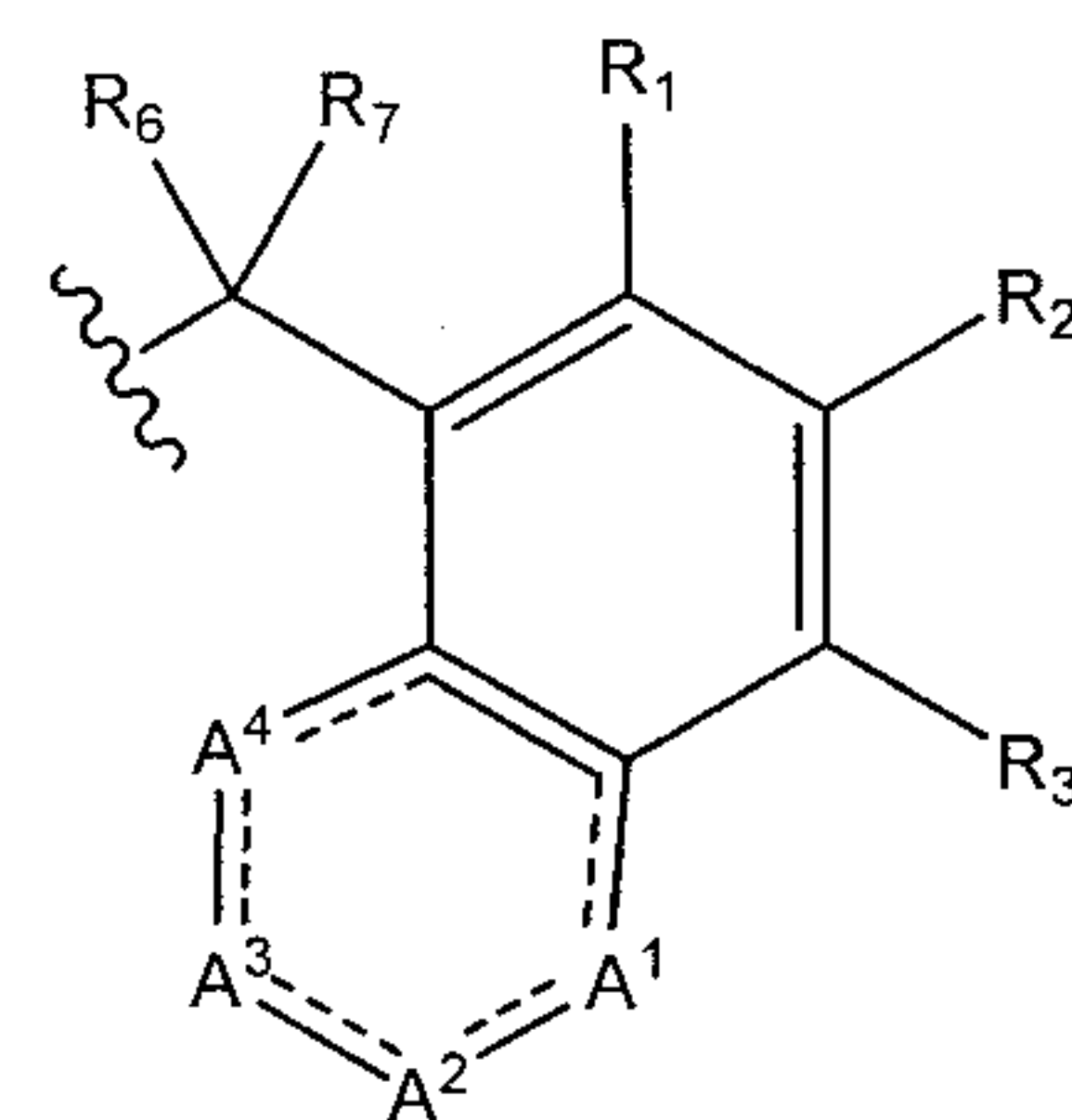
S-5



S-6



S-7



S-8

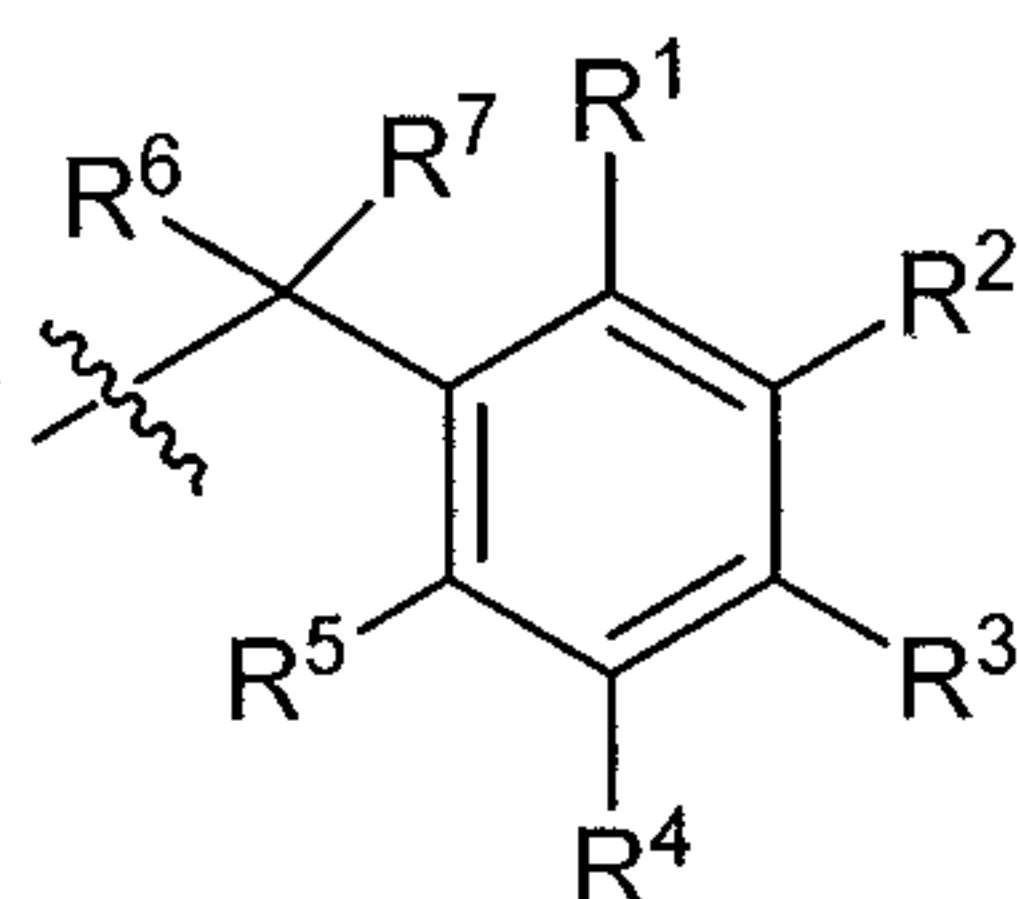
in which one, two or three of the residues A^1 , A^2 , A^3 and A^4 in each case mutually independently denote an optionally substituted nitrogen atom and the other residues in each case mutually independently denote an optionally substituted carbon atom.

Preferred meanings a) to n) for A^1 , A^2 , A^3 and A^4 are summarised in the following table, wherein N and C, depending on the position of any double bonds present, may be substituted, e.g. with $-H$:

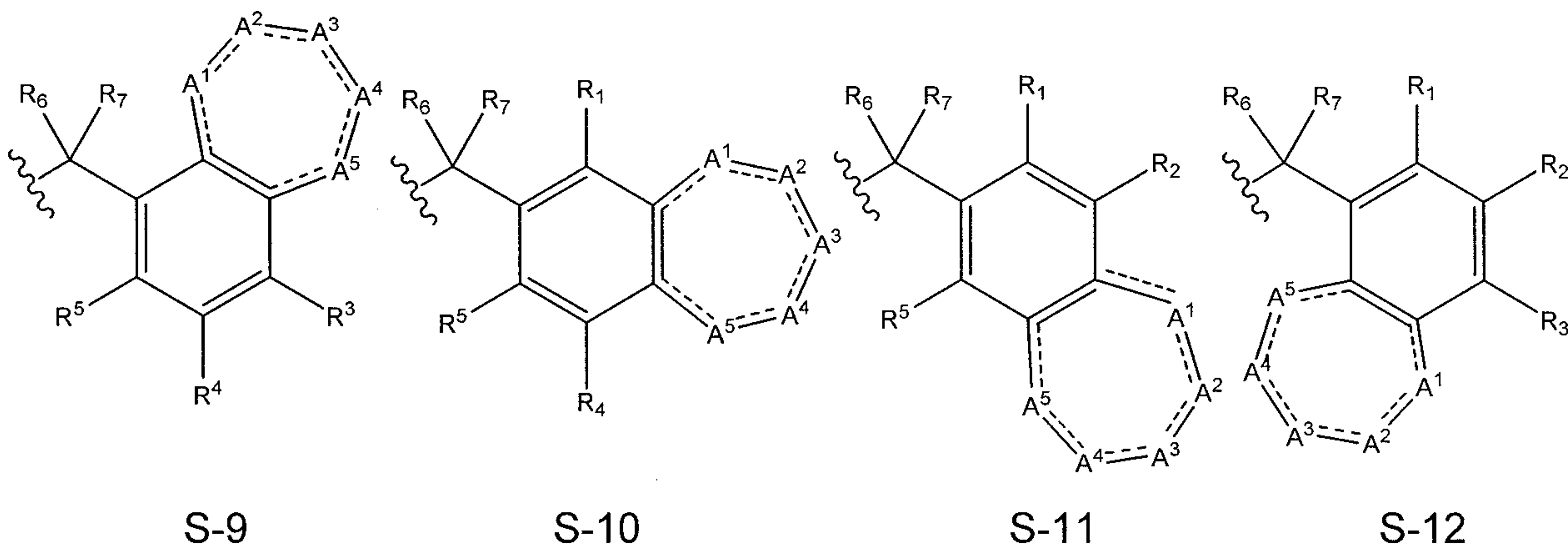
	A^1	A^2	A^3	A^4
a)	N	C	C	C
b)	C	N	C	C
c)	C	C	N	C
d)	C	C	C	N
e)	N	N	C	C
f)	N	C	N	C
g)	N	C	C	N
h)	C	N	N	C
i)	C	N	C	N
j)	C	C	N	N
k)	N	N	N	C
l)	N	N	C	N
m)	N	C	N	N
n)	C	N	N	N

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Further preferred substituted compounds according to the invention are those of the general formulae I, Ia, Ib, Ic and Id, in which the partial structure



denotes one of the following partial structures S-9 to S-12:



in which one, two or three of the residues A^1 , A^2 , A^3 , A^4 and A^5 in each case mutually independently denote an optionally substituted nitrogen atom and the other residues in each case mutually independently denote an optionally substituted carbon atom.

Preferred meanings a) to o) for A^1 , A^2 , A^3 , A^4 and A^5 are summarised in the following table, wherein N and C, depending on the position of any double bonds present, may be substituted, e.g. with $-H$:

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	A ¹	A ²	A ³	A ⁴	A ⁵
a)	N	C	C	C	C
b)	C	N	C	C	C
c)	C	C	N	C	C
d)	C	C	C	N	C
e)	C	C	C	C	N
f)	N	N	C	C	C
g)	N	C	N	C	C
h)	N	C	C	N	C
i)	N	C	C	C	N
j)	C	N	N	C	C
k)	C	N	C	N	C
l)	C	N	C	C	N
m)	C	C	N	N	C
n)	C	C	N	C	N
o)	C	C	C	N	N

In the case of partial structures S-1 to S-12, "====" in each case denotes a single of a double bond. It will be apparent to the person skilled in the art that, as a function of the position of any double bonds present, the number of any hydrogen atoms present or possible substituents varies and that no double bonds follow directly after another within the ring structure.

Partial structures S-1 to S-12 may have hydrogen atoms or other substituents at the nitrogen atoms or at the carbon atoms in positions A¹, A², A³, A⁴ or A⁵ due to the position of the single bonds or the position of any double bonds present.

In one preferred embodiment, partial structures S-1 to S-12 have a total of at most two, preferably a total of at most one substituents which are different from hydrogen at the carbon or at the nitrogen atoms in positions A¹, A², A³, A⁴ or A⁵, which substituents are in each case mutually independently selected from the group consisting of F, Cl, Br, I, -CN, =O, -CF₃, -SF₅, -OH, -O-C₁₋₅-alkyl, -NH₂, -NO₂, -O-CF₃,

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-S-CF₃, -SH, -S-C₁₋₅-alkyl, -C₁₋₅-alkyl, -C(=O)-OH, -C(=O)-O-C₁₋₅-alkyl, -NH-C₁₋₅-alkyl, -N(C₁₋₅-alkyl)₂, -NH-S(=O)₂-C₁₋₅-alkyl, -NH-C(=O)-O-C₁₋₅-alkyl, -C(=O)-H, -C(=O)-C₁₋₅-alkyl, -C(=O)-NH₂, -C(=O)-NH-C₁₋₅-alkyl, -C(=O)-N-(C₁₋₅-alkyl)₂, -O-phenyl, -O-benzyl, phenyl and benzyl, wherein in each case the cyclic moiety of the residues -O-phenyl, -O-benzyl, phenyl and benzyl may be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, -OH, -CF₃, -SF₅, -CN, -NO₂, -C₁₋₅ alkyl, -O-C₁₋₅-alkyl, -O-CF₃, -S-CF₃, phenyl and -O-benzyl;

preferably from the group consisting of F, Cl, Br, I, OH, =O, CF₃, OCF₃, SCF₃, SF₅, -O-C₁₋₄-alkyl and C₁₋₄-alkyl,

particularly preferably from the group consisting of F, Cl, Br, I, OH, =O, CF₃, OCF₃, SCF₃, SF₅, methoxy, ethoxy, methyl, ethyl, n-propyl and iso-propyl.

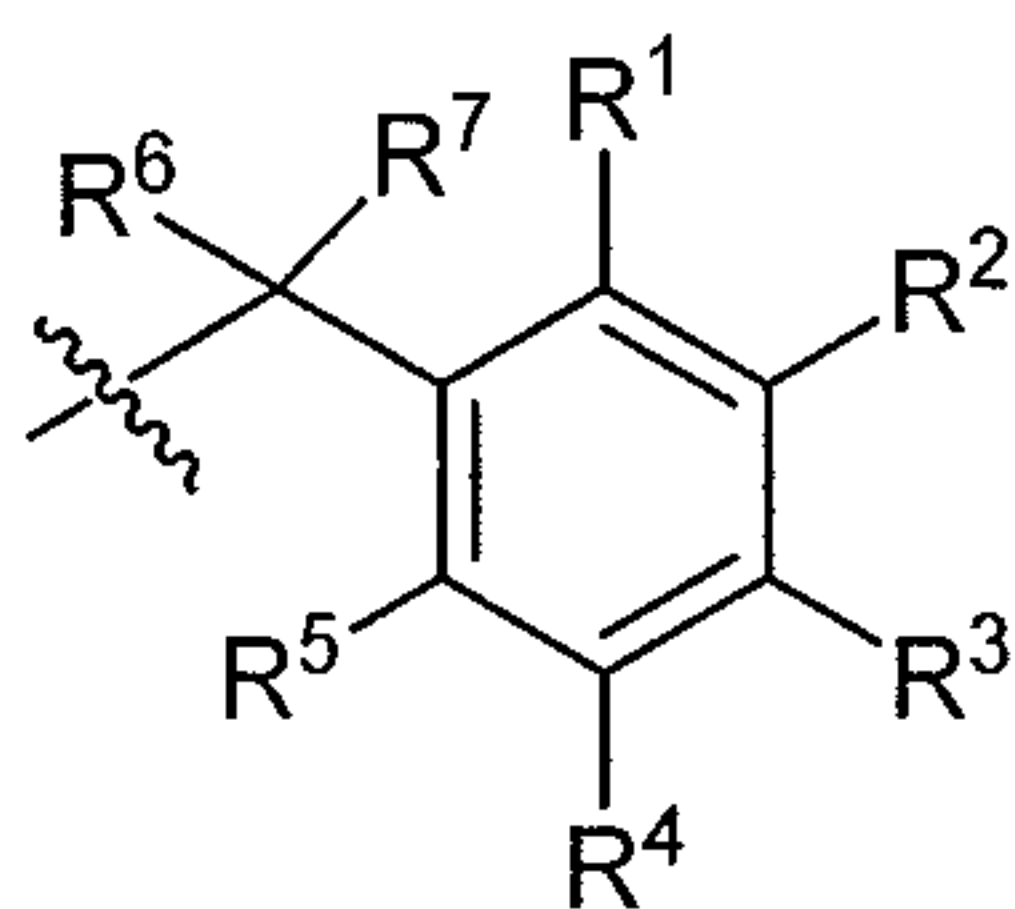
In one preferred embodiment of partial structures S-1 to S-12, the ring formed by A¹, A², A³ and ring members A⁴ or A⁵ which may be present is saturated, up to the double bond of the anellated phenyl ring, which bears substituents R¹ to R⁵.

In another preferred embodiment of partial structures S-1 to S-12, the ring formed by A¹, A², A³ and ring members A⁴ or A⁵ which may be present is at least monounsaturated, in addition to the double bond of the anellated phenyl ring, which bears substituents R¹ to R⁵.

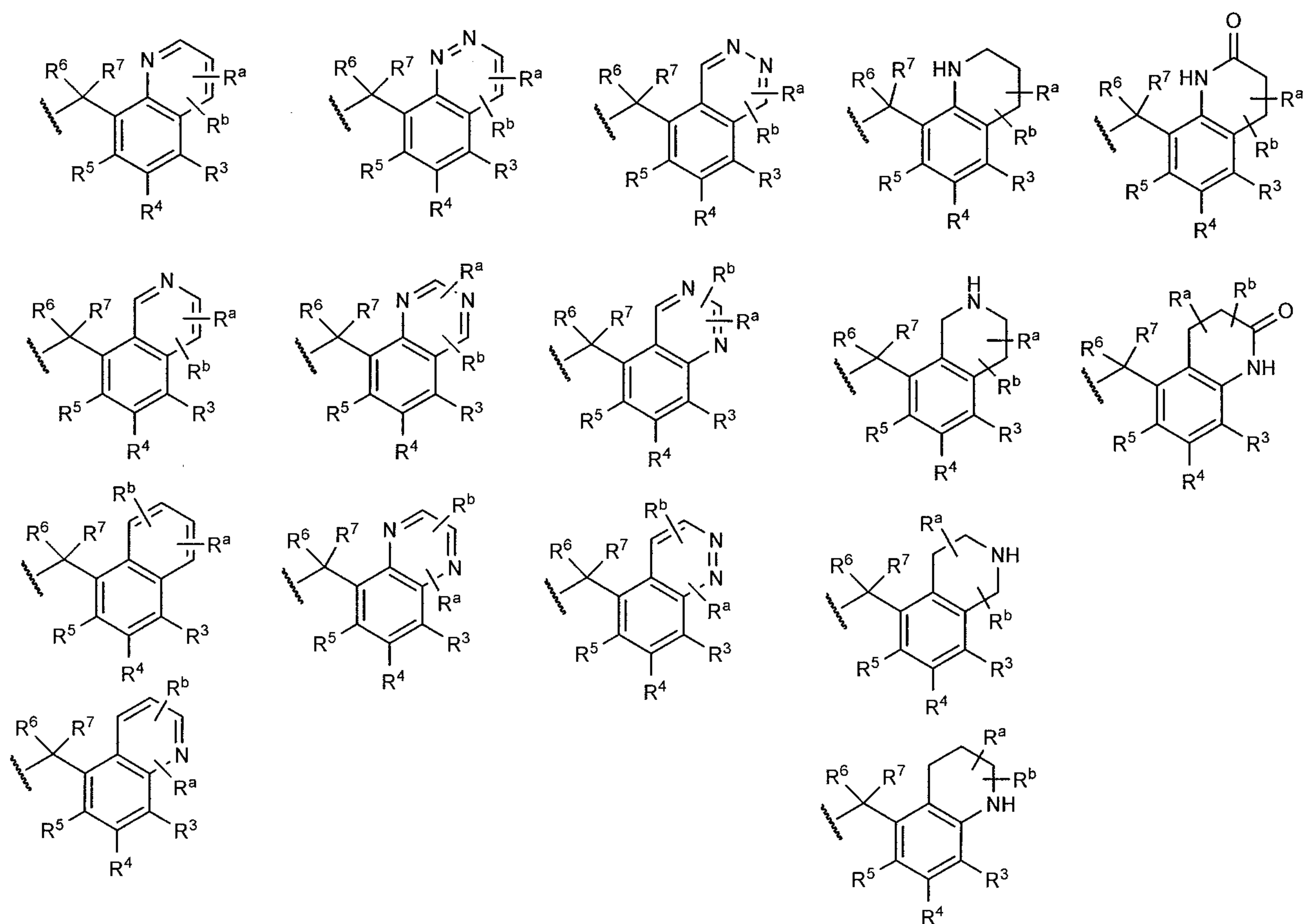
In a further preferred embodiment of partial structures S-1 to S-12, the ring formed by A¹, A², A³ and ring members A⁴ or A⁵ which may be present is aromatic.

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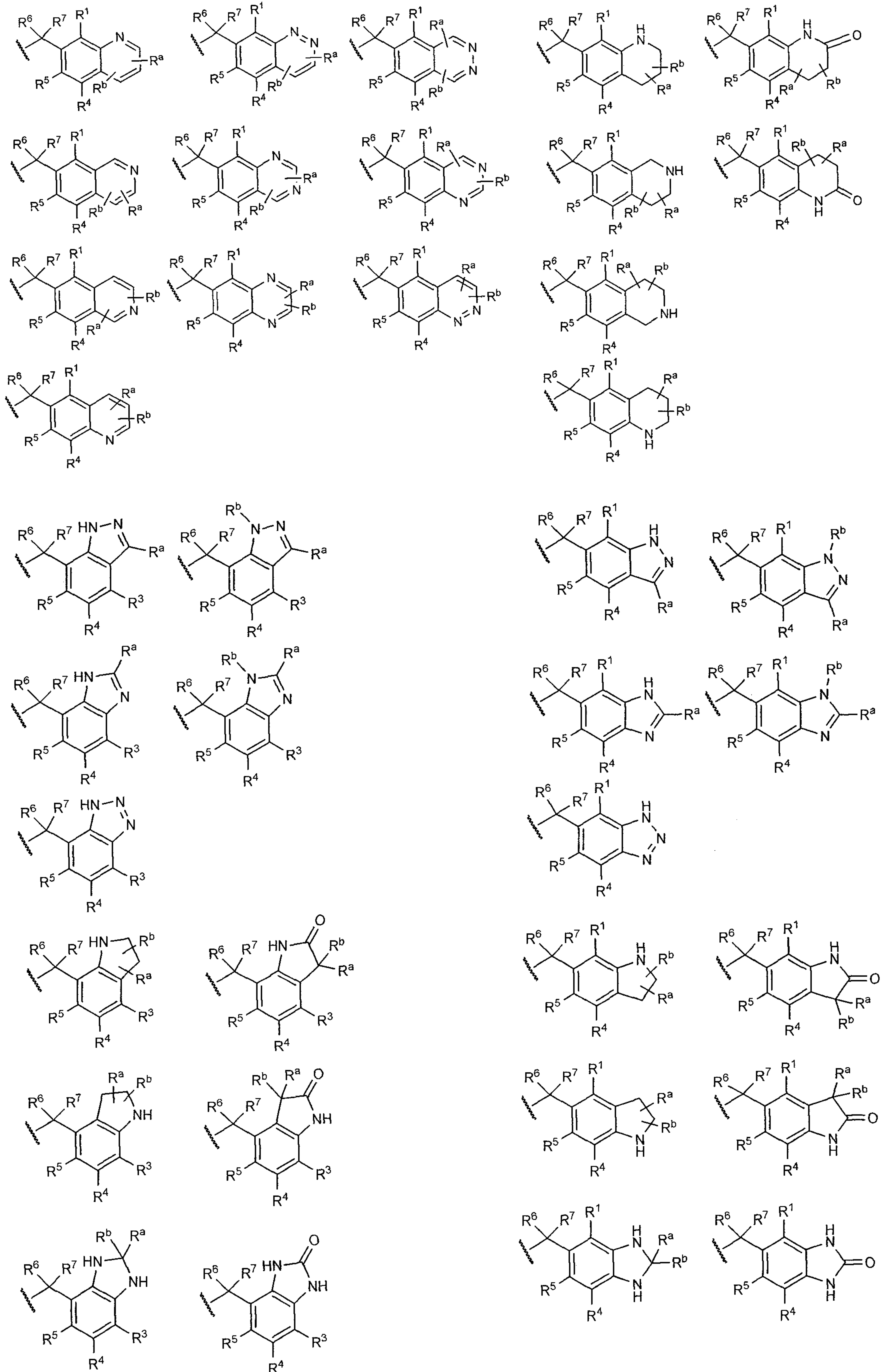
Further preferred substituted compounds according to the invention are those of the general formula I, in which the partial structure



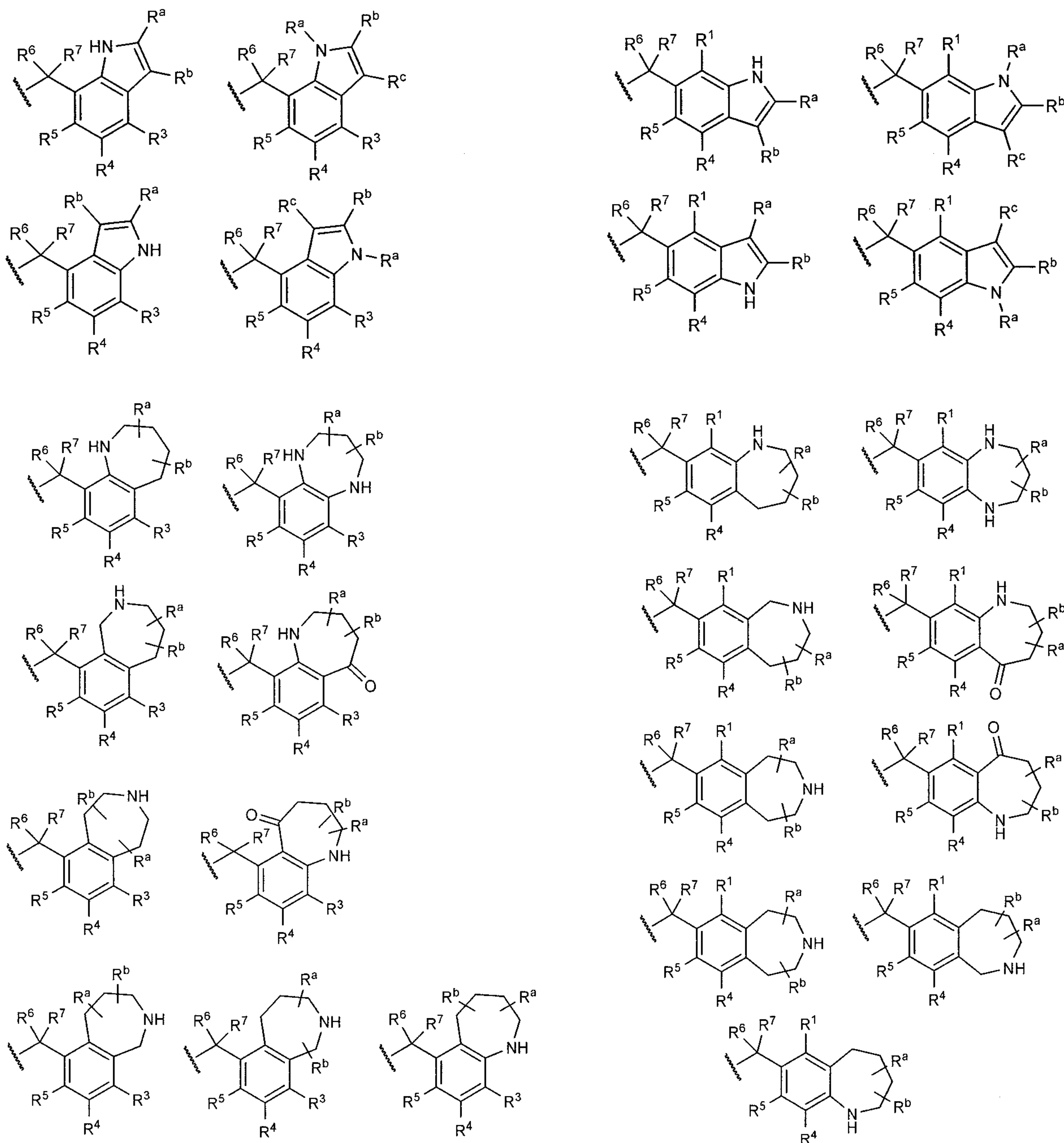
denotes a residue selected from the group consisting of



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in which R^a and R^b , mutually independently, are in each case selected from the group consisting of H, F, Cl, Br, I, -CN, =O, -CF₃, -SF₅, -OH, -O-C₁₋₅-alkyl, -NH₂, -NO₂, -O-CF₃, -S-CF₃, -SH, -S-C₁₋₅-alkyl, -C₁₋₅-alkyl, -C(=O)-OH, -C(=O)-O-C₁₋₅-alkyl, -NH-C₁₋₅-alkyl, -N(C₁₋₅-alkyl)₂, -NH-S(=O)₂-C₁₋₅-alkyl, -NH-C(=O)-O-C₁₋₅-alkyl, -C(=O)-H, -C(=O)-C₁₋₅-alkyl, -C(=O)-NH₂, -C(=O)-NH-C₁₋₅-alkyl, -C(=O)-N-(C₁₋₅-alkyl)₂, -O-phenyl, -O-benzyl, phenyl and benzyl, wherein in each case the cyclic moiety of the residues -O-phenyl, -O-benzyl, phenyl and benzyl may be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl,

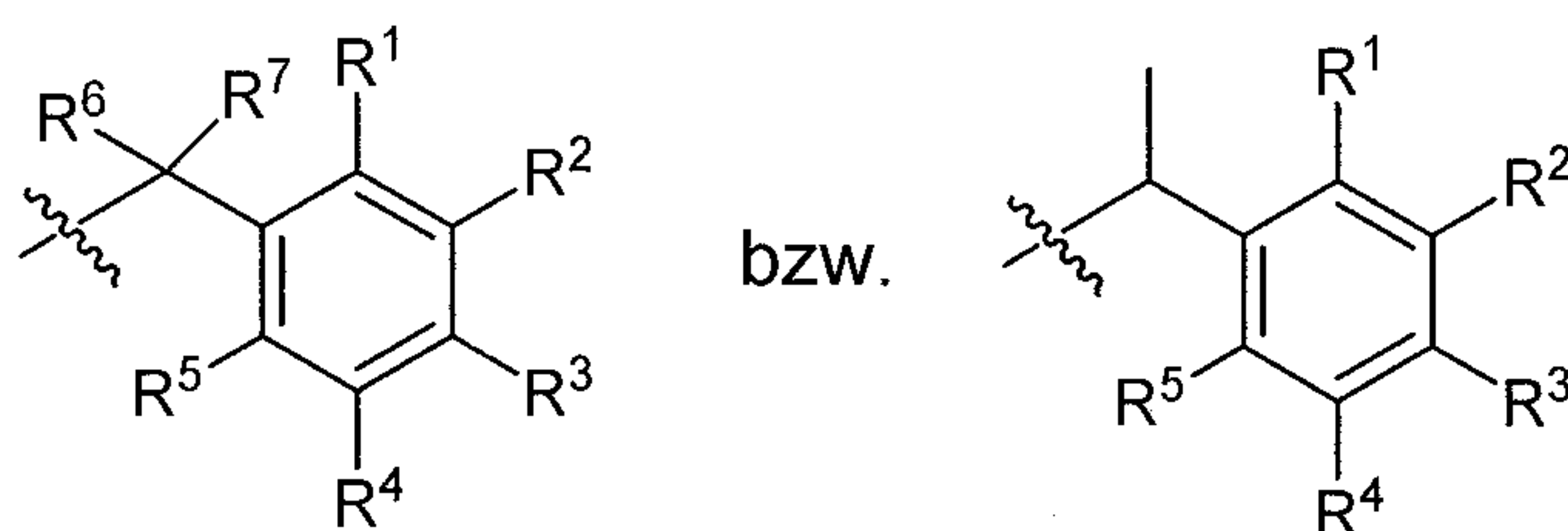
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Br, -OH, -CF₃, -SF₅, -CN, -NO₂, -C₁₋₅ alkyl, -O-C₁₋₅-alkyl, -O-CF₃, -S-CF₃, phenyl and -O-benzyl;

preferably from the group consisting of H, F, Cl, Br, I, OH, =O, CF₃, OCF₃, SCF₃, SF₅, -O-C₁₋₄-alkyl and C₁₋₄-alkyl,

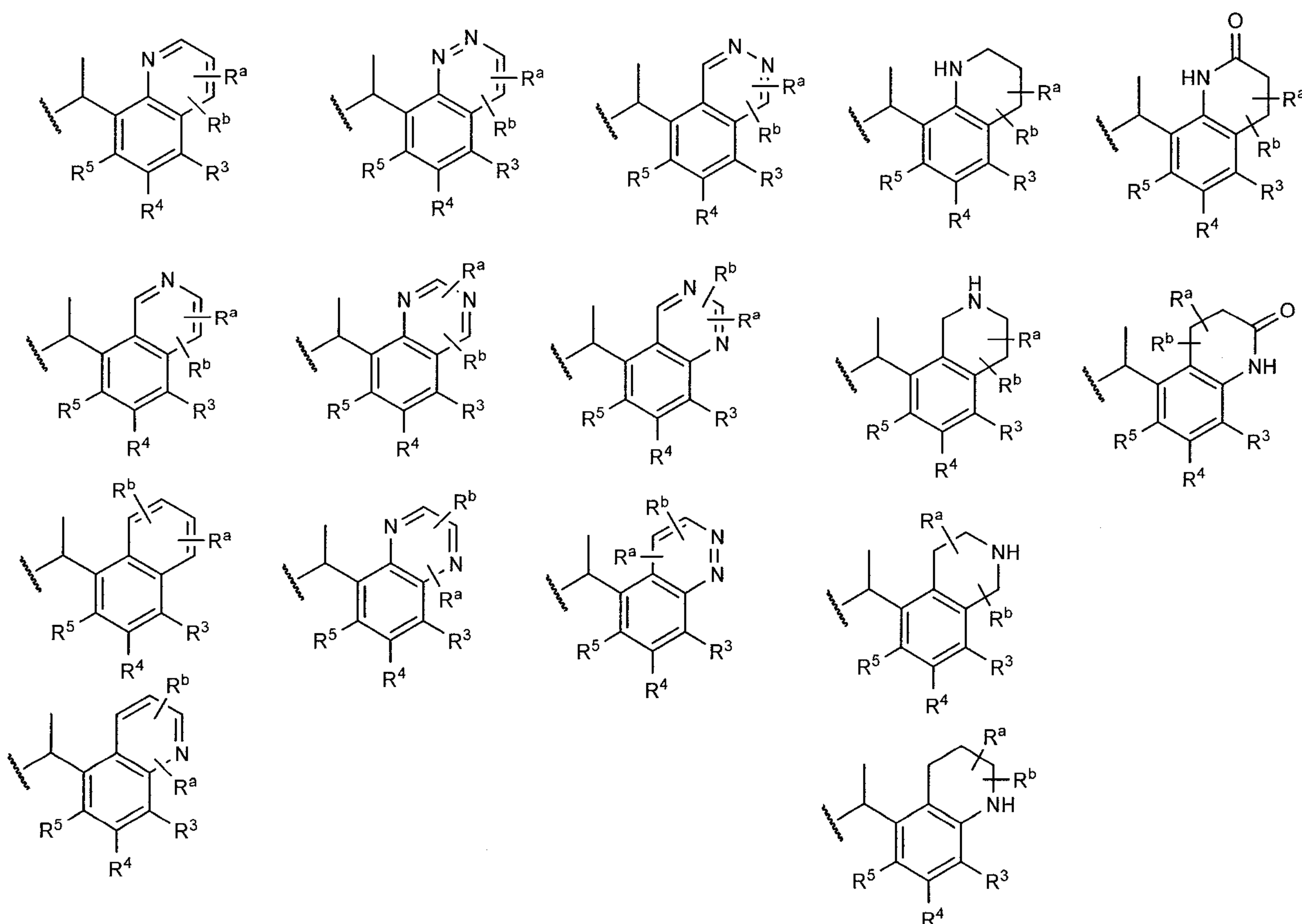
and particularly preferably from the group consisting of F, Cl, Br, I, OH, =O, CF₃, OCF₃, SCF₃, SF₅, methoxy, ethoxy, methyl, ethyl, n-propyl and iso-propyl.

Further preferred substituted compounds according to the invention are those of the general formulae I, Ia, Ib, Ic, Id, in which the partial structure

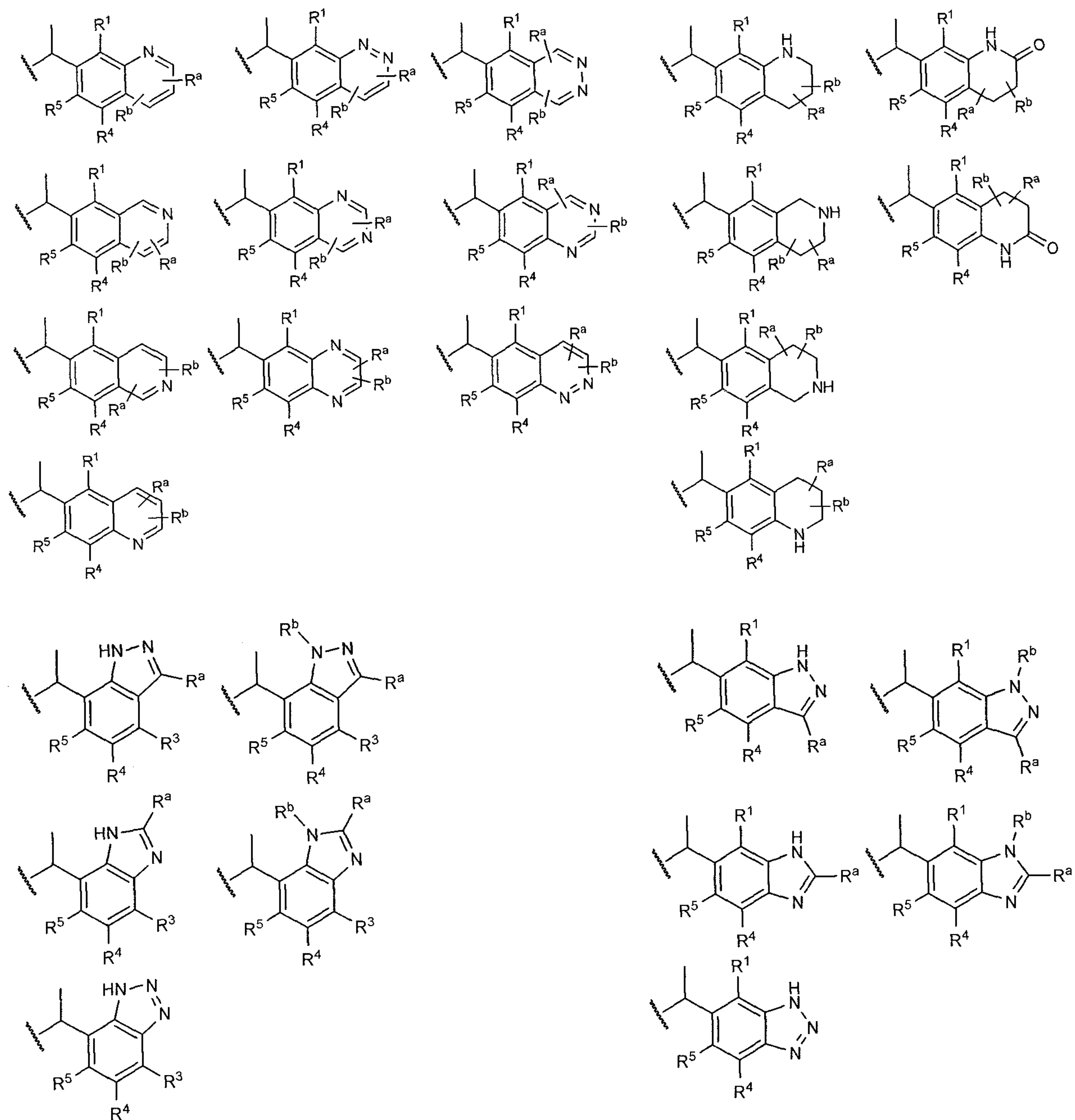


[Key: bzw. = or]

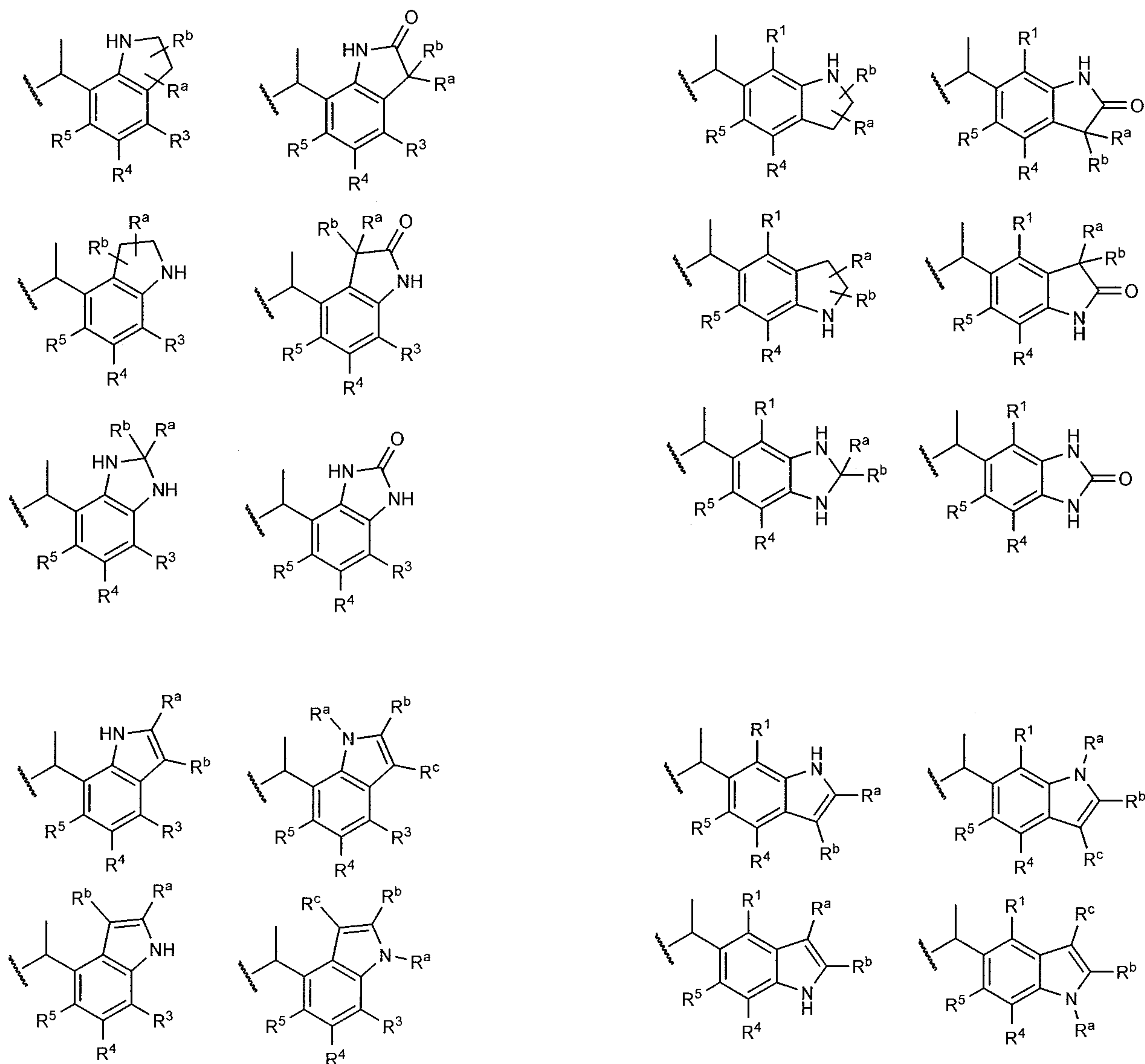
denotes a residue selected from the group consisting of

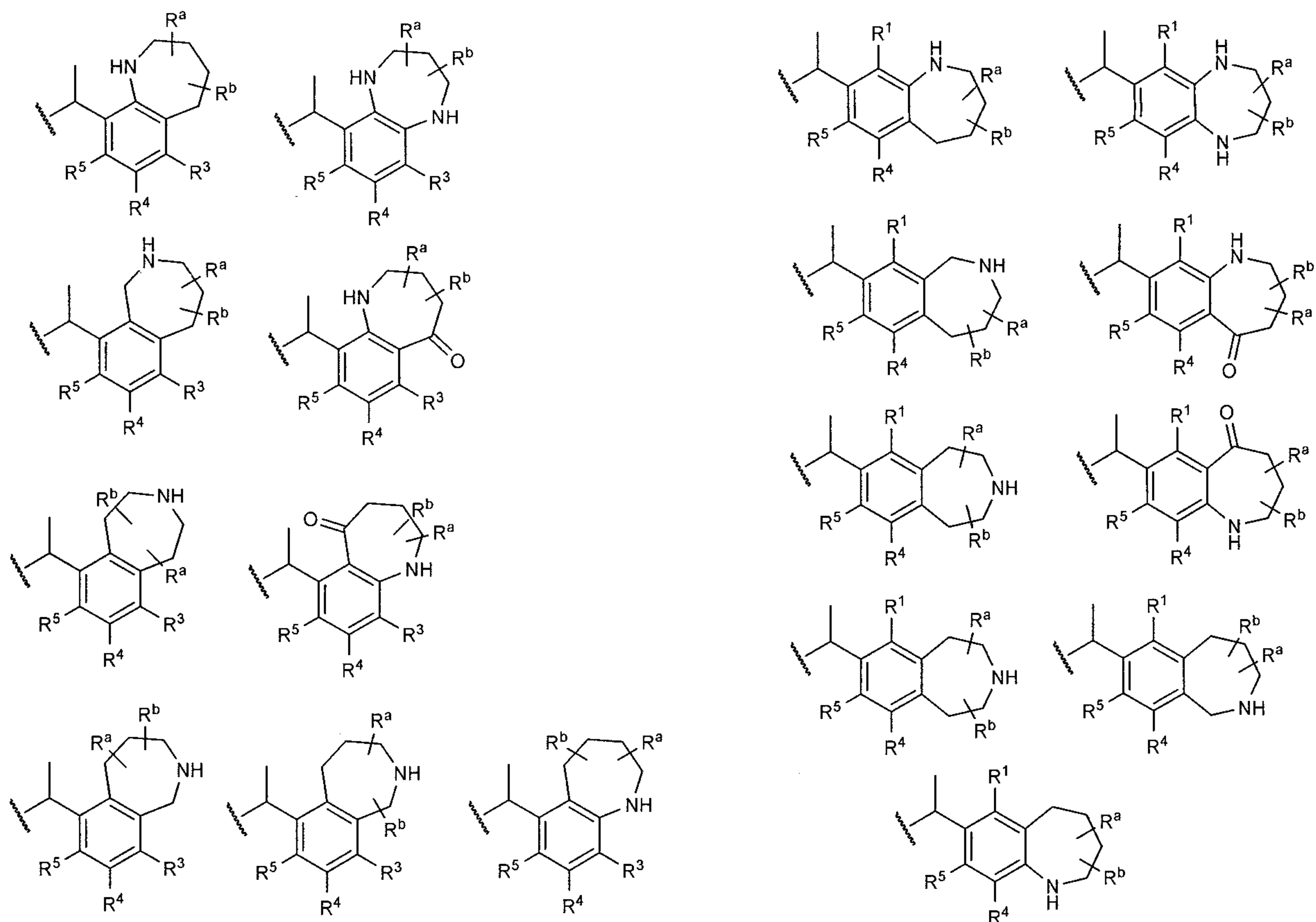


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in which R^a and R^b , mutually independently, are in each case selected from the group consisting of H, F, Cl, Br, I, -CN, =O, -CF₃, -SF₅, -OH, -O-C₁₋₅-alkyl, -NH₂, -NO₂, -O-CF₃, -S-CF₃, -SH, -S-C₁₋₅-alkyl, -C₁₋₅-alkyl, -C(=O)-OH, -C(=O)-O-C₁₋₅-alkyl, -NH-C₁₋₅-alkyl, -N(C₁₋₅-alkyl)₂, -NH-S(=O)₂-C₁₋₅-alkyl, -NH-C(=O)-O-C₁₋₅-alkyl, -C(=O)-H, -C(=O)-C₁₋₅-alkyl, -C(=O)-NH₂, -C(=O)-NH-C₁₋₅-alkyl, -C(=O)-N-(C₁₋₅-alkyl)₂, -O-phenyl, -O-benzyl, phenyl and benzyl, wherein in each case the cyclic moiety of the residues -O-phenyl, -O-benzyl, phenyl and benzyl may be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, -OH, -CF₃, -SF₅, -CN, -NO₂, -C₁₋₅ alkyl, -O-C₁₋₅-alkyl, -O-CF₃, -S-CF₃, phenyl and -O-benzyl; preferably from the group consisting of H, F, Cl, Br, I, OH, =O, CF₃, OCF₃, SCF₃, SF₅, -O-C₁₋₄-alkyl and C₁₋₄-alkyl, and particularly preferably from the group consisting of F, Cl, Br, I, OH, =O, CF₃, OCF₃, SCF₃, SF₅, methoxy, ethoxy, methyl, ethyl, n-propyl and iso-propyl.

Still more preferred are compounds of the general formulae I, Ia, Ib, Ic, and Id selected from the group consisting of

- [1] 2-(benzo[d]oxazol-5-yl)-N-(4-tert-butylbenzyl)propanamide,
- [2] 2-(benzo[d]oxazol-6-yl)-N-(4-tert-butylbenzyl)propanamide,
- [3] 2-(benzo[d]oxazol-7-yl)-N-(4-tert-butylbenzyl)propanamide,
- [4] N-(4-tert-butylbenzyl)-2-(2-oxo-2,3-dihydro-1H-benzo[d]imidazol-5-yl)propanamide,
- [5] N-(4-tert-butylbenzyl)-2-(3-oxo-3,4-dihydro-2H-benzo[b][1,4]oxazin-7-yl)propanamide,
- [6] N-(4-tert-butylbenzyl)-2-(3-oxo-3,4-dihydro-2H-benzo[b][1,4]oxazin-6-yl)propanamide,
- [7] N-(4-tert-butylbenzyl)-2-(7-methoxybenzo[d]oxazol-5-yl)propanamide,
- [8] 2-(benzo[d]oxazol-4-yl)-N-(4-tert-butylbenzyl)propanamide,
- [9] N-(4-tert-butylbenzyl)-2-(2,3-dihydrobenzo[b][1,4]dioxin-6-yl)propanamide,
- [10] N-(4-tert-butylbenzyl)-2-(2-thioxo-2,3-dihydro-1H-benzo[d]imidazol-5-yl)propanamide,
- [11] N-(4-tert-butylbenzyl)-2-(quinoxalin-6-yl)propanamide,
- [12] 2-(1H-benzo[d][1,2,3]triazol-5-yl)-N-(4-tert-butylbenzyl)propanamide,
- [13] 2-(1H-benzo[d]imidazol-5-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide,
- [14] 2-(1H-benzo[d]imidazol-5-yl)-N-(4-tert-butylbenzyl)propanamide,
- [15] 2-(1H-benzo[d][1,2,3]triazol-5-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide,
- [16] N-(4-tert-butylbenzyl)-2-(2-oxo-2,3-dihydrobenzo[d]oxazol-6-yl)propanamide,
- [17] N-(4-tert-butylbenzyl)-2-(2-thioxo-2,3-dihydrobenzo[d]oxazol-5-yl)propanamide,
- [18] 2-(2-aminobenzo[d]oxazol-6-yl)-N-(4-tert-butylbenzyl)propanamide,
- [19] N-(4-tert-butylbenzyl)-2-(2-thioxo-2,3-dihydrobenzo[d]oxazol-6-yl)propanamide,
- [20] N-(4-tert-butylbenzyl)-2-(3,4-dihydro-2H-benzo[b][1,4]oxazin-7-yl)propanamide,

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- [21] N-(4-tert-butylbenzyl)-2-(quinolin-6-yl)propanamide,
- [22] 2-(1H-benzo[d][1,2,3]triazol-5-yl)-N-((2-butoxy-6-tert-butylpyridin-3-yl)methyl)propanamide,
- [23] 2-(1H-benzo[d]imidazol-5-yl)-N-((2-butoxy-6-tert-butylpyridin-3-yl)methyl)propanamide,
- [24] 2-(1H-benzo[d][1,2,3]triazol-5-yl)-N-((6-tert-butyl-2-(4-methylpiperidin-1-yl)pyridin-3-yl)methyl)propanamide,
- [25] 2-(1H-benzo[d]imidazol-5-yl)-N-((6-tert-butyl-2-(4-methylpiperidin-1-yl)pyridin-3-yl)methyl)propanamide,
- [26] 2-(1H-benzo[d][1,2,3]triazol-5-yl)-N-((6-tert-butyl-2-(cyclohexylthio)pyridin-3-yl)methyl)propanamide,
- [27] 2-(1H-benzo[d]imidazol-5-yl)-N-((6-tert-butyl-2-(cyclohexylthio)pyridin-3-yl)methyl)propanamide,
- [28] N-((2-butoxy-6-tert-butylpyridin-3-yl)methyl)-2-(2-oxo-2,3-dihydrobenzo[d]thiazol-6-yl)propanamide,
- [29] N-(2-butoxy-6-tert-butylpyridin-3-ylmethyl)-2-(2-ethylsulfanyl-benzothiazol-6-yl)-propionamide,
- [30] N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)-2-(2-(methylthio)benzo[d]thiazol-6-yl)propanamide,
- [31] N-((2-butoxy-6-tert-butylpyridin-3-yl)methyl)-2-hydroxy-2-(2-(methylthio)benzo[d]thiazol-6-yl)propanamide,
- [32] N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)-2-(2-thioxo-2,3-dihydrobenzo[d]thiazol-6-yl)propanamide,
- [33] N-((6-tert-butyl-2-(4-methylpiperidin-1-yl)pyridin-3-yl)methyl)-2-(2-thioxo-2,3-dihydrobenzo[d]thiazol-6-yl)propanamide,
- [34] N-((6-tert-butyl-2-(4-methylpiperidin-1-yl)pyridin-3-yl)methyl)-2-(2-(methylthio)benzo[d]thiazol-6-yl)propanamide,
- [35] 2-(2-aminobenzo[d]oxazol-5-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide,
- [36] 2-(2-acetamidobenzo[d]thiazol-6-yl)-N-(4-tert-butylbenzyl)propanamide,
- [37] 2-(2-acetamidobenzo[d]thiazol-6-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide,
- [38] 2-(2-aminobenzo[d]thiazol-6-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide,

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- [39] N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)-2-(2-(methylsulfonamido)benzo[d]thiazol-6-yl)propanamide,
- [40] tert-butyl 6-(1-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methylamino)-1-oxopropan-2-yl)benzo[d]thiazol-2-ylcarbamate,
- [41] 2-(2-acetamidobenzo[d]thiazol-6-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide,
- [42] 2-(2-acetamidobenzo[d]thiazol-5-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide,
- [43] 2-(2-acetamidobenzo[d]thiazol-4-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide,
- [44] 2-(1H-indazol-5-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide,
- [45] 2-(3-fluoro-1H-indazol-5-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide,
- [46] N-((2-butoxy-6-tert-butylpyridin-3-yl)methyl)-2-(1H-indazol-5-yl)propanamide,
- [48] N-((6-tert-butyl-2-(cyclohexylthio)pyridin-3-yl)methyl)-2-(1H-indazol-5-yl)propanamide
- [49] N-(2-butoxy-6-tert-butyl-pyridin-3-ylmethyl)-2-(2-thioxo-2,3-dihydro-benzothiazol-6-yl)-propionamide;
- [50] tert-butyl 6-(1-(4-tert-butylbenzylamino)-1-oxopropan-2-yl)benzo[d]thiazol-2-ylcarbamate,
- [51] 2-(2-aminobenzo[d]thiazol-6-yl)-N-(4-tert-butylbenzyl)propanamide,
- [52] 2-(2-aminobenzo[d]thiazol-6-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide,
- [53] 2-(2-acetamidobenzo[d]thiazol-6-yl)-N-((6-tert-butyl-2-(4-methylpiperidin-1-yl)pyridin-3-yl)methyl)propanamide and
- [54] tert-butyl 6-(1-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methylamino)-1-oxopropan-2-yl)benzo[d]thiazol-2-ylcarbamate;
- [54] tert-butyl 6-(1-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methylamino)-1-oxopropan-2-yl)benzo[d]thiazol-2-ylcarbamate;
- [55] tert-butyl 6-(1-((6-tert-butyl-2-(4-methylpiperidin-1-yl)pyridin-3-yl)methylamino)-1-oxopropan-2-yl)benzo[d]thiazol-2-ylcarbamate;
- [56] 2-(2-aminobenzo[d]thiazol-6-yl)-N-((6-tert-butyl-2-(4-methylpiperidin-1-yl)pyridin-3-yl)methyl)propanamide;

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- [57] N-(4-tert-butylbenzyl)-2-(2-(methylsulfonamide)benzo[d]thiazol-6-yl)propanamide;
- [58] 2-(2,3-dihydrobenzo[b][1,4]dioxin-6-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)acetamide;
- [59] N-((2-(cyclohexylthio)-6-(trifluoromethyl)pyridin-3-yl)methyl)-2-(2,3-dihydrobenzo[b][1,4]dioxin-6-yl)acetamide;
- [60] 2-(benzo[d][1,3]dioxol-5-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide;
- [61] 2-(benzo[d][1,3]dioxol-4-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide;
- [62] 2-(2,3-dihydrobenzo[b][1,4]dioxin-6-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide;
- [63] 2-(2,3-dihydrobenzo[b][1,4]dioxin-5-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide
- [64] 2-(isoquinolin-7-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide
- [65] 2-(isoquinolin-6-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide
- [66] N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)-2-(quinolin-6-yl)propanamide
- [67] N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)-2-(quinoxalin-6-yl)propanamide
- [68] N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)-2-(quinazolin-6-yl)propanamide
- [69] 2-(1H-indazol-5-yl)-N-(2-(4-methylpiperidin-1-yl)-4-(trifluoromethyl)benzyl)propanamide
- [70] 2-(1H-indazol-4-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide
- [71] 2-(1H-indazol-6-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide
- [72] 2-(1H-indazol-7-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide
- [73] 2-(1-(2-fluorophenyl)-1H-indazol-4-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide

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- [74] 2-(indolin-5-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide
- [75] N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)-2-(1,2,3,4-tetrahydroquinolin-6-yl)propanamide
- [76] N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)-2-(2-oxoindolin-5-yl)propanamide and
- [77] N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)-2-(2-oxo-1,2,3,4-tetrahydroquinolin-6-yl)propanamide

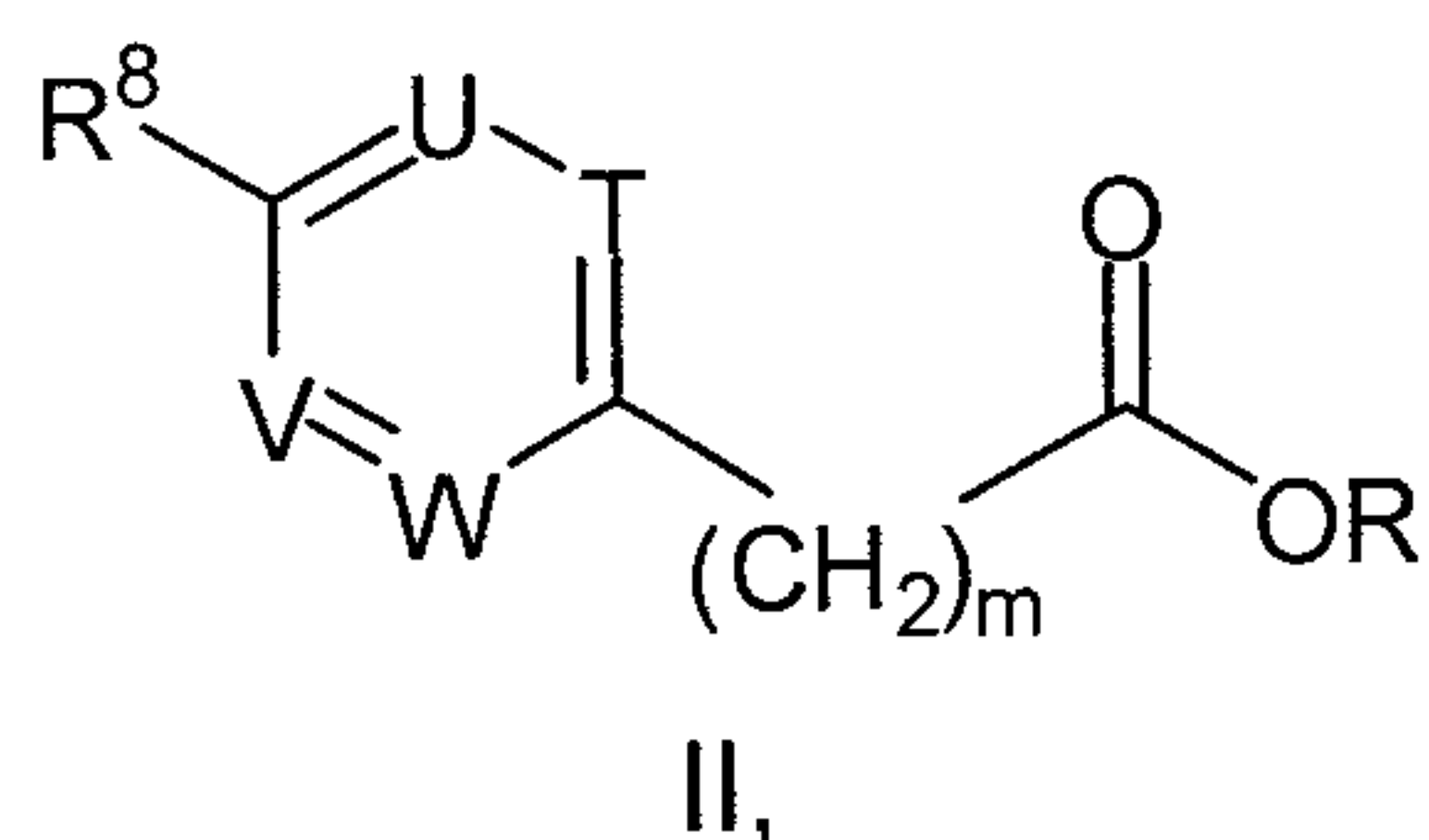
in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates;

In addition, compounds according to the invention of the general formulae I, Ia, Ib, Ic, and Id, may be preferred which in the FLIPR assay with CHO K1 cells, which have been transfected with the human VR1 gene, in a concentration of less than 2000 nM, preferably of less than 1000 nM, particularly preferably of less than 300 nM, very particularly preferably of less than 100 nM, still more preferably of less than 75 nM, further preferably of less than 50 nM and most preferably of less than 10 nM, bring about a 50 percent displacement of capsaicin, which is present in a concentration of 100 nM.

In this FLIPR assay, the influx of Ca^{2+} is quantified with the assistance of a Ca^{2+} -sensitive dye (type Fluo-4, Molecular Probes Europe BV, Leiden, Netherlands) in a Fluorescent Imaging Plate Reader (FLIPR, Molecular Devices, Sunnyvale, USA) as described below.

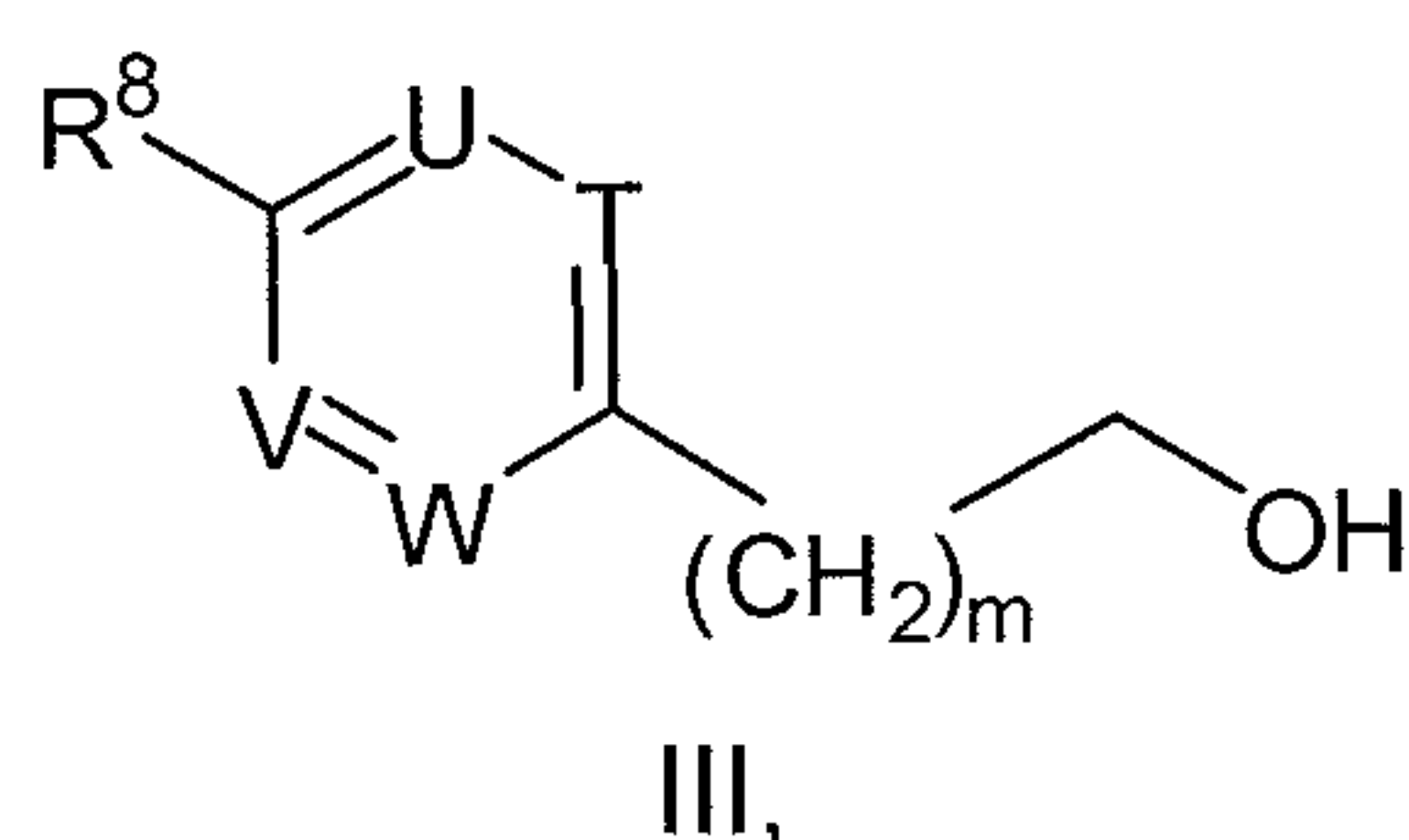
The present invention also provides a method for producing compounds of the above-stated general formula I, in accordance with which at least one compound of the general formula II,

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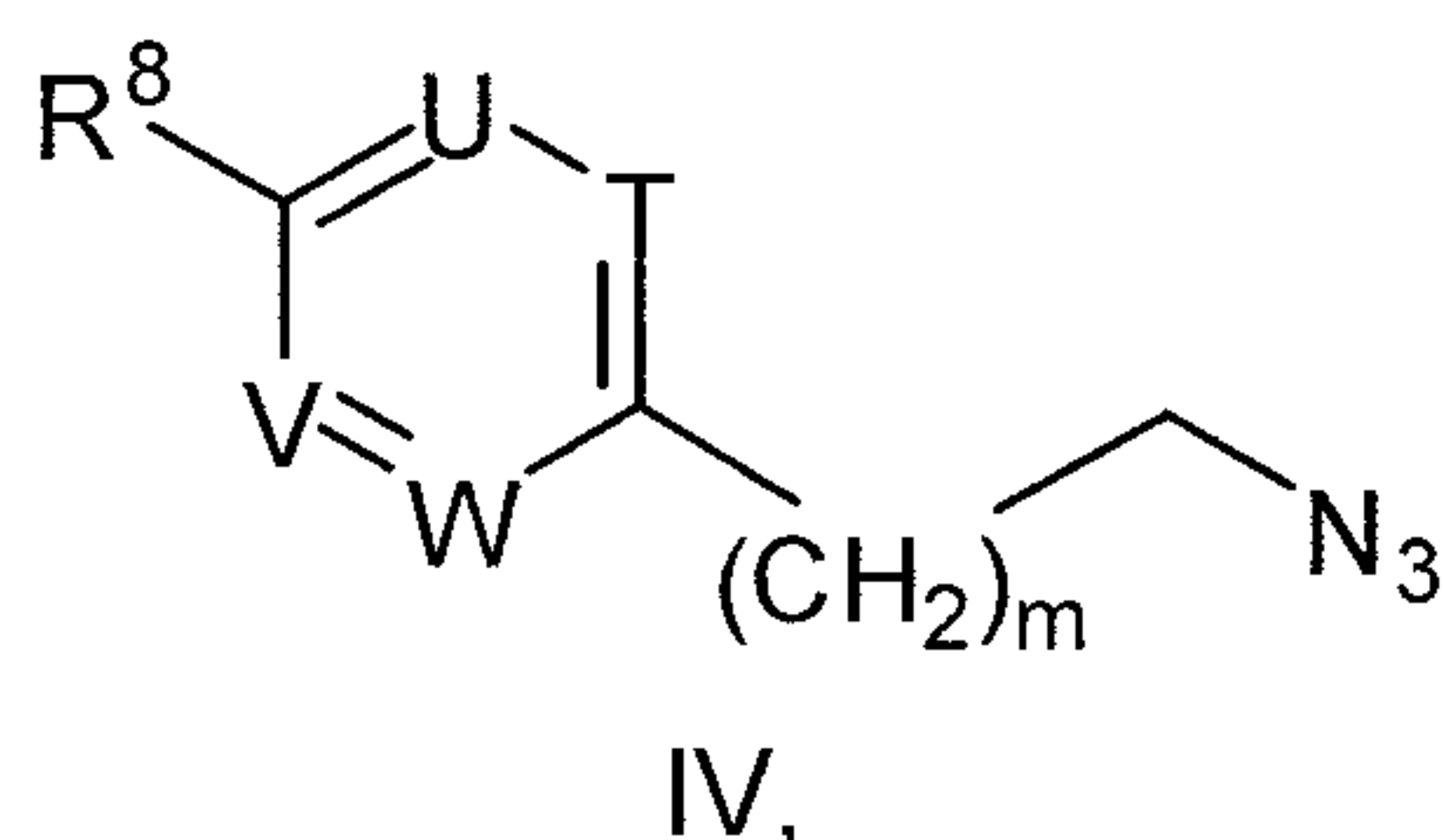
in which R^8 , U, T, V, and W have the above-stated meanings, m denotes 0, 1, 2 or 3 and R denotes hydrogen or denotes a linear or branched C_{1-6} alkyl residue, is reacted in a reaction medium, in the presence of at least one reducing agent, preferably in the presence of at least one reducing agent selected from the group consisting of sodium hydride, sodium, potassium hydride, lithium aluminium hydride, sodium borohydride and di(isobutyl)aluminium hydride

to yield at least one compound of the general formula III,



in which R^8 , U, T, V and W have the above-stated meaning and m denotes 0, 1, 2 or 3 and said compound is optionally purified and/or isolated,

and at least one compound of the general formula III is reacted in a reaction medium in the presence of diphenylphosphoryl azide or in the presence of HN_3 to yield at least one compound of the general formula IV,



in which R^8 , U, T, V and W have the above-stated meaning and m denotes 0, 1, 2 or 3 and said compound is optionally purified and/or isolated,

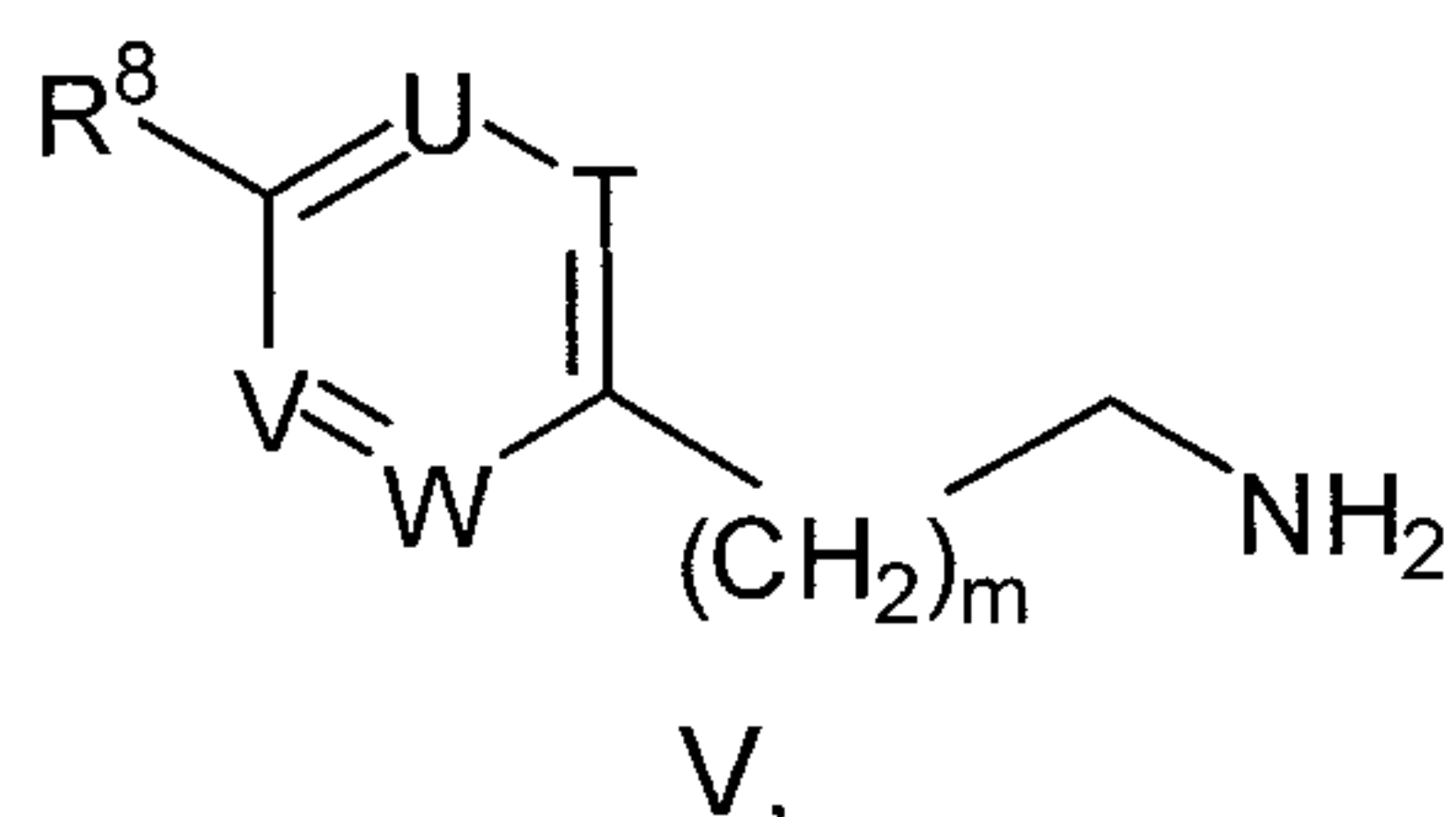
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and at least one compound of the general formula IV is reacted in a reaction medium in the presence of at least one reducing agent, preferably in the presence of at least one reducing agent selected from the group consisting of sodium hydride, potassium hydride, lithium aluminium hydride, sodium borohydride and di(isobutyl)aluminium hydride

or in a reaction medium in the presence of a catalyst, preferably in the presence of a catalyst based on platinum or palladium, particularly preferably in the presence of palladium on carbon, and in the presence of hydrogen or in the presence of hydrazine

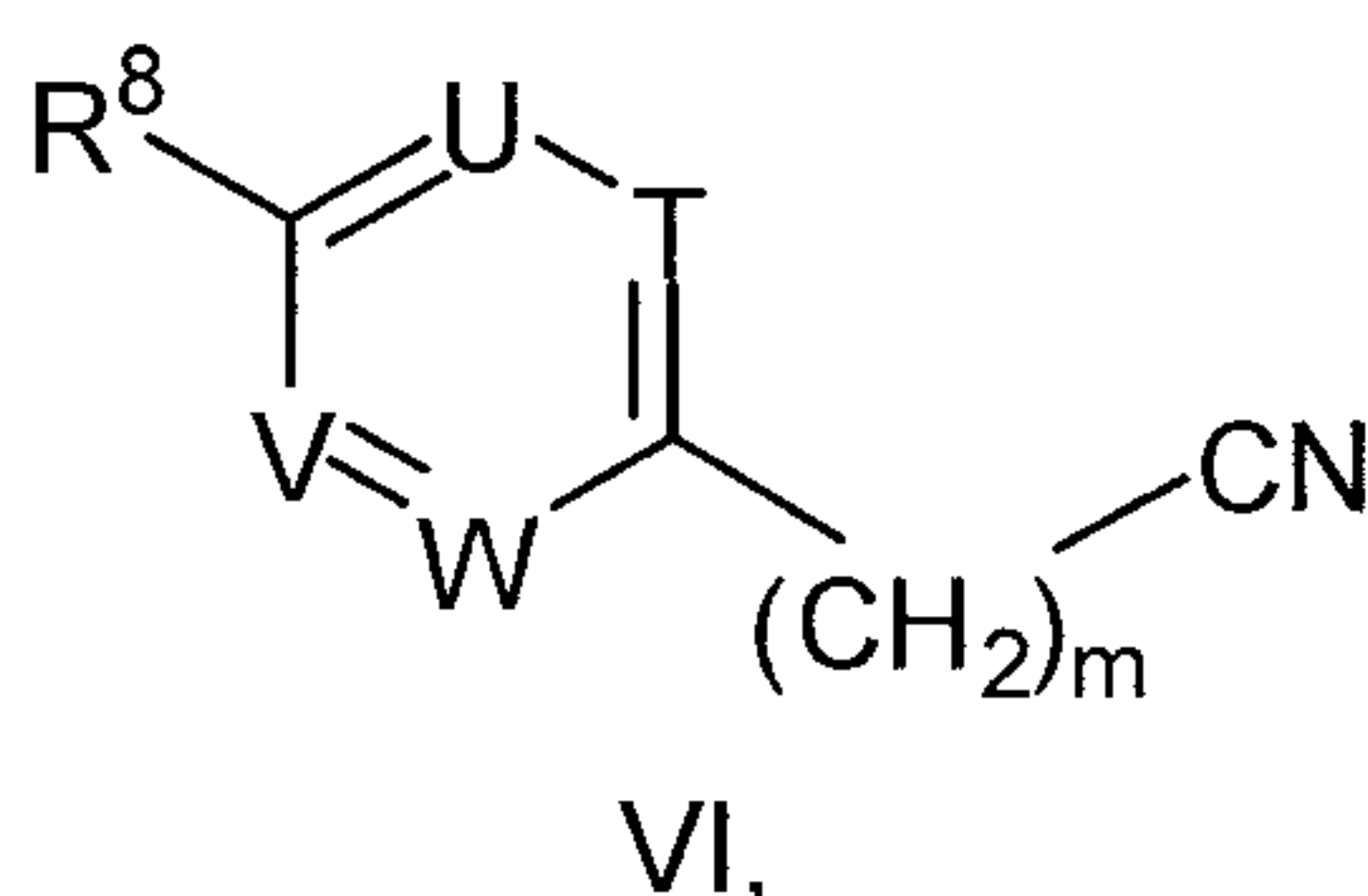
or in a reaction medium in the presence of triphenylphosphine

to yield at least one compound of the general formula V,



in which R^8 , U, T, V and W have the above-stated meaning and m denotes 0, 1, 2 or 3 and said compound is optionally purified and/or isolated,

or at least one compound of the general formula VI,



in which R^8 , U, T, V, and W have the above-stated meanings and m denotes 0, 1, 2 or 3, is reacted in a reaction medium

in the presence of at least one catalyst, preferably in the presence of at least one catalyst based on palladium or platinum, particularly preferably in the presence of

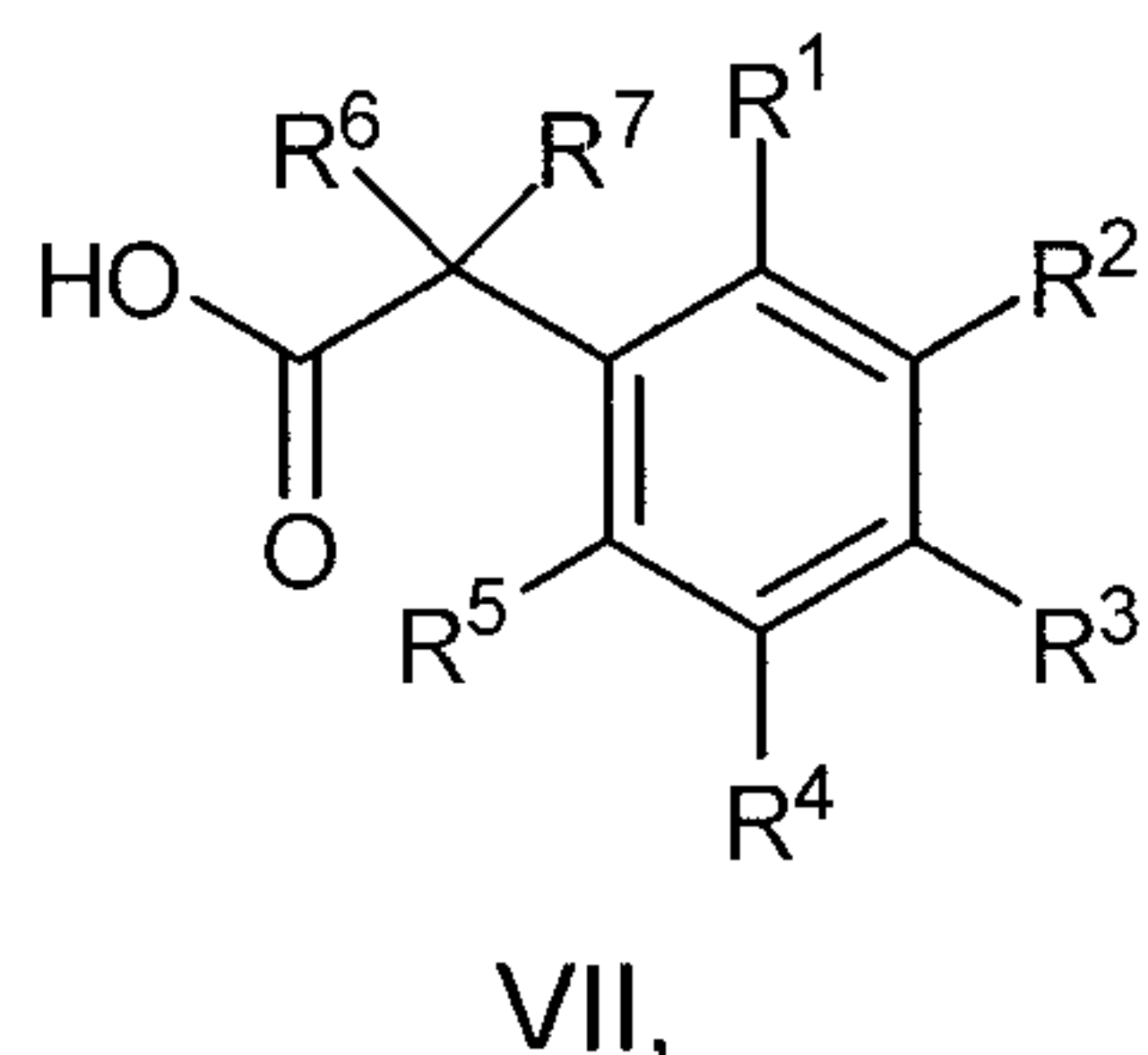
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palladium on carbon, under a hydrogen atmosphere, optionally in the presence of at least one acid, preferably in the presence of hydrochloric acid,

or in the presence of at least one reducing agent selected from the group consisting of $\text{BH}_3 \cdot \text{S}(\text{CH}_3)_2$, lithium aluminium hydride and sodium borohydride, optionally in the presence of NiCl_2 ,

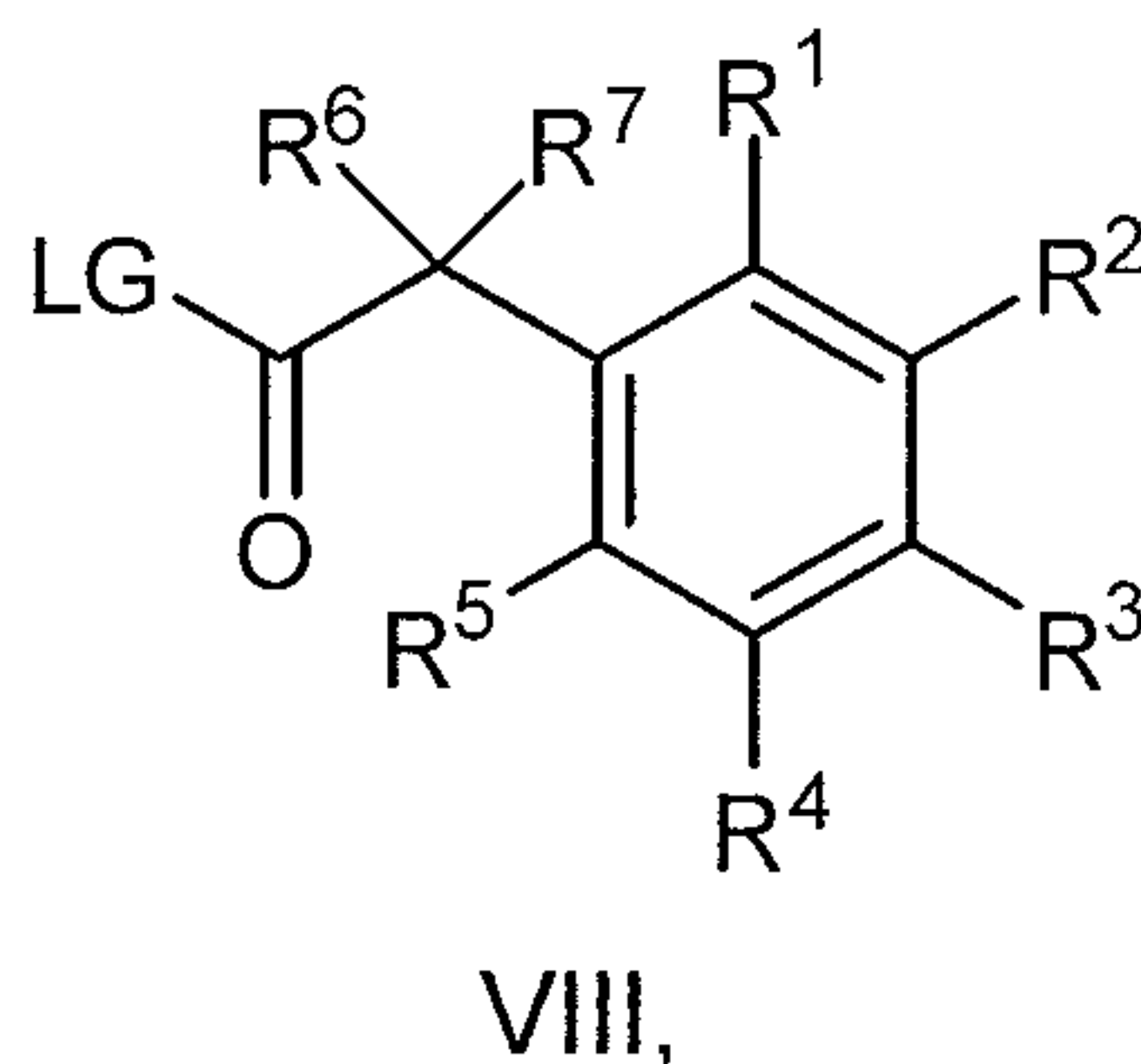
to yield at least one compound of the general formula V, optionally in the form of a corresponding salt, preferably in the form of a corresponding hydrochloride, and said compound is optionally purified and/or isolated,

and at least one compound of the general formula V is reacted with at least one compound of the general formula VII,



in which R^1 , R^2 , R^3 , R^4 , R^5 , R^6 and R^7 have the above-stated meanings, in a reaction medium, optionally in the presence of at least one suitable coupling agent, optionally in the presence of at least one base,

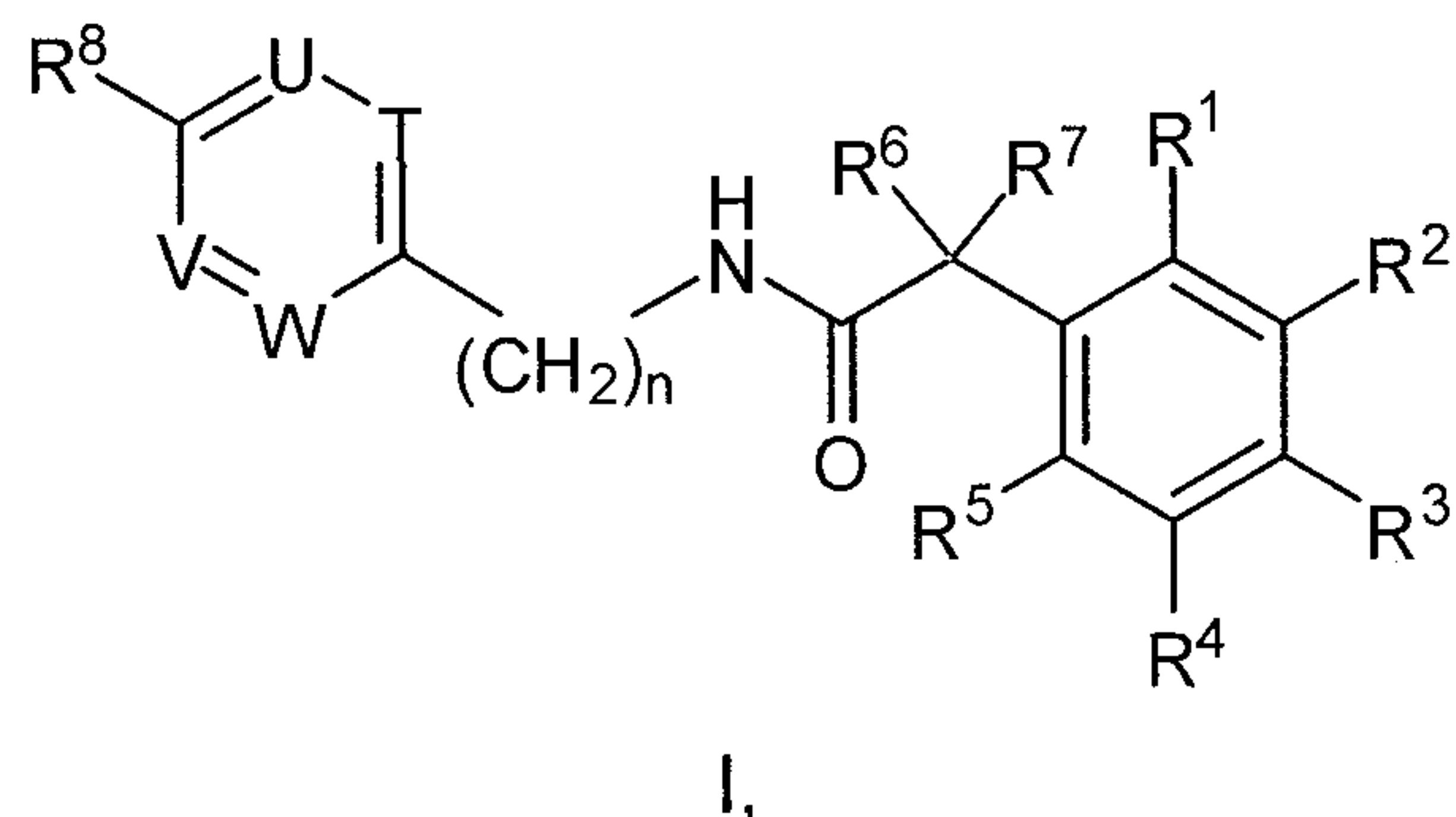
or with at least one compound of the general formula VIII,



in which R^1 , R^2 , R^3 , R^4 , R^5 , R^6 and R^7 have the above-stated meanings and LG denotes a leaving group, preferably a chlorine or bromine atom, in a reaction

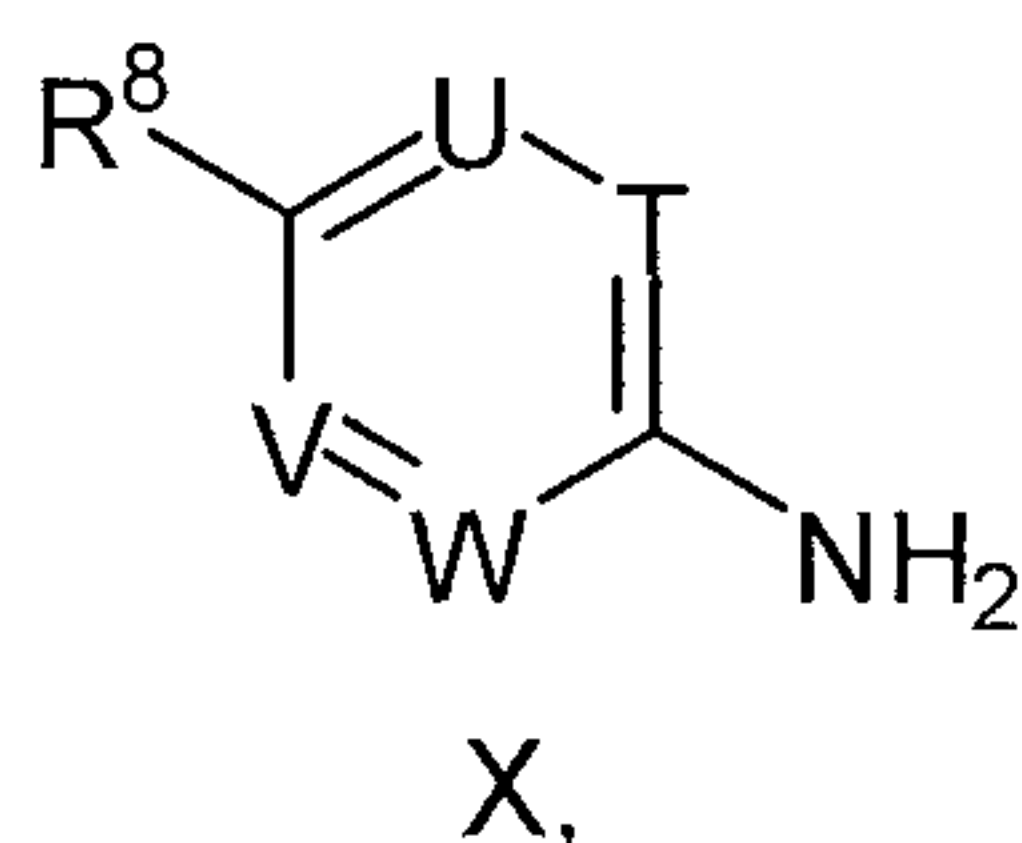
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medium, optionally in the presence of at least one base, to yield at least one compound of the general formula I,

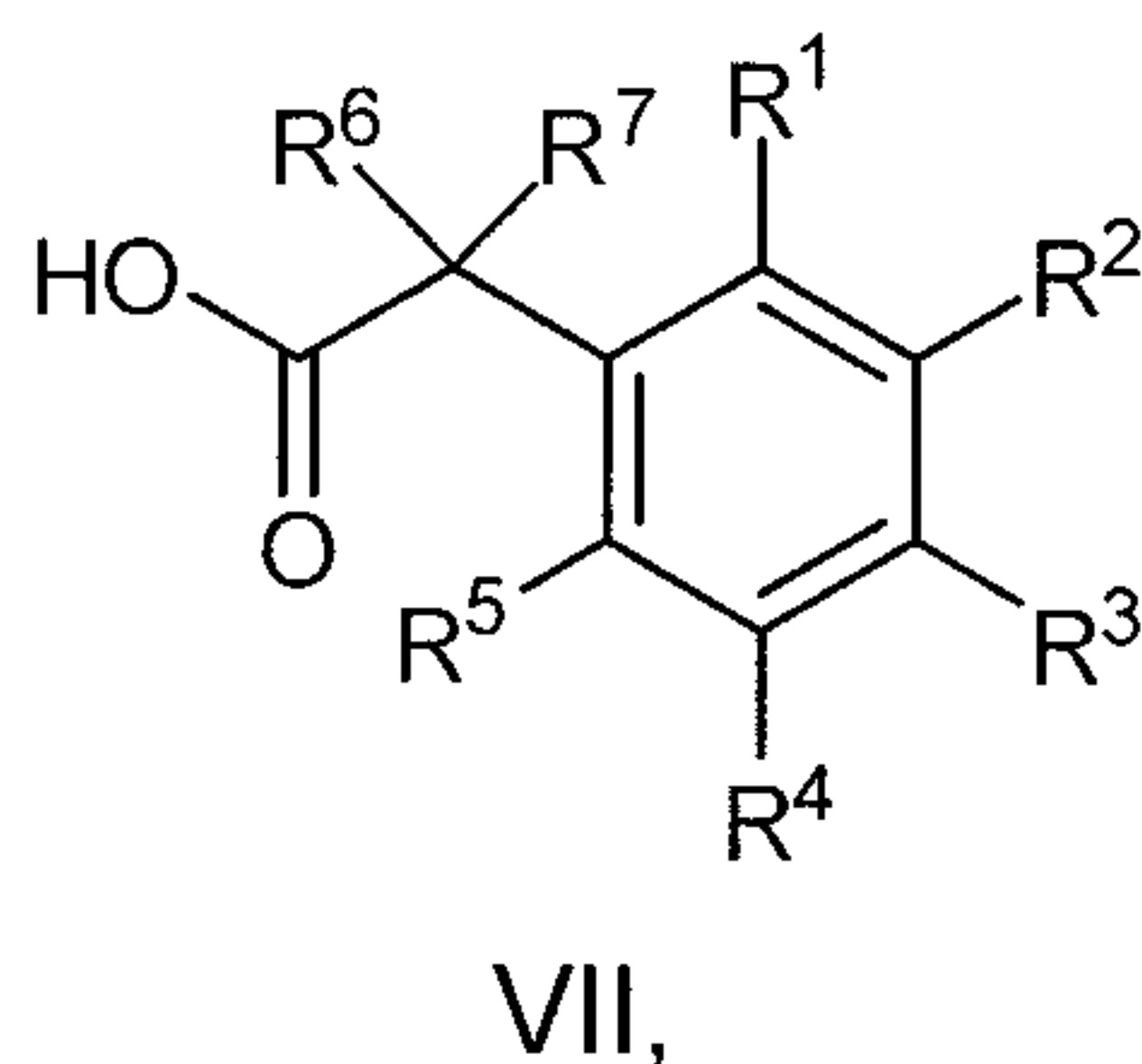


in which T, U, V, W, R¹, R², R³, R⁴, R⁵, R⁶, R⁷ and R⁸ have the above-stated meanings and n denotes 1, 2, 3 or 4 and said compound is optionally purified and/or isolated.

The present invention also provides a method for producing compounds of the above-stated general formula I, in accordance with which at least one compound of the general formula X,



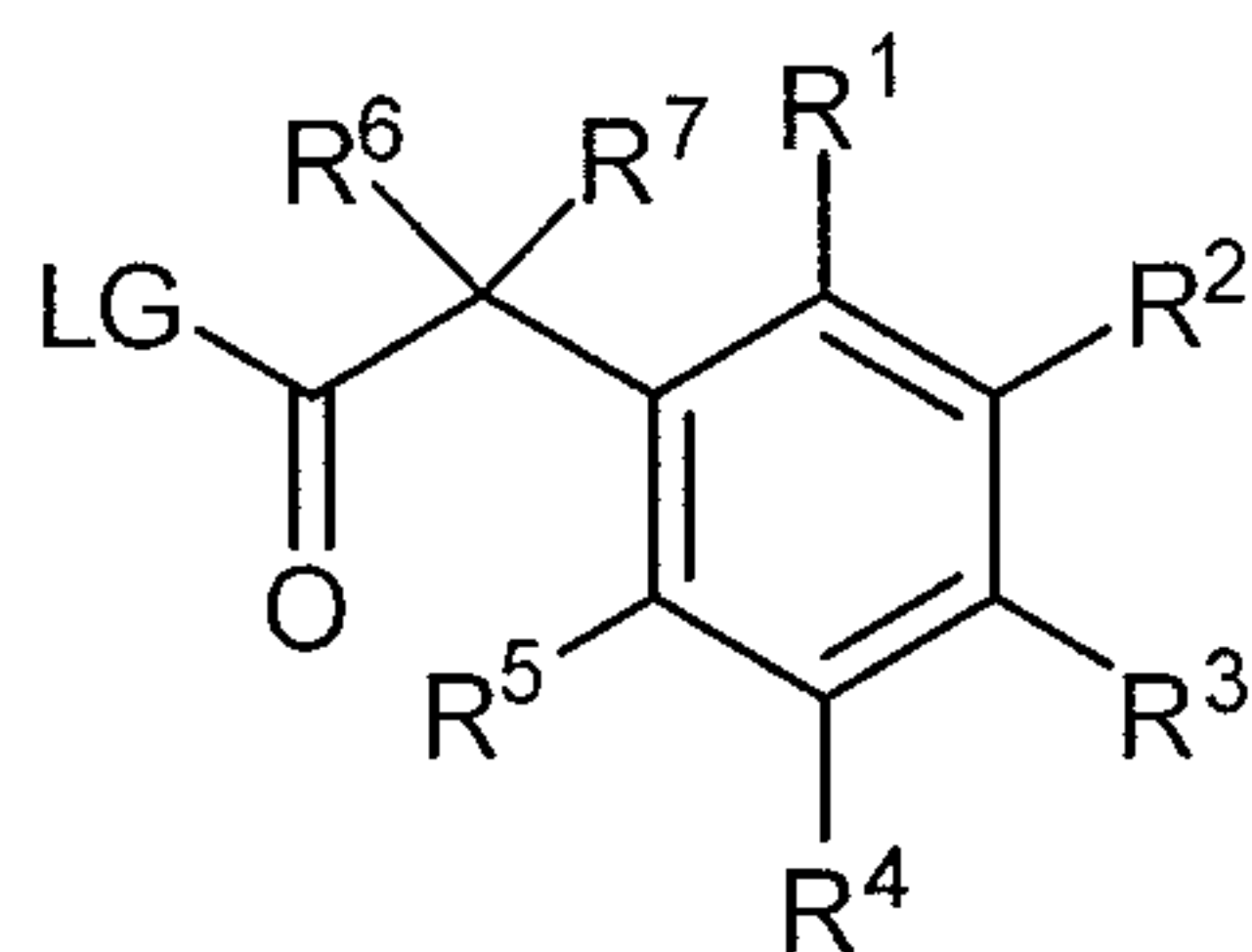
in which R⁸, U, T, V, and W have the above-stated meanings, is reacted with at least one compound of the general formula VII,



in which R¹, R², R³, R⁴, R⁵, R⁶ and R⁷ have the above-stated meanings, in a reaction medium, optionally in the presence of at least one suitable coupling agent, optionally in the presence of at least one base,

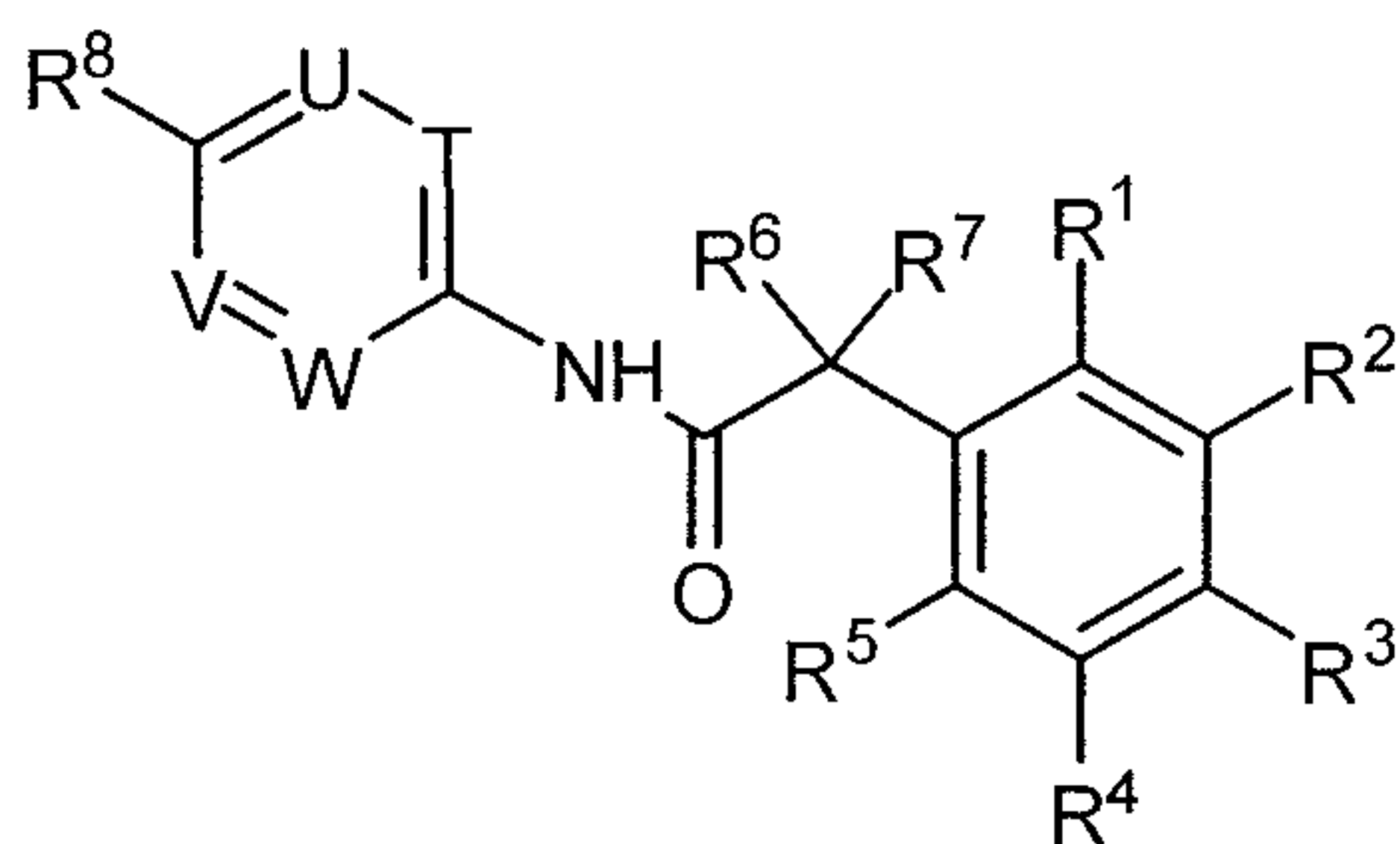
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or with at least one compound of the general formula VIII,



VIII,

in which R^1 , R^2 , R^3 , R^4 , R^5 , R^6 and R^7 have the above-stated meanings and LG denotes a leaving group, preferably a chlorine or bromine atom, in a reaction medium, optionally in the presence of at least one base, to yield at least one compound of the general formula Im,



Im,

in which T, U, V, W, R^1 , R^2 , R^3 , R^4 , R^5 , R^6 , R^7 and R^8 have the above-stated meanings, and said compound is optionally purified and/or isolated.

The reaction of compounds of the above-stated general formulae V or X with carboxylic acids of the above-stated general formula VII to yield compounds of the above-stated general formulae I or Im preferably proceeds in a reaction medium selected from the group consisting of diethyl ether, tetrahydrofuran, acetonitrile, methanol, ethanol, (1,2)-dichloroethane, dimethylformamide, dichloromethane and corresponding mixtures, optionally in the presence of at least one coupling reagent, preferably selected from the group consisting of 1-benzotriazolyloxy-tris-(dimethylamino)-phosphonium hexafluorophosphate (BOP), dicyclohexylcarbodiimide (DCC), N'-(3-dimethylaminopropyl)-N-ethylcarbodiimide (EDCI), diisopropylcarbodiimide, 1,1'-carbonyldiimidazole (CDI), N-[(dimethylamino)-1H-1,2,3-triazolo[4, 5-b]pyridino-1-ylmethylene]-N-methylmethanaminium

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hexafluorophosphate N-oxide (HATU), O-(benzotriazol-1-yl)-N,N,N',N'-tetramethyluronium hexafluorophosphate (HBTU), O-(benzotriazol-1-yl)-N,N,N',N'-tetramethyluronium tetrafluoroborate (TBTU), N-hydroxybenzotriazole (HOBt) and 1-hydroxy-7-azabenzotriazole (HOAt), optionally in the presence of at least one organic base, preferably selected from the group consisting of triethylamine, pyridine, dimethylaminopyridine, N-methylmorpholine and diisopropylethylamine, preferably at temperatures of -70°C to 100°C.

Alternatively, the reaction of compounds of the above-stated general formulae V or X with carboxylic acid derivatives of the above-stated general formula VIII, in which LG denotes a leaving group, preferably a chlorine or bromine atom, to yield compounds of the above-stated general formulae Ih or Im proceeds in a reaction medium preferably selected from the group consisting of diethyl ether, tetrahydrofuran, acetonitrile, methanol, ethanol, dimethylformamide, dichloromethane and corresponding mixtures, optionally in the presence of an organic base or inorganic base, preferably selected from the group consisting of triethylamine, dimethylaminopyridine, pyridine and diisopropylamine, at temperatures of -70°C to 100°C.

The compounds of the above-stated formulae II, III, IV, V, X, VI, VII and VIII are in each case commercially obtainable and may also be produced using conventional methods known to the person skilled in the art.

The synthesis method for compounds of the general formula VII may be found in the document "4-(Methylsulfonylamino)phenyl analogues as vanilloid antagonist showing excellent analgesic activity and the pharmaceutical compositions comprising the same" by J.W. Lee et al. [WO 2005/003084-A1]. The corresponding parts of the reference are hereby deemed to be part of the disclosure.

The above-described reactions may in each case be performed under conventional conditions familiar to a person skilled in the art, for example with regard to pressure or the sequence of addition of the components. Optimum control of the process under the respective conditions may optionally be established by the person skilled in the art by simple preliminary testing. The intermediate and final products obtained

from the above-described reactions may in each case, if desired and/or necessary, be purified and/or isolated using conventional methods known to the person skilled in the art. Suitable purification methods are, for example, extraction methods and chromatographic methods such as column chromatography or preparative chromatography. All the above-described method steps and in each case also the purification and/or isolation of intermediate or final products may be performed in part or entirely under an inert gas atmosphere, preferably under a nitrogen atmosphere.

The substituted compounds according to the invention of the above-stated general formulae I, Ia, Ib, Ic and Id, hereinafter designated only as compounds of the general formula I, and corresponding stereoisomers may be isolated both in the form of the free bases thereof, the free acids thereof and in the form of corresponding salts, in particular physiologically acceptable salts.

The free bases of the particular substituted compounds according to the invention of the above-stated general formula I and corresponding stereoisomers may, for example, be converted into the corresponding salts, preferably physiologically acceptable salts by reaction with an inorganic or organic acid, preferably with hydrochloric acid, hydrobromic acid, sulfuric acid, phosphoric acid, methanesulfonic acid, p-toluenesulfonic acid, carbonic acid, formic acid, acetic acid, oxalic acid, succinic acid, tartaric acid, mandelic acid, fumaric acid, lactic acid, citric acid, glutamic acid or aspartic acid. The free bases of the respective substituted compounds of the above-stated general formula I and corresponding stereoisomers may likewise be converted into the corresponding physiologically acceptable salts with the free acid or a salt of a sugar substitute, such as for example saccharin, cyclamate or acesulfame.

The free acids of the substituted compounds of the above-stated general formula I and corresponding stereoisomers may correspondingly be converted into the corresponding physiologically acceptable salts by reaction with a suitable base. Examples which may be mentioned are alkali metal salts, alkaline earth metal salts or ammonium salts $\text{NH}_x\text{R}_{4-x}]^+$, in which $x = 0, 1, 2, 3$ or 4 is and R denotes a linear or branched C_{1-4} alkyl residue.

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The substituted compounds according to the invention of the above-stated general formula I and corresponding stereoisomers may optionally, like the corresponding acids, the corresponding bases or salts of these compounds, also be obtained in the form of the solvates thereof, preferably in the form of the hydrates thereof, by conventional methods known to a person skilled in the art.

If the substituted compounds according to the invention of the above-stated general formula I are obtained after the production thereof in the form of a mixture of the stereoisomers thereof, preferably in the form of the racemates thereof or other mixtures of their various enantiomers and/or diastereomers, these may be separated and optionally isolated by conventional methods known to a person skilled in the art. Examples are chromatographic separation methods, in particular liquid chromatography methods at standard pressure or at elevated pressure, preferably MPLC and HPLC methods, and fractional crystallisation methods. Individual enantiomers, for example diastereomeric salts formed by means of HPLC on a chiral stationary phase or by means of crystallisation with chiral acids, such as (+)-tartaric acid, (-)-tartaric acid or (+)-10-camphorsulfonic acid, may here in particular be separated from one another.

The substituted compounds according to the invention of the above-stated general formula I and corresponding stereoisomers as well as in each case the corresponding acids, bases, salts and solvates are toxicologically safe and are therefore suitable as pharmaceutical active ingredients in pharmaceuticals.

The present invention accordingly also provides a pharmaceutical containing at least one compound according to the invention of the above-stated general formula I, in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of a corresponding salt, or in each case in the form of a corresponding solvate, and optionally one or more pharmaceutically acceptable auxiliary substances.

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These pharmaceuticals according to the invention are suitable in particular for vanilloid receptor 1-(VR1/TRPV1) regulation, preferably for vanilloid receptor 1-(VR1/TRPV1) inhibition and/or for vanilloid receptor 1-(VR1/TRPV1) stimulation.

The pharmaceuticals according to the invention are likewise preferably suitable for the prevention and/or treatment of disorders or diseases, which are mediated at least in part by vanilloid receptors 1.

The pharmaceutical according to the invention is preferably suitable for the treatment and/or prevention of one or more diseases selected from the group consisting of pain selected from the group consisting of acute pain, chronic pain, neuropathic pain and visceral pain; joint pain; hyperalgesia; allodynia; causalgia; migraine; depression; neuropathy; nerve injury; neurodegenerative diseases, preferably selected from the group consisting of multiple sclerosis, Alzheimer's disease, Parkinson's disease and Huntington's chorea; cognitive dysfunction, preferably cognitive deficiency states, particularly preferably memory disorders; epilepsy; airways diseases, preferably selected from the group consisting of asthma, bronchitis and pulmonary inflammation; coughing; urinary incontinence; an overactive bladder (OAB); diseases and/or injuries of the gastrointestinal tract; duodenal ulcers; gastric ulcers; irritable bowel syndrome; strokes; eye irritation; skin irritation; neurotic skin conditions; allergic skin diseases; psoriasis; vitiligo; herpes simplex; inflammation, preferably inflammation of the intestines, the eyes, the bladder, the skin or the nasal mucosa; diarrhoea; pruritus; osteoporosis; arthritis; osteoarthritis; rheumatic diseases; disorders of food intake, preferably selected from the group consisting of bulimia, cachexia, anorexia and obesity; dependency on medicines; abuse of medicines; withdrawal symptoms associated with dependency on medicines; development of tolerance towards medicines, preferably towards natural or synthetic opioids; dependency on drugs; drug abuse; withdrawal symptoms associated with dependency on drugs; dependency on alcohol; alcohol abuse and withdrawal symptoms associated with dependency on alcohol; for diuresis; for antinatriuresis; for influencing the cardiovascular system; for increasing vigilance; for the treatment of wounds and/or burns; for the treatment of severed nerves; for increasing libido; for modulating locomotor activity; for anxiolysis; for local anaesthesia; and/or for

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inhibiting undesired side-effects, preferably selected from the group consisting of hyperthermia, high blood pressure and constriction of bronchial tubes, triggered by the administration of vanilloid receptor 1 (VR1/TRPV1 receptor) agonists, preferably selected from the group consisting of capsaicin, resiniferatoxin, olvanil, arvanil, SDZ-249665, SDZ-249482, nuvanil and capsavanil.

The pharmaceutical according to the invention is particularly preferably suitable for the treatment and/or prevention of one or more diseases selected from the group consisting of pain, preferably of pain selected from the group consisting of acute pain, chronic pain, neuropathic pain and visceral pain; joint pain; migraine; depression; neurodegenerative diseases, preferably selected from the group consisting of multiple sclerosis, Alzheimer's disease, Parkinson's disease and Huntington's chorea; cognitive dysfunction, preferably cognitive deficiency states, particularly preferably memory disorders; inflammation, preferably inflammation of the intestines, the eyes, the bladder, the skin or the nasal mucosa; urinary incontinence; an overactive bladder (OAB); dependency on medicines; abuse of medicines; withdrawal symptoms associated with dependency on medicines; development of tolerance towards medicines, preferably development of tolerance towards natural or synthetic opioids; dependency on drugs; drug abuse; withdrawal symptoms associated with dependency on drugs; dependency on alcohol; alcohol abuse and withdrawal symptoms associated with dependency on alcohol.

The pharmaceutical according to the invention is very particularly preferably suitable for the treatment and/or prevention of pain, preferably of pain selected from the group consisting of acute pain, chronic pain, neuropathic pain and visceral pain, and/or urinary incontinence.

The present invention also provides the use of at least one compound according to the invention and optionally one or more pharmaceutically acceptable auxiliary substances for the production of a pharmaceutical for vanilloid receptor 1-(VR1/TRPV1) regulation, preferably for vanilloid receptor 1-(VR1/TRPV1) inhibition and/or for vanilloid receptor 1-(VR1/TRPV1) stimulation.

It is preferred to use at least one substituted compound according to the invention and optionally one or more pharmaceutically acceptable auxiliary substances for the production of a pharmaceutical for the prevention and/or treatment of disorders or diseases which are mediated at least in part by vanilloid receptors 1.

It is particularly preferred to use at least one compound according to the invention and optionally one or more pharmaceutically acceptable auxiliary substances for the production of a pharmaceutical for the treatment and/or prevention of one or more diseases selected from the group consisting of pain, preferably of pain selected from the group consisting of acute pain, chronic pain, neuropathic pain and visceral pain and joint pain.

It is particularly preferred to use at least one compound according to the invention and optionally one or more pharmaceutically compatible auxiliary substances for the production of a pharmaceutical for the treatment and/or prevention of one or more diseases selected from the group consisting of hyperalgesia; allodynia; causalgia; migraine; depression; neuropathy; nerve injury; neurodegenerative diseases, preferably selected from the group consisting of multiple sclerosis, Alzheimer's disease, Parkinson's disease and Huntington's chorea; cognitive dysfunction, preferably cognitive deficiency states, particularly preferably memory disorders; epilepsy; airways diseases, preferably selected from the group consisting of asthma, bronchitis and pulmonary inflammation; coughing; urinary incontinence; an overactive bladder (OAB); diseases and/or injuries of the gastrointestinal tract; duodenal ulcers; gastric ulcers; irritable bowel syndrome; strokes; eye irritation; skin irritation; neurotic skin conditions; allergic skin diseases; psoriasis; vitiligo; herpes simplex; inflammation, preferably inflammation of the intestines, the eyes, the bladder, the skin or the nasal mucosa; diarrhoea; pruritus; osteoporosis; arthritis; osteoarthritis; rheumatic diseases; disorders of food intake, preferably selected from the group consisting of bulimia, cachexia, anorexia and obesity; dependency on medicines; abuse of medicines; withdrawal symptoms associated with dependency on medicines; development of tolerance towards medicines, preferably towards natural or synthetic opioids; dependency on drugs; drug abuse; withdrawal symptoms associated with dependency on drugs; dependency on alcohol; alcohol abuse and withdrawal symptoms associated with dependency on alcohol; for diuresis; for

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antinatriuresis; for influencing the cardiovascular system; for increasing vigilance; for the treatment of wounds and/or burns; for the treatment of severed nerves; for increasing libido; for modulating locomotor activity; for anxiolysis; for local anaesthesia; and/or for inhibiting undesired side-effects, preferably selected from the group consisting of hyperthermia, high blood pressure and constriction of bronchial tubes, triggered by the administration of vanilloid receptor 1 (VR1/TRPV1 receptor) agonists, preferably selected from the group consisting of capsaicin, resiniferatoxin, olvanil, arvanil, SDZ-249665, SDZ-249482, nuvanil and capsavanil.

It is very particularly preferred to use at least one substituted compound according to the invention and optionally one or more pharmaceutically acceptable auxiliary substances for the production of a pharmaceutical for the treatment and/or prevention of one or more diseases selected from the group consisting of pain, preferably of pain selected from the group consisting of acute pain, chronic pain, neuropathic pain and visceral pain; joint pain; migraine; depression; neurodegenerative diseases, preferably selected from the group consisting of multiple sclerosis, Alzheimer's disease, Parkinson's disease and Huntington's chorea; cognitive dysfunction, preferably cognitive deficiency states, particularly preferably memory disorders; inflammation, preferably inflammation of the intestines, the eyes, the bladder, the skin or the nasal mucosa; urinary incontinence; an overactive bladder (OAB); dependency on medicines; abuse of medicines; withdrawal symptoms associated with dependency on medicines; development of tolerance towards medicines, preferably development of tolerance towards natural or synthetic opioids; dependency on drugs; drug abuse; withdrawal symptoms associated with dependency on drugs; dependency on alcohol; alcohol abuse and withdrawal symptoms associated with dependency on alcohol.

It is still further preferred to use at least one substituted compound according to the invention and optionally one or more pharmaceutically acceptable auxiliary substances for the production of a pharmaceutical for the treatment and/or prevention of pain, preferably selected from the group consisting of acute pain, chronic pain, neuropathic pain and visceral pain, and/or urinary incontinence.

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The pharmaceutical according to the invention is suitable for administration to adults and children including small children and babies.

The pharmaceutical according to the invention may be formulated as a liquid, semisolid or solid dosage form, for example in the form of solutions for injection, drops, succi, syrups, sprays, suspensions, tablets, patches, capsules, dressings, suppositories, ointments, creams, lotions, gels, emulsions, aerosols or in multiparticulate form, for example in the form of pellets or granules, optionally pressed into tablets, packaged in capsules or suspended in a liquid, and may also be administered as such.

In addition to at least one substituted compound of the above-stated general formula I, optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemate thereof or in the form of mixtures of the stereoisomers, in particular the enantiomers or diastereomers, in any desired mixing ratio, or optionally in the form of a corresponding salt or in each case in the form of a corresponding solvate, the pharmaceutical according to the invention conventionally contains further physiologically acceptable pharmaceutical auxiliary substances, which may for example be selected from the group consisting of matrix materials, fillers, solvents, diluents, surface-active substances, dyes, preservatives, disintegrants, slip agents, lubricants, aromas and binders.

Selection of the physiologically acceptable auxiliary substances and the quantities thereof which are to be used depends upon whether the pharmaceutical is to be administered orally, subcutaneously, parenterally, intravenously, intraperitoneally, intradermally, intramuscularly, intranasally, buccally, rectally or topically, for example onto infections of the skin, mucous membranes and eyes. Preparations in the form of tablets, coated tablets, capsules, granules, pellets, drops, succi and syrups are preferred for oral administration, while solutions, suspensions, readily reconstitutable dried preparations and sprays are preferred for parenteral, topical and inhalatory administration. The substituted compounds according to the invention used in the pharmaceutical according to the invention in a depot in dissolved form or in a dressing, optionally with the addition of skin penetration promoters, are suitable percutaneous administration preparations. Orally or percutaneously administrable

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formulations may also release the particular substituted compound according to the invention in a delayed manner.

Production of the pharmaceuticals according to the invention proceeds with the assistance of conventional means, devices, methods and processes known from the prior art, as are described for example in "Remington's Pharmaceutical Sciences", ed. A.R. Gennaro, 17th ed., Mack Publishing Company, Easton, Pa. (1985), in particular in part 8, chapters 76 to 93. The corresponding description is hereby introduced as a reference and is deemed to be part of the disclosure. The quantity of the particular substituted compounds according to the invention of the above-stated general formula I to be administered to the patient may vary and is for example dependent on the weight or age of the patient and on the mode of administration, the indication and the severity of the complaint. Conventionally, 0.001 to 100 mg/kg, preferably 0.05 to 75 mg/kg, particularly preferably 0.05 to 50 mg/kg of patient body weight of at least one such compound according to the invention are administered.

Pharmacological methods

I. Functional investigation on vanilloid receptor 1 (VR1/TRPV1 receptor)

The agonistic or antagonistic action of the substances to be investigated on the vanilloid receptor 1 (VR1/TRPV1) of the rat species may be determined with the following assay. According to this assay, the influx of Ca^{2+} through the receptor channel is quantified with the assistance of a Ca^{2+} -sensitive dye (type Fluo-4, Molecular Probes Europe BV, Leiden, Netherlands) in a Fluorescent Imaging Plate Reader (FLIPR, Molecular Devices, Sunnyvale, USA).

Method:

Complete medium: 50 mL HAMS F12 Nutrient Mixture (Gibco Invitrogen GmbH, Karlsruhe, Germany) with
10 vol.% FCS (foetal calf serum, Gibco Invitrogen GmbH, Karlsruhe, Germany, heat-inactivated);
2 mM L-glutamine (Sigma, Munich, Germany);
1 wt.% AA solution (antibiotic/antimycotic solution, PAA, Pasching, Austria)
and 25 ng/ml NGF medium (2.5 S, Gibco Invitrogen GmbH, Karlsruhe, Germany)

Cell culture plate: poly-D-lysine-coated, black 96-hole plates with clear base (96 well black/clear plate, BD Biosciences, Heidelberg, Germany) are additionally coated with laminin (Gibco Invitrogen GmbH, Karlsruhe, Germany), by diluting laminin to a concentration of 100 $\mu\text{g/mL}$ with PBS (Ca-Mg-free PBS, Gibco Invitrogen GmbH, Karlsruhe, Germany). Aliquots with a concentration of 100 $\mu\text{g/mL}$ of laminin are taken and stored at -20°C . The aliquots are diluted with PBS in the ratio of 1:10 to 10 $\mu\text{g/mL}$ of laminin and 50 μL of the solution is pipetted into each well of the cell culture plate. The cell culture plates are incubated for at least two hours at 37°C , the supernatant solution is aspirated and the wells are each washed twice with PBS. The coated cell culture plates are stored with supernatant PBS and this is only removed directly prior to introduction of the cells.

Preparation of the cells:

The spinal column is removed from decapitated rats and this is placed directly in cold HBSS buffer (Hank's buffered saline solution, Gibco Invitrogen GmbH, Karlsruhe, Germany), i.e. located in an ice bath, combined with 1 vol.% (percent by volume) of an AA solution (antibiotic/antimycotic solution, PAA, Pasching, Austria). The spinal column is severed lengthwise and removed from the spinal canal together with fasciae. The dorsal root ganglia (DRGs) are then removed and in turn stored in cold HBSS buffer combined with 1 vol.% of an AA solution. The DRGs, from which blood residues and spinal nerves have been completely removed, are in each case transferred into 500 μ L cold collagenase type 2 (PAA, Pasching, Austria) and incubated for 35 minutes at 37°C. After the addition of 2.5 vol.% trypsin (PAA, Pasching, Austria) incubation at 37°C is continued for a further 10 minutes. After complete incubation, the enzyme solution is carefully pipetted off and the remaining DRGs are combined in each case with 500 μ L of complete medium. The DRGs are in each case repeatedly suspended, drawn through cannulas no. 1, no. 12 and no. 16 by means of a syringe and transferred into 50 mL Falcon microtubes, these being filled to 15 mL with complete medium. The content of each Falcon microtube is in each case filtered through a 70 μ m Falcon filter insert and centrifuged for 10 minutes at 1200 revolutions and RT. The resultant pellet is in each case redissolved in 250 μ L of complete medium and the cell count is determined.

The number of cells in the suspension is adjusted to 3×10^5 per mL and a 150 μ L portion of this suspension is in each case placed in a well of the cell culture plates which have been coated as described above. The plates are left to stand in the incubator for two to three days at 37°C, 5 vol.% CO₂ and 95% relative atmospheric humidity.

The cells are then loaded with 2 μ M Fluo-4 and 0.01 vol.% Pluronic F127 (Molecular Probes Europe BV, Leiden, Netherlands) in HBSS buffer (Hank's buffered saline solution, Gibco Invitrogen GmbH, Karlsruhe, Germany) for 30 mins at 37°C, washed 3 $\times$ with HBSS buffer and, after a further 15 minutes' incubation at room temperature, used for Ca²⁺ measurement in the FLIPR assay. Ca²⁺-dependent fluorescence is here measured before and after the addition of substances (λ_{ex} =

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488 nm, λ_{em} = 540 nm). Quantification proceeds by measuring the highest fluorescence intensity (FC, fluorescence counts) over time.

FLIPR assay:

The FLIPR protocol consists of 2 additions of substance. First of all, the compounds to be tested (10 μ M) are pipetted onto the cells and Ca^{2+} influx is compared with the control (capsaicin 10 μ M). This gives rise to a % activation value relative to the Ca^{2+} signal after addition of 10 μ M capsaicin (CP). After 5 minutes' incubation, 100 nM of capsaicin are added and the influx of Ca^{2+} is likewise determined.

Desensitising agonists and antagonists result in suppression of Ca^{2+} influx. The percentage inhibition in comparison with the maximum achievable inhibition with 10 μ M capsaicin is calculated.

Three-fold determinations (n=3) are performed and these are repeated in at least 3 independent experiments (N=4).

On the basis of the percentage displacement by different concentrations of the compounds to be tested of the general formula I, IC_{50} inhibition concentrations which bring about 50% displacement of capsaicin were calculated. K_i values for the test substances were obtained by conversion using the Cheng-Prusoff equation (Cheng, Prusoff; Biochem. Pharmacol. 22, 3099-3108, 1973).

II. Functional investigations on vanilloid receptor (VR1)

The agonistic or antagonistic action of the substances to be investigated on the vanilloid receptor (VR1) may also be determined with the following assay. According to this assay, the influx of Ca^{2+} through the channel is quantified with the assistance of a Ca^{2+} -sensitive dye (type Fluo-4, Molecular Probes, Europe BV, Leiden, Netherlands) in a Fluorescent Imaging Plate Reader (FLIPR, Molecular Devices, Sunnyvale, USA).

Method:

Chinese hamster ovary cells (CHO K1 cells, European Collection of Cell Cultures (ECACC), Great Britain) are stably transfected with the VR1 gene. For functional investigations, these cells are plated out onto poly-D-lysine-coated, black 96-hole plates with a clear base (BD Biosciences, Heidelberg, Germany) at a density of 25,000 cells/hole. The cells are incubated overnight at 37°C and 5% CO₂ in a culture medium (Ham's Nutrient Mixture F12, 10 vol.% FCS (foetal calf serum), 18 µg/mL L-proline). On the following day, the cells are incubated with Fluo-4 (Fluo-4 2 µM, Pluronic F127 0.01 vol.%, Molecular Probes in HBSS (Hank's buffered saline solution), Gibco Invitrogen GmbH, Karlsruhe, Germany) for 30 minutes at 37°C. The plates are then washed 3 times with HBSS buffer and, after a further 15 minutes' incubation at room temperature, used for Ca²⁺ measurement in the FLIPR. Ca²⁺-dependent fluorescence is here measured before and after the addition of the substances to be investigated (wavelength λ_{ex} = 488 nm, λ_{em} = 540 nm). Quantification proceeds by measuring the highest fluorescence intensity (FC, fluorescence counts) over time.

FLIPR assay:

The FLIPR protocol consists of 2 additions of substance. The substances to be tested (10 µM) are firstly pipetted onto the cells and Ca²⁺ influx is compared with the control (capsaicin 10 µM) (% activation relative to the Ca²⁺ signal after addition of 10 µM of capsaicin). After 5 minutes' incubation, 100 nM of capsaicin are administered and the influx of Ca²⁺ is likewise determined.

Desensitising agonists and antagonists resulted in suppression of Ca²⁺ influx. The percentage inhibition in comparison with the maximum achievable inhibition with 10 µM capsaicin is calculated.

On the basis of the percentage displacement by different concentrations of the compounds to be tested of the general formula I, IC₅₀ inhibition concentrations which bring about 50% displacement of capsaicin were calculated. K_i values for the test

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substances were obtained by conversion using the Cheng-Prusoff equation (Cheng, Prusoff; Biochem. Pharmacol. 22, 3099-3108, 1973).

III. b. Formalin test in mice

The investigation for determining the antinociceptive action of the compounds according to the invention is performed using the formalin test on male mice (NMRI, 20 to 30 g body weight, Iffa, Credo, Belgium).

In the formalin test, according to D. Dubuisson et al., Pain 1977, 4, 161-174 a distinction is drawn between the first (early) phase (0 to 15 minutes after the formalin injection) and the second (late) phase (15 to 60 minutes after the formalin injection). The early phase, being a direct response to the formalin injection, is considered to be a model for acute pain, while the late phase is considered to be a model for persistent (chronic) pain (T.J. Coderre, et al., Pain 1993, 52, 259-285). The corresponding literature descriptions are hereby introduced as a reference and are deemed to be part of the disclosure.

The compounds according to the invention are investigated in the second phase of the formalin test in order to obtain information concerning the effects of the substances on chronic/inflammatory pain.

The administration time of the compounds according to the invention prior to the formalin injection is selected as a function of the mode of administration of the compounds according to the invention. Intravenous administration of 10 mg/kg body weight of the test substances proceeds 5 minutes prior to the formalin injection. This is effected by a one-off subcutaneous formalin injection (20 μ L, 1% aqueous solution) into the dorsal side of the right hand hind paw, such that, in the case of freely mobile test animals, a nociceptive reaction is induced, which manifests itself in marked licking and biting of the relevant paw.

Then, the nociceptive behaviour of the animals is observed and recorded continuously for an investigation period of three minutes in the second (late) phase of the formalin test (21 to 24 minutes after the formalin injection). Quantification of the

pain behaviour proceeds by summation of the seconds in which the animals licked and bit the relevant paw during the investigation period.

The comparison is made in each case with control animals, which, instead of compounds according to the invention, received vehicle (0.9% aqueous sodium chloride soln.) before administration of the formalin. On the basis of the quantification of the pain behaviour, the substance effect in the formalin test is determined in percent as a change compared with the corresponding control.

After the injection of substances which have an antinociceptive action in the formalin test, the described behaviours of the animals, i.e. licking and biting, are reduced or eliminated.

IV. Investigation of analgesic efficacy in the writhing test

Investigation of the compounds according to the invention of the general formula I for analgesic efficacy was performed by phenylquinone-induced writhing in mice, modified in accordance with I.C. Hendershot and J. Forsaith (1959) J. Pharmacol. Exp. Ther. 125, 237-240. The corresponding literature description is hereby introduced as a reference and is deemed to be part of the disclosure.

Male NMRI mice weighing from 25 to 30 g were used for this purpose. Groups of 10 animals per compound dose received, 10 minutes after intravenous administration of the compounds to be tested, 0.3 mL/mouse of a 0.02% aqueous solution of phenylquinone (phenylbenzoquinone, Sigma, Deisenhofen, Germany; solution prepared with addition of 5% by weight of ethanol and stored in a water bath at 45°C) administered intraperitoneally. The animals were placed individually in observation cages. A push button counter was used to record the number of pain-induced stretching movements ('writhing reactions' = straightening of the torso with stretching of the rear extremities) for 5-20 minutes after phenylquinone administration. The control was provided by animals which had received only physiological saline solution. All the compounds were tested at the standard dosage of 10 mg/kg.

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V. Hypothermia assay in mice

Description of method:

The hypothermia assay is carried out on male NMRI mice (weight 25-35 grams, breeder IFFA CREDO, Brussels, Belgium). The animals were kept under standardised conditions: light/dark cycle (06:00 to 18:00 light phase; 18:00 to 06:00 dark phase), RT 19-22°C, relative humidity 35-70%, 15 air exchanges per hour, air movement < 0.2 m/sec. The animals received standard feed (ssniff R/M maintenance, ssniff Spezialdiäten GmbH, Soest, Germany) and tap water. Water and feed were withdrawn during the test. All the animals were used only once in the test. The animals had a habituation phase of at least 5 days.

Acute administration of capsaicin (VR-1 agonist) leads to a drop in core body temperature in rats and mice by stimulation of heat sensors. Only specifically acting VR-1-receptor antagonists are capable of antagonising capsaicin-induced hypothermia. Morphine-induced hypothermia, in contrast, is not antagonised by VR-1 antagonists. This model is therefore suitable for identifying substances with VR-1 antagonistic properties from their action on body temperature.

Core body temperature was measured using a digital thermometer (Thermalert TH-5, physitemp, Clifton NJ, USA). The sensor is here inserted into the animal's rectum.

Body temperature is measured twice for each animal at an interval of approx. half an hour as an individual baseline value. One group of animals (n= 6 to 10) then receives intraperitoneal (i.p.) administration of capsaicin 3 mg/kg and vehicle (control group). Another group of animals receives the substance to be tested (i.v. or per os) and additionally capsaicin (3 mg/kg) i.p. The test substance is administered i.v. 10 minutes or per os 15 minutes before the capsaicin. Body temperature is then measured 7.5 / 15 and 30 min after capsaicin (i.v. + i.p.) or 15 / 30 / 60 / 90 / 120 min (per os + i.p.) after capsaicin. In addition, one group of animals is treated only with the test substance and one group only with vehicle. The measured values are evaluated and presented as a mean +/- SEM of the absolute values on a graph. The antagonistic action is calculated as a percentage reduction in capsaicin-induced hypothermia.

VI. Neuropathic pain in mice

Efficacy against neuropathic pain was investigated in the Bennett model (chronic constriction injury; Bennett and Xie, 1988, Pain 33: 87-107).

NMRI mice weighing 16-18 g are provided under Ketavet-Rompun anaesthesia with three loose ligatures of the right ischial nerve. On the paw innervated by the damaged nerve, the animals develop hypersensitivity which, after one week's convalescence, is quantified over a period of approx. three weeks by means of a cold metal plate at 4°C (cold allodynia). The animals are observed on this plate for a period of 2 min. and the number of withdrawal responses by the damaged paw is measured. Relative to the preliminary value prior to administration of the substance, the action of the substance is determined at different occasions over a given period (for example 15, 30, 45, 60 min. after administration) and the resultant area under the curve (AUC) and/or the inhibition of cold allodynia at the individual measuring points is stated as a percentage action relative to the vehicle control (AUC) or to the initial value (individual measurement points). The size of the group is n=10, the significance of an antiallodynic action ($*=p<0.05$) is determined with reference to an analysis of variance with repeated measurement and post hoc Bonferroni analysis.

The invention will be explained below with reference to a number of examples. These explanations are given merely by way of example and do not restrict the general concept of the invention.

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Examples:

The yields of the compounds produced have not been optimised.

All temperatures are uncorrected.

The term "equivalents" means molar equivalents, "RT" means room temperature, "M" and "N" are concentrations stated in mol/l, "aq." means aqueous, "sat." means saturated, "soln." means solution,

Other abbreviations:

AcOH	acetic acid
DCM	dichloromethane
DMF	N,N-dimethylformamide
EDCI	N-ethyl-N'-(3-dimethylaminopropyl)-carbodiimide hydrochloride
EA	ethyl acetate
H ₂ O	water
HOBt	N-hydroxybenzotriazole
MeOH	methanol
TEA	triethylamine
THF	tetrahydrofuran

The chemicals and solvents used were purchased from conventional suppliers (Acros, Avocado, Aldrich, Bachem, Fluka, Lancaster, Maybridge, Merck, Sigma, TCI, Oakwood etc.) or synthesised by conventional methods known to a person skilled in the art.

Silica gel 60 (0.0-0.063 mm) from E. Merck, Darmstadt, was used as the stationary phase for the column chromatography.

Thin-layer chromatography was performed with pre-coated silica gel 60 F 254 HPTLC plates from E. Merck, Darmstadt.

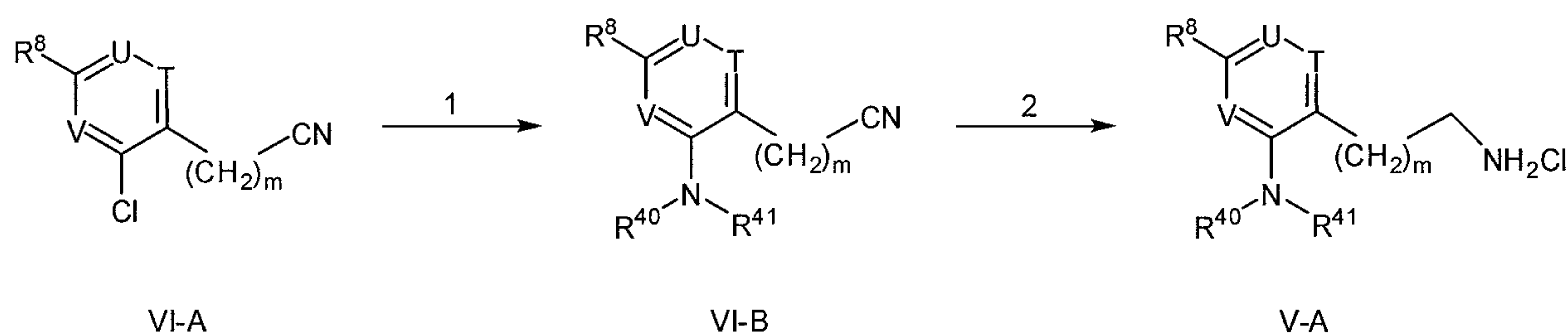
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The mixture ratios for solvents, mobile solvents or for chromatographic investigations are always stated in volume/volume.

Analysis was performed by mass spectroscopy and NMR.

1. General method of preparing amines of the general formula V-A

Amines of the general formula V-A are prepared as illustrated in the following Scheme 1.



Scheme 1.

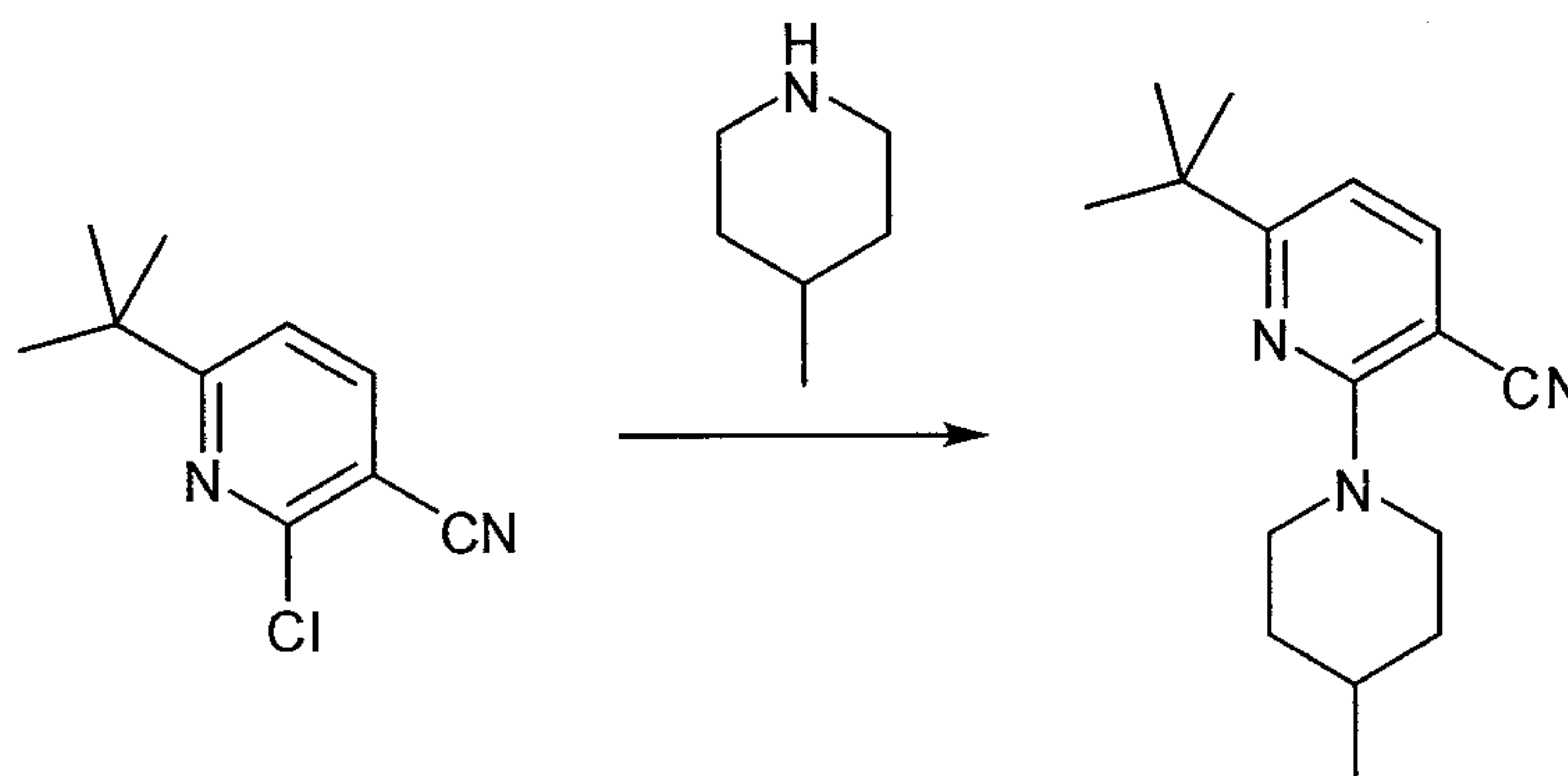
Stage 1: Preparation of nitriles of the general formula VI-B

Method A:

Compounds of the general formula VI-A (1 equivalent), in which R⁸, U, T and V have the above-stated meanings and m denotes 0, 1, 2 or 3, are stirred with an amine of the general formula HNR⁴⁰R⁴¹ (6 equivalents) for 48 hours at RT. The reaction mixture is combined with 1 N hydrochloric acid and extracted repeatedly with EA. The aqueous phase is saturated with NaCl and then extracted again with EA. The combined organic phases are washed with 1 N hydrochloric acid and with a sat. aq. NaCl soln., dried over MgSO₄ and the solvent was removed under a vacuum.

The following compound was produced using Method A.

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6'-tert-butyl-4-methyl-3,4,5,6-tetrahydro-2H-[1,2']bipyridinyl-3'-carbonitrile

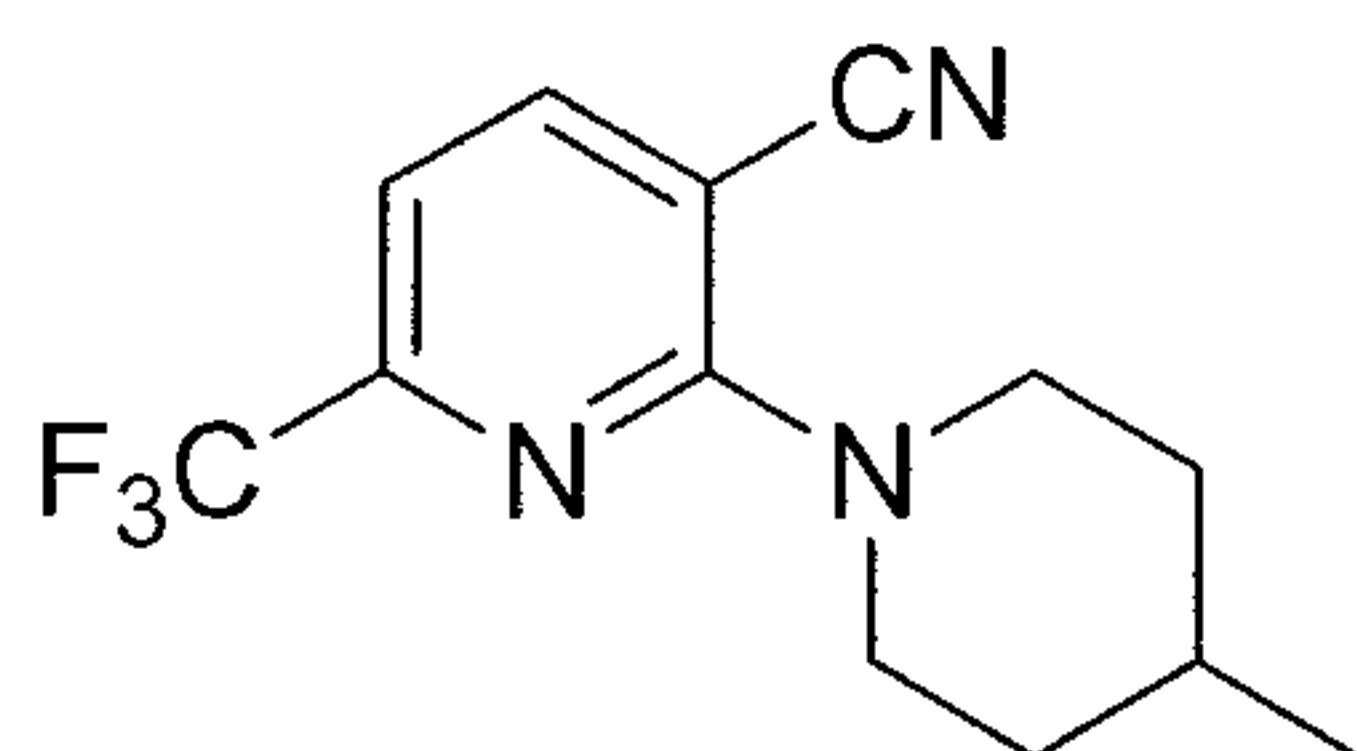
$^1\text{H-NMR}$ (CDCl_3) δ 7.65 (d, 1H, $J=7.9$ Hz, Ar), 6.70 (d, 1H, $J=8.0$ Hz, Ar), 4.45 (m, 2H, piperidine), 2.98 (m, 2H, piperidine), 1.75-1.24 (m, 5H, piperidine), 1.29 (s, 9H, $\text{C}(\text{CH}_3)_3$), 0.98 (d, 3H, $J=5.9$ Hz, CHCH_3)

IR 2956, 2213, 1583, 1550, 1452, 1230, 965 cm^{-1}

Method B:

Compounds of the general formula VI-A (1 equivalent), in which R^8 , U, T and V have the above-stated meanings and m denotes 0, 1, 2 or 3, are stirred with an amine of the general formula $\text{HNR}^{40}\text{R}^{41}$ (2 equivalents) and DBU [1,8-diaza-bicyclo[5.4.0]undec-7-ene] (2 equivalents) in acetonitrile (7 mL per mmol of the compound of formula VI-A) for 12 hours at RT. The reaction mixture is extracted repeatedly with EA. The combined organic phases are washed with sat. aq. NaCl solution, dried over MgSO_4 and the solvent was removed under a vacuum. The residue is purified in each case by column chromatography (SiO_2 , different mixtures of hexane/EA).

The following compounds were produced using Method B.

6-(trifluoromethyl)-2-(4-methylpiperidin-1-yl)pyridine-3-carbonitrile

$^1\text{H NMR}$ (300 MHz, CDCl_3) δ 7.87 (d, 1H, $J = 7.8$ Hz), 6.95 (d, 1H, $J = 7.8$ Hz), 4.53 (m, 2H), 3.05 (m, 2 H), 1.78 (m, 2 H), 1.64 (m, 1 H), 1.29 (m, 2 H), 1.00 (d, 3 H, $J = 6.6$ Hz); IR (pur) 2926, 2852, 2218, 1590, 1497, 1456, 1324, 1237, 1186, 1147, 1082, 963 cm^{-1} ; MS (FAB) m/z 270 ($\text{M}+\text{H}$)

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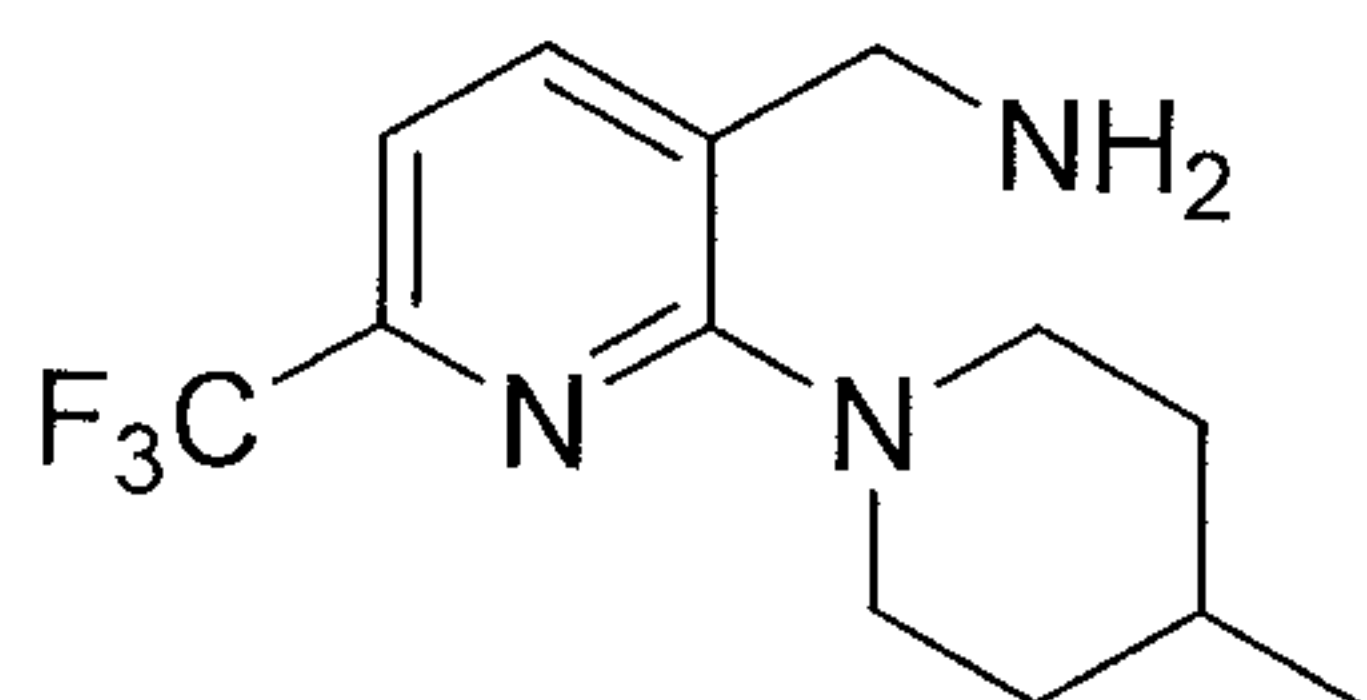
Stage 2:**Method 1**

Compounds of the general formula VI-B (5 mmol), in which R^8 , R^{40} , R^{41} , U, T and V have the above-stated meanings and m denotes 0, 1, 2 or 3, palladium on carbon (10%, 500 mg) and concentrated hydrochloric acid (3 mL) are dissolved in MeOH (30 mL) and exposed to a hydrogen atmosphere for 6 hours at RT. The reaction mixture is filtered through Celite and the filtrate is evaporated under a vacuum. The residue is purified by means of flash chromatography (SiO_2 , EA).

Method 2:

Compounds of the general formula VI-B (2 mmol), in which R^8 , R^{40} , R^{41} , U, T and V have the above-stated meanings and m denotes 0, 1, 2 or 3, are dissolved in THF (10 mL, 10 mL) and $BH_3 \cdot S(CH_3)_2$ [2.0 M in THF, 3 mL, 3 equivalents] is added thereto. The reaction mixture is heated to reflux for 8 hours, aq. HCl (2 N) is added thereto and the reaction mixture is again heated to reflux for 30 minutes. The reaction mixture is combined with aq. sodium hydroxide solution (2N) and washed with EA. The combined organic phases are washed with a sat. aq. NaCl solution and dried over magnesium sulfate. The solvent is removed under a vacuum and the residue is purified by column chromatography (SiO_2 , different mixture of dichloromethane and MeOH as mobile solvent).

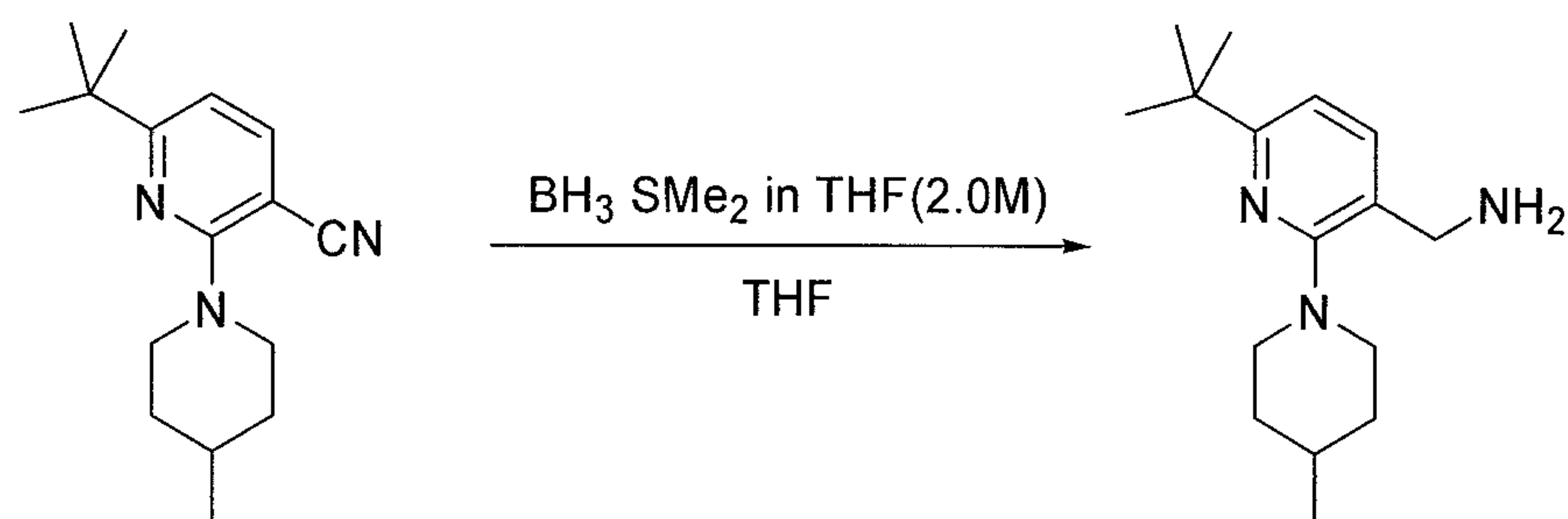
The following compounds were obtained using Method 2.

(6-(trifluoromethyl)-2-(4-methylpiperidin-1-yl)pyridin-3-yl)methanamine

^1H NMR (300 MHz, $CDCl_3$) δ 7.89 (d, 1 H, $J = 7.8$ Hz), 7.33 (d, 1H, $J = 7.8$ Hz), 3.88 (s, 2H), 3.39 (m, 2 H), 2.83 (m, 2 H), 1.75 (m, 2 H), 1.55 (m, 1 H), 1.38 (m, 2 H), 1.00 (d, 3 H, $J = 6.6$ Hz); MS (FAB) m/z 274 ($M+H$)

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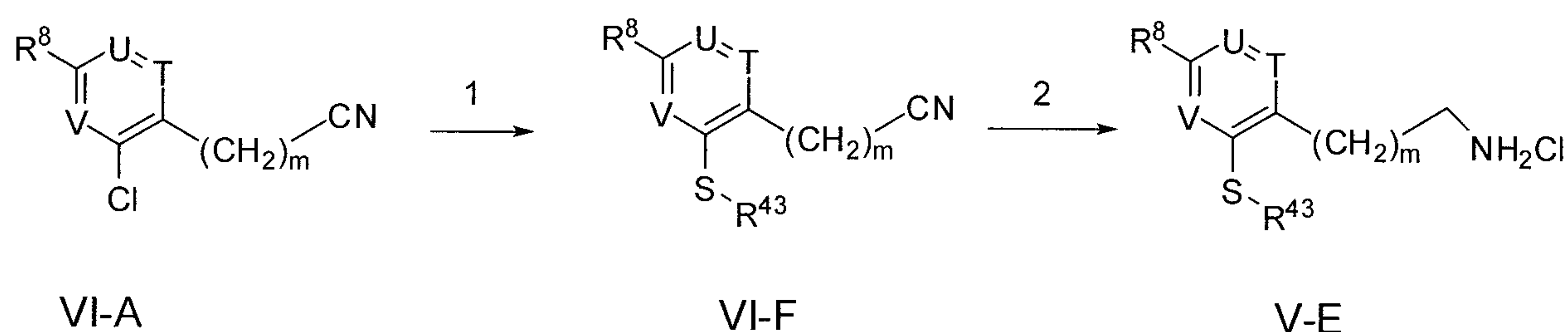
C-(6'-tert-butyl-4-methyl-3,4,5,6-tetrahydro-2H-[1,2']bipyridinyl-3'-yl)-methylamine



$^1\text{H-NMR}$ (CDCl_3) δ 7.48 (d, 1H, $J=7.7\text{Hz}$, Ar), 6.90 (d, 1H, $J=7.7\text{Hz}$, Ar), 3.82 (s, 2H, CH_2NH_2), 3.38 (m, 2H, piperidine), 2.81 (m, 2H, piperidine), 1.73-1.28 (m, 5H, piperidine), 1.31 (s, 9H, $\text{C}(\text{CH}_3)_3$), 0.98 (d, 3H, $J=6.4\text{Hz}$, CHCH_3)
 IR 3363, 2954, 1571, 1451, 1400, 1372, 1234, 960 cm^{-1}

2. General method of preparing amines of the general formula V-E

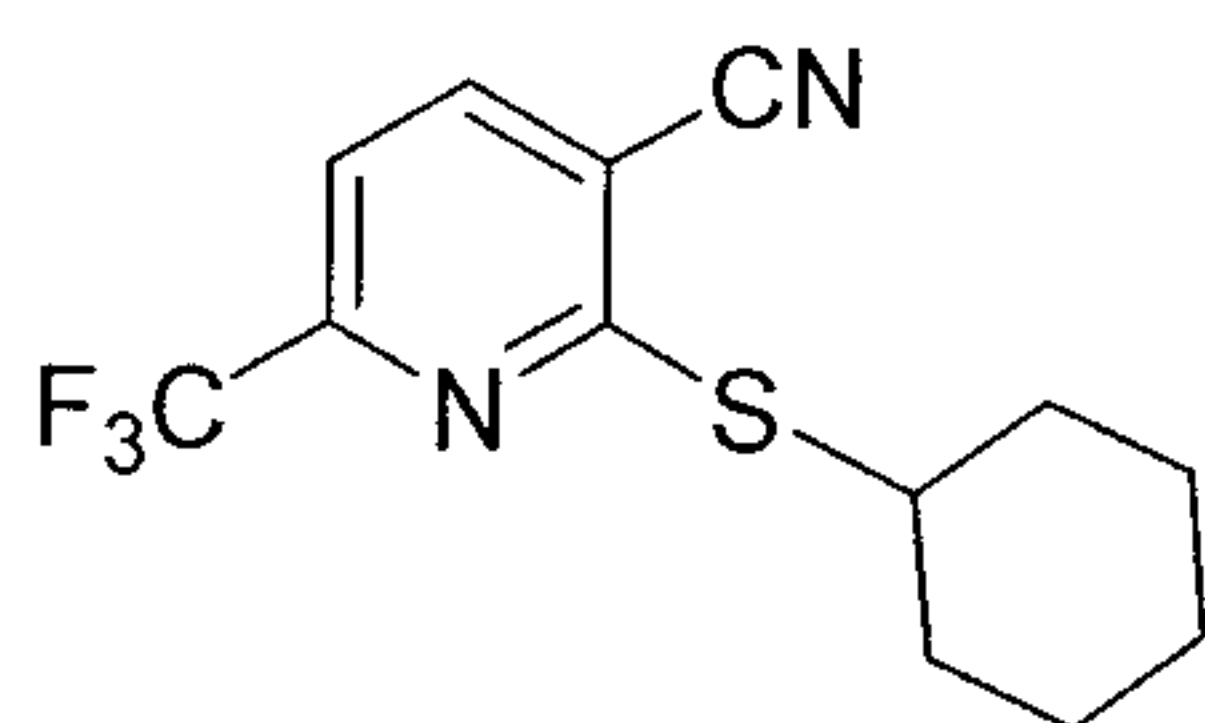
Amines of the general formula V-E are prepared as illustrated in the following Scheme 2.



Scheme 2.

Stage 1:

Synthesis of 2-(cyclohexylthio)-6-(trifluoromethyl)nicotinonitrile



1.3 equivalents of NaH (4.9 g, 0.124 mol) were dissolved in 50 mL DMF under a nitrogen atmosphere. After the addition of 1.2 equivalents of cyclohexanethiol (14.2 mL, 0.116 mol) stirring was performed at RT for 1.5 h. The resultant suspension was cooled to 10°C and 1 equivalent of 2-chloro-6-(trifluoromethyl)nicotinonitrile (20 g,

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0.096 mol) in 50 mL DMF was added dropwise and stirred for 2 h at RT. The reaction mixture was combined with sat. aq. NH_4Cl soln., diluted with 1 L of water and extracted repeatedly with EA (3 x 200 mL). The combined organic phases were washed with a sat. aq. NaCl soln., dried over MgSO_4 and concentrated under a vacuum. Purification performed by column chromatography (silica gel, 100-200 mesh, eluent: 2% EA in hexane) resulted in 26 g (93.8%) of product.

^1H NMR (300 MHz, CDCl_3) δ 7.94 (d, 1 H, $J = 7.9$ Hz), 7.34 (d, 1 H, $J = 7.9$ Hz), 4.00 (m, 1 H), 1.90-2.14 (m, 2 H), 1.42-1.88 (m, 8 H)

IR (neat) 2930, 2854, 2232, 1643, 1573, 1447, 1334, 1245, 1186, 1149, 1107, 851 cm^{-1}

MS (FAB) m/z 287 ($\text{M}+\text{H}$)

Stage 2:

Synthesis of (2-(cyclohexylthio)-6-(trifluoromethyl)pyridin-3-yl)methanamine dihydrochloride

The nitrile (26 g, 0.091 mol) was dissolved under a nitrogen atmosphere in 600 mL of THF and cooled to 5°C. BH_3 dimethyl sulfide (13.78 g, 0.182 mol) was added dropwise and refluxed for 20 h. After cooling to 5°C, the reaction batch was combined with 100 mL of MeOH and stirred for 15 minutes at RT. Then di-tert-butyl dicarbonate (29.7 g, 0.136 mol) was added and stirring was performed for 30 min at RT. After removal of the solvent under a vacuum, the crude product was purified by column chromatography (silica gel, 100-200, mesh, eluent: 10% EA in hexane) and 23.4 g (66%) of product was obtained.

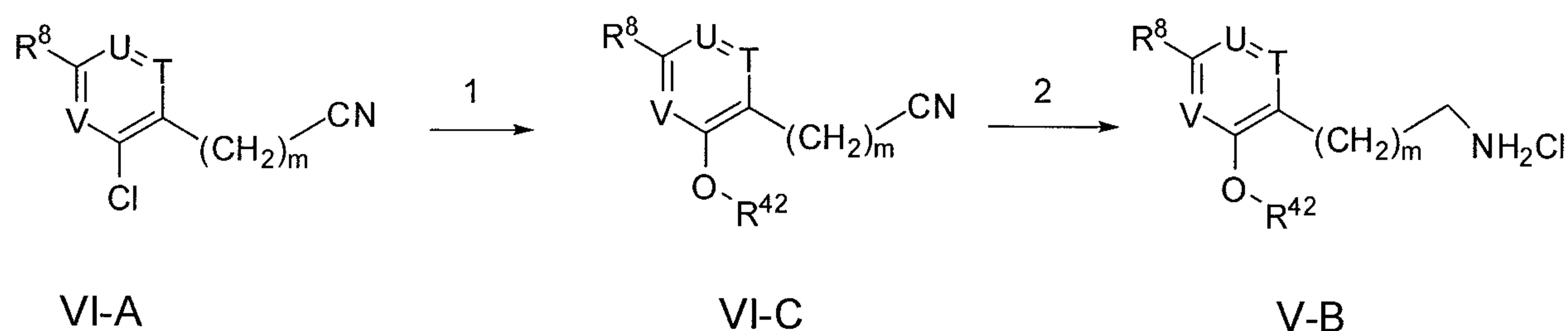
The crude product was dissolved in 120 mL sat. HCl -dioxane soln. and stirred for 6 h at RT. After removal of the solvent under a vacuum, the solid was washed with 10% EA in hexane (2 x 100 mL) and filtered out.

Yield: 17 g (88.8%)

^1H NMR ($\text{DMSO}-d_6$, 400 MHz): δ 8.8 (s, 2H), 8.05 (d, 1H), 7.76 (d, 1H), 4.01 (s, 1H), 3.86-3.93 (m, 1H), 2.02-2.08 (m, 2H), 1.71-1.74 (m, 2H), 1.40-1.60 (m, 6H).

3. General method of preparing amines of the general formula V-B

Amines of the general formula V-B are prepared as illustrated in the following Scheme 3.



Scheme 3.

Stage 1: Preparation of nitriles of the general formula VI-C

Compounds of the general formula VI-A (1 equivalent), in which R^8 , U, T and V have the above-stated meanings and m denotes 0, 1, 2 or 3, are stirred with an alcohol of the general formula HO-R^{42} (3.5 equivalents) and DBU [1,8-diaza-bicyclo[5.4.0]undec-7-ene] (3.5 equivalents) in acetonitrile (7 mL per mmol of the compound of formula VI-A) for 12 hours at RT. The reaction mixture is extracted repeatedly with EA. The combined organic phases are washed with sat. aq. NaCl solution, dried over MgSO_4 and the solvent was removed under a vacuum. The residue is purified in each case by column chromatography (SiO_2 , different mixtures of hexane/EA).

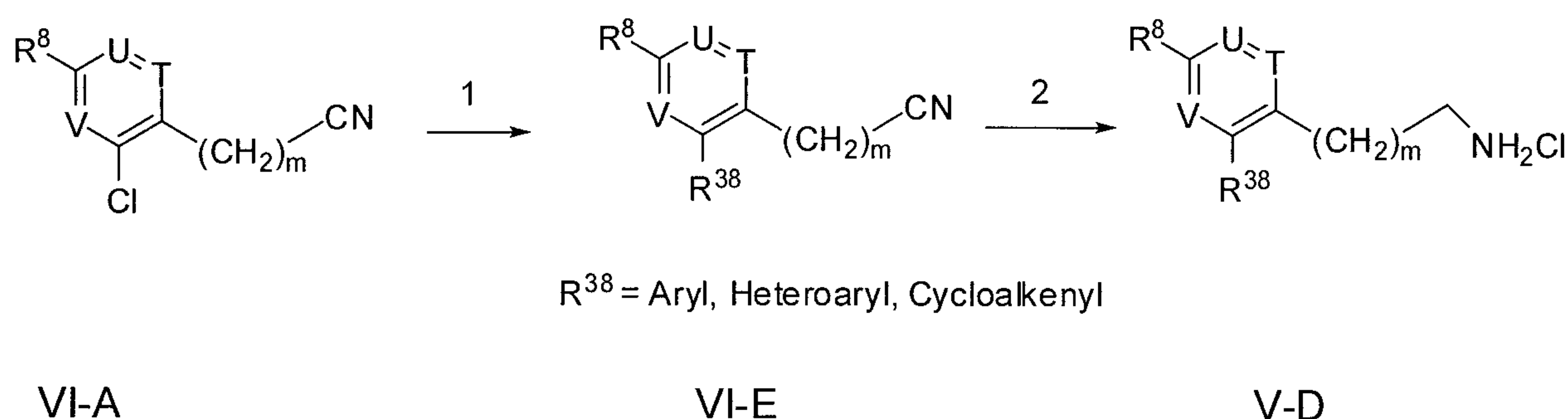
Method 2:

Compounds of the general formula VI-C (2 mmol), in which R^8 , R^{42} , U, T and V have the above-stated meanings and m denotes 0, 1, 2 or 3, are dissolved in THF (10 mL, 10 mL) and $\text{BH}_3 \cdot \text{S}(\text{CH}_3)_2$ [2.0 M in THF, 3 mL, 3 equivalents] is added thereto. The reaction mixture is heated to reflux for 8 hours, aq. HCl (2 N) is added thereto and the reaction mixture is again heated to reflux for 30 minutes. The reaction mixture is combined with aq. sodium hydroxide solution (2N) and washed with EA. The combined organic phases are washed with a sat. aq. NaCl solution and dried over magnesium sulfate. The solvent is removed under a vacuum and the residue is purified by column chromatography (SiO_2 , different mixture of dichloromethane and methanol as mobile solvent).

phases are washed with sat. aq. NaCl solution, dried over MgSO_4 and the solvent was removed under a vacuum. The residue is purified in each case by column chromatography (SiO_2 , different mixtures of hexane/EA).

5. General method of preparing amines of the general formula V-D

Amines of the general formula V-D are prepared as illustrated in the following Scheme 5.



Scheme 5.

Stage 1: Preparation of nitriles of the general formula VI-E

Compounds of the general formula VI-A (1 equivalent), in which R^8 , U, T and V have the above-stated meanings and m denotes 0, 1, 2 or 3, are stirred with palladium dichloride (5 mol%) and a compound of the general formula $\text{R}^{38}\text{-B(OH)}_2$ (2 equivalents), in which R^{38} denotes aryl, heteroaryl or cycloalkenyl, in a solvent mixture of toluene/dioxane/2 N aq. sodium carbonate solution (20 mL per 1 mmol compounds of the general formula VI-A). The reaction mixture is heated to reflux for 12 h and filtered through Celite. The combined organic phases are dried over magnesium sulfate and the solvent is removed under a vacuum. The residue is purified by column chromatography (SiO_2 , different solvent mixtures of hexane and EA).

Stage 2:

Method 1

Compounds of the general formula VI-E (5 mmol), in which R^8 , R^{38} , U, T and V have the above-stated meanings and m denotes 0, 1, 2 or 3, palladium on carbon (10%, 500 mg) and concentrated hydrochloric acid (3 mL) are dissolved in MeOH (30 mL)

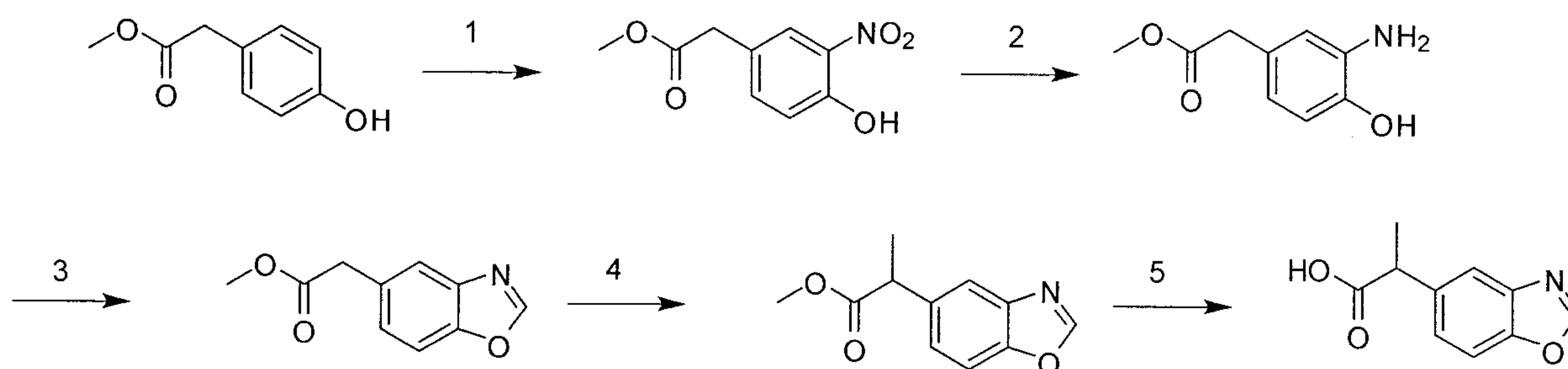
and exposed to a hydrogen atmosphere for 6 hours at RT. The reaction mixture is filtered through Celite and the filtrate is concentrated under a vacuum. The residue is purified by means of flash chromatography (SiO_2 , EA).

Method 2:

Compounds of the general formula VI-E (2 mmol), in which R^8 , R^{38} , U, T and V have the above-stated meanings and m denotes 0, 1, 2 or 3, are dissolved in THF (10 mL, 10 mL) and $\text{BH}_3 \cdot \text{S}(\text{CH}_3)_2$ [2.0 M in THF, 3 mL, 3 equivalents] is added. The reaction mixture is heated to reflux for 8 hours, aq. HCl (2 N) is added thereto and the reaction mixture is again heated to reflux for 30 minutes. The reaction mixture is combined with aq. sodium hydroxide solution (2N) and washed with EA. The combined organic phases are washed with a sat. aq. NaCl solution and dried over magnesium sulfate. The solvent is removed under a vacuum and the residue is purified by column chromatography (SiO_2 , different mixture of dichloromethane and methanol as mobile solvent).

6. Method of preparing carboxylic acids of the general formula VII

6.1 Preparation of 2-(benzo[d]oxazol-5-yl)propanoic acid



Stage 1: Synthesis of methyl-2-(4-hydroxy-3-nitrophenyl) acetate

Methyl-2-(4-hydroxyphenyl) acetate (2.0 g, 12.0 mmol) was dissolved in acetic acid (15 ml) and nitric acid (60-62%, 1.27g, 12.1 mmol) was added at RT. The reaction mixture was stirred for 30 minutes at RT, poured into ice water (100 ml) and extracted with EA. The organic phase was dried over MgSO_4 , the solvent removed under a vacuum and the residue purified by means of column chromatography (n-hexane/EA = 4:1).

Stage 2: Synthesis of methyl-2-(3-amino-4-hydroxyphenyl) acetate

Methyl-2-(4-hydroxy-3-nitrophenyl) acetate (2.31 g, 10.9 mmol) was dissolved in THF (20 mL) and MeOH (20 mL) and 10% palladium on carbon (210 mg) was added slowly at RT. The reaction mixture was hydrogenated for 2 h at 39 psi hydrogen pressure, filtered through Celite and washed with MeOH. The solvent was removed under a vacuum and the residue purified by means of column chromatography (n-hexane/EA = 2:1).

Stage 3: Synthesis of methyl-2-(benzo[d]oxazol-5-yl) acetate

Methyl-2-(3-amino-4-hydroxyphenyl) acetate (1.39 g, 7.67 mmol) was combined at RT with triethyl orthoformate (10 ml). The reaction mixture was heated to reflux for 12 h and then cooled to RT. Water (70 mL) was added thereto and the reaction mixture was extracted with EA. The combined organic phases were dried over MgSO₄ and filtered. The solvent was removed under a vacuum and the residue purified by means of column chromatography (n-hexane/EA = 2:1).

Stage 4: Synthesis of methyl-2-(benzo[d]oxazol-5-yl) propanoate

Methyl-2-(benzo[d]oxazol-5-yl) acetate (0.90 g, 4.71 mmol) was dissolved in DMF (5 ml) and combined at 0°C with sodium hydride (198 mg, 4.95 mmol) and methyl iodide (661 mg, 4.65 mmol). The reaction mixture was stirred for 30 min at 0°C and then for 1 h at RT. The reaction mixture was combined with water (70 ml) and extracted with EA. The combined organic phases were dried over MgSO₄ and filtered. The solvent was removed under a vacuum and the residue purified by means of column chromatography (n-hexane/EA = 4/1).

¹H-NMR(CDCl₃) δ 8.10 (s, 1H, Ar), 7.74 (d, 1H, J=1.7Hz, Ar), 7.54 (d, 1H, 8.4Hz, Ar), 7.35 (dd, 1H, J=8.6, 1.8Hz, Ar), 3.87 (q, 1H, J=7.3Hz, CHCH₃), 3.67 (s, 3H, OCH₃), 1.57 (d, 3H, J=7.1Hz, CHCH₃)

IR 2982, 1735, 1517, 1437, 1248, 1201, 1170, 1067 cm⁻¹

Stage 5: Synthesis of 2-(benzo[d]oxazol-5-yl)propanoic acid

Methyl-2-(benzo[d]oxazol-5-yl) propanoate (425 mg, 2.07 mmol) was dissolved in THF (8 ml) and water (8 ml). LiOH·H₂O (93 mg, 2.21 mmol) was added thereto at RT. The reaction mixture was stirred for 40 h at RT, combined with water (25 ml) and adjusted with acetic acid to a pH value of 3. The reaction mixture was extracted with

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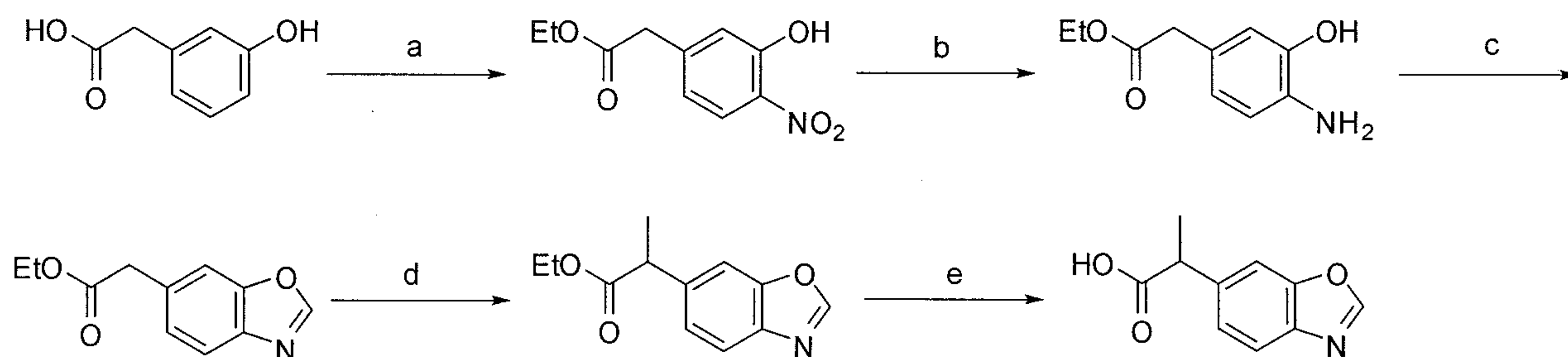
DCM and the combined organic phases were dried over MgSO_4 and filtered. The solvent was removed under a vacuum and the residue purified by means of column chromatography (DCM/MeOH = 15:1).

$^1\text{H-NMR}$ (CD_3OD) δ 8.46 (s, 1H, Ar), 7.70 (d, 1H, $J=1.7\text{Hz}$, Ar), 7.61 (d, 1H, 8.0Hz, Ar), 7.42 (dd, 1H, $J=8.6, 1.8\text{Hz}$, Ar), 3.87 (q, 1H, $J=7.1\text{Hz}$, CHCH_3), 1.51 (d, 3H, $J=7.1\text{Hz}$, CHCH_3)

6.2 Preparation of 2-(benzo[d]oxazol-6-yl)propanoic acid

The compound 2-(benzo[d]oxazol-6-yl)propanoic acid was produced in a similar manner to the synthesis of 2-(benzo[d]oxazol-5-yl)propanoic acid (see 6.1) starting from 2-(3-hydroxyphenyl)acetic acid.

$^1\text{H-NMR}$ (CD_3OD) δ 8.44 (s, 1H, Ar), 7.67 (m, 2H, Ar), 7.38 (dd, 1H, $J=8.3, 1.5\text{Hz}$, Ar), 3.88 (q, 1H, $J=7.1\text{Hz}$, CHCH_3), 1.51 (d, 3H, $J=7.1\text{Hz}$, CHCH_3)



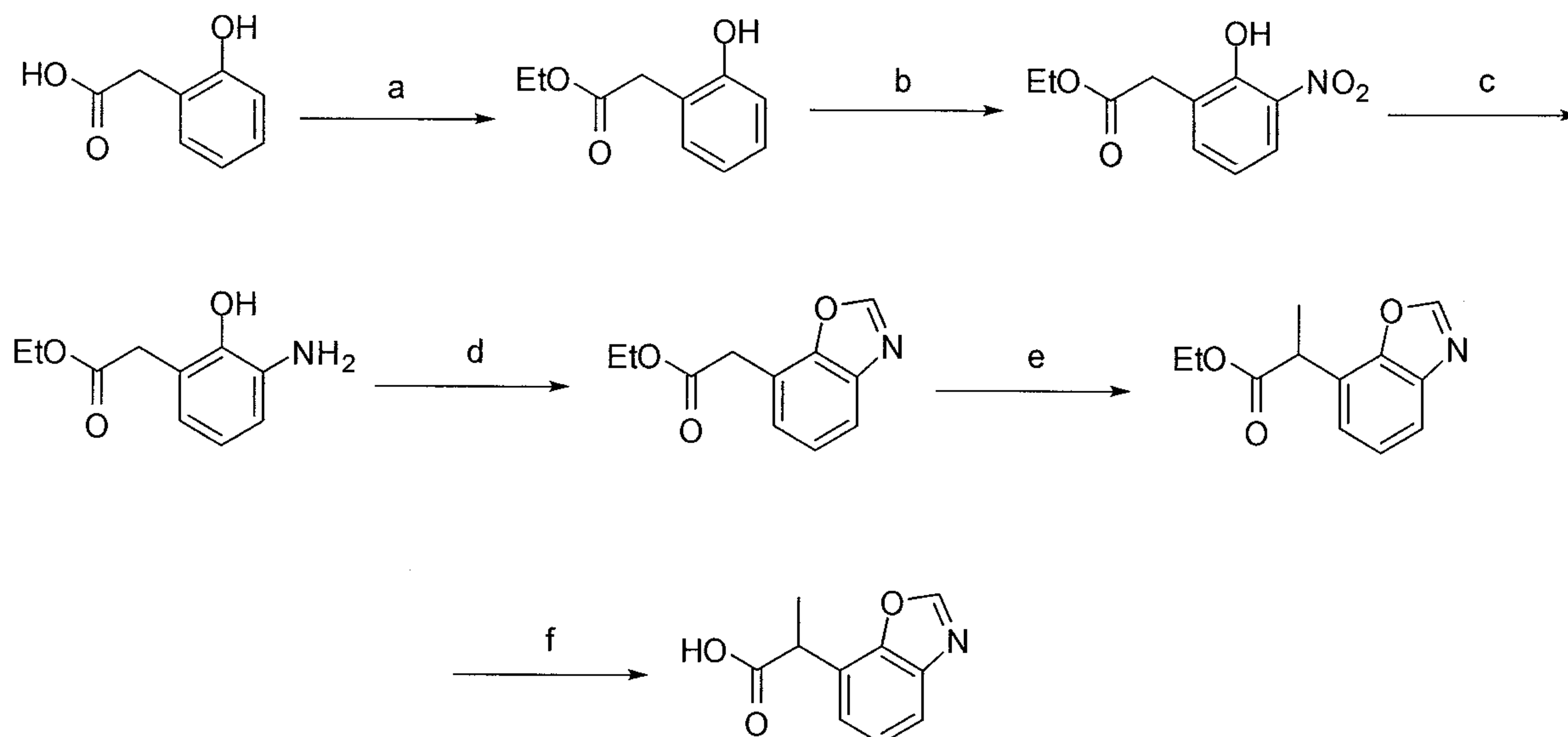
a. HNO_3 , AcOH, H_2SO_4 (kat.), EtOH, 26%; b. 10% Pd/C, H_2 , THF/EtOH, 85%; c. $\text{CH}(\text{OEt})_3$, 99%; d. NaH, CH_3I , DMF, 56%; e. LiOH H_2O , THF/ H_2O , 97%

[Key: kat. = cat.]

6.3 Preparation of 2-(benzo[d]oxazol-7-yl)propanoic acid

The compound 2-(benzo[d]oxazol-7-yl)propanoic acid was produced in a similar manner to the synthesis of 2-(benzo[d]oxazol-5-yl)propanoic acid (see 6.1) starting from 2-(2-hydroxyphenyl)acetic acid.

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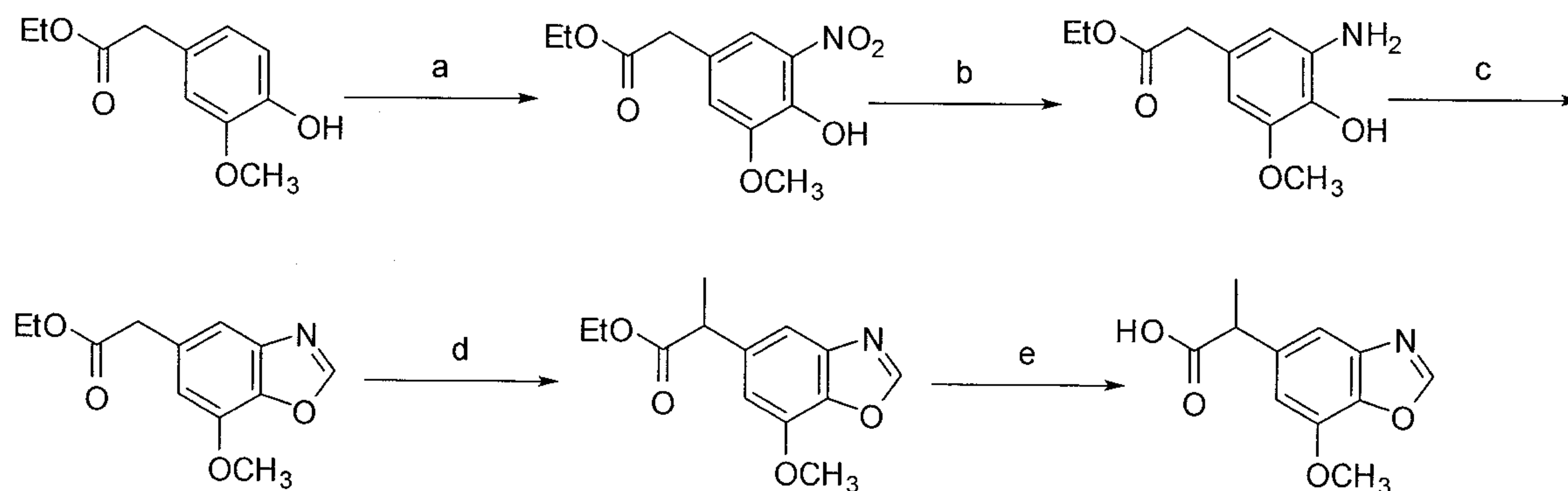


a. H_2SO_4 (kat.), EtOH, 94%; b. HNO_3 , AcOH, 35%; c. 10% Pd/C, H_2 , THF/EtOH, 88%; d. $\text{CH}(\text{OEt})_3$, 96%; e. NaH, CH_3I , DMF, 80%; f. LiOH H_2O , THF/ H_2O , 98%

[Key: kat. = cat.]

6.4 Preparation of 2-(7-methoxybenzo[d]oxazol-5-yl)propanoic acid

The compound 2-(7-methoxybenzo[d]oxazol-5-yl)propanoic acid was produced in a similar manner to the synthesis of 2-(benzo[d]oxazol-5-yl)propanoic acid (see 6.1) starting from ethyl-2-(4-hydroxy-3-methoxyphenyl) acetate.



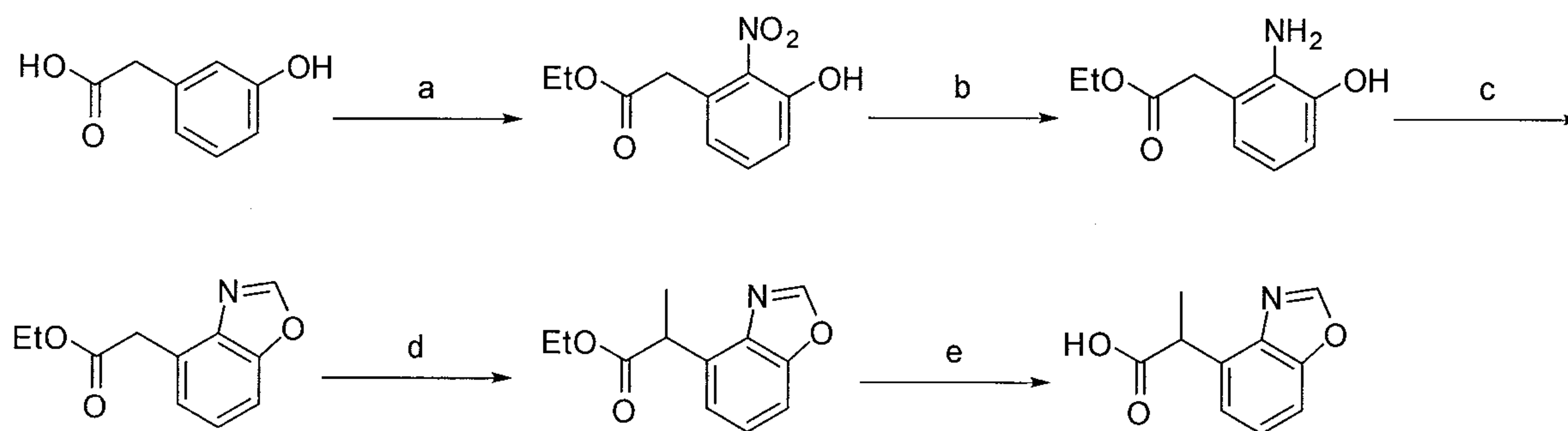
a. HNO_3 , AcOH, 48%; b. 10% Pd/C, H_2 , THF/EtOH, quantitativ; c. Triethylorthoformiat, 99%; d. NaH, CH_3I , DMF, 52%; e. LiOH H_2O , THF/ H_2O , 74%

[Key: quantitativ = quantitative; Triethylorthoformiat = triethyl orthoformiate]

6.5 Preparation of 2-(benzo[d]oxazol-4-yl)propanoic acid

The compound 2-(benzo[d]oxazol-4-yl)propanoic acid was produced in a similar manner to the synthesis of 2-(benzo[d]oxazol-5-yl)propanoic acid (see 6.1) starting from 2-(3-hydroxyphenyl)acetic acid.

$^1\text{H-NMR}(\text{CD}_3\text{OD})$ 8.42 (s, 1H, Ar), 7.55 (dd, 1H, $J=7.9, 1.1\text{Hz}$, Ar), 7.37 (m, 2H, Ar), 4.38 (q, 1H, $J=7.1\text{Hz}$, CHCH_3), 1.57 (d, 3H, $J=7.4\text{Hz}$, CHCH_3)

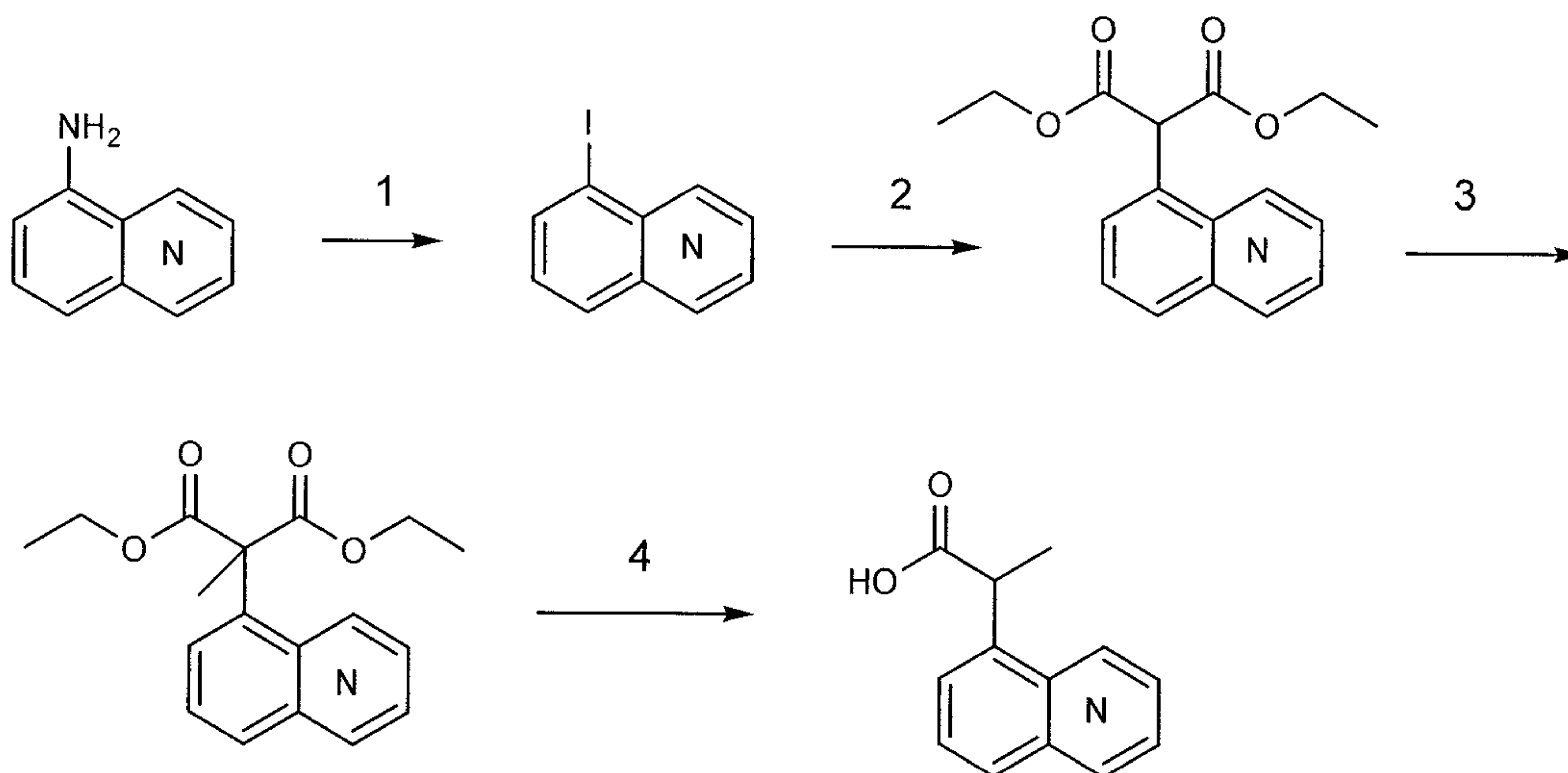


a. HNO_3 , AcOH, H_2SO_4 (kat.), EtOH, 14%; b. 10% Pd/C, H_2 , THF/EtOH, 90%; c. $\text{CH}(\text{OEt})_3$, 90%; d. NaH, CH_3I , DMF, 69%; e. LiOH H_2O , THF/ H_2O , 67%

[Key: kat. = cat.]

6.6a. General method of preparing (iso)quinolinpropanoic acids

(cf. Examples 49, 64-68)



Step 1: A solution of the starting compound (10.6 mmol) in hydrochloric acid (6 N, 20 mL) is cooled to 0 °C and solution of sodium nitrite (730 mg, 10.6 mmol) in water (10 mL) is added dropwise. The resultant solution is added at a constant temperature of 0°C to a solution of potassium iodide (7.3 g, 44 mmol) in water (15 mL). The reaction mixture is heated to room temperature, stirred for three hours and then extracted with ethyl acetate. The combined organic phases are washed consecutively with a 10% strength sodium thiosulphate solution and a saturated sodium chloride solution, dried over sodium sulphate and concentrated under reduced pressure in order to thus obtain the iodised isoquinolin as a solid which can be used directly in the next step without further purification.

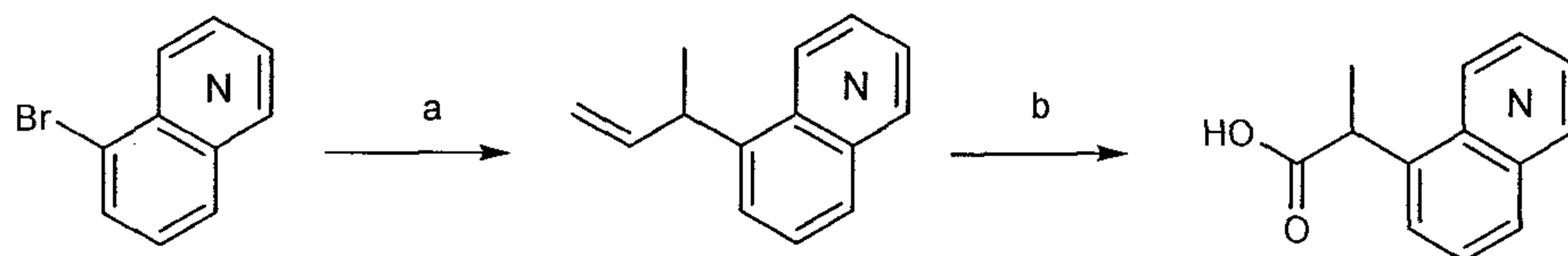
Step 2: Distilled diethyl malonate (304 μ L, 2.00 mmol) and aryl iodide (1.00 mmol) are added to a mixture of copper(I) iodide (9.5 mg, 5.0 mol%), 2-picolinic acid (12.3 mg, 10.0 mol%), caesium carbonate (0.98 g, 3.0 mmol) and 1,4-dioxan (10 ml) and the reaction mixture is stirred for 7 hours at 70 °C. The reaction mixture is then heated to room temperature and extracted with ethyl acetate (20 mL $\times$ 3) and saturated ammonium chloride solution (10 mL). The combined organic phases are dried over sodium sulphate and concentrated under reduced pressure. The oil obtained in this manner can be purified by means of flash chromatography on silica gel in order to obtain the desired α -aryl malonate.

Step 3: Sodium hydride (1.1 mmol) and methyl iodide (1 mmol) are added to a solution, which is cooled to 0 °C, of α -aryl malonate (1 mmol) in DMF (10 mL) and the reaction mixture is stirred for 30 minutes at room temperature. The reaction mixture can then be concentrated under reduced pressure and the residue purified using a mixture of hexane and ethyl acetate (4:1) as an eluent by means of flash chromatography on silica gel.

Step 4: A mixture of α -arylmethyl malonate (1 mmol) and sodium hydroxide (2 mmol) in 80% strength aqueous ethanol is heated under reflux for 6 hours. The reaction mixture is neutralised with hydrochloric acid (1 N) and subsequently extracted with ethyl acetate (20 mL $\times$ 3). The combined organic phases are concentrated under reduced pressure. The residue obtained in this manner can be purified using a

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mixture of hexane and ethyl acetate (1:1) by means of flash chromatography on silica gel in order thus to obtain the desired (iso)quinolinpropanoic acids.

6.6b. General method of preparing (iso)quinolinpropanoic acids

a. Kalium-allyltrifluorboran, Pd(OAc)₂, D-t-BPD, K₂CO₃, THF/H₂O; b. KMnO₄, NaIO₄

[Key: Kalium-allyltrifluorboran = Potassium-allyltrifluoroborane]

General method for reaction catalysed by a Pd(OAc)₂ /D-t-BPF complex of aryl halides with potassium-allyltrifluoroborane

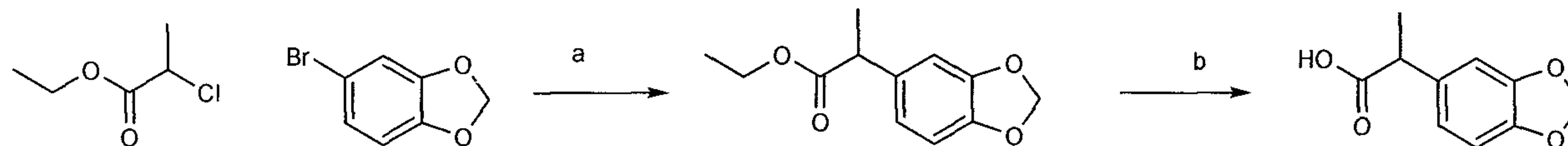
In an analogous manner to Yamamoto, Y. et al., *Chem. Lett.* (2006), 35, 7, 704-705, potassium-allyltrifluoroborane (2.5 mmol), Pd(OAc)₂ (0.03 mmol, 3 mol%), D-t-BPF (0.036 mmol) and K₂CO₃ (3 mmol) are provided in a flask under a protective gas atmosphere. After addition of THF (5 mL) and of the corresponding aryl-bromide (1 mmol), the reaction mixture is boiled for 22 h under reflux. After removal of the solvent, the obtained residue is purified by means of column chromatography (a).

As described in Kawatsura M. et al., *Tetrahedron* (2000), 56, 15, 2247-2258, the alkene obtained can now be boiled to produce propanoic acid. For this purpose, the obtained residue (1 mmol) is dissolved in *t*-BuOH (18 mL) and water (45 mL), KMnO₄ (2.5 mmol), NaIO₄ (16 mmol) and K₂CO₃ (6.5 mmol) are added and the reaction mixture is adjusted to pH 8 with 3 N aq NaOH. After 2 hours of stirring at room temperature, the mixture is acidified with conc. HCl to pH 1 and the MnO₂ is reduced with sodium hydrogen sulphite. The reaction mixture is now combined with ether, the phases separated and the organic phase extracted with 3 N aq NaOH. The aqueous phase is acidified with conc. HCl and likewise extracted with ether. The combined organic phases are dried over MgSO₄ and concentrated in a vacuum (b).

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6.7 Preparation of benzooxocyclic propionic and acetic acids

(cf. Examples 9, 58-63)

Method for benzenedioxol-propionic acid (Example 60)a. NBu_4BF_4 , NiBr_2bipy , DMF, 25°C , 9% b. LiOH, THF/ H_2O , reflux, 12 h, 97%

4-bromo-1,2-(methylenedioxy)benzene (2 g, 10 mmol) was stirred together with ethylchloropropionate (1.6 mL, 13 mmol) under a nitrogen atmosphere at room temperature in 15 ml DMF. For the purpose of activation, (1.1 g, 20 mmol) Mn, followed by 2,2'-bipyridin)nickel-(II)-dibromide (0.26 g, 0.7 mmol) and TFA (20 mL) were then added. The reaction mixture was stirred for 1.5 h at 50°C .

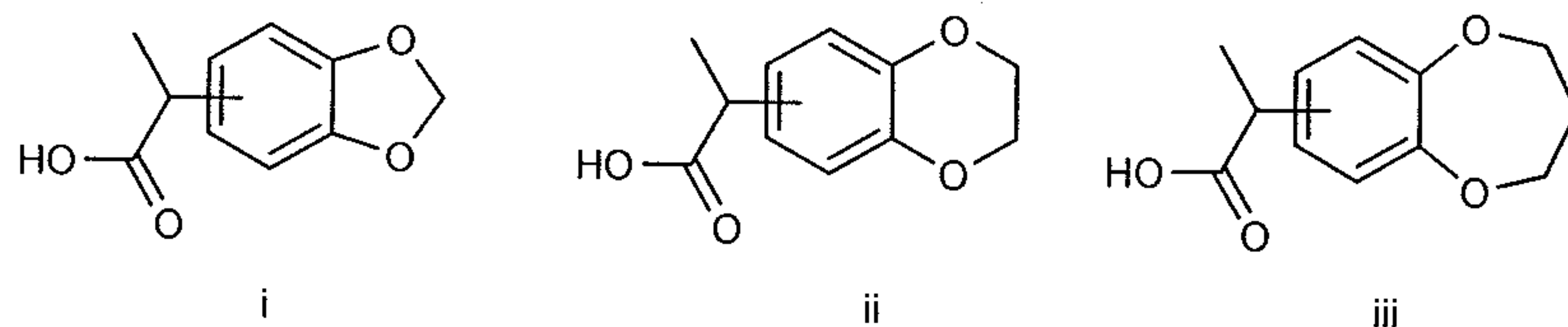
After cooling of the reaction mixture, hydrolysis was carried out with 25 mL 1 N HCl, the mixture extracted 3 x with 25 mL diethyl ether, the combined organic phases washed with 25 mL water and 25 mL sat. NaCl solution, dried over MgSO_4 and concentrated in a vacuum. The resultant precipitate was removed by suction and washed with diethyl ether. After purification by means of column chromatography (n-hexane/tert-BME = 9/1), it was possible to obtain 0.198 g of product (9% of theory) as a white solid.

The propionate (180 mg, 0.81 mmol) was dissolved in a mixture of THF (1.6 mL, 20 mmol) and water (0.8 mL, 45 mmol). After addition of LiOH (0.058 g, 2.43 mmol), the reaction mixture was refluxed overnight. For processing, 25 mL water and 25 mL diethyl ether were added to the mixture and the resultant phases separated. The aqueous phase was acidified with HCl and extracted 3x with in each case 25 mL dichloromethane. After purification of the organic phases, drying over MgSO_4 and concentration in a vacuum, it was possible to obtain the propionic acid in a 97% yield (0.150 g).

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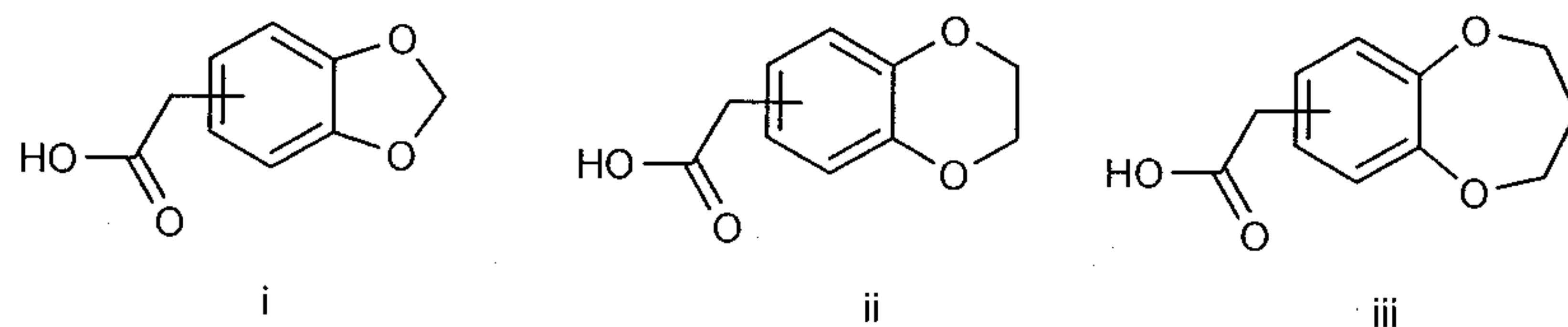
In an analogous manner to the procedures described here, further benzooxocyclic propanoic acids can be prepared:

- 2-(benzo[d][1,3]dioxol)propanoic acids (i),
 2-(2,3-dihydrobenzo[b][1,4]dioxin)propanoic acids (ii),
 2-(3,4-dihydro-2H-benzo[b][1,4]dioxepin)propanoic acids (iii) and

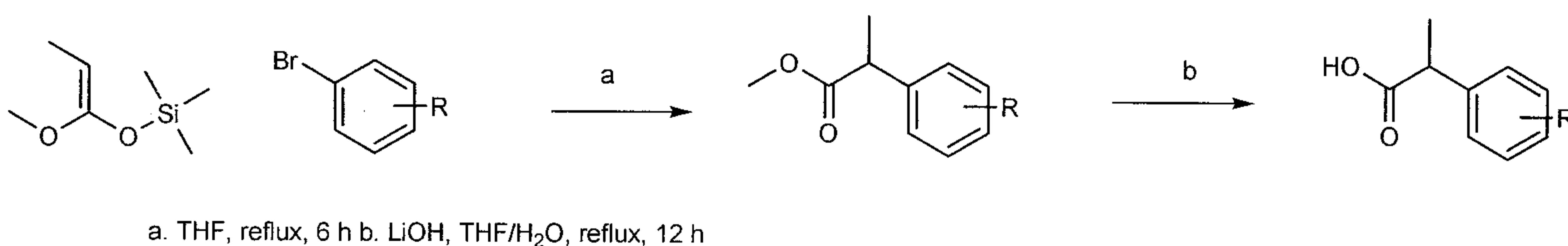


The corresponding benzooxocyclic acetic acids can also be made accessible by means of this method:

- 2-(benzo[d][1,3]dioxol)acetic acids (i),
 2-(2,3-dihydrobenzo[b][1,4]dioxin)acetic acids (ii),
 2-(3,4-dihydro-2H-benzo[b][1,4]dioxepin)acetic acids (iii) and



6.8. Alternative possibilities for the preparation of aryl propionic acids from aryl bromides



Preparation of the catalyst

In order to prepare the palladium(0) catalyst, Pd(dppf)Cl₂ (110 mg, 0.15 mmol), dppf (83 mg, 0.15 mmol) and butyl lithium in hexane (0.3 mmol) are added to a dry THF solution (10 ml). The reaction mixture is stirred for 1 min at room temperature and used directly in the next reaction as a palladium catalyst.

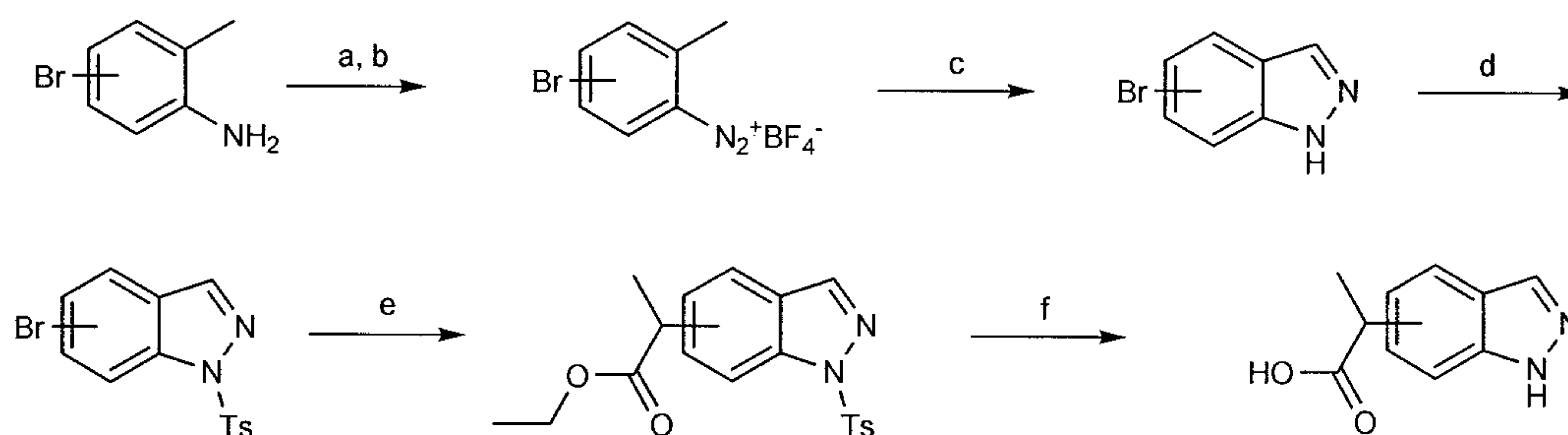
General method for palladium-catalysed reaction of aryl halides with (E)-1-methoxy-1-trimethylsiloxypropane

The freshly prepared palladium(0) catalyst in dry THF (10 mL) is added under an argon atmosphere to 90% TIOAc (1.78 g, 6 mmol) in dry THF (20 mL). After 5 minutes of stirring the reaction mixture at room temperature, the aryl halide (3 mmol) in dry THF (10 mL) and (E)-1-methoxy-1-trimethylsiloxypropane (0.96g, 6 mmol) are added and refluxed for 4 – 24 h.

After removal of the solvent in a vacuum, the residue is absorbed and filtered off in diethyl ether and water. The filtrate is extracted with diethyl ether, the combined organic phases dried over MgSO₄, the diethyl ether removed in a vacuum and the obtained residue is separated by column chromatography.

6.9 Alternative method for the preparation of 2-(1H-indazol)propanoic acids

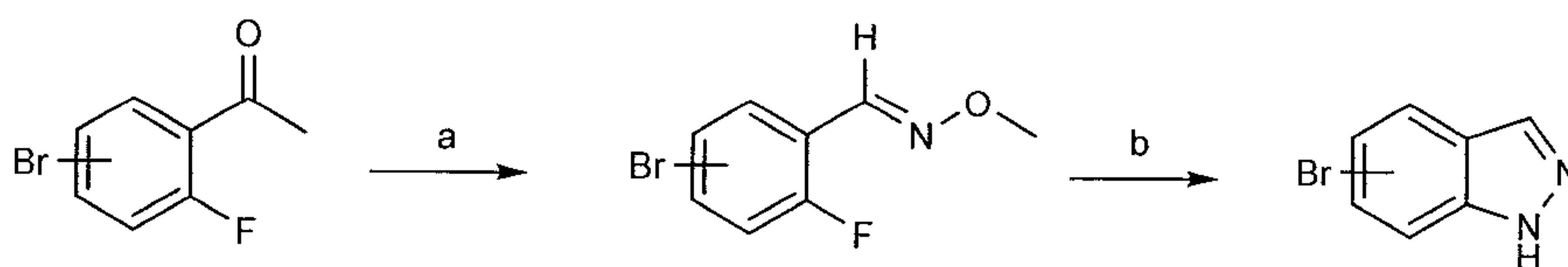
(cf. Examples 44-46, 48, 69-72)



a. HBF_4 aq 50%; b. NaNO_2 aq, 0 °C; c. AcOK, 18-crown-6, CHCl_3 , rt; d. TsCl, TEA, CH_2Cl_2 ; e. Ethylchloropropionat, NBu_4BF_4 , NiBr_2bipy DMF, rt; f. TMSCl, NaI, CH_3CN , reflux

[Key: Ethylchloropropionat = Ethylchloropropionate]

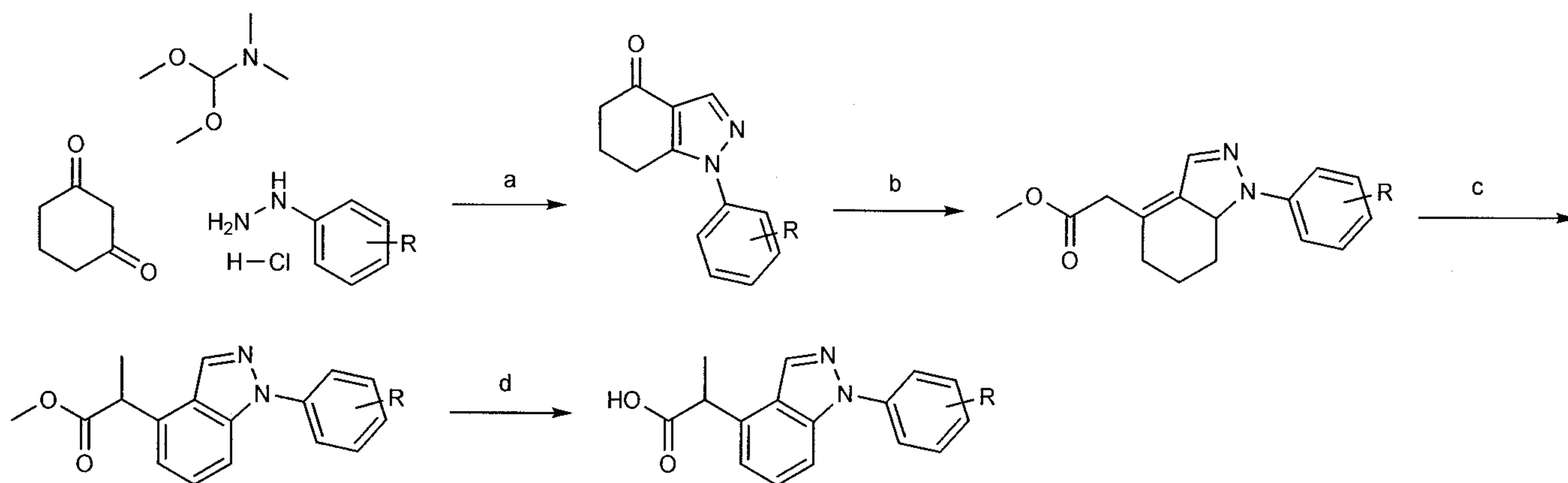
Indazol derivatives can be prepared as explained in the above scheme. On the basis of the corresponding bromo-methylaniline, the desired bromo-1-H-indazol can be obtained in accordance with Boulouard M. et. al., *Bioorganic Medicinal Chemistry Letters* (2007), 17, 3177-3180 (a, b und c). The 1H-indazol of the compound can be protected (d) with a tosyl group in accordance with a method known to the person skilled in the art. Below, this tosyl-protected bromo-indazol can be reacted in accordance with Durandetti M. et al., *Tetrahedron* (2007), 63, 1146-1153 with ethylchloropropionate to yield indazol-propanoic acid ester (e). In order to obtain the desired indazol-propanoic acid, the removal of protection from the propanoic acid function and from the 1-H-indazol is carried out as described in Sabitha G. et al., *Tetrahedron Letters* (1999), 40, 1569-1570 (f).



a. $\text{NH}_2\text{OCH}_3\cdot\text{HCl}$, K_2CO_3 ; b. NH_2NH_2

Starting from bromo-fluorophenylethanons, Lukin K. et al. *J. Org. Chem.* (2006), 71, 21, 8166-8172 describe an alternative procedure for the preliminary stage of the bromo-1-H-indazols (a, b).

6.10. General method for preparing 2-(1-phenyl-1H-indazol)propanoic acids (cf. Example 73)



a. HOAc, H₂O, 2 min, 200 °C, μ wave; b. 2-Brompropansäure, Zn, I, HgCl₂, Benzen; c. S, 190 °C, 1 h, Raney-Nickel;
d. aq NaOH, reflux, 4 h

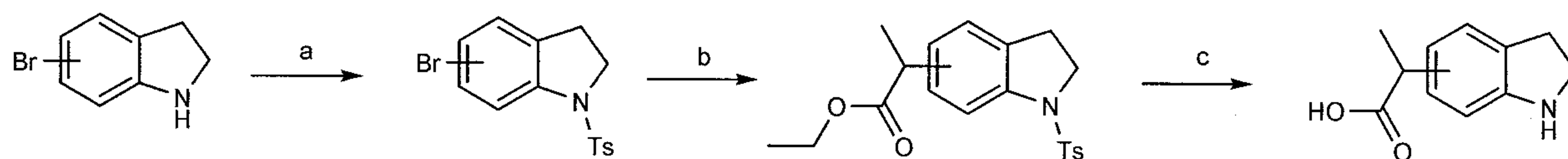
[Key: 2-Brompropansäure = 2-bromopropanoic acid, Benzen = benzene]

Phenylindazol-propanoic acids can be prepared in an analogous manner to US3657270 (b-d). The educts required for this, correspondingly substituted 6,7-dihydro-1-phenyl-indazol-4(5H)-one, can be obtained as described in Molteni V. et al., *Synthesis* (2002), 12, 1669-1674 in a three-component reaction with microwave support (a).

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6.11. General method for preparing 2-(indolin)propanoic acids

(cf. Examples 74-77)

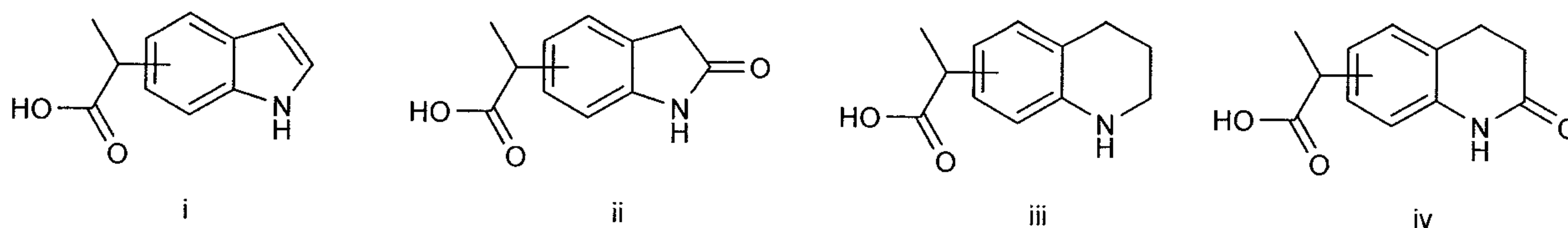


a. TsCl, TEA, CH₂Cl₂; b. Ethylchloropropionat, NBu₄BF₄, NiBr₂bipy, DMF, rt; c. TMSCl, NaI, CH₃CN, reflux

[Key: Ethylchloropropionat = Ethylchloropropionate]

Starting from the corresponding bromo-indolin, according to the method known to the person skilled in the art, a tosyl protective group is introduced (a). In an analogous manner to that described in Durandetti M. et al., *Tetrahedron* (2007), 63, 1146-1153, reaction is carried out with ethylchloropropionate to yield indolin-propanoic acid ester (b). In order to obtain the desired 2-(indolin)-propanoic acid, protection is removed from the compound as described in Sabitha G. et al., *Tetrahedron Letters* (1999), 40, 1569-1570 (c).

In an analogous manner to the procedure described here, corresponding 2-(1H-indol)propanoic acids (i), 2-(2-oxoindolin)propanoic acids (ii), 2-(1,2,3,4-tetrahydroquinolin) propanoic acids (iii) and 2-(2-oxo-1,2,3,4-tetrahydroquinolin)propanoic acids (iv) can be obtained.

**7. General method of reacting amines of the general formulae V or X with carboxylic acids of the general formula VII****Method A:**

The acid of the general formula VII (1 equivalent), the amine of the general formulae V or X (1.2 equivalents) and EDCI (1.2 equivalents) are stirred in DMF (10 mmol acid

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in 20 mL) for 12 hours at RT and then water is added thereto. The reaction mixture is extracted repeatedly with EA, the aqueous phase is saturated with NaCl and then re-extracted with EA. The combined organic phases are washed with 1 N hydrochloric acid and a sat. aq. NaCl soln., dried over MgSO₄ and the solvent is removed under a vacuum. The residue is purified by means of flash chromatography (SiO₂, EA/hexane 1:2).

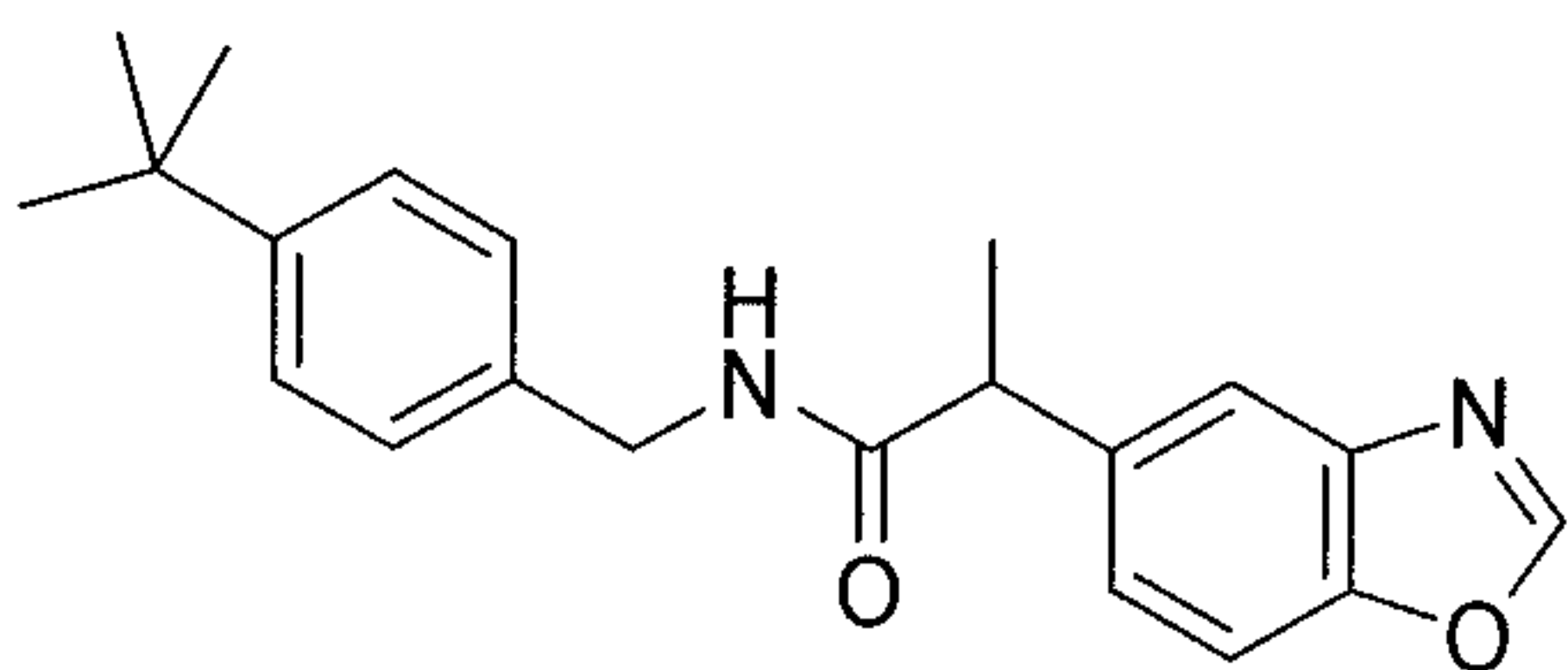
Method B:

The acid of the general formula VII (1 equivalent) and the amine of the general formulae V or X (1.1 equivalents) are dissolved in DCM (1 mmol acid in 6 mL) and combined at 0°C with EDCI (1.5 equivalents), HOBT (1.4 equivalents) and triethylamine (3 equivalents). The reaction mixture is stirred for 20 h at RT and purified by means of column chromatography (n-hexane/EA = 2:1).

The following exemplary compounds were obtained according to the above-stated Method B.

Exemplary compound 1:

2-benzoxazol-5-yl-N-(4-tert-butyl-benzyl)-propionamide

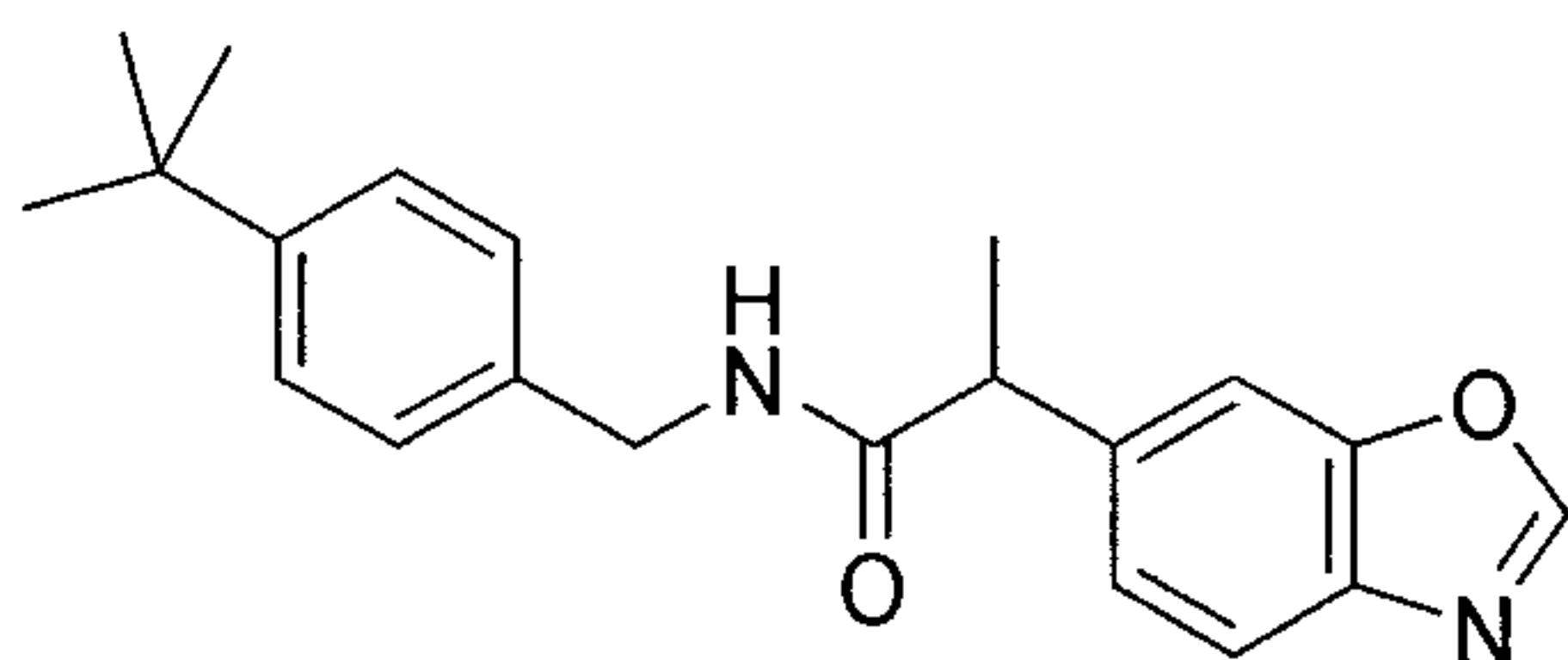


¹H-NMR(CDCl₃) δ 8.10 (s, 1H, Ar), 7.74 (d, 1H, J=1.7Hz, Ar), 7.56 (d, 1H, J=8.4Hz, Ar), 7.38 (dd, 1H, J=8.6, 1.8Hz, Ar), 7.30 (d, 2H, J=8.4Hz, Ar), 7.09 (d, 2H, J=8.4Hz, Ar), 5.64 (bs, NH), 4.37 (m, 2H, NHCH₂Ar), 3.72 (q, 1H, J=7.1Hz, COCH), 1.61 (d, 3H, J=7.1Hz, CHCH₃), 1.28 (s, 9H, C(CH₃)₃)

Synthesis of exemplary compound 2:

2-benzoxazol-6-yl-N-(4-tert-butyl-benzyl)-propionamide

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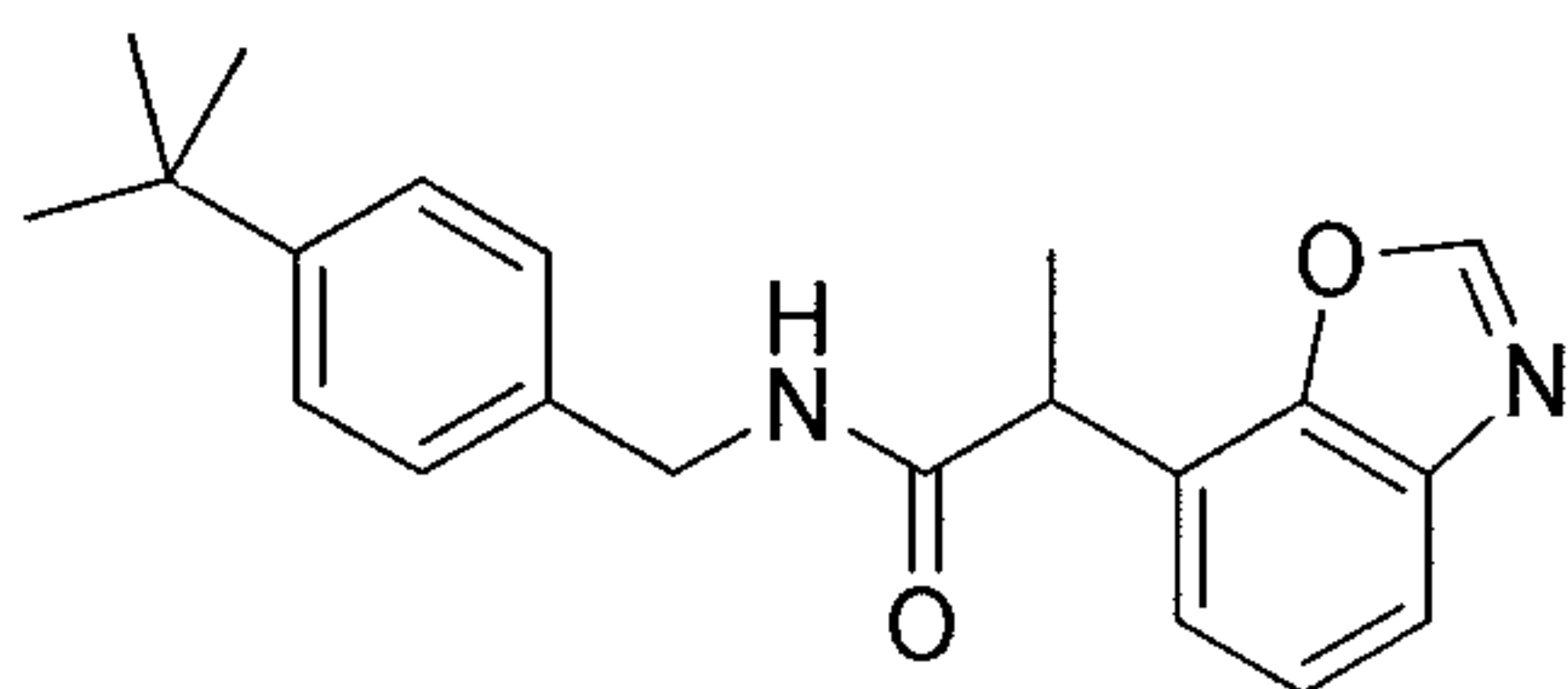
$^1\text{H-NMR}(\text{CDCl}_3)$ δ 8.02 (d, 1H, $J=2.0\text{Hz}$, Ar), 7.07 (dd, 1H, $J=8.3, 1.7\text{Hz}$, Ar), 7.54 (s, 1H, Ar), 7.25 (m, 3H, Ar), 7.04 (d, 2H, $J=7.0\text{Hz}$, Ar), 5.79 (bs, NH), 4.32 (m, 2H, NHCH_2Ar), 3.67 (q, 1H, $J=7.1\text{Hz}$, COCH), 1.55 (d, 3H, $J=7.1\text{Hz}$, CHCH_3), 1.23 (s, 9H, $\text{C}(\text{CH}_3)_3$)

IR 3296, 2963, 1649, 1518, 1479, 1434, 1247, 1067 cm^{-1}

Mass (FAB) m/z 337 $[\text{M}+\text{H}]^+$

Synthesis of exemplary compound 3:

2-benzooxazol-7-yl-N-(4-tert-butyl-benzyl)-propionamide

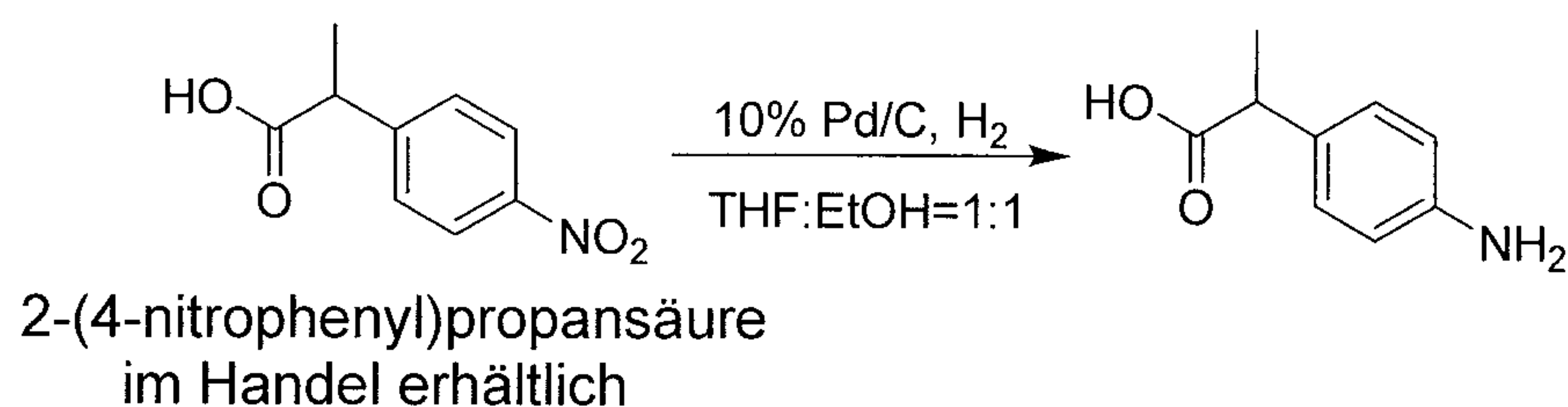


$^1\text{H-NMR}(\text{CDCl}_3)$ δ 8.07 (s, 1H, Ar), 7.71 (m, 1H, Ar), 7.39-7.28 (m, 4H, Ar), 7.06 (d, 2H, $J=8.4\text{Hz}$, Ar), 5.74 (bs, NH), 4.38 (m, 2H, CH_2NH), 4.06 (q, 1H, $J=7.1\text{Hz}$, CHCH_3), 1.68 (d, 3H, $J=7.1\text{Hz}$, CHCH_3), 1.29 (s, 9H, $\text{C}(\text{CH}_3)_3$)

Mass (FAB) m/z 337 $[\text{M}+\text{H}]^+$

Synthesis of exemplary compound 4:

a) 2-(4-aminophenyl)propanoic acid



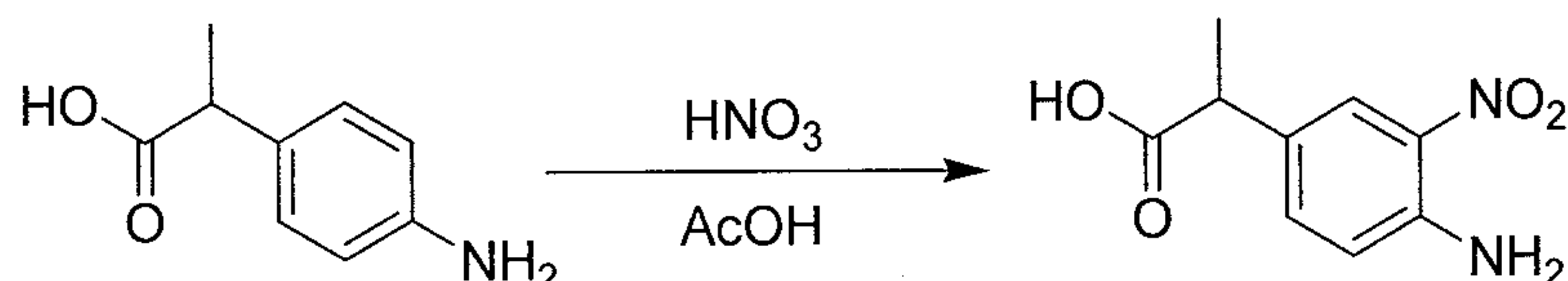
[Key: propansäure = propanoic acid, im Handel erhältlich = commercially available]

THF/EtOH (1:1, 100 ml) and subsequently 2-(4-nitrophenyl)propanoic acid (10 g, 51.2 mmol) and 10% palladium on carbon (0.87 g) were added into the flask at room

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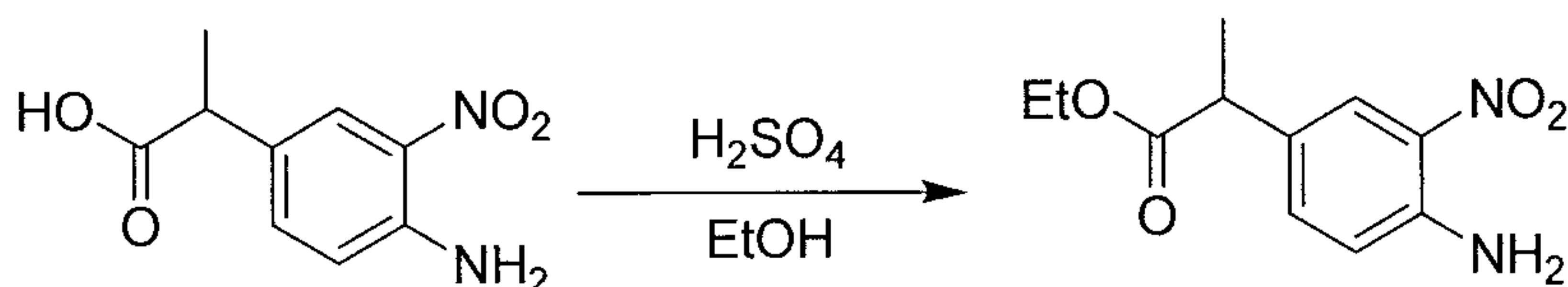
temperature. The reaction mixture was hydrogenated and stirred for 1 h at 45 psi and subsequently filtered by a silica bed and washed with EtOH. The filtrate was concentrated under a vacuum. White or light black solid, yield: quantitative.

b) 2-(4-amino-3-nitrophenyl)propanoic acid



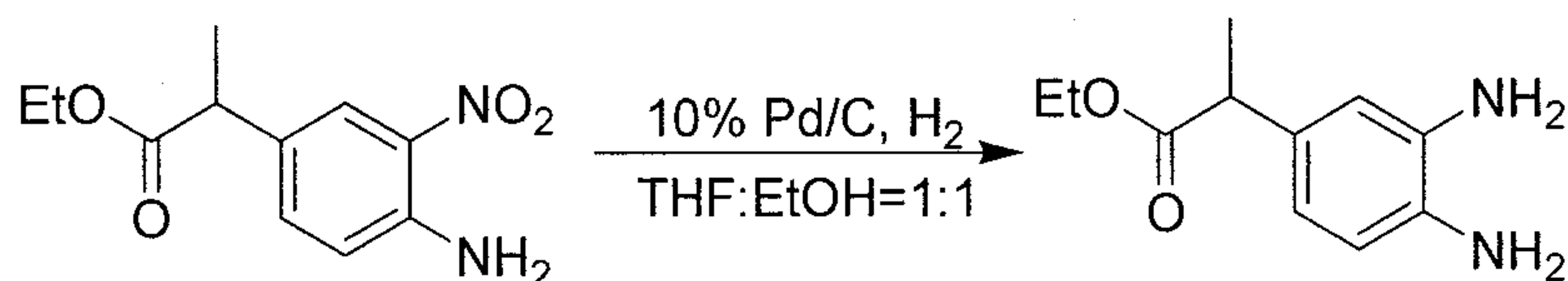
HNO₃ (60%, 5.66 g) was added to a solution of 2-(4-aminophenyl)propanoic acid (8.45 g, 51.2 mmol) in AcOH (70 ml) at room temperature. The reaction mixture was boiled for 4 h under reflux and subsequently cooled to room temperature. The mixture was poured into ice water (200 ml) and extracted with CH₂Cl₂. The organic layer was dried over MgSO₄, filtered and concentrated under a vacuum.

c) Ethyl 2-(4-amino-3-nitrophenyl)propanoate



EtOH (200 ml) and sulphuric acid in a catalyst quantity (1 ml) were added into the flask with 2-(4-amino-3-nitrophenyl)propanoic acid residue at room temperature. The reaction mixture was boiled for 6 h under reflux and subsequently cooled to room temperature. The mixture was diluted with H₂O and extracted with EtOAc. The organic layer was dried over MgSO₄, filtered and concentrated under a vacuum. Light yellow oil, yield: 17.4% (two steps)

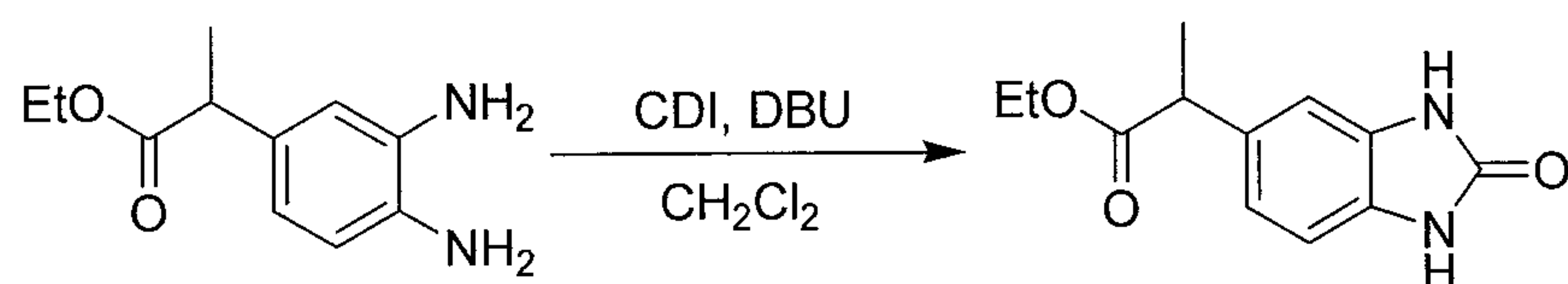
d) Ethyl 2-(3,4-diaminophenyl)propanoate



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THF/EtOH (1:1, 50 ml) and subsequently ethyl 2-(4-amino-3-nitrophenyl)propanoate (2.12 g, 8.90 mmol) and 10% palladium on carbon (220 mg) were added into the flask at room temperature. The reaction mixture was hydrogenated and stirred for 3 h at 45 psi and subsequently filtered by a silica bed and washed with EtOH. The filtrate was concentrated under a vacuum. The residue was purified by means of flash column chromatography with EtOAc:hexanes (1:4-1:2) as the eluent on silica gel. Yellow oil, yield: 74.5%

e) 2-(2,3-dihydro-2-oxo-1*H*-benzo[*d*]imidazol-5-yl)propanoate

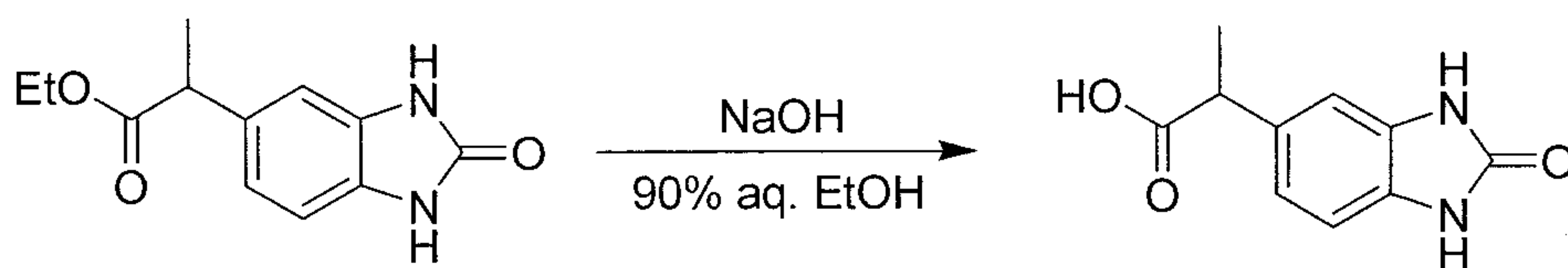


1,1'-carbonyldiimidazol (189 mg) and DBU (330 mg, in CH₂Cl₂ (4 ml)) were added at room temperature to a solution of ethyl 2-(3,4-diaminophenyl)propanoate (217 mg, 1.04 mmol) in CH₂Cl₂ (4 ml).

The reaction mixture was stirred for 1 h at room temperature. The mixture was diluted with H₂O (20 ml) and extracted with CH₂Cl₂. The organic layer was dried over MgSO₄, filtered and concentrated under a vacuum. The residue was purified by means of flash column chromatography with EtOAc:hexanes (1:4-1:2) as the eluent on silica gel.

Light yellow solid, yield: 72.7%

f) 2-(2,3-dihydro-2-oxo-1*H*-benzo[*d*]imidazol-5-yl)propanoic acid



90% aqueous EtOH (5 ml) at room temperature and additionally NaOH (70 mg) were added into the flask with 2-(2,3-dihydro-2-oxo-1*H*-benzo[*d*]imidazol-5-yl)propanoate (175 mg, 0.747 mmol). The reaction mixture was stirred for 10 h at 40 °C and subsequently cooled to room temperature. The mixture was diluted with H₂O (25 ml)

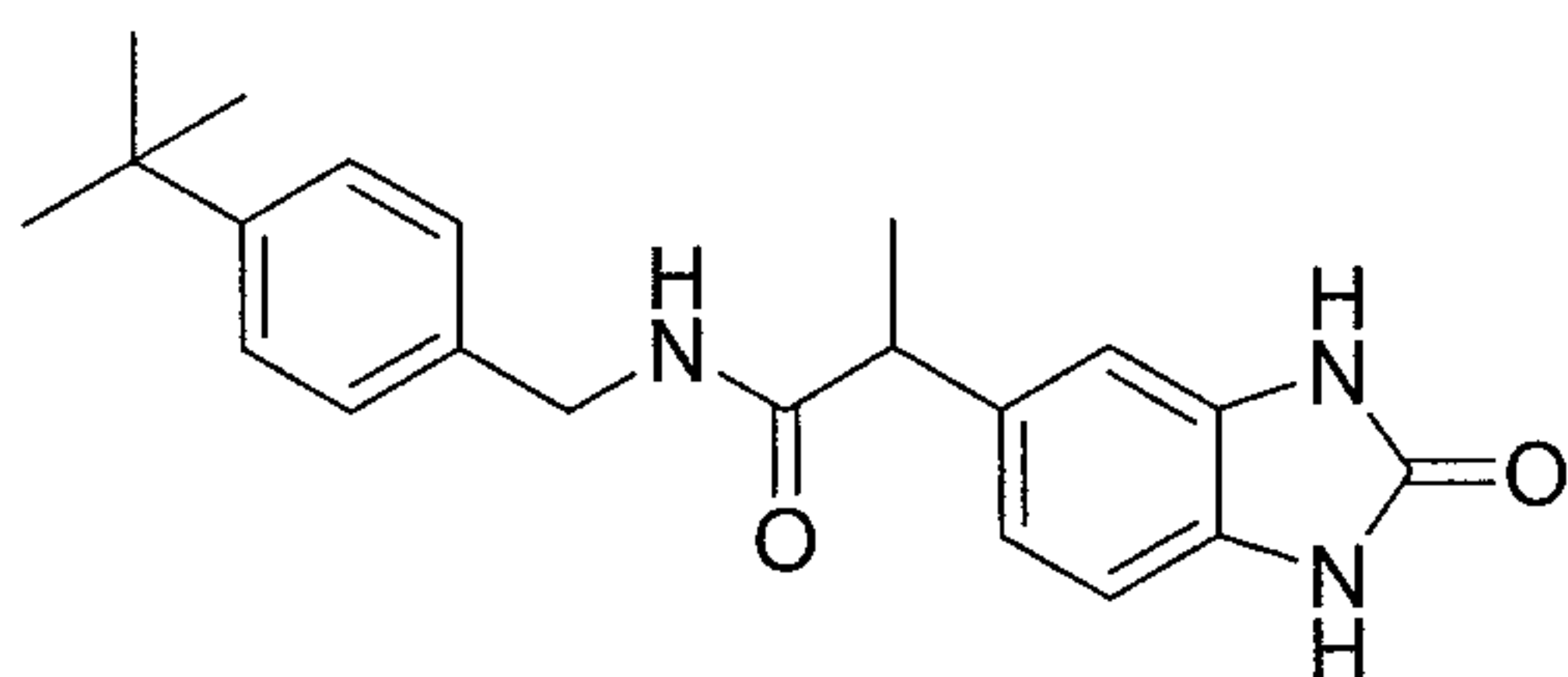
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and acidified with AcOH (4 ml, pH=4) and then extracted with CH₂Cl₂. The organic layer was dried over MgSO₄, filtered and concentrated under a vacuum. The residue was purified by means of flash column chromatography with CH₂Cl₂:MeOH (10:1) as the eluent on silica gel.

Light brown solid, yield: 63.6%

Example 4:

N-(4-tert-butyl-benzyl)-2-(2-oxo-2,3-dihydro-1H-benzoimidazol-5-yl)-propionamide

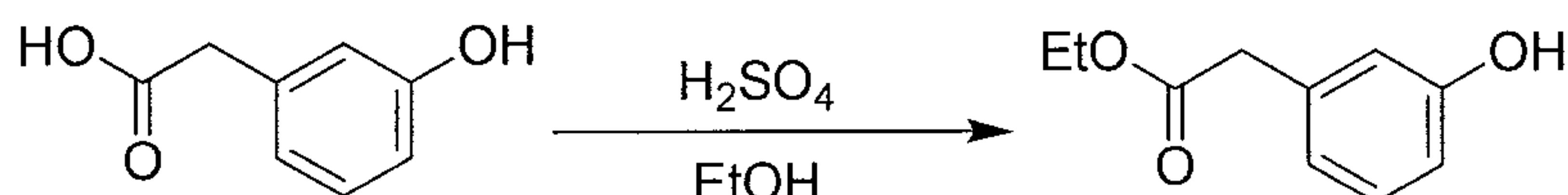


¹H NMR (300 MHz, DMSO) δ 10.6-10.5 (bs, 2 H), 8.33 (bt, 1 H), 7.34-7.22 (m, 2 H), 7.09-7.06 (m, 2 H), 6.93-6.81 (m, 3 H), 4.21-4.17 (m, 2 H), 3.60 (q, 1 H, $J = 7.1$ Hz), 1.34-1.24 (m, 12 H)

MS (EI) m/z 451 (M+H)

Synthesis of exemplary compound 5:

a) Ethyl 2-(3-hydroxyphenyl)acetate



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[Key: Im Handel erhältlich = Commercially available]

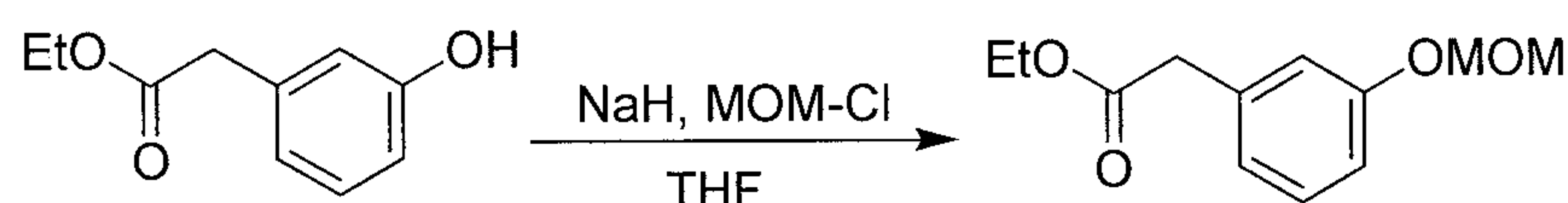
EtOH (100 ml) and subsequently 2-(3-hydroxyphenyl)acetic acid (9.83 g, 64.6 mmol) and sulphuric acid (catalyst quantity) were added into the flask. The mixture was boiled for 3 h under reflux and subsequently cooled to room temperature. The mixture was diluted with H₂O (100 ml) and extracted with EtOAc (100 ml). The organic layer was dried over MgSO₄, filtered and concentrated under a vacuum. The

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residue was purified by means of flash column chromatography with EtOAc:hexanes (1:4) as the eluent on silica gel.

Light yellow oil, yield: 94.5%.

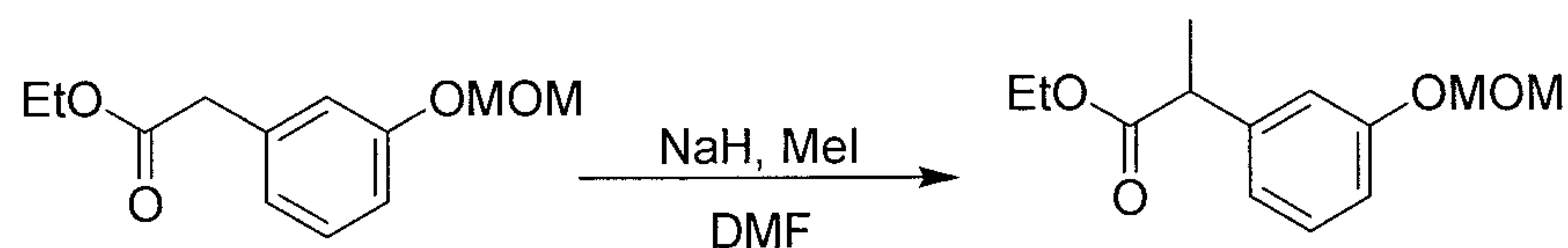
b) Ethyl 2-(3-methoxymethoxy)phenyl)acetate



Reference: JACS,100,8031(1978)

NaH (2.93 g, 73.3 mmol) and MOM-Cl (5.94 g, 73.3 mmol) were added at 0 °C to a solution of ethyl 2-(3-hydroxyphenyl)acetate (11 g, 61 mmol) in THF (100 ml). The reaction mixture was stirred for 16 h at 0 °C and subsequently heated to room temperature. The reaction mixture was diluted with H₂O (200 ml) and extracted with EtOAc. The organic layer was dried over MgSO₄, filtered and concentrated under a vacuum. The residue was purified by means of flash column chromatography with EtOAc:hexanes (1:10) as the eluent on silica gel. Colourless oil, yield: 79.7%.

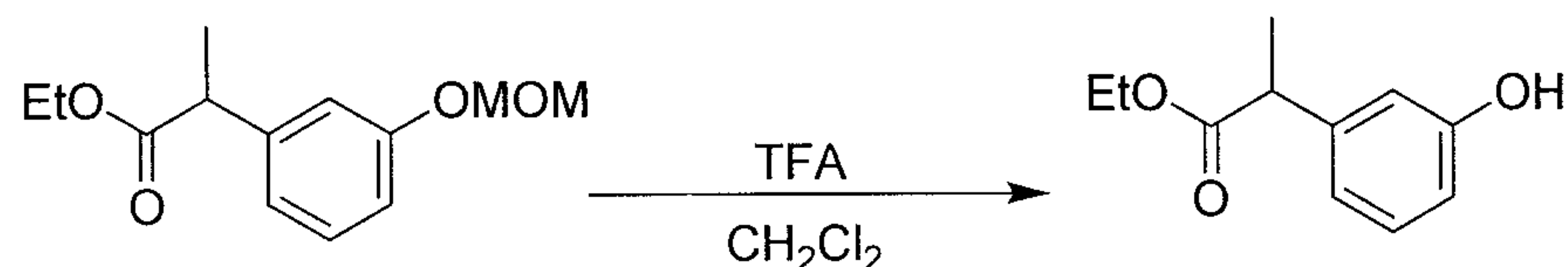
c) Ethyl 2-(3-methoxymethoxy)phenyl)propanoate



NaH (1.74 g, 43.5 mmol) and iodomethane (6.37 g, 44.9 mmol) were added at 0 °C to a solution of ethyl 2-(3-methoxymethoxy)phenyl)acetate (8.06 g, 35.9 mmol) in DMF (50 ml). The reaction mixture was stirred for 1 h at 0 °C and subsequently diluted with H₂O (250 ml) and extracted with EtOAc. The organic layer was dried over MgSO₄, filtered and concentrated under a vacuum. The residue was purified by means of flash column chromatography with EtOAc:hexanes (1:10) as the eluent on silica gel.

Colourless oil, yield: 49.1%.

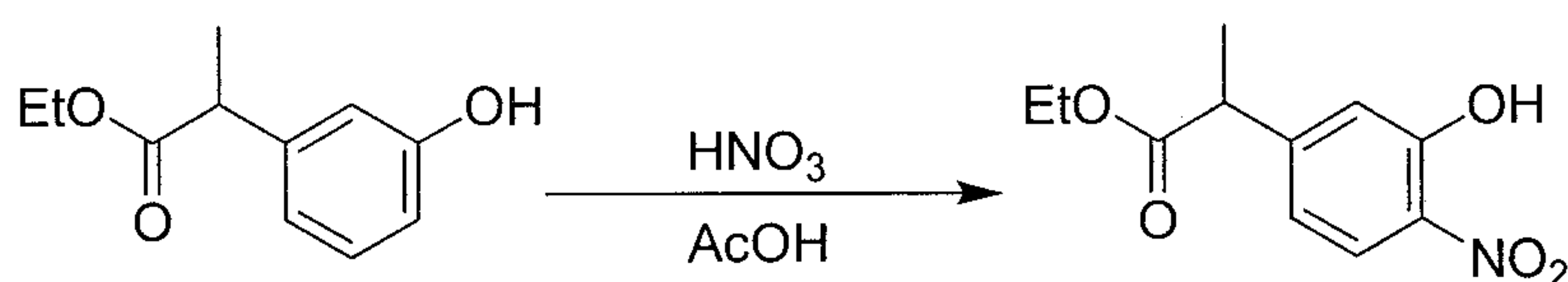
d) Ethyl 2-(3-hydroxyphenyl)propanoate



Trifluoroacetic acid (40 ml) was added at 0 °C to a solution of ethyl 2-(3-methoxymethoxyphenyl)propanoate (4.17 g, 17.5 mmol) in CH₂Cl₂ (80 ml). The reaction mixture was stirred for 1 h at 0 °C and alkalified with NaHCO₃ (60 g). The mixture was gradually diluted with H₂O (250 ml) and extracted with CH₂Cl₂. The organic layer was dried over MgSO₄, filtered and concentrated under a vacuum. The residue was purified by means of flash column chromatography with EtOAc:hexanes (1:4) as the eluent on silica gel.

Colourless oil, yield: 74.1%

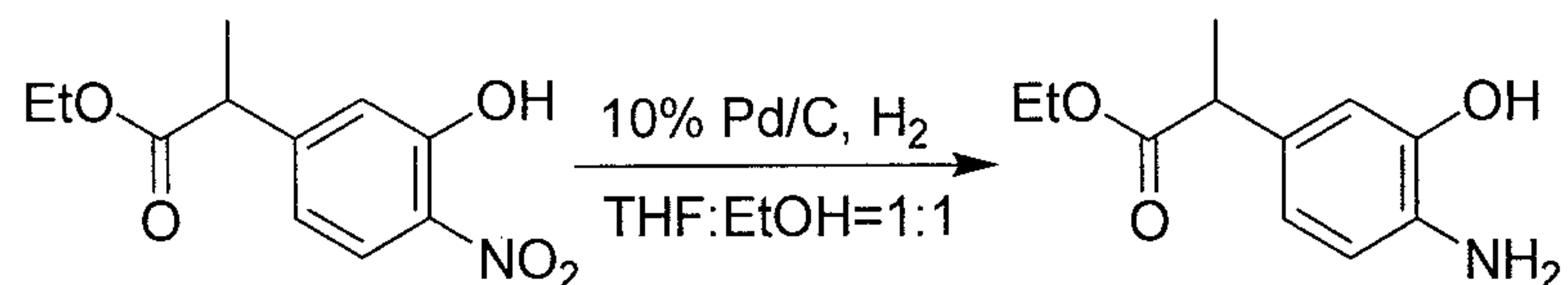
e) Ethyl 2-(3-hydroxy-4-nitrophenyl)propanoate



Nitric acid (1.45 g, 13.8 mmol) in acetic acid (2 ml) was added at room temperature to a solution of ethyl 2-(3-hydroxyphenyl)propanoate (2.51 g, 12.9 mmol) in acetic acid (20 ml). After 1~2 minutes of stirring, the colourless oil turned into the dark brown oil. The reaction mixture was stirred for 15 minutes at room temperature and subsequently poured into ice water (100 ml) and extracted with EtOAc. The organic layer was dried over MgSO₄, filtered and concentrated under a vacuum. The residue was purified by means of flash column chromatography with EtOAc:hexanes (1:6) as the eluent on silica gel.

Yellow solid (melting point 45-47 °C), yield: 30.8%

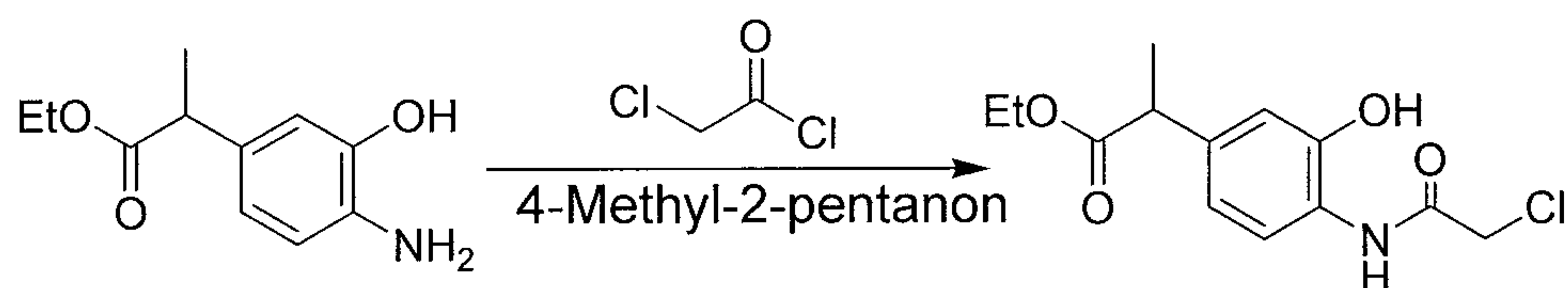
f) Ethyl 2-(4-amino-3-hydroxyphenyl)propanoate



THF/EtOH (1:1, 30 ml) and subsequently ethyl 2-(3-hydroxy-4-nitrophenyl)propanoate (900 mg, 3.76 mmol) and 10% palladium on carbon (93 mg) were added at room temperature into the flask. The reaction mixture was hydrogenated and stirred for 1 h at 46 psi and subsequently filtered by a silica bed and washed with EtOH. The filtrate was concentrated under a vacuum. The residue was purified by means of flash column chromatography with EtOAc:hexanes (1:2) as the eluent on silica gel.

White solid (melting point 119-121 °C), yield: 80.1%

g) Ethyl 2-(4-(2-chloroacetamido)-3-hydroxyphenyl)propanoate

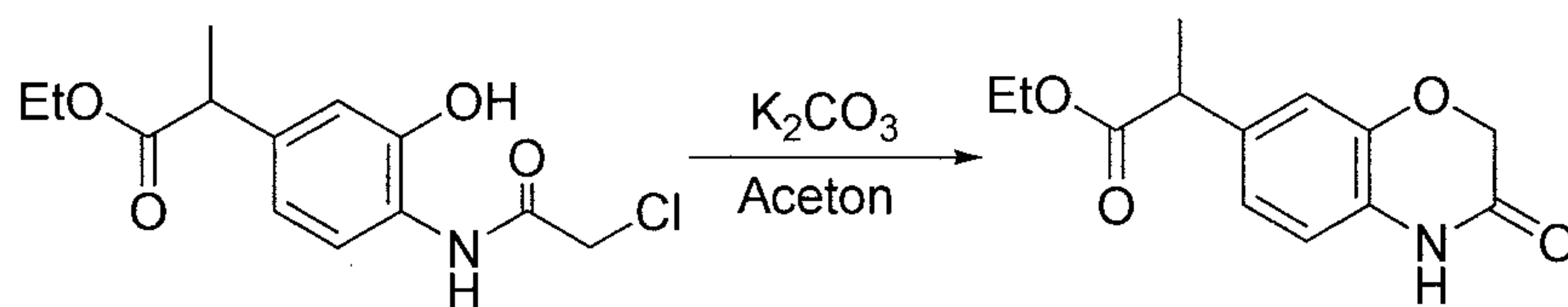


[Key: 4-Methyl-2-pentanone = 4-methyl-2-pentanone]

Chloroacetylchloride (58 mg, 0.514 mmol) in 4-methyl-2-pentanone (2 ml) was added at room temperature to a solution of ethyl 2-(4-amino-3-hydroxyphenyl)propanoate (101 mg, 0.483 mmol) in 4-methyl-2-pentanone (4 ml). The reaction mixture was stirred for 12 h at 80 °C and subsequently cooled to room temperature. The mixture was diluted with H₂O and extracted with EtOAc. The organic layer was dried over MgSO₄, filtered and concentrated under a vacuum. The residue was purified by means of flash column chromatography with EtOAc:hexanes (1:2) as the eluent on silica gel.

Light pink solid (melting point 118-120 °C), yield: 90.6%

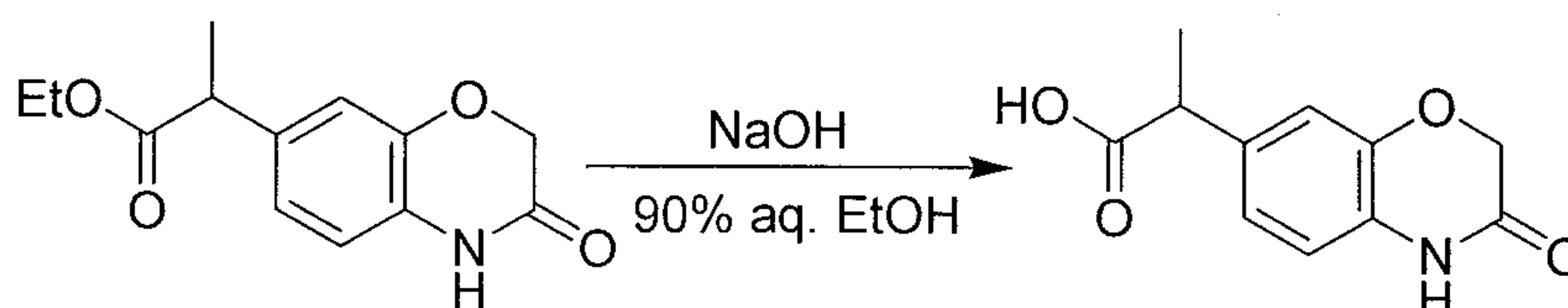
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h) Ethyl 2-(3,4-dihydro-3-oxo-2*H*-benzo[*b*][1,4]oxazin-7-yl)propanoate

[Key: Aceton = Acetone]

Potassium carbonate (61 mg) was added to a solution of ethyl 2-(4-(2-chloroacetamido)-3-hydroxyphenyl)propanoate (110 mg, 0.385 mmol) in acetone (10 ml). The reaction mixture was boiled for 3 h under reflux and subsequently cooled to room temperature. The mixture was diluted with H_2O and extracted with EtOAc. The organic layer was dried over $MgSO_4$, filtered and concentrated under a vacuum. The residue was purified by means of flash column chromatography with EtOAc:hexanes (1:2) as the eluent on silica gel.

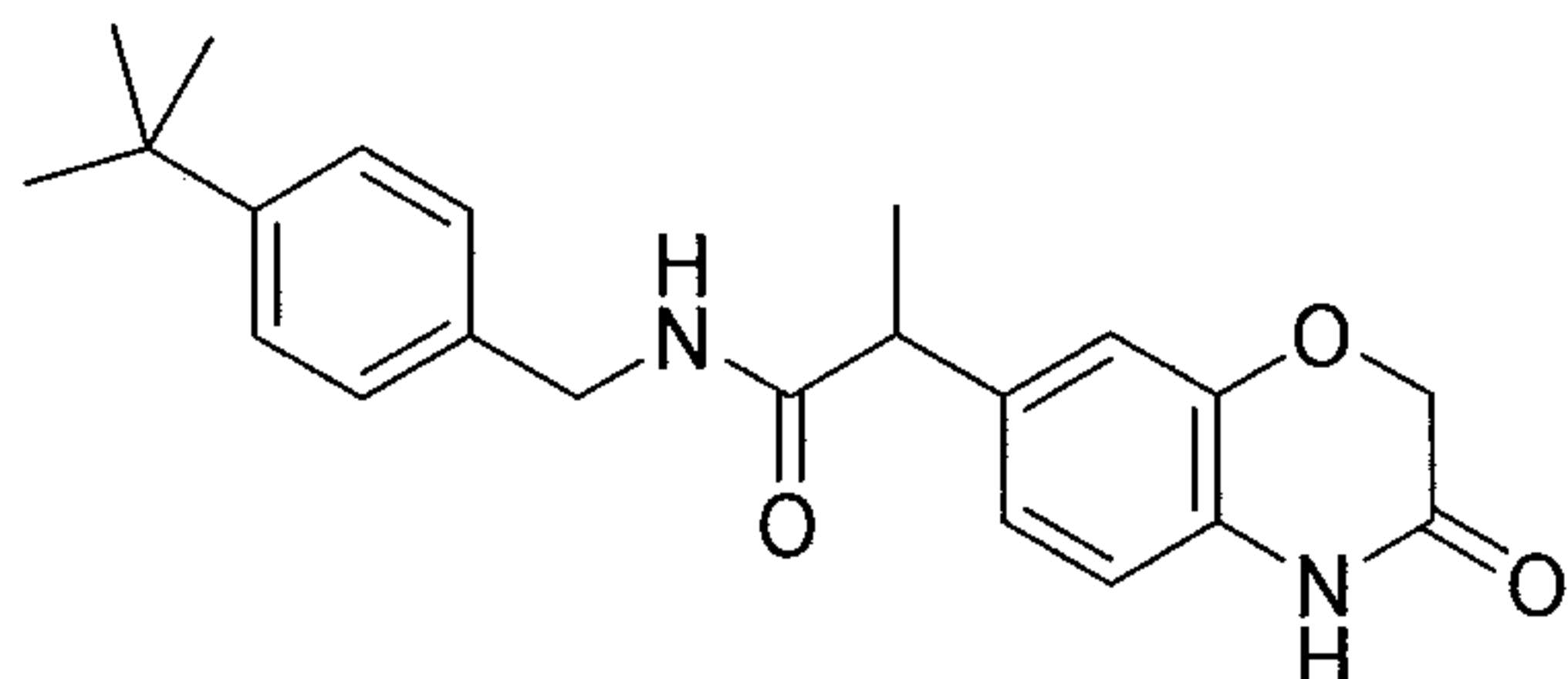
White solid (melting point 101 °C), yield: 91.7%

i) 2-(3,4-dihydro-3-oxo-2*H*-benzo[*b*][1,4]oxazin-7-yl)propanoic acid

NaOH (64 mg, 1.60 mmol) was added at room temperature to a solution of ethyl 2-(3,4-dihydro-3-oxo-2*H*-benzo[*b*][1,4]oxazin-7-yl)propanoate (80 mg, 0.321 mmol) in 90% aqueous EtOH (5 ml). The reaction mixture was stirred for 12 h at 50 °C and subsequently cooled to room temperature. The mixture was diluted with H_2O (20 ml) and acidified with AcOH and subsequently extracted with CH_2Cl_2 . The organic layer was dried over $MgSO_4$, filtered and concentrated under a vacuum.

White solid (melting point 199-201 °C), yield: 98.4%

Example 5 - N-(4-tert-butyl-benzyl)-2-(3-oxo-3,4-dihydro-2H-benzo[1,4]oxazin-7-yl)propionamide



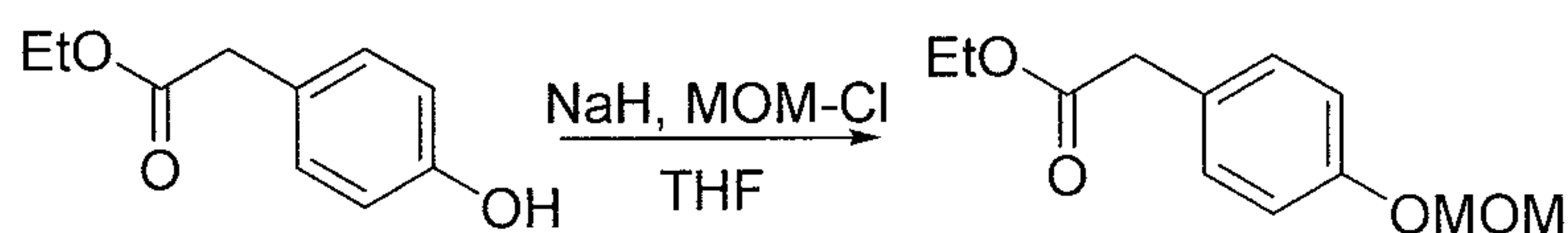
$^1\text{H-NMR}(\text{CDCl}_3)$ δ 9.15 (bs, NH), 7.32 (d, 2H, $J=8.2\text{Hz}$, Ar), 7.12 (d, 2H, $J=8.2\text{Hz}$, Ar), 6.93-6.78 (m, 3H, Ar), 5.79 (bs, NH), 4.58 (s, 2H, OCH_2), 4.38 (m, 2H, NHCH_2), 3.50 (q, 1H, $J=7.1\text{Hz}$, COCH), 1.51 (d, 3H, $J=7.1\text{Hz}$, CHCH_3), 1.29 (s, 9H, $\text{C}(\text{CH}_3)_3$)

IR 3284, 2962, 1700, 1645, 1517, 1417 cm^{-1}

Mass (FAB) m/z 367 $[\text{M}+\text{H}]^+$, 389 $[\text{M}+\text{Na}]^+$

Synthesis of exemplary compound 6:

a) Ethyl 2-(4-methoxymethoxy)phenyl acetate



Ethyl 2-(4-hydroxyphenyl)acetat
im Handel erhältlich

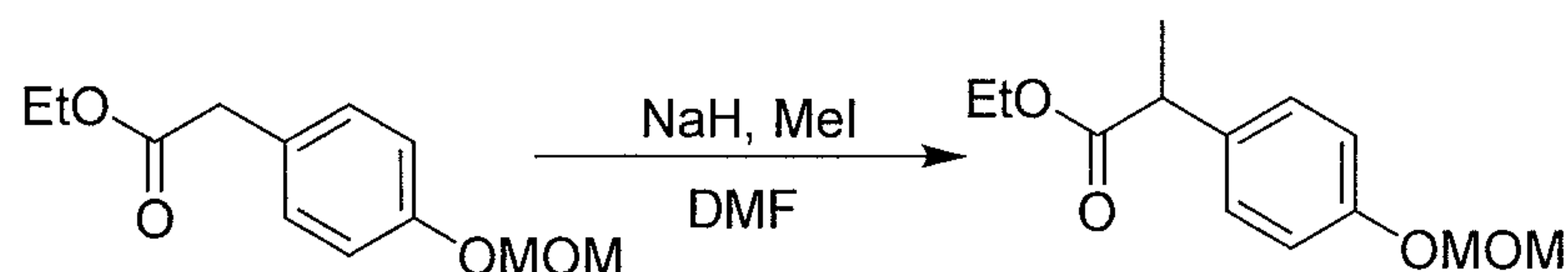
[Ethyl 2-(4-hydroxyphenyl)acetat = Ethyl 2-(4-hydroxyphenyl) acetate; im Handel erhältlich = commercially available]

Sodium hydride (0.50 g, 12.5 mmol) and chloromethylmethylether (1.00 g, 12.4 mmol) were added slowly at 0 °C to ethyl 2-(4-hydroxyphenyl) acetate (2.14 g, 11.8 mmol) in THF (20 ml). The reaction mixture was stirred for 16 h at room temperature. Water (50 ml) was added to the mixture and it was extracted with EtOAc. The organic layer was dried over MgSO_4 . The organic layer was filtered and the filtrate was concentrated under a vacuum. The residue was purified by column chromatography, wherein elution was performed with n-hexane/EtOAc (6:1).

Colourless oil, yield: 67%

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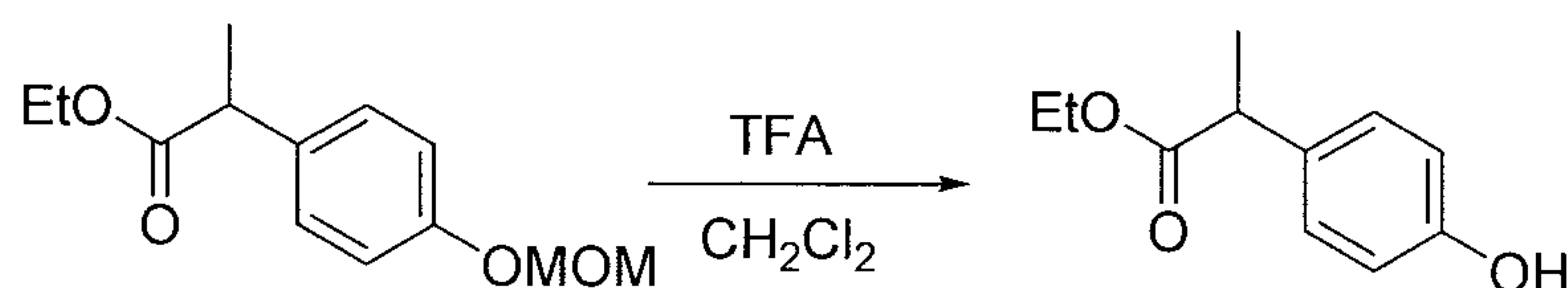
b) Ethyl 2-(4-methoxymethoxy)phenyl)propanoate



Sodium hydride (330 mg, 8.25 mmol) and iodomethane (1.13 g, 7.96 mmol) were gradually added at 0 °C to ethyl 2-(4-methoxymethoxy)phenyl acetate (1.75 g, 7.80 mmol) in DMF (50 ml). The reaction mixture was stirred for 1 h at 0 °C. Water (50 ml) was added to the mixture and it was extracted with EtOAc. The organic layer was dried over MgSO₄. The organic layer was filtered and the filtrate was concentrated under a vacuum. The residue was purified by column chromatography, wherein elution was performed with n-hexane/EtOAc (15:1).

Colourless oil, yield: 57%

c) Ethyl 2-(4-hydroxyphenyl)propanoate

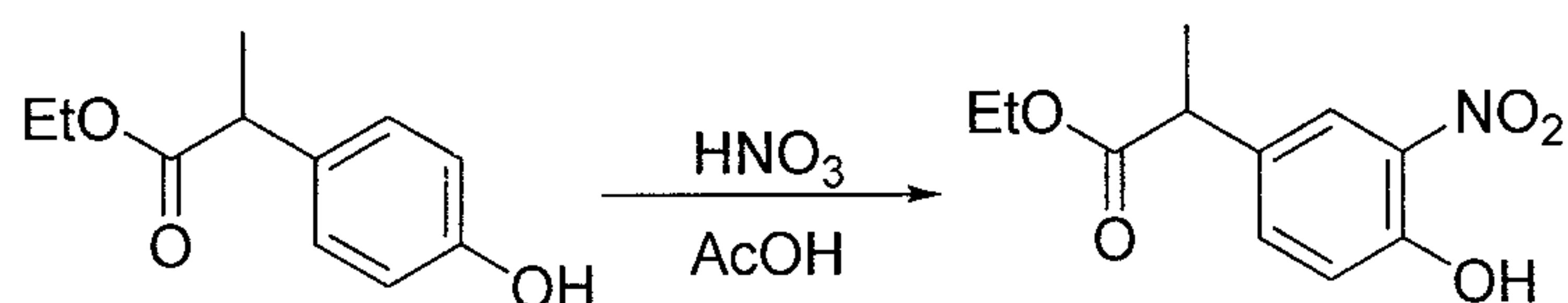


Trifluoroacetic acid (5 ml) was added at 0 °C to a solution of ethyl 2-(4-methoxymethoxy)phenyl)propanoate (485 mg, 2.04 mmol) in methylene chloride (10 ml). The mixture was stirred for 40 minutes at 0 °C and subsequently solid sodium bicarbonate (7.14 g) and water (100 ml) were added slowly at 0 °C. The mixture was extracted with methylene chloride. The organic layer was dried with MgSO₄. The organic layer was filtered and the filtrate was concentrated under a vacuum. The residue was purified by column chromatography, wherein elution was performed with n-hexane/EtOAc (4:1).

Colourless oil, yield: 67%

GRA3394-WO-1

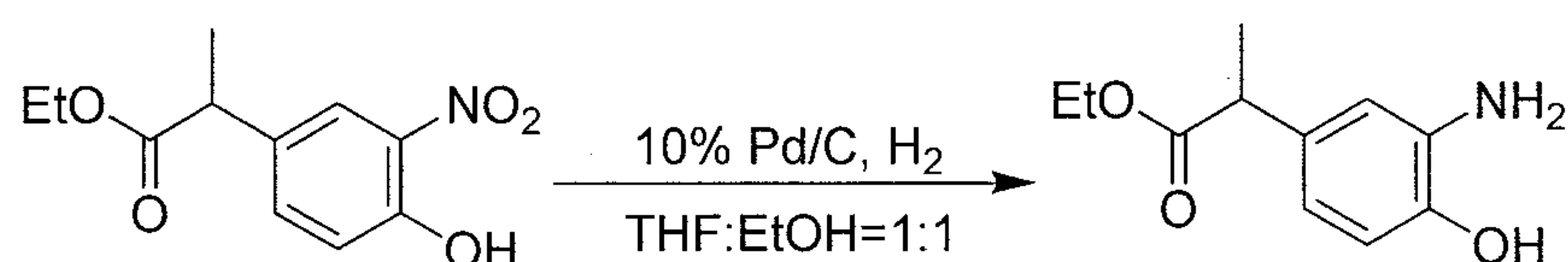
d) Ethyl 2-(4-hydroxy-3-nitrophenyl)propanoate



Nitric acid (60-62%, 300 mg, 2.86 mmol) was added at room temperature to a solution of ethyl 2-(4-hydroxyphenyl)propanoate (275 mg, 1.42 mmol) in acetic acid (2 ml). The reaction mixture was stirred for 1 h at 50 °C and subsequently cooled to room temperature. The reaction mixture was poured into ice water (20 ml) and extracted with EtOAc. The organic layer was dried with MgSO₄ and filtered. EtOAc was removed by evaporation. The residue was purified by column chromatography, wherein elution was performed with n-hexane/EtOAc (6:1).

Yellow oil, yield: 87%

e) Ethyl 2-(3-amino-4-hydroxyphenyl)propanoate

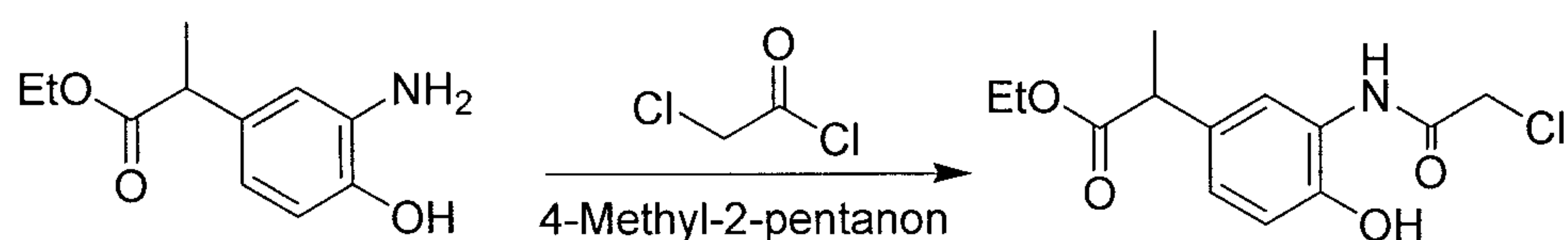


10% Pd/C (29 mg) was gradually added at room temperature to ethyl 2-(4-hydroxy-3-nitrophenyl)propanoate (260 mg, 1.09 mmol) in THF (6 ml) and ethanol (6 ml). The mixture was hydrogenated for 2 h at 43 psi and subsequently filtered with diatomite and washed with EtOAc. The filtrate was concentrated under a vacuum. The residue was purified by column chromatography, wherein elution was performed with n-hexane/EtOAc (1:1).

Yellow oil, yield: 86%

f) Ethyl 2-(3-(2-chloroacetamido)-4-hydroxyphenyl)propanoate

GRA3394-WO-1

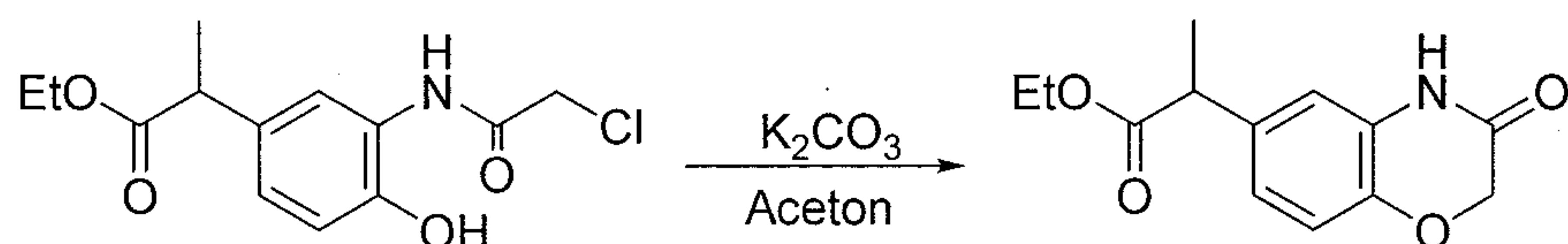


[Key: 4-Methyl-2-pentanon = 4-methyl-2-pentanone]

Chloroacetylchloride (56 mg, 0.496 mmol) was added at room temperature to ethyl 2-(3-amino-4-hydroxyphenyl)propanoate (104 mg, 0.497 mmol) in 4-methyl-2-pentanone (4 ml) and the mixture was stirred for 20 h at 80 °C. The reaction mixture was cooled to room temperature and water (30 ml) was added. The mixture was extracted with EtOAc. The organic layer was dried with MgSO₄ and filtered. EtOAc was removed by evaporation. The residue was purified by column chromatography, wherein elution was performed with n-hexane/EtOAc (2:1).

White solid (melting point 126-128°C), yield: 78%

g) Ethyl 2-(3,4-dihydro-3-oxo-2*H*-benzo[*b*][1,4]oxazin-6-yl)propanoate



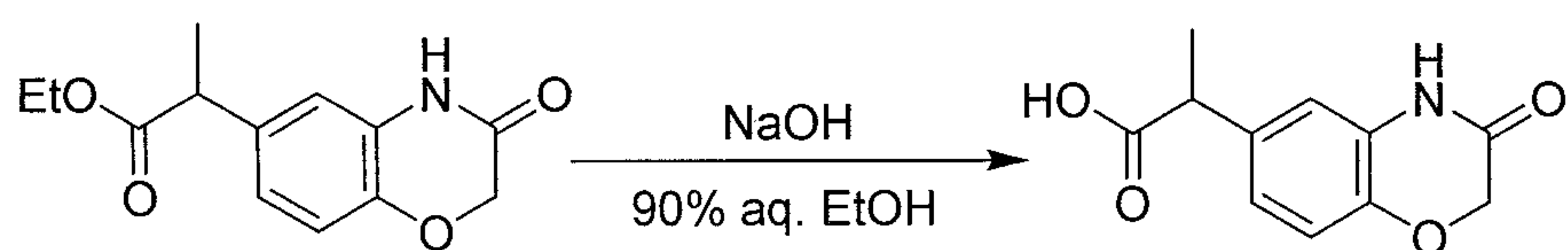
[Key: Aceton = Acetone]

Potassium carbonate (59 mg) was added at room temperature to ethyl 2-(3-(2-chloroacetamido)-4-hydroxyphenyl)propanoate (100 mg, 0.350 mmol) in acetone (10 ml) and the mixture was boiled for 3 h under reflux. The reaction mixture was cooled to room temperature and water (15 ml) was added thereto. The mixture was extracted with EtOAc. The organic layer was dried with MgSO₄ and filtered. EtOAc was removed by evaporation. The residue was purified by column chromatography, wherein elution was performed with n-hexane/EtOAc (2:1).

White solid (melting point 116-118 °C), yield: 92%

h) 2-(3,4-dihydro-3-oxo-2*H*-benzo[*b*][1,4]oxazin-6-yl)propanoic acid

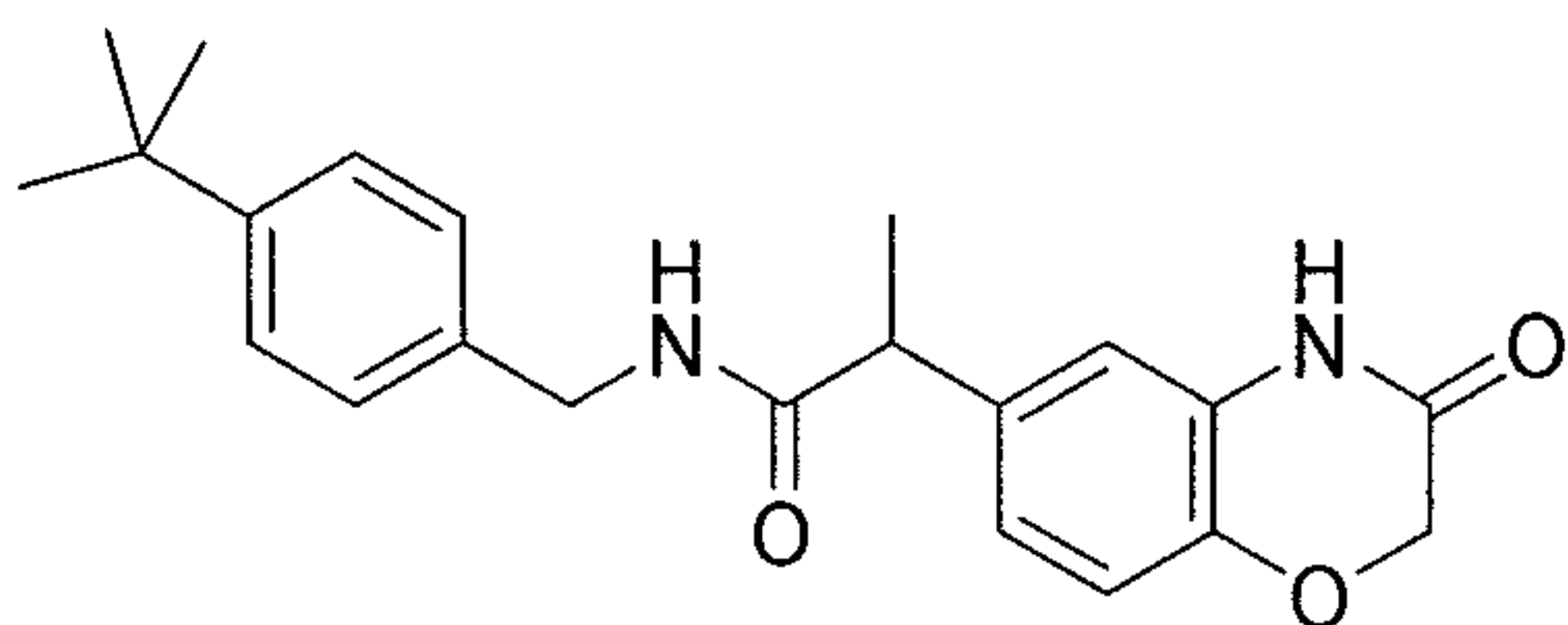
GRA3394-WO-1



Sodium hydroxide (50 mg, 1.25 mmol) was added at room temperature to ethyl 2-(3,4-dihydro-3-oxo-2H-benzo[b][1,4]oxazin-6-yl)propanoate (63 mg, 0.253 mmol) in 90% aqueous EtOH (4.5 ml). The reaction mixture was stirred for 12 h at 50 °C and subsequently cooled to room temperature. Water (20 ml) was added to the mixture and it was acidified with acetic acid. The mixture was extracted with methylene chloride. The organic layer was dried with MgSO₄ and filtered. The filtrate was concentrated under a vacuum.

White solid (melting point 191-193 °C), yield: 95%,

Exemplary compound 6 - N-(4-tert-butyl-benzyl)-2-(3-oxo-3,4-dihydro-2H-benzo[1,4]oxazin-6-yl)propionamide

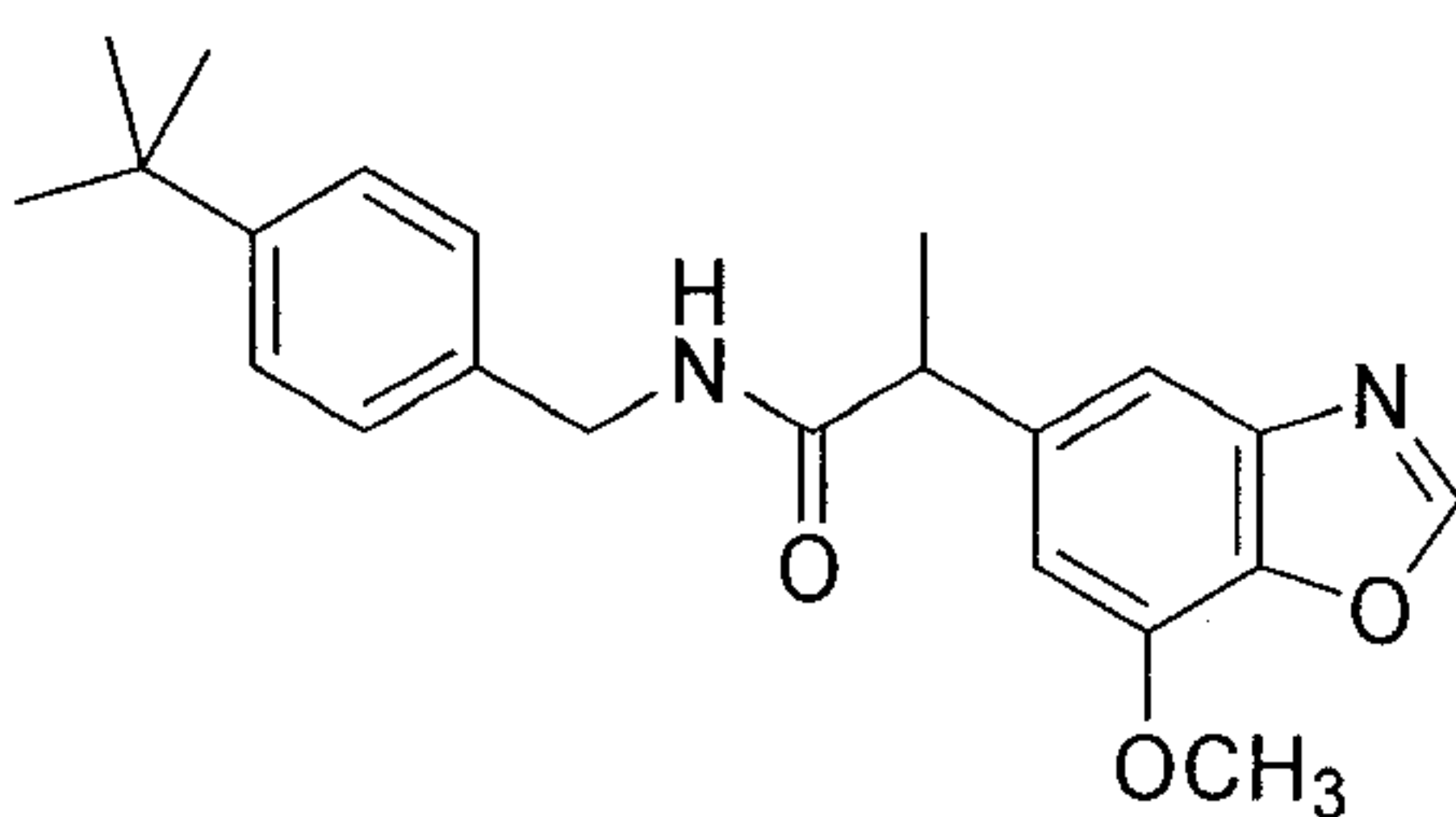


¹H-NMR(CDCl₃) δ 8.76 (bs, NH), 7.32 (d, 2H, J=8.4Hz, Ar), 7.12 (d, 2H, J=8.3Hz, Ar), 6.93-6.85 (m, 3H, Ar), 5.73 (bs, NH), 4.58 (s, 2H, OCH₂), 4.38 (m, 2H, NHCH₂), 3.48 (q, 1H, J=7.1Hz, COCH), 1.51 (d, 3H, J=7.1Hz, CHCH₃), 1.29 (s, 9H, C(CH₃)₃)
IR 2925, 2855, 1648, 1540, 1459 cm⁻¹

Mass (FAB) m/z 367 [M+H]⁺

Synthesis of exemplary compound 7:

N-(4-tert-butyl-benzyl)-2-(7-methoxy-benzooxazolyl-5-yl)-propionamide



GRA3394-WO-1

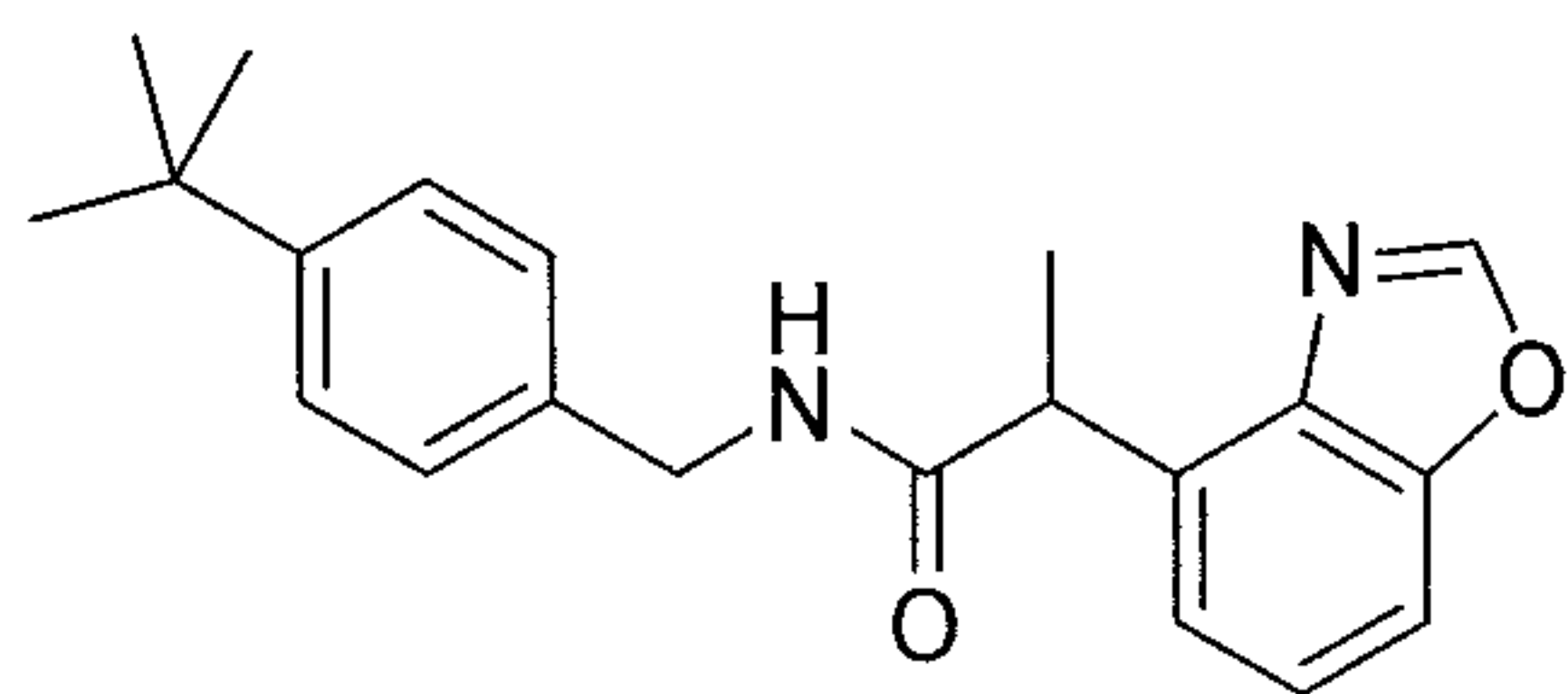
$^1\text{H-NMR}$ (CDCl_3) δ 8.06 (s, 1H, Ar), 7.29 (m, 3H, Ar), 7.10 (d, 2H, $J=8.1\text{Hz}$, Ar), 6.87 (s, 1H, Ar), 5.70 (bs, NH), 4.37 (m, 2H, NHCH_2Ar), 4.00 (s, 3H, OCH_3), 3.69 (q, 1H, $J=7.1\text{Hz}$, COCH), 1.60 (d, 3H, $J=7.1\text{Hz}$, CHCH_3), 1.28 (s, 9H, $\text{C}(\text{CH}_3)_3$)

IR 3297, 2963, 1647, 1519, 1316, 1110 cm^{-1}

Mass (FAB) m/z 367 $[\text{M}+\text{H}]^+$

Exemplary compound 8:

2-benzooxazol-4-yl-N-(4-tert-butyl-benzyl)-propionamide



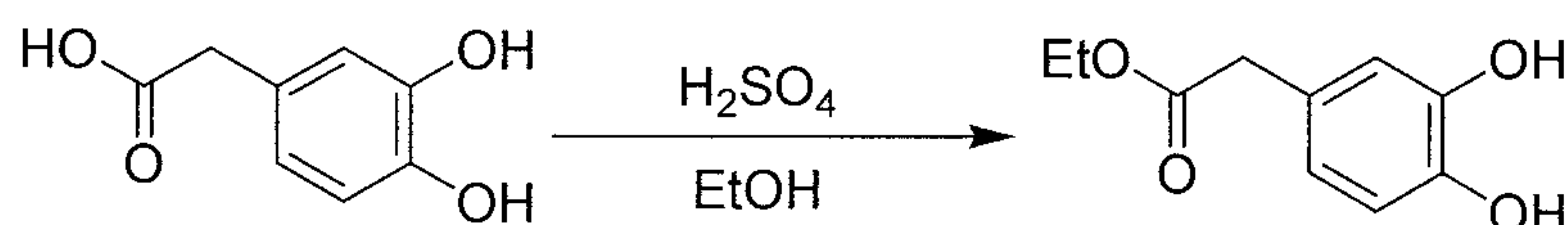
$^1\text{H-NMR}$ (CDCl_3) δ 8.04 (s, 1H, Ar), 7.51 (m, 1H, Ar), 7.41 (m, 2H, Ar), 7.26 (d, 2H, $J=8.2\text{Hz}$, Ar), 7.03 (d, 2H, $J=8.3\text{Hz}$, Ar), 6.65 (bs, NH), 4.35 (m, 3H, NHCH_2Ar & COCH), 1.68 (d, 3H, $J=7.1\text{Hz}$, CHCH_3), 1.29 (s, 9H, $\text{C}(\text{CH}_3)_3$)

IR 3304, 2962, 1658, 1519, 1428, 1242, 1076 cm^{-1}

Mass (FAB) m/z 337 $[\text{M}+\text{H}]^+$

Synthesis of exemplary compound 9:

a) Ethyl 2-(3,4-dihydroxyphenyl)acetate

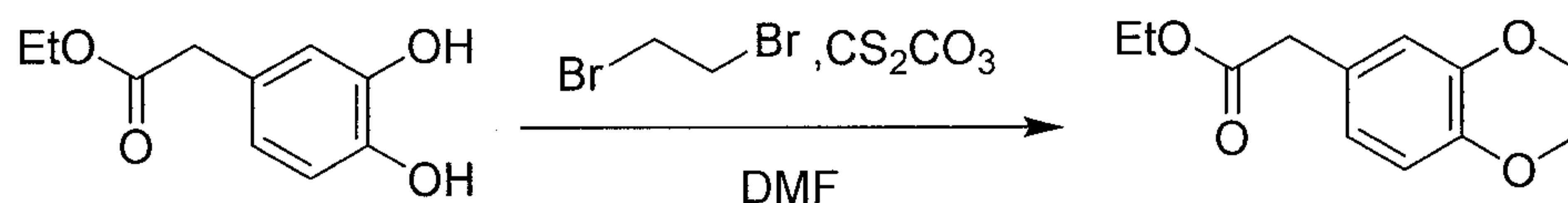


im Handel erhältlich

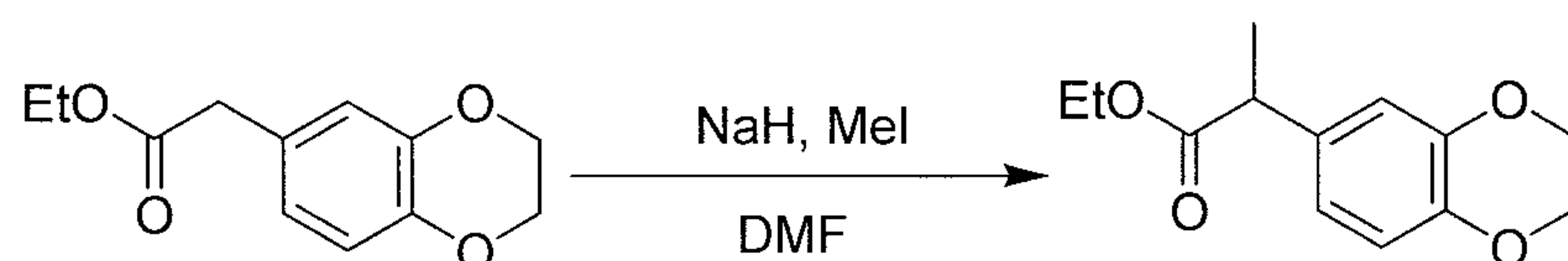
[Key: im Handel erhältlich = commercially available]

EtOH (15 ml) and subsequently 2-(3,4-dihydroxyphenyl)acetic acid (1.07 g, 6.36 mmol) and sulphuric acid (catalyst quantity) were added into the flask. The mixture was boiled for 3 h under reflux and subsequently cooled to room temperature. The mixture was diluted with H_2O (30 ml) and extracted with EtOAc (30 ml). The organic layer was dried over MgSO_4 , filtered and concentrated under a vacuum. The residue was purified by means of flash column chromatography with EtOAc:hexanes (1:1) as the eluent on silica gel. Colourless oil, yield: 89.8%.

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b) Ethyl 2-(2,3-dihydrobenzo[*b*][1,4]dioxin-7-yl)acetate

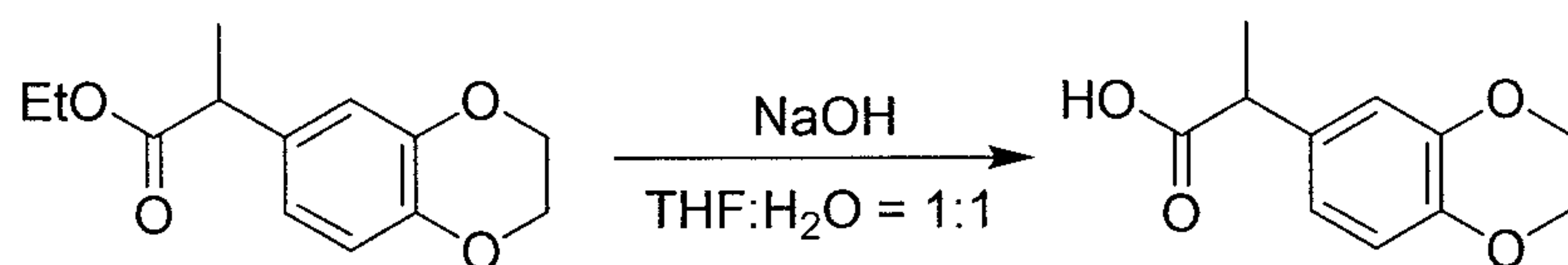
Caesium carbonate (3.71g, 11.4 mmol) was added to a mixture of ethyl 2-(3,4-dihydroxyphenyl)acetate (1.11 g, 5.66 mmol) and 1,2-dibromoethane (1.07, 5.69 mmol) in DMF (5 ml). The reaction mixture was stirred for 2 h at 80 °C and subsequently cooled to room temperature. The mixture was diluted with H₂O and extracted with EtOAc. The organic layer was dried over MgSO₄, filtered and concentrated under a vacuum. The residue was purified by means of flash column chromatography with EtOAc:hexanes (1:4~1:2) as the eluent on silica gel. Colourless oil, yield: 21.5%.

c) Ethyl 2-(2,3-dihydrobenzo[*b*][1,4]dioxin-7-yl)propanoate

NaH (50 mg, 1.25 mmol) and iodomethane (167 mg, 1.18 mmol) in DMF (0.5 ml) were added at 0 °C to a solution of ethyl 2-(2,3-dihydrobenzo[*b*][1,4]dioxin-7-yl)acetate (257 mg, 1.16 mmol) in DMF (2 ml). The reaction mixture was stirred for 1 h at 0 °C and subsequently diluted with H₂O (20 ml) and extracted with EtOAc. The organic layer was dried over MgSO₄, filtered and concentrated under a vacuum. The residue was purified by means of flash column chromatography with EtOAc:hexanes (1:6) as the eluent on silica gel. Colourless oil, yield: 82.1%.

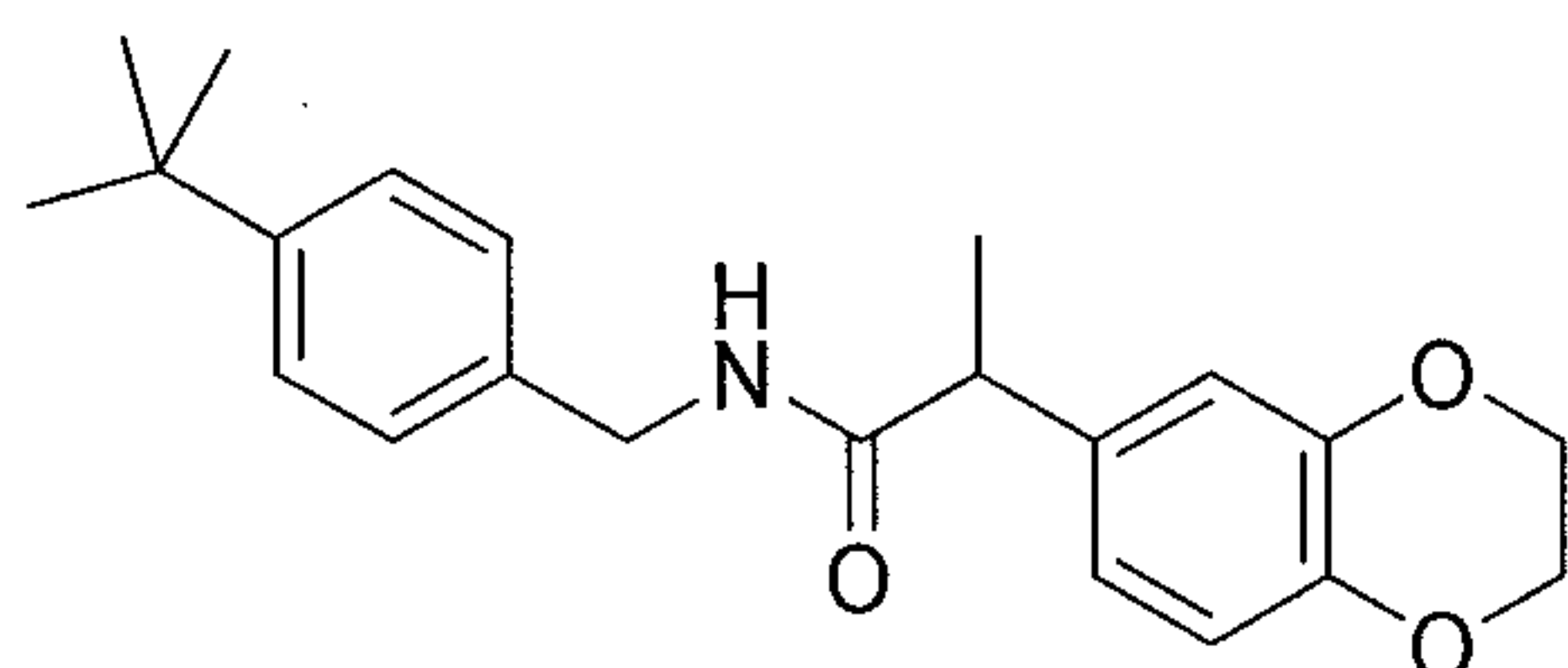
d) 2-(2,3-dihydrobenzo[*b*][1,4]dioxin-7-yl)propanoic acid

, GRA3394-WO-1



THF/H₂O (1:1, 4 ml) and subsequently SM (133 mg, 0.563 mmol) and NaOH (30 mg, 0.750 mmol) were added at room temperature into the flask. The reaction mixture was stirred for 16 h at room temperature. The mixture was diluted with H₂O (20 ml) and acidified with acetic acid (4 ml, pH=4) and subsequently extracted with CH₂Cl₂. The organic layer was dried over MgSO₄, filtered and concentrated under a vacuum. Colourless oil, yield: quantitative.

Example 9 - N-(4-tert-butyl-benzyl)-2-(2,3-dihydro-benzo[1,4]dioxin-6-yl)-propionamide



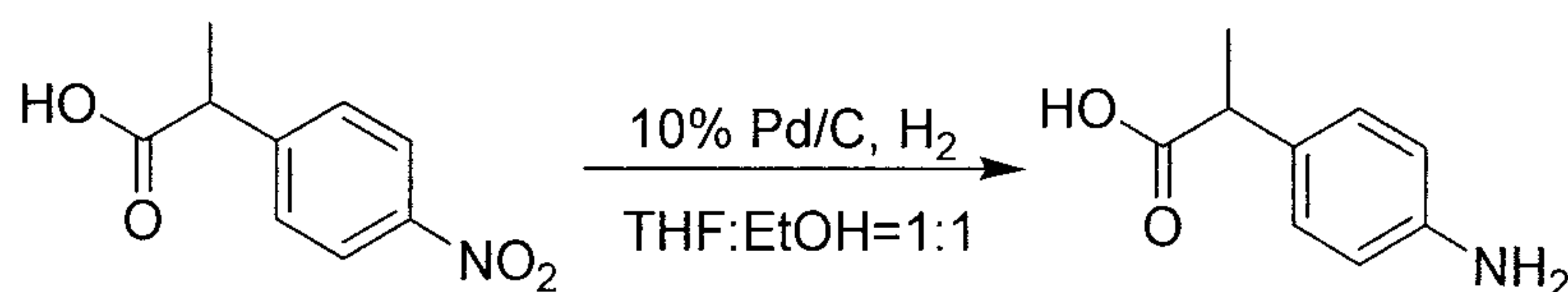
¹H-NMR(CDCl₃) δ 7.32 (d, 2H, J=8.3Hz, Ar), 7.10 (d, 2H, J=8.3Hz, Ar), 6.84-6.74 (m, 3H, Ar), 5.62 (bs, NH), 4.36 (m, 2H, NHCH₂), 4.25 (s, 4H, CH₂CH₂), 3.49 (q, 1H, J=7.1Hz, COCH), 1.51 (d, 3H, J=7.1Hz, CHCH₃), 1.30 (s, 9H, C(CH₃)₃)

IR 3298, 2963, 1648, 1507, 1287, 1255, 1068 cm⁻¹

Mass (FAB) m/z 354 [M+H]⁺

Synthesis of exemplary compound 10:

a) 2-(4-aminophenyl)propanoic acid



2-(4-nitrophenyl)propansäure
im Handel erhältlich

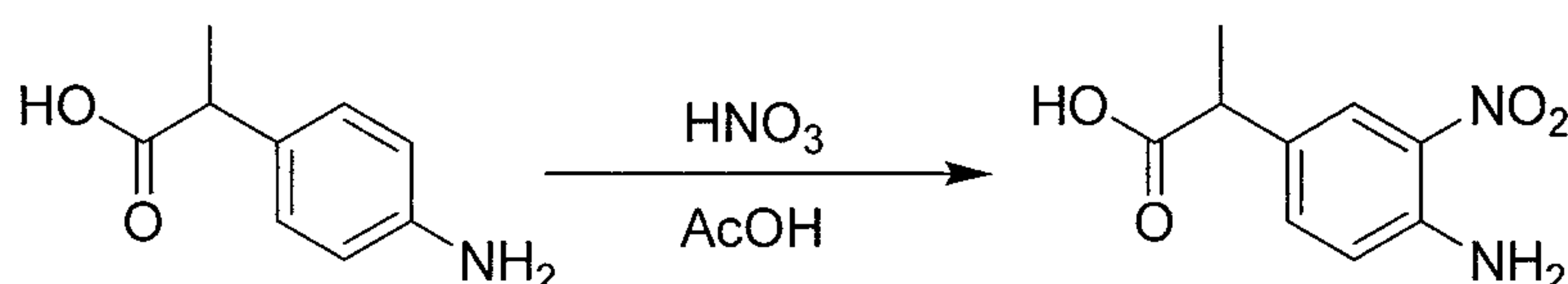
[Key: 2-(4-nitrophenyl)propansäure = 2-(4-nitrophenyl)propanoic acid; im Handel erhältlich = commercially available]

GRA3394-WO-1

THF/EtOH (1:1, 100 ml) and subsequently commercially available (10 g, 51.2 mmol) and 10% palladium on carbon (0.87 g) were added at room temperature into the flask. The reaction mixture was hydrogenated and stirred for 1 h at 45 psi and subsequently filtered by a silica bed and washed with EtOH. The filtrate was concentrated under a vacuum.

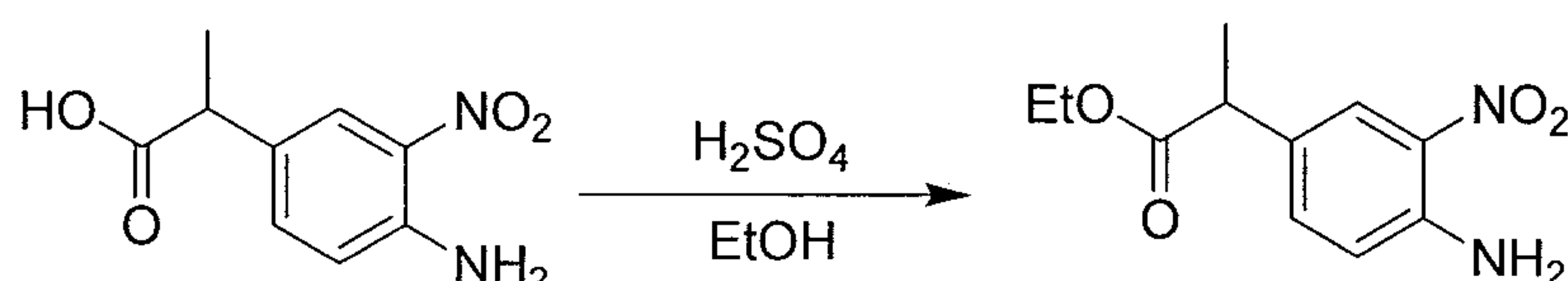
White or light black solid, yield: quantitative

b) 2-(4-amino-3-nitrophenyl)propanoic acid



HNO₃ (60%, 5.66 g) was added at room temperature to a solution of 2-(4-aminophenyl)propanoic acid (8.45 g, 51.2 mmol) in AcOH (70 ml). The reaction mixture was boiled for 4 h under reflux and subsequently cooled to room temperature. The mixture was poured into ice water (200 ml) and extracted with CH₂Cl₂. The organic layer was dried over MgSO₄, filtered and concentrated under a vacuum.

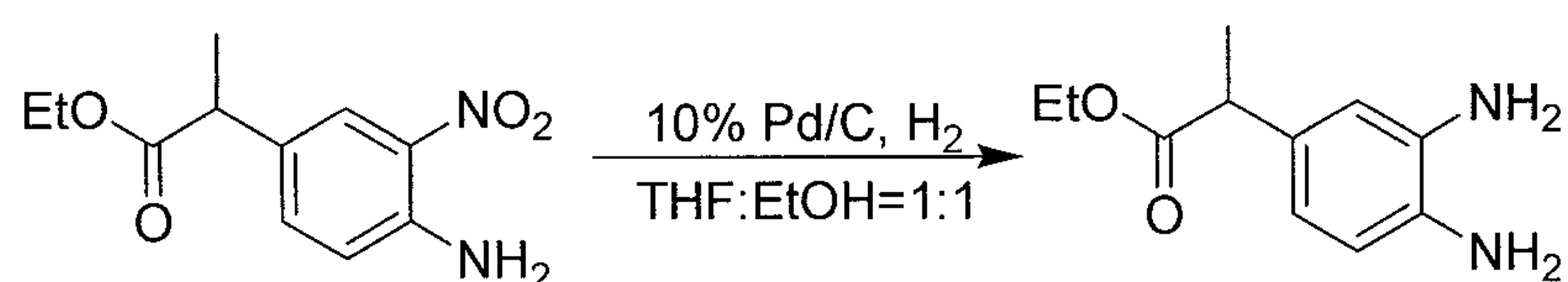
c) Ethyl 2-(4-amino-3-nitrophenyl)propanoate



EtOH (200 ml) and sulphuric acid in a catalyst quantity (1 ml) were added at room temperature into the flask with 2-(4-amino-3-nitrophenyl)propanoic acid residue. The reaction mixture was boiled for 6 h under reflux and subsequently cooled to room temperature. The mixture was diluted with H₂O and extracted with EtOAc. The organic layer was dried over MgSO₄, filtered and concentrated under a vacuum. Light yellow oil, yield: 17.4% (two steps)

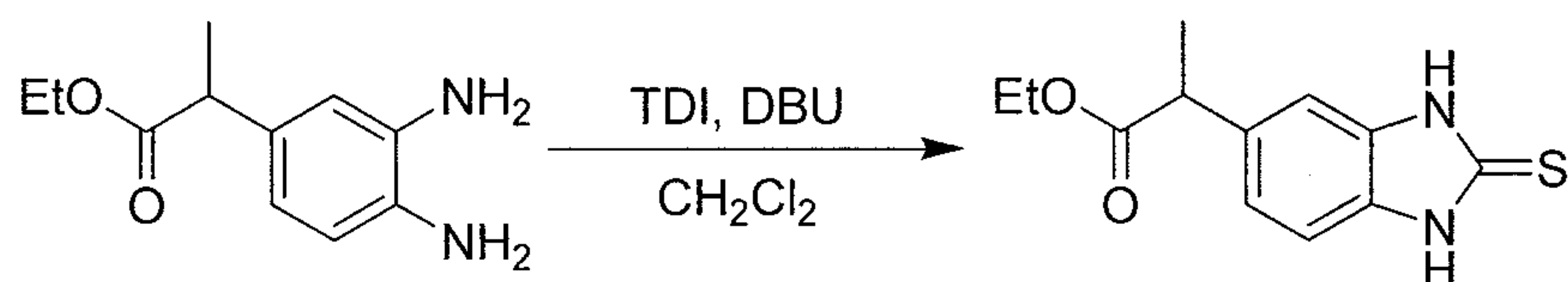
d) Ethyl 2-(3,4-diaminophenyl)propanoate

GRA3394-WO-1



THF/EtOH (1:1, 50 ml) and subsequently ethyl 2-(4-amino-3-nitrophenyl)propanoate (2.12 g, 8.90 mmol) and 10% palladium on carbon (0.87 g) were added at room temperature into the flask. The reaction mixture was hydrogenated and stirred for 3 h at 45 psi and subsequently filtered by a silica bed and washed with EtOH. The filtrate was concentrated under a vacuum. The residue was purified by means of flash column chromatography with EtOAc:hexanes (1:4-1:2) as the eluent on silica gel. Yellow oil, yield: 74.5%

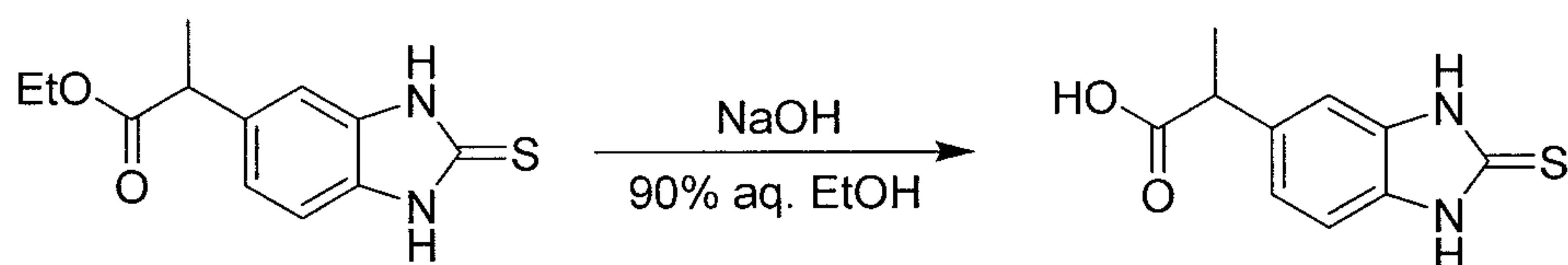
e) Ethyl 2-(2,3-dihydro-2-oxo-1*H*-benzo[*d*]imidazol-5-yl)propanoate



1,1'-thiocarbonyldiimidazol (241 mg) and DBU (345 mg, in CH₂Cl₂ (4 ml)) were added at room temperature to a solution of ethyl 2-(3,4-diaminophenyl)propanoate (222 mg, 1.07 mmol) in CH₂Cl₂ (4 ml). The reaction mixture was stirred for 1 h at room temperature. The mixture was diluted with H₂O (20 ml) and extracted with CH₂Cl₂. The organic layer was dried over MgSO₄, filtered and concentrated under a vacuum. The residue was purified by means of flash column chromatography with EtOAc:hexanes (1:4-1:2) as the eluent on silica gel. Colourless oil, yield: 35.8%

f) 2-(2,3-dihydro-2-thioxo-1*H*-benzo[*d*]imidazol-5-yl)propanoic acid

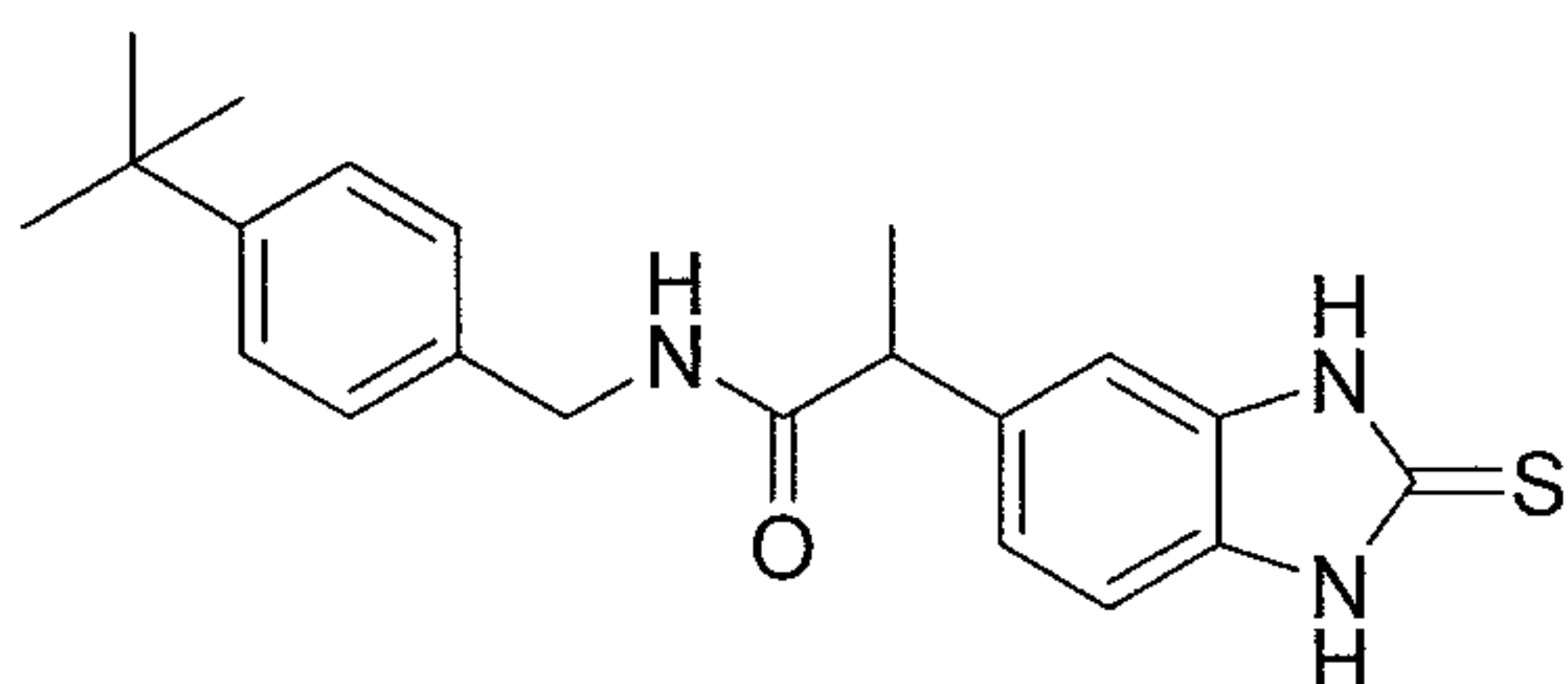
GRA3394-WO-1



90% aqueous EtOH (5 ml) at room temperature and additionally NaOH (30 mg) were added into the flask with ethyl 2-(2,3-dihydro-2-oxo-1*H*-benzo[*d*]imidazol-5-yl)propanoate (93 mg, 0.372 mmol). The reaction mixture was stirred for 10 h at 40 °C and subsequently cooled to room temperature. The mixture was diluted with H₂O (25 ml) and acidified with AcOH (3 ml, pH=4) and subsequently extracted with CH₂Cl₂. The organic layer was dried over MgSO₄, filtered and concentrated under a vacuum. The residue was purified by means of flash column chromatography with CH₂Cl₂:MeOH (10:1) as the eluent on silica gel.

Brown oil, yield: 94.3%

Example 10 - N-(4-*tert*-butyl-benzyl)-2-(2-thioxo-2,3-dihydro-1*H*-benzoimidazol-5-yl)-propionamide

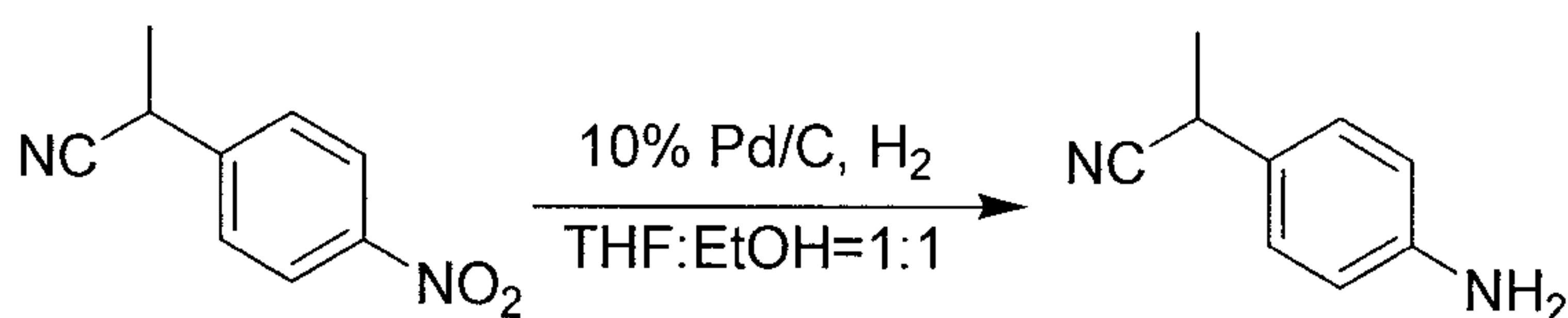


¹H NMR (300 MHz, CD₃OD) δ 7.28-6.95 (m, 7 H), 4.19 (s, 2 H), 3.63 (q, 1 H, *J* = 7.0 Hz), 1.38 (d, 3 H, *J* = 7.1 Hz), 1.16 (s, 9 H)

MS (EI) *m/z* 367 (M+H)

Synthesis of exemplary compound 11:

a) 2-(4-aminophenyl)propionitrile



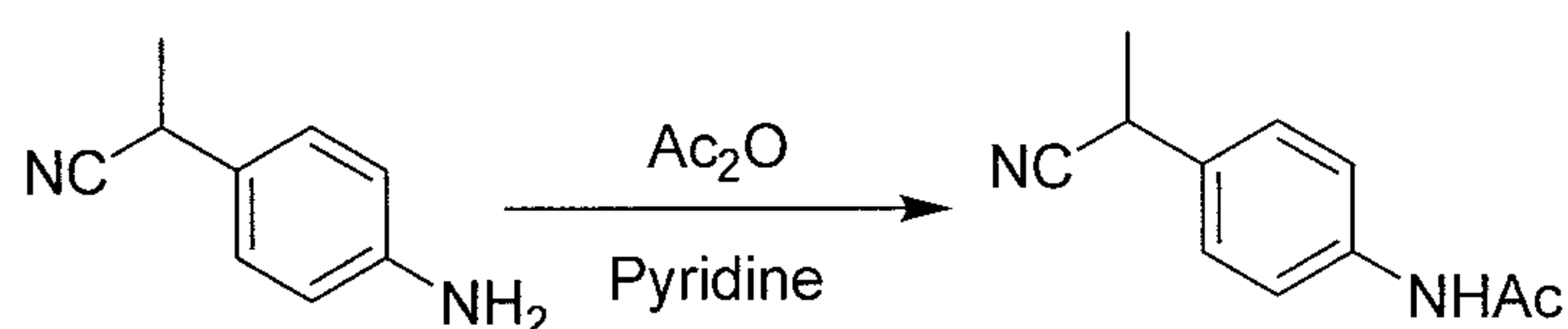
im Handel erhältlich

[Key: im Handel erhältlich = commercially available]

GRA3394-WO-1

THF/EtOH (1:1, 70 ml) and subsequently 2-(4-nitrophenyl)propionitrile (13.2 g, 74.9 mmol) and 10% palladium on carbon (1.07 g) were added at room temperature into the flask. The reaction mixture was hydrogenated and stirred for 30 minutes at 47 psi to 28 psi and subsequently filtered by a silica bed and washed with EtOH. The filtrate was concentrated under a vacuum. The residue was purified by means of flash column chromatography with EtOAc:hexanes (1:3) as the eluent on silica gel. Yellow oil, yield: 94.1%

b) *N*-[4-(cyanomethylmethyl)phenyl]-acetamide

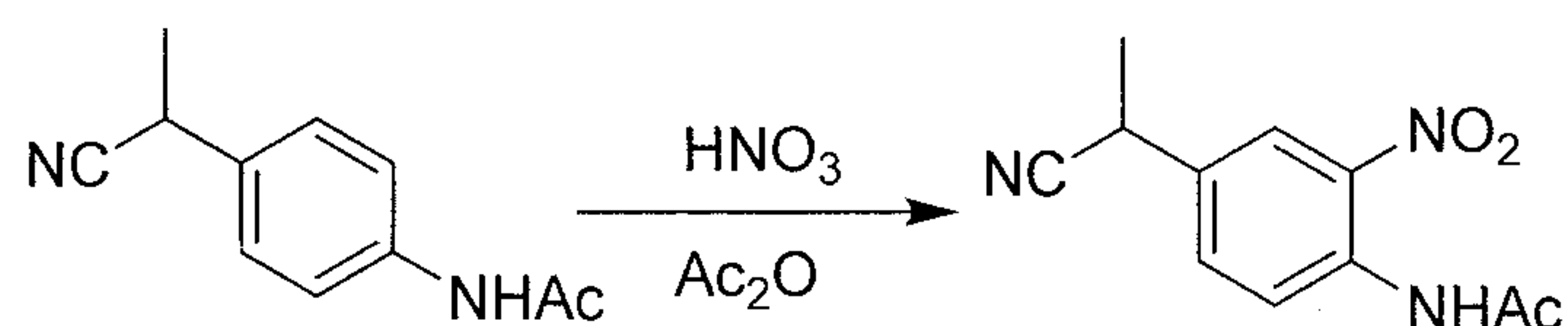


Reference: Eur. J. Med. Chem. (1975), 10, 239

Ac₂O (7.49 g, 73.4 mmol) was added at room temperature to a solution of 2-(4-aminophenyl)propionitrile (10.2 g, 69.8 mmol) in pyridine (40 ml). The reaction mixture was boiled for 1 h under reflux and subsequently cooled to room temperature and added under a vacuum.

White solid (melting point 75-77 °C), yield: 98.2%

c) *N*-[4-(cyanomethylmethyl)-2-nitrophenyl]acetamide



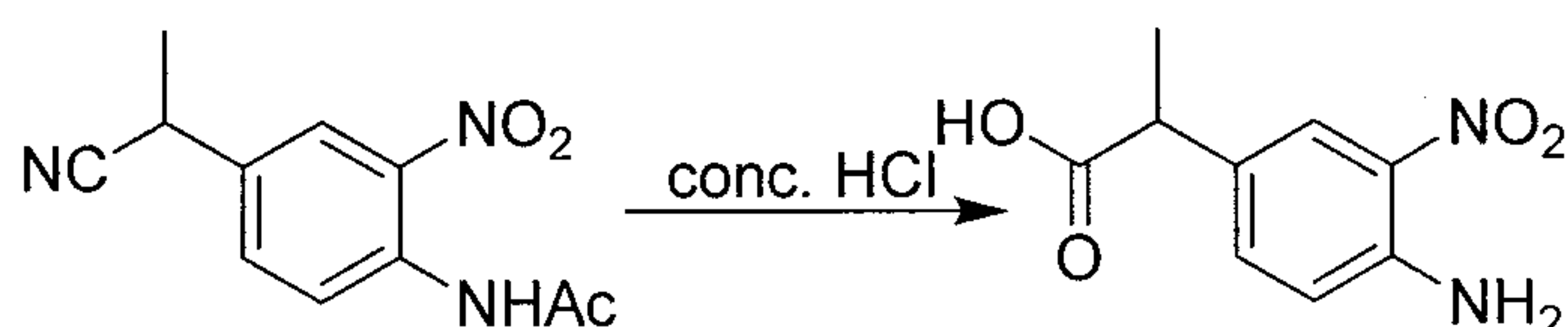
Reference: Eur. J. Med. Chem. (1975), 10, 239

GRA3394-WO-1

Ac₂O (35 ml) was added at 5 °C into the flask with *N*-[4-(cyanomethylmethyl)phenyl]-acetamide (12.9 g, 68.5 mmol). The mixture was stirred and HNO₃ (7.45 g, 70.9 mmol) was added thereto at 0 °C. This reaction was highly exothermic. The reaction mixture was stirred for 1 h at 0 °C and additionally cooled for 3 h at room temperature. The mixture was diluted with H₂O and extracted with EtOAc. The organic layer was dried over MgSO₄, filtered and concentrated under a vacuum. The residue was purified by means of flash column chromatography with EtOAc:hexanes (1:2) as the eluent on silica gel.

Yellow solid (melting point 84-86 °C), yield: 55.7%

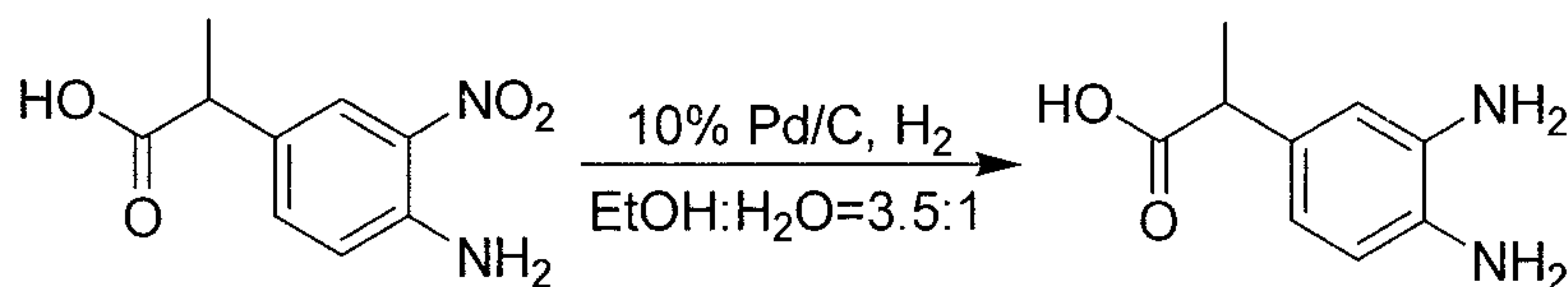
d) 2-(4-amino-3-nitrophenyl)-propionic acid



Reference: Eur. J. Med. Chem. (1975), 10, 239

Conc. HCl (25 ml) was added at room temperature into the flask with *N*-[4-(cyanomethylmethyl)-2-nitrophenyl]acetamide (8.90 g, 38.2 mmol). The reaction mixture was boiled for 5 h under reflux and subsequently cooled to room temperature. The mixture was diluted with H₂O (150 ml) and extracted with CH₂Cl₂. The organic layer was dried over MgSO₄, filtered and concentrated under a vacuum. The residue was purified by means of flash column chromatography with CH₂Cl₂:MeOH (20:1-10:1) as the eluent on silica gel. Yellow solid (melting point 118-120 °C), yield: 87.8%

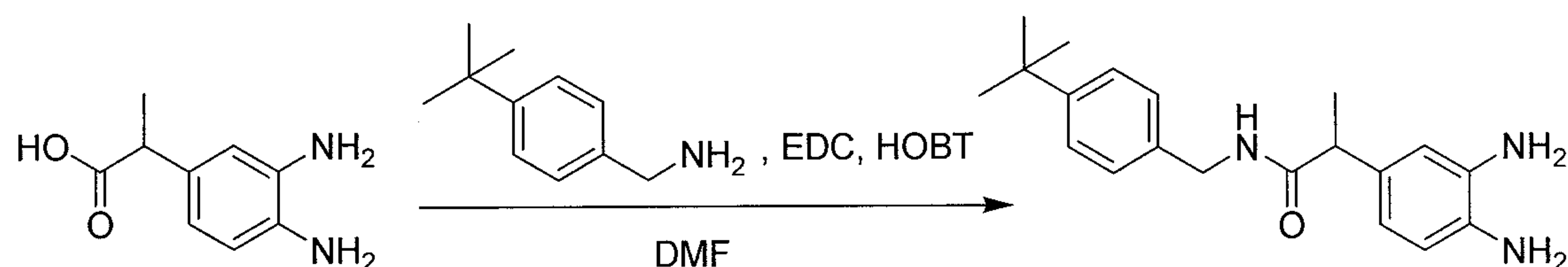
e) 2-(3,4-diaminophenyl)propanoic acid



GRA3394-WO-1

EtOH / H₂O (3.5:1, 45 ml) and subsequently 2-(4-amino-3-nitrophenyl)-propionic acid (5.73 g, 27.3 mmol) and 10% palladium on carbon (117 mg) were added at room temperature into the flask. The reaction mixture was hydrogenated and stirred for 5 h at 64 psi and subsequently filtered by a silica bed and washed with EtOH. The filtrate was concentrated under a vacuum. The residue was purified by means of flash column chromatography with CH₂Cl₂:MeOH (10:1) as the eluent on silica gel. Brown solid (melting point 142-144 °C), yield: 50.0%

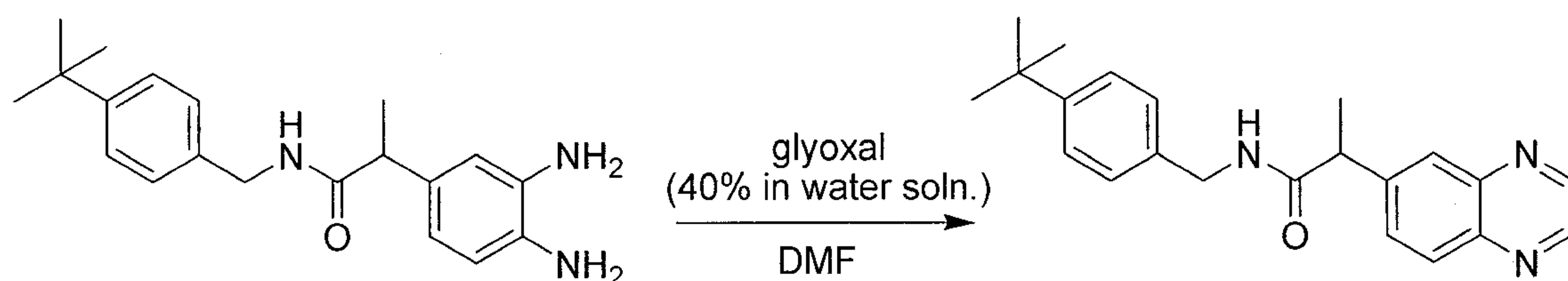
f) *N*-(4-tert-butylbenzyl)-2-(3,4-diaminophenyl)-propionamide



4-*t*-butylbenzyl amine (399 mg, 2.44 mmol), EDC (702 mg, 3.66 mmol), HOBT (496 mg, 3.67 mmol) and triethyl amine (617 mg, 6.10 mmol) were added at 0 °C to 2-(3,4-diaminophenyl)propanoic acid (436 mg, 2.42 mmol) in DMF (5 ml). The reaction mixture was stirred for 16 h at room temperature and subsequently water (50 ml) was added to the mixture and it was extracted with methylene chloride. The organic layer was dried with MgSO₄ and filtered. Methylene chloride was removed by evaporation. The residue was purified by column chromatography, wherein elution was performed with CH₂Cl₂/MeOH (20:1).

Brown oil, yield: 70%,

g) *N*-(4-tert-butylbenzyl)-2-(quinoxalin-6-yl)propanamide

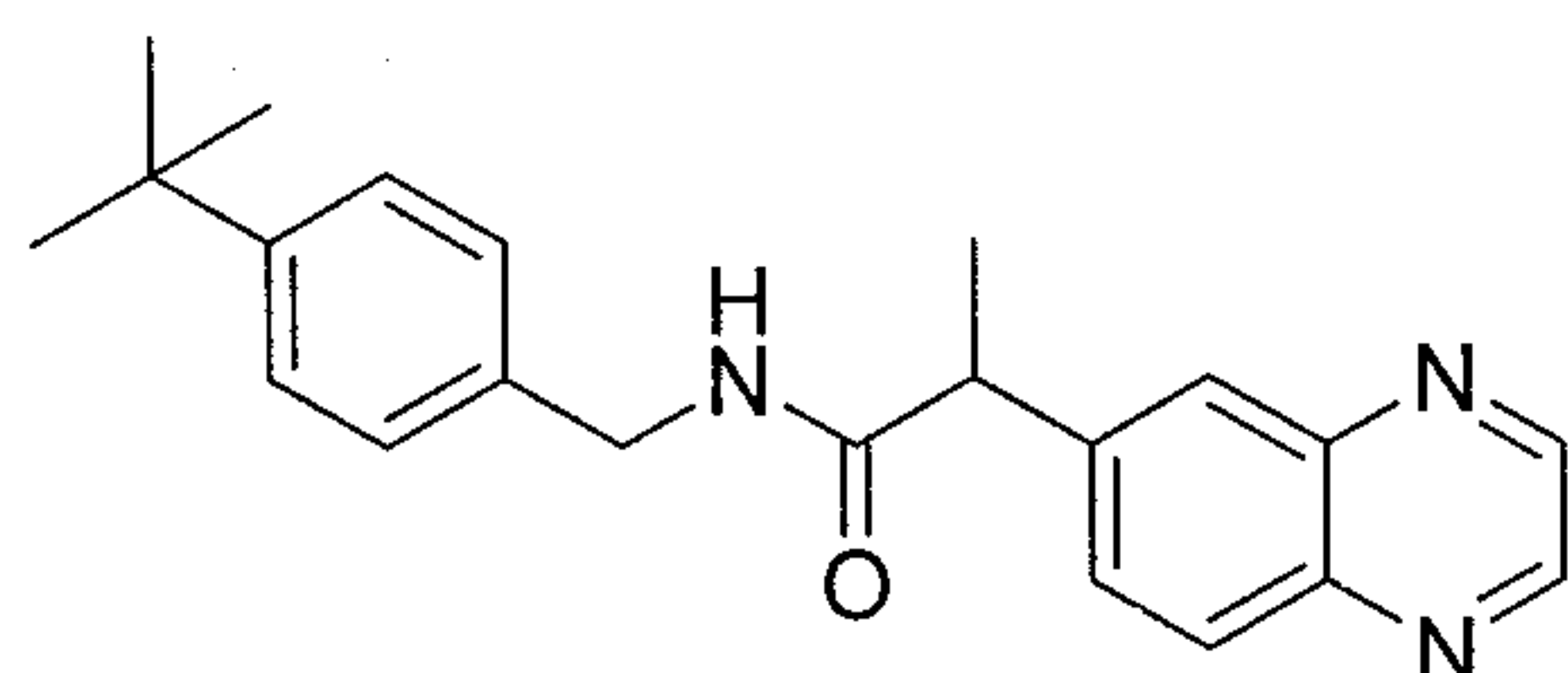


, GRA3394-WO-1

Glyoxal (4 ml, 40% in aqueous solution) was added at room temperature and additionally DMF (4 ml) was added into the flask with N-(4-tert-butylbenzyl)-2-(3,4-diaminophenyl)-propionamide (81 mg, 0.249 mmol) because SM is not sufficiently soluble in glyoxal. The reaction mixture was boiled for 2 h under reflux and subsequently cooled to room temperature. The mixture was diluted with H₂O (25 ml) and extracted with CH₂Cl₂. The organic layer was dried over MgSO₄, filtered and concentrated under a vacuum. The residue was purified by means of flash column chromatography with EtOAc:hexanes (1:1) as the eluent on silica gel.

Brown solid (melting point 53-55 °C), yield: 55.5%

Example 11 - N-(4-tert-butyl-benzyl)-2-quinoxalin-6-yl-propionamide

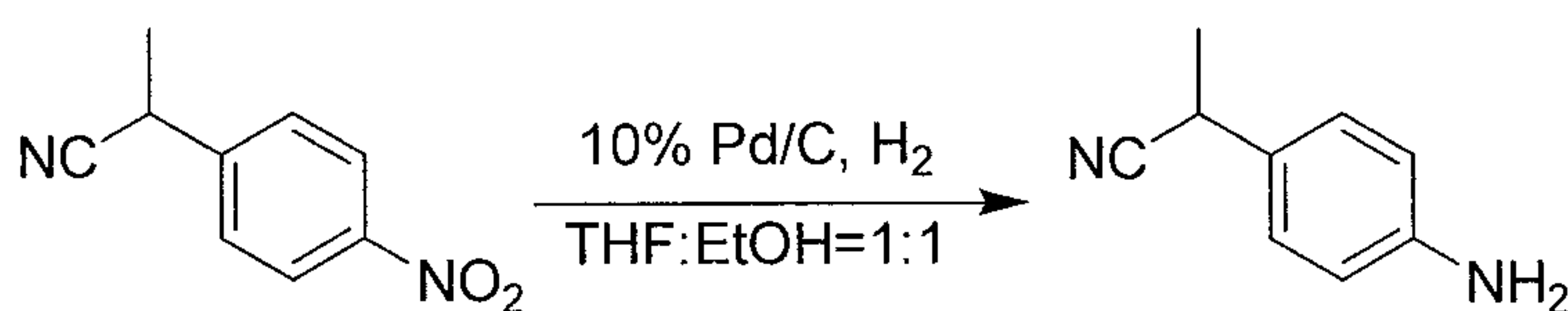


¹H NMR (300 MHz, CDCl₃) δ 8.84 (m, 2 H), 8.10 (d, 1 H, *J* = 8.8 Hz), 7.81 (dd, 1 H, *J* = 8.8 Hz, 2.0 Hz), 7.30 (d, 2 H, *J* = 8.3 Hz), 7.11 (d, 2 H, *J* = 8.3 Hz), 5.68 (bt, 1 H), 4.40 (m, 2 H), 3.84 (q, 1 H, *J* = 7.1 Hz), 1.68 (d, 3 H, *J* = 7.1 Hz), 1.28 (s, 9 H)

MS (FAB) *m/z* 348 (M+H)

Synthesis of exemplary compound 15:

a) 2-(4-aminophenyl)-propionitrile



Im Handel erhältlich

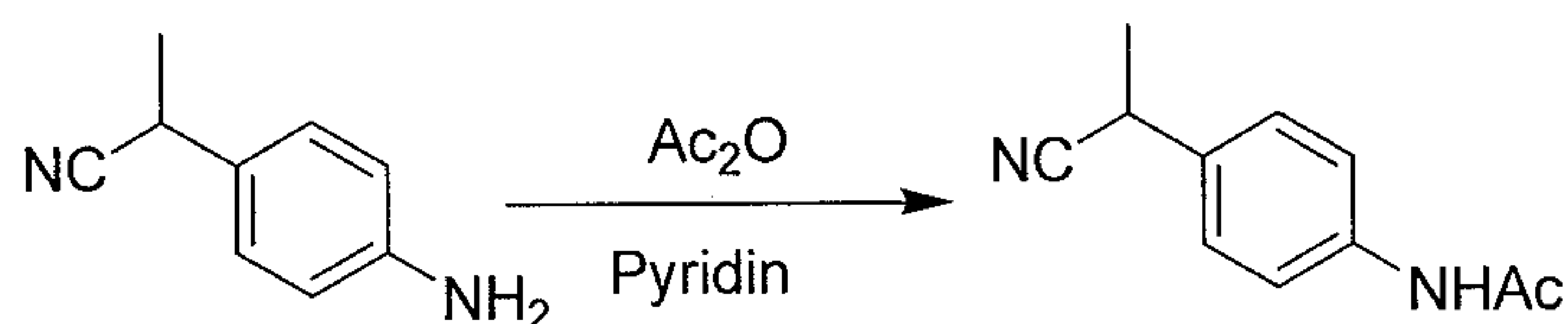
[Key: im Handel erhältlich = commercially available]

THF/EtOH (1:1, 70 ml) and subsequently 2-(4-nitrophenyl)propionitrile (13.2 g, 74.9 mmol) and 10% palladium on carbon (1.07 g) were added at room temperature into the flask. The reaction mixture was hydrogenated and stirred for 30 minutes at 47 psi to 28 psi and subsequently filtered by a silica bed and washed with EtOAc. The

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filtrate was concentrated under a vacuum. The residue was purified by means of flash column chromatography with EtOAc:hexanes (1:3) as the eluent on silica gel. Yellow oil, yield: 94.1%

b) *N*-[4-(cyanomethylmethyl)phenyl]acetamide



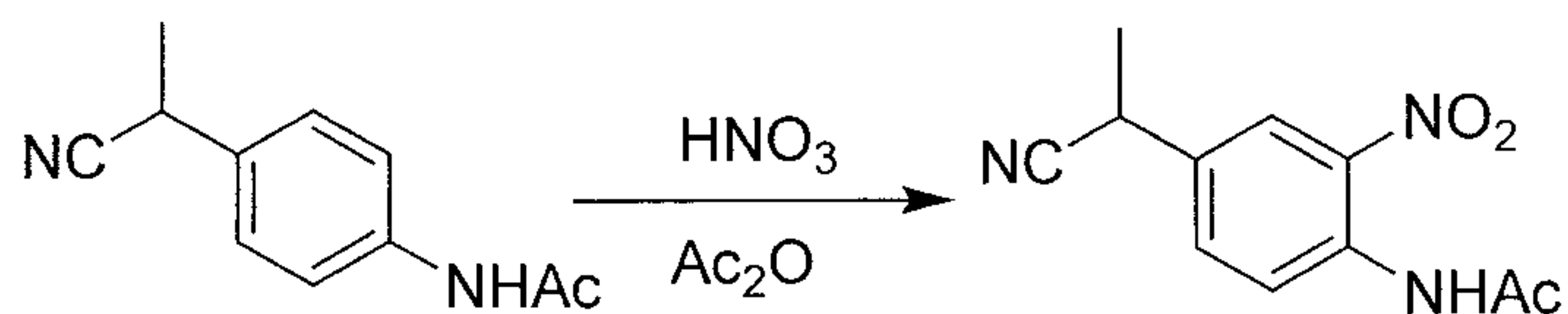
[Key: Pyridin = Pyridine]

Reference: Eur. J. Med. Chem. (1975), 10, 239

Ac₂O (7.49 g, 73.4 mmol) was added at room temperature to a solution of 2-(4-aminophenyl)-propionitrile (10.2g, 69.8mmol) in pyridine (40 ml). The reaction mixture was boiled for 1 h under reflux, cooled to room temperature and concentrated under a vacuum.

White solid (melting point 75-77 °C), yield: 98.2%

c) *N*-[4-(cyanomethylmethyl)-2-nitrophenyl]acetamide



Reference: Eur. J. Med. Chem. (1975), 10, 239

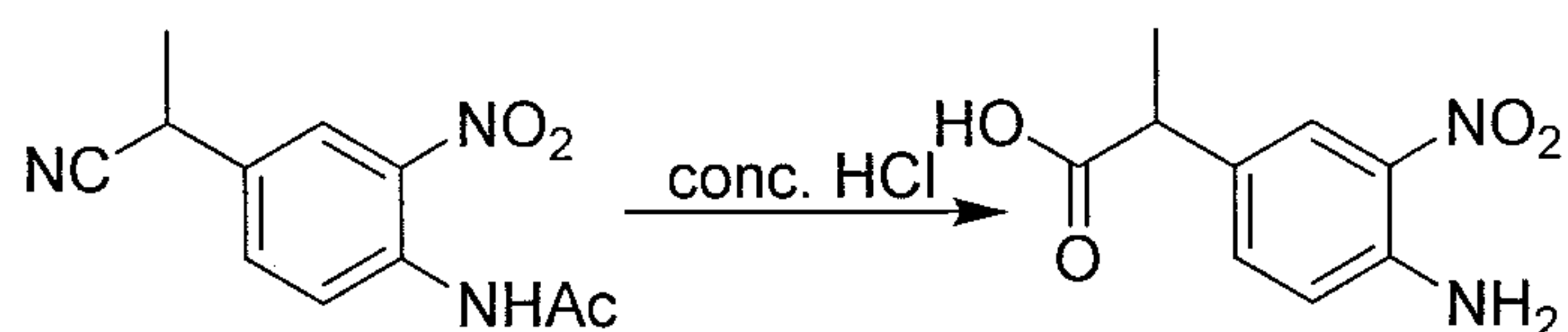
Ac₂O (35 ml) was added at 5 °C into the flask with *N*-[4-(cyanomethylmethyl)phenyl]acetamide (12.9 g, 68.5 mmol). The mixture was stirred and HNO₃ (7.45 g, 70.9 mmol) was added thereto at 0 °C. This reaction was highly exothermal. The reaction mixture was stirred for 1 h at 0 °C and cooled for an additional 3 h at room temperature. The mixture was diluted with H₂O and extracted

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with EtOAc. The organic layer was dried over MgSO_4 , filtered and concentrated under a vacuum. The residue was purified by means of flash column chromatography with EtOAc:hexanes (1:2) as the eluent on silica gel.

Yellow solid (melting point 84-86 °C), yield: 55.7%

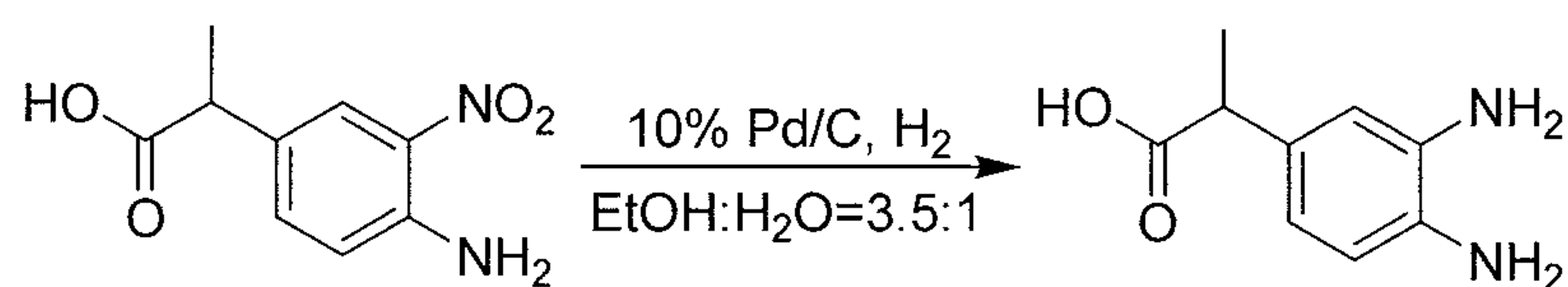
d) 2-(4-amino-3-nitrophenyl)-propionic acid



Reference: Eur. J. Med. Chem. (1975), 10, 239

Conc. HCl (25 ml) was added at room temperature into the flask with *N*-[4-(cyanomethylmethyl)-2-nitrophenyl]acetamide (8.90 g, 38.2 mmol). The reaction mixture was boiled for 5 h under reflux and subsequently cooled to room temperature. The mixture was diluted with H_2O (150 ml) and extracted with CH_2Cl_2 . The organic layer was dried over MgSO_4 , filtered and concentrated under a vacuum. The residue was purified by means of flash column chromatography with CH_2Cl_2 :MeOH (20:1-10:1) as the eluent on silica gel. Yellow solid (melting point 118-120 °C), yield: 87.8%

e) 2-(3,4-diaminophenyl)propanoic acid

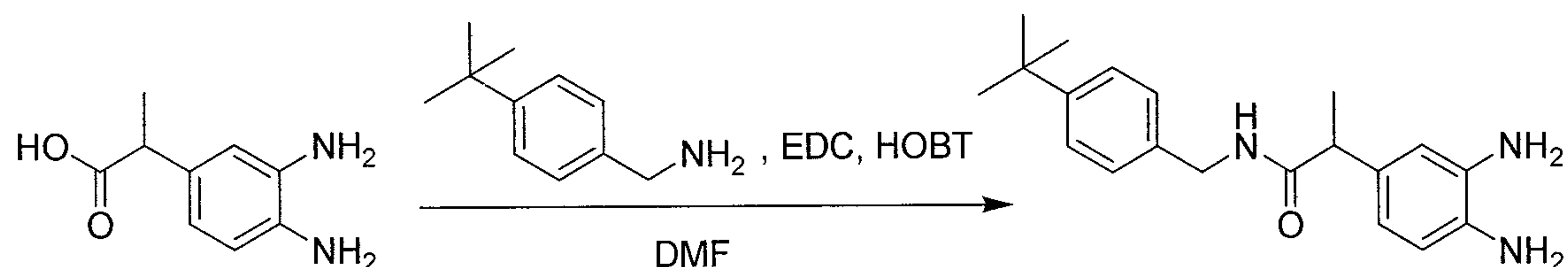


EtOH / H_2O (3.5:1, 45 ml) and subsequently 2-(4-amino-3-nitrophenyl)-propionic acid (5.73 g, 27.3 mmol) and 10% palladium on carbon (117 mg) were added at room temperature into the flask. The reaction mixture was hydrogenated and stirred for 5 h at 64 psi and subsequently filtered by a silica bed and washed with EtOH. The filtrate was concentrated under a vacuum. The residue was purified by means of flash column chromatography with CH_2Cl_2 :MeOH (10:1) as the eluent on silica gel.

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Brown solid (melting point 142-144 °C), yield: 50.0%

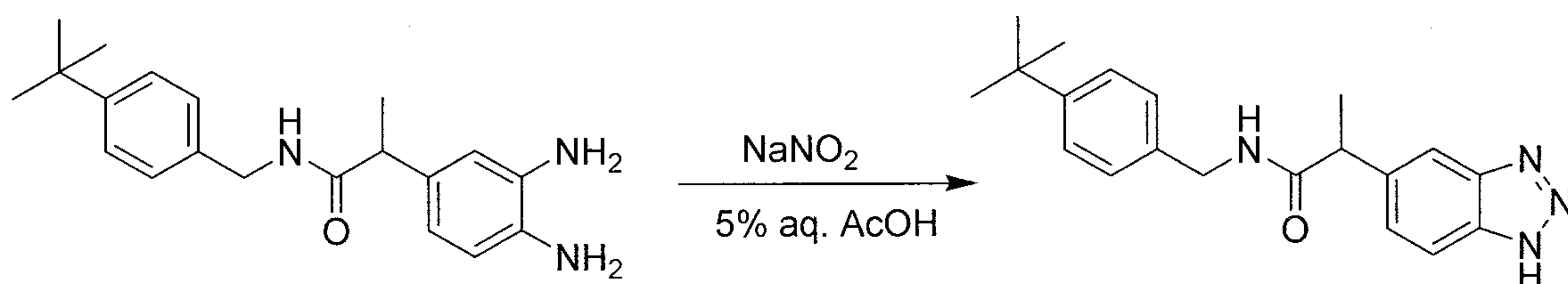
f) *N*-[4-*tert*-butylbenzyl]-2-(3,4-diaminophenyl)propionamide



4-*t*-butylbenzyl amine (399 mg, 2.44 mmol), EDC (702 mg, 3.66 mmol), HOBt (496 mg, 3.67 mmol) and triethyl amine (617 mg, 6.10 mmol) were added at 0 °C to 2-(3,4-diaminophenyl)propanoic acid (436 mg, 2.42 mmol) in DMF (5 ml). The reaction mixture was stirred for 16 h at room temperature and subsequently water (50 ml) was added to the mixture and it was extracted with methylene chloride. The organic layer was dried with MgSO₄ and filtered. Methylene chloride was removed by evaporation. The residue was purified by column chromatography, wherein elution was performed with CH₂Cl₂/MeOH (20:1).

Brown oil, yield: 70%

g) *N*-[4-*tert*-butylbenzyl]-2-(1*H*-benzo[*d*][1,2,3]triazol-5-yl)propanamide

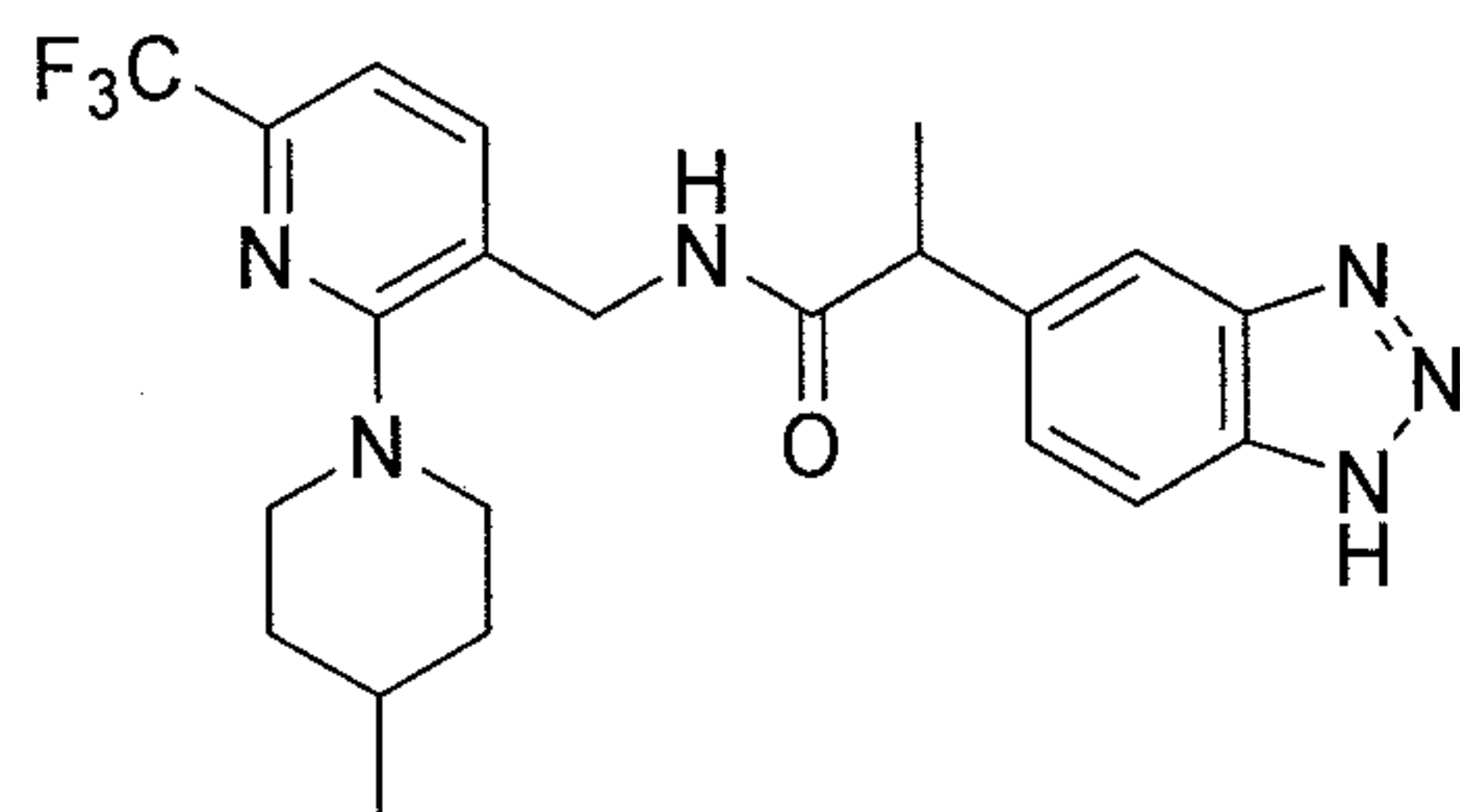


Sodium nitrite (30 mg, 0.435 mmol) was added at 0 °C to *N*-[4-*tert*-butylbenzyl]-2-(3,4-diaminophenyl)propionamide (110 mg, 0.338 mmol) in 5% aqueous acetic acid (3 ml) and DMF (2.5 ml). The reaction mixture was stirred for 14 h at room temperature. Water (20 ml) was added to the mixture and it was extracted with methylene chloride. The organic layer was dried with MgSO₄ and filtered. Methylene

,GRA3394-WO-1

chloride was removed by evaporation. The residue was purified by column chromatography, wherein elution was performed with CH₂Cl₂/MeOH (10:1). Light brown solid (melting point 126-128°C), yield: quantitative

Example 15 - 2-(1H-benzotriazol-5-yl)-N-(4-methyl-6'-trifluoromethyl-3,4,5,6-tetrahydro-2H-[1,2']bipyridinyl-3'-ylmethyl)-propionamide

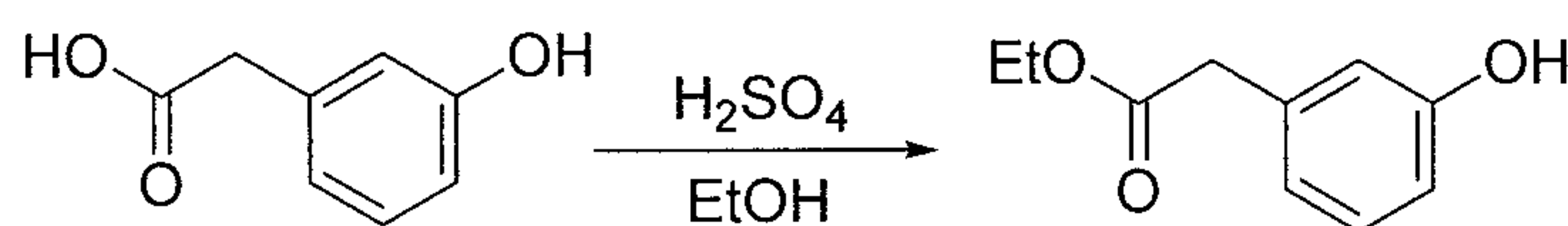


¹H-NMR (CDCl₃) δ 7.81 (m, 2H), 7.49 (d, 1H, J=7.7Hz), 7.35 (m, 1H), 7.14 (d, 1H, J=7.5Hz), 6.77 (bs, NH), 4.52 (d, 2H), 3.84 (q, 1H, J=7.0Hz), 3.25 (m, 2H), 2.76 (m, 2H), 1.77 (m, 2H), 1.64 (d, 3H, J=7.0Hz), 1.15-1.10 (m, 2H), 0.90 (d, 3H, J=6.4Hz)
IR 3295, 2921, 1650, 1539, 1458, 1419, 1177, 1136 cm⁻¹

Mass (FAB) m/z 447 [M+H]⁺ (base), 469 [M+Na]⁺

Synthesis of exemplary compound 16:

a) Ethyl 2-(3-hydroxyphenyl)acetate



2-(3-Hydroxyphenyl)essigsäure
im Handel erhältlich

[Key: 2-(3-Hydroxyphenyl)essigsäure = 2-(3-hydroxyphenyl)acetic acid; im Handel erhältlich = commercially available]

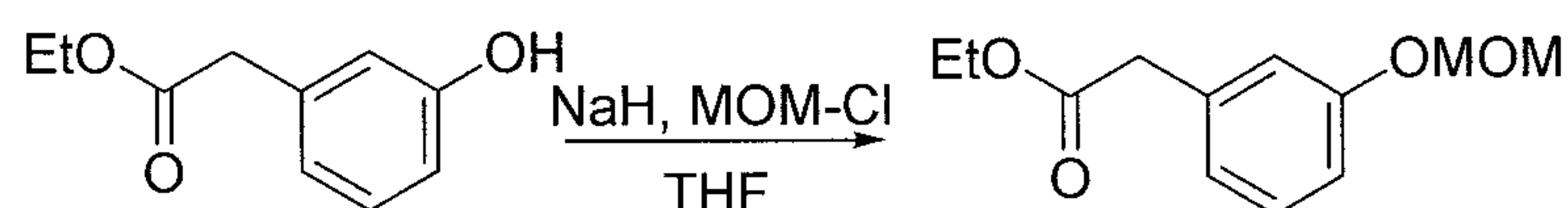
Sulphuric acid was added in a catalyst quantity to a solution of 2-(3-hydroxyphenyl acetic acid) (9.83 g, 64.6 mmol) in ethanol (100 ml). The mixture was boiled for 3 h under reflux and subsequently cooled to room temperature. The mixture was diluted with H₂O (100 ml) and extracted with EtOAc. The organic layer was dried over MgSO₄, filtered and concentrated under a vacuum. The residue was purified by

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means of flash column chromatography with EtOAc:hexanes (1:4) as the eluent on silica gel.

Light yellow oil, yield: 94.5%

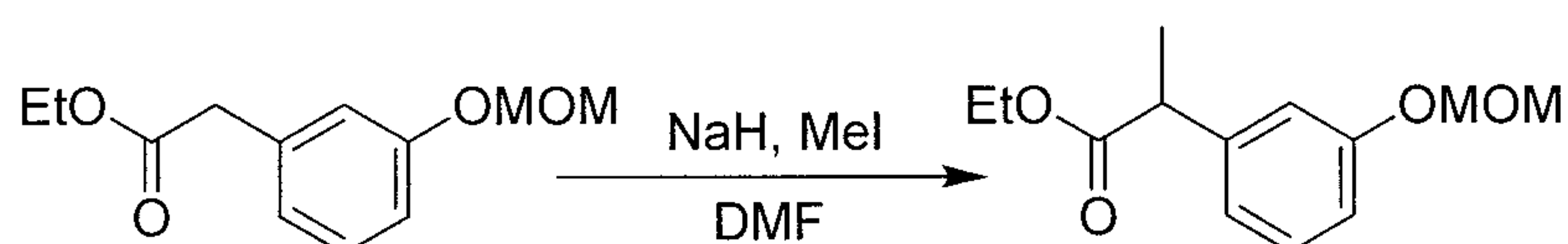
b)



Ethyl 2-(3-methoxymethoxyphenyl)acetate

Sodium hydride (2.93 g, 73.3 mmol) and chloromethylmethylether (5.94 g, 73.7 mmol) were added slowly at 0 °C to ethyl 2-(3-hydroxyphenyl)acetate (24 g, 80.51 mmol) in THF (100 ml). The reaction mixture was stirred for 16 h at room temperature. Water (200 ml) was added to the mixture and it was extracted with EtOAc. The organic layer was dried with MgSO₄. The organic layer was filtered and the filtrate was concentrated under a vacuum. The residue was purified by column chromatography, wherein elution was performed with n-hexane/EtOAc (10:1). Colourless oil, yield: 79.7%

c)



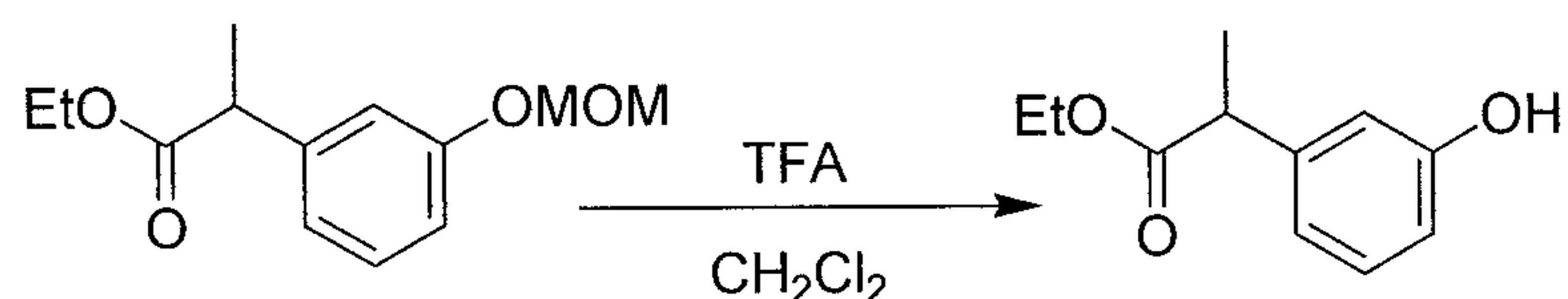
Ethyl 2-(3-methoxymethoxyphenyl)propanoate

Sodium hydride (1.74 mg, 43.5 mmol) and iodomethane (6.37 g, 44.9 mmol) were gradually added at 0 °C to ethyl 2-(3-methoxymethoxyphenyl)acetate (8.06 g, 35.9 mmol) in DMF (50 ml). The reaction mixture was stirred for 1 h at 0°C. Water (250 ml) was added to the mixture and it was extracted with EtOAc. The organic layer was dried with MgSO₄. The organic layer was filtered and the filtrate was concentrated under a vacuum. The residue was purified by column chromatography, wherein elution was performed with n-hexane/EtOAc (10:1).

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Colourless oil, yield: 49%

d)

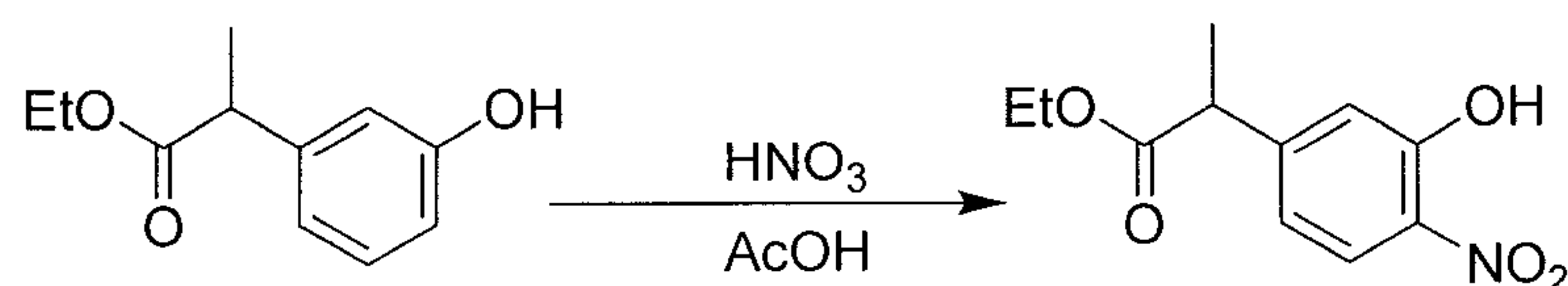


Ethyl 2-(3-hydroxyphenyl)propanoate

Trifluoroacetic acid (40 ml) was added at 0 °C to a solution of ethyl 2-(3-methoxymethoxyphenyl)propanoate (4.17 g, 17.5 mmol) in methylene chloride (80 ml). The mixture was stirred for 1 h at 0 °C and subsequently solid sodium bicarbonate (60 g) and water (250 ml) was added thereto at 0 °C. The mixture was extracted with methylene chloride. The organic layer was dried with MgSO₄. The organic layer was filtered and the filtrate was concentrated under a vacuum. The residue was purified by column chromatography, wherein elution was performed with n-hexane/EtOAc (4:1).

Colourless oil, yield: 74%

e)



Ethyl 2-(3-hydroxy-4-nitrophenyl)propanoate

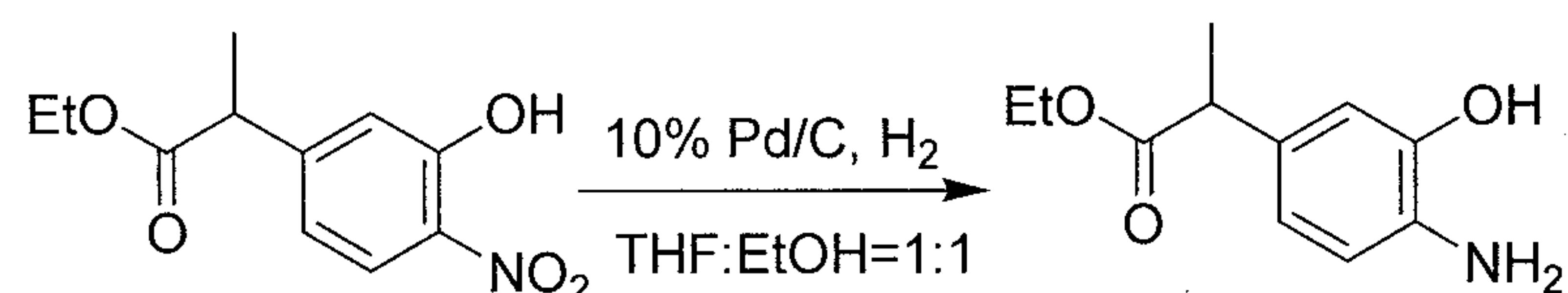
Nitric acid (60-62%, 1.45 g, 13.8 mmol) was added at room temperature to ethyl 2-(3-hydroxyphenyl)propanoate (2.51 g, 12.9 mmol) in acetic acid (20 ml). The reaction mixture was stirred for 15 minutes at room temperature. The reaction mixture was poured into ice water (100 ml) and extracted with EtOAc. The organic layer was dried with MgSO₄ and filtered. EtOAc was removed by evaporation. The residue was

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purified by column chromatography, wherein elution was performed with n-hexane/EtOAc (6:1).

Yellow solid (melting point 44 °C), yield: 30.8%

f)

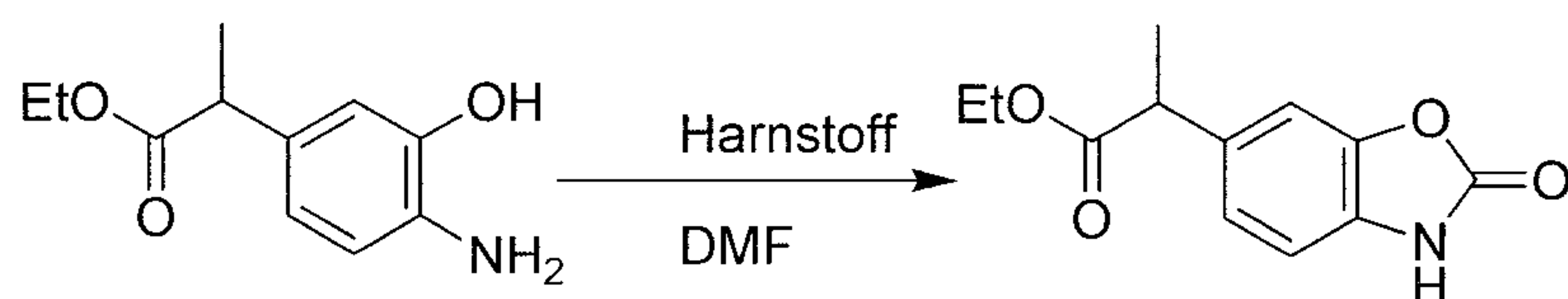


Ethyl 2-(4-amino-3-hydroxyphenyl)propanoate

10% Pd/C (93 mg) was gradually added at room temperature to a solution of ethyl 2-(3-hydroxy-4-nitrophenyl)propanoate (900 mg, 3.76 mmol) in THF/ethanol (1:1, 30 ml). The mixture was hydrogenated for 1 h at 46 psi and subsequently filtered with diatomite and washed with EtOAc. The filtrate was concentrated under a vacuum. The residue was purified by column chromatography, wherein elution was performed with n-hexane/EtOAc (2:1).

White solid (melting point 119-121 °C), yield: 80.1%

g)



[Key: Harnstoff = Urea]

Reference: Heterocycles, Vol. 51, No. 8, 1929-1943

Ethyl 2-(2,3-dihydro-2-oxobenzo[d]oxazol-6-yl)propanoate

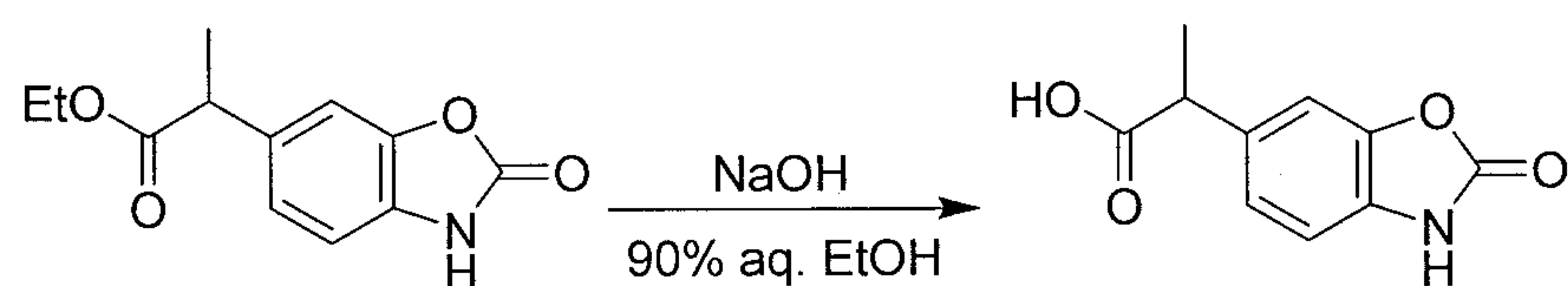
Urea (305 mg, 5.19 mmol) was added to a solution of ethyl 2-(4-amino-3-hydroxyphenyl)propanoate (205 mg, 0.978 mmol) in DMF (5 ml) and it was boiled for 5 h under reflux. The reaction mixture was cooled to room temperature and water (30 ml) was added. The mixture was acidified with conc. HCl (1 ml) and extracted with

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EtOAc. The organic layer was dried over MgSO_4 , filtered and concentrated under a vacuum. The residue was purified by flash column chromatography with EtOAc:hexanes (1:2) as the eluent on silica gel.

Brown oil, yield: 88.2%

h)



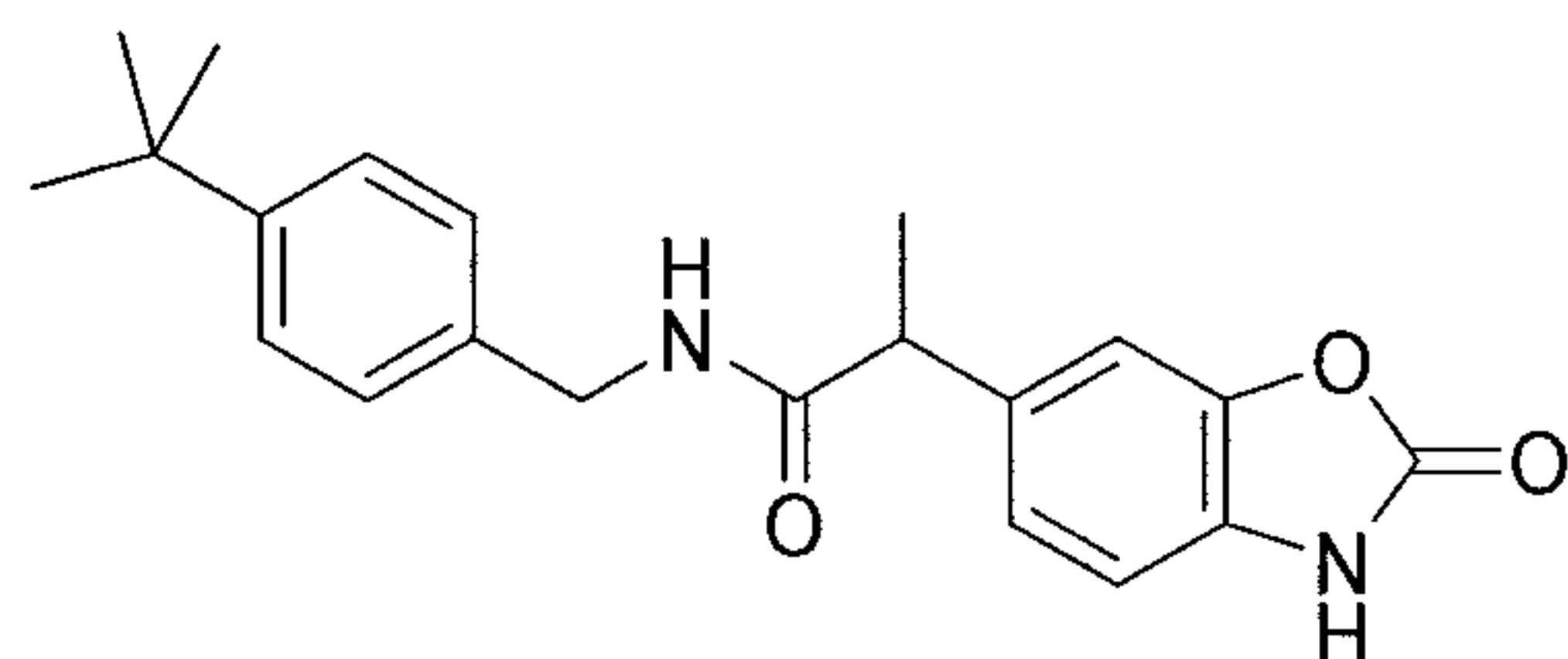
90% aqueous EtOH

2-(2,3-dihydro-2-oxobenzo[d]oxazol-6-yl)propanoic acid

Sodium hydroxide (82 mg, 2.05 mmol) was added at room temperature to a solution of ethyl 2-(2,3-dihydro-2-oxobenzo[d]oxazol-6-yl)propanoate (95 mg, 0.404 mmol) in 90% aqueous EtOH (5 ml). The reaction mixture was stirred for 24 h at 45 °C and cooled to room temperature. Water (10 ml) was added to the mixture and it was acidified with acetic acid (pH=4). The mixture was extracted with methylene chloride. The organic layer was dried with MgSO_4 and filtered. The filtrate was concentrated under a vacuum.

White solid (melting point 169-171 °C), yield: 83.6%,

Example 16 - N-(4-tert-butyl-benzyl)-2-(2-oxo-2,3-dihydro-benzooxazol-6-yl)-propionamide



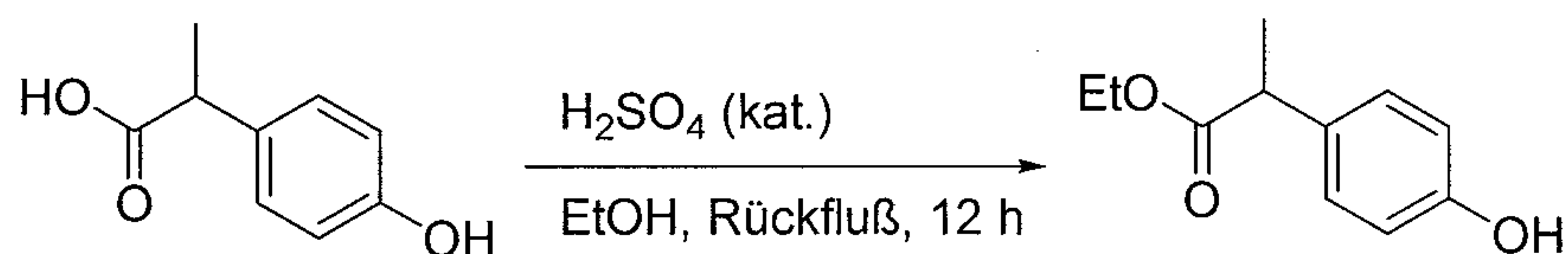
$^1\text{H-NMR}(\text{CDCl}_3)$ δ 9.46 (bs, NH), 7.32 (d, 2H, $J=8.2\text{Hz}$, Ar), 7.11 (m, 4H, Ar), 6.90 (d, 1H, $J=8.0\text{Hz}$, Ar), 5.99 (bs, NH), 4.40 (m, 2H, NHCH_2), 3.61 (q, 1H, $J=7.1\text{Hz}$, COCH), 1.54 (d, 3H, $J=7.1\text{Hz}$, CHCH_3), 1.28 (s, 9H, $\text{C}(\text{CH}_3)_3$)

IR 3301, 2963, 1767, 1649, 1501, 1264, 937, 733 cm^{-1}

Mass (FAB) m/z 353 $[\text{M}+\text{H}]^+$, 375 $[\text{M}+\text{Na}]^+$

Synthesis of exemplary compound 17:

a)

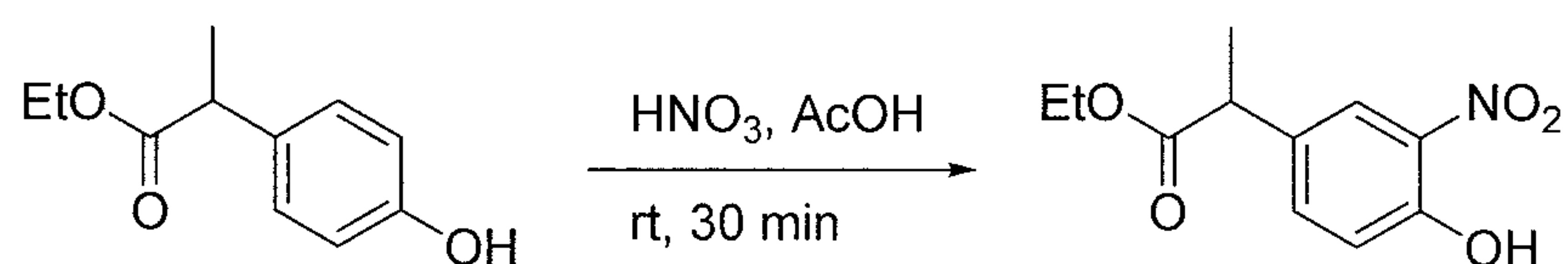


[Key: kat. = cat.; Rückfluß = reflux]

2-(4-hydroxyphenyl)-propionic acid-ethyl ester

Sulphuric acid (10 drops) was added to a solution of 2-(4-hydroxyphenyl)propanoic acid (8.60 g) in ethanol (70 ml) and it was boiled for 12 h under reflux. The reaction mixture was cooled to room temperature. Water (50 ml) was added to the mixture and it was extracted with EtOAc. The organic layer was dried over magnesium sulphate, filtered and concentrated under a vacuum. (9.0 g, brown oil)

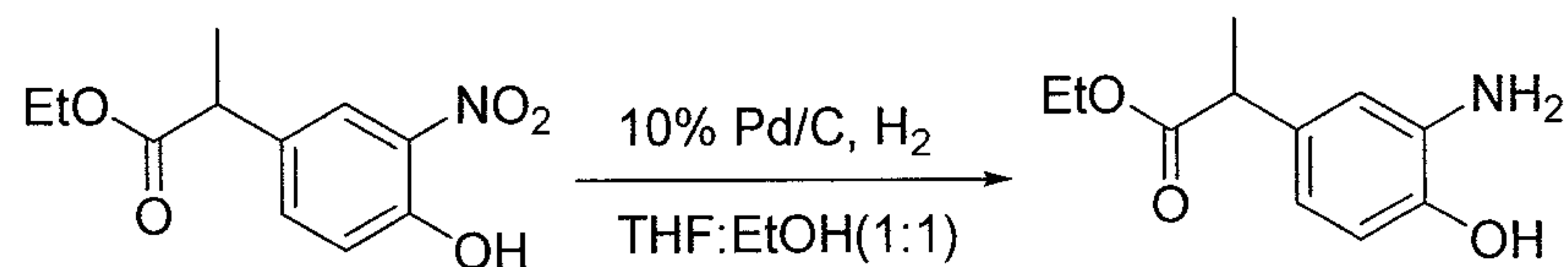
b)

**2-(4-hydroxy-3-nitrophenyl)-propionic acid-ethyl ester**

Nitric acid (60%, 5.24 g in AcOH) was added at room temperature to a solution of 2-(4-hydroxyphenyl)-propionic acid-ethyl ester (9.02 g) in acetic acid (75 ml). The reaction mixture was stirred for 30 minutes at room temperature and water was added. The mixture was extracted with EtOAc and the organic layer was dried over magnesium sulphate, filtered and concentrated under a vacuum. The resultant residue underwent chromatography on silica gel (n-hex:EtOAc=10:1) in order to obtain the product as a light yellow oil. (9.71 g)

c)

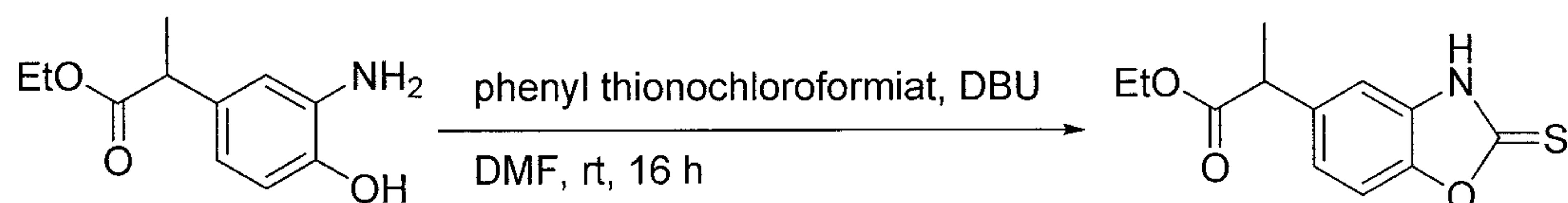
GRA3394-WO-1



2-(3-amino-4-hydroxyphenyl)-propionic acid-ethyl ester

10% Pd/C (0.89 g) was gradually added at room temperature to a stirred solution of 2-(4-hydroxy-3-nitrophenyl)-propionic acid-ethyl ester (9.71 g) in THF (40 ml) and EtOH (40 ml). After 0.5 h of hydrogenation with H₂ round flask, the reaction mixture was filtered off using diatomite and washed with EtOAc. The organic layer was dried over magnesium sulphate, filtered and concentrated under a vacuum. The resultant residue underwent chromatography on silica gel (n-hex:EtOAc=2:1) in order to obtain the product as a light yellow oil.

d)

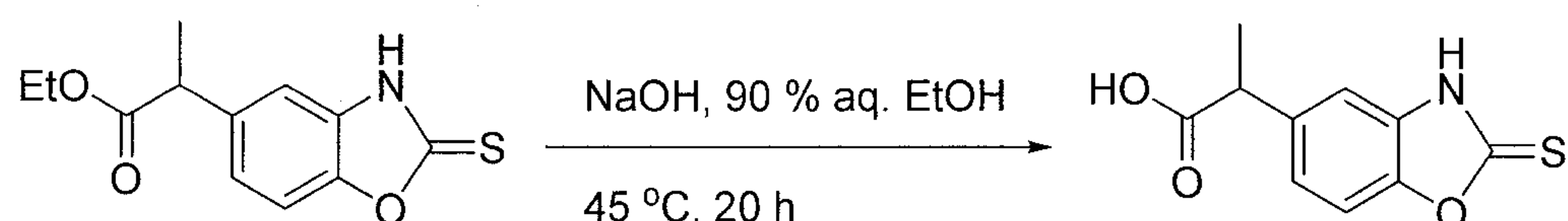


[Key: thionochloroformiat = thionochloroformiate]

2-(2-thioxo-2,3-dihydrobenzothiazol-5-yl)-propionic acid-ethyl ester

Phenylchlorothionoformiate (380 mg in DMF) and DBU (540 mg, in DMF) were added at room temperature to a solution of 2-(3-amino-4-hydroxyphenyl)-propionic acid-ethyl ester (370 mg) in DMF (2 ml). The reaction mixture was stirred for 16 h at room temperature and water was added to this mixture. The resultant mixture was extracted with ethyl ether. The combined organic layer was dried over magnesium sulphate, filtered and concentrated under a vacuum. The resultant residue underwent chromatography on silica gel (n-hex:EtOAc=4:1) in order to obtain the product as a white solid. (130 mg, 29.2%)

e)



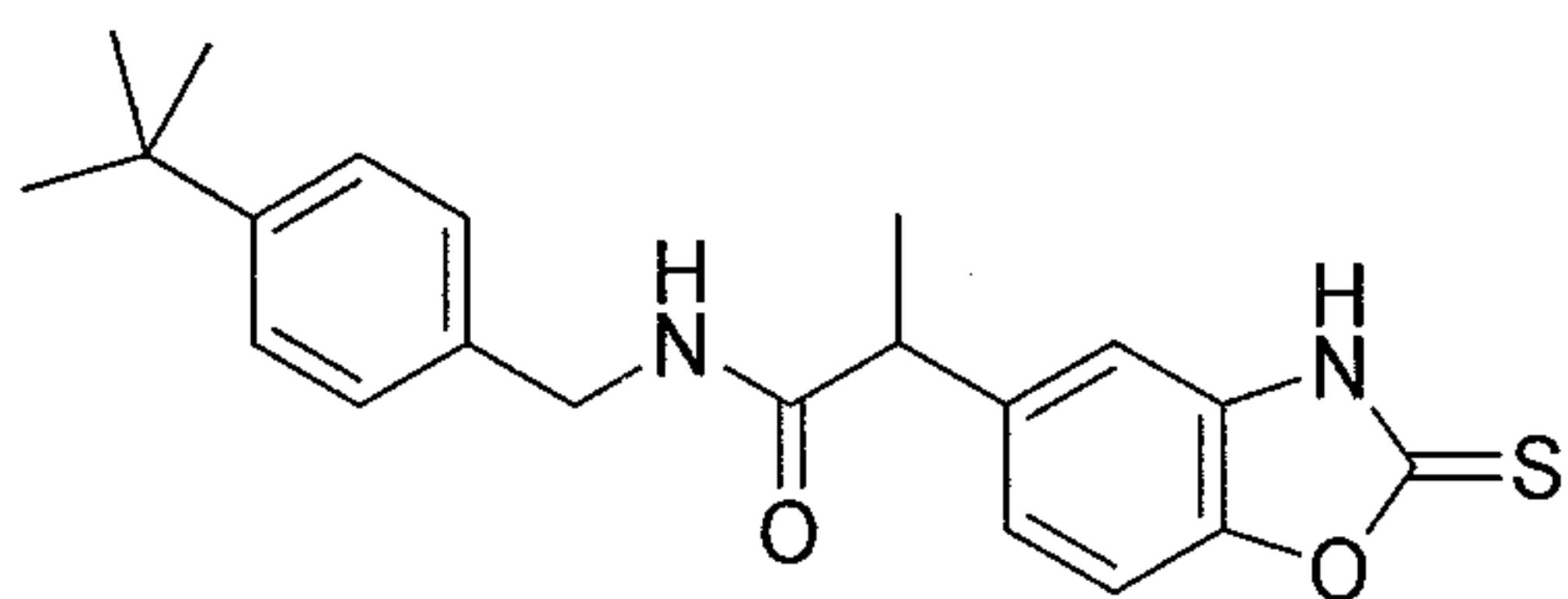
GRA3394-WO-1

90% aqueous EtOH

2-(2-thioxo-2,3-dihydrobenzooxazol-5-yl)-propionic acid

NaOH (102 mg) was added at room temperature to a stirred solution of 2-(2-thioxo-2,3-dihydrobenzothiazol-5-yl)-propionic acid-ethyl ester (124 mg) in 90% aqueous EtOH. After 20 h of stirring at 45 °C, the reaction mixture was cooled to room temperature and diluted with water. The resultant aqueous layer was acidified with acetic acid and subsequently extracted with dichloromethane. The combined organic layer was dried over magnesium sulphate, filtered and concentrated under a vacuum. (105 mg, 95.4%)

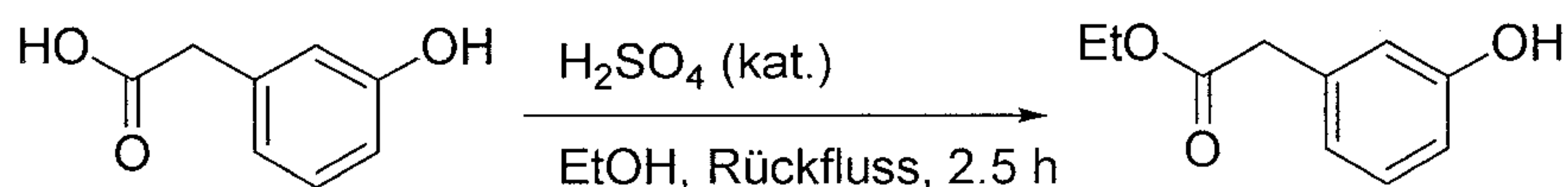
Example 17 - N-(4-tert-butyl-benzyl)-2-(2-thioxo-2,3-dihydro-benzooxazol-5-yl)-propionamide



$^1\text{H-NMR}(\text{CDCl}_3)$ δ 7.34-7.05 (m, 7H, Ar), 5.99 (bt, NH), 4.52 (m, 2H, NHCH_2), 3.61 (q, 1H, $J=7.1\text{Hz}$, COCH), 1.58 (d, 3H, $J=7.0\text{Hz}$, CHCH_3), 1.27 (s, 9H, $\text{C}(\text{CH}_3)_3$)
 IR 3297, 2963, 1646, 1534, 1460, 1428, 1267, 1105 cm^{-1}
 Mass (FAB) m/z 369 $[\text{M}+\text{H}]^+$

Synthesis of exemplary compound 18:

a)

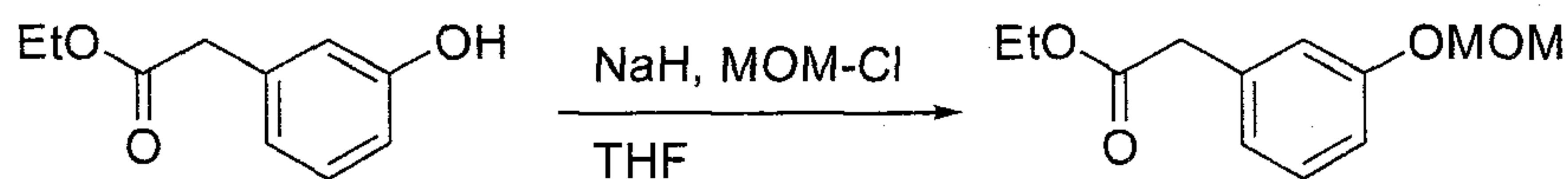


[Key: kat. = cat.; Rückfluß = reflux]

(3-hydroxy-phenyl)-acetic acid-ethyl ester

Sulphuric acid (1 ml) was added to a solution of 3-hydroxyphenyl acetic acid (15.5 g) in ethanol (200 ml) and it was boiled for 1 h under reflux. The reaction mixture was cooled to room temperature. Water (50 ml) was added to the mixture and it was extracted with EtOAc. The organic layer was dried over magnesium sulphate, filtered and concentrated under a vacuum. (18.2 g, brown oil)

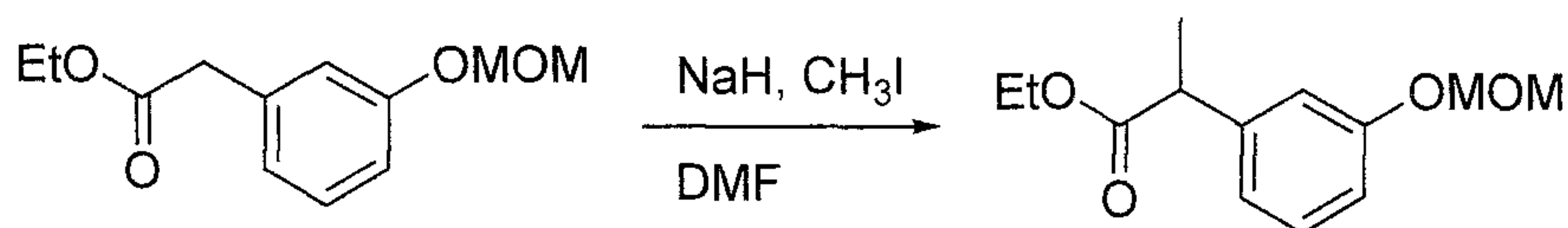
b)



(3-methoxymethoxy-phenyl)-acetic acid-ethyl ester

NaH (7.35 g) and MOM-Cl (14.8 g) was added gradually at 0 °C to a solution of (3-hydroxy-phenyl)-acetic acid-ethyl ester (27.6 g) in THF. After 14 h of stirring at the same temperature, the reaction mixture was heated to room temperature. The resultant mixture was diluted with water and extracted with EtOAc. The combined organic layer was dried over magnesium sulphate, filtered and concentrated under a vacuum. The resultant residue underwent chromatography on silica gel (n-hex:EtOAc=15:1 to 10:1) in order to obtain the product as a colourless oil. (31.2 g, 90.9%)

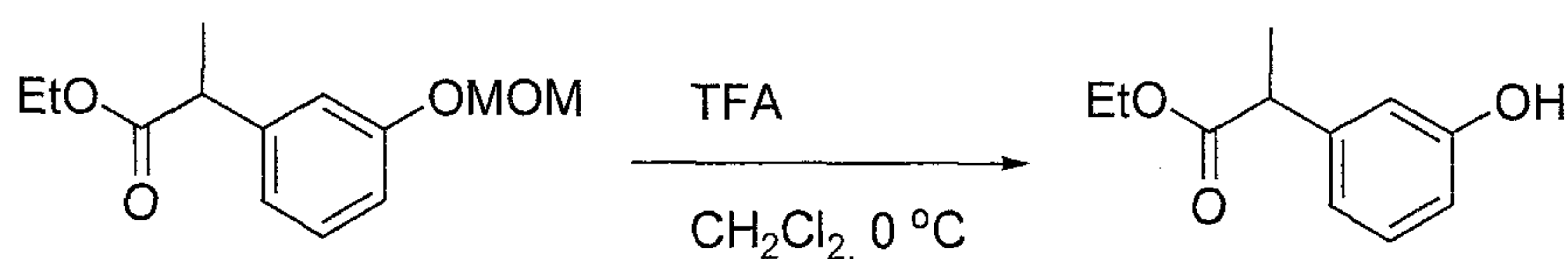
c)



2-(3-methoxymethoxy-phenyl)-propionic acid-ethyl ester

Sodium hydride (6.21 g) and iodomethane were added gradually at 0 °C to a stirred solution of (3-methoxymethoxy-phenyl)-acetic acid-ethyl ester (31.2 g) in DMF (200 ml). After 20 h of stirring at 0 °C, this reaction mixture was quenched with water. This mixture was extracted with EtOAc and the combined organic layer was dried over magnesium sulphate, filtered and concentrated under a vacuum. The resultant residue underwent chromatography on silica gel (n-hex:EtOAc=10:1) in order to obtain the product as a colourless oil.

d)

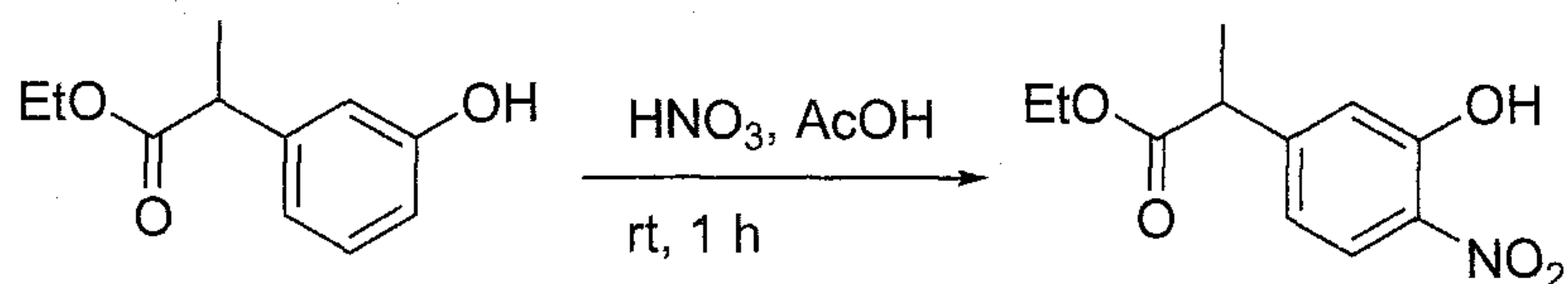


2-(3-hydroxy-phenyl)-propionic acid-ethyl ester

TFA (150 ml) at 0 °C was added dropwise to a stirred solution of 2-(3-methoxymethoxy-phenyl)-propionic acid-ethyl ester in dichloromethane. The reaction

mixture was stirred for 1 h at 0 °C and solid sodium bicarbonate (200 g) was added very slowly. The resultant mixture was poured very slowly into ice water and extracted with EtOAc. The combined organic layer was dried over magnesium sulphate, filtered and concentrated under a vacuum. The resultant residue underwent chromatography on silica gel (n-hex:EtOAc=10:1 to 4:1) in order to obtain the product as a colourless oil. (19.0 g, 70.4%, 2 steps)

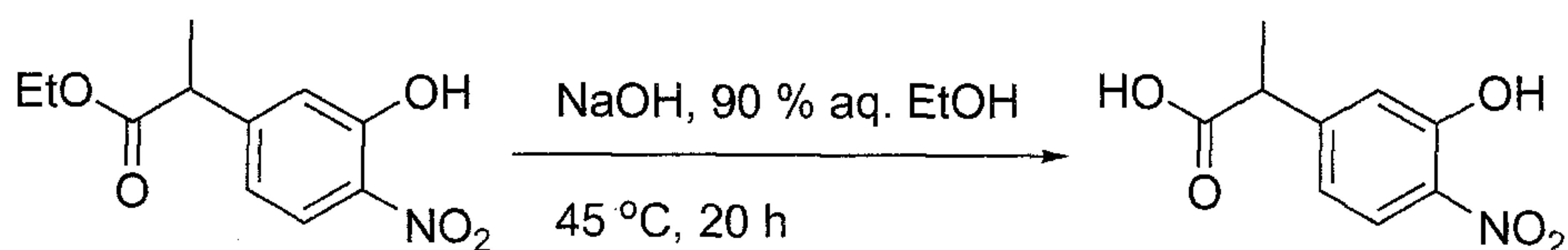
e)



2-(3-hydroxy-4-nitro-phenyl)-propionic acid-ethyl ester

Nitric acid (11.3 g) was added at room temperature to a solution of 2-(3-hydroxy-phenyl)-propionic acid-ethyl ester (19.0 g) in acetic acid (150 ml). The reaction mixture was stirred for 1 h at room temperature and water was added thereto. The mixture was extracted with EtOAc and the organic layer was dried over magnesium sulphate, filtered and concentrated under a vacuum. The resultant residue underwent chromatography on silica gel (n-hex:EtOAc=10:1) in order to obtain the product as a yellow solid. (6.08 g, 26.0%)

f)



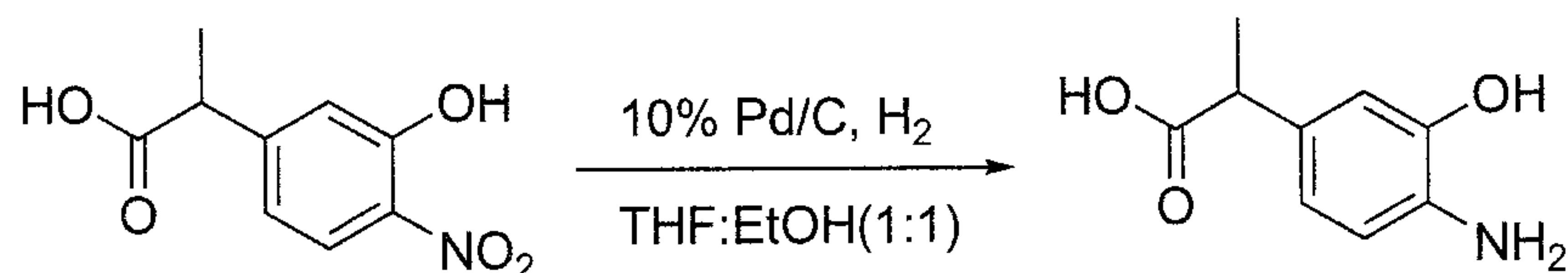
90% aqueous EtOH

2-(3-hydroxy-4-nitro-phenyl)-propionic acid

NaOH (1.24 mg) was added at room temperature to a stirred solution of 2-(3-hydroxy-4-nitro-phenyl)-propionic acid-ethyl ester (1.48 mg) in 90% aqueous EtOH. After 14 h of stirring at 45 °C, the reaction mixture was cooled to room temperature and diluted with water. The resultant aqueous layer was acidified with acetic acid and subsequently extracted with dichloromethane. The combined organic layer was dried

over magnesium sulphate, filtered and concentrated under a vacuum. (1.30 mg, 99.5 %, yellow solid)

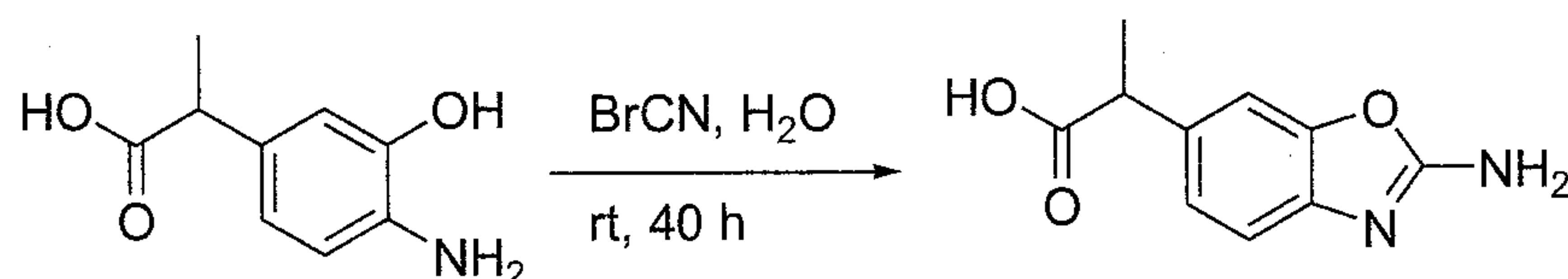
g)



2-(4-amino-3-hydroxy-phenyl)-propionic acid

10% Pd/C (0,12 g) was gradually added at room temperature to a stirred solution of 2-(3-hydroxy-4-nitro-phenyl)-propionic acid (1.28 g) in THF (20 ml) and EtOH (20 ml). After 3 h of hydrogenation with H₂ round flask, the reaction mixture was filtered off using diatomite and washed with EtOH. The filtrate was concentrated under a vacuum in order to obtain the product as a yellow solid. (1.08 g, 98.4%)

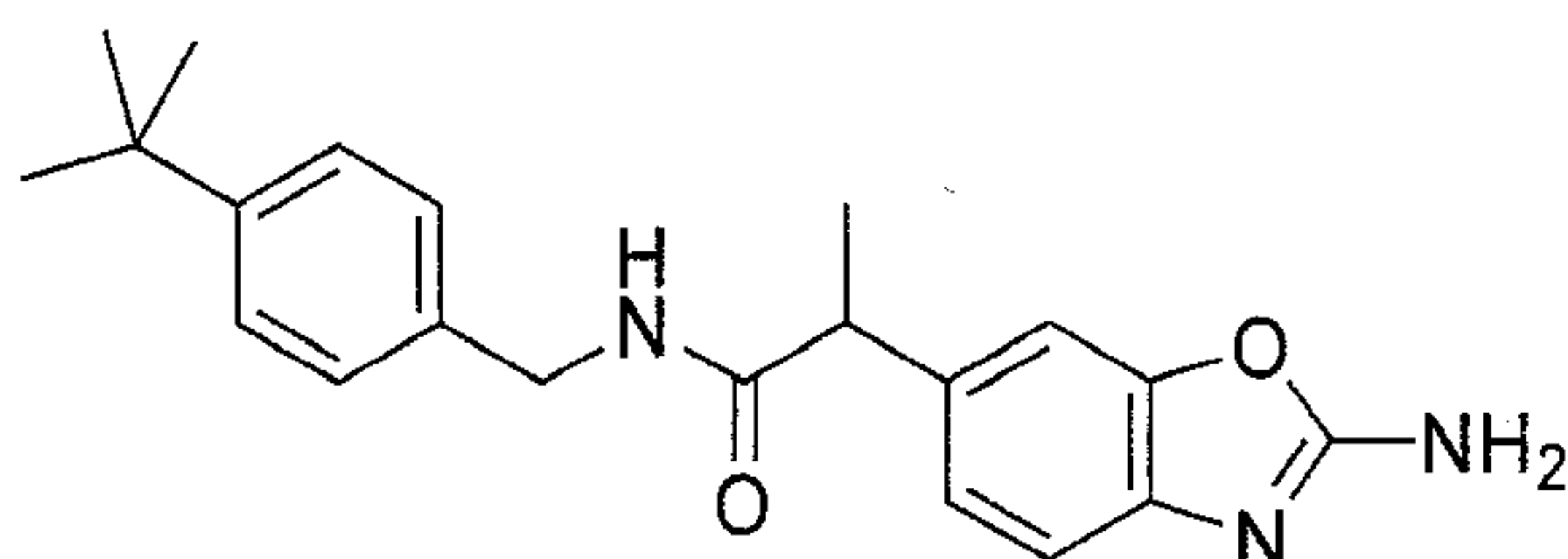
h)



2-(2-amino-benzoxazol-6-yl)-propionic acid

BrCN (648 mg) was added at room temperature to a stirred solution of 2-(4-amino-3-hydroxy-phenyl)-propionic acid (1.02 g) in H₂O. After 40 h of stirring at room temperature, the reaction mixture was neutralized with 30% aqueous NaOH to pH 6~7 and stirred for 1 h. The solid was filtered, washed with water and dried under a reduced vacuum in order to obtain the product as a yellow solid. (760 mg, 65.5%)

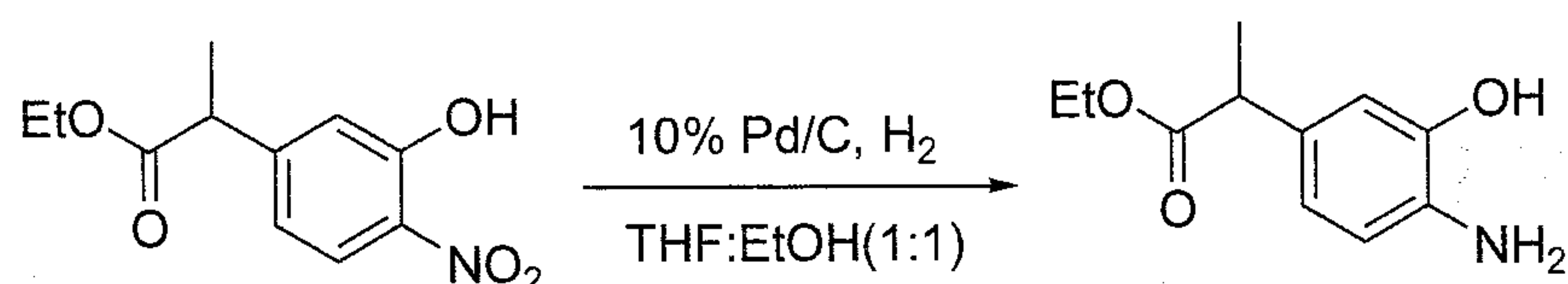
Example 18 - 2-(2-amino-benzoxazol-6-yl)-N-(4-tert-butyl-benzyl)-propionamide



$^1\text{H-NMR}(\text{CDCl}_3)$ δ 7.32-7.28 (m, 4H, Ar), 7.12-7.07 (m, 3H, Ar), 5.61 (bt, NH), 5.01 (bs, NH_2), 4.37 (m, 2H, NHCH_2), 3.63 (q, 1H, $J=7.1\text{Hz}$, COCH), 1.57 (d, 3H, $J=7.2\text{Hz}$, CHCH_3), 1.29 (s, 9H, $\text{C}(\text{CH}_3)_3$)

Synthesis of exemplary compound 19:

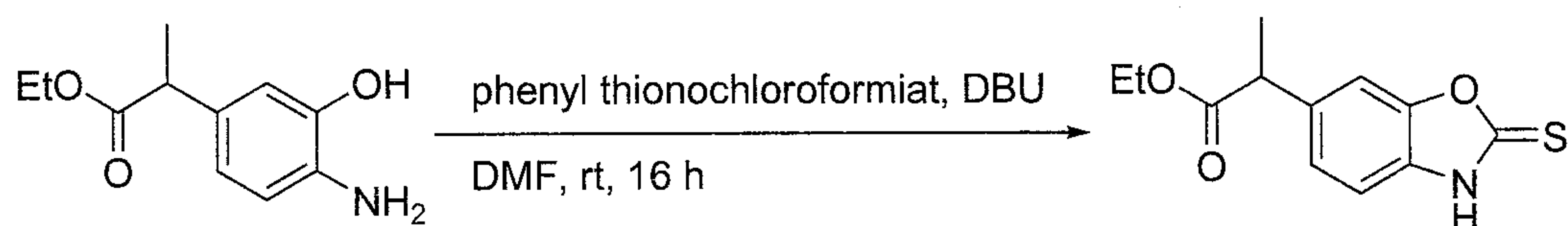
a)



2-(4-amino-3-hydroxy-phenyl)-propionic acid-ethyl ester

10% Pd/C (0.42 g) was gradually added at room temperature to a stirred solution of the starting material (4.63 g) in THF (50 ml) and EtOH (50 ml). After 2 h of hydrogenation with H_2 round flask, the reaction mixture was filtered off using diatomite and washed with EtOH. The filtrate was concentrated under a vacuum. The resultant residue underwent chromatography on silica gel (n-hex:EtOAc=4:1) in order to obtain the product as a white or light pink solid. (3.86 g, 95.1%)

b)

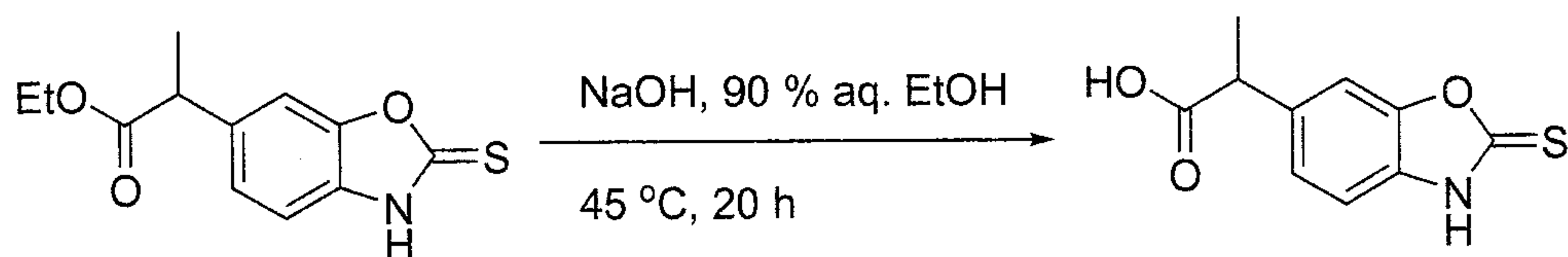


[Key; thionochloroformiat = thionochloroformiate]

2-(2-thioxo-2,3-dihydro-benzooxazol-6-yl)-propionic acid-ethyl ester

Phenylchlorothionoformiate (563 mg in DMF) and DBU (829 mg, in DMF) at room temperature were added to a solution of 2-(4-amino-3-hydroxy-phenyl)-propionic acid-ethyl ester (570 mg) in DMF (5 ml). The reaction mixture was stirred for 14 h at room temperature and water was added to the mixture. The resultant mixture was extracted with ethyl ether. The combined organic layer was dried over magnesium sulphate, filtered and concentrated under a vacuum. The resultant residue underwent chromatography on silica gel (n-hex:EtOAc=10:1 to 4:1) in order to obtain the product as a yellow oil. (90 mg, 13.2%)

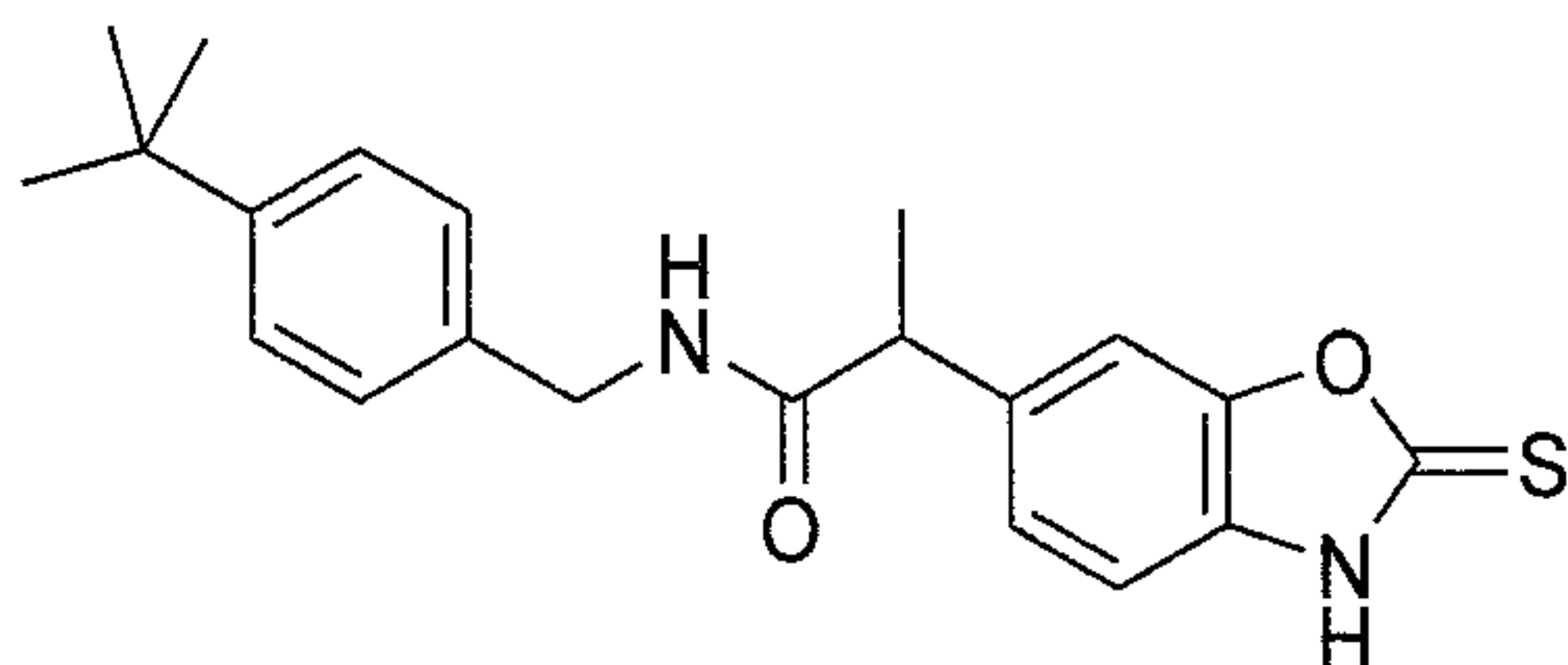
c)



2-(2-thioxo-2,3-dihydro-benzooxazol-6-yl)-propionic acid

NaOH (48 mg) was added at room temperature to a stirred solution of 2-(2-thioxo-2,3-dihydro-benzooxazol-6-yl)-propionic acid-ethyl ester (76 mg) in 90% aqueous EtOH. After 16 h of stirring at room temperature, the reaction mixture was cooled to room temperature and diluted with water. The resultant aqueous layer was acidified with acetic acid and subsequently extracted with dichloromethane. The combined organic layer was dried over magnesium sulphate, filtered and concentrated under a vacuum. (58 mg, 86.0%, brown solid)

Example 19 - N-(4-tert-butyl-benzyl)-2-(2-thioxo-2,3-dihydro-benzooxazol-6-yl)-propionamide



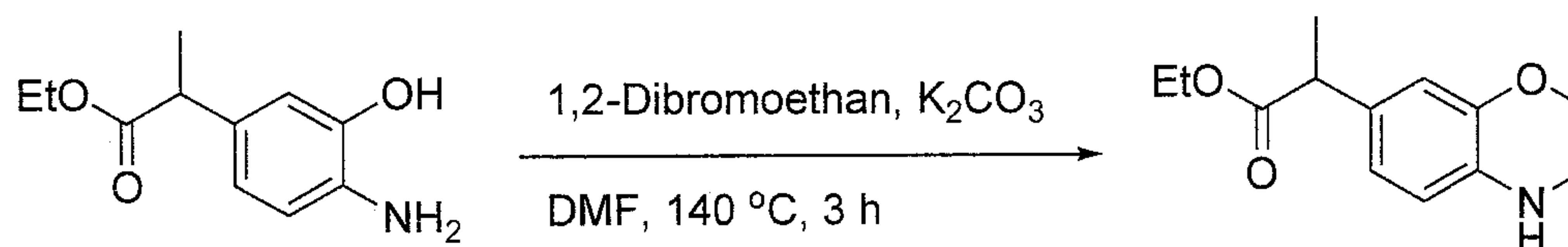
$^1\text{H-NMR}(\text{CDCl}_3)$ δ 7.36 (d, 2H, $J=8.4\text{Hz}$, Ar), 7.25 (d, 1H, $J=1.5\text{Hz}$, Ar), 7.20 (d, 2H, $J=8.3\text{Hz}$, Ar), 7.13 (dd, 1H, $J=8.3, 1.5\text{Hz}$, Ar), 6.79 (d, 1H, $J=8.1\text{Hz}$, Ar), 6.09 (bt, NH), 4.47 (m, 2H, NHCH_2), 3.68 (q, 1H, $J=7.1\text{Hz}$, COCH), 1.57 (d, 3H, $J=7.1\text{Hz}$, CHCH_3), 1.29 (s, 9H, $\text{C}(\text{CH}_3)_3$)

IR 3300, 2962, 1645, 1496, 1418, 1362, 1150 cm^{-1}

Mass (FAB) m/z 369 $[\text{M}+\text{H}]^+$

Synthesis of exemplary compound 20:

a)

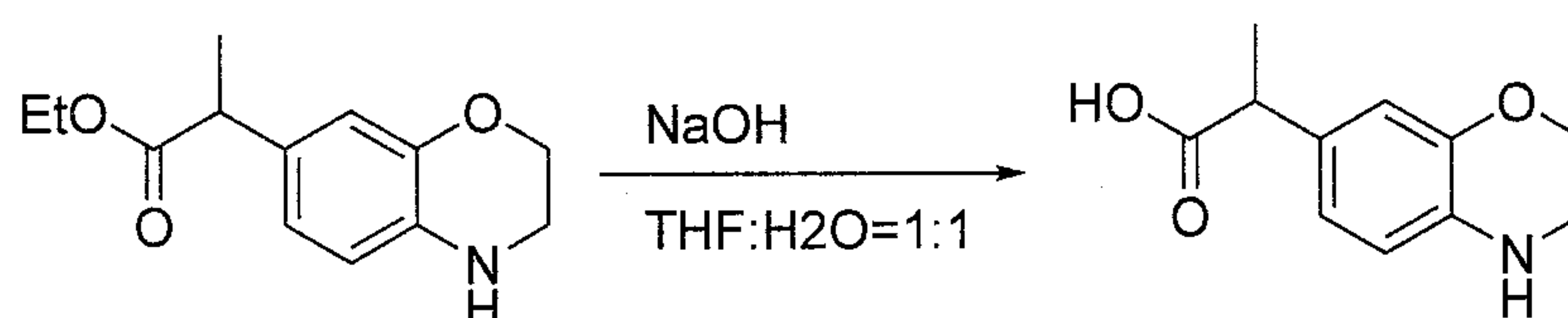


[Dibromoethan = dibromoethane]

2-(3,4-dihydro-2H-benzo[1,4]oxazin-7-yl)-propionic acid-ethyl ester

Potassium carbonate (2.68 g) and 1,2-dibromoethane (1.90 g) were added at room temperature to a stirred solution of the starting material (2.01 g) in DMF (25 ml). After 3 h of stirring at 140°C, the reaction mixture was cooled to room temperature and diluted with EtOAc. The resultant mixture was washed with water and the organic layer was dried over magnesium sulphate, filtered and concentrated under a vacuum. The resultant residue underwent chromatography on silica gel (n-hex:EtOAc=4:1) in order to obtain the product as a brown oil. (265 mg, 11.7%)

b)

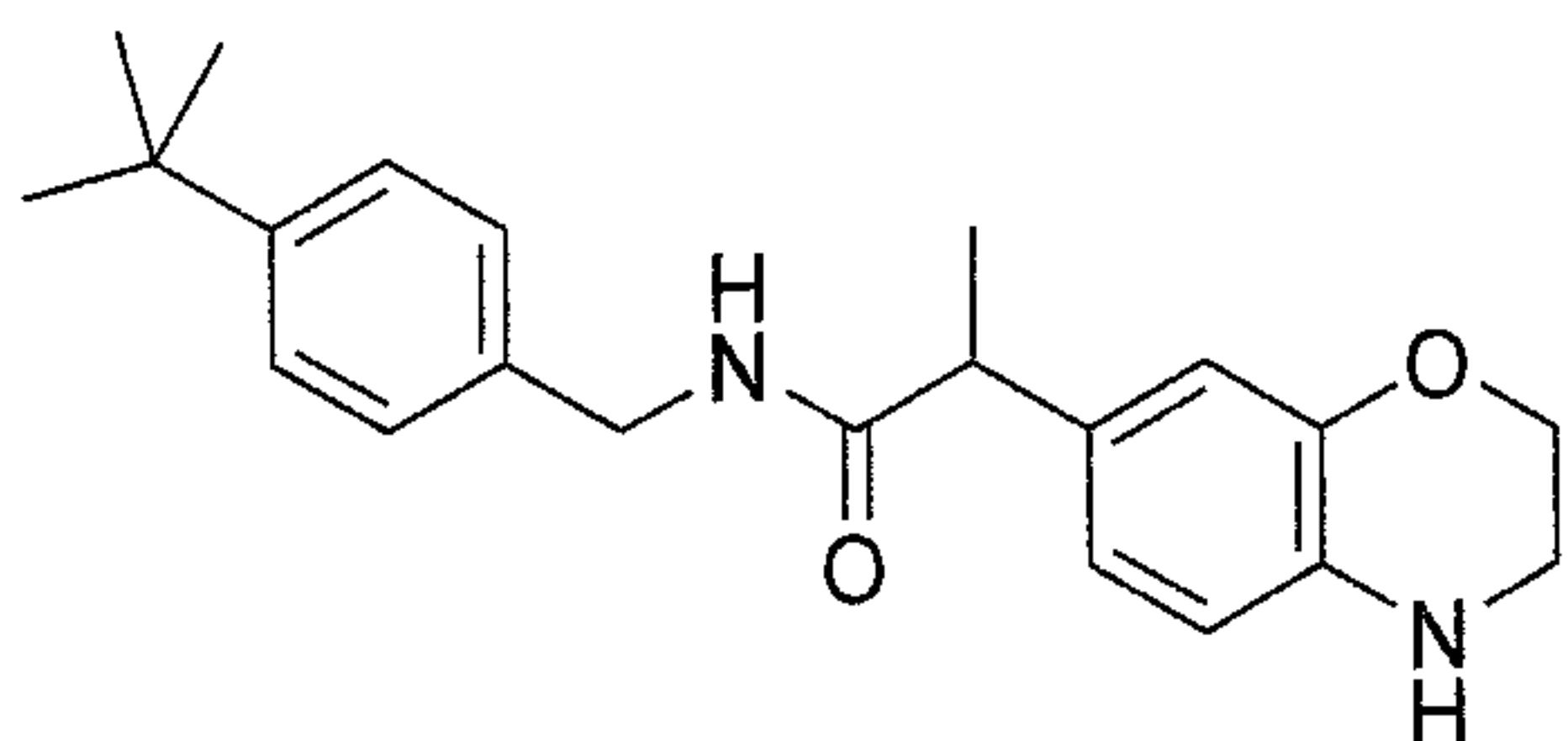


2-(3,4-dihydro-2H-benzo[1,4]oxazin-7-yl)-propionic acid

NaOH (134 mg) was added at room temperature to a stirred solution of 2-(3,4-dihydro-2H-benzo[1,4]oxazin-7-yl)-propionic acid-ethyl ester (258 mg) in THF (3 ml) and H₂O (3 ml). After 20 h of stirring at room temperature, the reaction mixture was acidified with AcOH (pH = 4) and diluted with water. The resultant mixture was extracted with dichloromethane and the combined organic layer was dried over magnesium sulphate, filtered and concentrated under a vacuum. The resultant residue underwent chromatography on silica gel (CH₂Cl₂:MeOH=15:1) in order to obtain the product as a brown oil. (150 mg, 65.8%)

Example 20 - N-(4-tert-butylbenzyl)-2-(3,4-dihydro-2H-benzo[b][1,4]oxazin-7-yl)propionamide

GRA3394-WO-1



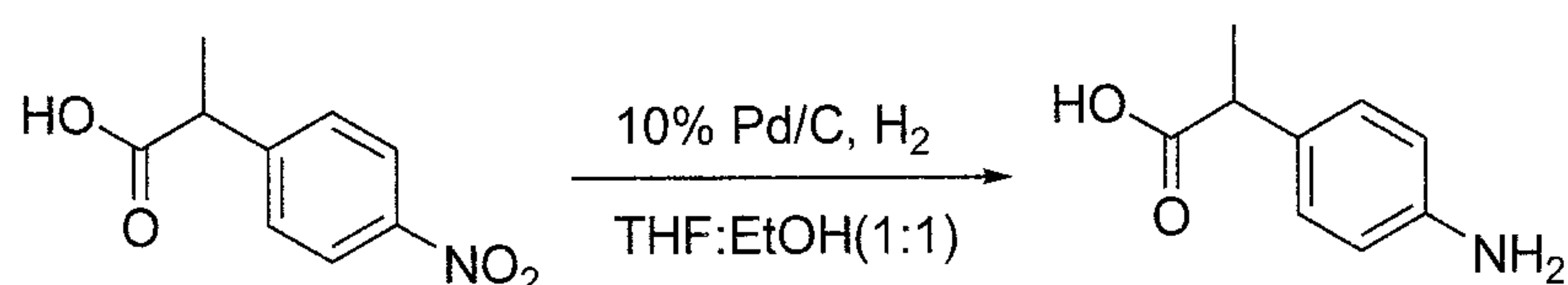
$^1\text{H-NMR}(\text{CDCl}_3)$ δ 7.31 (d, 2H, $J=8.4\text{Hz}$, Ar), 7.10 (d, 2H, $J=8.2\text{Hz}$, Ar), 6.70 (m, 2H, Ar), 6.55 (d, 1H, $J=7.9\text{Hz}$, Ar), 5.68 (bt, NH), 4.44-4.23 (m, 4H, OCH_2 & NHCH_2), 3.75 (bt, NH), 3.50-3.39 (m, 3H, NHCH_2 & COCH), 1.50 (d, 3H, $J=7.1\text{Hz}$, CHCH_3), 1.30 (s, 9H, $\text{C}(\text{CH}_3)_3$)

IR 3304, 2963, 1649, 1516, 1357, 1305 cm^{-1}

Mass (FAB) m/z 353 $[\text{M}+\text{H}]^+$

Synthesis of exemplary compound 21:

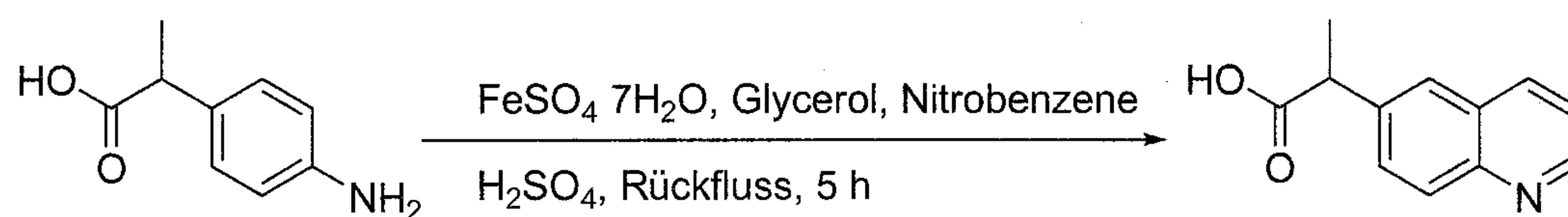
a)



2-(4-amino-phenyl)-propionic acid

10% Pd/C (0.21 g) was added slowly at room temperature to a stirred solution of 2-(4-nitrophenyl)propionic acid (2.05 g) in THF (20 ml) and EtOH (20 ml). After 2 h of hydrogenation with H_2 round flask, the reaction mixture was filtered off using diatomite and washed with EtOH. The filtrate was concentrated under a vacuum in order to obtain the product as a light brown solid. (1.75 g, quantitative)

b)



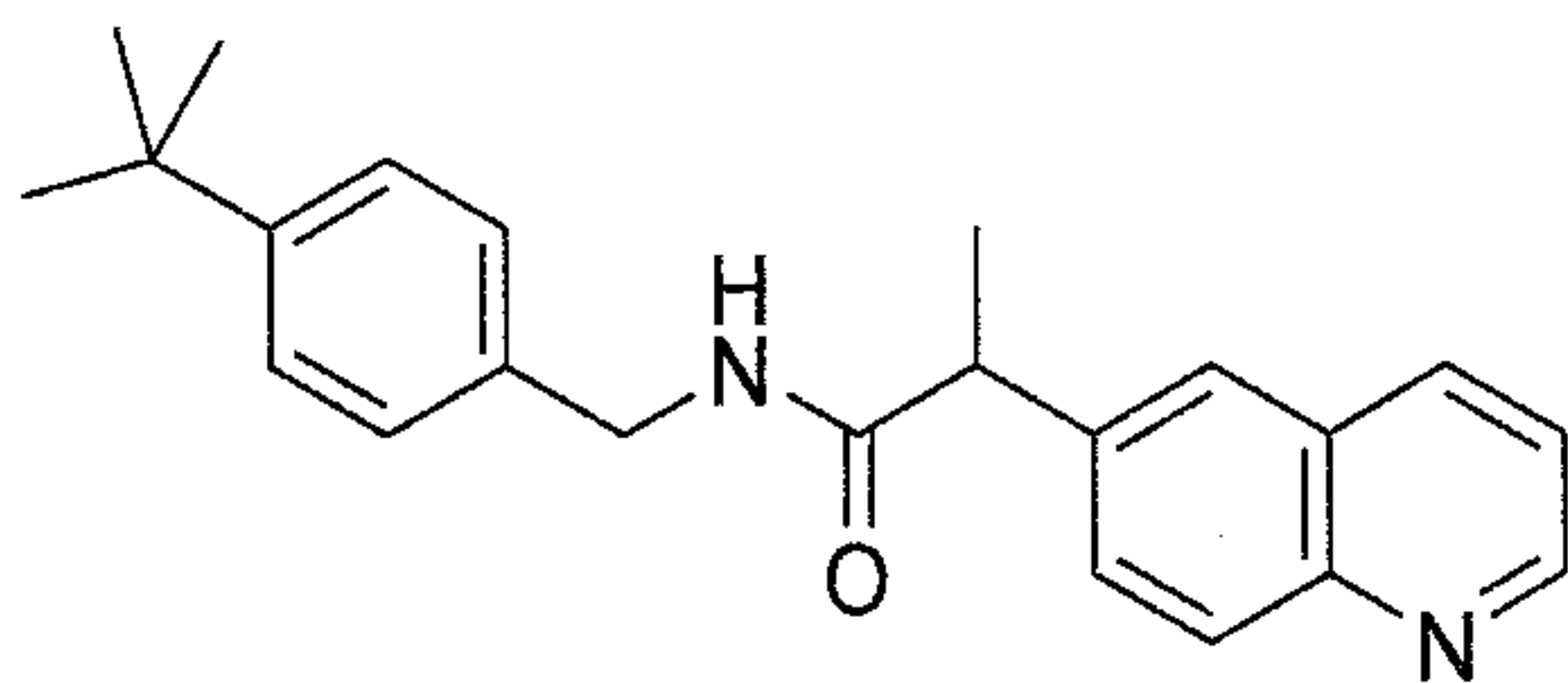
[Rückfluss = reflux]

2-quinolin-6-yl-propionic acid

The mixture of 2-(4-amino-phenyl)-propionic acid (1.70 g), $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ (0.30 g), glycerol (4.04 g) and sulphuric acid (2 ml) was stirred for 5 h under reflux. The reaction mixture was cooled to room temperature and subsequently concentrated

under a reduced vacuum. The aqueous solution was treated with 12N-NaOH solution. The solid precipitate was filtered and the filtrate was acidified with AcOH. The resultant mixture was extracted and the combined organic layer was dried over magnesium sulphate, filtered and concentrated under a vacuum. The resultant residue underwent chromatography on silica gel ($\text{CH}_2\text{Cl}_2:\text{MeOH}=15:1$ to $10:1$) in order to obtain the product as a brown solid. (0.83 g, 40.0%)

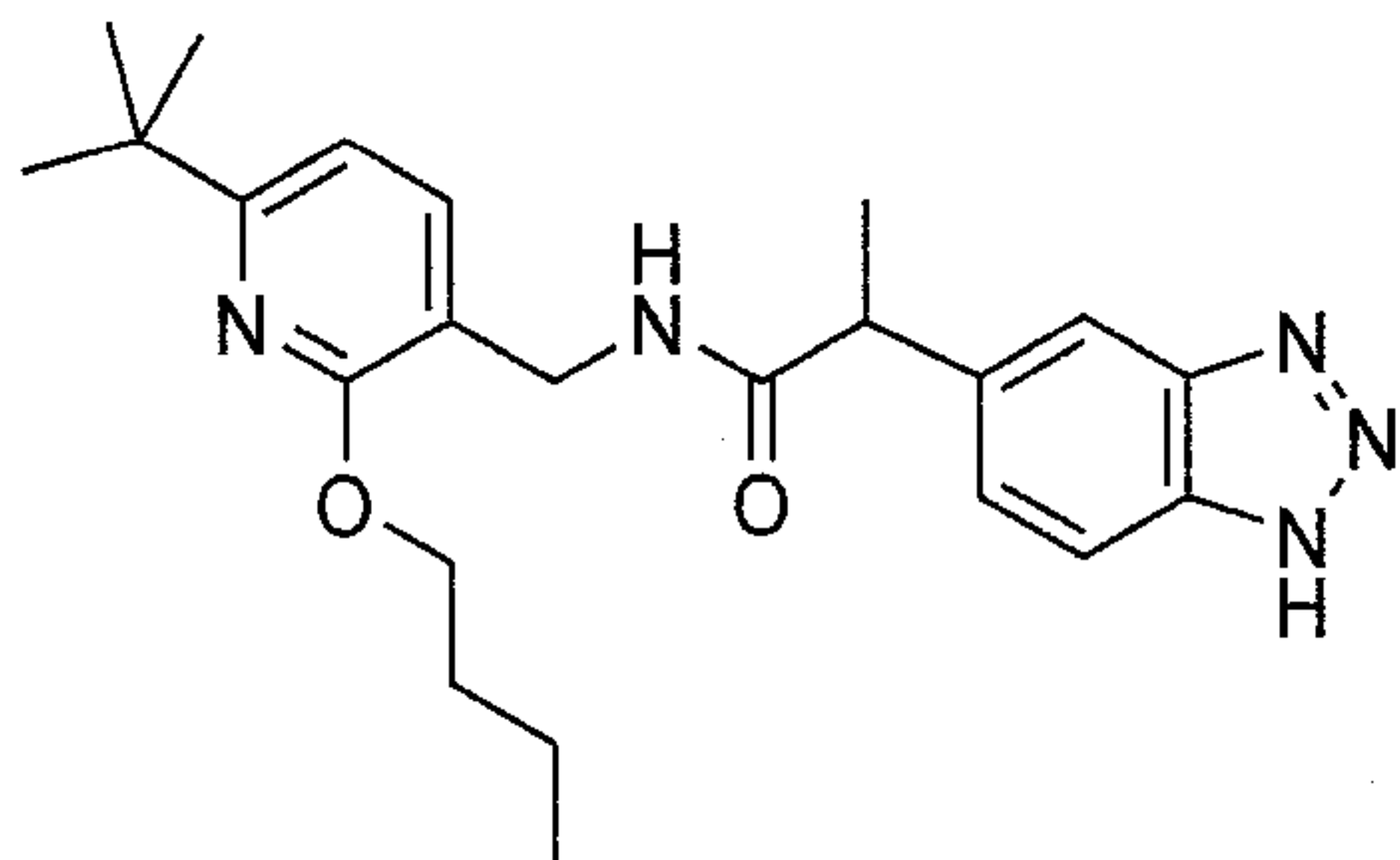
Example 21 - N-(4-tert-butyl-benzyl)-2-quinolin-6-yl-propionamide



$^1\text{H-NMR}(\text{CDCl}_3)$ δ 8.89 (dd, 1H, $J=4.2, 1.4\text{Hz}$, Ar), 8.10 (m, 2H, Ar), 7.74 (d, 1H, $J=1.8\text{Hz}$, Ar), 7.67 (dd, 1H, $J=8.6, 1.8\text{Hz}$, Ar), 7.41 (m, 1H, Ar), 7.29 (d, 2H, $J=8.3\text{Hz}$, Ar), 7.09 (d, 2H, $J=8.1\text{Hz}$, Ar), 5.74 (bt, NH), 4.39 (m, 2H, NHCH_2), 3.77 (q, 1H, $J=7.1\text{Hz}$, COCH), 1.64 (d, 3H, $J=7.1\text{Hz}$, CHCH_3), 1.28 (s, 9H, $\text{C}(\text{CH}_3)_3$)
IR 3294, 2962, 1651, 1544, 1366, 1232, 1117 cm^{-1}

Synthesis of exemplary compound 22:

Example 22 - 2-(1H-benzotriazol-5-yl)-N-(2-butoxy-6-tert-butyl-pyridin-3-ylmethyl)-propionamide

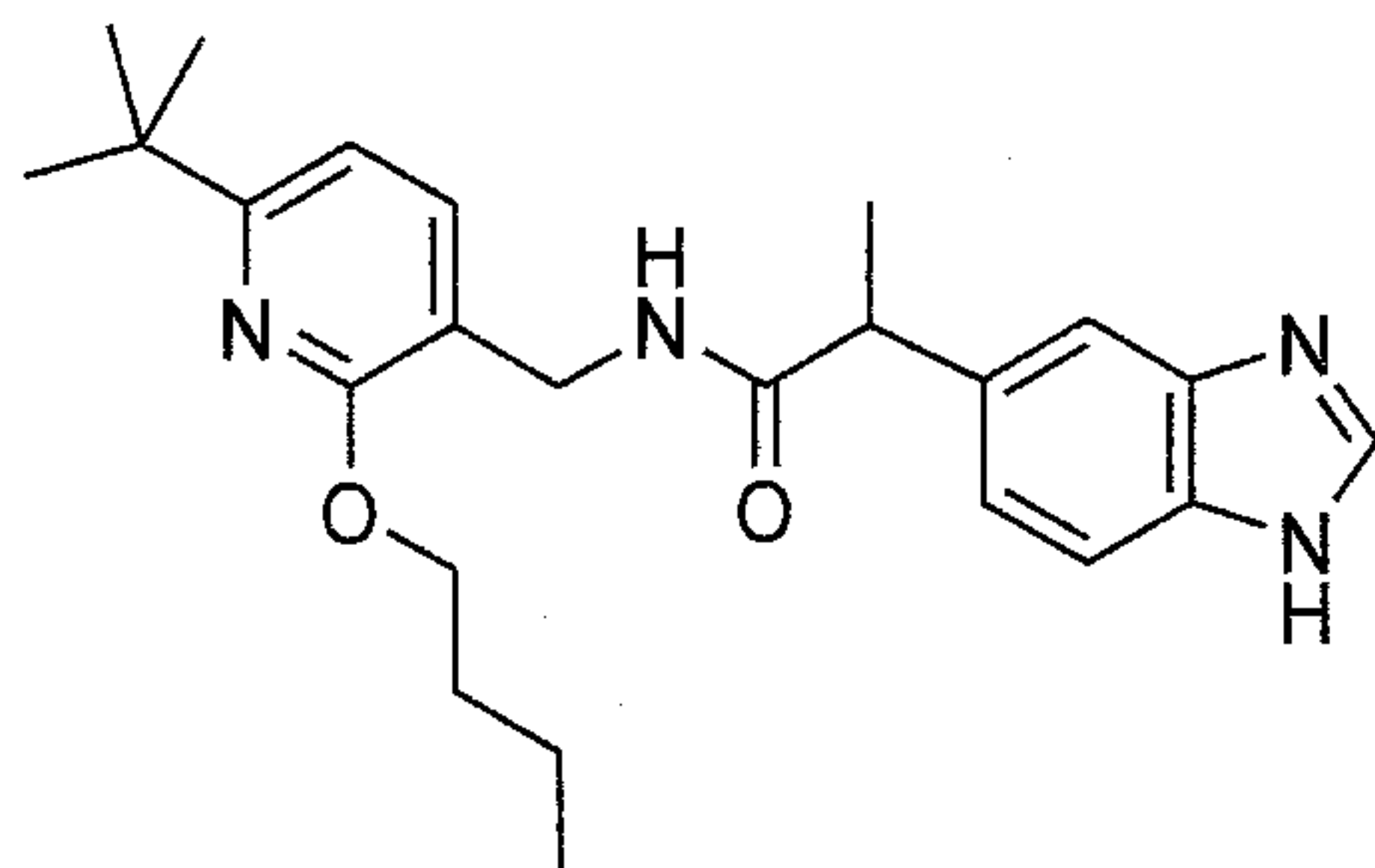


$^1\text{H-NMR}(\text{CDCl}_3)$ δ 7.80 (m, 2H, Ar), 7.37-7.30 (m, 2H, Ar), 6.75 (d, 1H, $J=7.5\text{Hz}$, Ar), 6.24 (bt, NH), 4.43-4.18 (m, 4H, OCH_2 & CH_2NH), 3.74 (q, 1H, $J=7.1\text{Hz}$, CHCH_3), 1.61-1.52 (m, 5H, CHCH_3 & OCH_2CH_2), 1.35 (m, 2H, CH_2CH_3), 1.27 (s, 9H, $\text{C}(\text{CH}_3)_3$), 0.90 (t, 3H, $J=7.4\text{Hz}$, CH_2CH_3)
IR 3300, 2960, 1648, 1543, 1457, 1413, 1255 cm^{-1}

Mass (FAB) m/z 410 $[M+H]^+$, 432 $[M+Na]^+$

Exemplary compound 23:

2-(1H-benzoimidazol-5-yl)-N-(2-butoxy-6-tert-butyl-pyridin-3-ylmethyl)-propionamide

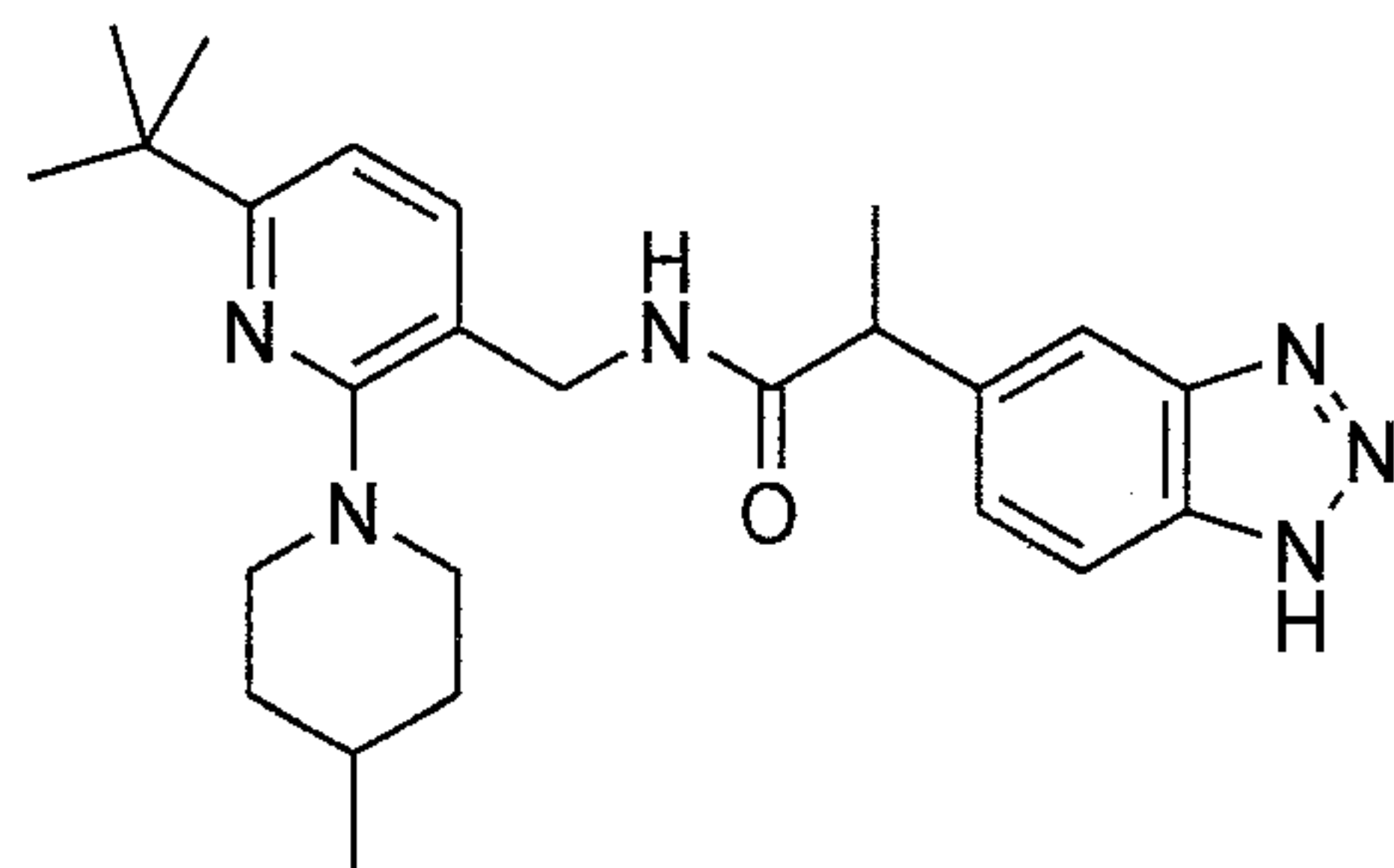


$^1\text{H-NMR}(\text{CDCl}_3)$ δ 8.00 (s, 1H, Ar), 7.59 (m, 2H, Ar), 7.30 (d, 1H, $J=7.5\text{Hz}$, Ar), 7.17 (dd, 1H, $J=8.3, 1.5\text{Hz}$, Ar), 6.73 (d, 1H, $J=7.5\text{Hz}$, Ar), 6.17 (bt, NH), 4.38-4.14 (m, 4H, OCH_2 & CH_2NH), 3.70 (q, 1H, $J=7.1\text{Hz}$, CHCH_3), 1.58-1.47 (m, 5H, CHCH_3 & OCH_2CH_2), 1.38-1.25 (m, 11H, CH_2CH_3 & $\text{C}(\text{CH}_3)_3$), 0.89 (t, 3H, $J=7.3\text{Hz}$, CH_2CH_3)
IR 3270, 2961, 1650, 1544, 1456, 1412, 1357, 1254 cm^{-1}

Mass (FAB) m/z 409 $[M+H]^+$, 431 $[M+Na]^+$

Exemplary compound 24:

2-(1H-benzotriazol-5-yl)-N-(6'-tert-butyl-4-methyl-3,4,5,6-tetrahydro-2H-[1,2']bipyridinyl-3'-ylmethyl)-propionamide



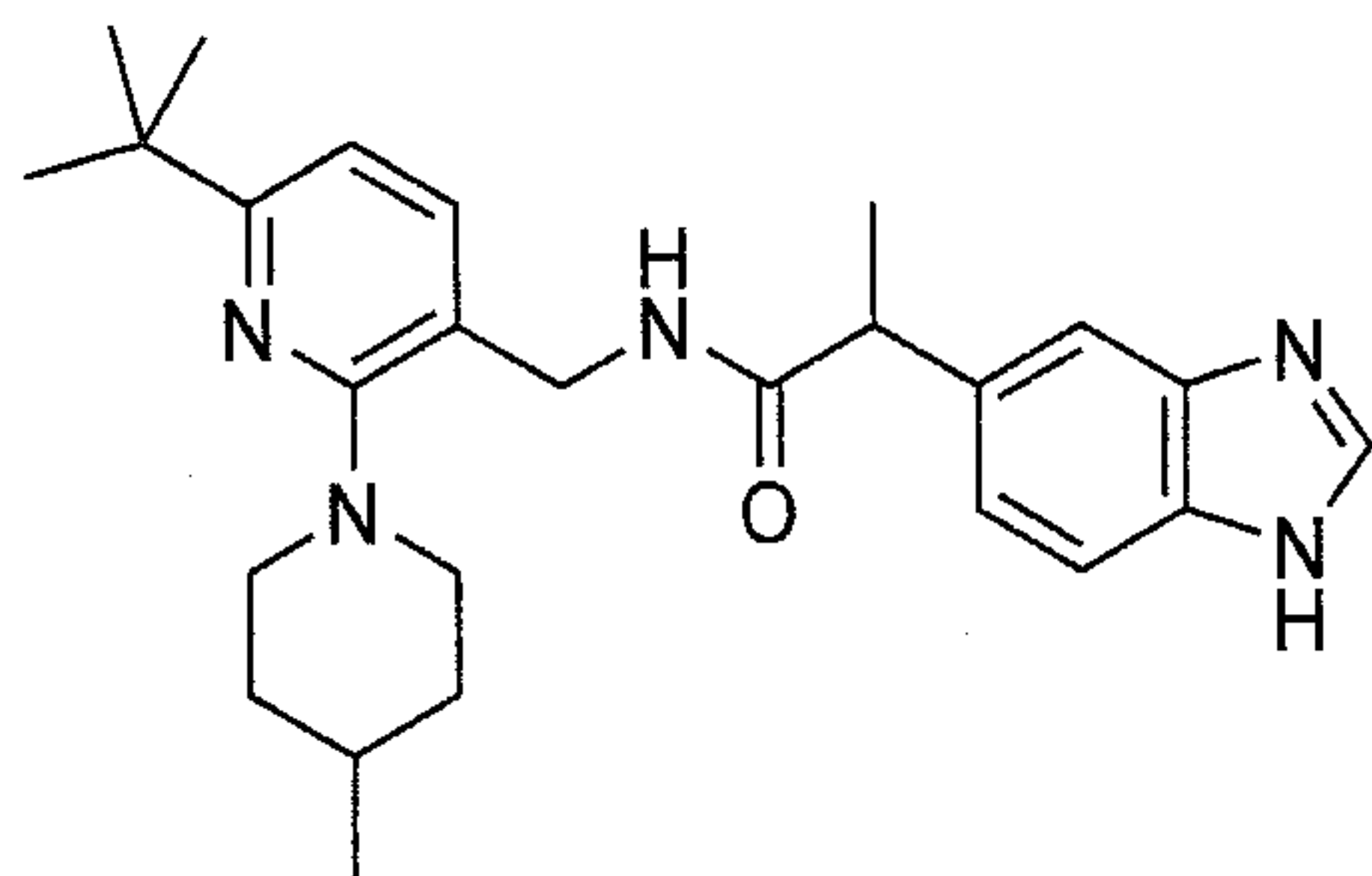
$^1\text{H-NMR}(\text{CDCl}_3+\text{CD}_3\text{OD})$ δ 7.77 (m, 2H, Ar), 7.37-7.26 (m, 2H, Ar), 6.85 (d, 1H, $J=7.7\text{ Hz}$, Ar), 4.40 (m, 2H, CH_2NH), 3.75 (q, 1H, $J=7.0\text{ Hz}$, CHCH_3), 3.18 (m, 2H, piperidine), 2.72 (m, 2H, piperidine), 1.65-1.00 (m, 5H, piperidine), 1.60 (d, 3H, $J=7.1\text{ Hz}$, CHCH_3), 1.27 (s, 9H, $\text{C}(\text{CH}_3)_3$), 0.88 (d, 3H, $J=6.6\text{ Hz}$, piperidine CH_3)

IR 3300, 2956, 1646, 1565, 1450, 1371, 1234 cm^{-1}

Mass (FAB) m/z 435 $[M+H]^+$

Exemplary compound 25:

2-(1H-benzoimidazol-5-yl)-N-(6'-tert-butyl-4-methyl-3,4,5,6-tetrahydro-2H-[1,2']bipyridinyl-3'-ylmethyl)-propionamide



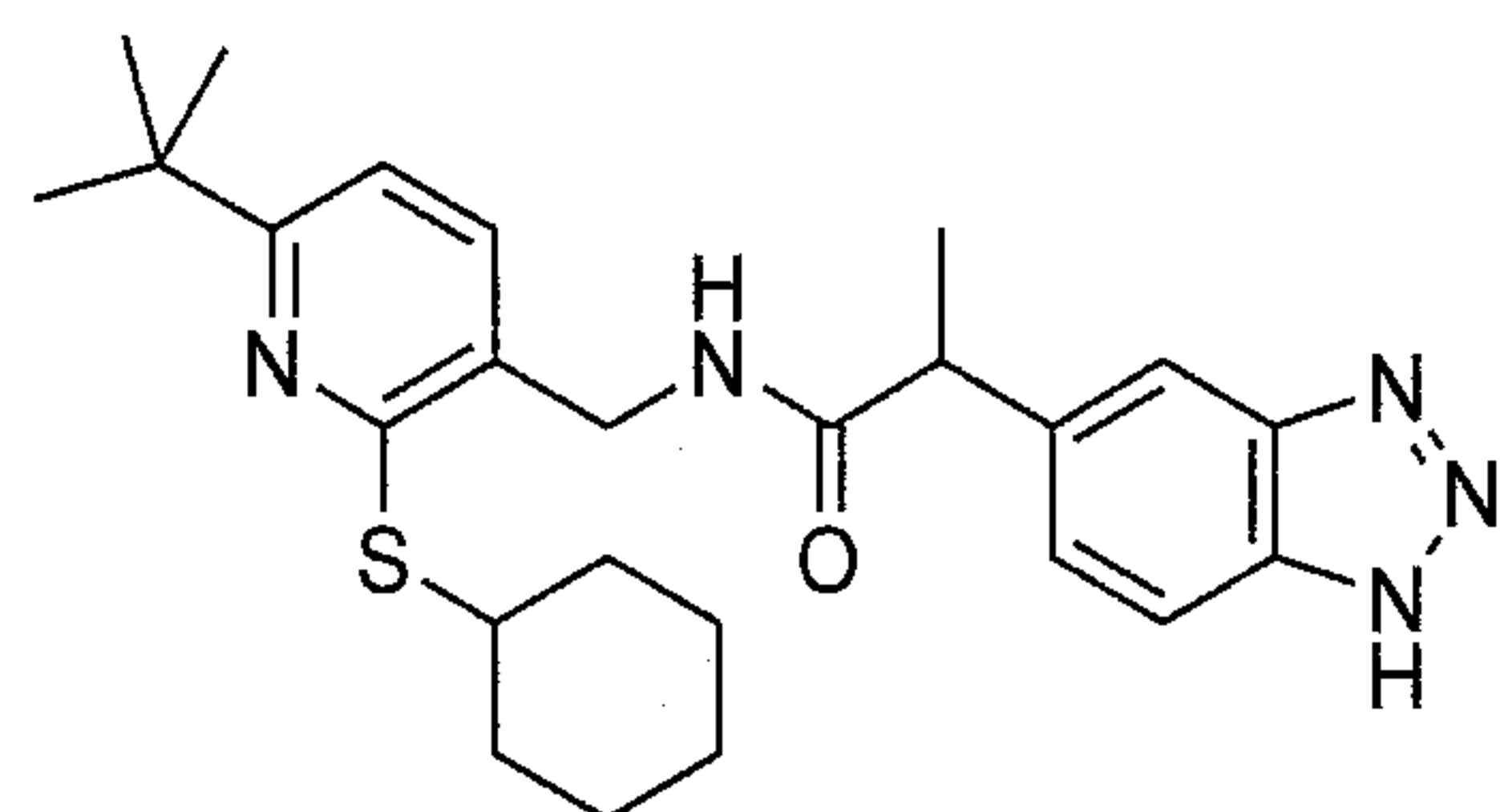
$^1\text{H-NMR}$ (CDCl_3) δ 8.02 (s, 1H, Ar), 7.60 (bs, 2H, Ar), 7.26-7.19 (m, 2H, Ar), 6.83 (d, 1H, $J=7.7$ Hz, Ar), 6.73 (bs, NH), 4.40 (m, 2H, CH_2NH), 3.71 (q, 1H, $J=6.8$ Hz, CHCH_3), 3.18 (m, 2H, piperidine), 2.69 (m, 2H, piperidine), 1.65-1.00 (m, 5H, piperidine), 1.60 (d, 3H, $J=7.1$ Hz, CHCH_3), 1.27 (s, 9H, $\text{C}(\text{CH}_3)_3$), 0.88 (d, 3H, $J=6.6$ Hz, piperidine CH_3)

IR 3280, 2955, 1649, 1566, 1451, 1401, 1371, 1252 cm^{-1}

Mass (FAB) m/z 434 $[\text{M}+\text{H}]^+$

Exemplary compound 26:

2-(1H-benzotriazol-5-yl)-N-(6-tert-butyl-2-cyclohexylsulfanyl-pyridin-3-ylmethyl)-propionamide



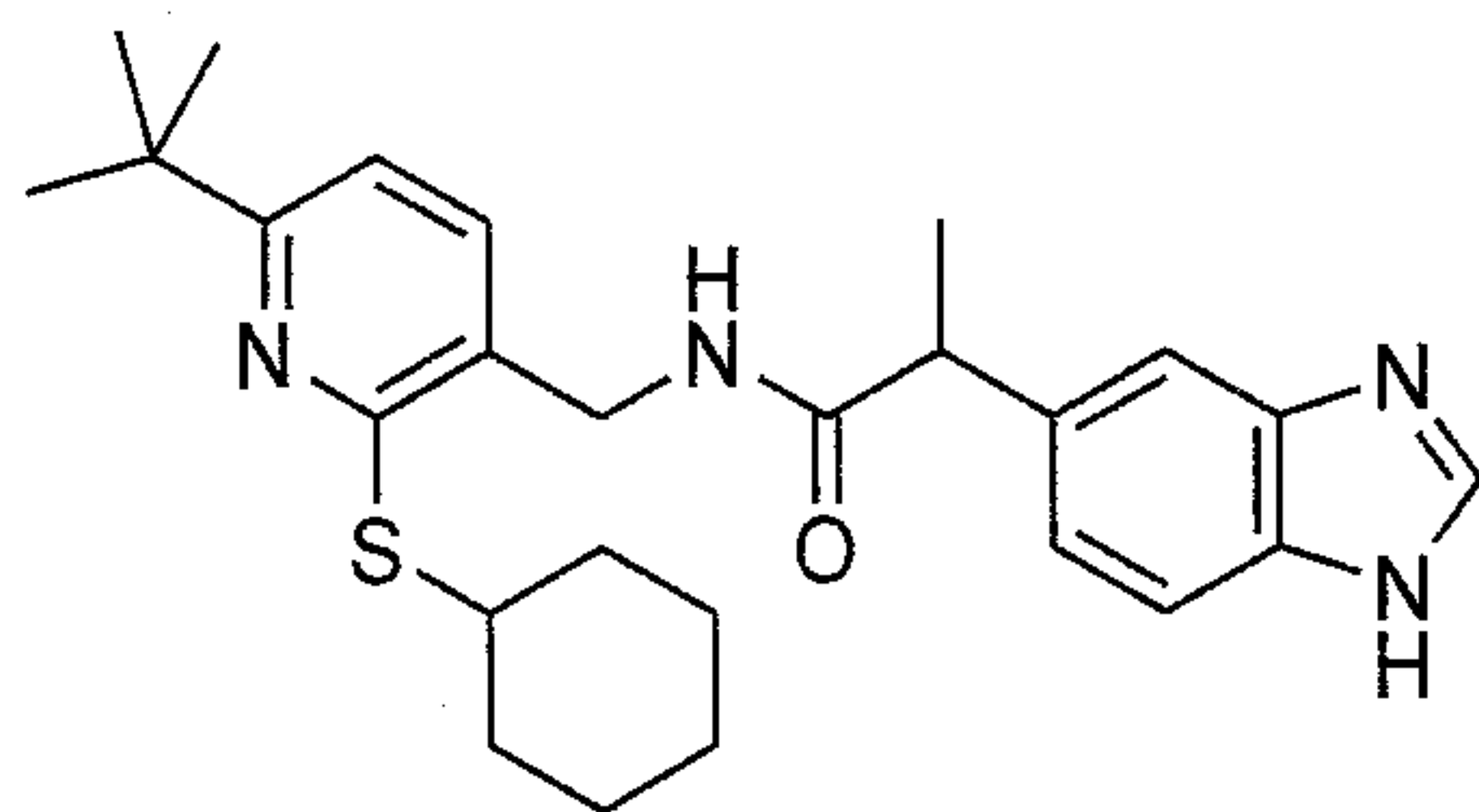
$^1\text{H-NMR}$ (CDCl_3) δ 7.79 (bs, 2H, Ar), 7.36-7.30 (m, 2H, Ar), 6.88 (d, 1H, $J=7.9$ Hz, Ar), 6.29 (bt, NH), 4.36 (m, 2H, CH_2NH), 3.92 (m, 1H, SCH), 3.78 (q, 1H, $J=7.1$ Hz, CHCH_3), 2.05-1.20 (m, 10H, cyclohexyl), 1.60 (d, 3H, $J=7.1$ Hz, CHCH_3), 1.28 (s, 9H, $\text{C}(\text{CH}_3)_3$)

IR 3278, 2929, 2854, 1649, 1553, 1450, 1370, 1203, 734 cm^{-1}

Mass (FAB) m/z 452 $[\text{M}+\text{H}]^+$, 474 $[\text{M}+\text{Na}]^+$

Exemplary compound 27:

2-(1H-benzoimidazol-5-yl)-N-(6-tert-butyl-2-cyclohexylsulfanyl-pyridin-3-ylmethyl)-propionamide

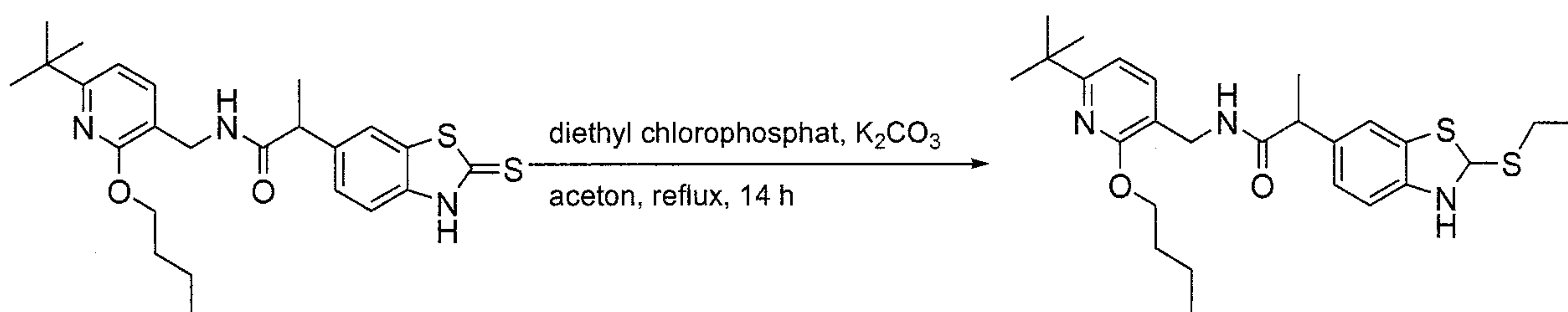


$^1\text{H-NMR}$ (CDCl_3) δ 8.03 (s, 1H, Ar), 7.60 (bs, 2H, Ar), 7.25 (m, 2H, Ar), 6.88 (d, 1H, $J=7.7$ Hz, Ar), 5.94 (bt, NH), 4.28 (m, 2H, CH_2NH), 3.92 (m, 1H, SCH), 3.72 (q, 1H, $J=7.3$ Hz, CHCH_3), 2.01 (m, 2H, cyclohexyl), 1.77-1.20 (m, 8H, cyclohexyl), 1.59 (d, 3H, $J=7.1$ Hz, CHCH_3), 1.29 (s, 9H, $\text{C}(\text{CH}_3)_3$)

IR 3270, 2928, 2854, 1652, 1554, 1449, 733 cm^{-1}

Mass (FAB) m/z 451 $[\text{M}+\text{H}]^+$, 473 $[\text{M}+\text{Na}]^+$

Synthesis of exemplary compound 29:

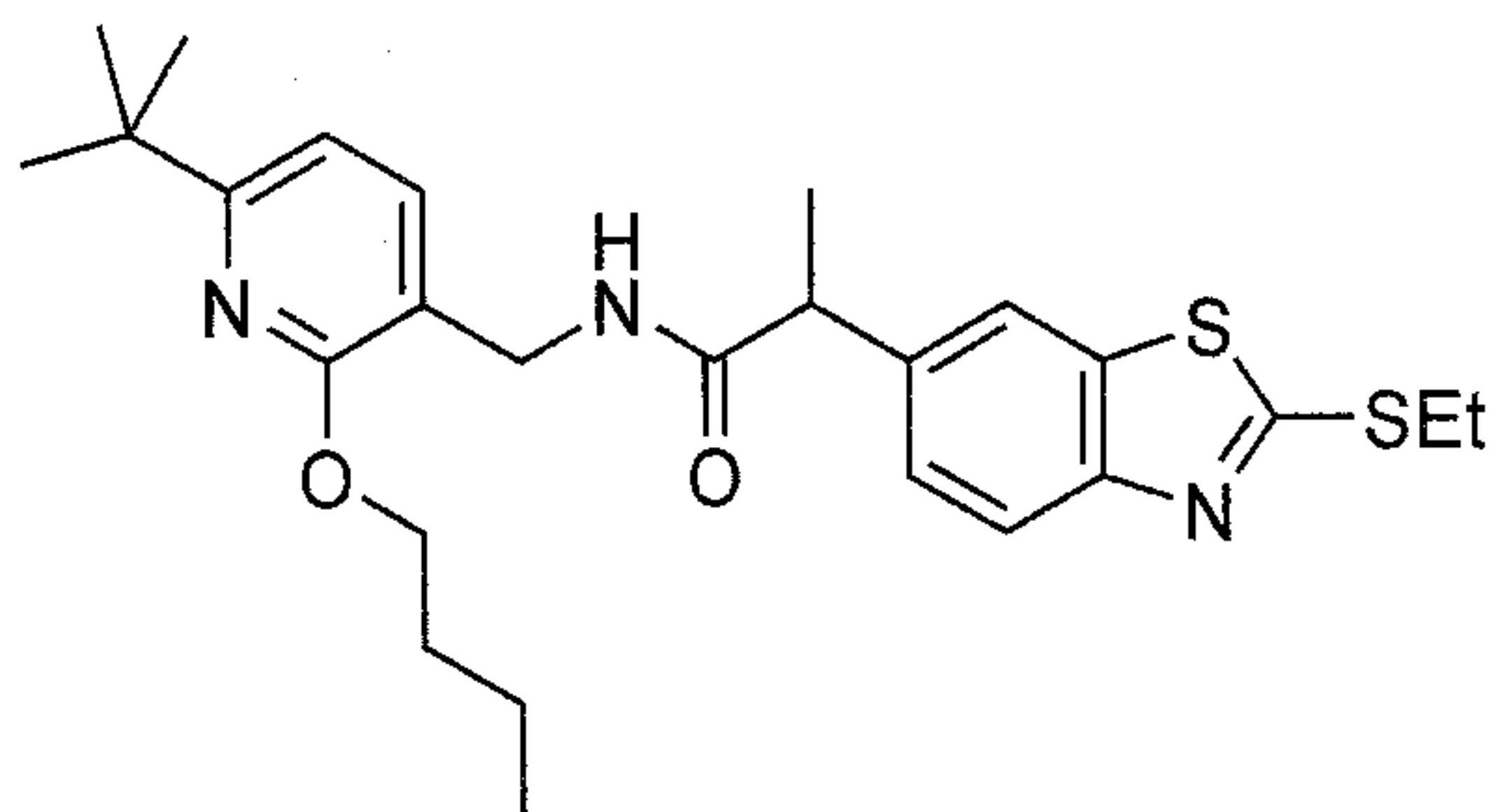


[Key: phosphat = phosphate; acetone = acetone]

n-(2-butyloxy-6-tert-butyl-pyridin-3-ylmethyl)-2-(2-ethylsulfanyl-2,3-dihydro-benzothiazol-6-yl)-propionamide

Diethylchlorophosphate (87 mg) and potassium carbonate (111 mg) were added at room temperature to a stirred solution of dwk-1877 (146 mg) in acetone. After 14 h of reflux, the reaction mixture was cooled to RT. The resultant mixture was diluted with water and extracted with EtOAc. The combined organic layer was dried over magnesium sulphate, filtered and concentrated under a vacuum. The resultant residue underwent chromatography on silica gel (n-hex:EtOAc=4:1 to 2:1) in order to obtain the product as a white solid. (122 mg, 78.7%)

Example 29 - N-(2-butoxy-6-tert-butyl-pyridin-3-ylmethyl)-2-(2-ethylsulfanyl-benzothiazol-6-yl)-propionamide

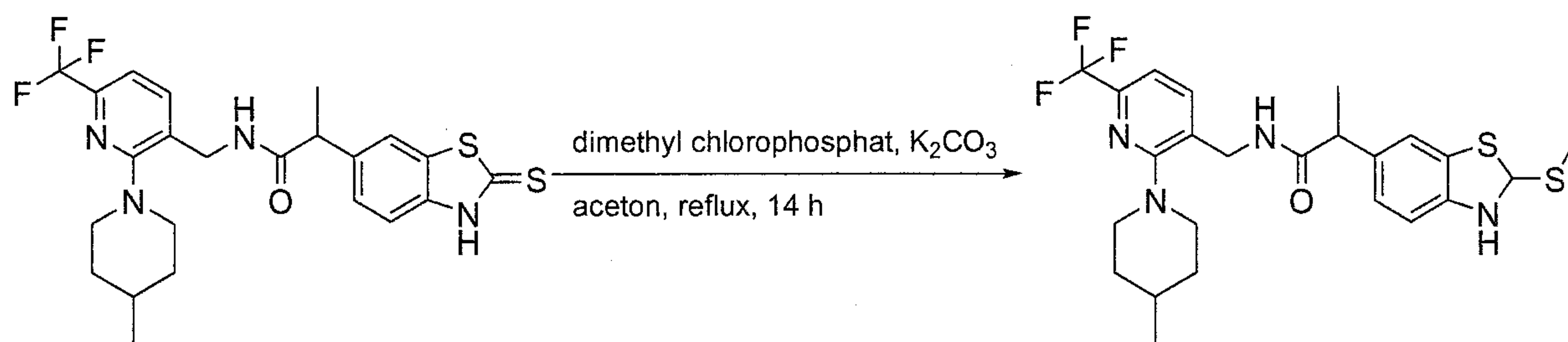


$^1\text{H-NMR}(\text{CDCl}_3)$ δ 7.80 (d, 1H, $J=8.4\text{Hz}$, Ar), 7.67 (d, 1H, $J=1.7\text{Hz}$, Ar), 7.34 (d, 1H, $J=7.5\text{Hz}$, Ar), 7.29 (dd, 1H, $J=8.4, 1.8\text{Hz}$, Ar), 6.76 (d, 1H, $J=7.3\text{Hz}$, Ar), 5.98 (bs, NH), 4.35-4.13 (m, 4H, OCH_2 & CH_2NH), 3.63 (q, 1H, $J=7.1\text{Hz}$, CHCH_3), 3.35 (q, 2H, $J=7.5\text{Hz}$, SCH_2CH_3), 1.59-1.47 (m, 8H), 1.32 (m, 2H, CH_2CH_3), 1.28 (s, 9H, $\text{C}(\text{CH}_3)_3$), 0.90 (t, 3H, $J=7.3\text{Hz}$, CH_2CH_3)

IR 3296, 2960, 1648, 1543, 1450, 1412, 1254, 1002 cm^{-1}

Mass (FAB) m/z 486 $[\text{M}+\text{H}]^+$, 508 $[\text{M}+\text{Na}]^+$

Synthesis of exemplary compound 30:



[Key: phosphat = phosphate]

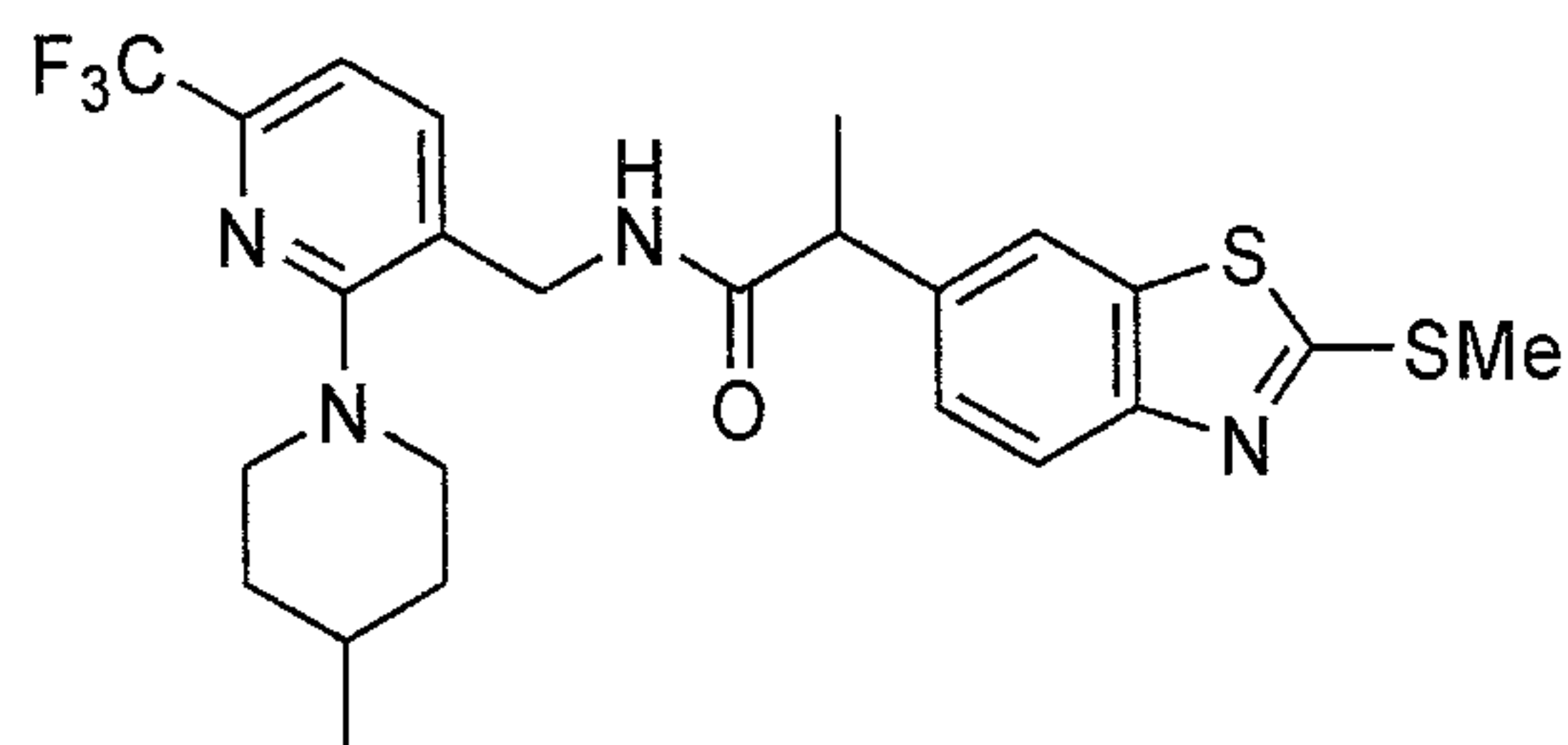
2-(2-methylsulfanyl-2,3-dihydrobenzothiazol-6-yl)-N-(4-methyl-6'-trifluoromethyl-3,4,5,6-tetrahydro-2H-[1,2']bipyridinyl-3'-ylmethyl)-propionamide

Dimethylchlorophosphate (92 mg) and potassium carbonate (140 mg) were added at room temperature to a stirred solution of dwk-1891 (188 mg) in acetone. After 14 h of reflux, the reaction mixture was cooled to RT. The resultant mixture was diluted with water and extracted with EtOAc. The combined organic layer was dried over magnesium sulphate, filtered and concentrated under a vacuum. The resultant

residue underwent chromatography on silica gel (n-hex:EtOAc=2:1) in order to obtain the product as a white solid. (164 mg, 84.9%)

Example 30:

2-(2-methylsulfanyl-benzothiazol-6-yl)-N-(4-methyl-6'-trifluoromethyl-3,4,5,6-tetrahydro-2H-[1,2']bipyridinyl-3'-ylmethyl)-propionamide



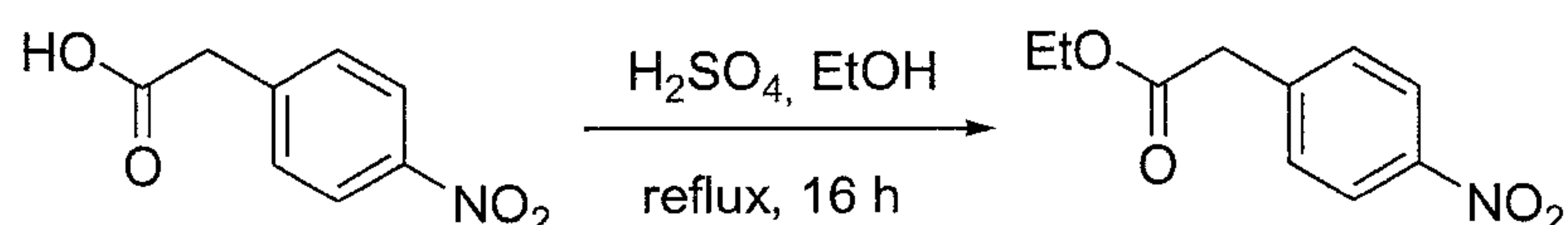
$^1\text{H-NMR}$ (CDCl_3) δ 7.82 (d, 1H, $J=8.4$ Hz, Ar), 7.71 (d, 1H, $J=1.7$ Hz, Ar), 7.43 (d, 1H, $J=7.9$ Hz, Ar), 7.32 (dd, 1H, $J=8.4, 1.8$ Hz, Ar), 7.16 (d, 1H, $J=7.7$ Hz, Ar), 6.19 (bt, NH), 4.45 (m, 2H, CH_2NH), 3.70 (q, 1H, $J=7.1$ Hz, CHCH_3), 3.25 (m, 2H, piperidine), 2.79 (s, 3H, SCH_3), 2.76 (m, 2H, piperidine), 1.70-1.05 (m, 5H, piperidine), 1.60 (d, 3H, $J=7.1$ Hz, CHCH_3), 0.92 (d, 3H, $J=6.6$ Hz, piperidine CH_3)

IR 3295, 2925, 1651, 1540, 1453, 1177, 1136 cm^{-1}

Mass (FAB) m/z 509 $[\text{M}+\text{H}]^+$

Synthesis of exemplary compound 32:

a)

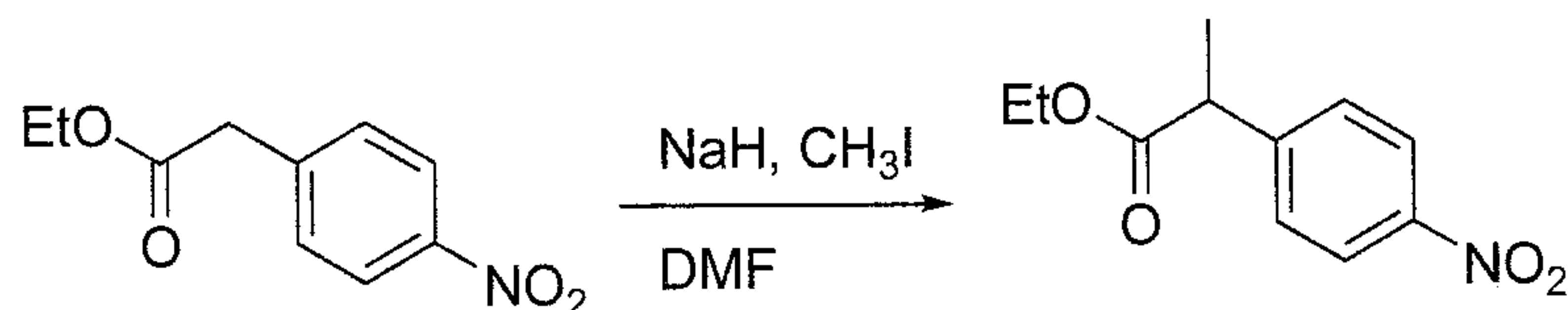


(4-nitrophenyl)-acetic acid-ethyl ester

Sulphuric acid (0.3 ml) was added at room temperature to the solution of starting material (3.42 g) in ethanol (30 ml). The reaction mixture was stirred for 16 h under reflux and subsequently cooled to room temperature. Ethanol was concentrated under a reduced vacuum and water was added to the residue. The aqueous layer was extracted with EtOAc and the organic layer was subsequently dried over magnesium sulphate, filtered and concentrated under a vacuum. The resultant residue underwent

chromatography on silica gel (n-hex:EtOAc=4:1) in order to obtain the product as a white solid.

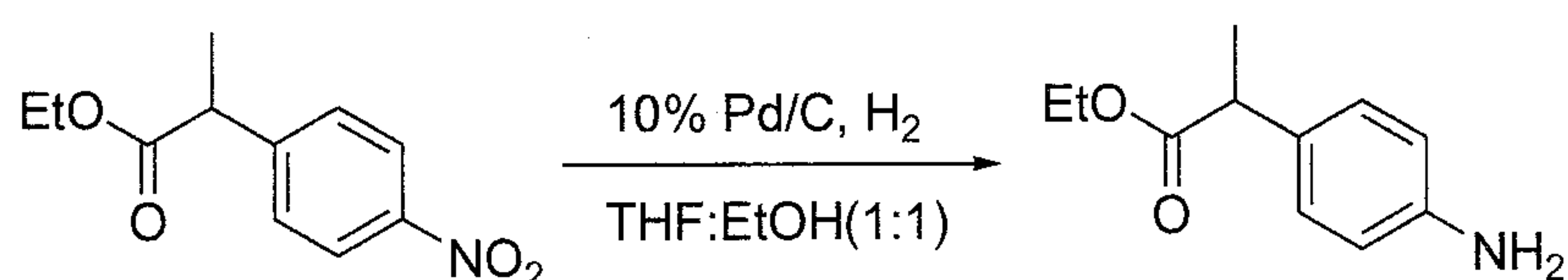
b)



2-(4-nitrophenyl)-propionic acid-ethyl ester

Sodium hydride (0.78 g) and iodomethane (1.21 ml) were added slowly at 0 °C to a stirred solution of (4-nitrophenyl)-acetic acid-ethyl ester (3.88 g) in DMF (15 ml). After 14 h of stirring at room temperature, this reaction mixture was quenched with water. This mixture was extracted with diethyl ether and the combined organic layer was subsequently dried over magnesium sulphate, filtered and concentrated under a vacuum. The resultant residue underwent chromatography on silica gel (n-hex:EtOAc=10:1 to 4:1) in order to obtain the product as a light yellow oil. (89.1%)

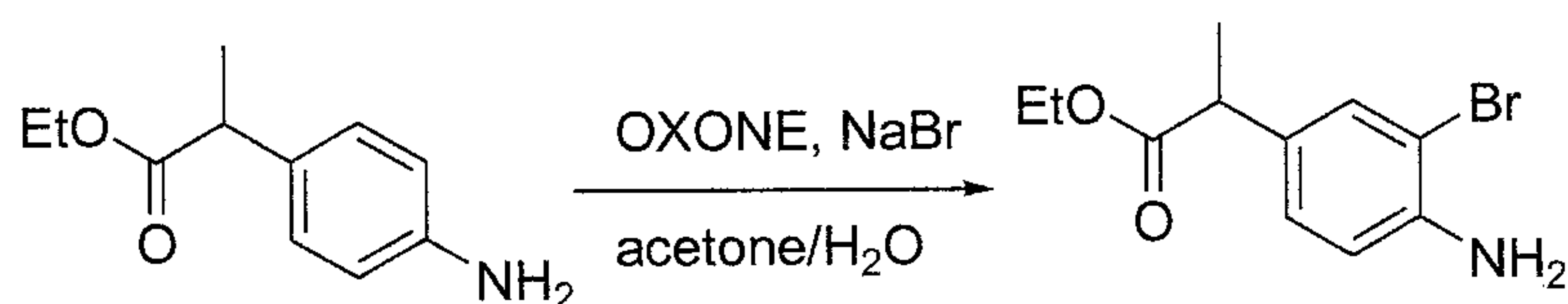
c)



2-(4-aminophenyl)-propionic acid-ethyl ester

10% Pd/C (405 mg) was slowly added at room temperature to a stirred solution of 2-(4-nitrophenyl)-propionic acid-ethyl ester (3.67 g) in THF (40 ml) and EtOH (40 ml). After 20 h of hydrogenation with H₂ round flask, the reaction mixture was filtered off using diatomite and washed with EtOAc. The organic layer was dried over magnesium sulphate, filtered and concentrated under a vacuum. The resultant residue underwent chromatography on silica gel (n-hex:EtOAc=4:1) in order to obtain the product as a light yellow oil. (99.7%)

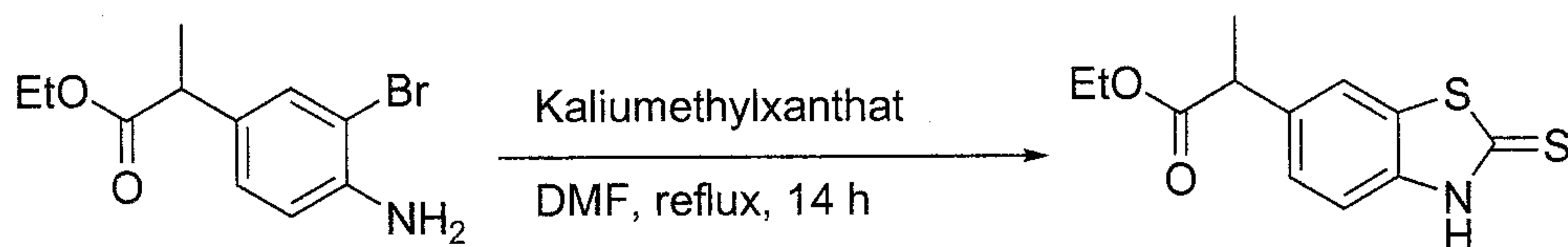
d)



2-(4-amino-3-bromo-phenyl)-propionic acid-ethyl ester

OXONE (10.0 g) and NaBr (6.75 g) were added at room temperature to a stirred solution of 2-(4-aminophenyl)-propionic acid-ethyl ester (3.16 g) in acetone and water. After 2 min of stirring at room temperature, the reaction mixture was diluted with EtOAc and poured into 5% aqueous Na₂S₂O₃ solution. The organic layer was dried over magnesium sulphate, filtered and concentrated under a vacuum. The resultant residue underwent chromatography on silica gel (n-hex:EtOAc=6:1) in order to obtain the product as a white solid. (49.6%)

e)

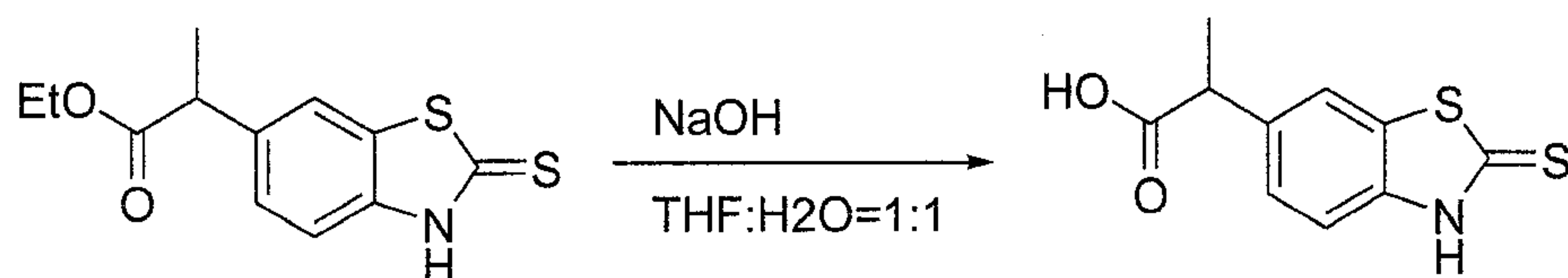


[Kaliumethylxanthat = Potassium ethyl xanthate]

2-(2-thioxo-2,3-dihydro-benzothiazol-6-yl)-propionic acid-ethyl ester

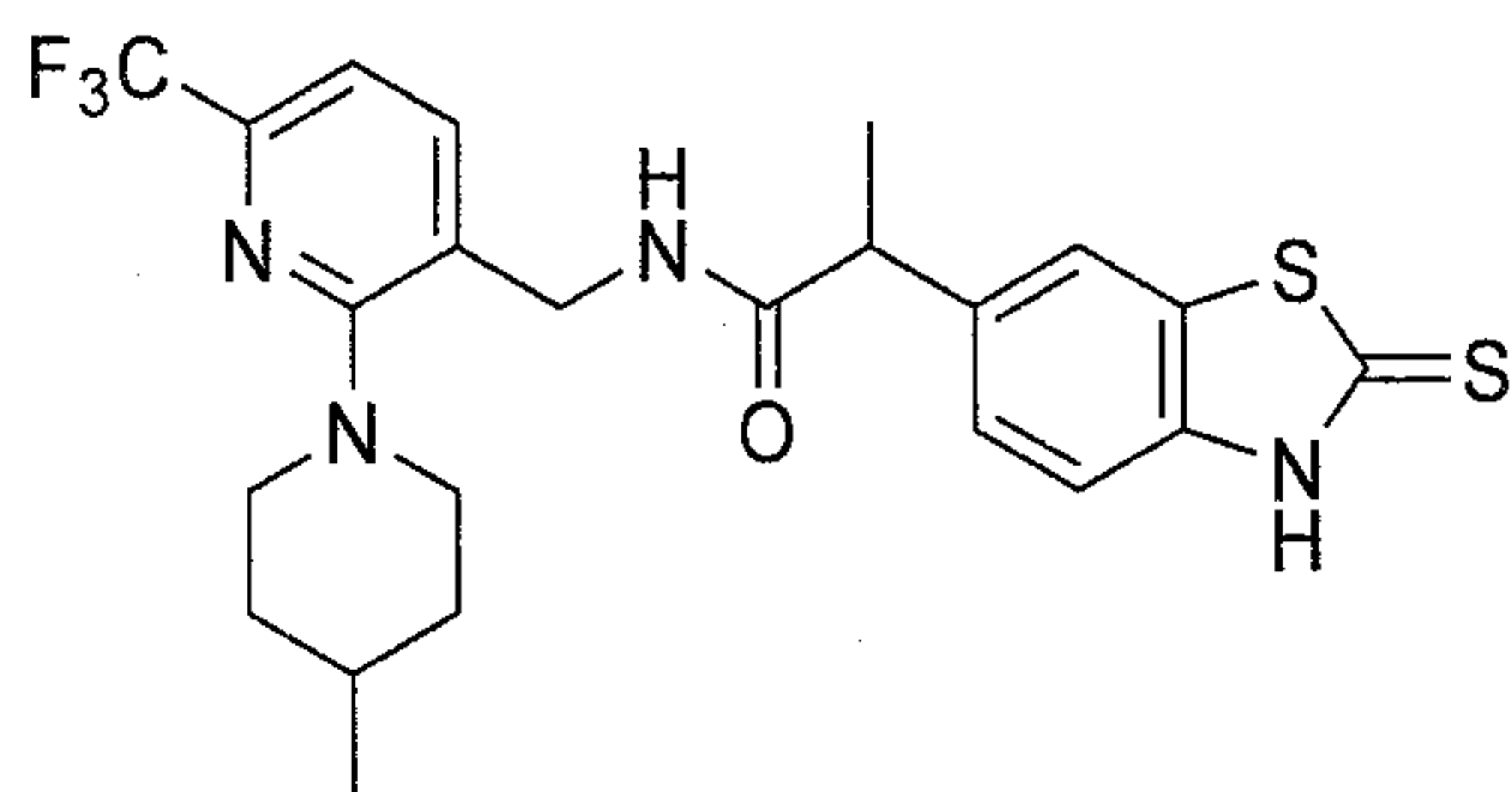
Potassium ethyl xanthate (1.86 g) was added at room temperature to a stirred solution of 2-(4-amino-3-bromo-phenyl)-propionic acid-ethyl ester (1.58 g) in DMF. After 14 h of stirring under reflux, the reaction mixture was cooled to room temperature and diluted with EtOAc. The organic layer was washed with water and salt water, dried over magnesium sulphate and concentrated under a vacuum. The resultant residue underwent chromatography on silica gel (n-hex:EtOAc=6:1 to 4:1) in order to obtain the product as a yellow oil. (595 mg, 38.3%)

f)



2-(2-thioxo-2,3-dihydro-benzothiazol-6-yl)-propionic acid

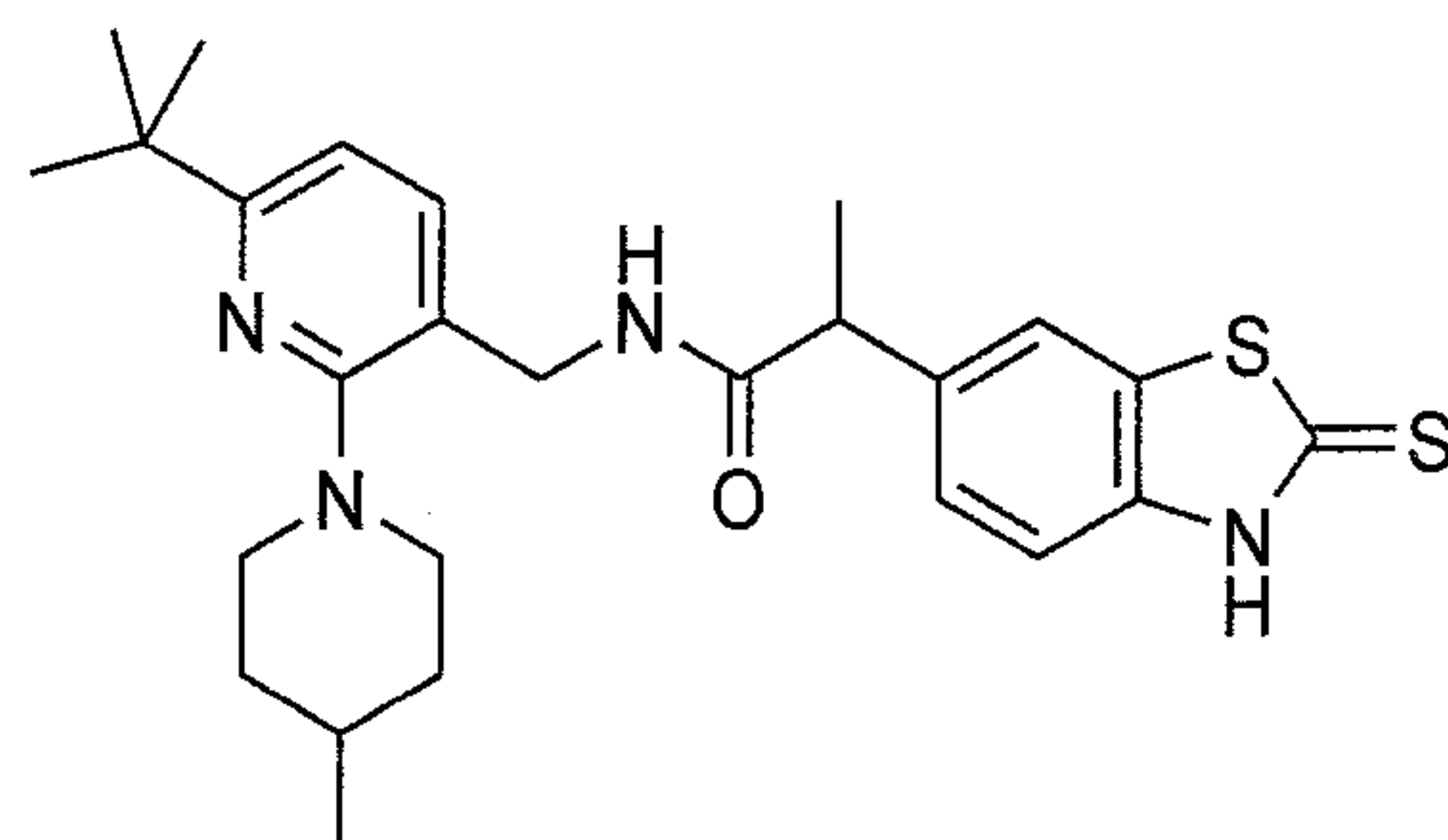
NaOH (229 mg) was added at room temperature to a stirred solution of 2-(2-thioxo-2,3-dihydro-benzothiazol-6-yl)-propionic acid-ethyl ester (587 mg) in THF (4 ml) and H₂O (4 ml). After 14 h of stirring at room temperature, the reaction mixture was acidified with AcOH (pH = 4) and diluted with water. The resultant mixture was extracted with dichloromethane and the combined organic layer was dried over magnesium sulphate, filtered and concentrated under a vacuum. (511 mg, 97%, light yellow solid)

Example 32 - N-(4-methyl-6'-trifluoromethyl-3,4,5,6-tetrahydro-2H-[1,2']bipyridinyl-3'-ylmethyl)-2-(2-thioxo-2,3-dihydro-benzothiazol-6-yl)-propionamide

¹H-NMR (CDCl₃) δ 7.51 (d, 1H, J=7.9 Hz, Ar), 7.41 (d, 1H, J=1.3 Hz, Ar), 7.25-7.19 (m, 2H, Ar), 7.12 (d, 1H, J=8.4 Hz, Ar), 6.42 (bt, NH), 4.51 (m, 2H, CH₂NH), 3.64 (q, 1H, J=7.1 Hz, CHCH₃), 3.31 (m, 2H, piperidine), 2.81 (m, 2H, piperidine), 1.78-1.10 (m, 5H, piperidine), 1.57 (d, 3H, J=7.1 Hz, CHCH₃), 0.96 (d, 3H, J=6.6 Hz, piperidine CH₃)

IR 3300, 2924, 1650, 1534, 1472, 1416, 1332, 1177, 1136, 1035 cm⁻¹

Mass (FAB) m/z 495 [M+H]⁺

Exemplary compound 33:**N-(6'-tert-butyl-4-methyl-3,4,5,6-tetrahydro-2H-[1,2']bipyridinyl-3'-ylmethyl)-2-(2-thioxo-2,3-dihydro-benzothiazol-6-yl)-propionamide**

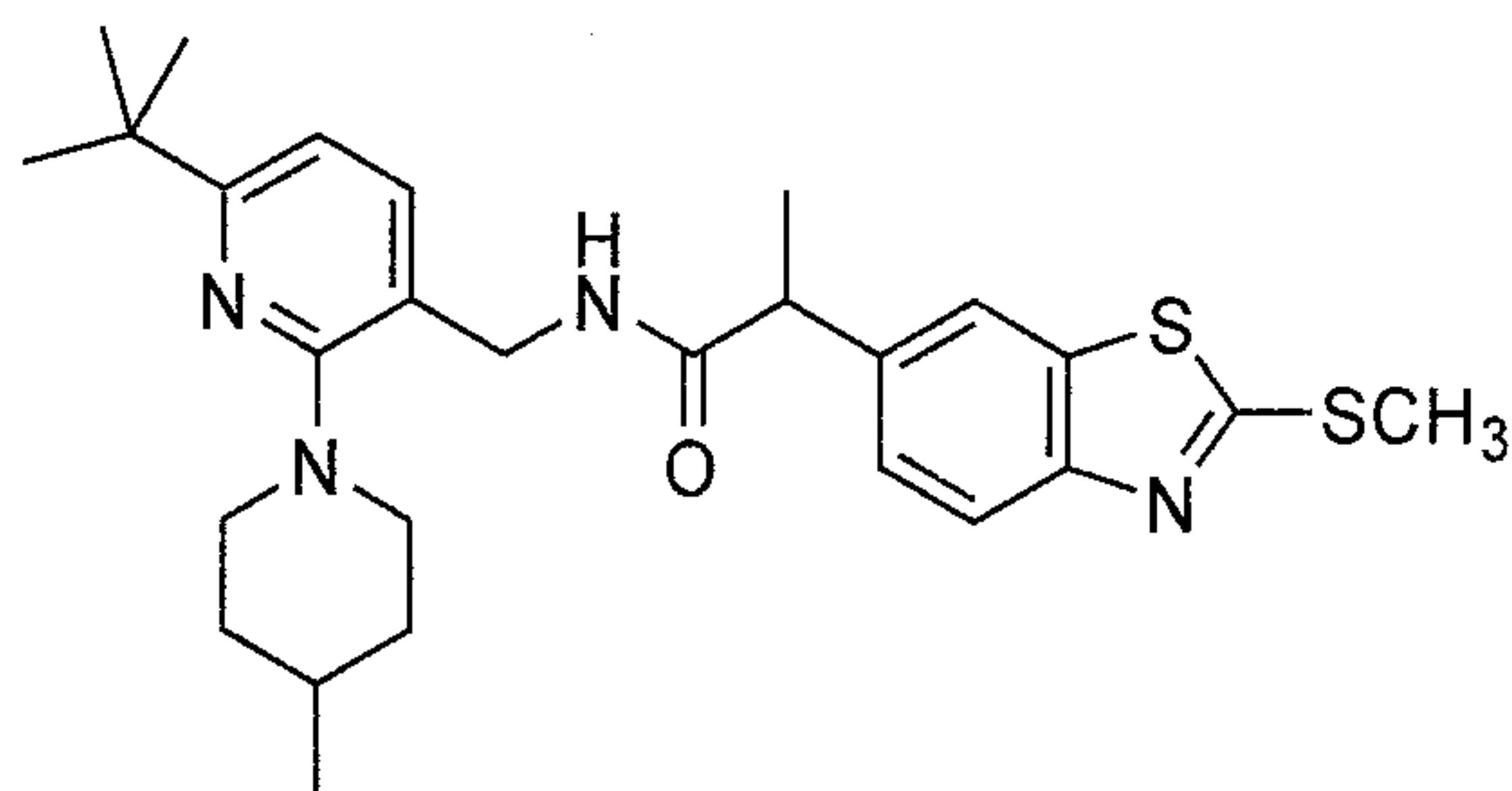
$^1\text{H-NMR}$ (CDCl_3) δ 7.40-7.21 (m, 3H, Ar), 7.06 (d, 1H, $J=8.4$ Hz, Ar), 7.05 (bs, NH), 6.90 (d, 1H, $J=7.7$ Hz, Ar), 4.46 (m, 2H, CH_2NH), 3.61 (q, 1H, $J=7.1$ Hz, CHCH_3), 3.25 (m, 2H, piperidine), 2.83-2.71 (m, 2H, piperidine), 1.75-1.50 (m, 3H, piperidine), 1.55 (d, 3H, $J=7.1$ Hz, CHCH_3), 1.30 (s, 9H, $\text{C}(\text{CH}_3)_3$), 1.30-1.10 (m, 2H, piperidine), 0.95 (d, 3H, $J=6.4$ Hz, piperidine CH_3)

IR 3295, 2923, 1647, 1536, 1475, 1400, 1034 cm^{-1}

Mass (FAB) m/z 483 $[\text{M}+\text{H}]^+$

Exemplary compound 34:

N-(6'-tert-butyl-4-methyl-3,4,5,6-tetrahydro-2H-[1,2']bipyridinyl-3'-ylmethyl)-2-(2-methylsulfanyl-benzothiazol-6-yl)-propionamide



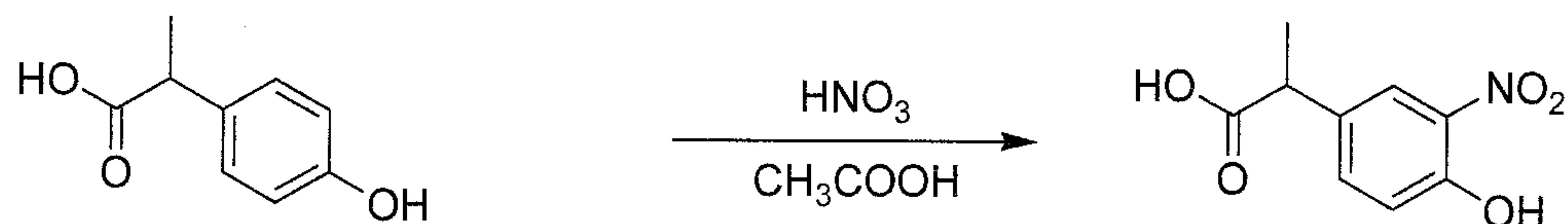
$^1\text{H-NMR}$ (CDCl_3) δ 7.80 (d, 1H, $J=8.3$ Hz, Ar), 7.72 (s, 1H, Ar), 7.34-7.25 (m, 2H, Ar), 6.85 (d, 1H, $J=8.0$ Hz, Ar), 6.68 (bt, NH), 4.40 (m, 2H, CH_2NH), 3.66 (q, 1H, $J=6.8$ Hz, CHCH_3), 3.18 (m, 2H, piperidine), 2.79 (s, 3H, SCH_3), 2.71 (m, 2H, piperidine), 1.65-1.40 (m, 6H, piperidine & CHCH_3), 1.28 (s, 9H, $\text{C}(\text{CH}_3)_3$), 1.20-1.00 (m, 2H, piperidine), 0.89 (d, 3H, $J=6.4$ Hz, piperidine CH_3)

IR 3293, 2955, 1648, 1543, 1450, 1238, 1013 cm^{-1}

Mass (FAB) m/z 497 $[\text{M}+\text{H}]^+$

Synthesis of exemplary compound 35:

a)



2-(4-hydroxy-3-nitrophenyl)-propionic acid

60% nitric acid (552 mg, 1.11 mmol) was added at room temperature to 2-(4-hydroxyphenyl)-propionic acid (788 mg, 1 mmol) in CH_3COOH (10 ml).

The reaction mixture was stirred for 1 h.

Ice water (50 ml) was added to the reaction mixture.

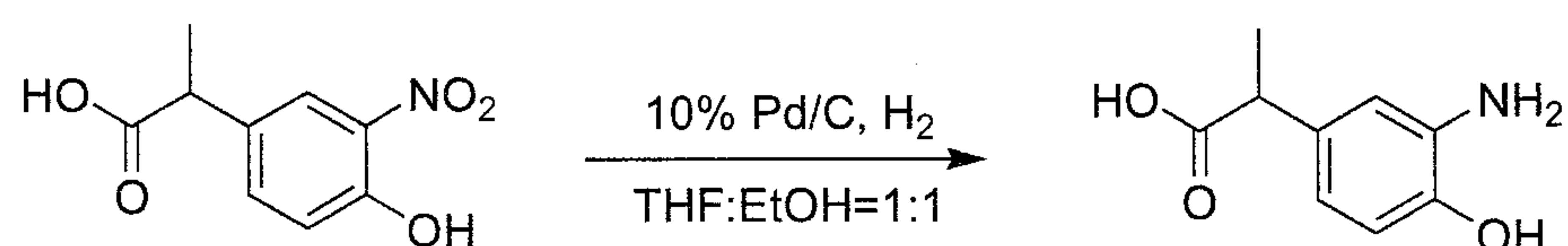
The mixture was extracted with ethyl acetate.

The extracts were washed with water, dried over magnesium sulphate, filtered and concentrated under a vacuum.

The residue was purified by flash column chromatography with CH₂Cl₂:MeOH.

Light yellow solid, yield: 86.9%.

b)



2-(3-amino-4-hydroxyphenyl)-propionic acid

10% Pd/C (90 mg) was added slowly at room temperature to a mixture of 2-(4-hydroxy-3-nitrophenyl)-propionic acid (810 g, 1 mmol) in THF (20 ml) and EtOH (20 ml).

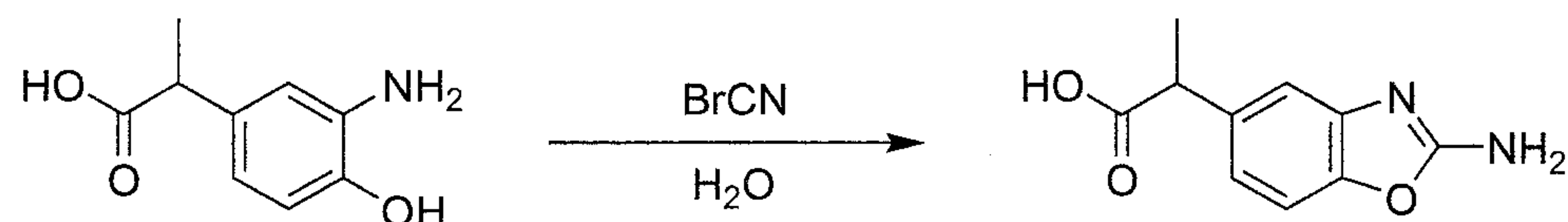
The reaction mixture was hydrogenated for 3 h with H₂ round flask at 45 psi.

The mixture was filtered off using diatomite and washed with EtOH.

The filtrate was concentrated under a vacuum.

Light black solid, yield: 99.2%

c)



Reference : DE 2 324 443

2-(2-aminobenzoxazol-5-yl)-propionic acid

BrCN (383 mg, 1.04 mmol) was added at room temperature to a mixture of 2-(3-amino-4-hydroxyphenyl)-propionic acid (630 mg, 1 mmol) in H₂O (33 ml).

The reaction mixture was stirred for 40 h at room temperature.

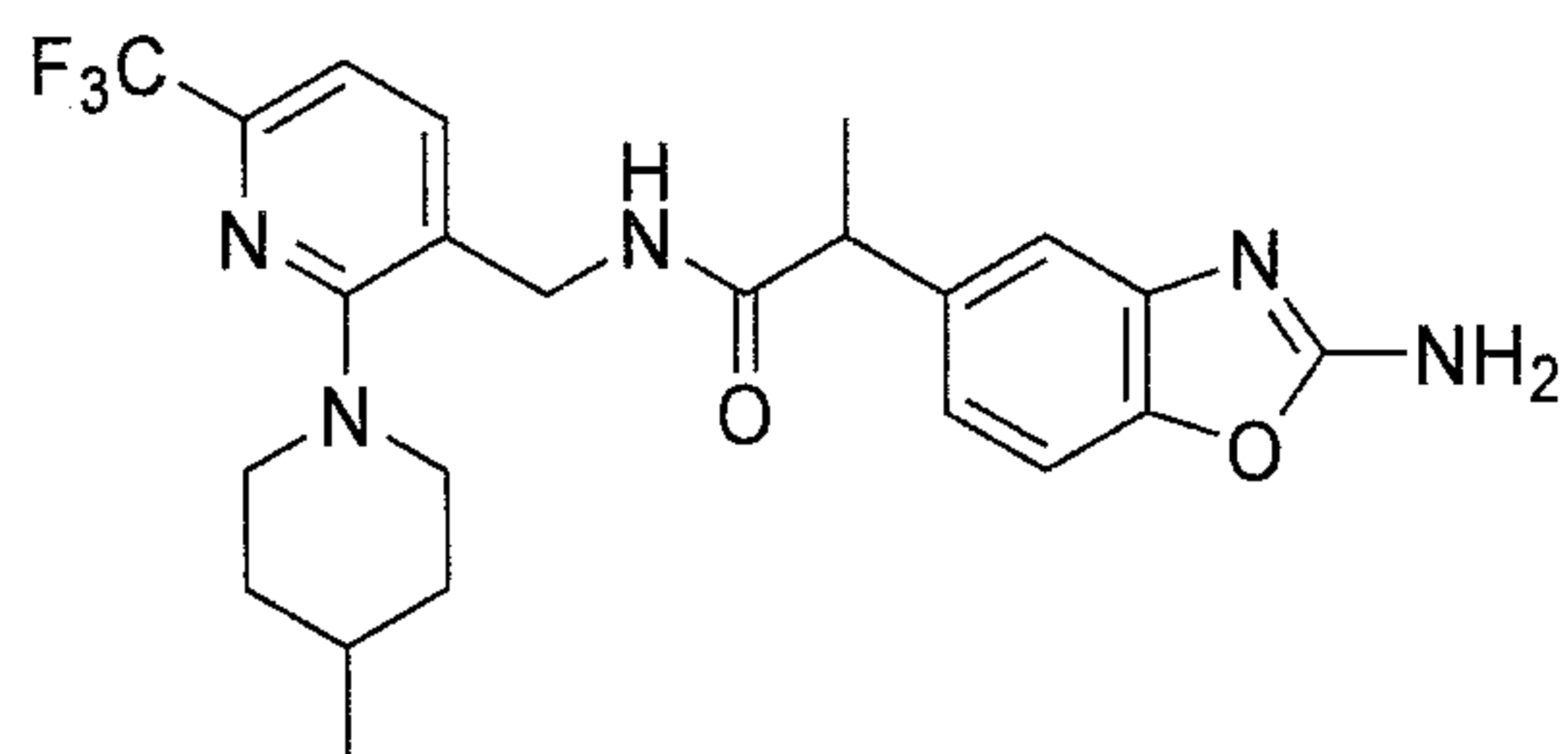
The reaction mixture was neutralised to pH 6.7 with 40% aqueous NaOH and filtered.

The solid was recrystallised with 50% aqueous MeOH and filtered.

The solid was dried in a vacuum.

Light brown solid, yield: 48.8%.

Example 35 - 2-(2-amino-benzooxazol-5-yl)-N-(4-methyl-6'-trifluoromethyl-3,4,5,6-tetrahydro-2H-[1,2']bipyridinyl-3'-ylmethyl)-propionamide



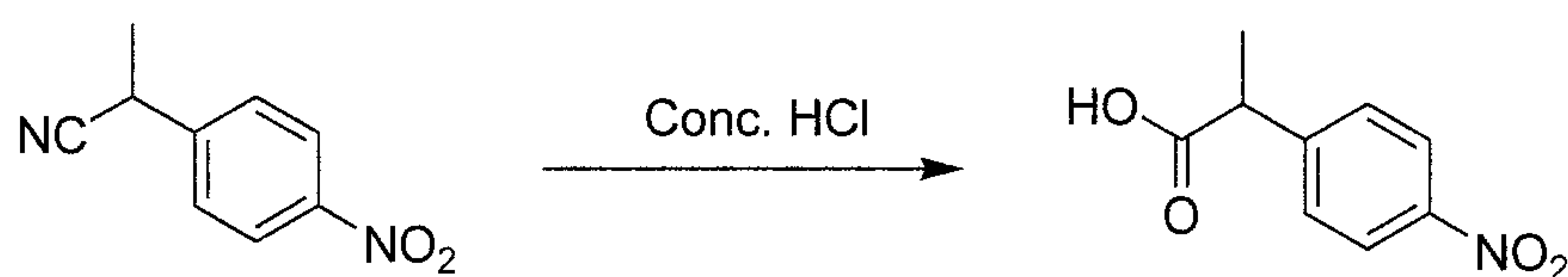
$^1\text{H-NMR}$ (CDCl_3) δ 7.43 (d, 1H, $J=7.5$ Hz, Ar), 7.28-6.97 (m, 4H, Ar), 6.09 (bt, NH), 5.35 (bs, NH_2), 4.43 (d, 2H, $J=5.7$ Hz, CH_2NH), 3.68 (q, 1H, $J=7.3$ Hz, CHCH_3), 3.26 (m, 2H, piperidine), 2.76 (m, 2H, piperidine), 1.72-1.45 (m, 6H, piperidine & CHCH_3), 1.14 (m, 2H, piperidine), 0.93 (d, 3H, $J=6.4$ Hz, CHCH_3)

IR 3298, 2925, 1660, 1573, 1419, 1178, 1138, 951 cm^{-1}

Mass (FAB) m/z 462 $[\text{M}+\text{H}]^+$

Synthesis of exemplary compound 36:

a)



2-(4-aminophenyl)-propionic acid (1)

Conc. hydrochloric acid (50 ml) was added at room temperature to 2-(4-nitrophenyl)propionitrile (6.03 g).

The reaction mixture was boiled for 14 h under reflux.

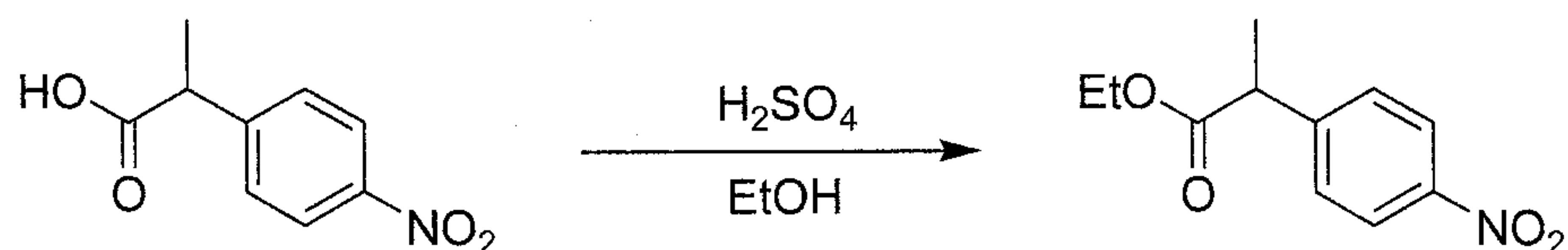
The mixture was cooled to room temperature.

The mixture was extracted with dichloromethane.

The extracts were washed with water, dried over magnesium sulphate, filtered and concentrated under a vacuum.

Light yellow solid, yield: quantitative.

b)



2-(4-nitrophenyl)-propionic acid-ethyl ester (2)

A mixture of 1 (6.7 g, 1 mmol) in EtOH (100 ml) was stirred at room temperature.

A sulphuric acid (0.5 ml; catalytic quantity) was added slowly to the mixture.

The reaction mixture was boiled for 15 h under reflux.

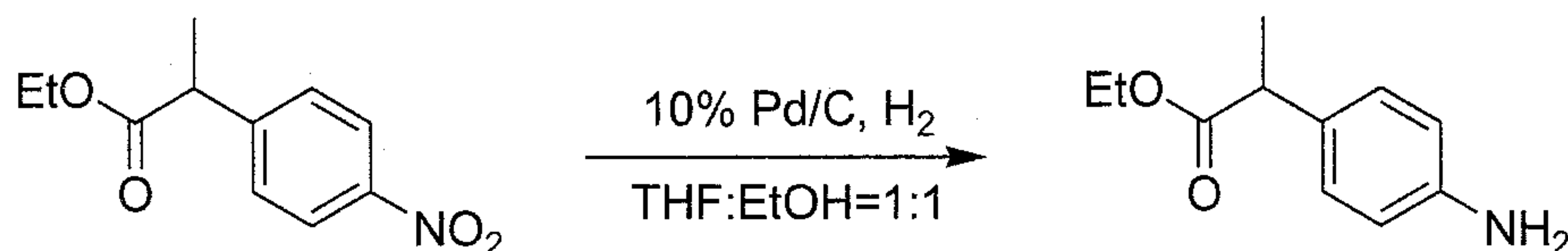
The mixture was extracted with ethyl acetate.

The extracts were washed with water and salt water, dried over magnesium sulphate, filtered and concentrated in a vacuum.

The residue was purified by means of flash column chromatography with (n-hexane:EtOAc).

Light yellow oil, yield: 88%.

c)



2-(4-aminophenyl)-propionic acid-ethyl ester (3)

10% Pd/C (680 mg) was added slowly at room temperature to a solution of 2 (6.7g, 1mmol) in THF (100ml) and EtOH (100ml).

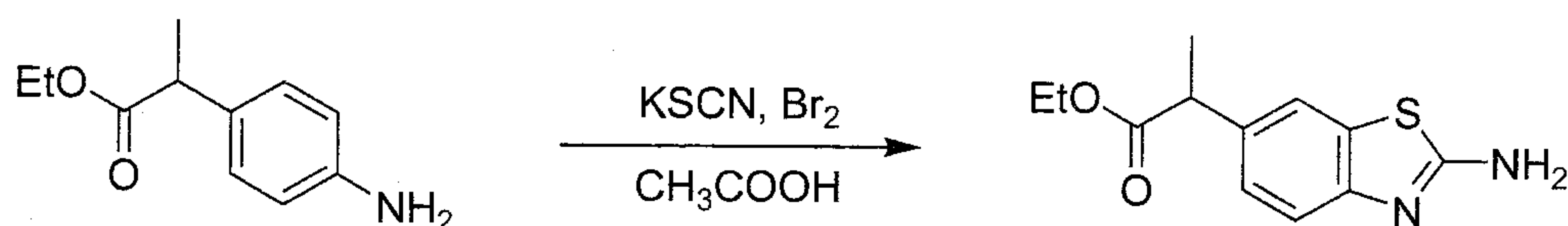
The reaction mixture was hydrogenated for 24 h with H₂ round flask at room temperature.

The mixture was filtered off using diatomite and washed with EtOH.

The filtrate was concentrated under a vacuum.

Light yellow oil, yield: 54%

d)



Reference: Indian Journal of Chemistry, Vol. 16B, S. 605-609

2-(2-aminobenzothiazol-6-yl)-propionic acid-ethyl ester (4)

A mixture of 3 (3.13g, 1 mmol) in CH₃COOH (15ml) was cooled in an ice bath to -5.

A mixture of KSCN (6.36 g, 4.04 mmol) in CH₃COOH (15ml) was added to the flask with 4 and CH₃COOH at -5°C in an ice bath.

A solution of bromine (0.80 ml) in CH₃COOH (10 ml) was added dropwise to a stirred mixture of 4, KSCN and CH₃COOH at -5°C in an ice bath.

The reaction mixture was stirred for 1 h at room temperature.

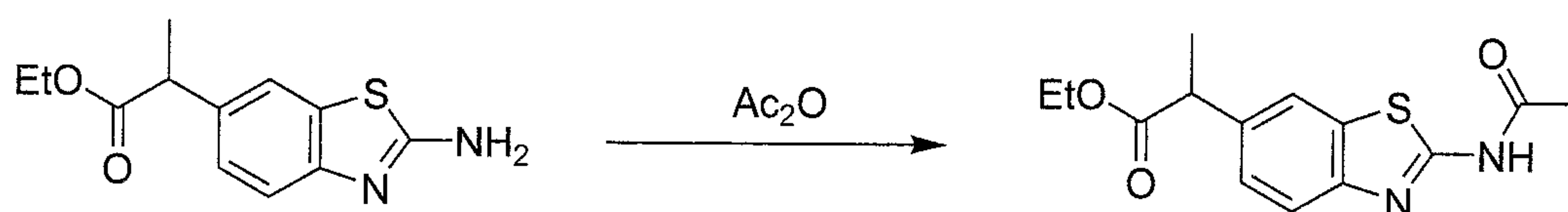
The mixture was extracted with ethyl acetate.

The extracts were washed with water and salt water, dried over magnesium sulphate, filtered and concentrated in a vacuum.

The residue was purified by flash column chromatography (n-hexane:EtOAc).

Light yellow solid.

e)



2-(2-acethylaminobenzthiazol-6-yl)-propionic acid-ethyl ester (5)

A mixture of 4 (278 mg) in acetic acid anhydride (4 ml) was boiled for 3h under reflux.

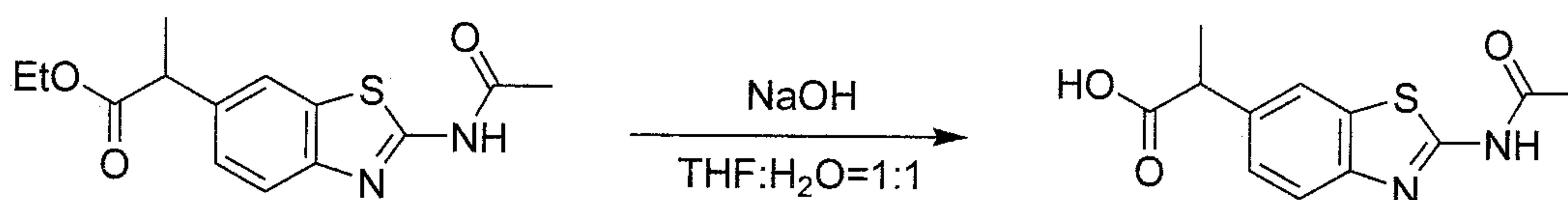
The mixture was cooled to room temperature.

Water (30 ml) was added to the mixture and extracted with ethyl acetate.

The extracts were washed with water and salt water, dried over magnesium sulphate, filtered and concentrated in a vacuum.

Yield: 88%.

f)



2-(2-acetylaminobenzothiazol-6-yl)-propionic acid (6)

A mixture of 5 (276 mg, 1 mmol) in THF (10 ml) and H₂O (10 ml) was stirred at room temperature.

Sodium hydroxide (96 mg) was added to the mixture.

The reaction mixture was stirred for 15 h at room temperature.

The reaction mixture was acidified with acetic acid to pH 3.4.

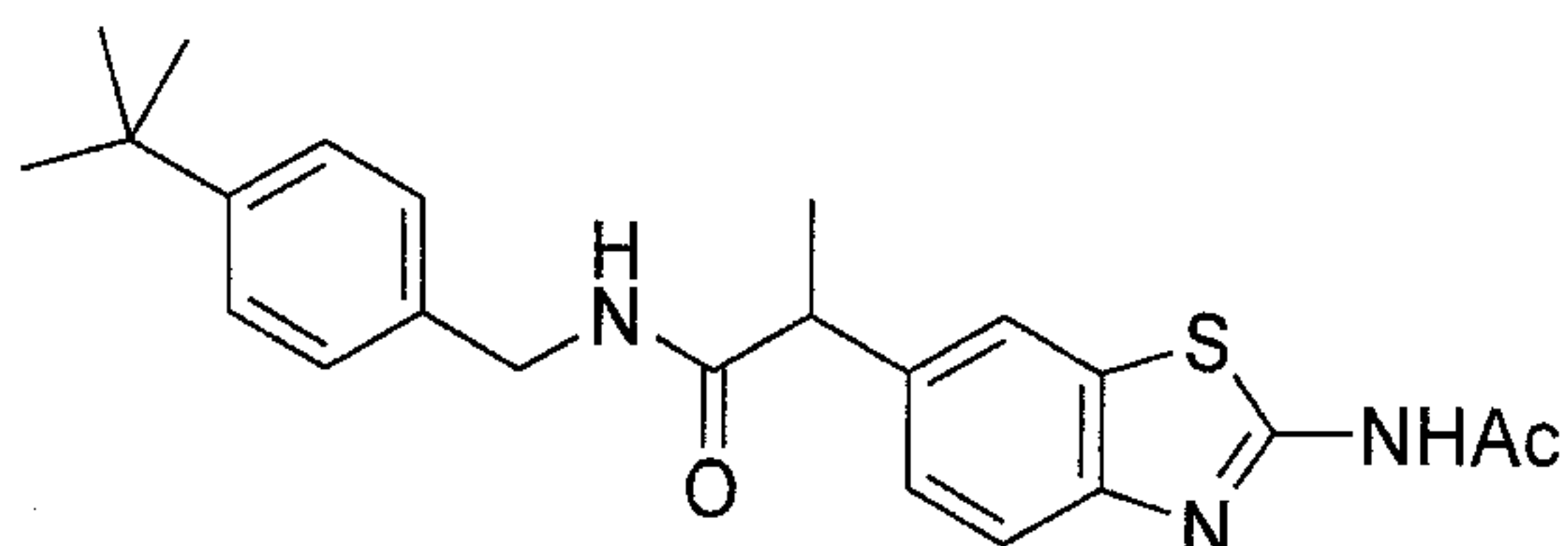
Water was added to the mixture and extracted with dichloromethane.

The organic layer was dried over magnesium sulphate, filtered and concentrated in a vacuum.

Light yellow solid, yield: 99.8%.

Exemplary compound 35:

2-(2-acetyl-amino-benzothiazol-6-yl)-N-(4-tert-butyl-benzyl)-propionamide



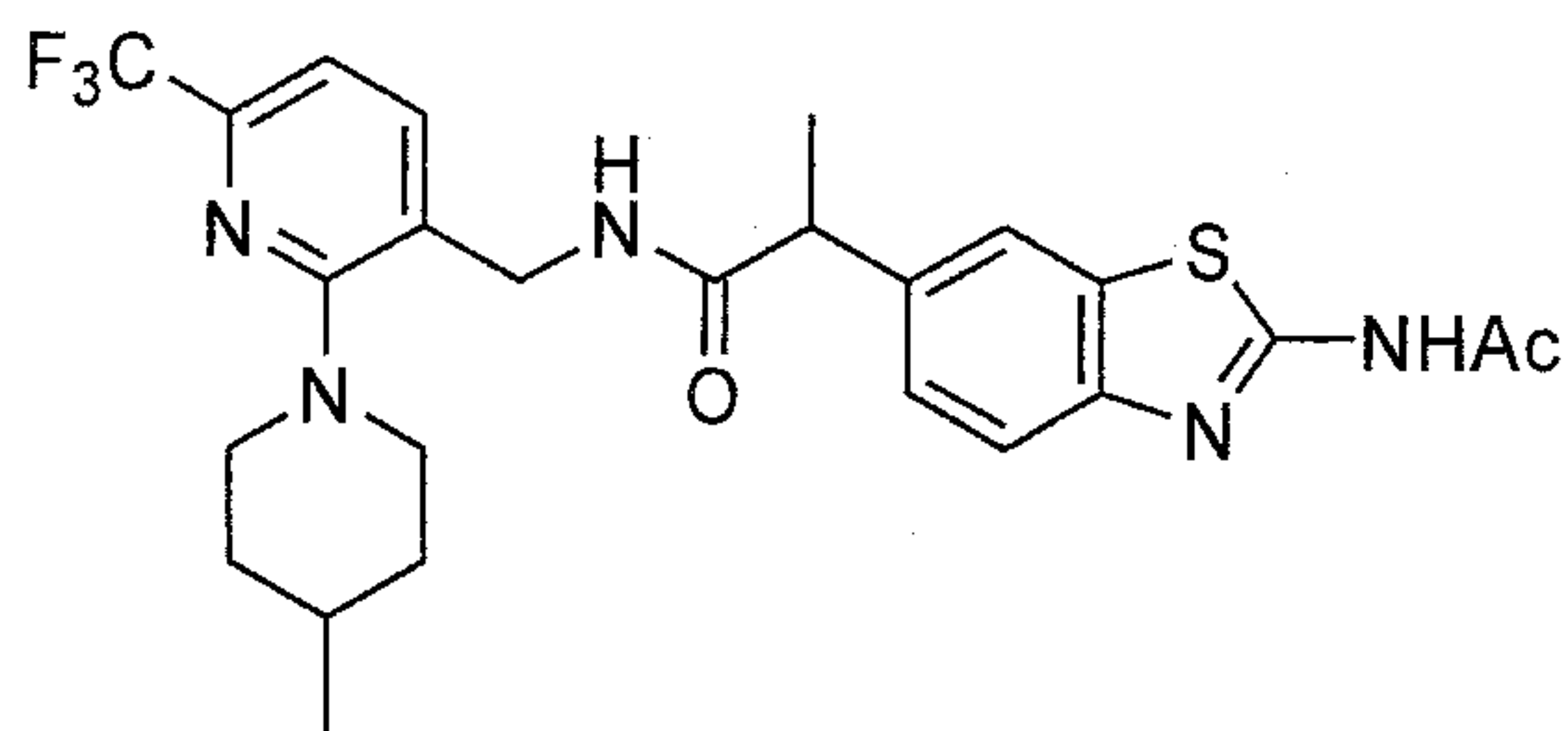
¹H-NMR(CDCl₃) δ 11.17 (bs, NH), 7.78-7.68 (m, 2H, Ar), 7.42-7.21 (m, 3H, Ar), 7.11 (d, 2H, J=8.2Hz, Ar), 5.75 (bt, NH), 4.39 (m, 2H, CH₂NH), 3.71 (q, 1H, J=7.1Hz, CHCH₃), 2.27 (s, 3H, COCH₃), 1.61 (d, 3H, J=7.1Hz, CHCH₃), 1.28 (s, 9H, C(CH₃)₃)

IR 3298, 2963, 1649, 1548, 1462, 1369, 1275 cm⁻¹

Mass (FAB) m/z 410 [M+H]⁺, 432 [M+Na]⁺

Exemplary compound 37:

2-(2-acetyl-amino-benzothiazol-6-yl)-N-(4-methyl-6'-trifluoromethyl-3,4,5,6-tetrahydro-2H-[1,2']bipyridinyl-3'-ylmethyl)-propionamide



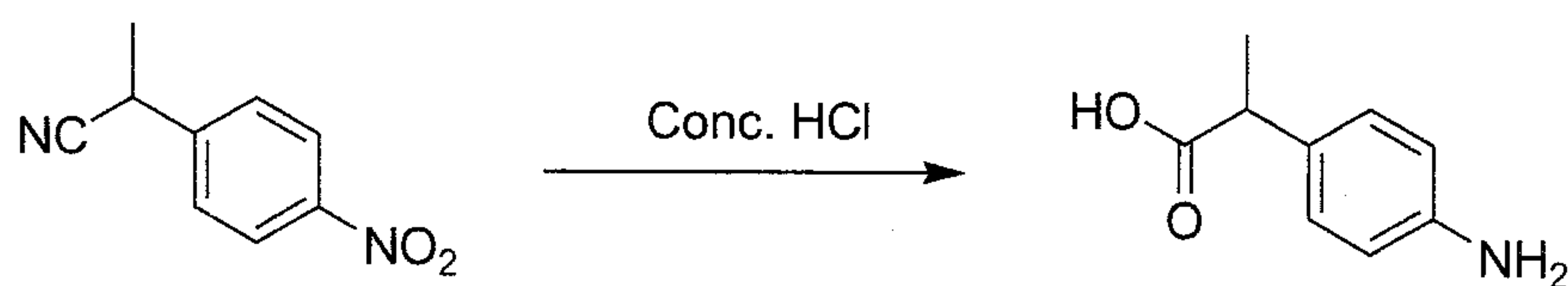
$^1\text{H-NMR}$ (CDCl_3) δ 7.80-7.63 (m, 2H, Ar), 7.39 (m, 2H, Ar), 7.13 (d, 1H, $J=7.5$ Hz, Ar), 4.43 (m, 2H, CH_2NH), 3.78 (m, 1H, CHCH_3), 3.30 (m, 2H, piperidine), 2.79 (m, 2H, piperidine), 2.31 (s, 3H, COCH_3), 1.80-1.20 (m, 8H, CHCH_3 & piperidine), 0.94 (d, 3H, $J=6.2$ Hz, piperidine CH_3)

IR 3189, 2923, 2455, 1644, 1548, 1458, 1418, 1372, 1335, 1270, 1175, 1135 cm^{-1}

Mass (FAB) m/z 520 $[\text{M}+\text{H}]^+$

Synthesis of exemplary compound 38:

a)



2-(4-aminophenyl)-propionic acid (1)

2-(4-nitrophenyl)-propionitrile (6,03g) was added to conc. hydrochloric acid (50 ml) at room temperature.

The reaction mixture was boiled for 14 h under reflux.

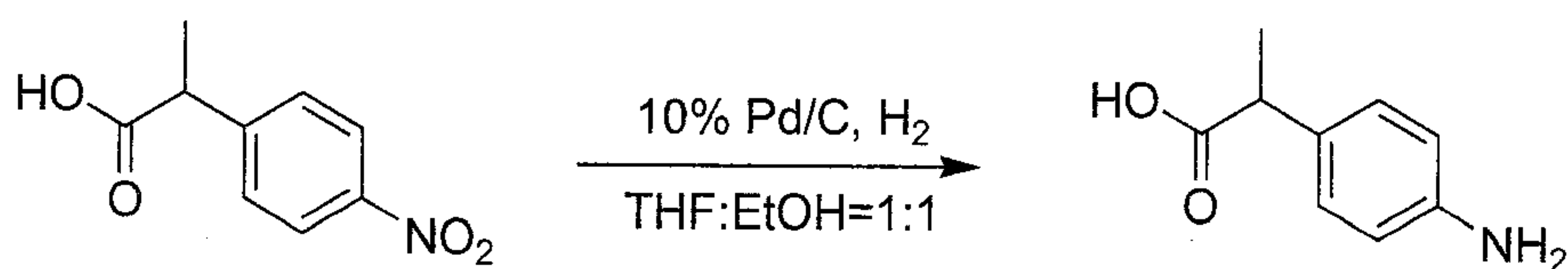
The mixture was cooled to room temperature.

The mixture was extracted with dichloromethane.

The extracts were washed with water, dried over magnesium sulphate, filtered and concentrated in a vacuum.

Bright white solid, yield: 99%.

b)



2-(4-aminophenyl)-propionic acid (2)

10 % Pd/C (680 mg) was added slowly at room temperature to a mixture of 1 (6.7 g, 1 mmol) in THF (100ml) and EtOH (100 ml).

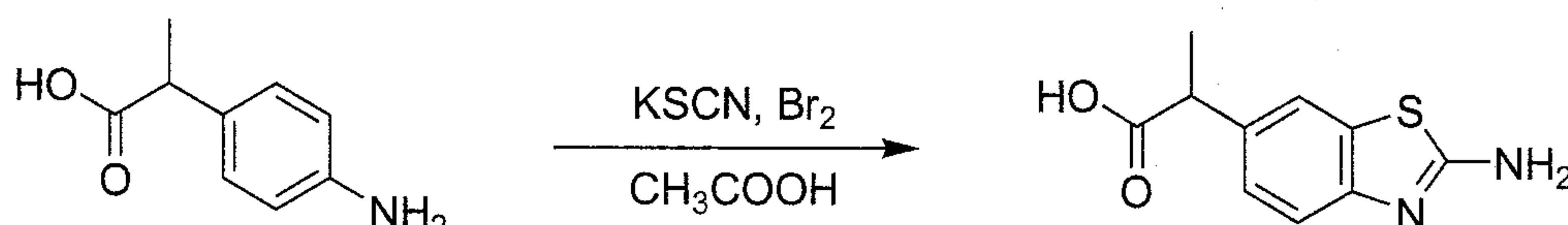
The reaction mixture was hydrogenated for 24 h with H₂ round flask at room temperature.

The mixture was filtered off using diatomite and washed with EtOH.

The filtrate was concentrated under a vacuum.

Light yellow solid, yield: 99.8%

c)



Reference: Indian Journal of Chemistry, Vol. 16B, S. 605-609

2-(2-aminobenzthiazol-6-yl)-propanoic acid (3)

A mixture of 2 (3.13 g, 1 mmol) in CH₃COOH (15 ml) was cooled in an ice bath to -5.

A mixture of KSCN (6.36 g, 4.04 mmol) in CH₃COOH (15 ml) was added to the flask with 4 and CH₃COOH at -5 in an ice bath.

A solution of bromine (0.80 ml) in CH₃COOH (10 ml) was added dropwise to a stirred mixture of 4, KSCN and CH₃COOH at -5 in an ice bath.

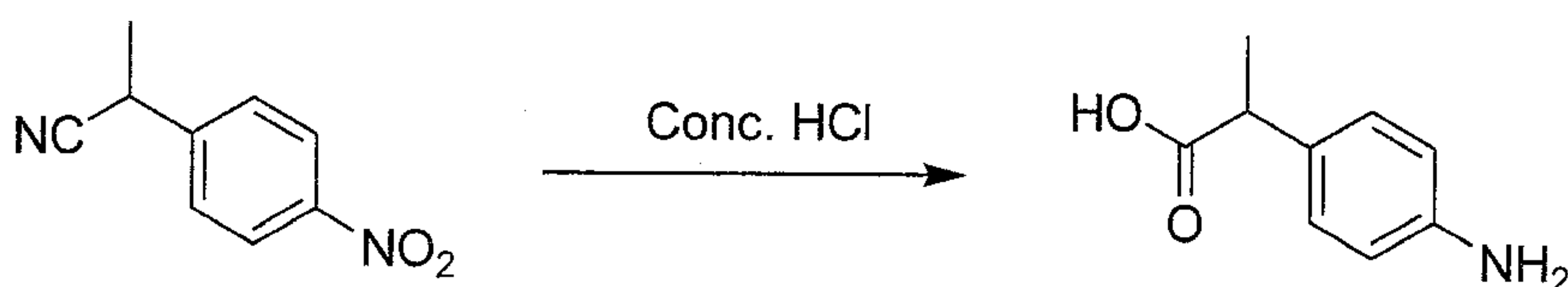
The reaction mixture was stirred for 1 h at room temperature. The mixture was extracted with ethyl acetate. The extracts were washed with water and salt water, dried over magnesium sulphate, filtered and concentrated in a vacuum.

The residue was purified by means of flash column chromatography (n-hexane:EtOAc).

Light yellow solid.

Synthesis of exemplary compound 39:

a)



2-(4-aminophenyl)-propionic acid (1)

2-(4-nitrophenyl)-propionitrile (6,03 g) was added at room temperature to conc. hydrochloric acid (50 ml).

The reaction mixture was boiled for 14 h under reflux.

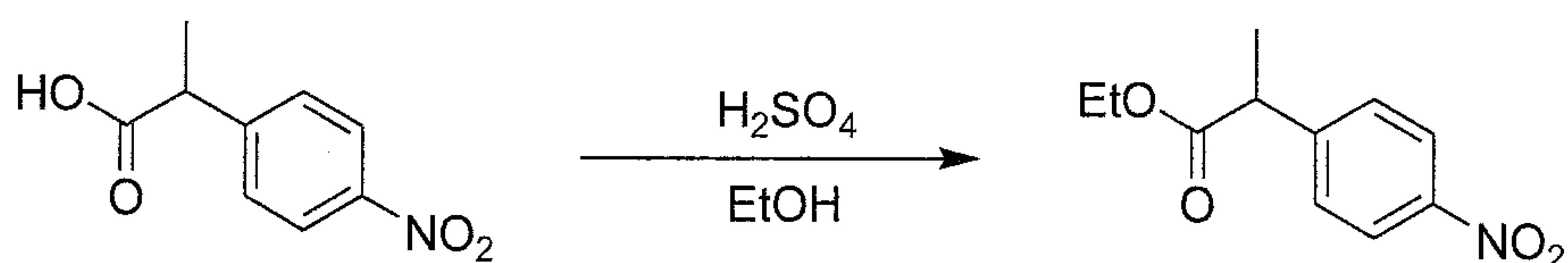
The mixture was cooled to room temperature.

The mixture was extracted with dichloromethane.

The extracts were washed with water, dried over magnesium sulphate, filtered and concentrated in a vacuum.

Light yellow solid, yield: quantitative.

b)



2-(4-nitrophenyl)-propionic acid-ethyl ester (2)

A mixture of 1 (6.7 g, 1 mmol) in EtOH (100 ml) was stirred at room temperature.

A sulphuric acid (0.5 ml; catalytic quantity) was added slowly to the mixture.

The reaction mixture was boiled for 15 h under reflux.

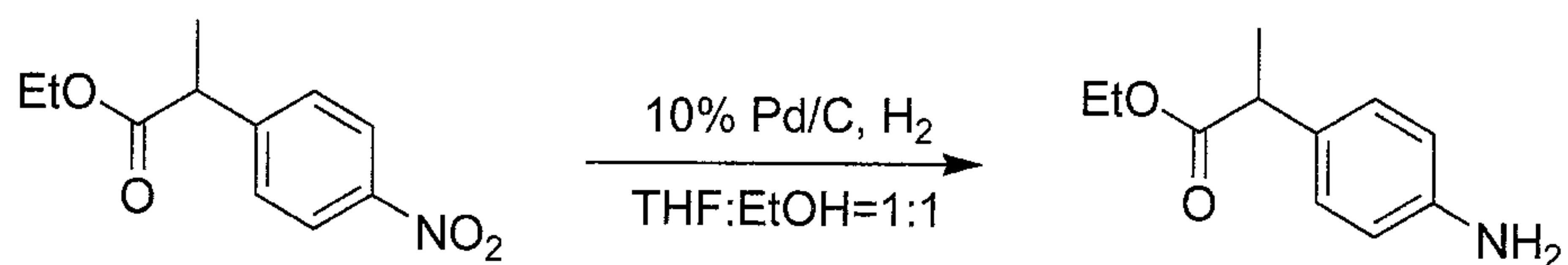
The mixture was extracted with ethyl acetate.

The extracts were washed with water and salt water, dried over magnesium sulphate, filtered and concentrated in a vacuum.

The residue was purified by means of flash column chromatography (n-hexane:EtOAc).

Light yellow oil, yield: 88%.

c)



2-(4-aminophenyl)-propionic acid-ethyl ester (3)

10% Pd/C (680 mg) was added slowly at room temperature to a mixture of 2 (6.7 g, 1 mmol) in THF (100 ml) and EtOH (100 ml).

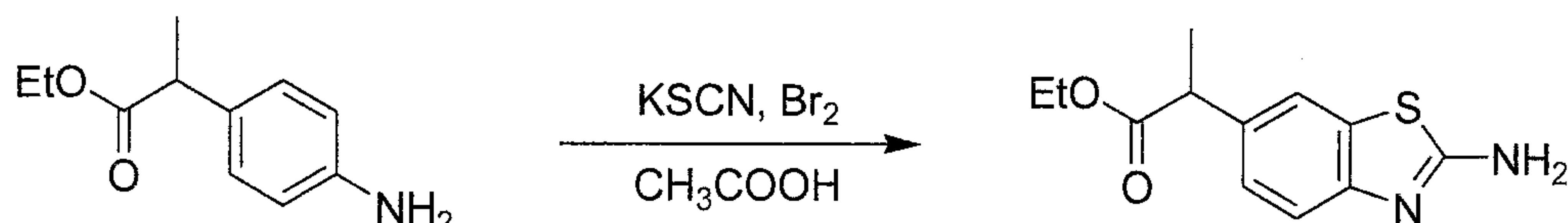
The reaction mixture was hydrogenated for 24 h with H₂ round flask at room temperature.

The mixture was filtered off using diatomite and washed with EtOH.

The filtrate was concentrated under a vacuum.

Light yellow oil, yield: 54%

d)



Reference: Indian Journal of Chemistry, Vol. 16B, S 605-609

2-(2-aminobenzothiazol-6-yl)-propionic acid-ethyl ester (4)

A mixture of 3 (3.13 g, 1 mmol) in CH₃COOH (15 ml) was cooled in an ice bath to -5.

A mixture of KSCN (6.36 g, 4.04 mmol) in CH₃COOH (15 ml) was added to the flask with 4 and CH₃COOH at -5 in an ice bath.

A solution of bromine (0.80 ml) in CH₃COOH (10 ml) was added dropwise to a stirred mixture of 4, KSCN and CH₃COOH at -5 in an ice bath.

The reaction mixture was stirred for 1 h at room temperature.

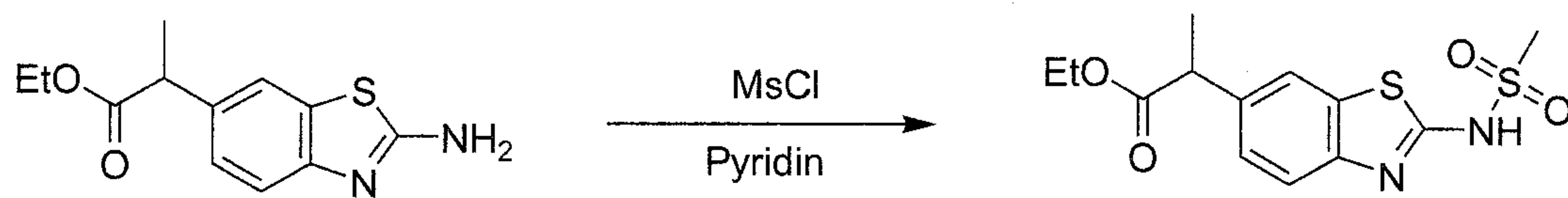
The mixture was extracted with ethyl acetate.

The extracts were washed with water and salt water, dried over magnesium sulphate, filtered and concentrated in a vacuum.

The residue was purified by means of flash column chromatography (n-hexane:EtOAc).

Light yellow solid.

e)



[Pyridin = Pyridine]

2-(2-methanesulfonylamino-benzothiazol-6-yl)-propionic acid-ethyl ester (5)

A mixture of 4 (347 mg, 1 mmol) in pyridine (3 ml) was added to MsCl (0.13 ml, 1.21 mmol) at room temperature.

The reaction mixture was stirred for 14 h at room temperature.

1N HCl (30 ml) was added to the mixture.

The mixture was extracted with ethyl acetate.

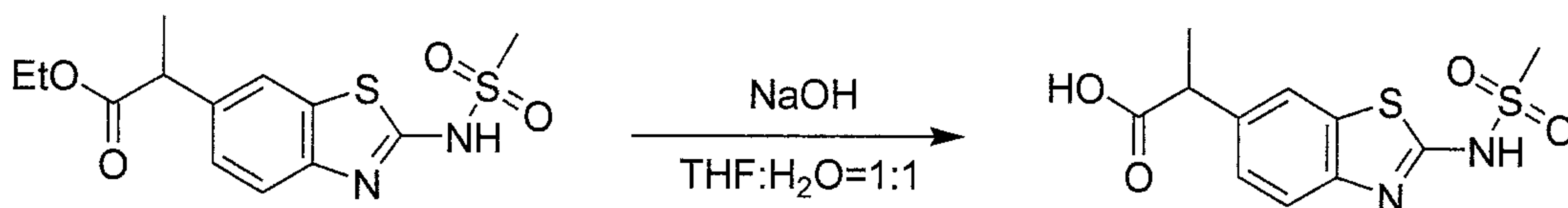
The organic layer was dried over magnesium sulphate.

The filtrate was concentrated under a vacuum.

The residue was purified by means of flash column chromatography (n-hexane:EtOAc).

Light yellow oil, yield: 35%.

f)



2-(2-methanesulfonylamino-benzothiazol-6-yl)-propionic acid (6)

A mixture of 5 (156 mg, 1 mmol) in THF (10ml) and H₂O (10 ml) was stirred at room temperature.

Sodium hydroxide (50 mg, 2.5 mmol) was added to the mixture.

The reaction mixture was stirred for 15 h at room temperature.

The reaction mixture was acidified to pH 3~4 with acetic acid.

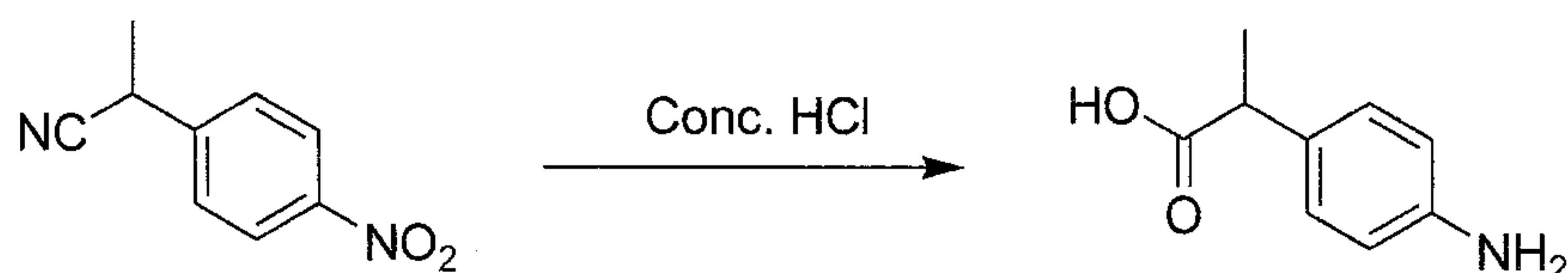
Water was added to the mixture and extracted with dichloromethane.

The organic layer was dried over magnesium sulphate, filtered and concentrated under a vacuum.

Yield: quantitative.

Synthesis of exemplary compound 40:

a)



2-(4-aminophenyl)-propionic acid (1)

2-(4-nitrophenyl)-propionitrile (6.03 g) was added to conc. hydrochloric acid (50 ml) at room temperature.

The reaction mixture was boiled for 14 h under reflux.

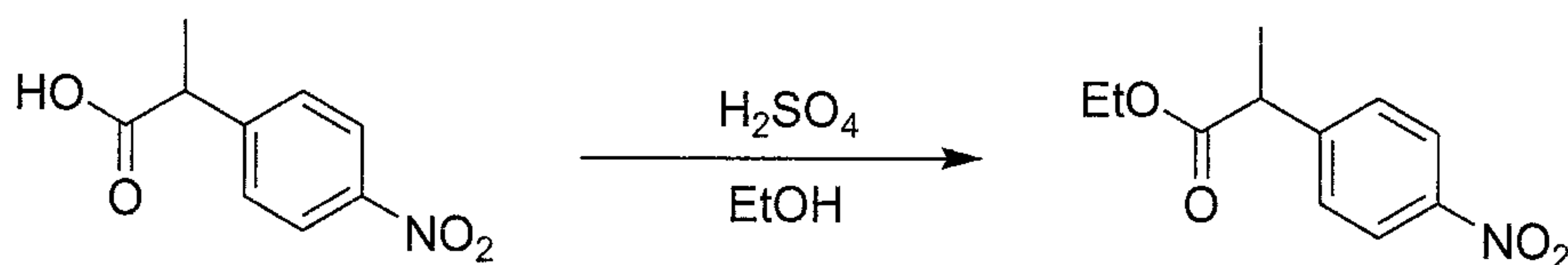
The mixture was cooled to room temperature.

The mixture was extracted with dichloromethane.

The extracts were washed with water, dried over magnesium sulphate, filtered and concentrated in a vacuum.

Light yellow solid, yield: quantitative.

b)



2-(4-nitrophenyl)-propionic acid-ethyl ester (2)

A mixture of 1 (6.7 g, 1 mmol) in EtOH (100 ml) was stirred at room temperature.

A sulphuric acid (0.5 ml; catalytic quantity) was added slowly to the mixture.

The reaction mixture was boiled for 15 h under reflux.

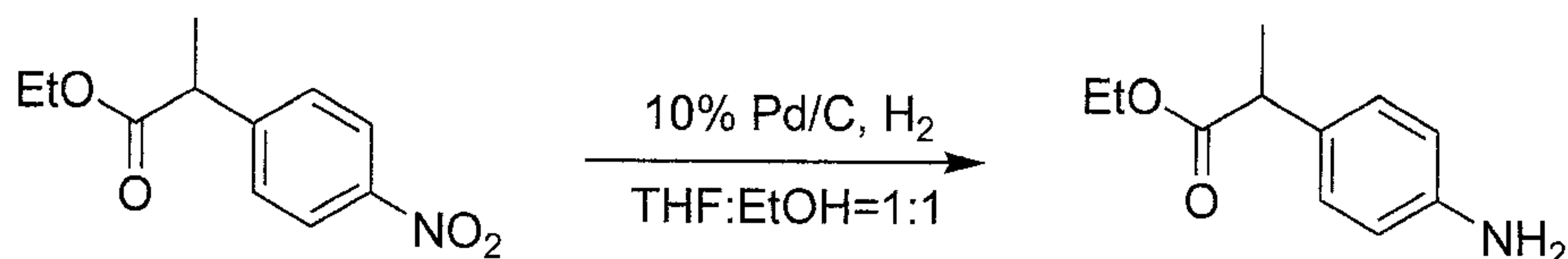
The mixture was extracted with ethyl acetate.

The extracts were washed with water and salt water, dried over magnesium sulphate, filtered and concentrated in a vacuum.

The residue was purified by means of flash column chromatography (n-hexane:EtOAc).

Light yellow oil, yield: 88%.

c)



2-(4-aminophenyl)-propionic acid-ethyl ester (3)

10% Pd/C (680 mg) was added slowly at room temperature to a mixture of 2 (6.7 g, 1 mmol) in THF (100 ml) and EtOH (100 ml).

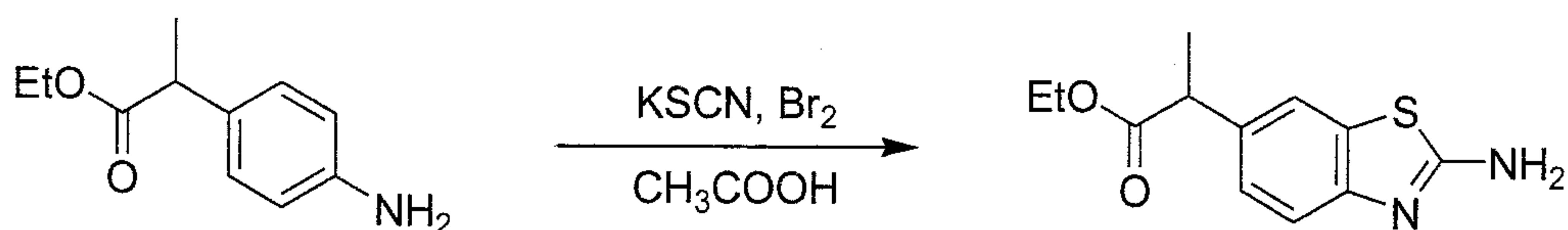
The reaction mixture was hydrogenated for 24 h with H₂ round flask at room temperature.

The mixture was filtered off using diatomite and washed with EtOH.

The filtrate was concentrated under a vacuum.

Light yellow oil, yield: 54%

d)



Reference: Indian Journal of Chemistry, Vol. 16B, S. 605-609

2-(2-aminobenzothiazol-6-yl)-propionic acid-ethyl ester (4)

A mixture of 4 (3.13 g, 1 mmol) in CH₃COOH (15 ml) was cooled in an ice bath to -5.

A mixture of KSCN (6.36 g, 4.04 mmol) in CH₃COOH (15 ml) was added to the flask with 4 and CH₃COOH at -5 in an ice bath.

A solution of bromine (0.80 ml) in CH₃COOH (10 ml) was added dropwise to a stirred mixture of 4, KSCN and CH₃COOH at -5 in an ice bath.

The reaction mixture was stirred for 1 h at room temperature.

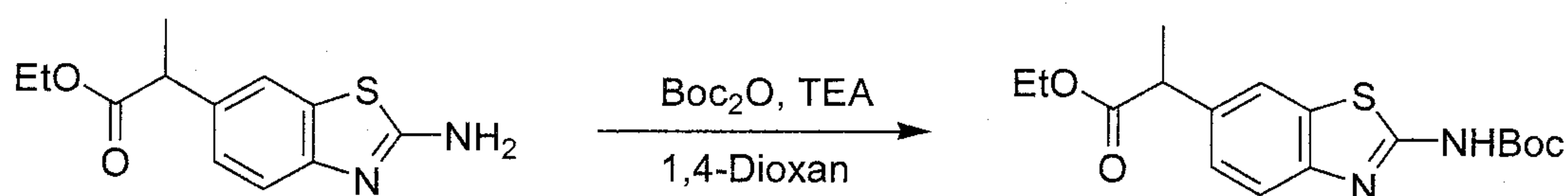
The mixture was extracted with ethyl acetate.

The extracts were washed with water and salt water, dried over magnesium sulphate, filtered and concentrated in a vacuum.

The residue was purified by means of flash column chromatography (n-hexane:EtOAc).

Light yellow solid.

e)



[Key: Dioxan = dioxane]

2-(2-tert-butoxycarbonylamino-benzthiazol-6-yl)-propionic acid-ethyl ester (5)

A mixture of 4 (793 mg, 1 mmol) in 1,4-dioxane was added to Boc_2O (3.5 g, 5 mmol) and TEA (2.21 ml, 5 mmol) at room temperature.

The reaction mixture was boiled for 14 h under reflux.

The mixture was cooled to room temperature.

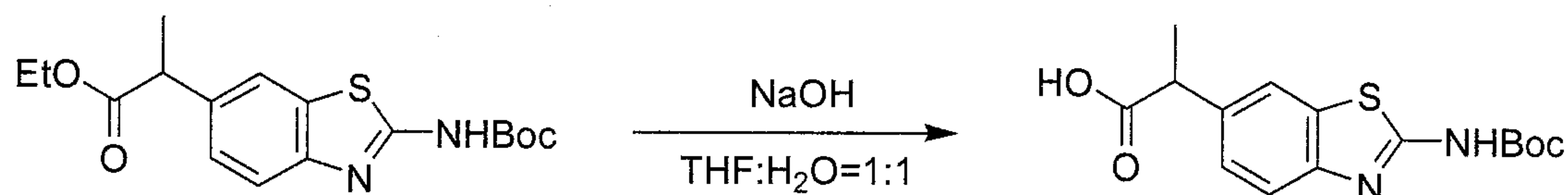
Water was added to the mixture and extracted with dichloromethane.

The organic layer was dried over magnesium sulphate, filtered and concentrated under a vacuum.

The residue was purified by means of flash column chromatography (n-hexane:EtOAc).

Light white solid, yield: 22%.

f)



2-(2-tert-butoxycarbonylamino-benzothiazol-6-yl)-propionic acid (6)

A mixture of 5 (239 mg, 1 mmol) in THF (10 ml) and H₂O (10 ml) was stirred at room temperature.

Sodium hydroxide (68.2 mg, 2.5 mmol) was added to the mixture.

The reaction mixture was stirred for 15 h at room temperature.

The reaction mixture was acidified to pH 3~4 with acetic acid.

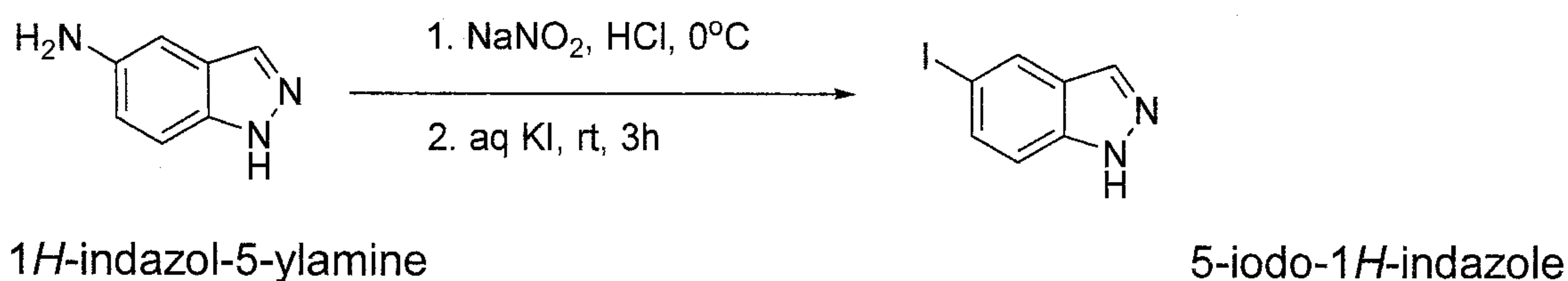
Water was added to the mixture and extracted with dichloromethane.

The organic layer was dried over magnesium sulphate, filtered and concentrated under a vacuum.

Yield: quantitative.

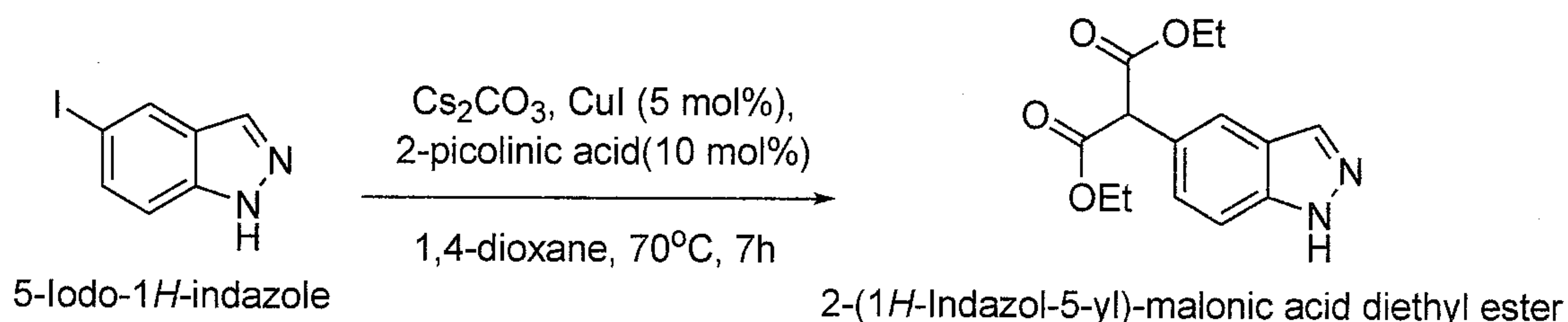
Synthesis of exemplary compound 44

a)



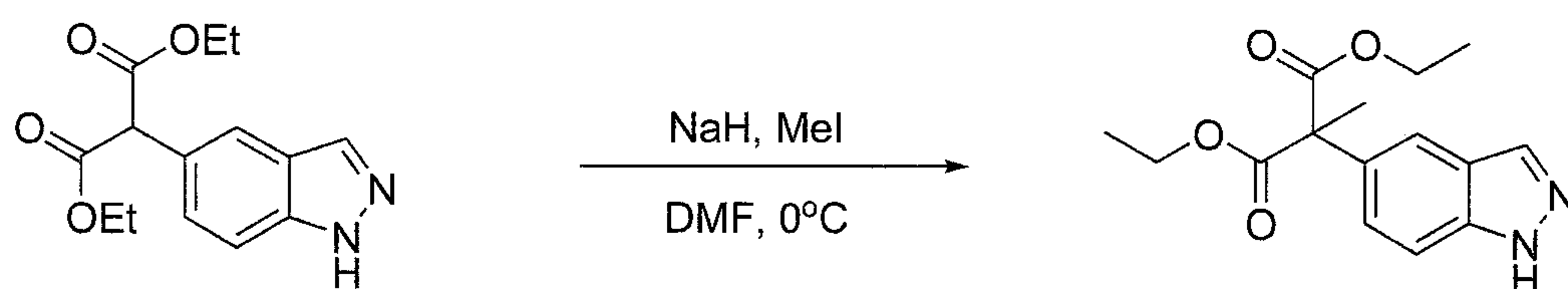
A solution of NaNO₂ (730 mg, 10.6 mmol) in water (10 ml) was added dropwise to a solution cooled to 0 °C of 1H-indazol-5-amine (1.41 g, 10.6 mmol) in 6 N HCl (20 ml). The resultant solution was added to a solution of KI (7.3 g, 44 mmol) in water (15 ml) and the temperature was kept at 0 °C. The reaction mixture was allowed to heat to room temperature and stirred for 3 h and subsequently extracted with ethyl acetate. The combined layers were consecutively washed with 10% Na₂S₂O₃ and salt water, subsequently dried over Na₂SO₄ and concentrated under a vacuum in order to obtain a light brown solid (1.90 g, 75%) which was used in the next step without further purification.

b)



Distilled diethyl malonate (304 µL, 2.00 mmol) and 5-iodo-1H-indazole (1.00 mmol) were added to Cul (9.5 mg, 5.0 mol%), 2-picolinic acid (12.3 mg, 10.0 mol%), Cs₂CO₃ (0.98 g, 3.0 mmol), and aryl iodide (1.0 mmol) in 1,4-dioxane (10 ml). After 7 hours of stirring at 70 °C, the reaction mixture was cooled to room temperature. The mixture was extracted/washed with ethyl acetate (20 mL × 3) and with saturated aqueous NH₄Cl (10 mL). The combined organic phases were filtered via Na₂SO₄ and concentrated in a vacuum. The oily residue was purified by flash chromatography on silica gel and the desired product obtained as a colourless oil (60%).

c)

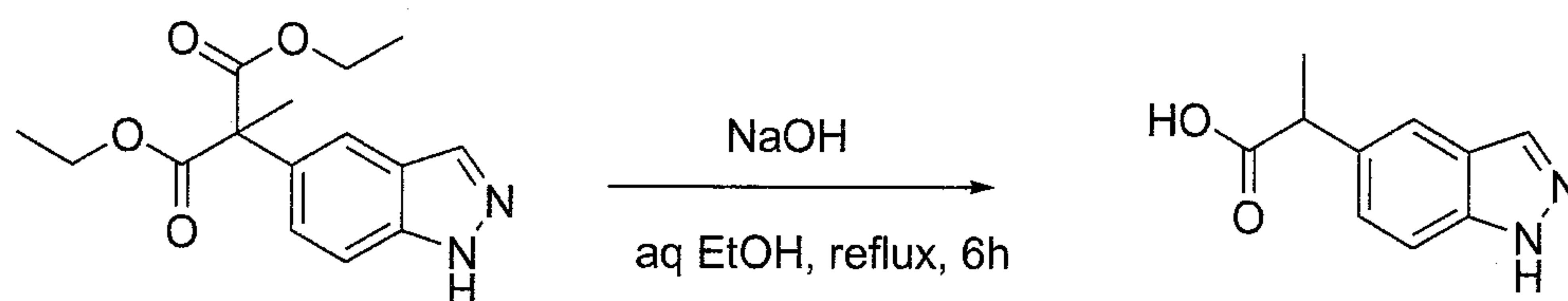


2-(1H-indazol-5-yl)-malonic acid diethyl ester
malonic acid diethyl ester

2-(1H-indazol-5-yl)-2-methyl-

A cooled solution of diethyl-2-(1H-indazol-5-yl)malonate (1 mmol) in DMF (10 ml) was treated at 0 °C with NaH (1.1 mmol) and MeI (1.2 mmol) and stirred for 30 min at room temperature. The reaction mixture was concentrated under a vacuum and the residue was purified by means of flash column chromatography with EtOAc:hexanes (1:4) as the eluent on silica gel. (65%)

d)

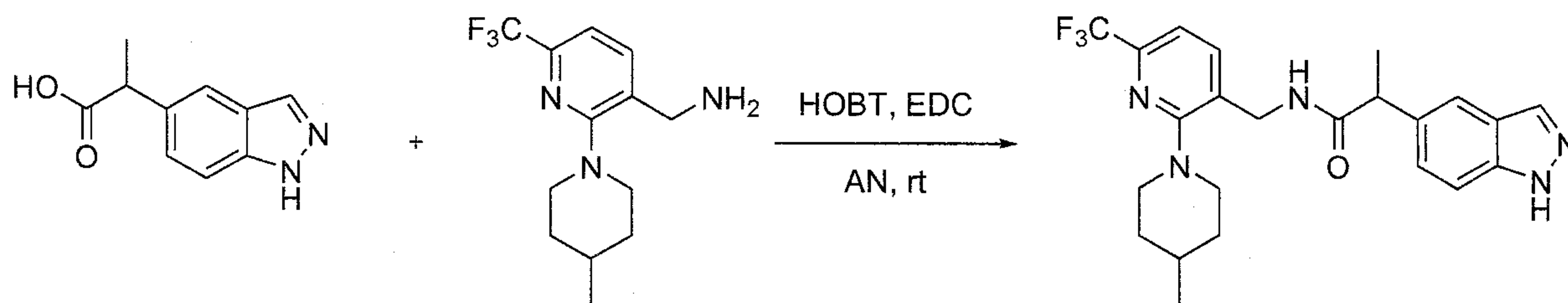


2-(1H-indazol-5-yl)-2-methyl-malonic acid diethyl ester
2-propionic acid

2-(1H-indazol-5-yl)-

A mixture of diethyl-2-(1H-indazol-5-yl)-2-methyl malonate (1 mmol) and NaOH (2 mmol) in 80% aqueous EtOH (10 ml) was boiled for 6 h under reflux. The mixture was neutralized with 1 N HCl. The reaction mixture was extracted with ethyl acetate (20 ml × 3) and concentrated under a vacuum. The residue was purified by means of flash column chromatography with EtOAc:hexanes (1:1) as the eluent on silica gel. 53%

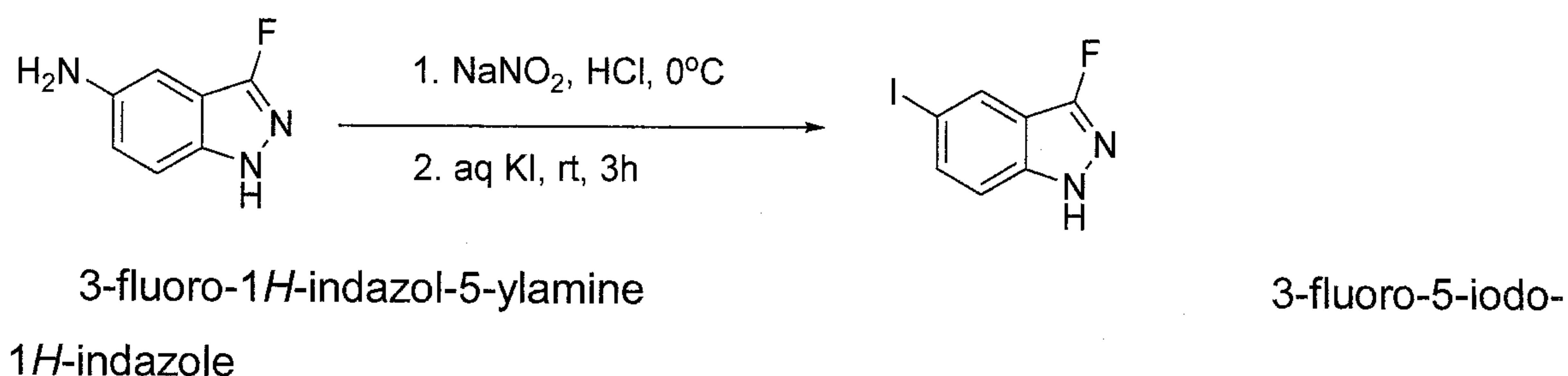
e)



A mixture of acid (10 mmol), amine (12 mmol) and 1-(3-dimethylaminopropyl)-3-ethylcarbodiimidhydrochloride (12 mmol) in DMF (20 ml) was stirred for 12 h at room temperature. The reaction mixture was extracted with EtOAc (50 ml). The aqueous phase was saturated with NaCl and once again extracted with EtOAc (25 ml). The combined organic extracts were washed with 1 N HCl (25 ml) and salt water (25 ml), dried over MgSO_4 , filtered and concentrated under a vacuum. The residue was purified by means of flash column chromatography with EtOAc:hexanes (1:2) as the eluent on silica gel.

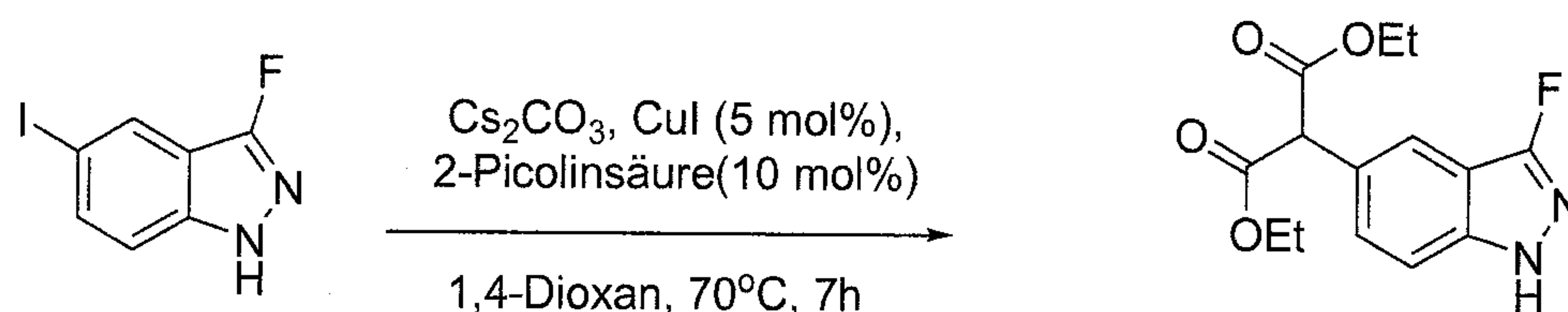
75%, white solid, melting point = 113-115 °C

Synthesis of exemplary compound 45:



In accordance with general method

56% colourless oil

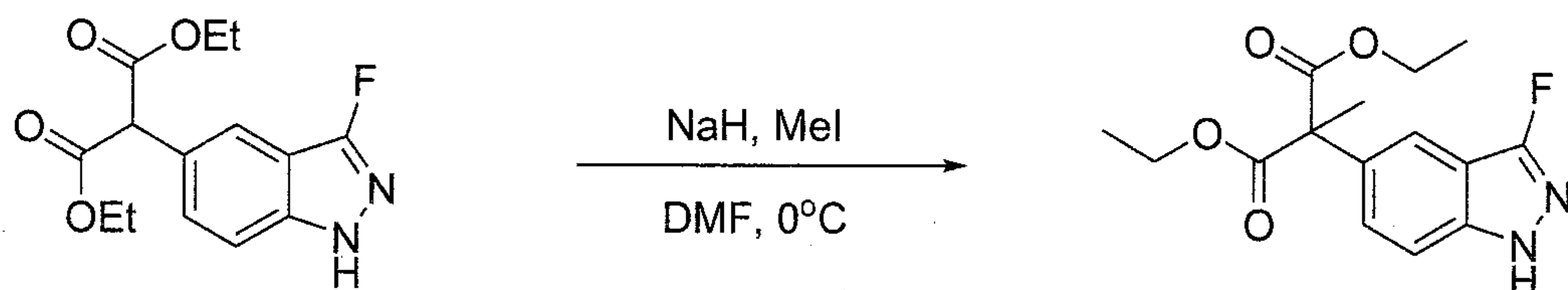


[2-Picolinsäure = 2-picolinic acid; Dioxan = dioxane]

3-fluoro-5-iodo-1*H*-indazole
acid diethyl ester

2-(3-fluoro-1*H*-indazol-5-yl)-malonic

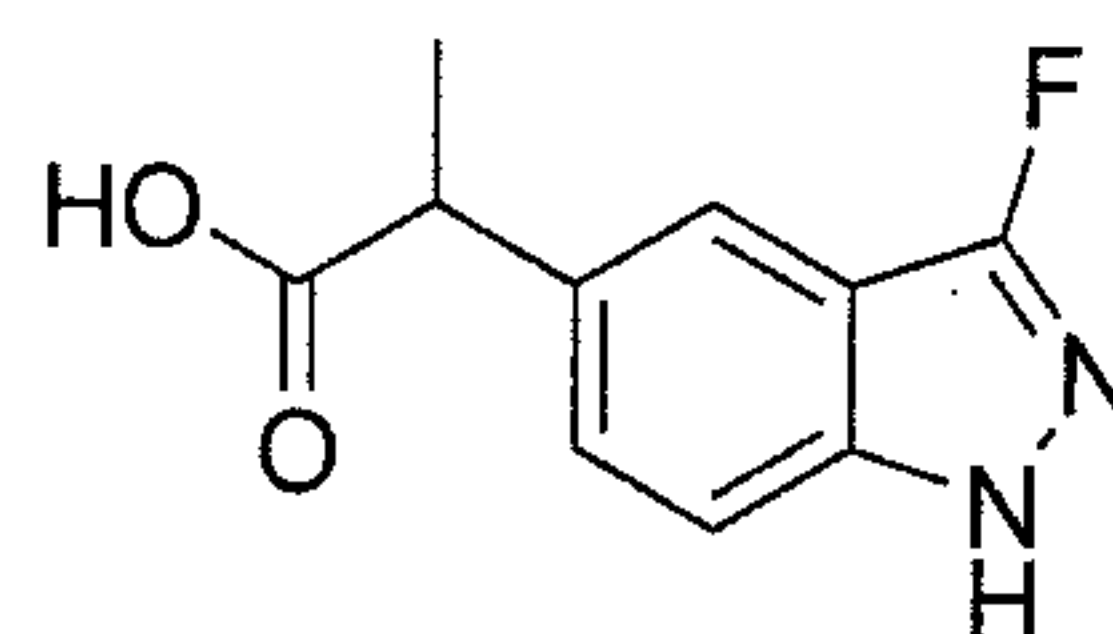
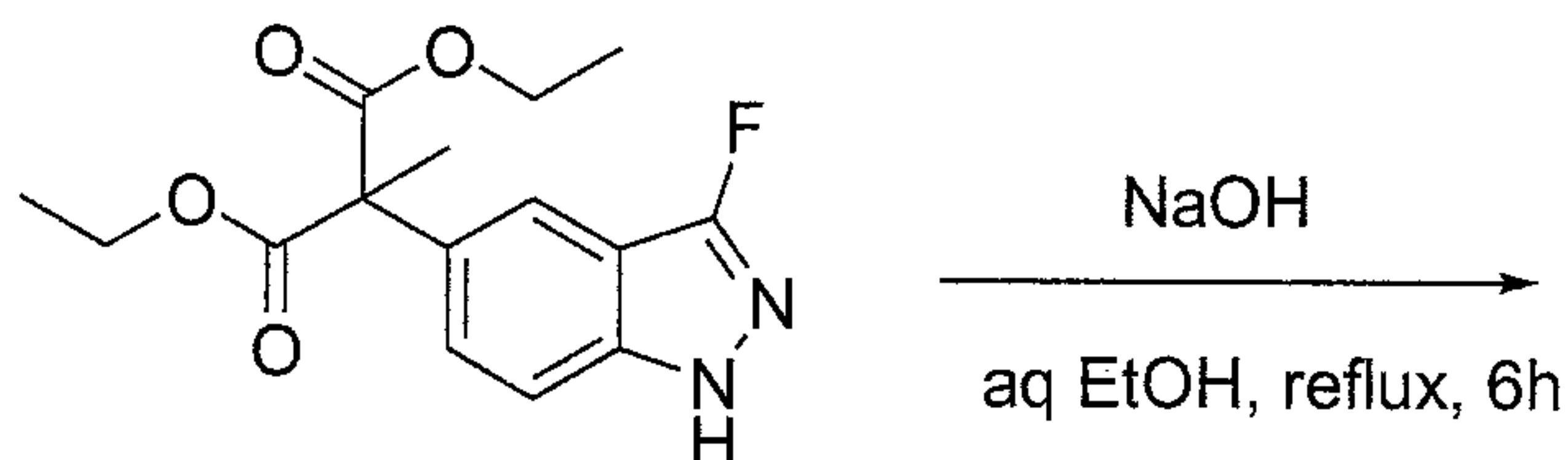
In accordance with general method
Colourless oil (60%)



2-(3-fluoro-1*H*-indazol-5-yl)-malonic acid diethyl ester
yl)-2-

2-(3-fluoro-1*H*-indazol-5-yl)-2-methyl-malonic acid diethyl ester

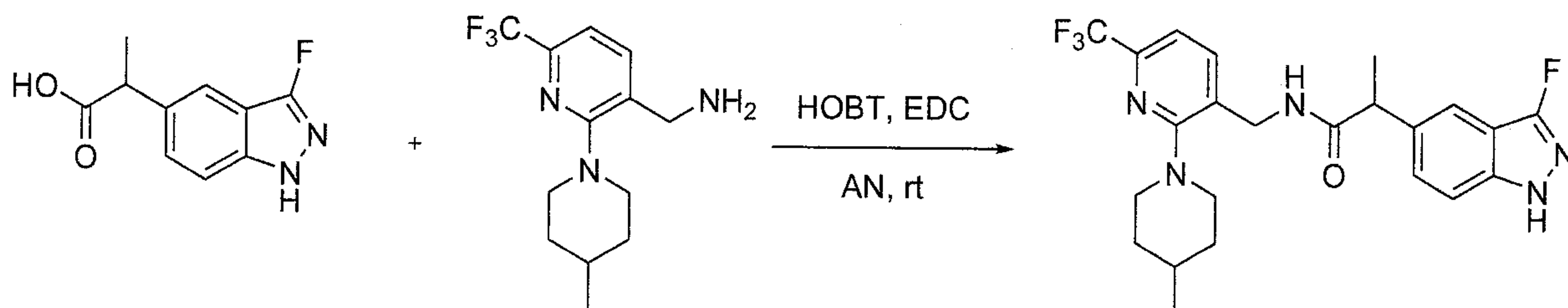
In accordance with general method
Colourless oil (70%)



2-(3-fluoro-1*H*-indazol-5-yl)-2-propionic acid

2-(3-fluoro-1*H*-indazol-5-yl)-methyl-malonic acid diethyl ester

In accordance with general method
Colourless oil (53%)



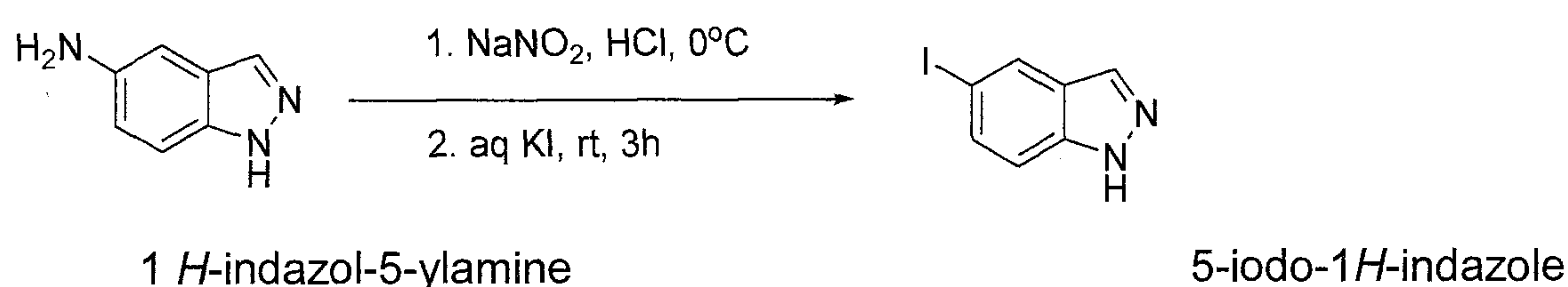
2-(3-fluoro-1*H*-indazol-5-yl)-propionic acid 2-(3-fluoro-1*H*-indazol-5-yl)-*N*-((2-(4-methylpiperidin-1-yl)-6-

In accordance with general method

70%, white solid, melting point = 123-127 °C

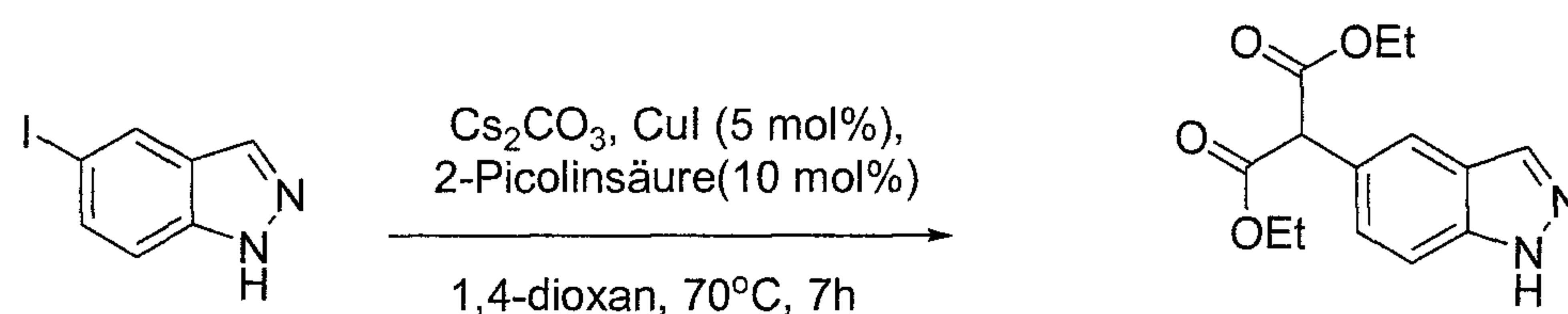
Synthesis of exemplary compound 46:

a)



A solution of NaNO₂ (730 mg, 10.6 mmol) in water (10 ml) was added dropwise to a solution cooled to 0 °C of 1*H*-indazol-5-amine (1.41 g, 10.6 mmol) in 6 N HCl (20 ml). The resultant solution was added to a solution of KI (7.3 g, 44 mmol) in water (15 ml) and the temperature was kept at 0 °C. The reaction mixture was allowed to heat to room temperature and stirred for 3 h and subsequently extracted with ethyl acetate. The combined layers were consecutively washed with 10% Na₂S₂O₃ and salt water, subsequently dried over Na₂SO₄ and concentrated under a vacuum in order to obtain a light brown solid (1.90 g, 75%) which was used in the next step without further purification.

b)



[Key: 2-Picolinsäure = 2-picolinic acid; Dioxan = dioxane]

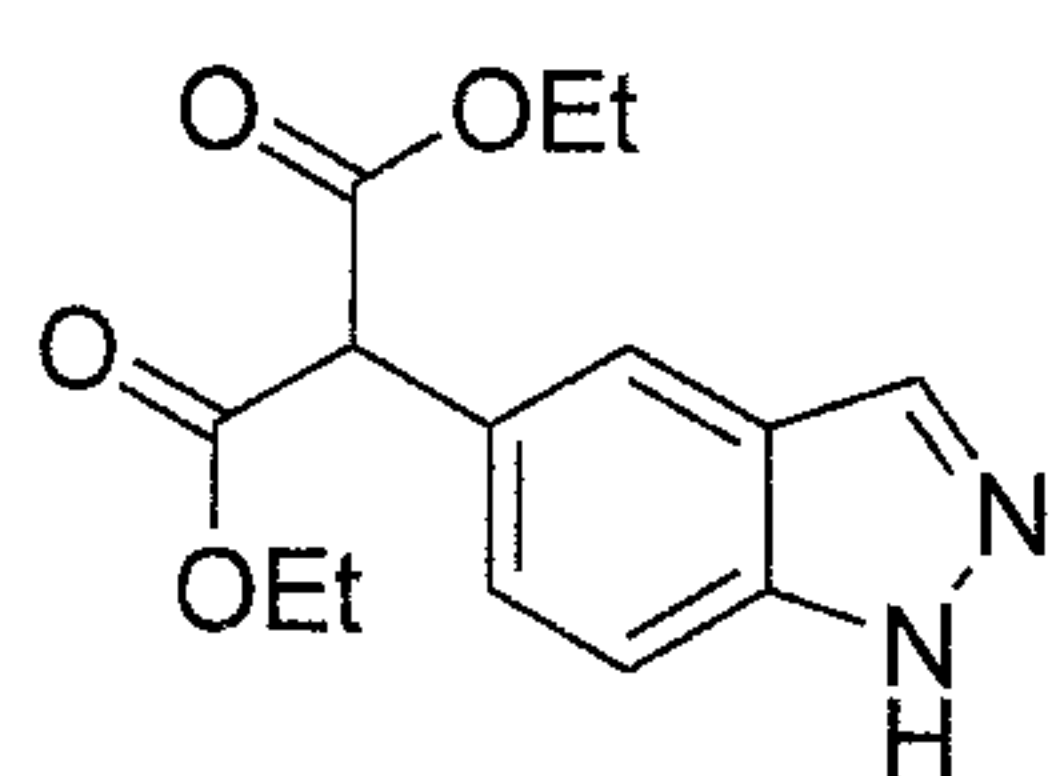
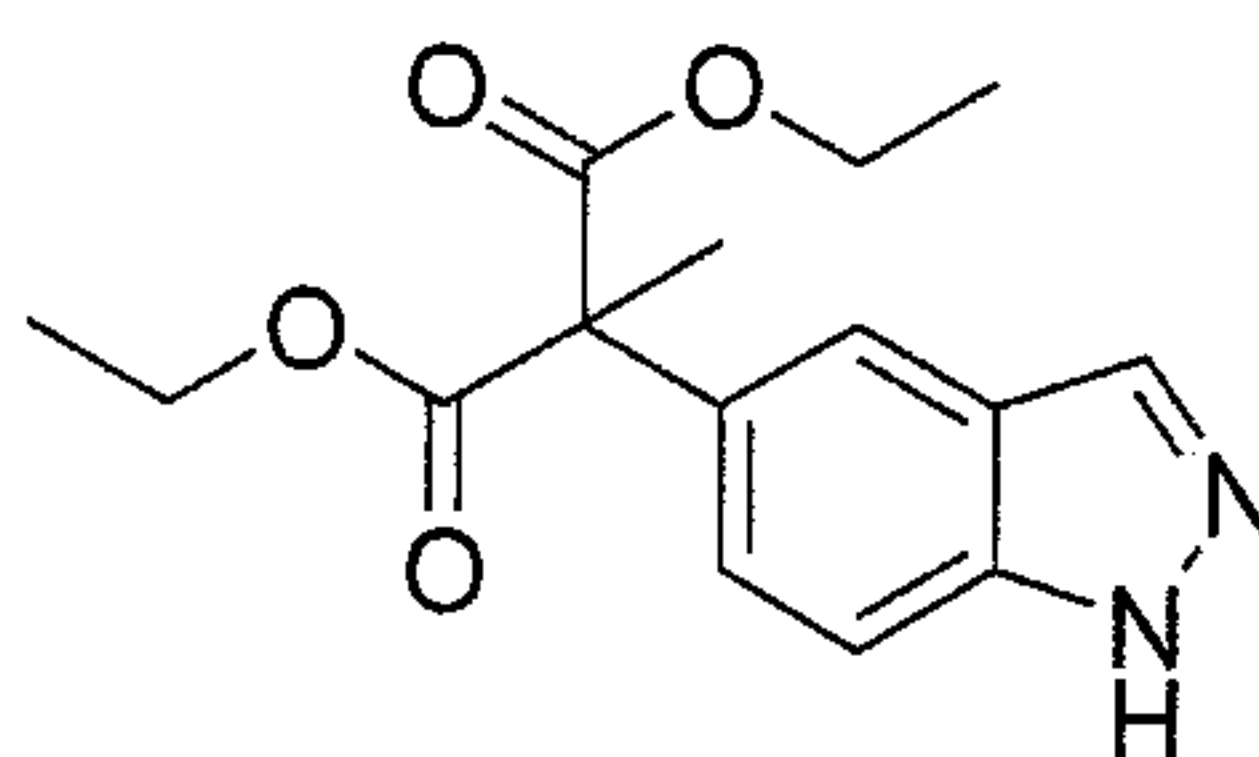
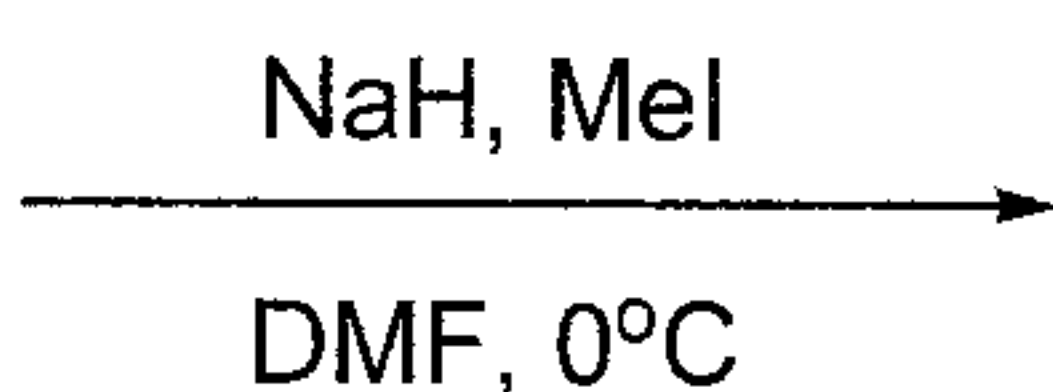
5-iodo-1*H*-indazole

2-(1*H*-indazol-5-yl)-malonic acid diethyl ester

GRA3394-WO-1

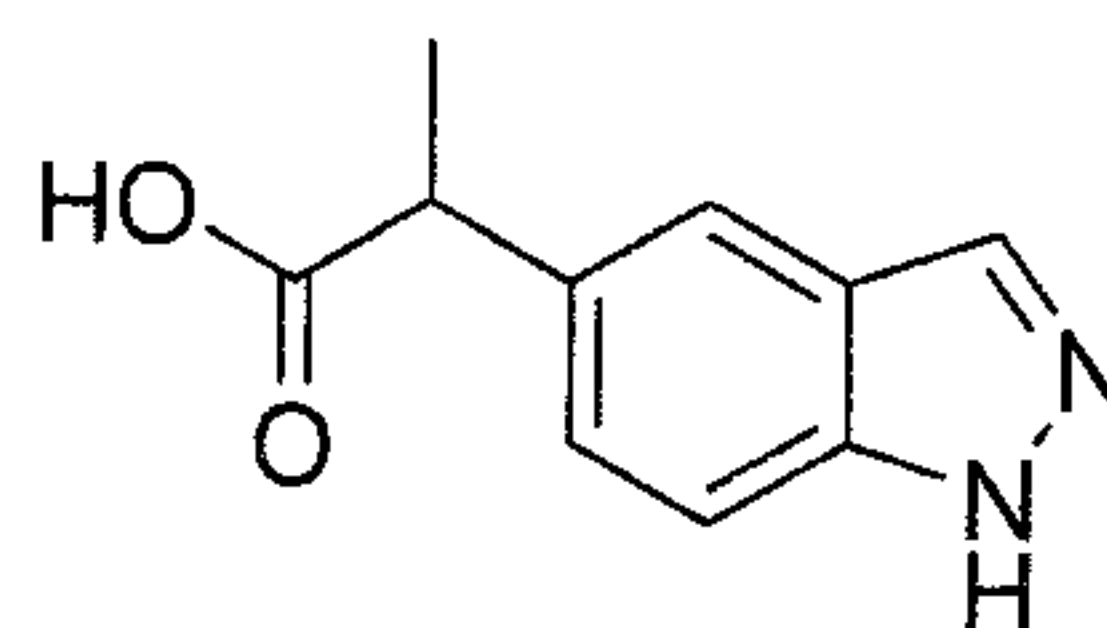
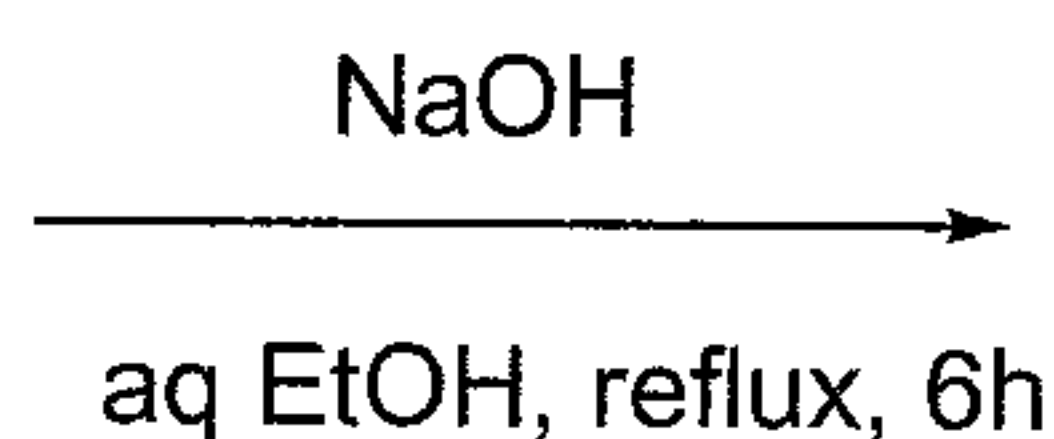
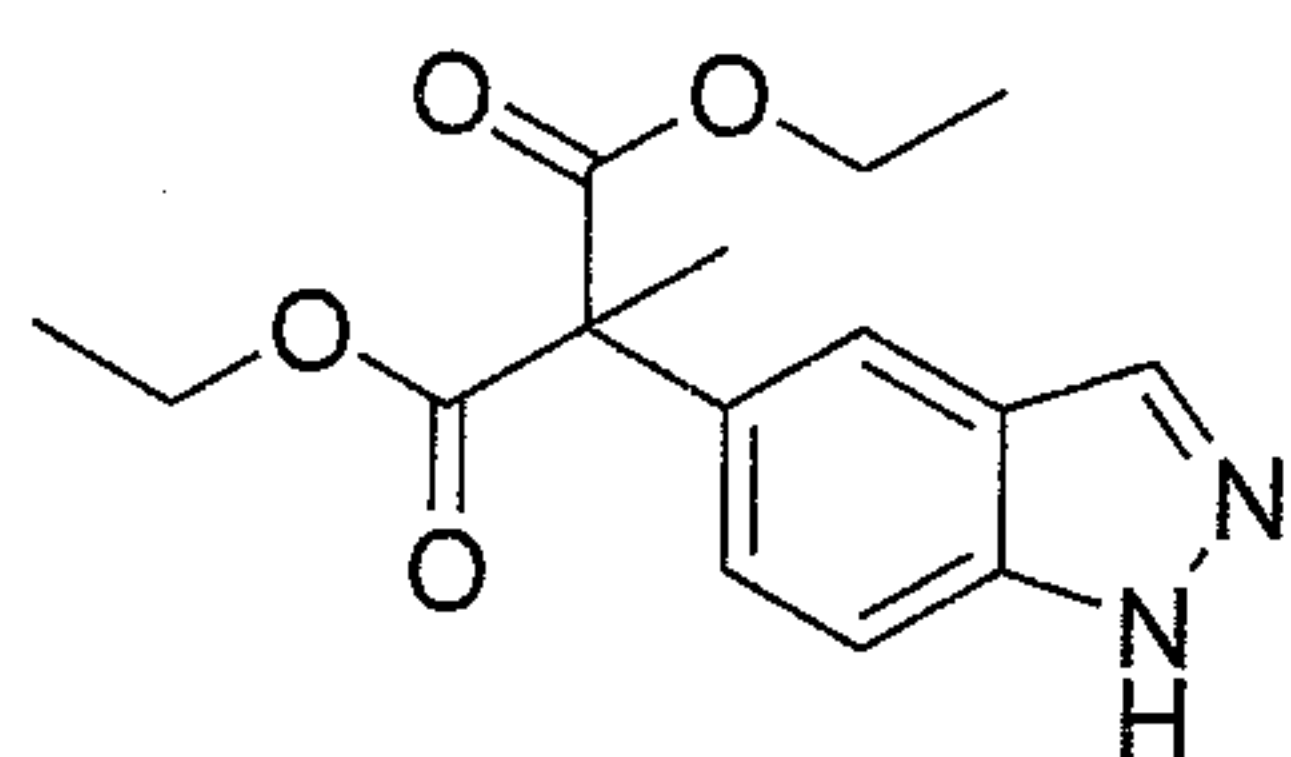
Distilled diethylmalonate (304 μ L, 2.00 mmol) and 5-iodo-1H-indazole (1.00 mmol) were added to CuI (9.5 mg, 5.0 mol%), 2-picolinic acid (12.3 mg, 10.0 mol%), Cs_2CO_3 (0.98 g, 3.0 mmol), and aryl iodide (1.0 mmol) in 1,4-dioxane (10 ml). After 7 hours of stirring at 70 $^\circ\text{C}$, the reaction mixture was cooled to RT. The reaction mixtures were extracted with ethyl acetate (20 mL $\times$ 3) and saturated aqueous NH_4Cl (10 mL). The combined organic layer was dried over Na_2SO_4 , filtered and concentrated under a vacuum. The oily residue was purified by flash chromatography on silica gel in order to obtain the desired product in the form of a colourless oil (60%).

c)

2-(1*H*-indazol-5-yl)-malonic acid diethyl ester2-(1*H*-indazol-5-yl)-2-methyl-malonic acid diethyl ester

A cooled solution of diethyl-2-(1H-indazol-5-yl)malonate (1 mmol) in DMF (10 ml) was treated at 0 $^\circ\text{C}$ with NaH (1.1 mmol) and MeI (1.2 mmol) and stirred for 30 min at room temperature. The reaction mixture was concentrated under a vacuum and the residue was purified by means of flash column chromatography on silica gel with EtOAc:hexanes (1:4) as the eluent. (65%)

d)

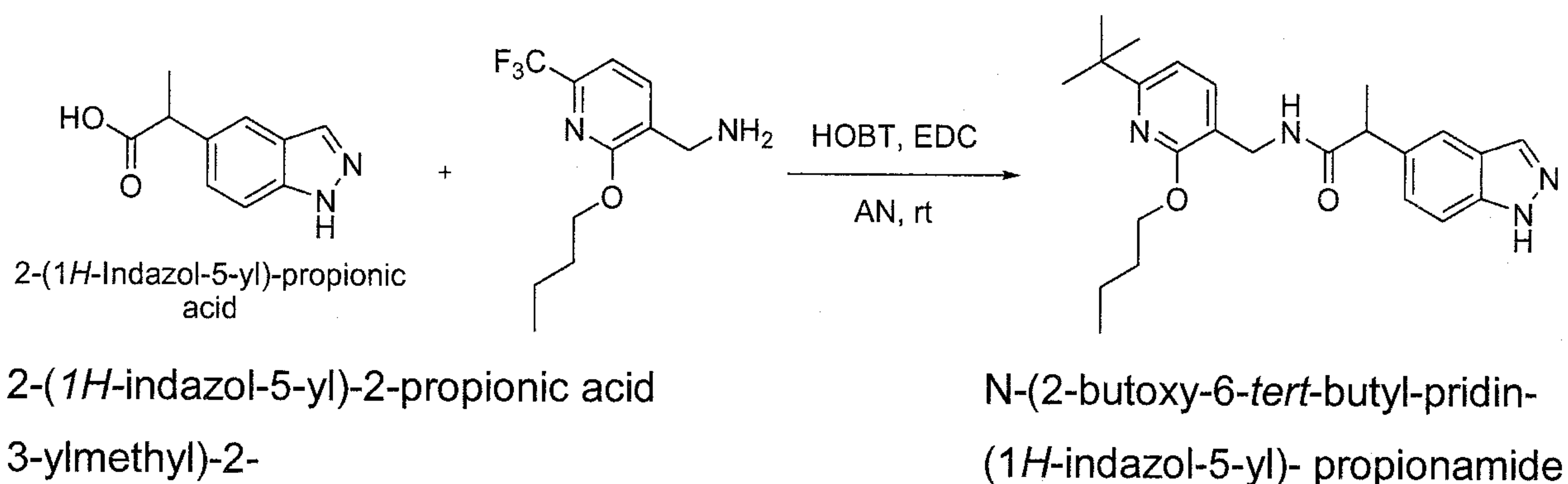


aqueous EtOH, reflux, 6h

2-(1*H*-Indazol-5-yl)-2-methyl-malonic acid diethyl ester2-(1*H*-indazol-5-yl)-propionic acid

A mixture of diethyl-2-(1H-indazol-5-yl)-2-methyl malonate (1 mmol) and NaOH (2 mmol) in 80% aqueous EtOH (10 ml) was boiled for 6 h under reflux. The reaction mixture was neutralized with 1 N HCl. The reaction mixture was extracted with ethyl acetate (20 ml $\times$ 3) and concentrated under a vacuum. The residue was purified by means of flash column chromatography with EtOAc:hexanes (1:1) as the eluent on silica gel. 53%

e)

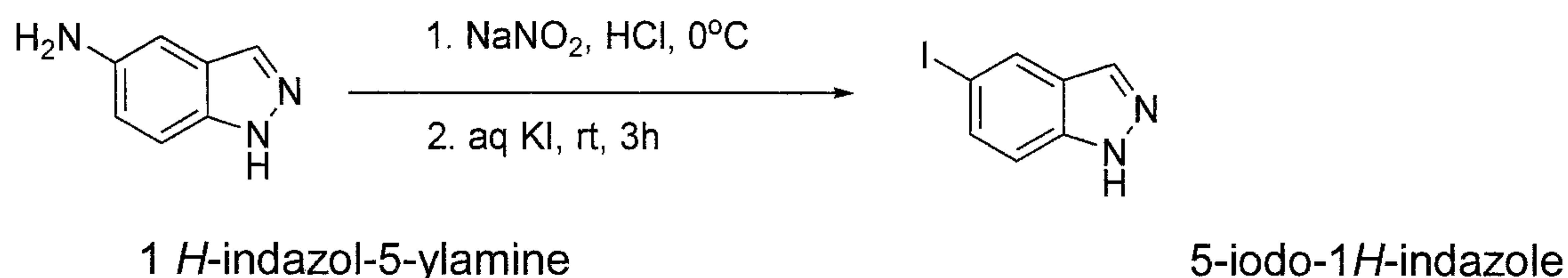


In accordance with general method

60%, white solid, melting point = 103-107 °C

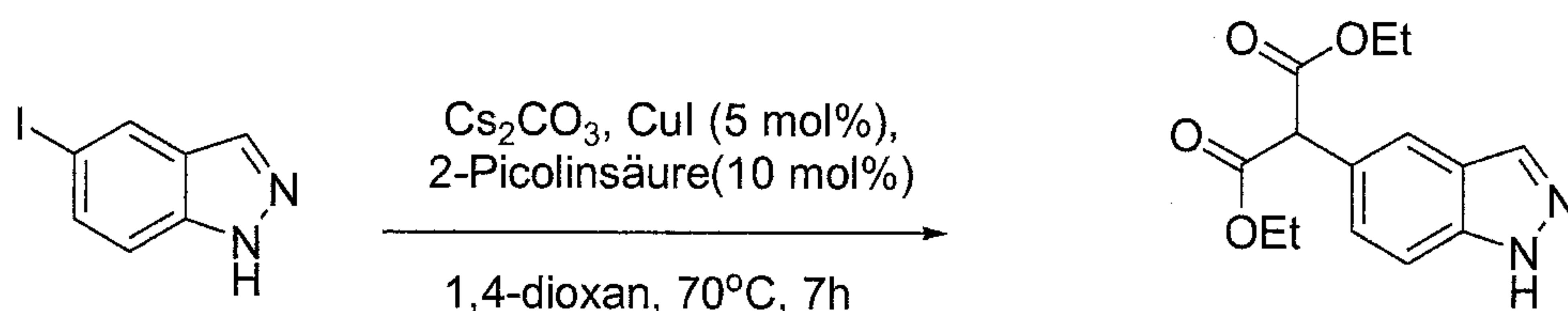
Synthesis of exemplary compound 48

a)



A solution of NaNO₂ (730 mg, 10.6 mmol) in water (10 ml) was added dropwise to a solution cooled to 0 °C of 1*H*-Indazol-5-amine (1.41 g, 10.6 mmol) in 6 N HCl (20 ml). The resultant solution was added to a solution of KI (7.3 g, 44 mmol) in water (15 ml) and the temperature was kept at 0 °C. The reaction mixture was allowed to heat to room temperature and stirred for 3 h and subsequently extracted with ethyl acetate. The combined layers were consecutively washed with 10% Na₂S₂O₃ and salt water, subsequently dried over Na₂SO₄ and concentrated under a vacuum in order to obtain the product as a light brown solid (1.90 g, 75%) which was used in the next step without further purification.

b)

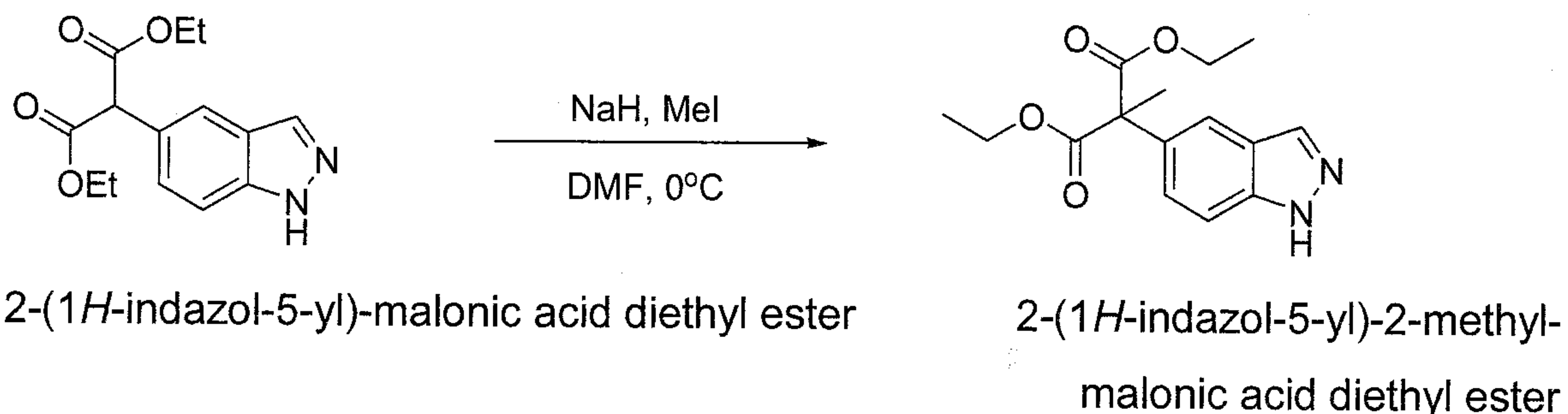


[Key: 2-Picolinsäure = 2-picolinic acid; Dioxan = dioxane]

Distilled diethyl malonate (304 µL, 2.00 mmol) and 5-iodo-1*H*-indazole (1.00 mmol) were added to Cul (9.5 mg, 5.0 mol%), 2-picolinic acid (12.3 mg, 10.0 mol%), Cs₂CO₃ (0.98 g, 3.0 mmol), and aryl iodide (1.0 mmol) in 1,4-dioxane (10 ml). After 7 hours of stirring at 70 °C, the reaction mixture was cooled to RT. The reaction mixtures were extracted with ethyl acetate (20 mL × 3) and saturated aqueous NH₄Cl (10 mL). The combined organic layer was dried over Na₂SO₄, filtered and concentrated under a vacuum. The oily residue was purified by flash chromatography

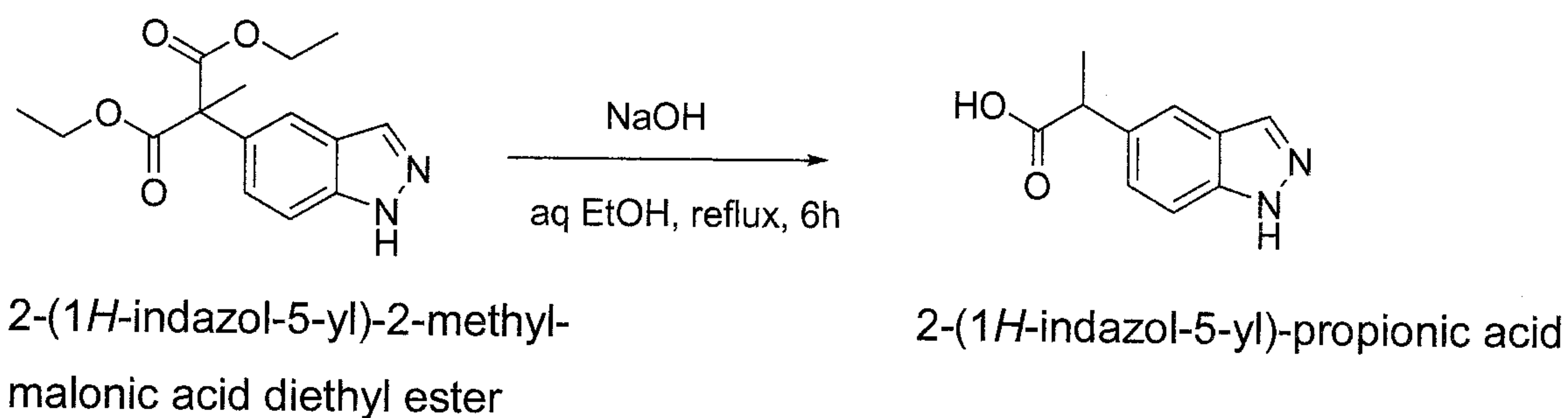
on silica gel in order to obtain the desired product in the form of a colourless oil (60%).

c)



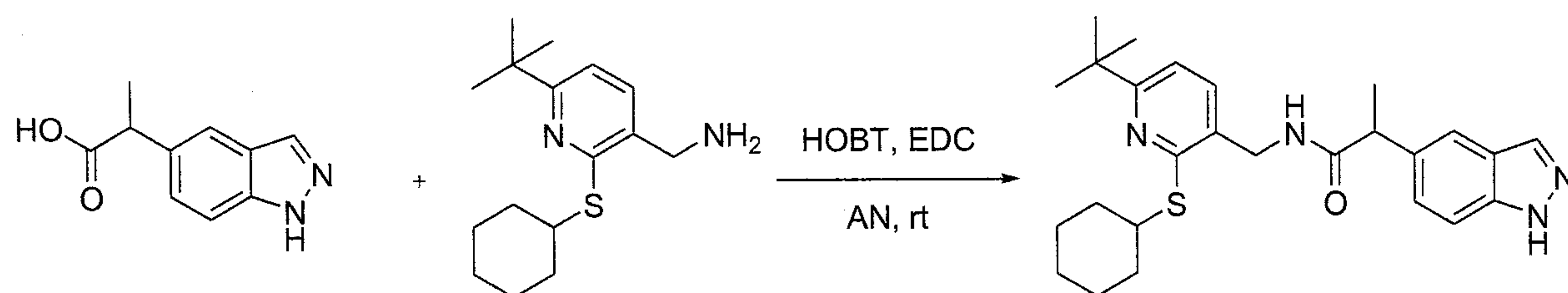
A cooled solution of diethyl-2-(1*H*-indazol-5-yl)malonate (1 mmol) in DMF (10 ml) was treated at 0 °C with NaH (1.1 mmol) and MeI (1.2 mmol) and stirred for 30 min at room temperature. The reaction mixture was concentrated under a vacuum and the residue was purified by means of flash column chromatography on silica gel with EtOAc:hexanes (1:4) as the eluent.(65%)

d)



A mixture of diethyl-2-(1*H*-indazol-5-yl)-2-methyl malonate (1 mmol) and NaOH (2 mmol) in 80% aqueous EtOH (10 ml) was boiled for 6 h under reflux. The mixture was neutralized with 1 N HCl. The reaction mixture was extracted with ethyl acetate (20 ml × 3) and concentrated under a vacuum. The residue was purified by means of flash column chromatography with EtOAc:hexanes (1:1) as the eluent on silica gel. 53%

e)



2-(1*H*-indazol-5-yl)-propionic acid
cyclohexylsulfanyl-pyridin-

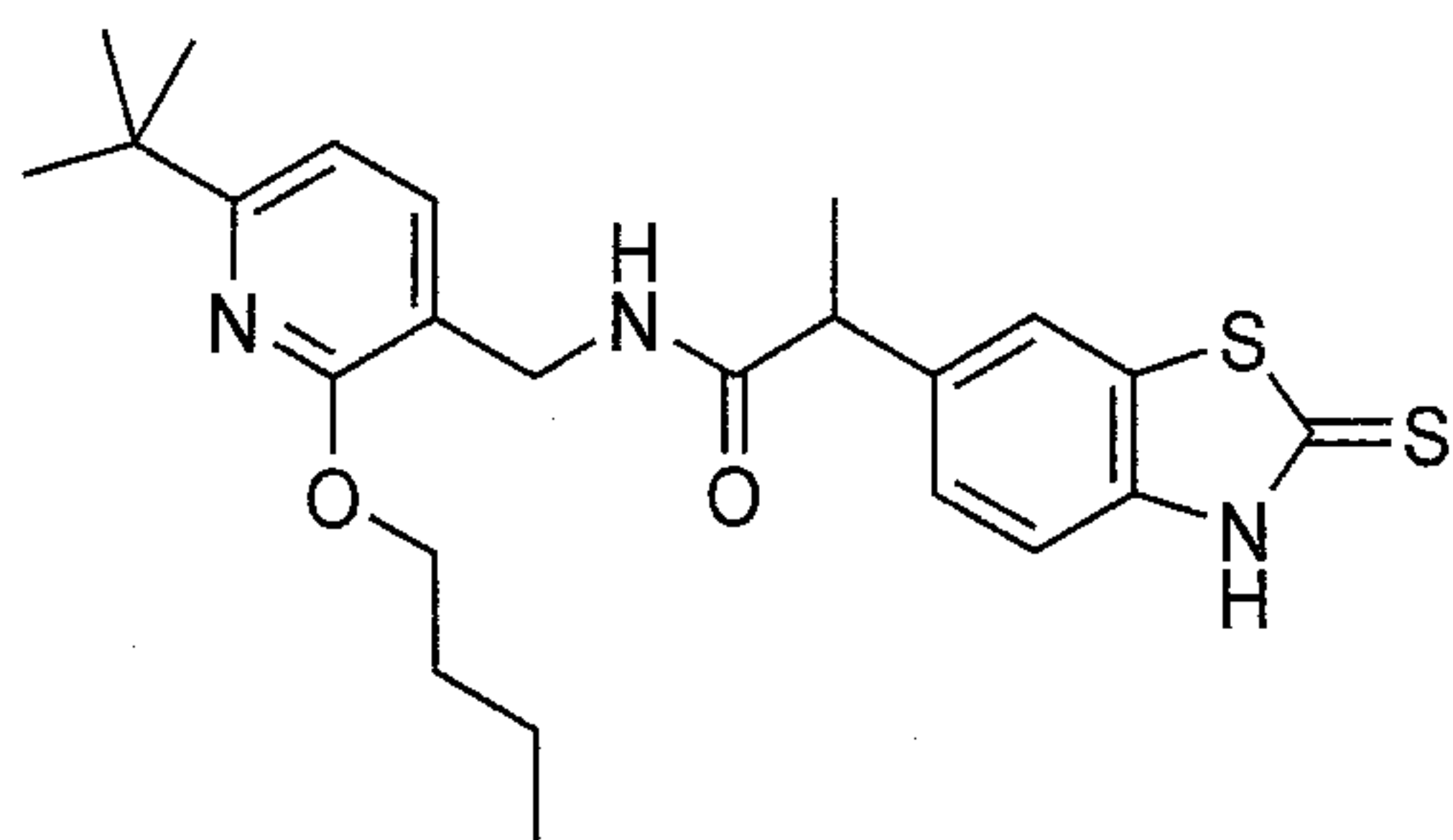
N-(6-*tert*-butyl-2-
3-ylmethyl)-2-1*H*-indazol-5-yl)-
propionamide

In accordance with general method

76%, white solid, melting point = 105-108 °C

Exemplary compound 49:

***N*-(2-butoxy-6-*tert*-butyl-pyridin-3-ylmethyl)-2-(2-thioxo-2,3-dihydro-benzothiazol-6-yl)-propionamide**



¹H-NMR(CDCl₃) δ 7.38 (m, 2H, Ar), 7.21-7.03 (m, 2H, Ar), 6.79 (d, 1H, J=7.5Hz, Ar), 6.16 (bs, NH), 4.33 (m, 4H, OCH₂ & CH₂NH), 3.58 (q, 1H, J=7.1Hz, CHCH₃), 1.65 (m, 2H, OCH₂CH₂), 1.52 (d, 3H, J=7.1Hz, CHCH₃), 1.40 (m, 2H, CH₂CH₃), 1.30 (s, 9H, C(CH₃)₃), 0.95 (t, 3H, J=7.3Hz, CH₂CH₃)

IR 2958, 1648, 1537, 1475, 1405, 1254, 1033 cm⁻¹

Mass (FAB) m/z 458 [M+H]⁺

Synthesis of further exemplary compounds

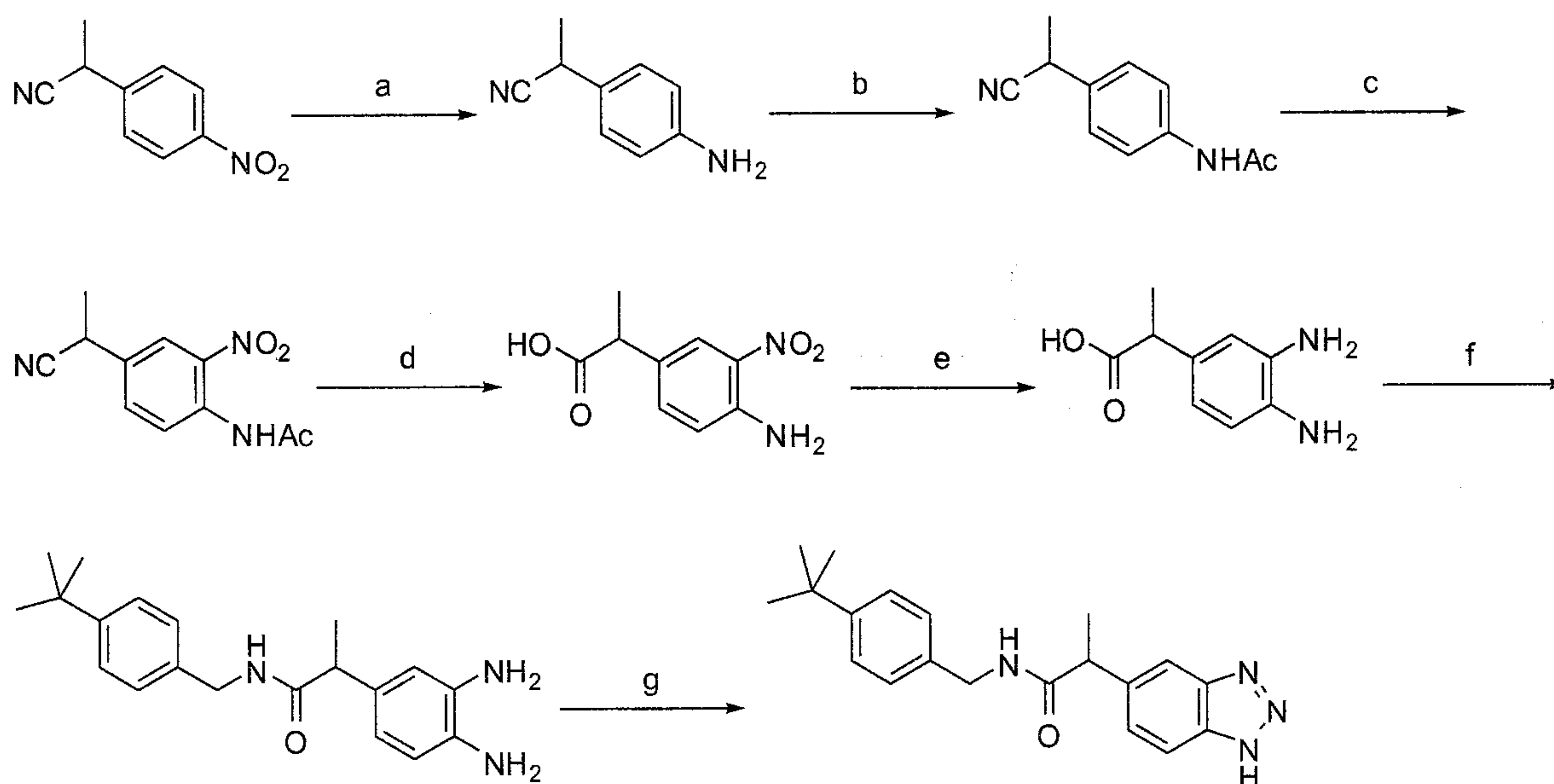
Exemplary compound 12:

2-(1*H*-benzotriazol-5-yl)-*N*-(4-*tert*-butyl-benzyl)-propionamide

GRA3394-WO-1

$^1\text{H-NMR}(\text{CDCl}_3)$ δ 7.82 (m, 2H, Ar), 7.48 (dd, 1H, Ar), 7.26 (d, 2H, $J=8.4\text{Hz}$, Ar), 7.08 (d, 2H, $J=8.4\text{Hz}$, Ar), 4.30 (s, 2H, NHCH_2), 3.87 (q, 1H, $J=7.1\text{Hz}$, CHCH_3), 1.54 (d, 3H, $J=7.1\text{Hz}$, CHCH_3), 1.26 (s, 9H, $\text{C}(\text{CH}_3)_3$)

Mass (FAB) m/z 338 $[\text{M}+\text{H}]^+$

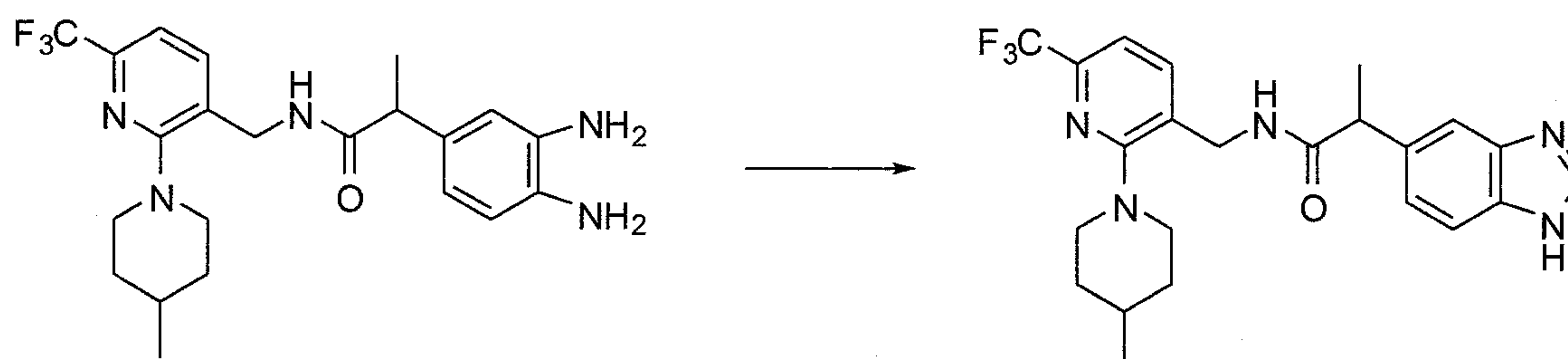


a. 10% Pd/C, H_2 , THF/EtOH, 94%; b. Ac_2O , Pyridin, 98%; c. Ac_2O , HNO_3 , 56%; d. konz. HCl, 88%; e. 10% Pd/C, H_2 , H_2O /EtOH, 50%; f. 4-*t*-Butylbenzylamin, EDCI, HOBt, TEA, DMF, 70%; g. NaNO_2 , 5% aq. AcOH, quantitativ

[Key: Pyridin = pyridine; konz. = conc.; 4-*t*-Butylbenzylamin = "4-*t*-butylbenzylamine; aq. = aq.; quantitativ = quantitative]

Exemplary compound 13:

2-(1H-benzoimidazol-5-yl)-N-(4-methyl-6'-trifluoromethyl-3,4,5,6-tetrahydro-2H-[1,2']bipyridinyl-3'-ylmethyl)-propionamide



2-(3,4-diaminophenyl)-N-(4-methyl-6'-trifluoromethyl-3,4,5,6-tetrahydro-2H-[1,2']bipyridinyl-3'-ylmethyl)-propionamide (48 mg, 0.110 mmol) was combined at RT with triethyl orthoformate (2 ml). The reaction mixture was heated to reflux for 2 h and cooled to RT. The reaction mixture was combined with water and repeatedly

extracted with DCM. The combined organic phases were dried over MgSO_4 and filtered. The solvent was removed under a vacuum and the residue purified by means of column chromatography (DCM/MeOH = 10:1).

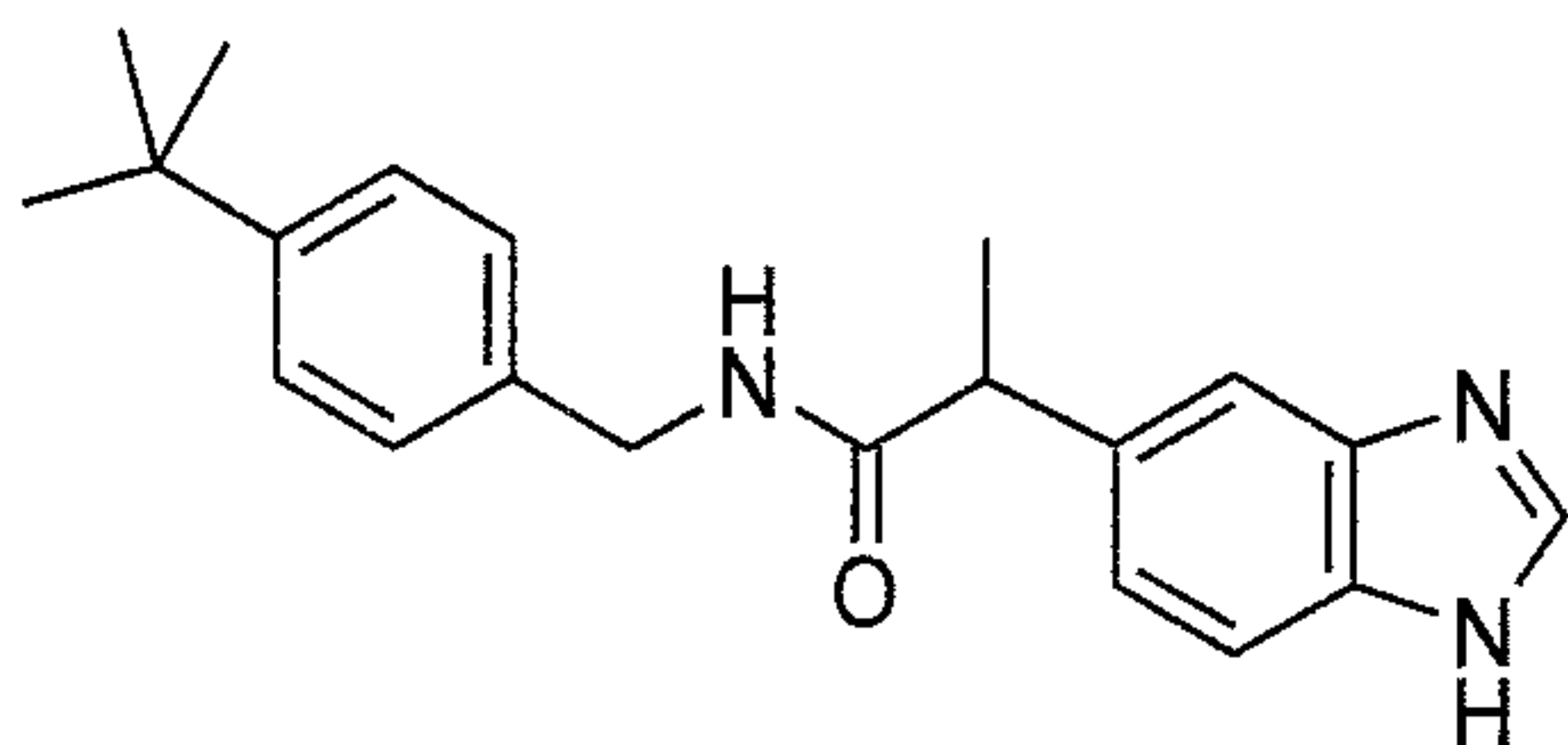
$^1\text{H-NMR}(\text{CD}_3\text{OD})$ δ 8.16 (s, 1H), 7.61-7.56 (m, 2H), 7.39 (d, 1H, $J=7.3\text{Hz}$), 7.28 (dd, 1H, $J=8.3, 1.7\text{Hz}$), 7.08 (d, 1H, $J=7.7\text{Hz}$), 4.46-4.27 (m, 2H), 3.84 (q, 1H, $J=7.0\text{Hz}$), 3.37-3.30 (m, 2H), 2.81-2.70 (m, 2H), 1.65 (m, 2H), 1.54 (d, 3H, $J=7.0\text{Hz}$), 1.52-1.45 (m, 1H), 1.32-1.21 (m, 2H), 0.94 (d, 3H, $J=6.6\text{Hz}$)

IR 3310, 2921, 1650, 1539, 1457, 1418, 1134, 759 cm^{-1}

Mass (FAB) m/z 447 $[\text{M}+\text{H}]^+$

Exemplary compound 14:

2-(1H-benzoimidazol-5-yl)-N-(4-tert-butyl-benzyl)-propionamide



The compound was obtained by reacting N-(4-tert-butylbenzyl)-2-(3,4-diaminophenyl)propanamide with triethyl orthoformate in a similar manner to exemplary compound 13.

$^1\text{H-NMR}(\text{CD}_3\text{OD})$ δ 8.13 (s, 1H), 7.61-7.53 (m, 2H), 7.29-7.24 (m, 3H), 7.06 (d, 1H, $J=8.6\text{Hz}$), 4.29 (s, 2H), 3.78 (q, 1H, $J=7.1\text{Hz}$), 1.52 (d, 3H, $J=7.1\text{Hz}$), 1.25 (s, 9H)

IR 3272, 2965, 1649, 1515, 1266, 1113, 756 cm^{-1}

Mass (FAB) m/z 337 $[\text{M}+\text{H}]^+$

Exemplary compounds 61-77 and 43-49 can likewise be obtained in accordance with the methods described herein.

Pharmacological data

The affinity of the compounds according to the invention for the vanilloid receptor 1 (VR1/TRPV1 receptor) was determined as described above (Pharmacological methods I or II).

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The compounds according to the invention of the above-stated formula I exhibit excellent affinity for the VR1/TRPV1 receptor (Table 1).

Table 1.

Compound according to Example	K _i (Rat) Capsaicin [nM]	K _i (Human) Capsaicin [nM]	IC ₅₀ (Human) [nM] after pH stimulus
1		579	ne
7		2173	ne
9		1075	ne
11		ne	
13		7	ne
14		ne	
20		9% @ 5 µM; 0% @ 1 µM	ne
23		15.3	ne
34		38% @ 5 µM; 3% @ 1 µM	ne
38		28.4	ne
39		15% @ 1 µM; 0% @ 0.1 µM	ne
40		34% @ 5 µM; 14% @ 1 µM 0% @ 0.1 µM	37% @ 10 µM; 21% @ 5 µM 0% @ 1 µM
41		18% @ 1 µM 5% @ 0.1 µM	ne
50		10% @ 5 µM 6% @ 1 µM 0% @ 0.1 µM	53% @ 10 µM 25% @ 5 µM 10% @ 1 µM
51		27% @ 1 µM 3% @ 0.1 µM	39% @ 5 µM 27% @ 1 µM 10% @ 0,1 µM
52		18% @ 1 µM 5% @ 0.1 µM	ne
55		12% @ 5 µM 0% @ 1 µM	27% @ 5 µM 5% @ 1 µM
56		18.7	12% @ 10 µM 2% @ 5 µM
57		32.8	32% @ 10 µM 3% @ 5 µM
58	60	27.8	ne
59	5.7	3.5	ne
60	45.8	26	ne

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ne means in each case "no effect", i.e. no response was observed.

The value after the sign "@" indicates the concentration at which inhibition (in percent) was determined in each case.

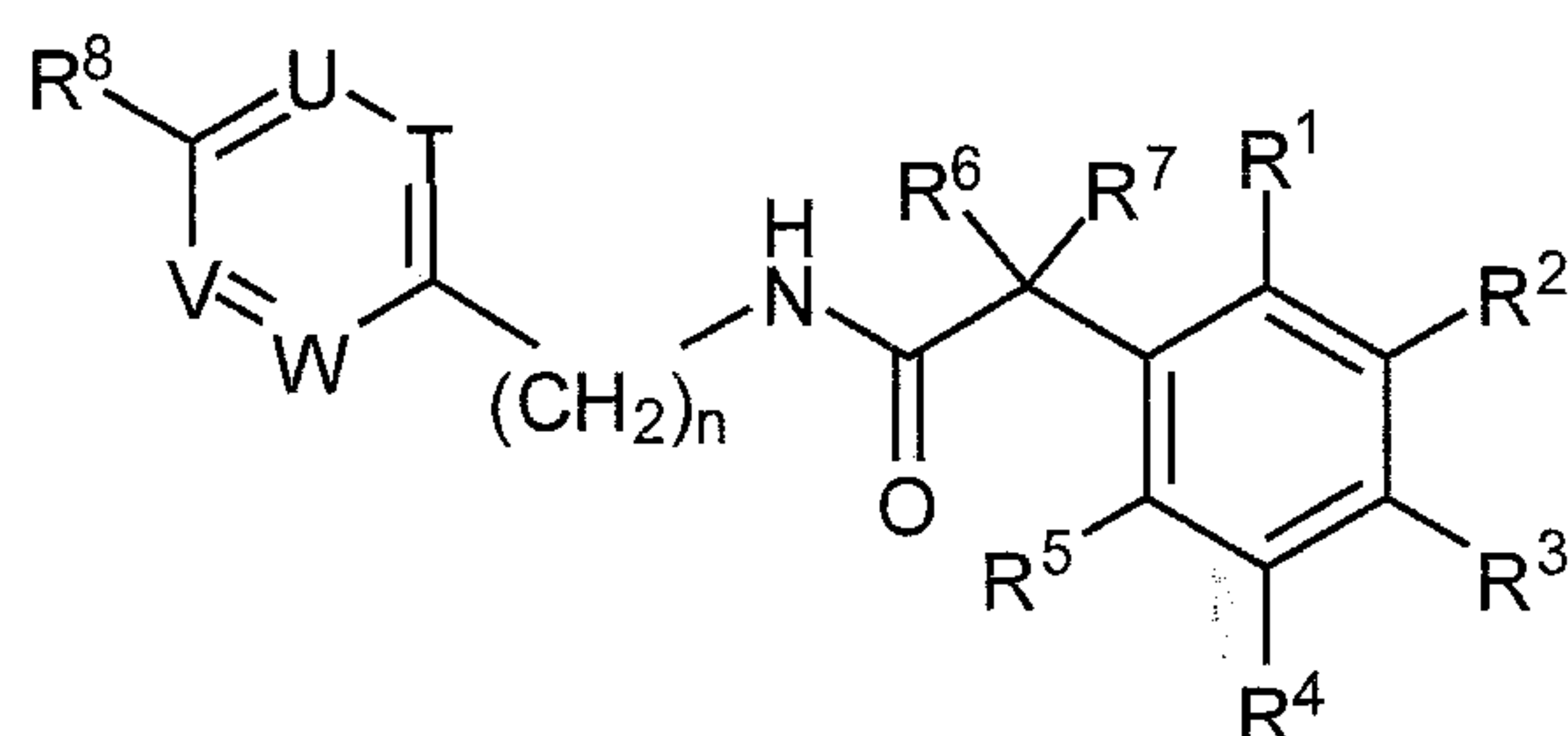
The action of the compound according to the invention was likewise determined using the formalin test (Pharmacological methods III) in mice.

Compound according to Example	Inhibition Formalin test
13	0.3 per os 25%
23	0.3 per os 13%

per os (perorally)

Claims

1. Substituted compounds of the general formula I,



I,

in which

n denotes 0, 1, 2, 3 or 4;

R^1 and R^2 together denote a residue selected from the group consisting of $-\text{CH}=\text{N}-\text{NH}-$; $-\text{CH}=\text{N}-\text{NR}^{71}-$; $-\text{S}-\text{C}(=\text{S})-\text{NH}-$; $-\text{O}-\text{C}(=\text{S})-\text{NH}-$; $-\text{S}-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{C}(=\text{O})-\text{NH}-$; $-\text{S}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{S}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{S}-\text{CH}=\text{N}-$; $-\text{S}-\text{CR}^{29}=\text{N}-$; $-\text{N}=\text{CH}-\text{O}-$; $-\text{N}=\text{CR}^{30}-\text{O}-$; $-\text{NH}-\text{C}(=\text{O})-\text{NH}-$; $-\text{NH}-\text{C}(=\text{S})-\text{NH}-$; $-\text{NR}^{66}-\text{C}(=\text{O})-\text{NR}^{65}-$; $-\text{NR}^{66}-\text{C}(=\text{S})-\text{NR}^{65}-$; $-\text{O}-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{NH}-$ and $-\text{CH}=\text{CH}-\text{N}=\text{CH}-$, which is attached in any desired direction to the parent structure,

or R^2 and R^3 together denote a residue selected from the group consisting of $-\text{CH}=\text{N}-\text{NH}-$; $-\text{CR}^{28}=\text{N}-\text{NH}-$; $-\text{CH}=\text{N}-\text{NR}^{62}-$; $-\text{CR}^{28}=\text{N}-\text{NR}^{62}-$; $-\text{S}-\text{C}(=\text{S})-\text{NH}-$; $-\text{O}-\text{C}(=\text{S})-\text{NH}-$; $-\text{S}-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{C}(=\text{O})-\text{NH}-$; $-\text{S}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{S}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{S}-\text{CH}=\text{N}-$; $-\text{S}-\text{CR}^{29}=\text{N}-$; $-\text{N}=\text{CH}-\text{O}-$; $-\text{N}=\text{CR}^{30}-\text{O}-$; $-\text{N}=\text{CH}-\text{NH}-$; $-\text{N}=\text{CH}-\text{NR}^{64}-$; $-\text{NH}-\text{C}(=\text{O})-\text{NH}-$; $-\text{NH}-\text{C}(=\text{S})-\text{NH}-$; $-\text{NR}^{66}-\text{C}(=\text{O})-\text{NR}^{65}-$; $-\text{NR}^{66}-\text{C}(=\text{S})-\text{NR}^{65}-$; $-\text{N}=\text{N}-\text{NH}-$; $-\text{N}=\text{N}-\text{NR}^{67}-$; $-\text{O}-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{O}-$; $-\text{CH}_2-\text{CH}_2-\text{NH}-$; $-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{NH}-$; $-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{CH}_2-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{N}=\text{N}-\text{CH}=\text{CH}-$; $-\text{N}=\text{CH}-\text{N}=\text{CH}-$; $-\text{N}=\text{CH}-\text{CH}=\text{N}-$; $-\text{CH}=\text{CH}-\text{CH}=\text{N}-$; $-\text{CH}=\text{CH}-\text{N}=\text{CH}-$; $-\text{CH}=\text{N}-\text{N}=\text{CH}-$; $-\text{N}=\text{N}-$

$\text{CR}^{68}=\text{CR}^{69}-$; $-\text{N}=\text{CR}^{68}-\text{N}=\text{CR}^{69}$; $-\text{N}=\text{CR}^{68}-\text{CR}^{69}=\text{N}-$; $-\text{CR}^{68}=\text{CR}^{69}-\text{CH}=\text{N}-$; $-\text{CR}^{68}=\text{CR}^{69}-\text{N}=\text{CR}^{70}-$; $-\text{CR}^{68}=\text{N}-\text{N}=\text{CR}^{69}-$ and $-\text{O}-\text{CH}_2-\text{CH}_2-\text{NH}-$, which is attached in any desired direction to the parent structure,

or R^3 and R^4 together denote a residue selected from the group

consisting of $-\text{CH}=\text{N}-\text{NH}-$; $-\text{CR}^{28}=\text{N}-\text{NH}-$; $-\text{CH}=\text{N}-\text{NR}^{62}-$; $-\text{CR}^{28}=\text{N}-\text{NR}^{62}-$; $-\text{S}-\text{C}(=\text{S})-\text{NH}-$; $-\text{O}-\text{C}(=\text{S})-\text{NH}-$; $-\text{S}-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{C}(=\text{O})-\text{NH}-$; $-\text{S}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{S}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{S}-\text{CH}=\text{N}-$; $-\text{S}-\text{CR}^{29}=\text{N}-$; $-\text{N}=\text{CH}-\text{O}-$; $-\text{N}=\text{CR}^{30}-\text{O}-$; $-\text{N}=\text{CH}-\text{NH}-$; $-\text{N}=\text{CH}-\text{NR}^{64}-$; $-\text{NH}-\text{C}(=\text{O})-\text{NH}-$; $-\text{NH}-\text{C}(=\text{S})-\text{NH}-$; $-\text{NR}^{66}-\text{C}(=\text{O})-\text{NR}^{65}-$; $-\text{NR}^{66}-\text{C}(=\text{S})-\text{NR}^{65}-$; $-\text{N}=\text{N}-\text{NH}-$; $-\text{N}=\text{N}-\text{NR}^{67}-$; $-\text{O}-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{O}-$; $-\text{CH}_2-\text{CH}_2-\text{NH}-$; $-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{NH}$; $-\text{CH}_2-\text{C}(=\text{O})-\text{NH}$; $-\text{CH}_2-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{N}=\text{N}-\text{CH}=\text{CH}-$; $-\text{N}=\text{CH}-\text{N}=\text{CH}$; $-\text{N}=\text{CH}-\text{CH}=\text{N}-$; $-\text{CH}=\text{CH}-\text{CH}=\text{N}-$; $-\text{CH}=\text{CH}-\text{N}=\text{CH}-$; $-\text{CH}=\text{N}-\text{N}=\text{CH}-$; $-\text{N}=\text{N}-\text{CR}^{68}=\text{CR}^{69}-$; $-\text{N}=\text{CR}^{68}-\text{N}=\text{CR}^{69}$; $-\text{N}=\text{CR}^{68}-\text{CR}^{69}=\text{N}-$; $-\text{CR}^{68}=\text{CR}^{69}-\text{CH}=\text{N}-$; $-\text{CR}^{68}=\text{CR}^{69}-\text{N}=\text{CR}^{70}-$; $-\text{CR}^{68}=\text{N}-\text{N}=\text{CR}^{69}-$ and $-\text{O}-\text{CH}_2-\text{CH}_2-\text{NH}-$, which is attached in any desired direction to the parent structure,

or R^4 and R^5 together denote a residue selected from the group consisting of –

$\text{CH}=\text{N}-\text{NH}-$; $-\text{CH}=\text{N}-\text{NR}^{71}-$; $-\text{S}-\text{C}(=\text{S})-\text{NH}-$; $-\text{O}-\text{C}(=\text{S})-\text{NH}-$; $-\text{S}-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{C}(=\text{O})-\text{NH}-$; $-\text{S}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{S}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{S}-\text{CH}=\text{N}-$; $-\text{S}-\text{CR}^{29}=\text{N}-$; $-\text{N}=\text{CH}-\text{O}-$; $-\text{N}=\text{CR}^{30}-\text{O}-$; $-\text{NH}-\text{C}(=\text{O})-\text{NH}-$; $-\text{NH}-\text{C}(=\text{S})-\text{NH}-$; $-\text{NR}^{66}-\text{C}(=\text{O})-\text{NR}^{65}-$; $-\text{NR}^{66}-\text{C}(=\text{S})-\text{NR}^{65}-$; $-\text{O}-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{NH}-$ and $-\text{CH}=\text{CH}-\text{N}=\text{CH}-$, which is attached in any desired direction to the parent structure,

or R^1 and R^2 or R^2 and R^3 or R^3 and R^4 or R^4 and R^5 together with the carbon atoms joining them together form a 4-, 5-, 6- or 7-membered ring which is saturated, unsaturated or aromatic, has 1, 2 or 3 nitrogen atoms as ring members and is unsubstituted or substituted with 1, 2 or 3 residues mutually independently selected from the group consisting of F, Cl, Br, I, $=\text{O}$, $-\text{CN}$, $-\text{CF}_3$, $-\text{SF}_5$, $-\text{OH}$, $-\text{O}-\text{C}_{1-5}\text{-alkyl}$, $-\text{NH}_2$, $-\text{NO}_2$, $-\text{O}-\text{CF}_3$, $-\text{S}-\text{CF}_3$, $-\text{SH}$, $-\text{S}-\text{C}_{1-5}\text{-alkyl}$, $-\text{C}_{1-5}\text{-alkyl}$, $-\text{C}(=\text{O})-\text{OH}$, $-\text{C}(=\text{O})-\text{O}-\text{C}_{1-5}\text{-alkyl}$, $-\text{NH}-\text{C}_{1-5}\text{-alkyl}$, $-\text{N}(\text{C}_{1-5}\text{-alkyl})_2$, $-\text{NH}-$

$S(=O)_2-C_{1-5}$ -alkyl, $-NH-C(=O)-O-C_{1-5}$ -alkyl, $-C(=O)-H$, $-C(=O)-C_{1-5}$ -alkyl, $-C(=O)-NH_2$, $-C(=O)-NH-C_{1-5}$ -alkyl, $-C(=O)-N-(C_{1-5}-alkyl)_2$, $-O$ -phenyl, $-O$ -benzyl, phenyl and benzyl, wherein in each case the cyclic moiety of the residues $-O$ -phenyl, $-O$ -benzyl, phenyl and benzyl may be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, $-OH$, $-CF_3$, $-SF_5$, $-CN$, $-NO_2$, $-C_{1-5}$ alkyl, $-O-C_{1-5}$ -alkyl, $-O-CF_3$, $-S-CF_3$, phenyl and $-O$ -benzyl,

and the remaining residues R^1 , R^2 , R^3 , R^4 and R^5 , mutually independently, in each case denote

H; F; Cl; Br; I; $-SF_5$; $-NO_2$; $-CN$; $-NH_2$; $-OH$; $-SH$; $-C(=O)-NH_2$; $-S(=O)_2-NH_2$; $-C(=O)-NH-OH$; $-C(=O)-OH$; $-C(=O)-H$; $-S(=O)_2-OH$; $-C(=NH)-NH_2$; $-C(=NH)-NH-R^9$; $-N=C(NH_2)_2$; $-N=C(NHR^{10})(NHR^{11})$; $-O-P(=O)_2-O-R^{12}$; $-NHR^{13}$; $-NR^{14}R^{15}$; $-NH-C(=O)-R^{13}$; $-OR^{16}$; $-SR^{17}$; $-C(=O)-NHR^{18}$; $-C(=O)-NR^{19}R^{20}$; $-S(=O)_2-NHR^{21}$; $-S(=O)_2-NR^{22}R^{23}$; $-C(=O)-OR^{24}$; $-C(=O)-R^{25}$; $-S(=O)-R^{26}$; $-S(=O)_2-R^{27}$ or denote a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C_{1-10} residue;

R^6 denotes H or denotes a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C_{1-10} residue;

R^7 denotes hydrogen or $-OH$;

or R^6 and R^7 in each case together with the carbon atom joining them together as a ring member form a saturated or unsaturated, unsubstituted or at least monosubstituted 3-, 4-, 5-, 6- or 7-membered cycloaliphatic residue;

R^8 denotes $-SF_5$; $-O-CF_3$; $-CF_3$; $-O-CFH_2$; $-O-CF_2H$; $-CFH_2$; $-CF_2H$; or denotes an unsubstituted or at least monosubstituted tert-butyl residue;

T denotes $C-R^{35}$ and U denotes $C-R^{36}$ and V denotes N and W denotes $C-R^{38}$ or

T denotes $C-R^{35}$ and U denotes N and V denotes $C-R^{37}$ and W denotes $C-R^{38}$ or

T denotes N and U denotes C-R³⁶ and V denotes C-R³⁷ and W denotes C-R³⁸
or

T denotes N and U denotes N and V denotes C-R³⁷ and W denotes C-R³⁸
or

T denotes N and U denotes C-R³⁶ and V denotes N and W denotes C-R³⁸
or

T denotes C-R³⁵ and U denotes N and V denotes N and W denotes C-R³⁸
or

T denotes C-R³⁵ and U denotes C-R³⁶ and V denotes C-R³⁷ and W denotes C-R³⁸;

R⁹, R¹⁰, R¹¹, R¹², R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸, R¹⁹, R²⁰, R²¹, R²², R²³, R²⁴, R²⁵,
R²⁶ and R²⁷, mutually independently, in each case

denote a linear or branched, saturated or unsaturated, unsubstituted or
at least monosubstituted aliphatic C₁₋₁₀ residue;

denote an unsaturated or saturated, unsubstituted or at least
monosubstituted 3-, 4-, 5-, 6-, 7-, 8- or 9-membered cycloaliphatic
residue optionally comprising at least one heteroatom as a ring
member, which residue may be fused with a saturated or unsaturated,
unsubstituted or at least monosubstituted mono- or polycyclic ring
system and/or be attached via a linear or branched, unsubstituted or at
least monosubstituted C₁₋₆ alkylene group or 2- to 6-membered
heteroalkylene group;

or denote an unsubstituted or at least monosubstituted 5- to 14-
membered aryl or heteroaryl residue, which may be fused with a
saturated or unsaturated, unsubstituted or at least monosubstituted
mono- or polycyclic ring system and/or be attached via a linear or
branched, unsubstituted or at least monosubstituted C₁₋₆ alkylene group
or 2- to 6-membered heteroalkylene group;

R²⁸ denotes F; Cl; Br; I; -SF₅; -NO₂; -CF₃; -CN; -NH₂ or denotes a linear or

branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue;

R²⁹ and R³⁰, mutually independently, in each case denote -NH-C(=O)-R³¹; -NH₂; -NH-S(=O)₂-R³²; -NH-C(=O)-O-R³³; -S-R³⁴ or denote a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue;

R³¹, R³², R³³ and R³⁴, mutually independently, in each case denote a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue;

R³⁵, R³⁶ and R³⁷, mutually independently, in each case denote H; F; Cl; Br; I; -SF₅; -NO₂; -CF₃; -CN; -NH₂; -OH; -SH; -C(=O)-NH₂; -S(=O)₂-NH₂; -C(=O)-NH-OH; -C(=O)-OH; -C(=O)-H; -S(=O)₂-OH; -NHR¹³; -NR¹⁴R¹⁵; -NH-C(=O)-R¹³; -OR¹⁶; -SR¹⁷; -C(=O)-NHR¹⁸; -C(=O)-NR¹⁹R²⁰; -S(=O)₂-NHR²¹; -S(=O)₂-NR²²R²³; -C(=O)-OR²⁴; -C(=O)-R²⁵; -S(=O)-R²⁶; -S(=O)₂-R²⁷;

denote a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue;

or denote an unsubstituted or at least monosubstituted 5- to 14-membered aryl or heteroaryl residue, which may be fused with a saturated or unsaturated, unsubstituted or at least monosubstituted mono- or polycyclic ring system and/or be attached via a linear or branched, unsubstituted or at least monosubstituted C₁₋₆ alkylene group or C₂₋₆ alkenylene group or C₂₋₆ alkynylene group;

R³⁸ denotes H; F; Cl; Br; I; -SF₅; -NO₂; -CF₃; -CF₂Cl; -CN; -NH₂; -OH; -SH; -C(=O)-NH₂; -S(=O)₂-NH₂; -C(=O)-NH-OH; -C(=O)-OH; -C(=O)-H; -S(=O)₂-OH; -NHR³⁹; -NR⁴⁰R⁴¹; -OR⁴²; -SR⁴³; -C(=O)-NHR⁴⁴; -C(=O)-NR⁴⁵R⁴⁶; -S(=O)₂-NHR⁴⁷; -S(=O)₂-NR⁴⁸R⁴⁹; -C(=O)-OR⁵⁰; -C(=O)-R⁵¹; -

$S(=O)-R^{52}$; $-S(=O)_2-R^{53}$; $-C(=NH)-NH_2$; $-C(=NH)-NH-R^{54}$; $-N=C(NH_2)_2$; $-N=C(NHR^{55})(NHR^{56})$;

denotes a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C_{1-10} residue;

denotes an unsaturated or saturated, unsubstituted or at least monosubstituted 3-, 4-, 5-, 6-, 7-, 8- or 9-membered cycloaliphatic residue optionally comprising at least one heteroatom as a ring member, which residue is in each case attached to the parent structure via a carbon atom in the ring of the cycloaliphatic residue and may be fused with a saturated or unsaturated, unsubstituted or at least monosubstituted mono- or polycyclic ring system and/or be attached via a linear or branched, unsubstituted or at least monosubstituted C_{1-6} alkylene group or C_{2-6} alkenylene group or C_{2-6} alkynylene group;

or denotes an unsubstituted or at least monosubstituted 5- to 14-membered aryl or heteroaryl residue, which may be fused with a saturated or unsaturated, unsubstituted or at least monosubstituted mono- or polycyclic ring system and/or be attached via a linear or branched, unsubstituted or at least monosubstituted C_{1-6} alkylene group or C_{2-6} alkenylene group or C_{2-6} alkynylene group;

R^{39} , R^{40} , R^{41} , R^{42} , R^{43} , R^{44} , R^{45} , R^{46} , R^{47} , R^{48} , R^{49} , R^{50} , R^{51} , R^{52} , R^{53} , R^{54} , R^{55} and R^{56} , mutually independently, in each case

denote a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C_{1-10} residue;

denote an unsaturated or saturated, unsubstituted or at least monosubstituted 3-, 4-, 5-, 6-, 7-, 8- or 9-membered cycloaliphatic residue optionally comprising at least one heteroatom as a ring member, which residue may be fused with a saturated or unsaturated, unsubstituted or at least monosubstituted mono- or polycyclic ring

system and/or be attached via a linear or branched, unsubstituted or at least monosubstituted C₁₋₆ alkylene group or 2- to 6-membered heteroalkylene group;

or denote an unsubstituted or at least monosubstituted 5- to 14-membered aryl or heteroaryl residue, which may be fused with a saturated or unsaturated, unsubstituted or at least monosubstituted mono- or polycyclic ring system and/or be attached via a linear or branched, unsubstituted or at least monosubstituted C₁₋₆ alkylene group or 2- to 6-membered heteroalkylene group;

or

R⁴⁰ and R⁴¹ in each case together with the nitrogen atom joining them together as a ring member form a saturated or unsaturated, unsubstituted 4-, 5-, 6-, 7-, 8- or 9-membered heterocycloaliphatic residue or 4-, 5-, 6-, 7-, 8- or 9-membered heterocycloaliphatic residue substituted with 1, 2, 3, 4 or 5 residues R⁵⁷ and optionally comprising at least one further heteroatom as a ring member, which heterocycloaliphatic residue may be fused with a saturated or unsaturated, unsubstituted or at least monosubstituted mono- or polycyclic ring system;

R⁵⁷ denotes -NHR⁵⁸, -NR⁵⁹R⁶⁰ denotes a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue;

R⁵⁸, R⁵⁹ and R⁶⁰, mutually independently, in each case denote -C(=O)-R⁶¹; denote a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue

or denote an unsubstituted or at least monosubstituted 5- to 14-membered aryl or heteroaryl residue, which may be fused with a saturated or unsaturated, unsubstituted or at least monosubstituted mono- or polycyclic ring system and/or be attached via a linear or

branched, unsubstituted or at least monosubstituted C₁₋₆ alkylene group or C₂₋₆ alkenylene group or C₂₋₆ alkynylene group;

R⁶¹ denotes a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue;

R⁶², R⁶³, R⁶⁴, R⁶⁵, R⁶⁶ and R⁶⁷, mutually independently, in each case denote a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue;

R⁶⁸, R⁶⁹ and R⁷⁰, mutually independently, in each case denote F, Cl, Br, I, or denote a linear or branched, saturated or unsaturated, unsubstituted or at least monosubstituted aliphatic C₁₋₁₀ residue; and

R⁷¹ denotes an unsubstituted or at least monosubstituted 5- to 14-membered aryl or heteroaryl residue, which may be fused with a saturated or unsaturated, unsubstituted or at least monosubstituted mono- or polycyclic ring system and/or be attached via a linear or branched, unsubstituted or at least monosubstituted C₁₋₆ alkylene group or C₂₋₆ alkenylene group or C₂₋₆ alkynylene group,

in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates;

wherein

the above-stated aliphatic C₁₋₁₀ residues and tert-butyl residues may optionally in each case be substituted with 1, 2, 3, 4, 5, 6, 7, 8 or 9 substituents mutually independently selected from the group consisting of F, Cl, Br, I, -CN, -NO₂, -OH, -NH₂, -SH, -O(C₁₋₅-alkyl), -S(C₁₋₅-alkyl), -NH(C₁₋₅-alkyl), -N(C₁₋₅-alkyl)(C₁₋₅-

alkyl), -C(=O)-O-C₁₋₅-alkyl, -O-C(=O)-C₁₋₅-alkyl, -O-phenyl, phenyl, -OCF₃ and -SCF₃;

the above-stated 2- to 6-membered heteroalkylene groups, C₁₋₆ alkylene groups and C₂₋₆ alkenylene groups and C₂₋₆ alkynylene groups may optionally in each case be substituted with 1, 2, 3, 4, 5, 6, 7, 8 or 9 substituents mutually independently selected from the group consisting of F, Cl, Br, I, -CN, -NO₂, -OH, -NH₂, -SH, -O(C₁₋₅-alkyl), -S(C₁₋₅-alkyl), -NH(C₁₋₅-alkyl), -N(C₁₋₅-alkyl)(C₁₋₅-alkyl), -OCF₃ and -SCF₃;

the above-stated heteroalkylene groups may in each case optionally comprise 1, 2 or 3 heteroatom(s) mutually independently selected from the group consisting of oxygen, nitrogen and sulfur (NH) as chain link(s);

the above-stated (hetero)cycloaliphatic residues may optionally be substituted in each case with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of -C₁₋₆-alkylene-OH, =CH₂, -O-C₁₋₅-alkylene-oxetanyl, -C₁₋₅-alkylene-O-C₁₋₅-alkylene-oxetanyl, -CH₂-NH-C₁₋₅-alkyl, -CH₂-N(C₁₋₅-alkyl)₂, -N[-C(=O)-C₁₋₅-alkyl]-phenyl, -CH₂-O-C₁₋₅-alkyl, oxo (=O), thioxo (=S), F, Cl, Br, I, -CN, -CF₃, -SF₅, -OH, -O-C₁₋₅-alkyl, -O-C(=O)-C₁₋₅-alkyl, -NH₂, -NO₂, -O-CF₃, -S-CF₃, -SH, -S-C₁₋₅-alkyl, -C₁₋₅-alkyl, -C(=O)-C₁₋₅-alkyl, -C(=O)-OH, -C(=O)-O-C₁₋₅-alkyl, -NH-C₁₋₅-alkyl, -N(C₁₋₅-alkyl)₂, -NH-phenyl, -N(-C₁₋₅-alkyl)-phenyl, cyclohexyl, cyclopentyl, (4,5)-dihydroisoxazolyl, thiazolyl, (1,2,5)-thiadiazolyl, thiophenyl, phenethyl, piperidinyl, pyrrolidinyl, -(CH₂)-pyridinyl, pyridinyl, -O-phenyl, -O-benzyl, phenyl and benzyl, wherein in each case the cyclic moiety of the residues oxetanyl, (4,5)-dihydroisoxazolyl, thiazolyl, (1,2,5)-thiadiazolyl, thiophenyl, phenethyl, -N[-C(=O)-C₁₋₅-alkyl]-phenyl, -NH-phenyl, -N(-C₁₋₅-alkyl)-phenyl, -(CH₂)-pyridinyl, pyridinyl, -O-phenyl, -O-benzyl, phenyl and benzyl may be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, -OH, -CF₃, -SF₅, -CN, -NO₂, -C₁₋₅ alkyl, -O-C₁₋₅-alkyl, -O-CF₃, -S-CF₃, phenyl and -O-benzyl,

and unless otherwise stated the above-stated (hetero)cycloaliphatic residues may in each case optionally comprise 1, 2 or 3 (further) heteroatom(s) mutually independently selected from the group consisting of oxygen, nitrogen and sulfur;

the rings of the above-stated mono- or polycyclic ring systems may in each case optionally be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of oxo (=O), thioxo (=S), F, Cl, Br, I, -CN, -CF₃, -SF₅, -OH, -O-C₁₋₅-alkyl, -NH₂, -NO₂, -O-CF₃, -S-CF₃, -SH, -S-C₁₋₅-alkyl, -C₁₋₅-alkyl, -C(=O)-C₁₋₅-alkyl, -C(=O)-OH, -C(=O)-O-C₁₋₅-alkyl, -NH-C₁₋₅-alkyl, -N(C₁₋₅-alkyl)₂, -O-phenyl, -O-benzyl, phenyl and benzyl, wherein in each case the cyclic moiety of the residues -O-phenyl, -O-benzyl, phenyl and benzyl may be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, -OH, -CF₃, -SF₅, -CN, -NO₂, -C₁₋₅ alkyl, -O-C₁₋₅ alkyl, -O-CF₃, -S-CF₃, phenyl and -O-benzyl,

and the rings of the above-stated mono- or polycyclic ring systems are in each case 5-, 6- or 7-membered and may in each case optionally comprise 1, 2, 3, 4 or 5 heteroatom(s) as ring member(s), which are mutually independently selected from the group consisting of oxygen, nitrogen and sulfur;

and the above-stated aryl or heteroaryl residues may optionally be substituted in each case with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, I, -CN, -CF₃, -SF₅, -OH, -O-C₁₋₅-alkyl, -NH₂, -NO₂, -O-CF₃, -S-CF₃, -SH, -S-C₁₋₅-alkyl, -C₁₋₅-alkyl, -C(=O)-OH, -C(=O)-C₁₋₅-alkyl, -NH-C₁₋₅-alkyl, -N(C₁₋₅-alkyl)₂, -NH-S(=O)₂-C₁₋₅-alkyl, -NH-C(=O)-O-C₁₋₅-alkyl, -C(=O)-H, -C(=O)-C₁₋₅-alkyl, -C(=O)-NH₂, -C(=O)-NH-C₁₋₅-alkyl, -C(=O)-N-(C₁₋₅-alkyl)₂, -O-phenyl, -O-benzyl, phenyl and benzyl, wherein in each case the cyclic moiety of the residues -O-phenyl, -O-benzyl, phenyl and benzyl may be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, -OH, -CF₃, -SF₅, -CN, -NO₂, -C₁₋₅ alkyl, -O-C₁₋₅-alkyl, -O-CF₃, -S-CF₃, phenyl and -O-benzyl,

and

the above-stated heteroaryl residues may in each case optionally comprise 1, 2, 3, 4 or 5 heteroatom(s) mutually independently selected from the group consisting of oxygen, nitrogen and sulfur as ring member(s).

2. Compounds according to claim 1, characterised in that

n denotes 0, 1, 2, 3 or 4;

R¹ and R² together denote a residue selected from the group consisting of – CH=N-NH-; -CH=N-NR⁷¹-; -S-C(=S)-NH-; -O-C(=S)-NH-; -S-C(=O)-NH-; -O-C(=O)-NH-; -S-C(=S)-NR⁶³-; -O-C(=S)-NR⁶³-; -S-C(=O)-NR⁶³-; -O-C(=O)-NR⁶³-; -S-CH=N-; -S-CR²⁹=N-; -N=CH-O-; -N=CR³⁰-O-; -NH-C(=O)-NH-; -NH-C(=S)-NH-; -NR⁶⁶-C(=O)-NR⁶⁵-; -NR⁶⁶-C(=S)-NR⁶⁵-; -O-CH₂-C(=O)-NH-; -O-CH₂-O-; -O-CH₂-CH₂-O-; -O-CH₂-CH₂-CH₂-O-; -O-CH₂-CH₂-NH- and -CH=CH-N=CH-, which is attached in any desired direction to the parent structure,

or R² and R³ together denote a residue selected from the group consisting of – CH=N-NH-; -CR²⁸=N-NH-; -CH=N-NR⁶²-; -CR²⁸=N-NR⁶²-; -S-C(=S)-NH-; -O-C(=S)-NH-; -S-C(=O)-NH-; -O-C(=O)-NH-; -S-C(=S)-NR⁶³-; -O-C(=S)-NR⁶³-; -S-C(=O)-NR⁶³-; -O-C(=O)-NR⁶³-; -S-CH=N-; -S-CR²⁹=N-; -N=CH-O-; -N=CR³⁰-O-; -N=CH-NH-; -N=CH-NR⁶⁴-; -NH-C(=O)-NH-; -NH-C(=S)-NH-; -NR⁶⁶-C(=O)-NR⁶⁵-; -NR⁶⁶-C(=S)-NR⁶⁵-; -N=N-NH-; -N=N-NR⁶⁷-; -O-CH₂-C(=O)-NH-; -O-CH₂-O-; -CH₂-CH₂-NH-; -CH₂-CH₂-CH₂-NH-; -CH₂-C(=O)-NH-; -CH₂-CH₂-C(=O)-NH-; -O-CH₂-CH₂-O-; -O-CH₂-CH₂-CH₂-O-; -N=N-CH=CH-; -N=CH-N=CH-; -N=CH-CH=N-; -CH=CH-CH=N-; -CH=CH-N=CH-; -CH=N-N=CH- and -O-CH₂-CH₂-NH-, which is attached in any desired direction to the parent structure,

or R³ and R⁴ together denote a residue selected from the group consisting of -CH=N-NH-; -CR²⁸=N-NH-; -CH=N-NR⁶²-; -CR²⁸=N-NR⁶²-; -S-C(=S)-NH-; -O-C(=S)-NH-; -S-C(=O)-NH-; -O-C(=O)-NH-; -S-C(=S)-NR⁶³-; -O-C(=S)-NR⁶³-; -S-C(=O)-NR⁶³-; -O-C(=O)-NR⁶³-; -S-CH=N-; -S-CR²⁹=N-; -N=CH-O-; -N=CR³⁰-O-; -N=CH-NH-; -N=CH-NR⁶⁴-; -NH-

C(=O)-NH-; -NH-C(=S)-NH-; -NR⁶⁶-C(=O)-NR⁶⁵-; -NR⁶⁶-C(=S)-NR⁶⁵-; -N=N-NH-; -N=N-NR⁶⁷-; -O-CH₂-C(=O)-NH-; -O-CH₂-O-; -CH₂-CH₂-NH-, -CH₂-CH₂-CH₂-NH-, -CH₂-C(=O)-NH-, -CH₂-CH₂-C(=O)-NH-; -O-CH₂-CH₂-O-; -O-CH₂-CH₂-CH₂-O-; -N=N-CH=CH-; -N=CH-N=CH-; -N=CH-CH=N-; -CH=CH-CH=N-; -CH=CH-N=CH-; -CH=N-N=CH- and -O-CH₂-CH₂-NH-, which is attached in any desired direction to the parent structure,

or R⁴ and R⁵ together denote a residue selected from the group consisting of -CH=N-NH-; -CH=N-NR⁷¹-; -S-C(=S)-NH-; -O-C(=S)-NH-; -S-C(=O)-NH-; -O-C(=O)-NH-; -S-C(=S)-NR⁶³-; -O-C(=S)-NR⁶³-; -S-C(=O)-NR⁶³-; -O-C(=O)-NR⁶³-; -S-CH=N-; -S-CR²⁹=N-; -N=CH-O-; -N=CR³⁰-O-; -NH-C(=O)-NH-; -NH-C(=S)-NH-; -NR⁶⁶-C(=O)-NR⁶⁵-; -NR⁶⁶-C(=S)-NR⁶⁵-; -O-CH₂-C(=O)-NH-; -O-CH₂-O-; -O-CH₂-CH₂-O-, -O-CH₂-CH₂-CH₂-O-; -O-CH₂-CH₂-NH- and -CH=CH-N=CH-, which is attached in any desired direction to the parent structure,

and the remaining residues R¹, R², R³, R⁴ and R⁵, mutually independently, in each case

denote H; F; Cl; Br; I; -SF₅; -NO₂; -CN; -NH₂; -OH; -SH; -C(=O)-NH₂; -S(=O)₂-NH₂; -C(=O)-NH-OH; -C(=O)-OH; -C(=O)-H; -S(=O)₂-OH; -NHR¹³; -NR¹⁴R¹⁵; -NH-C(=O)-R¹³; -OR¹⁶; -SR¹⁷; -S(=O)-R²⁶; -S(=O)₂-R²⁷ or denote a residue selected from the group consisting of methyl, -CF₃, -CCl₃, -CBr₃, -CHF₂, -CH₂F, -CF₂Cl, -CCl₂F, ethyl, -CF₂-CH₃, -CH₂-CF₃, -C₂F₅, -CH₂-CCl₃, -CH₂-CBr₃, -CHF-CF₂Cl, -CF₂-CF₂Cl, -CFCl-CF₂Cl, n-propyl, -CF₂-CF₂-CF₃, -CF(CF₃)₂, isopropyl, n-butyl, sec-butyl, isobutyl and tert-butyl;

R⁶ denotes H or denotes an alkyl residue selected from the group consisting of -CH₂-OH, -CH₂-CH₂-OH, -CH₂-CH₂-CH₂-OH, -CH₂-CH₂-CH₂-CH₂-OH, isopropyl, n-butyl, sec-butyl, isobutyl, tert.-butyl, methyl, ethyl and n-propyl;

R⁷ denotes hydrogen or -OH;

or R^6 and R^7 , in each case together with the carbon atom joining them together as a ring member, form a residue selected from the group consisting of cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl and cycloheptyl;

R^8 denotes $-SF_5$; $-O-CF_3$; $-O-CFH_2$; $-O-CF_2H$; $-CFH_2$; $-CF_2H$; $-CF_3$; or denotes a tert-butyl residue, which may in each case be unsubstituted or substituted with 1, 2, 3, 4, 5, 6, 7, 8 or 9 substituents mutually independently selected from the group consisting of F, Cl, Br, I, $-CN$, $-NO_2$, $-OH$, $-NH_2$, $-SH$, $-O-CH_3$, $-O-C_2H_5$, $-O-CH(CH_3)_2$, $-NH-CH_3$ and $-NH-C_2H_5$;

T denotes $C-R^{35}$ and U denotes $C-R^{36}$ and V denotes N and W denotes $C-R^{38}$
or

T denotes $C-R^{35}$ and U denotes N and V denotes $C-R^{37}$ and W denotes $C-R^{38}$
or

T denotes N and U denotes $C-R^{36}$ and V denotes $C-R^{37}$ and W denotes $C-R^{38}$
or

T denotes N and U denotes N and V denotes $C-R^{37}$ and W denotes $C-R^{38}$
or

T denotes N and U denotes $C-R^{36}$ and V denotes N and W denotes $C-R^{38}$
or

T denotes $C-R^{35}$ and U denotes N and V denotes N and W denotes $C-R^{38}$
or

T denotes $C-R^{35}$ and U denotes $C-R^{36}$ and V denotes $C-R^{37}$ and W denotes $C-R^{38}$;

R^{13} , R^{14} , R^{15} , R^{16} , R^{17} , R^{26} and R^{27} , mutually independently, in each case

denote a residue selected from the group consisting of methyl, $-CF_3$, $-CCl_3$, $-CBr_3$, $-CHF_2$, $-CH_2F$, $-CF_2Cl$, $-CCl_2F$, $-CH_2-CN$, $-CH_2-O-CH_3$, $-CH_2-O-CF_3$, $-CH_2-SF_3$, ethyl, $-CF_2-CH_3$, $-CH_2-CF_3$, $-C_2F_5$, $-CH_2-CCl_3$, $-CH_2-CBr_3$, $-CHF-CF_2Cl$, $-CF_2-CF_2Cl$, $-CFCl-CF_2Cl$, $-CH_2-CH_2-CN$, n-propyl, $-CF_2-CF_2-CF_3$, $-CF(CF_3)_2$, isopropyl, $-CH_2-CH_2-CH_2-CN$, $-CH_2-O-$

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CH₂-CH₃, -CH₂-CH₂-SF₃, -CH₂-CH₂-OCF₃, -CH(CH₃)(O-CH₃), -CH(CH₃)(S-CH₃), n-butyl, -CF₂-CF₂-CF₂-CF₃, -CH₂-CH₂-CH₂-CH₂-CN, sec-butyl, isobutyl, tert-butyl, n-pentyl, 3-pentyl, n-heptyl, 4-heptyl, n-octyl, n-nonyl, 5-nonyl, (2,6)-dimethyl-hept-4-yl, 3-methyl-butyl, n-hexyl, (3,3)-dimethylbutyl, -CH₂-CH₂-O-CH₃, -CH₂-CH₂-O-C₂H₅, -CH₂-CH₂-CH₂-O-CH₃, ethenyl, propenyl, 2-butenyl, 3-butenyl, 2-pentenyl and 3-pentenyl;

denote a residue selected from the group consisting of 2,3-dihydro-1H-indenyl, cyclopropyl, oxetanyl, cyclobutyl, cyclopentyl, cyclohexyl, imidazolidinyl, tetrahydrofuranyl, tetrahydrothiophenyl, pyrrolidinyl, piperidinyl, morpholinyl, piperazinyl, azepanyl, diazepanyl, azocanyl and thiomorpholinyl, which may in each case be attached via a -CH₂-O, -CH₂-CH₂-O, -CH₂-CH₂-O-CH₂, -CH₂-CH(CH₃)-O-CH₂, -(CH₂), -(CH₂)₂ or -(CH₂)₃ group and/or in each case be unsubstituted or optionally substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of oxo (=O), thioxo (=S), -OH, -O-CH₃, -O-C₂H₅, -O-CH(CH₃)₂, -O-C(CH₃)₃, -O-CF₃, -S-CF₃, -SH, -S-CH₃, -S-C₂H₅, -S-CH(CH₃)₂, -S-C(CH₃)₃, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl, -C(=O)-CH₃, -C(=O)-C₂H₅, -C(=O)-CH(CH₃)₂, -C(=O)-C(CH₃)₃, -C(=O)-OH, -C(=O)-O-CH₃, -C(=O)-O-C₂H₅, -C(=O)-O-CH(CH₃)₂ and -C(=O)-O-C(CH₃)₃;

or denote a residue selected from the group consisting of phenyl, naphthyl, thiophenyl, furanyl, pyrrolyl, pyrazolyl, pyrazinyl, pyranyl, triazolyl, pyridinyl, imidazolyl, thiazolyl, oxazolyl and isoxazolyl, the residue in each case being capable of being attached via a -(CH₂), -(CH₂)₂ or -(CH₂)₃ group and/or in each case unsubstituted or optionally substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, I, -CN, -CF₃, -SF₅, -OH, -O-CH₃, -O-C₂H₅, -O-CH(CH₃)₂, -O-C(CH₃)₃, -NH₂, -NO₂, -O-CF₃, -S-CF₃, -SH, -S-CH₃, -S-C₂H₅, -S-CH(CH₃)₂, -S-C(CH₃)₃, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl, -C(=O)-OH, -C(=O)-O-CH₃, -C(=O)-O-C₂H₅, -C(=O)-O-CH(CH₃)₂, -C(=O)-O-

$C(CH_3)_3$, $-NH-CH_3$, $-NH-C_2H_5$, $-NH-C(CH_3)_3$, $-N(CH_3)_2$, $-N(C_2H_5)_2$, $-N(CH_3)(C_2H_5)$, $-NH-C(=O)-O-CH_3$, $-NH-C(=O)-O-C_2H_5$, $-NH-C(=O)-O-C(CH_3)_3$, $-C(=O)-H$, $-C(=O)-CH_3$, $-C(=O)-C_2H_5$, $-C(=O)-CH(CH_3)_2$, $-C(=O)-C(CH_3)_3$, $-C(=O)-NH_2$, $-C(=O)-NH-CH_3$, $-C(=O)-NH-C_2H_5$, $-C(=O)-N(CH_3)_2$, $-C(=O)-N(C_2H_5)_2$, $-O$ -phenyl, $-O$ -benzyl, phenyl and benzyl;

R^{28} denotes F; Cl; I; $-SF_5$; $-NO_2$; $-CF_3$; $-CN$; $-NH_2$ or denotes an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl, which may in each case be unsubstituted or optionally substituted with 1, 2, 3, 4, 5, 6, 7, 8 or 9 substituents mutually independently selected from the group consisting of F, Cl, Br, I, $-CN$, $-NO_2$, $-OH$, $-NH_2$ and $-SH$;

R^{29} and R^{30} , mutually independently, in each case denote $-NH-C(=O)-R^{31}$; $-NH_2$; $-NH-S(=O)_2-R^{32}$; $-NH-C(=O)-O-R^{33}$; $-S-R^{34}$ or denotes an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl, which may in each case be unsubstituted or optionally substituted with 1, 2, 3, 4, 5, 6, 7, 8 or 9 substituents mutually independently selected from the group consisting of F, Cl, Br, I, $-CN$, $-NO_2$, $-OH$, $-NH_2$ and $-SH$;

R^{31} , R^{32} , R^{33} and R^{34} , mutually independently, in each case denote an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl, which may in each case be unsubstituted or optionally substituted with 1, 2, 3, 4, 5, 6, 7, 8 or 9 substituents mutually independently selected from the group consisting of F, Cl, Br, I, $-CN$, $-NO_2$, $-OH$, $-NH_2$ and $-SH$;

R^{35} , R^{36} and R^{37} , mutually independently, in each case denote H; F; Cl; Br; I; $-SF_5$; $-NO_2$; $-CN$; $-NH_2$; $-OH$; $-SH$; $-C(=O)-NH_2$; $-S(=O)_2-NH_2$; $-C(=O)-NH-OH$; $-C(=O)-OH$; $-C(=O)-H$; $-S(=O)_2-OH$; $-NHR^{13}$; $-NR^{14}R^{15}$; $-OR^{16}$; $-SR^{17}$; $-S(=O)-R^{25}$; $-S(=O)_2-R^{26}$; denote a residue selected from the group consisting of $-CH_2-OH$, methyl, $-CF_3$, $-CCl_3$, $-CBr_3$, $-CHF_2$, $-CH_2F$,

-CF₂Cl, -CCl₂F, ethyl, -CF₂-CH₃, -CH₂-CF₃, -C₂F₅, -CH₂-CCl₃, -CH₂-CBr₃, -CHF-CF₂Cl, -CF₂-CF₂Cl, -CFCl-CF₂Cl, n-propyl, -CF₂-CF₂-CF₃, -CF(CF₃)₂, isopropyl, n-butyl, sec-butyl, isobutyl and tert-butyl or denote a phenyl residue, which may be unsubstituted or optionally substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, I, -CN, -CF₃, -SF₅, -OH, -O-CH₃, -O-C₂H₅, -O-CH(CH₃)₂, -O-C(CH₃)₃, -NH₂, -NO₂, -O-CF₃, -S-CF₃, -SH, -S-CH₃, -S-C₂H₅, -S-CH(CH₃)₂, -S-C(CH₃)₃, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl and n-pentyl.

R³⁸ denotes H; -SF₅; -NO₂; -CN; -NH₂; -OH; -SH; -C(=O)-NH₂; -S(=O)₂-NH₂; -C(=O)-NH-OH; -C(=O)-OH; -C(=O)-H; -S(=O)₂-OH; -NHR³⁹; -NR⁴⁰R⁴¹; -OR⁴²; -SR⁴³; -C(=O)-OR⁵⁰; -S(=O)-R⁵²; -S(=O)₂-R⁵³; -C(=NH)-NH₂; -C(=NH)-NH-R⁵⁴; -N=C(NH₂)₂; -N=C(NHR⁵⁵)(NHR⁵⁶);

denotes a residue selected from the group consisting of cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, cyclohexenyl, imidazolidinyl, tetrahydrofuranyl, tetrahydrothiophenyl, pyrrolidinyl, piperidinyl, morpholinyl, piperazinyl, azepanyl, diazepanyl, azocanyl and thiomorpholinyl, which is in each case attached via a carbon atom of the rings of the above-stated residues or via a -(CH=CH), -C≡C or -C≡C-CH₂ group to the parent structure and may be unsubstituted or optionally substituted in each case with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of -CN, -CH₂-N(CH₃)₂, -CH₂-N(C₂H₅)₂, -CH₂-NH-CH₃, -CH₂-NH-C₂H₅, -N-[C(=O)-C₂H₅]-phenyl, -N-[C(=O)-CH₃]-phenyl, oxo (=O), thioxo (=S), -OH, -O-CH₃, -O-C₂H₅, -O-CH(CH₃)₂, -O-C(CH₃)₃, -O-CF₃, -S-CF₃, -SH, -S-CH₃, -S-C₂H₅, -S-CH(CH₃)₂, -S-C(CH₃)₃, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl, -C(=O)-CH₃, -C(=O)-C₂H₅, -C(=O)-CH(CH₃)₂, -C(=O)-C(CH₃)₃, -C(=O)-OH, -C(=O)-O-CH₃, -C(=O)-O-C₂H₅, -C(=O)-O-CH(CH₃)₂ and -C(=O)-O-C(CH₃)₃;

or denotes a residue selected from the group consisting of (1,3)-benzodioxolyl, (1,4)-benzodioxanyl, tetrazolyl, (2,3)-dihydrothieno[3,4-

b][1,4]dioxinyl, benzo[b]furanyl, phenyl, naphthyl, thiophenyl, furanyl, pyrrolyl, pyrazolyl, pyrazinyl, pyranyl, triazolyl, pyridinyl, imidazolyl, indolyl, isoindolyl, thiazolyl, oxazolyl, isoxazolyl, pyridazinyl, pyrazinyl, pyrimidinyl, indazolyl, quinoxalinyl, quinolinyl and isoquinolinyl, which may in each case be attached via a $-(CH=CH)-$, $-C\equiv C-$, $-(CH_2)-$, $-(CH_2)_2-$ or $-(CH_2)_3-$ group and/or in each case may be unsubstituted or optionally substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, I, $-CN$, $-CF_3$, $-SF_5$, $-OH$, $-O-CH_3$, $-O-C_2H_5$, $-O-CH(CH_3)_2$, $-O-C(CH_3)_3$, $-NH_2$, $-NO_2$, $-O-CF_3$, $-S-CF_3$, $-SH$, $-S-CH_3$, $-S-C_2H_5$, $-S-CH(CH_3)_2$, $-S-C(CH_3)_3$, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl, $-C(=O)-OH$, $-C(=O)-O-CH_3$, $-C(=O)-O-C_2H_5$, $-C(=O)-O-CH(CH_3)_2$, $-C(=O)-O-C(CH_3)_3$, $-NH-CH_3$, $-NH-C_2H_5$, $-NH-C(CH_3)_3$, $-N(CH_3)_2$, $-N(C_2H_5)_2$, $-N(CH_3)(C_2H_5)$, $-NH-C(=O)-O-CH_3$, $-NH-S(=O)_2-CH_3$, $-NH-S(=O)_2-C_2H_5$, $-NH-S(=O)_2-CH(CH_3)_2$, $-NH-C(=O)-O-C_2H_5$, $-NH-C(=O)-O-C(CH_3)_3$, $-C(=O)-H$, $-C(=O)-CH_3$, $-C(=O)-C_2H_5$, $-C(=O)-CH(CH_3)_2$, $-C(=O)-C(CH_3)_3$, $-C(=O)-NH_2$, $-C(=O)-NH-CH_3$, $-C(=O)-NH-C_2H_5$, $-C(=O)-N(CH_3)_2$, $-C(=O)-N(C_2H_5)_2$, $-O-phenyl$, $-O-benzyl$, phenyl and benzyl;

R^{39} , R^{40} , R^{41} , R^{42} , R^{43} , R^{50} , R^{52} , R^{53} , R^{54} , R^{55} and R^{56} , mutually independently, in each case

denote a residue selected from the group consisting of methyl, $-CF_3$, $-CCl_3$, $-CBr_3$, $-CHF_2$, $-CH_2F$, $-CF_2Cl$, $-CCl_2F$, $-CH_2-CN$, $-CH_2-O-CH_3$, $-CH_2-O-CF_3$, $-CH_2-SF_3$, ethyl, $-CF_2-CH_3$, $-CH_2-CF_3$, $-C_2F_5$, $-CH_2-CCl_3$, $-CH_2-CBr_3$, $-CHF-CF_2Cl$, $-CF_2-CF_2Cl$, $-CFCl-CF_2Cl$, $-CH_2-CH_2-CN$, n-propyl, $-CF_2-CF_2-CF_3$, $-CF(CF_3)_2$, isopropyl, $-CH_2-CH_2-CH_2-CN$, $-CH_2-O-CH_2-CH_3$, $-CH_2-CH_2-SF_3$, $-CH_2-CH_2-OCF_3$, $-CH(CH_3)(O-CH_3)$, $-CH(CH_3)(S-CH_3)$, n-butyl, $-CF_2-CF_2-CF_2-CF_3$, $-CH_2-CH_2-CH_2-CH_2-CN$, sec-butyl, isobutyl, tert-butyl, n-pentyl, 3-pentyl, n-heptyl, 4-heptyl, n-octyl, n-nonyl, 5-nonyl, (2,6)-dimethyl-hept-4-yl, 3-methyl-butyl, n-hexyl, (3,3)-dimethylbutyl, $-CH_2-CH_2-O-CH_3$, $-CH_2-CH_2-O-C_2H_5$, $-CH_2-CH_2-$

CH₂-O-CH₃, ethenyl, propenyl, 2-butenyl, 3-butenyl, 2-pentenyl and 3-pentenyl;

denote a residue selected from the group consisting of 2,3-dihydro-1H-indenyl, cyclopropyl, oxetanyl, cyclobutyl, cyclopentyl, cyclohexyl, imidazolidinyl, tetrahydrofuranyl, tetrahydrothiophenyl, pyrrolidinyl, piperidinyl, morpholinyl, piperazinyl, azepanyl, diazepanyl, azocanyl and thiomorpholinyl, which may in each case be attached via a -CH₂-O-, -CH₂-CH₂-O-, -CH₂-CH₂-O-CH₂-, -CH₂-CH(CH₃)-O-CH₂-, -(CH₂)-, -(CH₂)₂- or -(CH₂)₃- group and/or in each case unsubstituted or optionally substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of oxo (=O), thioxo (=S), -OH, -O-CH₃, -O-C₂H₅, -O-CH(CH₃)₂, -O-C(CH₃)₃, -O-CF₃, -S-CF₃, -SH, -S-CH₃, -S-C₂H₅, -S-CH(CH₃)₂, -S-C(CH₃)₃, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl, -C(=O)-CH₃, -C(=O)-C₂H₅, -C(=O)-CH(CH₃)₂, -C(=O)-C(CH₃)₃, -C(=O)-OH, -C(=O)-O-CH₃, -C(=O)-O-C₂H₅, -C(=O)-O-CH(CH₃)₂ and -C(=O)-O-C(CH₃)₃;

or denote a residue selected from the group consisting of phenyl, naphthyl, thiophenyl, furanyl, pyrrolyl, pyrazolyl, pyrazinyl, pyranyl, triazolyl, pyridinyl, imidazolyl, thiazolyl, oxazolyl and isoxazolyl, the residue in each case being capable of being attached via a -(CH₂), -(CH₂)₂ or -(CH₂)₃ group and/or in each case unsubstituted or optionally substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, I, -CN, -CF₃, -SF₅, -OH, -O-CH₃, -O-C₂H₅, -O-CH(CH₃)₂, -O-C(CH₃)₃, -NH₂, -NO₂, -O-CF₃, -S-CF₃, -SH, -S-CH₃, -S-C₂H₅, -S-CH(CH₃)₂, -S-C(CH₃)₃, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl, -C(=O)-OH, -C(=O)-O-CH₃, -C(=O)-O-C₂H₅, -C(=O)-O-CH(CH₃)₂, -C(=O)-O-C(CH₃)₃, -NH-CH₃, -NH-C₂H₅, -NH-C(CH₃)₃, -N(CH₃)₂, -N(C₂H₅)₂, -N(CH₃)(C₂H₅), -NH-C(=O)-O-CH₃, -NH-C(=O)-O-C₂H₅, -NH-C(=O)-O-C(CH₃)₃, -C(=O)-H, -C(=O)-CH₃, -C(=O)-C₂H₅, -C(=O)-CH(CH₃)₂, -C(=O)-C(CH₃)₃, -C(=O)-NH₂, -C(=O)-NH-CH₃, -C(=O)-NH-C₂H₅, -

$C(=O)-N(CH_3)_2$, $-C(=O)-N(C_2H_5)_2$, $-O$ -phenyl, $-O$ -benzyl, phenyl and benzyl;

or

R^{40} and R^{41} in each case together with the nitrogen atom joining them together as a ring member form a residue selected from the group consisting of 3-aza-bicyclo[3.1.1]heptyl, 6-aza-spiro[2.5]octyl, 3-aza-bicyclo[3.2.1]octyl, 6-aza-bicyclo[3.3.1]heptyl, 8-aza-bicyclo[3.2.1]octyl, 1-oxa-2,8-diaza-spiro[4.5]dec-2-enyl, azocanyl, isoindolyl, indolyl, (1,2,3,6)-tetrahydropyridinyl, (4,5,6,7)-tetrahydroisoxazolo[5,4-c]pyridinyl, pyrrolidinyl, piperidinyl, piperazinyl, morpholinyl, azepanyl, diazepanyl and thiomorpholinyl, the heterocycloaliphatic moiety of which may in each case be unsubstituted or substituted with 1, 2, 3, 4 or 5 residues R^{57} ;

R^{57} denotes $-NHR^{58}$, $-NR^{59}R^{60}$ or denotes an alkyl residue selected from the group consisting of $-CF_3$, $-CH_2-CF_3$, methyl, ethyl, n-propyl, isopropyl, tert-butyl, n-butyl, sec-butyl, and isobutyl;

R^{58} , R^{59} and R^{60} , mutually independently, in each case denote $-C(=O)-R^{61}$; denote an alkyl residue selected from the group consisting of $-CF_3$, $-CH_2-CF_3$, methyl, ethyl, n-propyl, isopropyl, tert-butyl, n-butyl, sec-butyl, and isobutyl;

or denote a residue selected from the group consisting of phenyl, naphthyl, thiophenyl, furanyl, pyrrolyl, pyrazolyl, pyrazinyl, pyranlyl, triazolyl, pyridinyl, imidazolyl, thiazolyl, oxazolyl and isoxazolyl, the residue in each case being capable of being attached via a $-(CH_2)$, $-(CH_2)_2$ or $-(CH_2)_3$ group and/or in each case unsubstituted or optionally substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, I, $-CN$, $-CF_3$, $-SF_5$, $-OH$, $-O-CH_3$, $-O-C_2H_5$, $-O-CH(CH_3)_2$, $-O-C(CH_3)_3$, $-NH_2$, $-NO_2$, $-O-CF_3$, $-S-CF_3$, $-SH$, $-S-CH_3$, $-S-C_2H_5$, $-S-CH(CH_3)_2$, $-S-C(CH_3)_3$, methyl, ethyl, n-

propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl, -C(=O)-OH, -C(=O)-O-CH₃, -C(=O)-O-C₂H₅, -C(=O)-O-CH(CH₃)₂, -C(=O)-O-C(CH₃)₃, -NH-CH₃, -NH-C₂H₅, -NH-C(CH₃)₃, -N(CH₃)₂, -N(C₂H₅)₂, -N(CH₃)(C₂H₅), -NH-C(=O)-O-CH₃, -NH-C(=O)-O-C₂H₅, -NH-C(=O)-O-C(CH₃)₃, -C(=O)-H, -C(=O)-CH₃, -C(=O)-C₂H₅, -C(=O)-CH(CH₃)₂, -C(=O)-C(CH₃)₃, -C(=O)-NH₂, -C(=O)-NH-CH₃, -C(=O)-NH-C₂H₅, -C(=O)-N(CH₃)₂, -C(=O)-N(C₂H₅)₂, -O-phenyl, -O-benzyl, phenyl and benzyl;

R⁶¹ denotes an alkyl residue selected from the group consisting of -CF₃, -CH₂-CF₃, methyl, ethyl, n-propyl, isopropyl, tert-butyl, n-butyl, sec-butyl and isobutyl;

R⁶², R⁶³, R⁶⁴, R⁶⁵, R⁶⁶ and R⁶⁷, mutually independently, in each case denote an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl, which may in each case be unsubstituted or optionally substituted with 1, 2, 3, 4, 5, 6, 7, 8 or 9 substituents mutually independently selected from the group consisting of F, Cl, Br, I, -CN, -NO₂, -OH, -NH₂ and -SH; and

R⁷¹ denotes a residue selected from the group consisting of phenyl, naphthyl, thiophenyl, furanyl, pyrrolyl, pyrazolyl, pyrazinyl, pyranlyl, triazolyl, pyridinyl, imidazolyl, thiazolyl, oxazolyl, isoxazolyl, wherein the residue may in each case be attached via a -(CH₂)-, -(CH₂)₂- or -(CH₂)₃ group and/or in each case may be unsubstituted or optionally substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, I, -CN, -CF₃, -SF₅, -OH, -O-CH₃, -O-C₂H₅, -O-CH(CH₃)₂, -O-C(CH₃)₃, -NH₂, -NO₂, -O-CF₃, S-CF₃, -SH, -S-CH₃, -S-C₂H₅, -S-CH(CH₃)₂, -S-C(CH₃)₃, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl, -C(=O)-OH, -C(=O)-O-CH₃, -C(=O)-O-C₂H₅, -C(=O)-O-CH(CH₃)₂, -C(=O)-O-C(CH₃)₃, -NH-CH₃, -NH-C₂H₅, -NH-C(CH₃)₃, -N(CH₃)₂, -N(C₂H₅)₂, -N(CH₃)(C₂H₅), -NH-C(=O)-O-CH₃, -NH-C(=O)-O-C₂H₅, -NH-

C(=O)-O-C(CH₃)₃, -C(=O)-H, -C(=O)-CH₃, -C(=O)-C₂H₅, -C(=O)-CH(CH₃)₂, -C(=O)-C(CH₃)₃, -C(=O)-NH₂, -C(=O)-NH-CH₃, -C(=O)-NH-C₂H₅, -C(=O)-N(CH₃)₂, -C(=O)-N(C₂H₅)₂, -O-phenyl, -O-benzyl, phenyl and benzyl;

in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates.

3. Compounds according to claim 1 or claim 2, characterised in that

n denotes 0, 1 or 2;

R¹ and R² together denote a residue selected from the group consisting of – CH=N-NH-; -CH=N-NR⁷¹-; -S-C(=S)-NH-; -O-C(=S)-NH-; -S-C(=O)-NH-; -O-C(=O)-NH-; -S-C(=S)-NR⁶³-; -O-C(=S)-NR⁶³-; -S-C(=O)-NR⁶³-; -O-C(=O)-NR⁶³-; -S-CH=N-; -S-CR²⁹=N-; -N=CH-O-; -N=CR³⁰-O-; -NH-C(=O)-NH-; -NH-C(=S)-NH-; -NR⁶⁶-C(=O)-NR⁶⁵-; -NR⁶⁶-C(=S)-NR⁶⁵-; -O-CH₂-C(=O)-NH-; -O-CH₂-O-; -O-CH₂-CH₂-O-, -O-CH₂-CH₂-CH₂-O-; -O-CH₂-CH₂-NH- and –CH=CH-N=CH-, which is attached in any desired direction to the parent structure,

or R² and R³ together denote a residue selected from the group consisting of - CH=N-NH-; -CR²⁸=N-NH-; -CH=N-NR⁶²-; -CR²⁸=N-NR⁶²-; -S-C(=S)-NH-; -O-C(=S)-NH-; -S-C(=O)-NH-; -O-C(=O)-NH-; -S-C(=S)-NR⁶³-; -O-C(=S)-NR⁶³-; -S-C(=O)-NR⁶³-; -O-C(=O)-NR⁶³-; -S-CH=N-; -S-CR²⁹=N-; -N=CH-O-; -N=CR³⁰-O-; -N=CH-NH-; -N=CH-NR⁶⁴-; -NH-C(=O)-NH-; -NH-C(=S)-NH-; -NR⁶⁶-C(=O)-NR⁶⁵-; -NR⁶⁶-C(=S)-NR⁶⁵-; -N=N-NH-; -N=N-NR⁶⁷-; -O-CH₂-C(=O)-NH-; -O-CH₂-O-; -CH₂-CH₂-NH-, -CH₂-CH₂-CH₂-NH-, -CH₂-C(=O)-NH-, -CH₂-CH₂-C(=O)-NH-; -O-CH₂-CH₂-O-; -O-CH₂-CH₂-CH₂-O-; -N=N-CH=CH-; -N=CH-N=CH-; -N=CH-CH=N-; -CH=CH-CH=N-; -CH=CH-N=CH-; -CH=N-N=CH- and -O-CH₂-CH₂-NH-, which is attached in any desired direction to the parent structure,

or R^3 and R^4 together denote a residue selected from the group

consisting of $-\text{CH}=\text{N}-\text{NH}-$; $-\text{CR}^{28}=\text{N}-\text{NH}-$; $-\text{CH}=\text{N}-\text{NR}^{62}-$; $-\text{CR}^{28}=\text{N}-\text{NR}^{62}-$; $-\text{S}-\text{C}(=\text{S})-\text{NH}-$; $-\text{O}-\text{C}(=\text{S})-\text{NH}-$; $-\text{S}-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{C}(=\text{O})-\text{NH}-$; $-\text{S}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{S}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{S}-\text{CH}=\text{N}-$; $-\text{S}-\text{CR}^{29}=\text{N}-$; $-\text{N}=\text{CH}-\text{O}-$; $-\text{N}=\text{CR}^{30}-\text{O}-$; $-\text{N}=\text{CH}-\text{NH}-$; $-\text{N}=\text{CH}-\text{NR}^{64}-$; $-\text{NH}-\text{C}(=\text{O})-\text{NH}-$; $-\text{NH}-\text{C}(=\text{S})-\text{NH}-$; $-\text{NR}^{66}-\text{C}(=\text{O})-\text{NR}^{65}-$; $-\text{NR}^{66}-\text{C}(=\text{S})-\text{NR}^{65}-$; $-\text{N}=\text{N}-\text{NH}-$; $-\text{N}=\text{N}-\text{NR}^{67}-$; $-\text{O}-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{O}-$; $-\text{CH}_2-\text{CH}_2-\text{NH}-$; $-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{NH}-$; $-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{CH}_2-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{N}=\text{N}-\text{CH}=\text{CH}-$; $-\text{N}=\text{CH}-\text{N}=\text{CH}-$; $-\text{N}=\text{CH}-\text{CH}=\text{N}-$; $-\text{CH}=\text{CH}-\text{CH}=\text{N}-$; $-\text{CH}=\text{CH}-\text{N}=\text{CH}-$; $-\text{CH}=\text{N}-\text{N}=\text{CH}-$ and $-\text{O}-\text{CH}_2-\text{CH}_2-\text{NH}-$, which is attached in any desired direction to the parent structure,

or R^4 and R^5 together denote a residue selected from the group consisting of $-\text{CH}=\text{N}-\text{NH}-$; $-\text{CH}=\text{N}-\text{NR}^{71}-$; $-\text{S}-\text{C}(=\text{S})-\text{NH}-$; $-\text{O}-\text{C}(=\text{S})-\text{NH}-$; $-\text{S}-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{C}(=\text{O})-\text{NH}-$; $-\text{S}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{S}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{S}-\text{CH}=\text{N}-$; $-\text{S}-\text{CR}^{29}=\text{N}-$; $-\text{N}=\text{CH}-\text{O}-$; $-\text{N}=\text{CR}^{30}-\text{O}-$; $-\text{NH}-\text{C}(=\text{O})-\text{NH}-$; $-\text{NH}-\text{C}(=\text{S})-\text{NH}-$; $-\text{NR}^{66}-\text{C}(=\text{O})-\text{NR}^{65}-$; $-\text{NR}^{66}-\text{C}(=\text{S})-\text{NR}^{65}-$; $-\text{O}-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{NH}-$ and $-\text{CH}=\text{CH}-\text{N}=\text{CH}-$, which is attached in any desired direction to the parent structure,

and the remaining residues R^1 , R^2 , R^3 , R^4 and R^5 , mutually independently, in each case

denote H; F; Cl; Br; I; $-\text{CF}_3$; $-\text{CN}$; $-\text{OR}^{16}$; $-\text{SR}^{17}$; or denote a residue selected from the group consisting of methyl, $-\text{CF}_3$, $-\text{CHF}_2$, $-\text{CH}_2\text{F}$, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl and tert-butyl;

R^6 denotes H or denotes an alkyl residue selected from the group consisting of isopropyl, n-butyl, sec-butyl, isobutyl, tert.-butyl, methyl, ethyl and n-propyl;

R^7 denotes hydrogen or $-\text{OH}$;

or R^6 and R^7 , in each case together with the carbon atom joining them together as a ring member, form a residue selected from the group consisting of cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl and cycloheptyl;

R^8 denotes $-SF_5$; $-O-CF_3$; $-CF_3$; tert-butyl, or $-C(CH_3)_2(CH_2OH)$;

T denotes $C-R^{35}$ and U denotes $C-R^{36}$ and V denotes N and W denotes $C-R^{38}$ or

T denotes $C-R^{35}$ and U denotes $C-R^{36}$ and V denotes $C-R^{37}$ and W denotes $C-R^{38}$;

R^{16} and R^{17} , mutually independently, in each case denote a residue selected from the group consisting of methyl, $-CF_3$, $-CHF_2$, $-CH_2F$, ethyl, $-CF_2-CH_3$, $-CH_2-CF_3$, $-C_2F_5$, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl, 3-pentyl, n-heptyl, 4-heptyl, n-octyl, n-nonyl, 5-nonyl, (2,6)-dimethyl-hept-4-yl, 3-methyl-butyl, n-hexyl and (3,3)-dimethylbutyl;

R^{28} denotes F; Cl; Br; I; $-CF_3$; $-CN$; $-NH_2$ or denotes an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl and n-pentyl;

R^{29} and R^{30} , mutually independently, in each case denote $-NH-C(=O)-R^{31}$; $-NH_2$; $-NH-S(=O)_2-R^{32}$; $-NH-C(=O)-O-R^{33}$; $-S-R^{34}$ or denote an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl;

R^{31} , R^{32} , R^{33} and R^{34} , mutually independently, in each case denote an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl;

R^{35} , R^{36} and R^{37} , mutually independently, in each case denote H; F; Cl; Br; I; $-SF_5$; $-NO_2$; $-CN$; $-NH_2$; $-OH$; $-SH$; $-OR^{16}$; $-SR^{17}$; or denote a residue selected from the group consisting of $-CH_2-OH$, methyl, $-CF_3$, $-CHF_2$, -

CH₂F, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl and tert-butyl;

R³⁸ denotes H; -SF₅; -NO₂; -CN; -NH₂; -OH; -SH; -NHR³⁹; -NR⁴⁰R⁴¹; -OR⁴²; -SR⁴³;

denotes a residue selected from the group consisting of cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, cyclohexenyl, imidazolidinyl, tetrahydrofuranyl, tetrahydrothiophenyl, pyrrolidinyl, piperidinyl, morpholinyl, piperazinyl, azepanyl, diazepanyl, azocanyl and thiomorpholinyl, which is in each case attached via a carbon atom of the rings of the above-stated residues to the parent structure and may be unsubstituted or optionally substituted in each case with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of -CH₂-N(CH₃)₂, -CH₂-N(C₂H₅)₂, -CH₂-NH-CH₃, -CH₂-NH-C₂H₅, -NC(=O)-C₂H₅]-phenyl, -NC(=O)-CH₃]-phenyl, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl and tert-butyl;

or denotes a residue selected from the group consisting of phenyl, thiophenyl, furanyl, pyrrolyl, pyrazolyl, pyrazinyl, pyranyl, triazolyl, pyridinyl, imidazolyl, thiazolyl, oxazolyl, isoxazolyl, pyridazinyl, pyrazinyl and pyrimidinyl, which may in each case optionally be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, I, -CN, -CF₃, -SF₅, -OH, -O-CH₃, -O-C₂H₅, -O-CH(CH₃)₂, -O-C(CH₃)₃, -O-CF₃, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl and n-pentyl;

R³⁹, R⁴⁰, R⁴¹, R⁴² and R⁴³, mutually independently, in each case

denote a residue selected from the group consisting of methyl, -CH₂-O-CH₃, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl, 3-pentyl, n-hexyl, (3,3)-dimethylbutyl, -CH₂-CH₂-O-CH₃, -CH₂-CH₂-O-C₂H₅ and -CH₂-CH₂-CH₂-O-CH₃;

denote a residue selected from the group consisting of 2,3-dihydro-1H-indenyl, cyclopropyl, oxetanyl, cyclobutyl, cyclopentyl, cyclohexyl, imidazolidinyl, tetrahydrofuranyl, tetrahydrothiophenyl, pyrrolidinyl, piperidinyl, morpholinyl, piperazinyl, azepanyl, diazepanyl, azocanyl and thiomorpholinyl, which may in each case optionally be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl;

or

R^{40} and R^{41} in each case together with the nitrogen atom joining them together as a ring member form a residue selected from the group consisting of 3-aza-bicyclo[3.1.1]heptyl, 6-aza-spiro[2.5]octyl, 3-aza-bicyclo[3.2.1]octyl, 6-aza-bicyclo[3.3.1]heptyl, 8-aza-bicyclo[3.2.1]octyl, 1-oxa-2,8-diaza-spiro[4.5]dec-2-enyl, azocanyl, isoindolyl, indolyl, (1,2,3,6)-tetrahydropyridinyl, (4,5,6,7)-tetrahydroisoxazolo[5,4-c]pyridinyl, pyrrolidinyl, piperidinyl, piperazinyl, morpholinyl, azepanyl, diazepanyl and thiomorpholinyl, the heterocycloaliphatic moiety of which may in each case be unsubstituted or substituted with 1, 2, 3, 4 or 5 residues R^{57} ;

R^{57} denotes $-NHR^{58}$, $-NR^{59}R^{60}$ or denotes an alkyl residue selected from the group consisting of $-CF_3$, $-CH_2-CF_3$, methyl, ethyl, n-propyl, isopropyl, tert-butyl, n-butyl, sec-butyl, and isobutyl;

R^{58} , R^{59} and R^{60} , mutually independently, in each case denote $-C(=O)-R^{61}$; denote an alkyl residue selected from the group consisting of $-CF_3$, $-CH_2-CF_3$, methyl, ethyl, n-propyl, isopropyl, tert-butyl, n-butyl, sec-butyl, and isobutyl;

or denote a residue selected from the group consisting of phenyl and naphthyl, wherein the residue may in each case be attached via a $-$ $(CH_2)-$, $-(CH_2)_2-$ or $-(CH_2)_3$ group and/or may in each case be

unsubstituted or optionally substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, I, -CN, -CF₃, -O-CH₃, -O-C₂H₅, -O-CH(CH₃)₂, -O-C(CH₃)₃, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl and n-pentyl;

R⁶¹ denotes an alkyl residue selected from the group consisting of -CF₃, -CH₂-CF₃, methyl, ethyl, n-propyl, isopropyl, tert-butyl, n-butyl, sec-butyl and isobutyl;

R⁶², R⁶³, R⁶⁴, R⁶⁵, R⁶⁶ and R⁶⁷, mutually independently, in each case denote an alkyl residue selected from the group consisting of -CF₃, -CH₂-CF₃, methyl, ethyl, n-propyl, isopropyl, tert-butyl, n-butyl, sec-butyl and isobutyl; and

R⁷¹ denotes a residue selected from the group consisting of phenyl, naphthyl, thiophenyl, furanyl and pyridinyl, wherein the residue can in each case be attached via a -(CH₂)-, -(CH₂)₂- or -(CH₂)₃ group and/or in each case may be unsubstituted or optionally substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, I, -CN, -CF₃, -SF₅, -OH, -O-CH₃, -O-C₂H₅, -O-CH(CH₃)₂, -O-C(CH₃)₃, -NH₂, -NO₂, -O-CF₃, -S-CF₃, -SH, -S-CH₃, -S-C₂H₅, -S-CH(CH₃)₂, -S-C(CH₃)₃, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, -O-phenyl, -O-benzyl, phenyl and benzyl;

in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates.

4. Compounds according to one or more of claims 1 to 3, characterised in that

n denotes 0, 1 or 2;

R^1 and R^2 together denote a residue selected from the group consisting of –
 $\text{CH}=\text{N}-\text{NH}-$; $-\text{CH}=\text{N}-\text{NR}^{71}-$; $-\text{S}-\text{C}(=\text{S})-\text{NH}-$; $-\text{O}-\text{C}(=\text{S})-\text{NH}-$; $-\text{S}-\text{C}(=\text{O})-\text{NH}-$;
 $-\text{O}-\text{C}(=\text{O})-\text{NH}-$; $-\text{S}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{S}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{O}-$
 $\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{S}-\text{CH}=\text{N}-$; $-\text{S}-\text{CR}^{29}=\text{N}-$; $-\text{N}=\text{CH}-\text{O}-$; $-\text{N}=\text{CR}^{30}-\text{O}-$; $-\text{NH}-$
 $\text{C}(=\text{O})-\text{NH}-$; $-\text{NH}-\text{C}(=\text{S})-\text{NH}-$; $-\text{NR}^{66}-\text{C}(=\text{O})-\text{NR}^{65}-$; $-\text{NR}^{66}-\text{C}(=\text{S})-\text{NR}^{65}-$; $-$
 $\text{O}-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{O}-$; $-$
 $\text{O}-\text{CH}_2-\text{CH}_2-\text{NH}-$ and $-\text{CH}=\text{CH}-\text{N}=\text{CH}-$, which is attached in any desired
direction to the parent structure,

or R^2 and R^3 together denote a residue selected from the group consisting of –
 $\text{CH}=\text{N}-\text{NH}-$; $-\text{CR}^{28}=\text{N}-\text{NH}-$; $-\text{CH}=\text{N}-\text{NR}^{62}-$; $-\text{CR}^{28}=\text{N}-\text{NR}^{62}-$; $-\text{S}-\text{C}(=\text{S})-\text{NH}-$;
 $-\text{O}-\text{C}(=\text{S})-\text{NH}-$; $-\text{S}-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{C}(=\text{O})-\text{NH}-$; $-\text{S}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{O}-$
 $\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{S}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{S}-\text{CH}=\text{N}-$; $-\text{S}-\text{CR}^{29}=\text{N}-$;
 $-\text{N}=\text{CH}-\text{O}-$; $-\text{N}=\text{CR}^{30}-\text{O}-$; $-\text{N}=\text{CH}-\text{NH}-$; $-\text{N}=\text{CH}-\text{NR}^{64}-$; $-\text{NH}-\text{C}(=\text{O})-\text{NH}-$; $-$
 $\text{NH}-\text{C}(=\text{S})-\text{NH}-$; $-\text{NR}^{66}-\text{C}(=\text{O})-\text{NR}^{65}-$; $-\text{NR}^{66}-\text{C}(=\text{S})-\text{NR}^{65}-$; $-\text{N}=\text{N}-\text{NH}-$; $-$
 $\text{N}=\text{N}-\text{NR}^{67}-$; $-\text{O}-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{O}-$; $-\text{CH}_2-\text{CH}_2-\text{NH}-$; $-\text{CH}_2-\text{CH}_2-$
 CH_2-NH ; $-\text{CH}_2-\text{C}(=\text{O})-\text{NH}$; $-\text{CH}_2-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-$
 $\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{N}=\text{N}-\text{CH}=\text{CH}-$; $-\text{N}=\text{CH}-\text{N}=\text{CH}-$; $-\text{N}=\text{CH}-\text{CH}=\text{N}-$; $-$
 $\text{CH}=\text{CH}-\text{CH}=\text{N}-$; $-\text{CH}=\text{CH}-\text{N}=\text{CH}-$; $-\text{CH}=\text{N}-\text{N}=\text{CH}-$ and $-\text{O}-\text{CH}_2-\text{CH}_2-\text{NH}-$,
which is attached in any desired direction to the parent structure,

or R^3 and R^4 together denote a residue selected from the group
consisting of $-\text{CH}=\text{N}-\text{NH}-$; $-\text{CR}^{28}=\text{N}-\text{NH}-$; $-\text{CH}=\text{N}-\text{NR}^{62}-$; $-\text{CR}^{28}=\text{N}-\text{NR}^{62}-$;
 $-\text{S}-\text{C}(=\text{S})-\text{NH}-$; $-\text{O}-\text{C}(=\text{S})-\text{NH}-$; $-\text{S}-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{C}(=\text{O})-\text{NH}-$; $-\text{S}-\text{C}(=\text{S})-$
 $\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{S}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{S}-\text{CH}=\text{N}-$; $-$
 $\text{S}-\text{CR}^{29}=\text{N}-$; $-\text{N}=\text{CH}-\text{O}-$; $-\text{N}=\text{CR}^{30}-\text{O}-$; $-\text{N}=\text{CH}-\text{NH}-$; $-\text{N}=\text{CH}-\text{NR}^{64}-$; $-\text{NH}-$
 $\text{C}(=\text{O})-\text{NH}-$; $-\text{NH}-\text{C}(=\text{S})-\text{NH}-$; $-\text{NR}^{66}-\text{C}(=\text{O})-\text{NR}^{65}-$; $-\text{NR}^{66}-\text{C}(=\text{S})-\text{NR}^{65}-$; $-$
 $\text{N}=\text{N}-\text{NH}-$; $-\text{N}=\text{N}-\text{NR}^{67}-$; $-\text{O}-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{O}-$; $-\text{CH}_2-\text{CH}_2-\text{NH}-$;
 $-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{NH}$; $-\text{CH}_2-\text{C}(=\text{O})-\text{NH}$; $-\text{CH}_2-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-$
 $\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{N}=\text{N}-\text{CH}=\text{CH}-$; $-\text{N}=\text{CH}-\text{N}=\text{CH}-$; $-\text{N}=\text{CH}-$
 $\text{CH}=\text{N}-$; $-\text{CH}=\text{CH}-\text{CH}=\text{N}-$; $-\text{CH}=\text{CH}-\text{N}=\text{CH}-$; $-\text{CH}=\text{N}-\text{N}=\text{CH}-$ and $-\text{O}-\text{CH}_2-$
 $\text{CH}_2-\text{NH}-$, which is attached in any desired direction to the parent
structure,

or R^4 and R^5 together denote a residue selected from the group consisting of –
 $\text{CH}=\text{N}-\text{NH}-$; $-\text{CH}=\text{N}-\text{NR}^{71}-$; $-\text{S}-\text{C}(=\text{S})-\text{NH}-$; $-\text{O}-\text{C}(=\text{S})-\text{NH}-$; $-\text{S}-\text{C}(=\text{O})-\text{NH}-$;
 $-\text{O}-\text{C}(=\text{O})-\text{NH}-$; $-\text{S}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{O}-\text{C}(=\text{S})-\text{NR}^{63}-$; $-\text{S}-\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{O}-$
 $\text{C}(=\text{O})-\text{NR}^{63}-$; $-\text{S}-\text{CH}=\text{N}-$; $-\text{S}-\text{CR}^{29}=\text{N}-$; $-\text{N}=\text{CH}-\text{O}-$; $-\text{N}=\text{CR}^{30}-\text{O}-$; $-\text{NH}-$
 $\text{C}(=\text{O})-\text{NH}-$; $-\text{NH}-\text{C}(=\text{S})-\text{NH}-$; $-\text{NR}^{66}-\text{C}(=\text{O})-\text{NR}^{65}-$; $-\text{NR}^{66}-\text{C}(=\text{S})-\text{NR}^{65}-$; $-\text{O}-$
 $\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-$
 $\text{CH}_2-\text{CH}_2-\text{NH}-$ and $-\text{CH}=\text{CH}-\text{N}=\text{CH}-$, which is attached in any desired
direction to the parent structure,

and the remaining residues R^1 , R^2 , R^3 , R^4 and R^5 , mutually independently, in
each case

denote H; $-\text{OR}^{16}$; $-\text{SR}^{17}$; or denote a residue selected from the group
consisting of methyl, $-\text{CF}_3$, $-\text{CHF}_2$, $-\text{CH}_2\text{F}$, ethyl, n-propyl, isopropyl, n-
butyl, sec-butyl, isobutyl and tert-butyl;

R^6 denotes H or denotes an alkyl residue selected from the group
consisting of isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, methyl,
ethyl and n-propyl;

R^7 denotes hydrogen or $-\text{OH}$;

R^8 denotes $-\text{SF}_5$; $-\text{O}-\text{CF}_3$; $-\text{CF}_3$; tert-butyl, or $-\text{C}(\text{CH}_3)_2\text{CH}_2\text{OH}$;

T denotes $\text{C}-\text{R}^{35}$ and U denotes $\text{C}-\text{R}^{36}$ and V denotes N and W denotes $\text{C}-\text{R}^{38}$
or

T denotes $\text{C}-\text{R}^{35}$ and U denotes $\text{C}-\text{R}^{36}$ and V denotes $\text{C}-\text{R}^{37}$ and W denotes $\text{C}-$
 R^{38} ;

R^{16} and R^{17} , mutually independently, in each case denote a residue selected
from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl,
sec-butyl, isobutyl, tert-butyl, and n-pentyl;

R^{28} denotes F; Cl; Br or I;

R^{29} and R^{30} , mutually independently, in each case denote $-NH-C(=O)-R^{31}$; $-NH_2$; $-NH-S(=O)_2-R^{32}$; $-NH-C(=O)-O-R^{33}$ or $-S-R^{34}$;

R^{31} , R^{32} , R^{33} and R^{34} , mutually independently, in each case denote an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl;

R^{35} , R^{36} and R^{37} in each case denote H;

R^{38} denotes H; $-NHR^{39}$; $-NR^{40}R^{41}$; $-OR^{42}$; $-SR^{43}$;

R^{39} , R^{42} and R^{43} , mutually independently, in each case

denote a residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl, 3-pentyl, n-hexyl, and (3,3)-dimethylbutyl;

or denote a residue selected from the group consisting of cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl and cycloheptyl, which may in each case optionally be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl;

R^{40} and R^{41} in each case together with the nitrogen atom joining them together as a ring member form a residue selected from the group consisting of pyrrolidinyl, piperidinyl, piperazinyl, morpholinyl and azepanyl, the heterocycloaliphatic moiety of which may in each case be unsubstituted or substituted with 1, 2, 3, 4 or 5 residues R^{57} ;

R^{57} denotes an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, tert-butyl, n-butyl, sec-butyl, and isobutyl;

R^{62} , R^{63} , R^{64} , R^{65} , R^{66} and R^{67} , mutually independently, in each case denote an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, tert-butyl, n-butyl, sec-butyl, and isobutyl; and

R^{71} denotes a phenyl residue which may be attached via a $-(CH_2)-$, $-(CH_2)_2-$ or $-(CH_2)_3$ group and/or in each case may be unsubstituted or optionally substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, I, $-CN$, $-CF_3$, $-SF_5$, $-OH$, $-O-CH_3$, $-O-C_2H_5$, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl and tert-butyl;

in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates.

5. Compounds according to one or more of claims 1 to 4, characterised in that

n denotes 1;

R^1 and R^2 together denote a residue selected from the group consisting of $-CH=N-NH-$; $-CH=N-NR^{71}-$; $-S-CH=N-$; $-S-CR^{29}=N-$; $-N=CH-O-$; $-N=CR^{30}-O-$; $-O-CH_2-O-$; $-O-CH_2-CH_2-O-$ and $-CH=CH-N=CH-$, which is attached in any desired direction to the parent structure,

or R^2 and R^3 together denote a residue selected from the group consisting of $-CH=N-NH-$; $-CR^{28}=N-NH-$; $-S-C(=S)-NH-$; $-O-C(=S)-NH-$; $-S-C(=O)-NH-$; $-O-C(=O)-NH-$; $-S-CH=N-$; $-S-CR^{29}=N-$; $-N=CH-O-$; $-N=CR^{30}-O-$; $-N=CH-NH-$; $-NH-C(=O)-NH-$; $-NH-C(=S)-NH-$; $-N=N-NH-$; $-O-CH_2-C(=O)-NH-$; $-O-CH_2-O-$; $-CH_2-CH_2-NH-$; $-CH_2-CH_2-CH_2-NH-$; $-CH_2-C(=O)-NH-$; $-CH_2-CH_2-C(=O)-NH-$; $-O-CH_2-CH_2-O-$; $-O-CH_2-CH_2-CH_2-O-$; $-N=CH-CH=N-$; $-CH=CH-CH=N-$; $-CH=CH-N=CH-$; $-CH=N-N=CH-$; $-CH=N-CH=N-$ and $-O-CH_2-CH_2-NH-$, which is attached in any desired direction to the parent structure,

or R^3 and R^4 together denote a residue selected from the group consisting of $-\text{CH}=\text{N}-\text{NH}-$; $-\text{CR}^{28}=\text{N}-\text{NH}-$; $-\text{S}-\text{C}(=\text{S})-\text{NH}-$; $-\text{O}-\text{C}(=\text{S})-\text{NH}-$; $-\text{S}-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{C}(=\text{O})-\text{NH}-$; $-\text{S}-\text{CH}=\text{N}-$; $-\text{S}-\text{CR}^{29}=\text{N}-$; $-\text{N}=\text{CH}-\text{O}-$; $-\text{N}=\text{CR}^{30}-\text{O}-$; $-\text{N}=\text{CH}-\text{NH}-$; $-\text{NH}-\text{C}(=\text{O})-\text{NH}-$; $-\text{NH}-\text{C}(=\text{S})-\text{NH}-$; $-\text{N}=\text{N}-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{O}-$; $-\text{CH}_2-\text{CH}_2-\text{NH}-$; $-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{NH}-$; $-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{CH}_2-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{O}-$; $-\text{N}=\text{CH}-\text{CH}=\text{N}-$; $-\text{CH}=\text{CH}-\text{CH}=\text{N}-$; $-\text{CH}=\text{CH}-\text{N}=\text{CH}-$; $-\text{CH}=\text{N}-\text{N}=\text{CH}-$; $-\text{CH}=\text{N}-\text{CH}=\text{N}-$ and $-\text{O}-\text{CH}_2-\text{CH}_2-\text{NH}-$, which is attached in any desired direction to the parent structure,

or R^4 and R^5 together denote a residue selected from the group consisting of $-\text{CH}=\text{N}-\text{NH}-$; $-\text{CH}=\text{N}-\text{NR}^{71}-$; $-\text{S}-\text{CH}=\text{N}-$; $-\text{S}-\text{CR}^{29}=\text{N}-$; $-\text{N}=\text{CH}-\text{O}-$; $-\text{N}=\text{CR}^{30}-\text{O}-$; $-\text{O}-\text{CH}_2-\text{O}-$; $-\text{O}-\text{CH}_2-\text{CH}_2-\text{O}-$ and $-\text{CH}=\text{CH}-\text{N}=\text{CH}-$, which is attached in any desired direction to the parent structure,

and the remaining residues R^1 , R^2 , R^3 , R^4 and R^5 , mutually independently, in each case

denote H; $-\text{OR}^{16}$; $-\text{SR}^{17}$; or denote a residue selected from the group consisting of methyl, $-\text{CF}_3$, $-\text{CHF}_2$, $-\text{CH}_2\text{F}$, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl and tert-butyl;

R^6 denotes H or denotes an alkyl residue selected from the group consisting of isopropyl, n-butyl, sec-butyl, isobutyl, tert.-butyl, methyl, ethyl and n-propyl;

R^7 denotes hydrogen or $-\text{OH}$;

R^8 denotes $-\text{SF}_5$; $-\text{O}-\text{CF}_3$; $-\text{CF}_3$; tert-butyl, or $-\text{C}(\text{CH}_3)_2(\text{CH}_2\text{OH})$;

T denotes $\text{C}-\text{R}^{35}$ and U denotes $\text{C}-\text{R}^{36}$ and V denotes N and W denotes $\text{C}-\text{R}^{38}$ or

T denotes $\text{C}-\text{R}^{35}$ and U denotes $\text{C}-\text{R}^{36}$ and V denotes $\text{C}-\text{R}^{37}$ and W denotes $\text{C}-\text{R}^{38}$;

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R^{16} and R^{17} , mutually independently, in each case denote a residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl;

R^{28} denotes F; Cl; Br or I;

R^{29} denotes $-\text{NH}-\text{C}(=\text{O})-\text{R}^{31}$; $-\text{NH}_2$; $-\text{NH}-\text{S}(=\text{O})_2-\text{R}^{32}$; $-\text{NH}-\text{C}(=\text{O})-\text{O}-\text{R}^{33}$ or $-\text{S}-\text{R}^{34}$;

R^{30} denotes $-\text{NH}_2$;

R^{31} , R^{32} , R^{33} and R^{34} , mutually independently, in each case denote an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, and n-pentyl;

R^{35} , R^{36} and R^{37} in each case denote H;

R^{38} denotes H; $-\text{NHR}^{39}$; $-\text{NR}^{40}\text{R}^{41}$; $-\text{OR}^{42}$; $-\text{SR}^{43}$;

R^{39} , R^{42} and R^{43} , mutually independently, in each case

denote a residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl, 3-pentyl, n-hexyl, and (3,3)-dimethylbutyl;

or denote a residue selected from the group consisting of cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl and cycloheptyl, which may in each case optionally be substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, n-pentyl;

R^{40} and R^{41} in each case together with the nitrogen atom joining them together as a ring member form a residue selected from the group consisting of

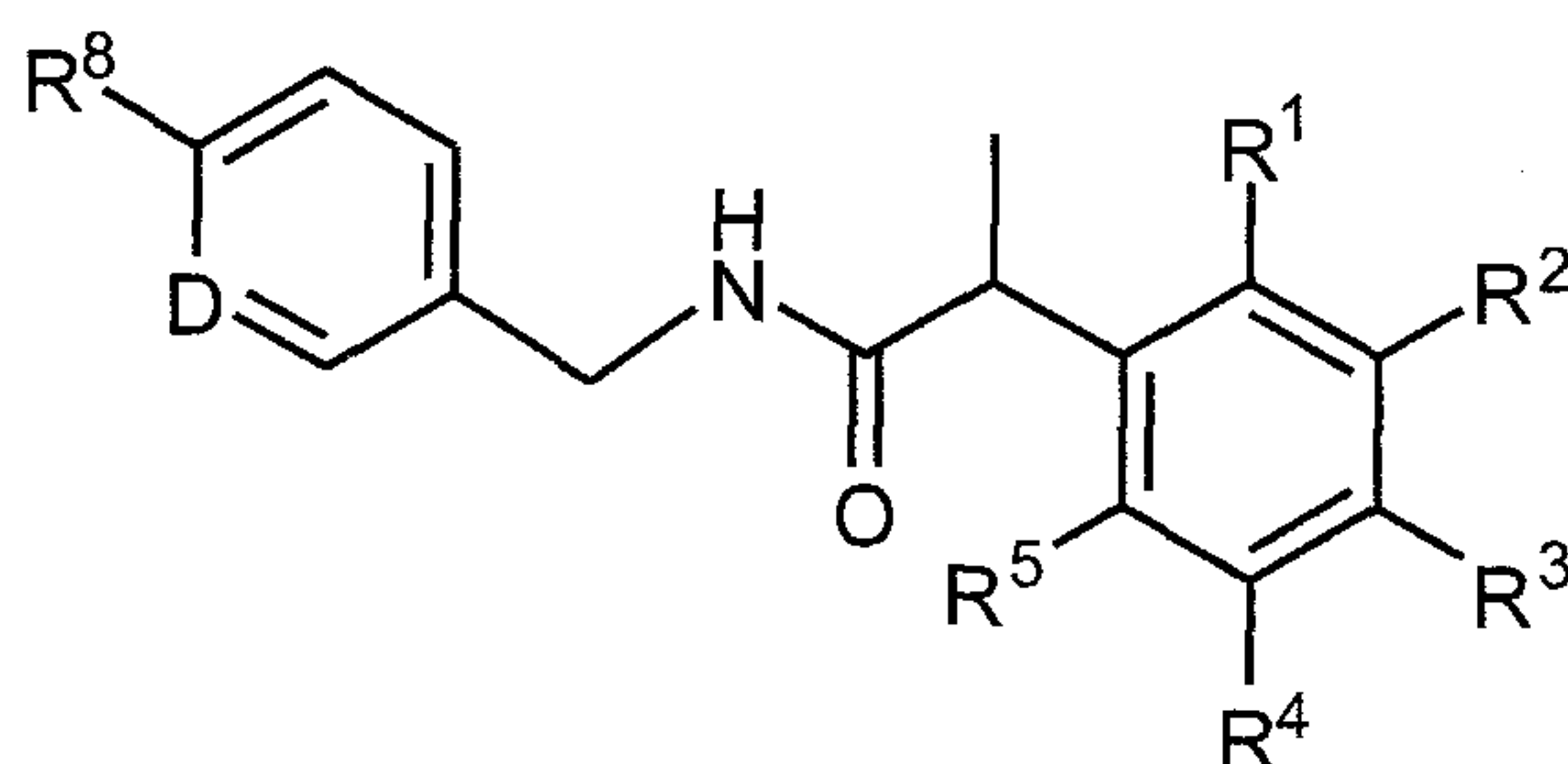
pyrrolidinyl, piperidinyl, piperazinyl, morpholinyl and azepanyl, the heterocycloaliphatic moiety of which may in each case be unsubstituted or substituted with 1, 2, 3, 4 or 5 residues R^{57} ;

R^{57} denotes an alkyl residue selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, tert-butyl, n-butyl, sec-butyl, and isobutyl;

R^{71} denotes a phenyl residue which may be attached via a $-(CH_2)-$, $-(CH_2)_2-$ or $-(CH_2)_3$ group and/or in each case may be unsubstituted or optionally substituted with 1, 2, 3, 4 or 5 substituents mutually independently selected from the group consisting of F, Cl, Br, I, $-CN$, $-CF_3$, $-SF_5$, $-OH$, $-O-CH_3$, $-O-C_2H_5$, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl and tert-butyl;

in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates.

6. Compounds of the general formula Ia, according to one or more of the preceding claims,



Ia,

in which

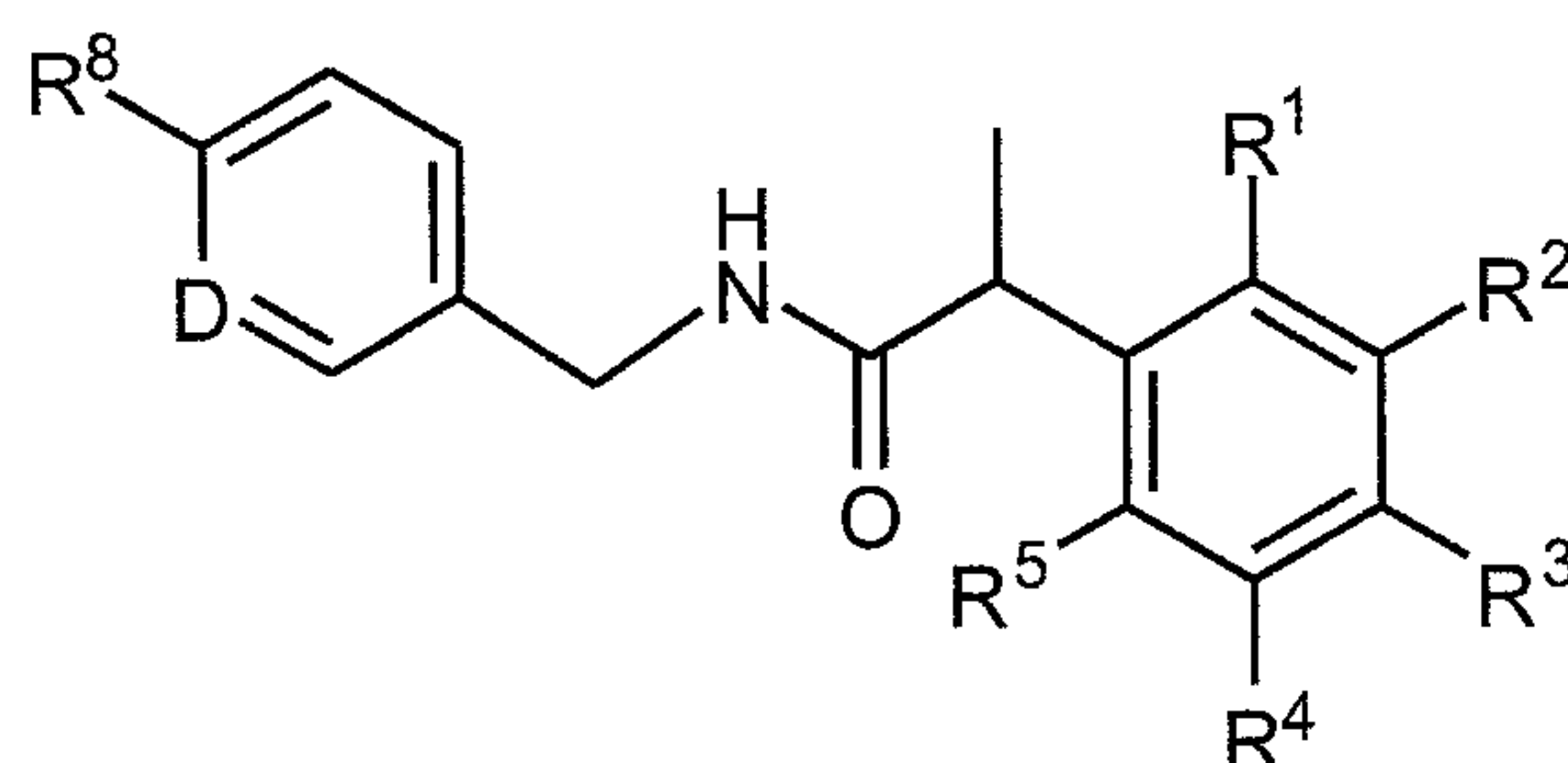
D denotes N or CH;

and

R^1 , R^2 , R^3 , R^4 , R^5 and R^8 have the meanings according to claim 3;

in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates.

7. Compounds of the general formula Ia, according to one or more of the preceding claims,



Ia,

in which

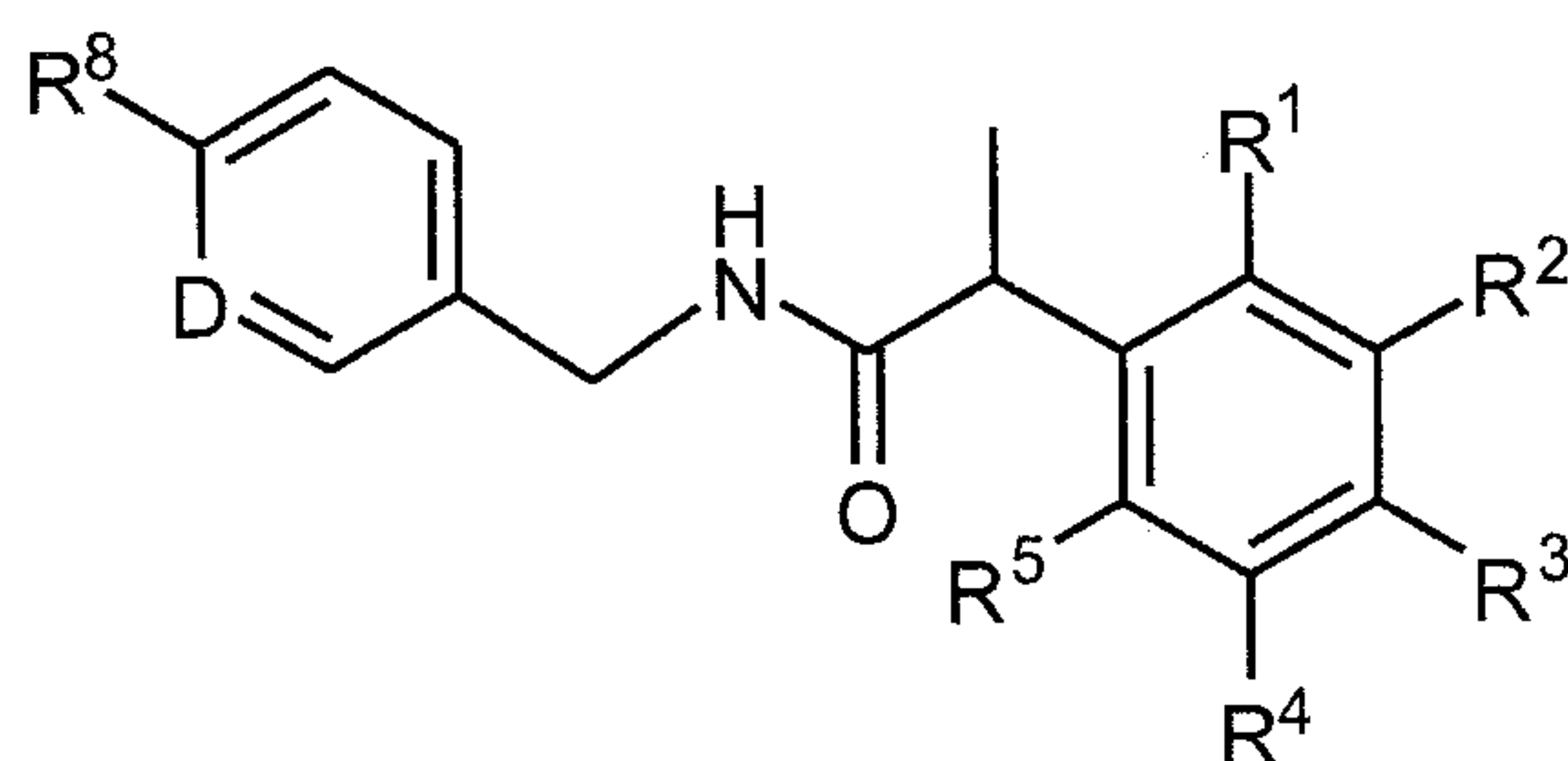
D denotes N or CH;

and

R^1 , R^2 , R^3 , R^4 , R^5 and R^8 have the meanings according to claim 4;

in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates.

8. Compounds of the general formula Ia, according to one or more of the preceding claims,



Ia,

in which

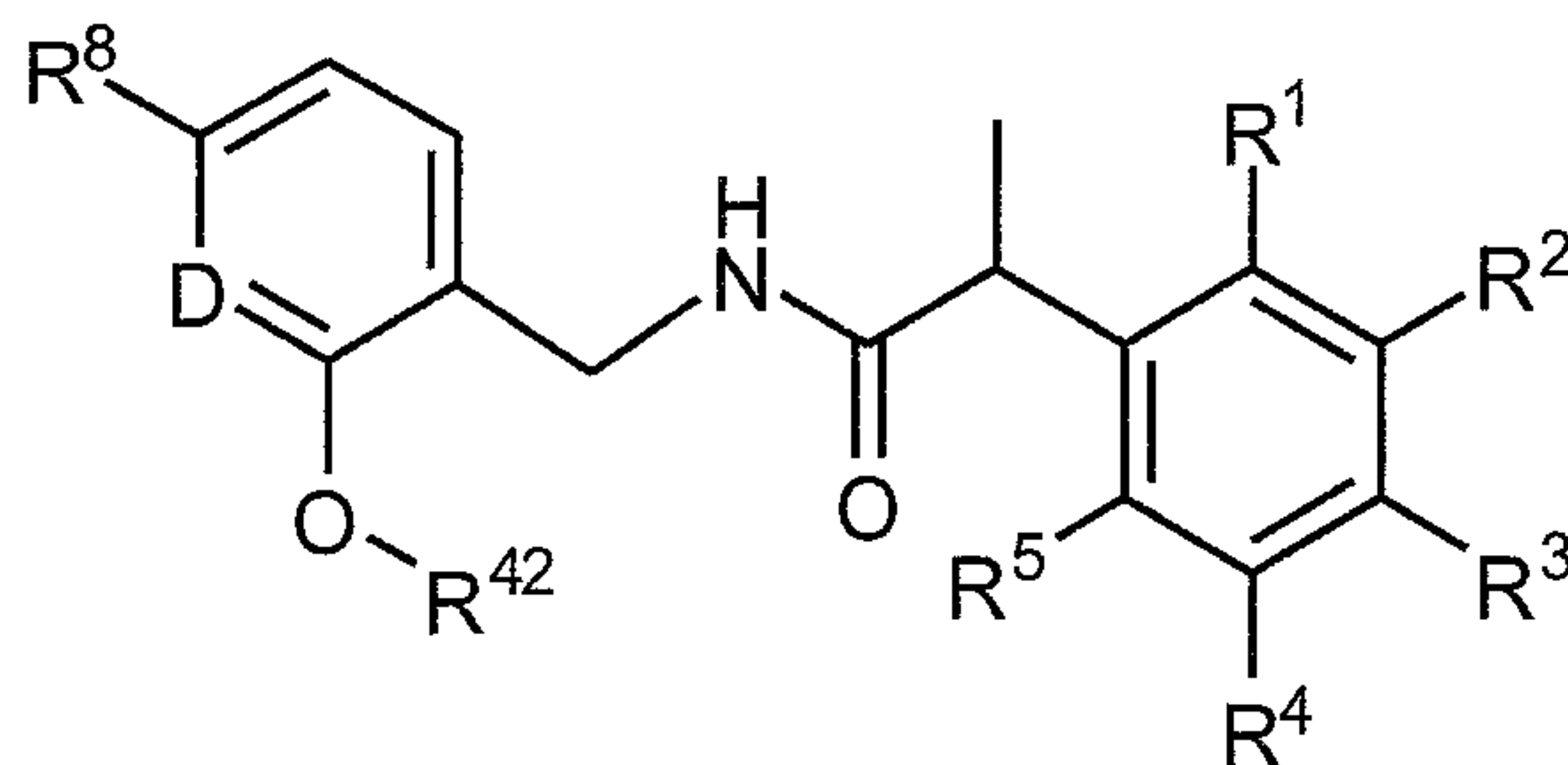
D denotes N or CH;

and

R^1 , R^2 , R^3 , R^4 , R^5 and R^8 have the meanings according to claim 5;

in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates.

9. Compounds of the general formula Ib, according to one or more of the preceding claims,



Ib,

in which

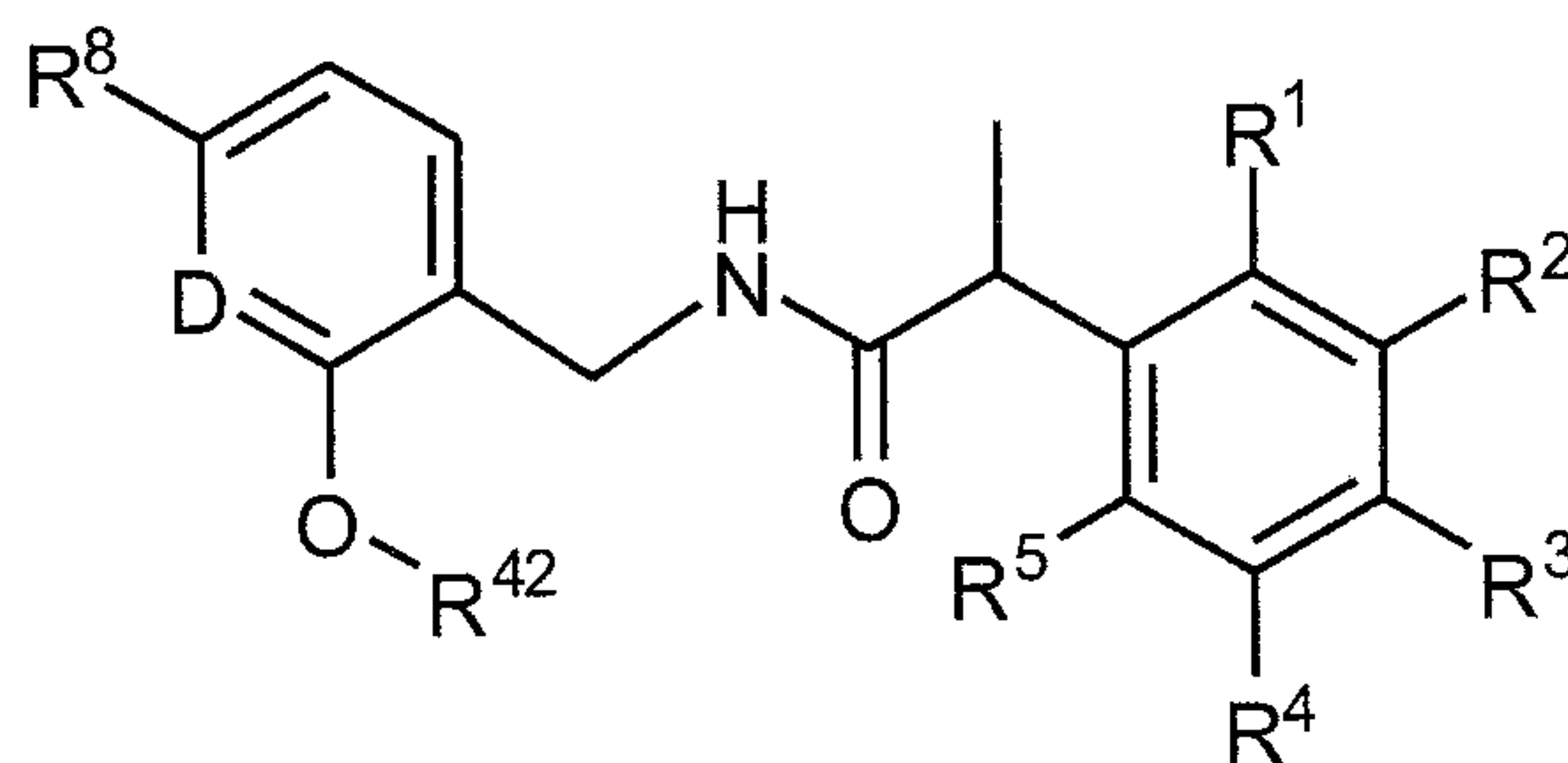
D denotes N or CH;

and

R^1 , R^2 , R^3 , R^4 , R^5 , R^8 and R^{42} have the meanings according to claim 3;

in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates.

10. Compounds of the general formula Ib, according to one or more of the preceding claims,



Ib,

in which

D denotes N or CH;

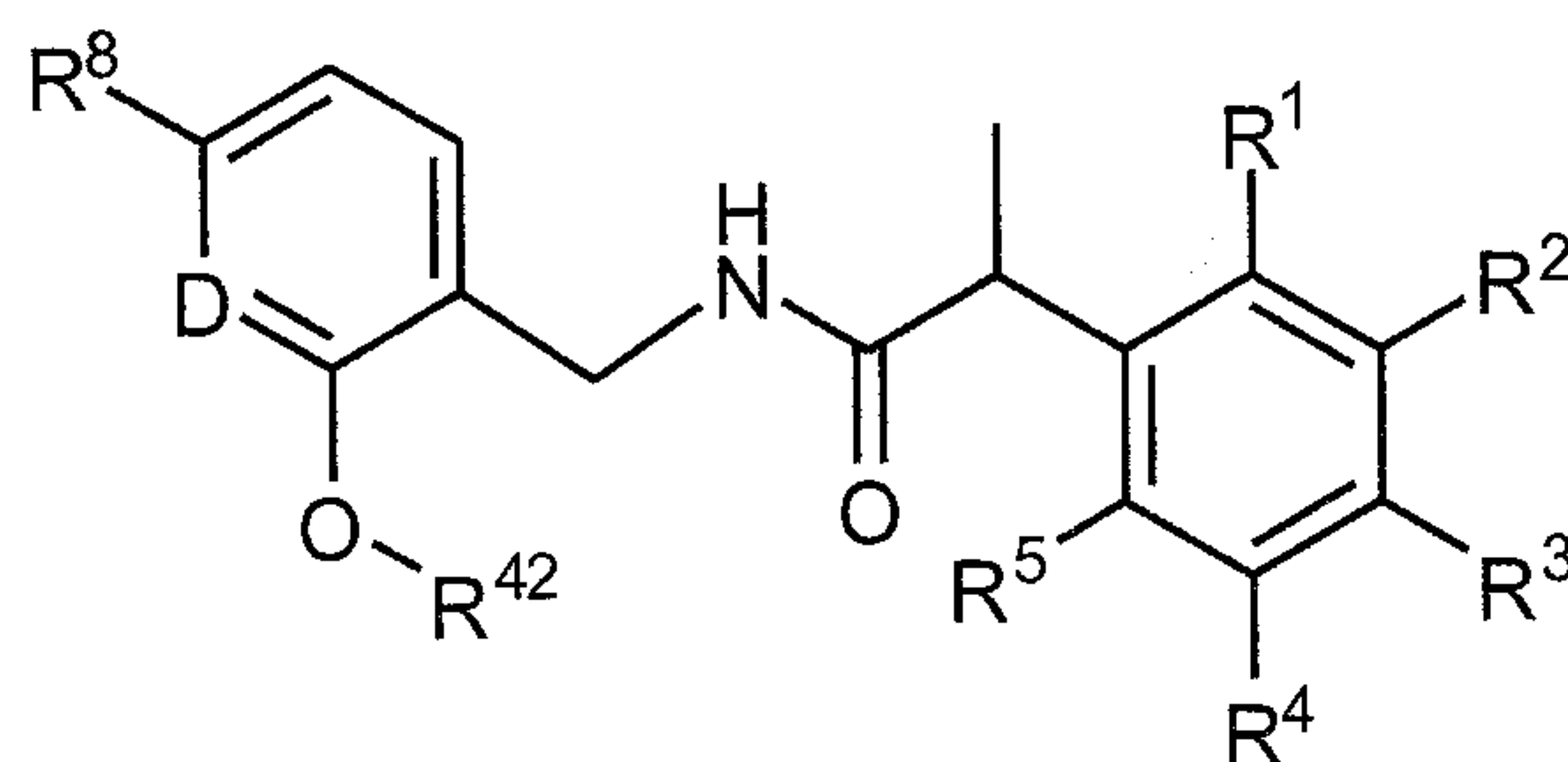
and

R^1 , R^2 , R^3 , R^4 , R^5 , R^8 and R^{42} have the meanings according to claim 4;

in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form

of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates.

11. Compounds of the general formula Ib, according to one or more of the preceding claims,



Ib,

in which

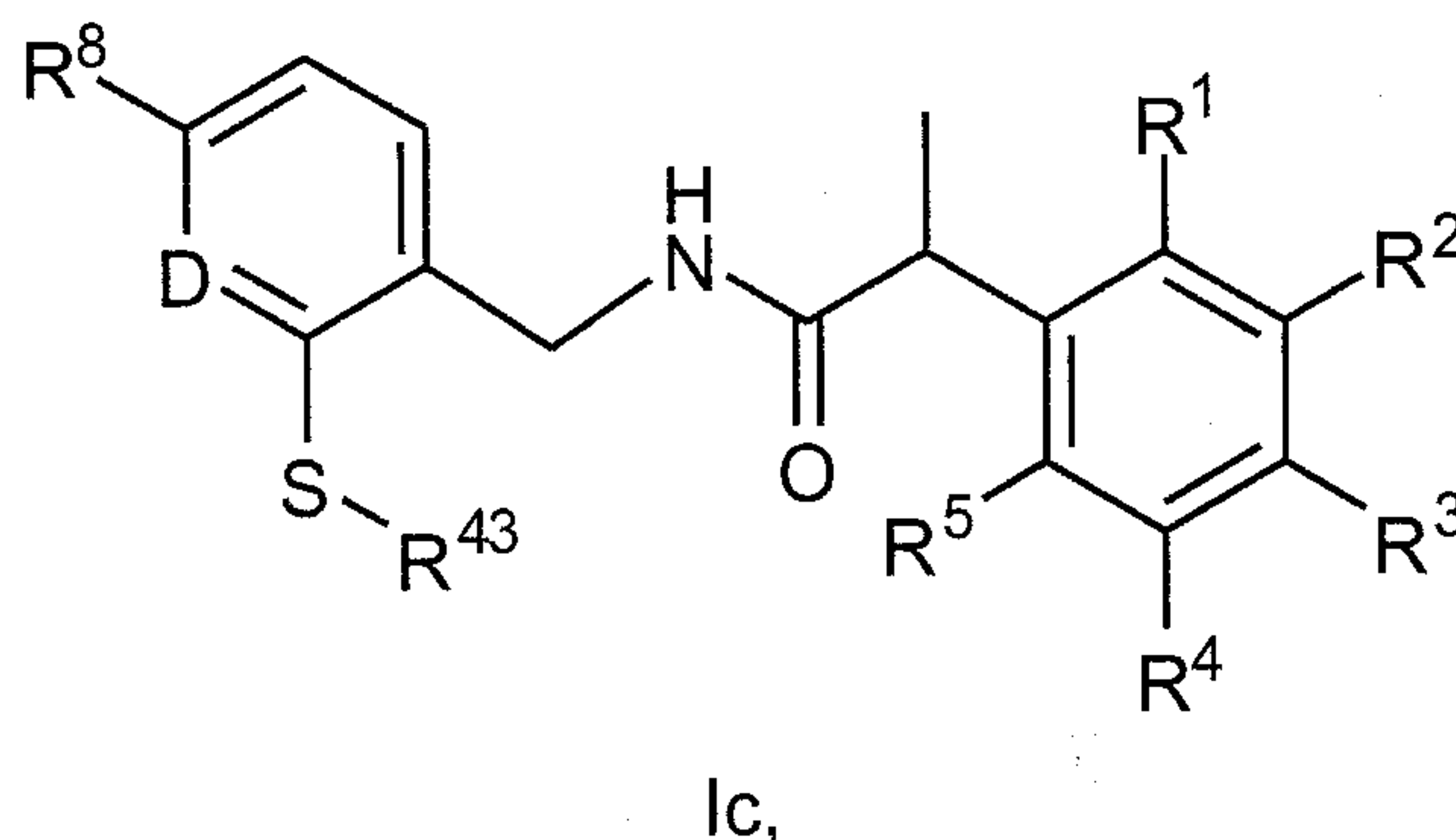
D denotes N or CH;

and

R¹, R², R³, R⁴, R⁵, R⁸ and R⁴² have the meanings according to claim 5;

in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates.

12. Compounds of the general formula Ic, according to one or more of the preceding claims,



in which

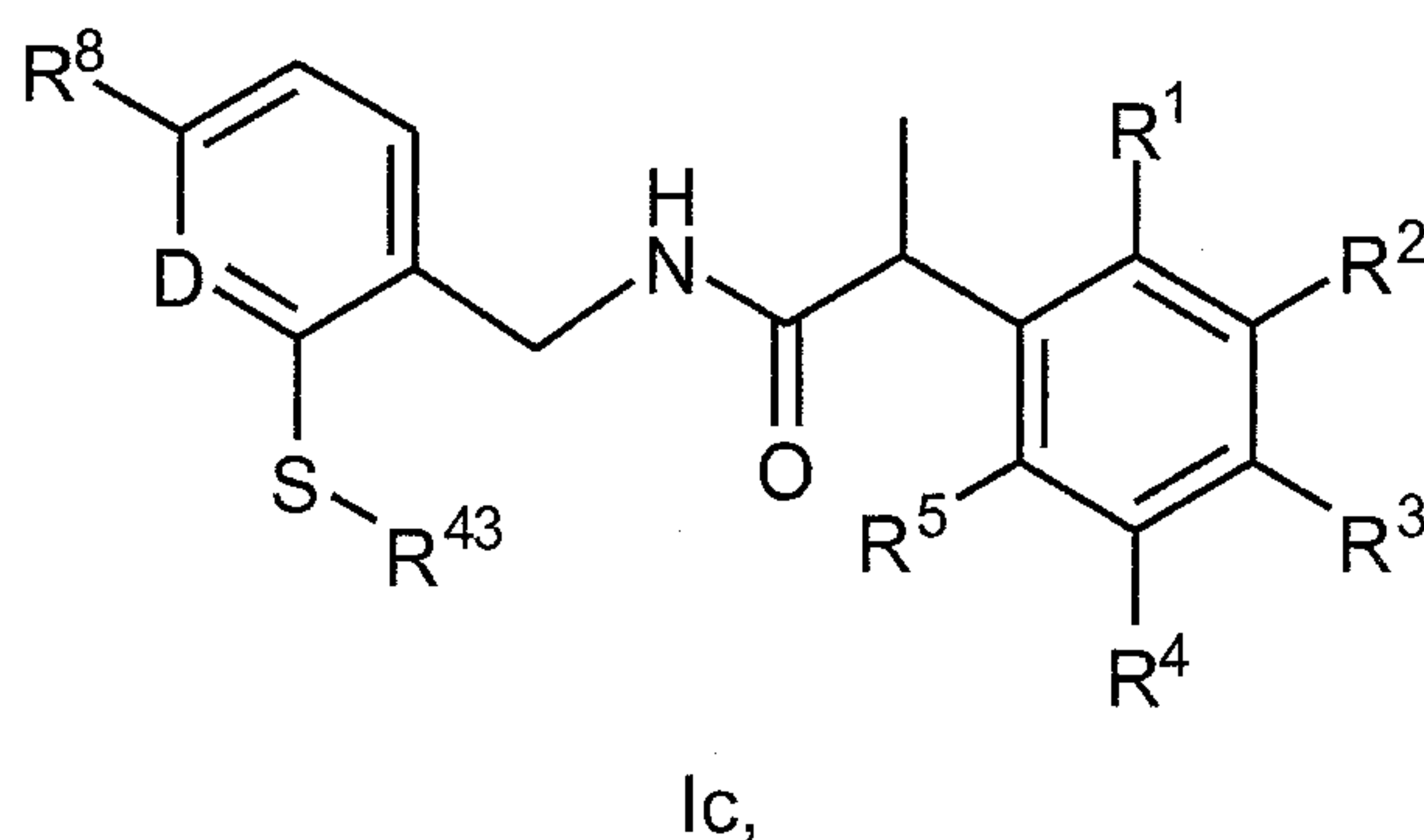
D denotes N or CH;

and

R¹, R², R³, R⁴, R⁵, R⁸ and R⁴³ have the meanings according to claim 3;

in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates.

13. Compounds of the general formula Ic, according to one or more of the preceding claims,



in which

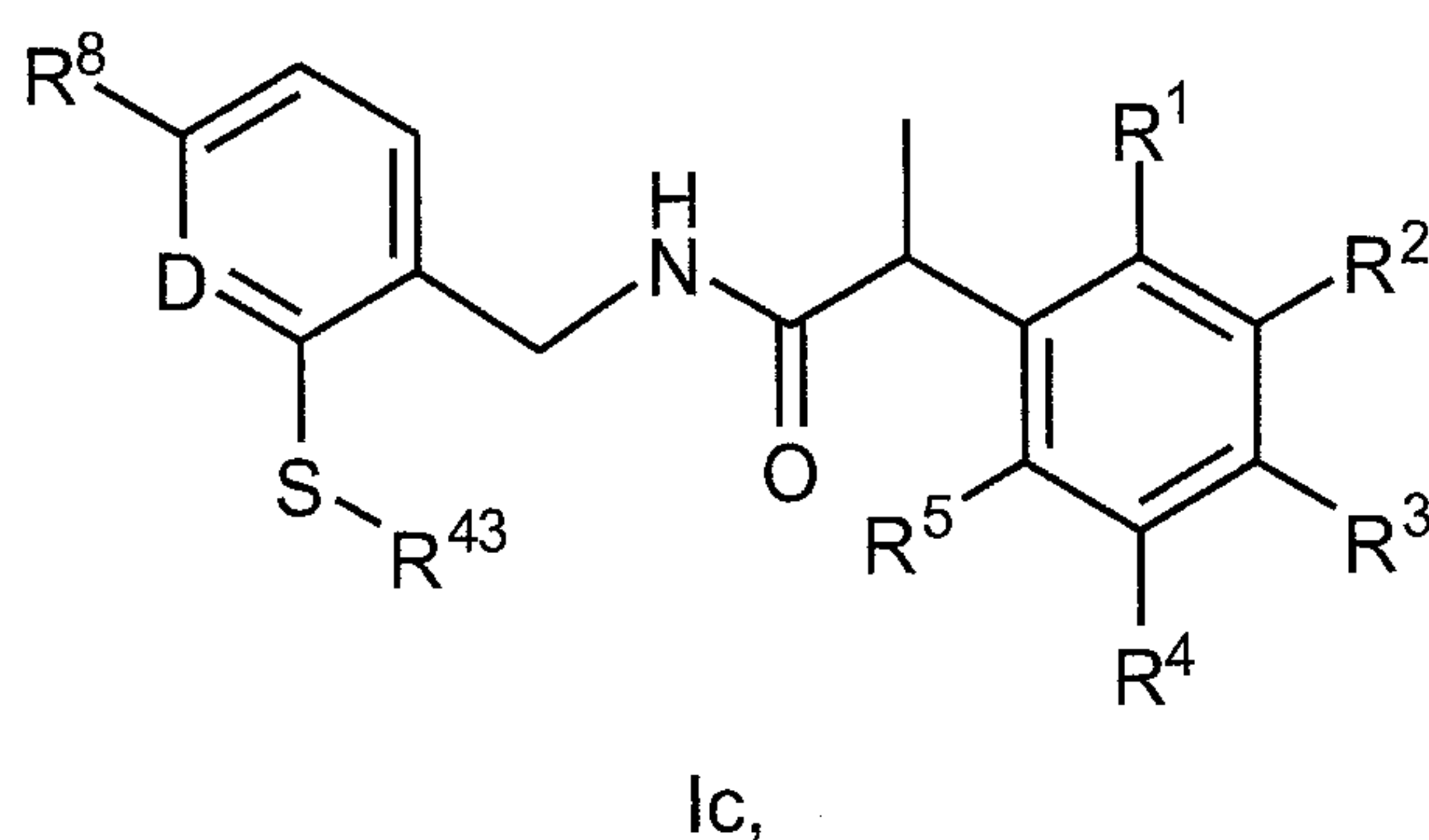
D denotes N or CH;

and

R^1 , R^2 , R^3 , R^4 , R^5 , R^8 and R^{43} have the meanings according to claim 4;

in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates.

14. Compounds of the general formula Ic, according to one or more of the preceding claims,



in which

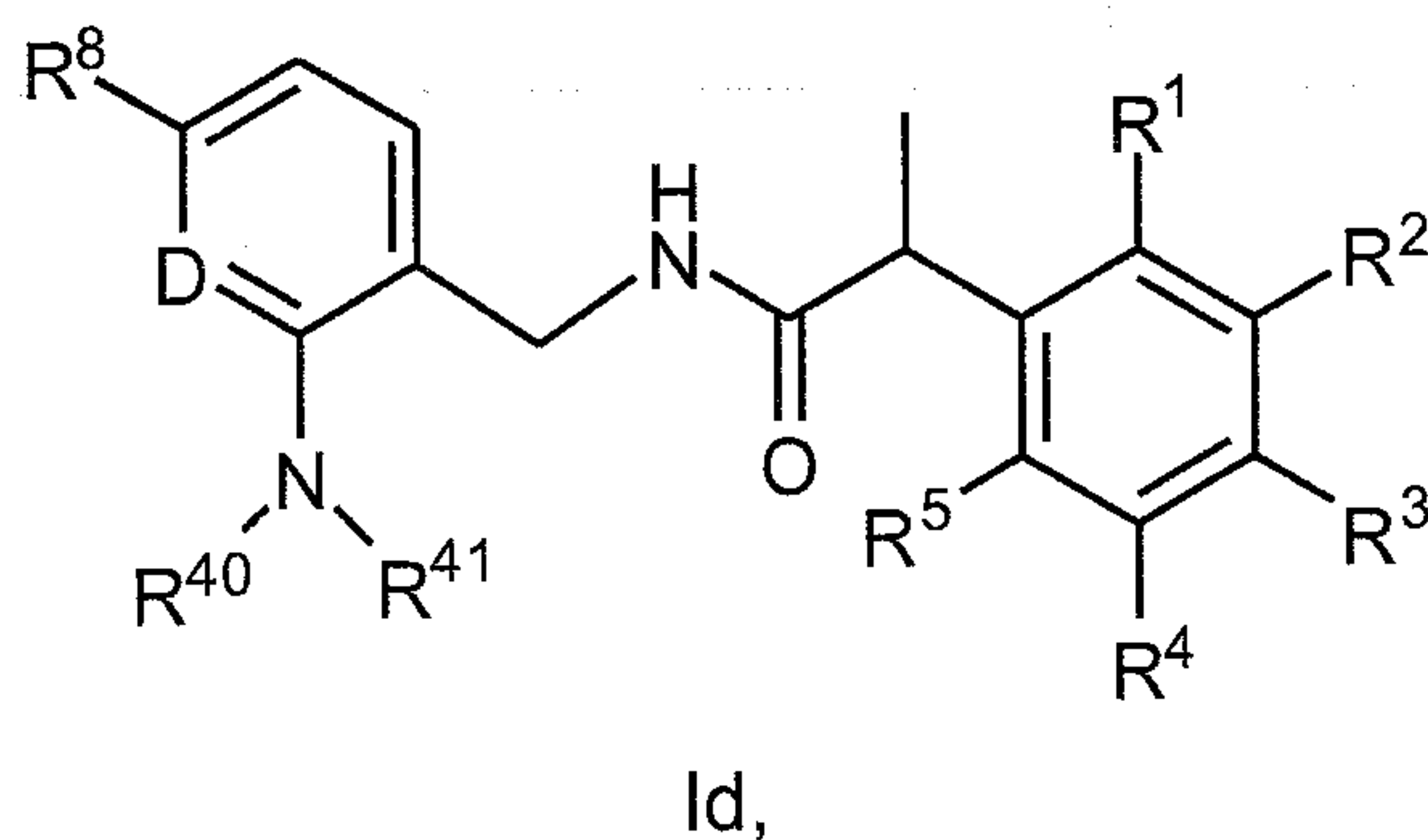
D denotes N or CH;

and

R^1 , R^2 , R^3 , R^4 , R^5 , R^8 and R^{43} have the meanings according to claim 5;

in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates.

15. Compounds of the general formula Id, according to one or more of the preceding claims,



in which

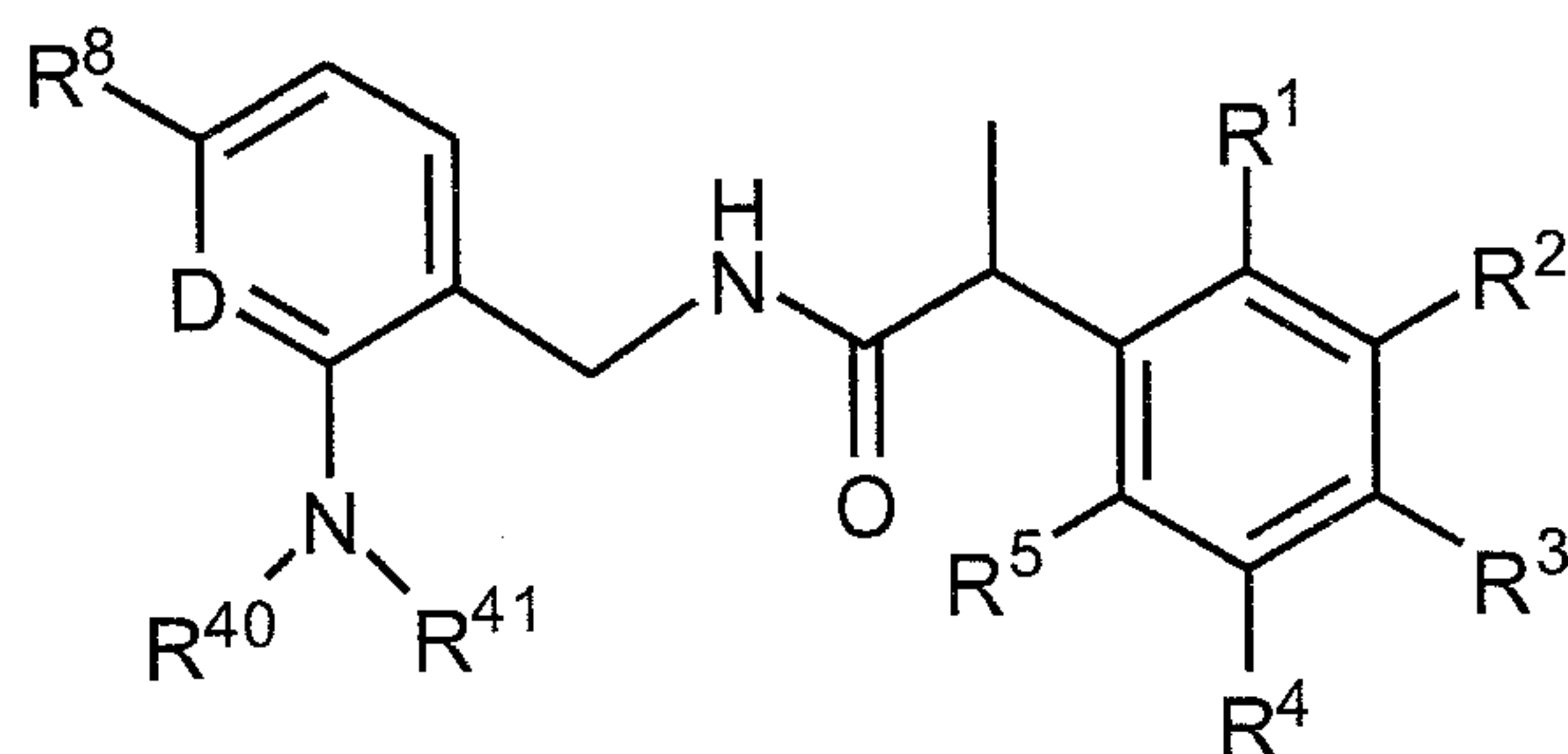
D denotes N or CH;

and

R^1 , R^2 , R^3 , R^4 , R^5 , R^8 , R^{42} and R^{41} have the meanings according to claim 3;

in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates.

16. Compounds of the general formula Id, according to one or more of the preceding claims,



Id,

in which

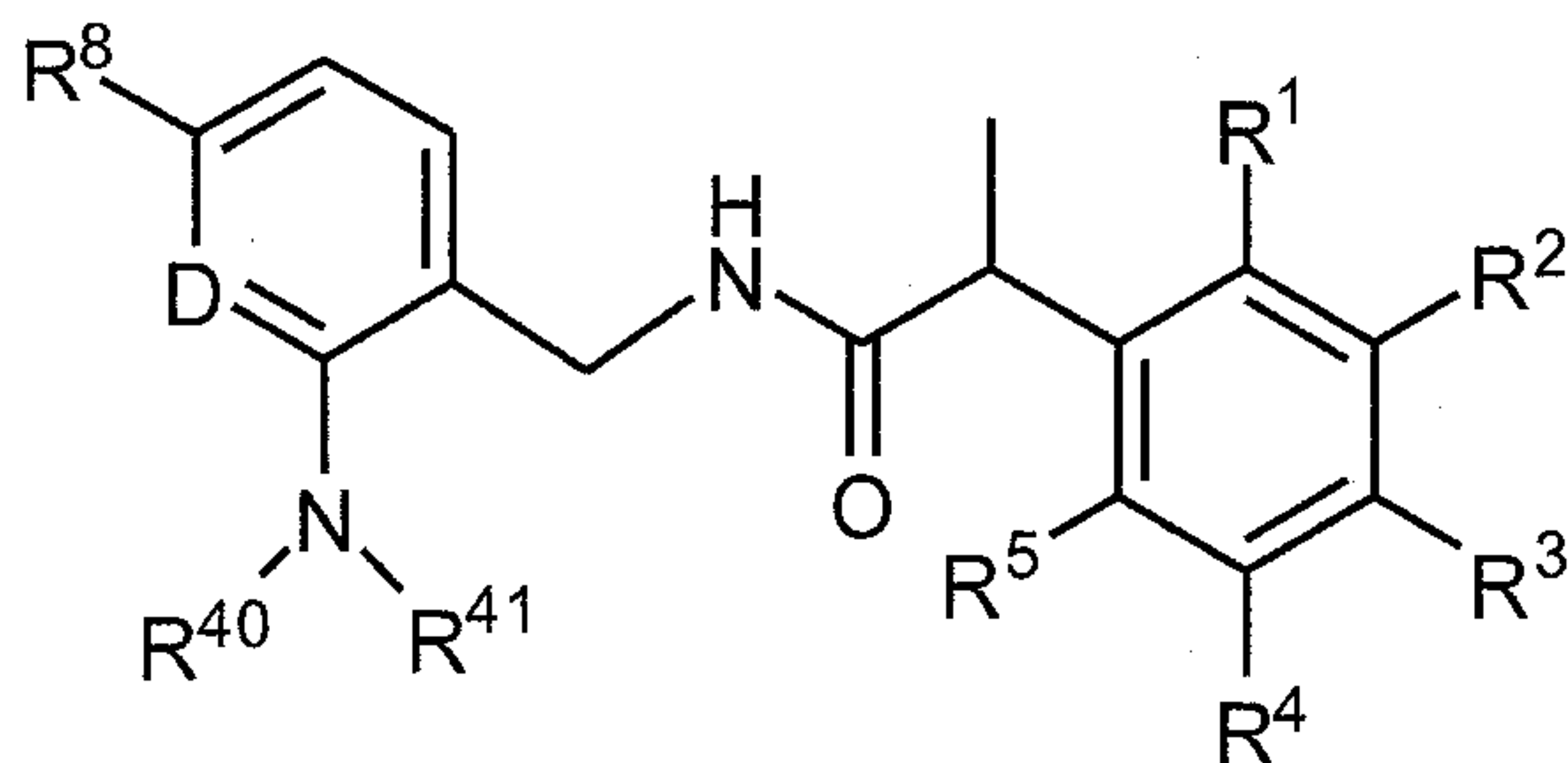
D denotes N or CH;

and

R^1 , R^2 , R^3 , R^4 , R^5 , R^8 , R^{42} and R^{41} have the meanings according to claim 4;

in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates.

17. Compounds of the general formula Id, according to one or more of the preceding claims,



Id,

in which

D denotes N or CH;

and

R^1 , R^2 , R^3 , R^4 , R^5 , R^8 , R^{42} and R^{41} have the meanings according to claim 5;

in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates.

18. Compounds according to one or more of claims 1 to 17 selected from the group consisting of

- [1] 2-(benzo[d]oxazol-5-yl)-N-(4-tert-butylbenzyl)propanamide,
- [2] 2-(benzo[d]oxazol-6-yl)-N-(4-tert-butylbenzyl)propanamide,
- [3] 2-(benzo[d]oxazol-7-yl)-N-(4-tert-butylbenzyl)propanamide,
- [4] N-(4-tert-butylbenzyl)-2-(2-oxo-2,3-dihydro-1H-benzo[d]imidazol-5-yl)propanamide,
- [5] N-(4-tert-butylbenzyl)-2-(3-oxo-3,4-dihydro-2H-benzo[b][1,4]oxazin-7-yl)propanamide,
- [6] N-(4-tert-butylbenzyl)-2-(3-oxo-3,4-dihydro-2H-benzo[b][1,4]oxazin-6-yl)propanamide,
- [7] N-(4-tert-butylbenzyl)-2-(7-methoxybenzo[d]oxazol-5-yl)propanamide,
- [8] 2-(benzo[d]oxazol-4-yl)-N-(4-tert-butylbenzyl)propanamide,
- [9] N-(4-tert-butylbenzyl)-2-(2,3-dihydrobenzo[b][1,4]dioxin-6-yl)propanamide,
- [10] N-(4-tert-butylbenzyl)-2-(2-thioxo-2,3-dihydro-1H-benzo[d]imidazol-5-yl)propanamide,
- [11] N-(4-tert-butylbenzyl)-2-(quinoxalin-6-yl)propanamide,
- [12] 2-(1H-benzo[d][1,2,3]triazol-5-yl)-N-(4-tert-butylbenzyl)propanamide,

- [13] 2-(1H-benzo[d]imidazol-5-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide,
- [14] 2-(1H-benzo[d]imidazol-5-yl)-N-(4-tert-butylbenzyl)propanamide,
- [15] 2-(1H-benzo[d][1,2,3]triazol-5-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide,
- [16] N-(4-tert-butylbenzyl)-2-(2-oxo-2,3-dihydrobenzo[d]oxazol-6-yl)propanamide,
- [17] N-(4-tert-butylbenzyl)-2-(2-thioxo-2,3-dihydrobenzo[d]oxazol-5-yl)propanamide,
- [18] 2-(2-aminobenzo[d]oxazol-6-yl)-N-(4-tert-butylbenzyl)propanamide,
- [19] N-(4-tert-butylbenzyl)-2-(2-thioxo-2,3-dihydrobenzo[d]oxazol-6-yl)propanamide,
- [20] N-(4-tert-butylbenzyl)-2-(3,4-dihydro-2H-benzo[b][1,4]oxazin-7-yl)propanamide,
- [21] N-(4-tert-butylbenzyl)-2-(quinolin-6-yl)propanamide,
- [22] 2-(1H-benzo[d][1,2,3]triazol-5-yl)-N-((2-butoxy-6-tert-butylpyridin-3-yl)methyl)propanamide,
- [23] 2-(1H-benzo[d]imidazol-5-yl)-N-((2-butoxy-6-tert-butylpyridin-3-yl)methyl)propanamide,
- [24] 2-(1H-benzo[d][1,2,3]triazol-5-yl)-N-((6-tert-butyl-2-(4-methylpiperidin-1-yl)pyridin-3-yl)methyl)propanamide,
- [25] 2-(1H-benzo[d]imidazol-5-yl)-N-((6-tert-butyl-2-(4-methylpiperidin-1-yl)pyridin-3-yl)methyl)propanamide,
- [26] 2-(1H-benzo[d][1,2,3]triazol-5-yl)-N-((6-tert-butyl-2-(cyclohexylthio)pyridin-3-yl)methyl)propanamide,
- [27] 2-(1H-benzo[d]imidazol-5-yl)-N-((6-tert-butyl-2-(cyclohexylthio)pyridin-3-yl)methyl)propanamide,
- [28] N-((2-butoxy-6-tert-butylpyridin-3-yl)methyl)-2-(2-oxo-2,3-dihydrobenzo[d]thiazol-6-yl)propanamide,
- [29] N-(2-butoxy-6-tert-butylpyridin-3-ylmethyl)-2-(2-ethylsulfanylbenzothiazol-6-yl)propionamide,
- [30] N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)-2-(2-(methylthio)benzo[d]thiazol-6-yl)propanamide,

- [31] N-((2-butoxy-6-tert-butylpyridin-3-yl)methyl)-2-hydroxy-2-(2-(methylthio)benzo[d]thiazol-6-yl)propanamide,
- [32] N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)-2-(2-thioxo-2,3-dihydrobenzo[d]thiazol-6-yl)propanamide,
- [33] N-((6-tert-butyl-2-(4-methylpiperidin-1-yl)pyridin-3-yl)methyl)-2-(2-thioxo-2,3-dihydrobenzo[d]thiazol-6-yl)propanamide,
- [34] N-((6-tert-butyl-2-(4-methylpiperidin-1-yl)pyridin-3-yl)methyl)-2-(2-(methylthio)benzo[d]thiazol-6-yl)propanamide,
- [35] 2-(2-aminobenzo[d]oxazol-5-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide,
- [36] 2-(2-acetamidobenzo[d]thiazol-6-yl)-N-(4-tert-butylbenzyl)propanamide,
- [37] 2-(2-acetamidobenzo[d]thiazol-6-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide,
- [38] 2-(2-aminobenzo[d]thiazol-6-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide,
- [39] N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)-2-(2-(methylsulfonamido)benzo[d]thiazol-6-yl)propanamide,
- [40] tert-butyl 6-(1-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methylamino)-1-oxopropan-2-yl)benzo[d]thiazol-2-ylcarbamate,
- [41] 2-(2-acetamidobenzo[d]thiazol-6-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide,
- [42] 2-(2-acetamidobenzo[d]thiazol-5-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide,
- [43] 2-(2-acetamidobenzo[d]thiazol-4-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide,
- [44] 2-(1H-indazol-5-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide,
- [45] 2-(3-fluoro-1H-indazol-5-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide,
- [46] N-((2-butoxy-6-tert-butylpyridin-3-yl)methyl)-2-(1H-indazol-5-yl)propanamide,
- [48] N-((6-tert-butyl-2-(cyclohexylthio)pyridin-3-yl)methyl)-2-(1H-indazol-5-yl)propanamide

- [49] N-(2-butoxy-6-tert-butyl-pyridin-3-ylmethyl)-2-(2-thioxo-2,3-dihydro-benzothiazol-6-yl)-propionamide;
- [50] tert-butyl 6-(1-(4-tert-butylbenzylamino)-1-oxopropan-2-yl)benzo[d]thiazol-2-ylcarbamate,
- [51] 2-(2-aminobenzo[d]thiazol-6-yl)-N-(4-tert-butylbenzyl)propanamide,
- [52] 2-(2-aminobenzo[d]thiazol-6-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide,
- [53] 2-(2-acetamidobenzo[d]thiazol-6-yl)-N-((6-tert-butyl-2-(4-methylpiperidin-1-yl)pyridin-3-yl)methyl)propanamide;
- [54] tert-butyl 6-(1-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methylamino)-1-oxopropan-2-yl)benzo[d]thiazol-2-ylcarbamate;
- [55] tert-butyl 6-(1-((6-tert-butyl-2-(4-methylpiperidin-1-yl)pyridin-3-yl)methylamino)-1-oxopropan-2-yl)benzo[d]thiazol-2-ylcarbamate;
- [56] 2-(2-aminobenzo[d]thiazol-6-yl)-N-((6-tert-butyl-2-(4-methylpiperidin-1-yl)pyridin-3-yl)methyl)propanamide;
- [57] N-(4-tert-butylbenzyl)-2-(2-(methylsulfonamide)benzo[d]thiazol-6-yl)propanamide;
- [58] 2-(2,3-dihydrobenzo[b][1,4]dioxin-6-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)acetamide;
- [59] N-((2-(cyclohexylthio)-6-(trifluoromethyl)pyridin-3-yl)methyl)-2-(2,3-dihydrobenzo[b][1,4]dioxin-6-yl)acetamide;
- [60] 2-(benzo[d][1,3]dioxol-5-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide;
- [61] 2-(benzo[d][1,3]dioxol-4-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide;
- [62] 2-(2,3-dihydrobenzo[b][1,4]dioxin-6-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide;
- [63] 2-(2,3-dihydrobenzo[b][1,4]dioxin-5-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide
- [64] 2-(isoquinolin-7-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide
- [65] 2-(isoquinolin-6-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide

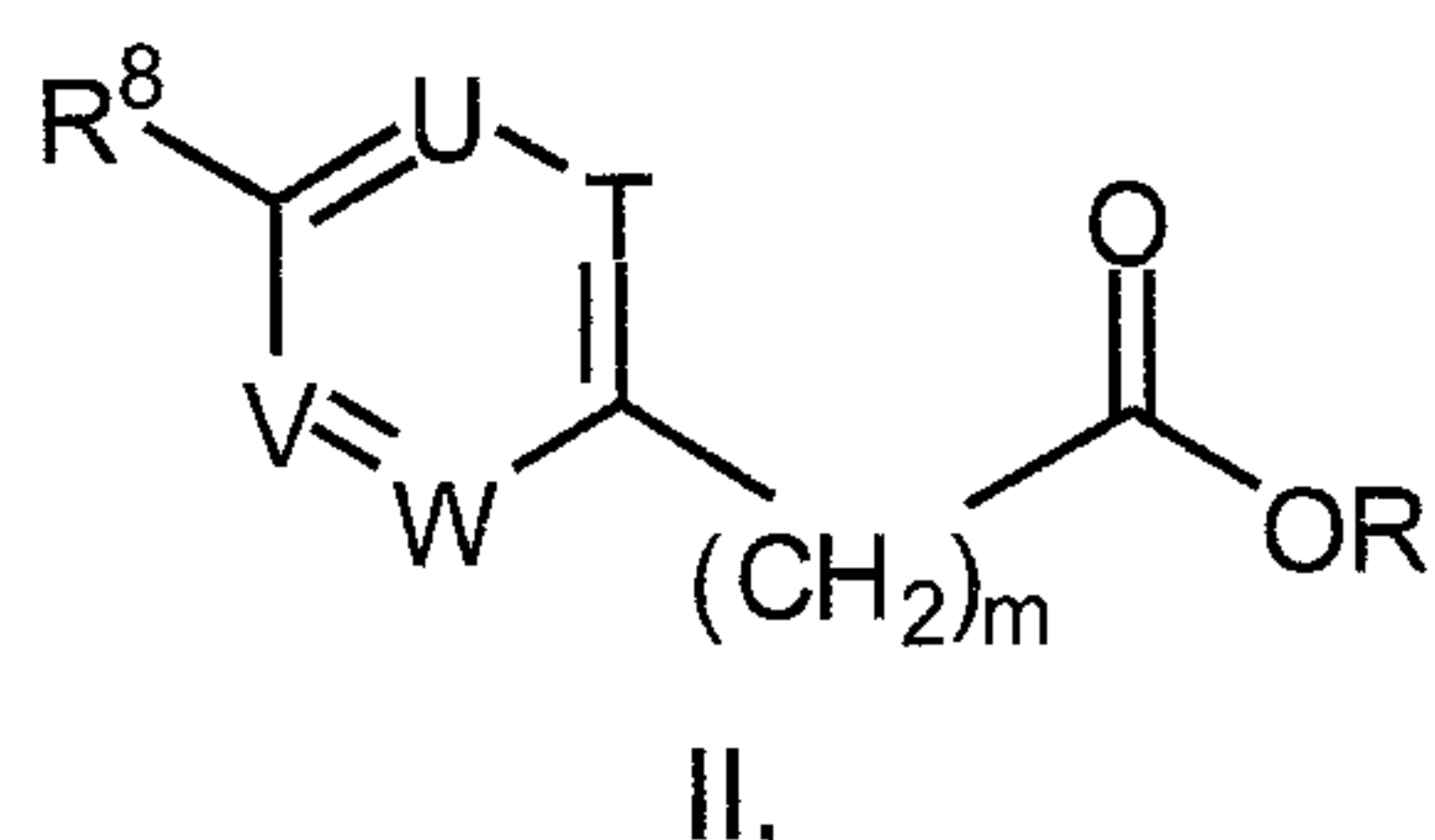
- [66] N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)-2-(quinolin-6-yl)propanamide
- [67] N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)-2-(quinoxalin-6-yl)propanamide
- [68] N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)-2-(quinazolin-6-yl)propanamide
- [69] 2-(1H-indazol-5-yl)-N-(2-(4-methylpiperidin-1-yl)-4-(trifluoromethyl)benzyl)propanamide
- [70] 2-(1H-indazol-4-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide
- [71] 2-(1H-indazol-6-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide
- [72] 2-(1H-indazol-7-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide
- [73] 2-(1-(2-fluorophenyl)-1H-indazol-4-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide
- [74] 2-(indolin-5-yl)-N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)propanamide
- [75] N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)-2-(1,2,3,4-tetrahydroquinolin-6-yl)propanamide
- [76] N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)-2-(2-oxoindolin-5-yl)propanamide and
- [77] N-((2-(4-methylpiperidin-1-yl)-6-(trifluoromethyl)pyridin-3-yl)methyl)-2-(2-oxo-1,2,3,4-tetrahydroquinolin-6-yl)propanamide

in each case optionally in the form of one of the pure stereoisomers thereof, in particular enantiomers or diastereomers, the racemates thereof or in the form of a mixture of stereoisomers, in particular the enantiomers and/or diastereomers, in any desired mixing ratio, or in each case in the form of corresponding salts or in each case in the form of corresponding solvates;

19. Compounds according to one or more of claims 1 to 18, characterised in that, in a FLIPR assay with CHO K1 cells which have been transfected with the human gene VR1, in a concentration of less than 2000 nM, preferably of less

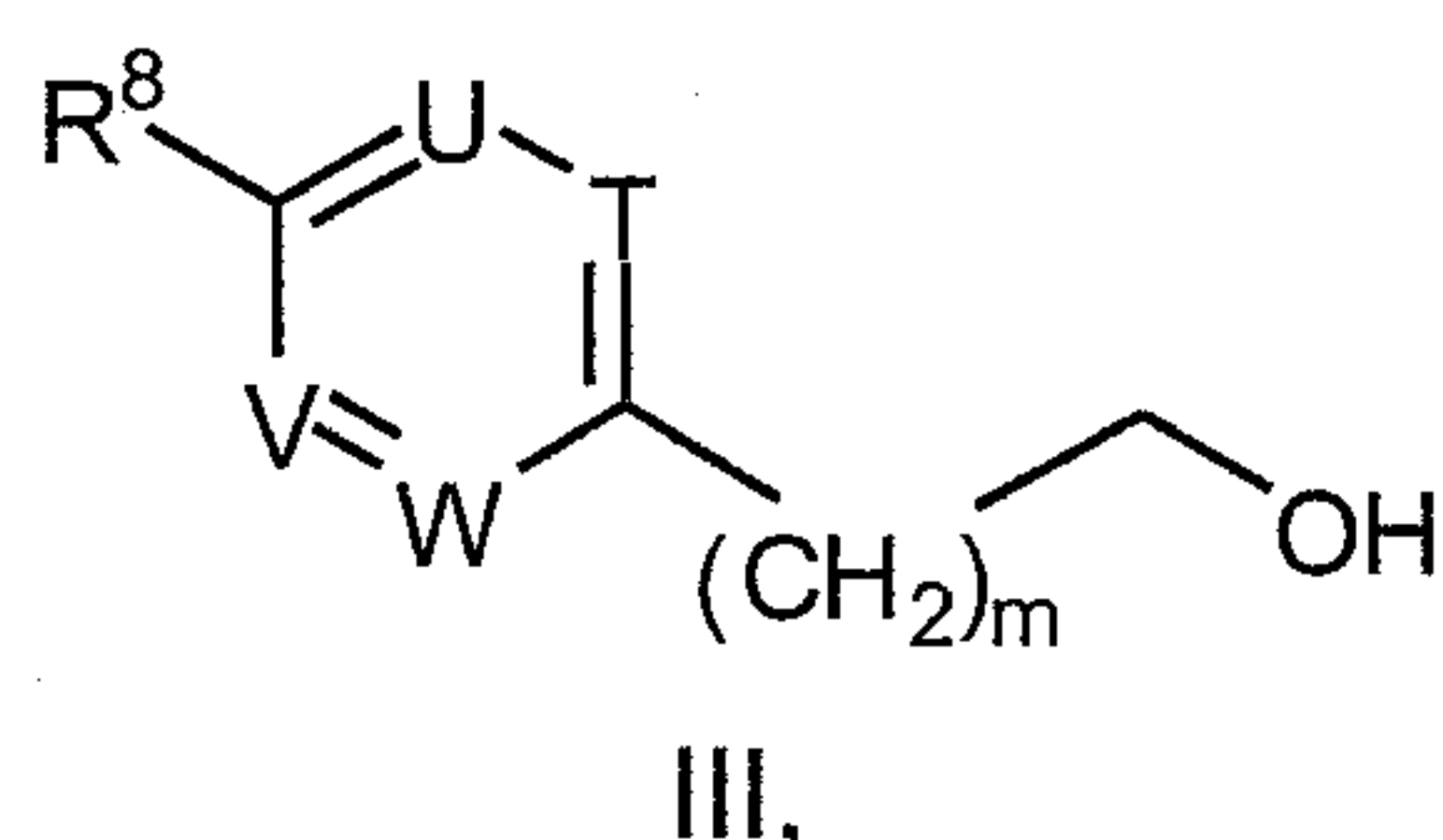
than 1000 nM, particularly preferably of less than 300 nM, very particularly preferably of less than 100 nM, still more preferably of less than 75 nM, further preferably of less than 50 nM and most preferably of less than 10 nM, bring about a 50% displacement of capsaicin which is present in a concentration of 100 nM.

20. A method for producing a compound according to one or more of claims 1 to 19, characterised in that at least one compound of the general formula II,



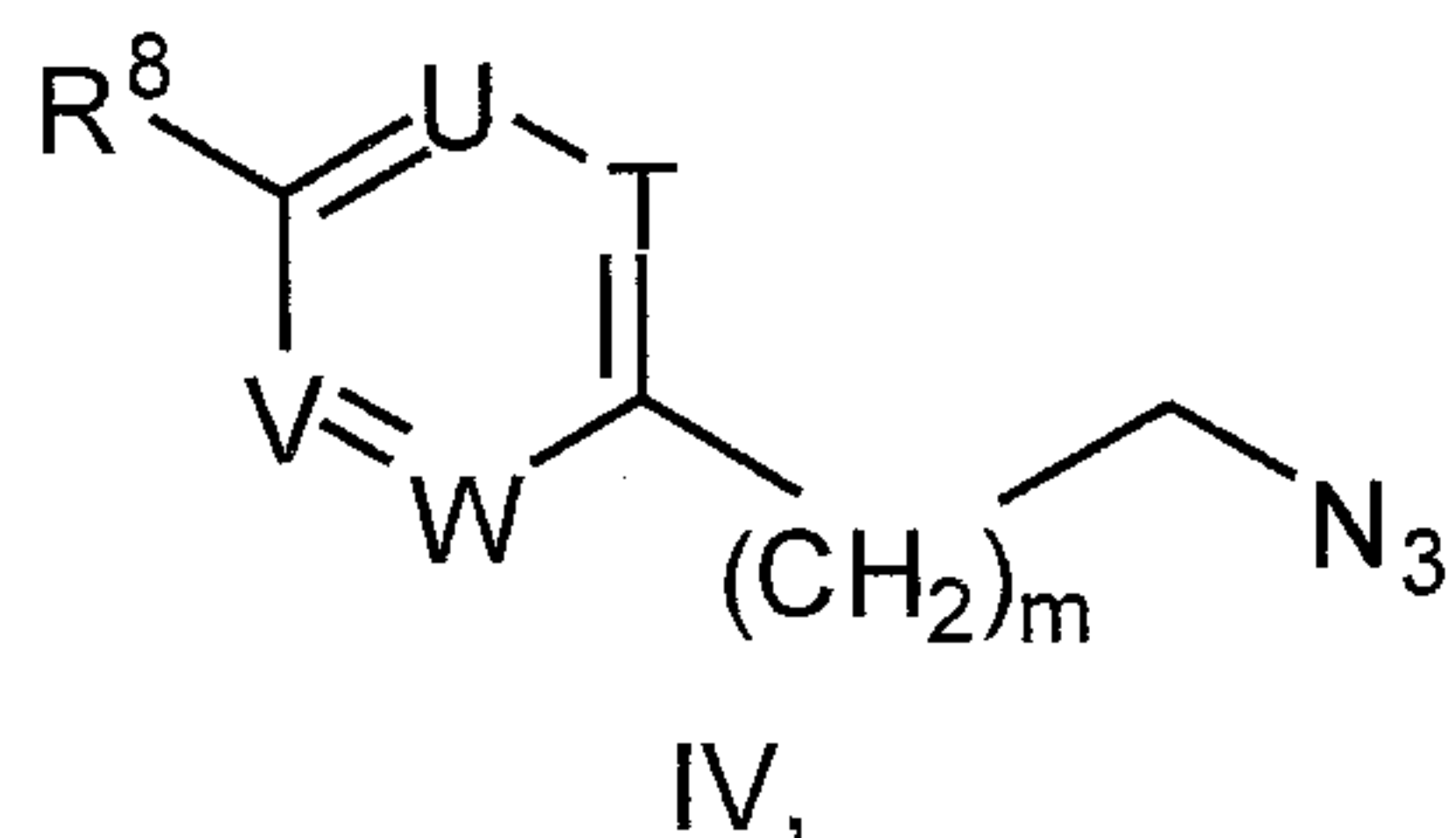
in which R^8 , U, T, V, and W have the meanings according to one or more of claims 1 to 19, m denotes 0, 1, 2 or 3 and R denotes hydrogen or denotes a linear or branched C_{1-6} alkyl residue, is reacted in a reaction medium, in the presence of at least one reducing agent, preferably in the presence of at least one reducing agent selected from the group consisting of sodium hydride, sodium, potassium hydride, lithium aluminium hydride, sodium borohydride and di(isobutyl)aluminium hydride

to yield at least one compound of the general formula III,



in which R^8 , U, T, V and W have the meanings according to one or more of claims 1 to 19 and m denotes 0, 1, 2 or 3 and said compound is optionally purified and/or isolated,

and at least one compound of the general formula III is reacted in a reaction medium in the presence of diphenylphosphoryl azide or in the presence of HN_3 to yield at least one compound of the general formula IV,



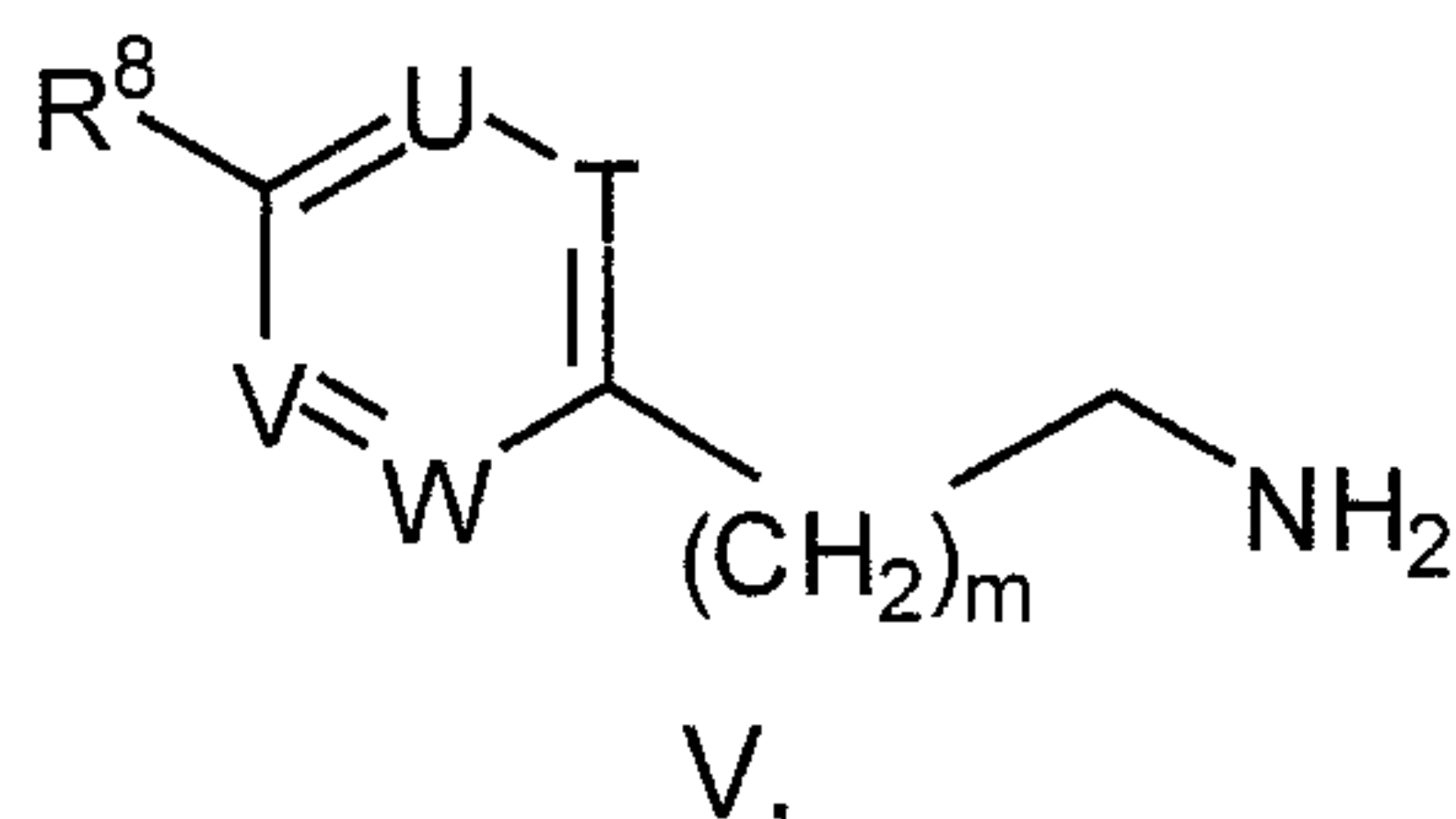
in which R^8 , U, T, V and W have the meanings according to one or more of claims 1 to 19 and m denotes 0, 1, 2 or 3 and said compound is optionally purified and/or isolated,

and at least one compound of the general formula IV is reacted in a reaction medium in the presence of at least one reducing agent, preferably in the presence of at least one reducing agent selected from the group consisting of sodium hydride, potassium hydride, lithium aluminium hydride, sodium borohydride and di(isobutyl)aluminium hydride

or in a reaction medium in the presence of a catalyst, preferably in the presence of a catalyst based on platinum or palladium, particularly preferably in the presence of palladium on carbon, and in the presence of hydrogen or in the presence of hydrazine

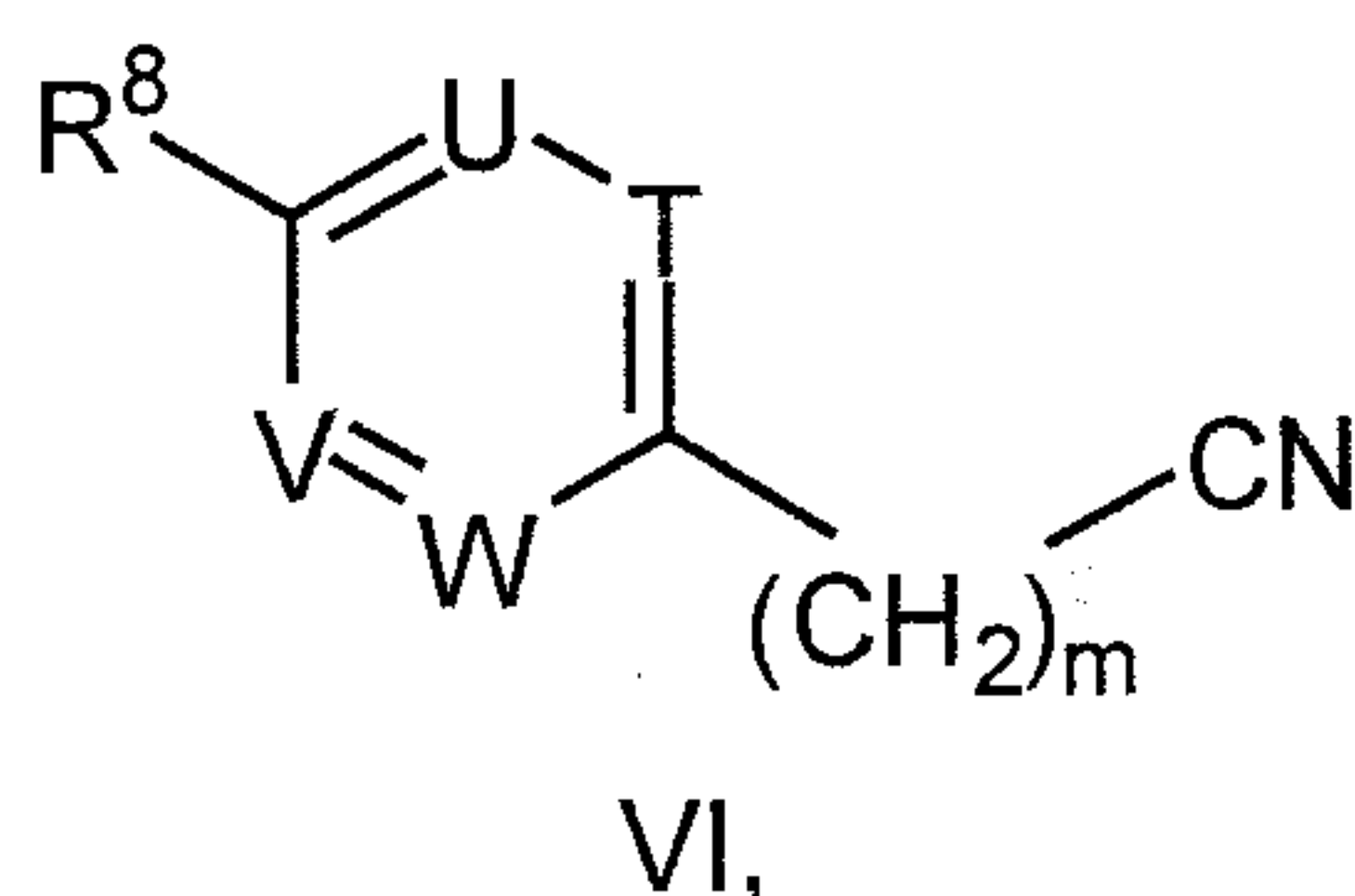
or in a reaction medium in the presence of triphenylphosphine

to yield at least one compound of the general formula V,



in which R^8 , U, T, V and W have the meanings according to one or more of claims 1 to 19 and m denotes 0, 1, 2 or 3 and said compound is optionally purified and/or isolated,

or at least one compound of the general formula VI,



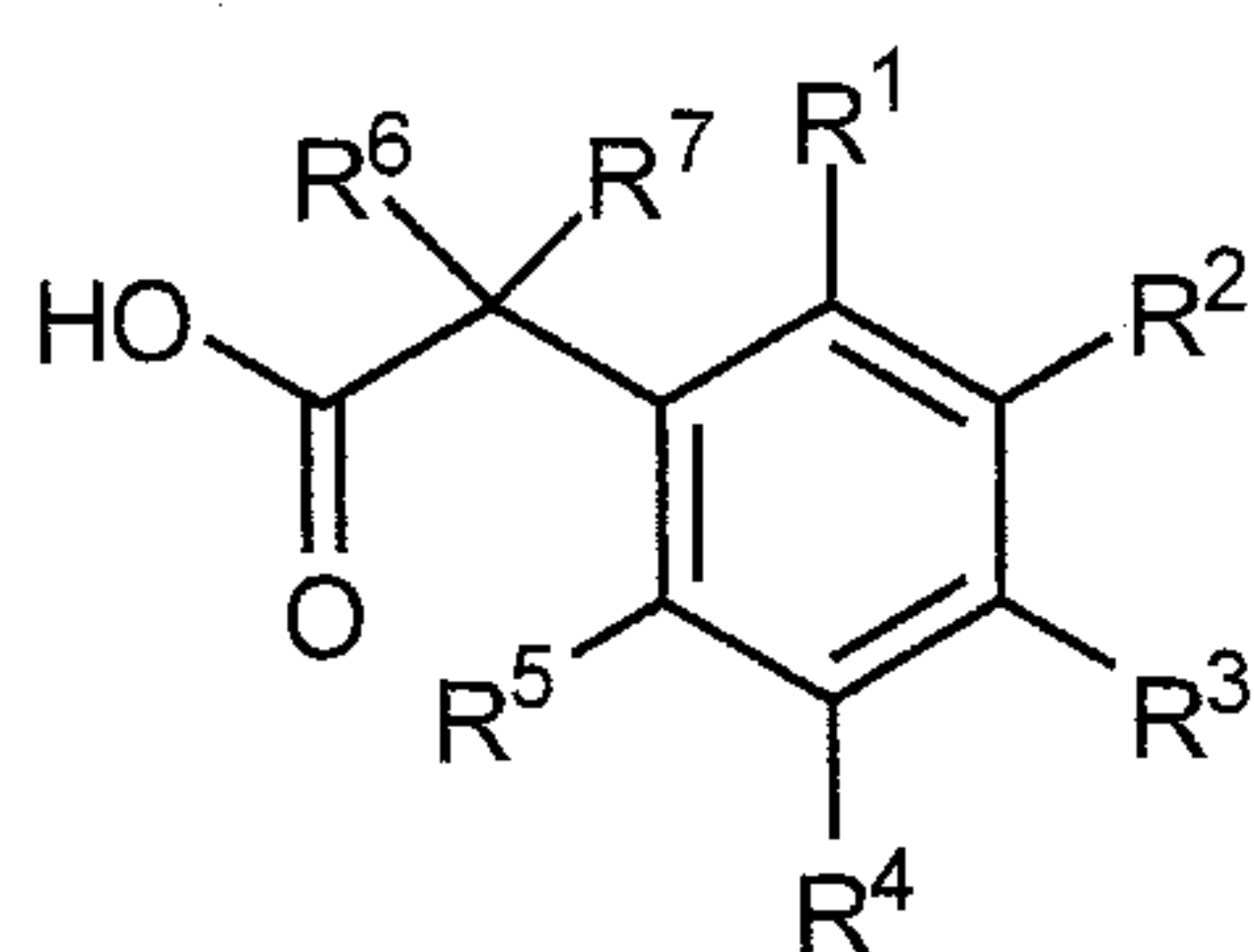
in which R^8 , U, T, V and W have the meanings according to one or more of claims 1 to 19 and m denotes 0, 1, 2 or 3, is reacted in a reaction medium

in the presence of at least one catalyst, preferably in the presence of at least one catalyst based on palladium or platinum, particularly preferably in the presence of palladium on carbon, under a hydrogen atmosphere, optionally in the presence of at least one acid, preferably in the presence of hydrochloric acid,

or in the presence of at least one reducing agent selected from the group consisting of $BH_3 \cdot S(CH_3)_2$, lithium aluminium hydride and sodium borohydride, optionally in the presence of $NiCl_2$,

to yield at least one compound of the general formula V, optionally in the form of a corresponding salt, preferably in the form of a corresponding hydrochloride, and said compound is optionally purified and/or isolated,

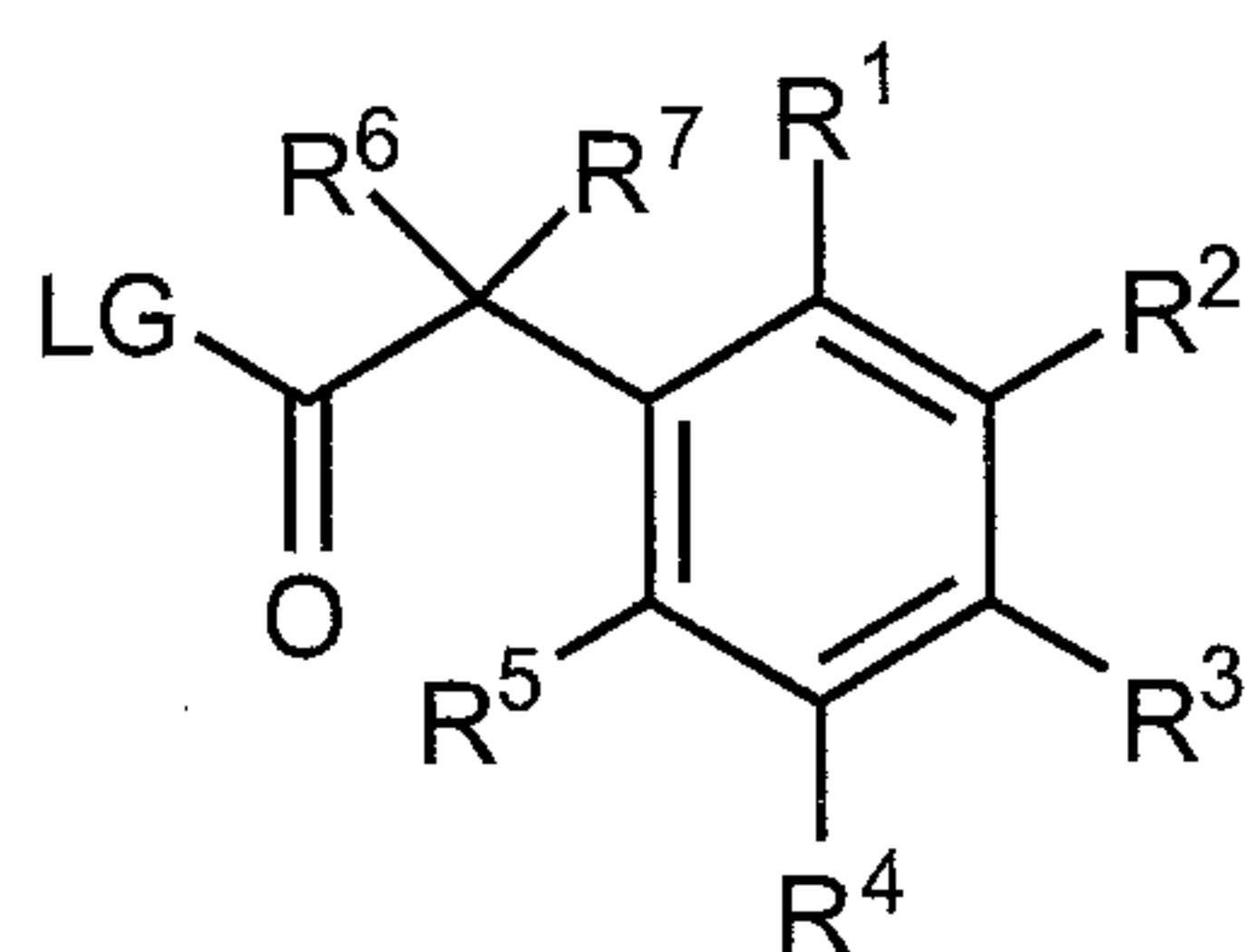
and at least one compound of the general formula V is reacted with at least one compound of the general formula VII,



VII,

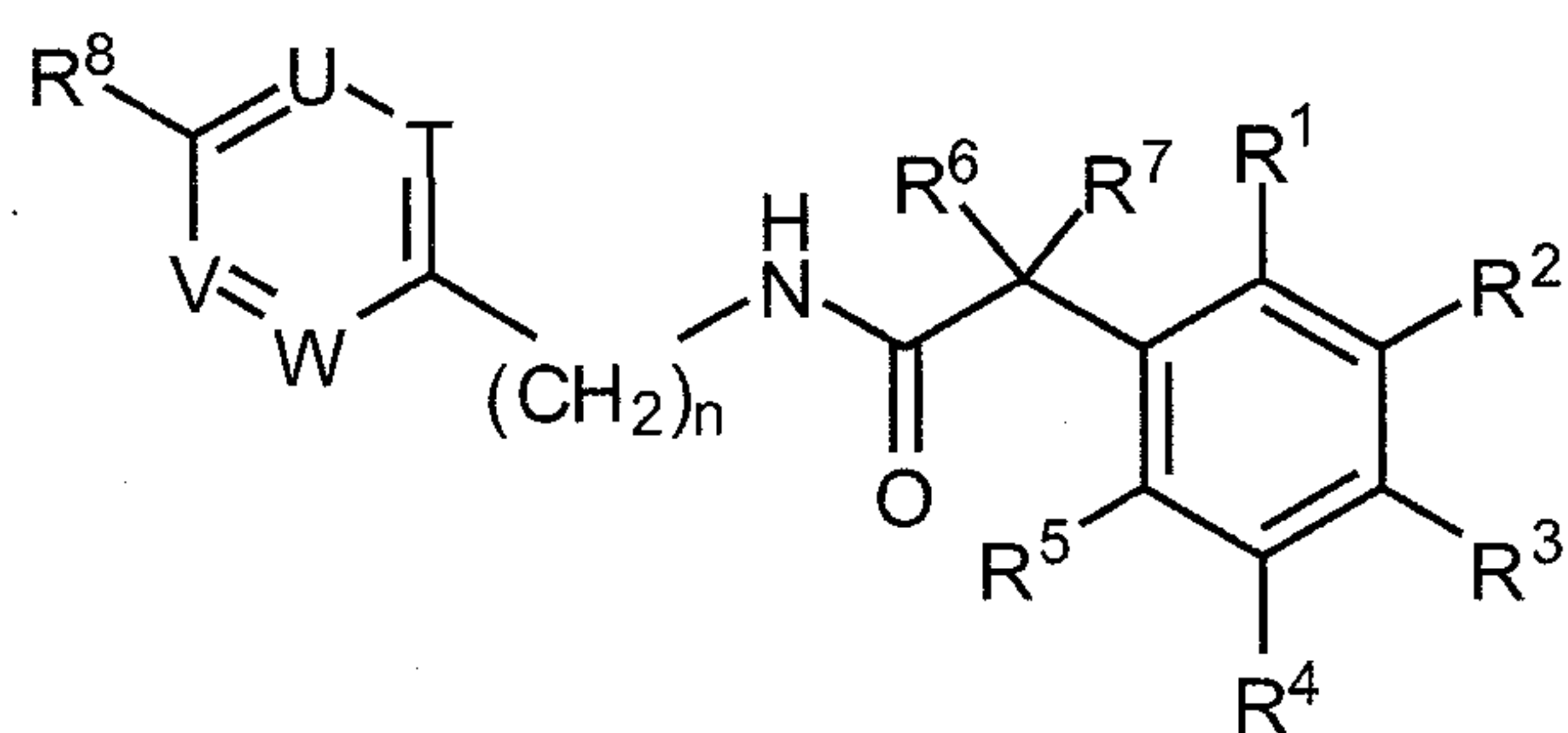
in which R^1 , R^2 , R^3 , R^4 , R^5 , R^6 and R^7 have the meanings according to one or more of claims 1 to 19, in a reaction medium, optionally in the presence of at least one suitable coupling agent, optionally in the presence of at least one base,

or with at least one compound of the general formula VIII,



VIII,

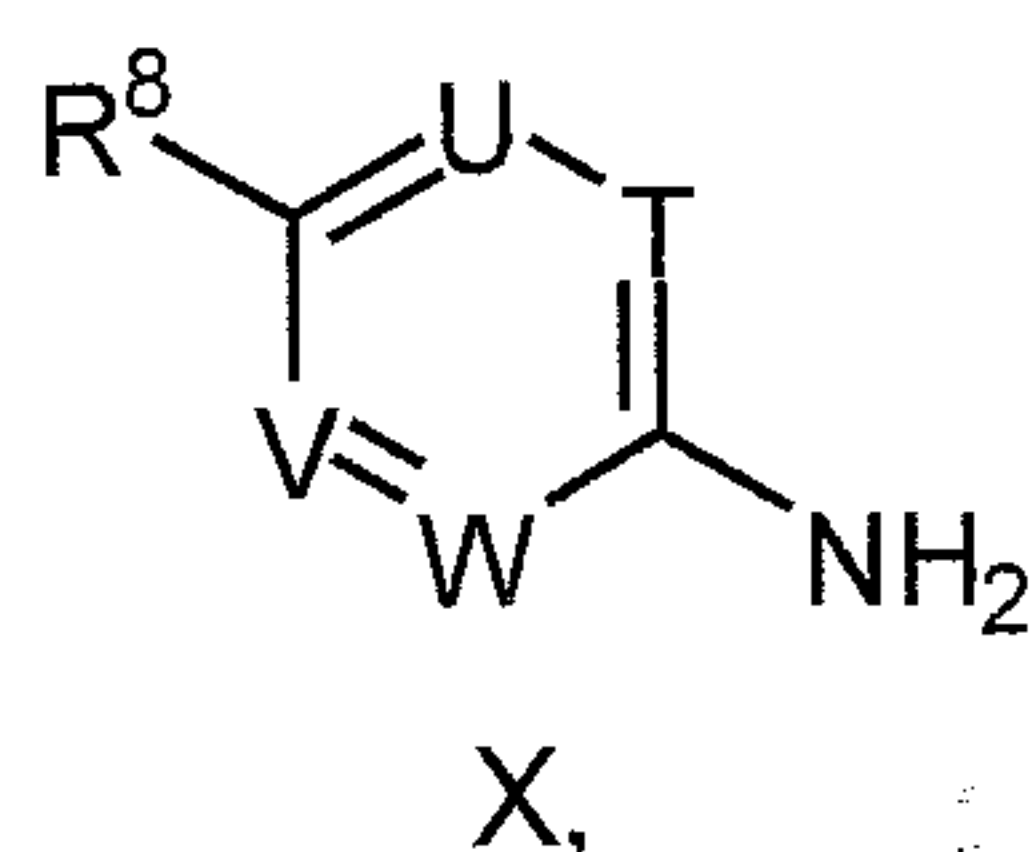
in which R^1 , R^2 , R^3 , R^4 , R^5 , R^6 and R^7 have the meanings according to one or more of claims 1 to 19 and LG denotes a leaving group, preferably a chlorine or bromine atom, in a reaction medium, optionally in the presence of at least one base, to yield at least one compound of the general formula I,



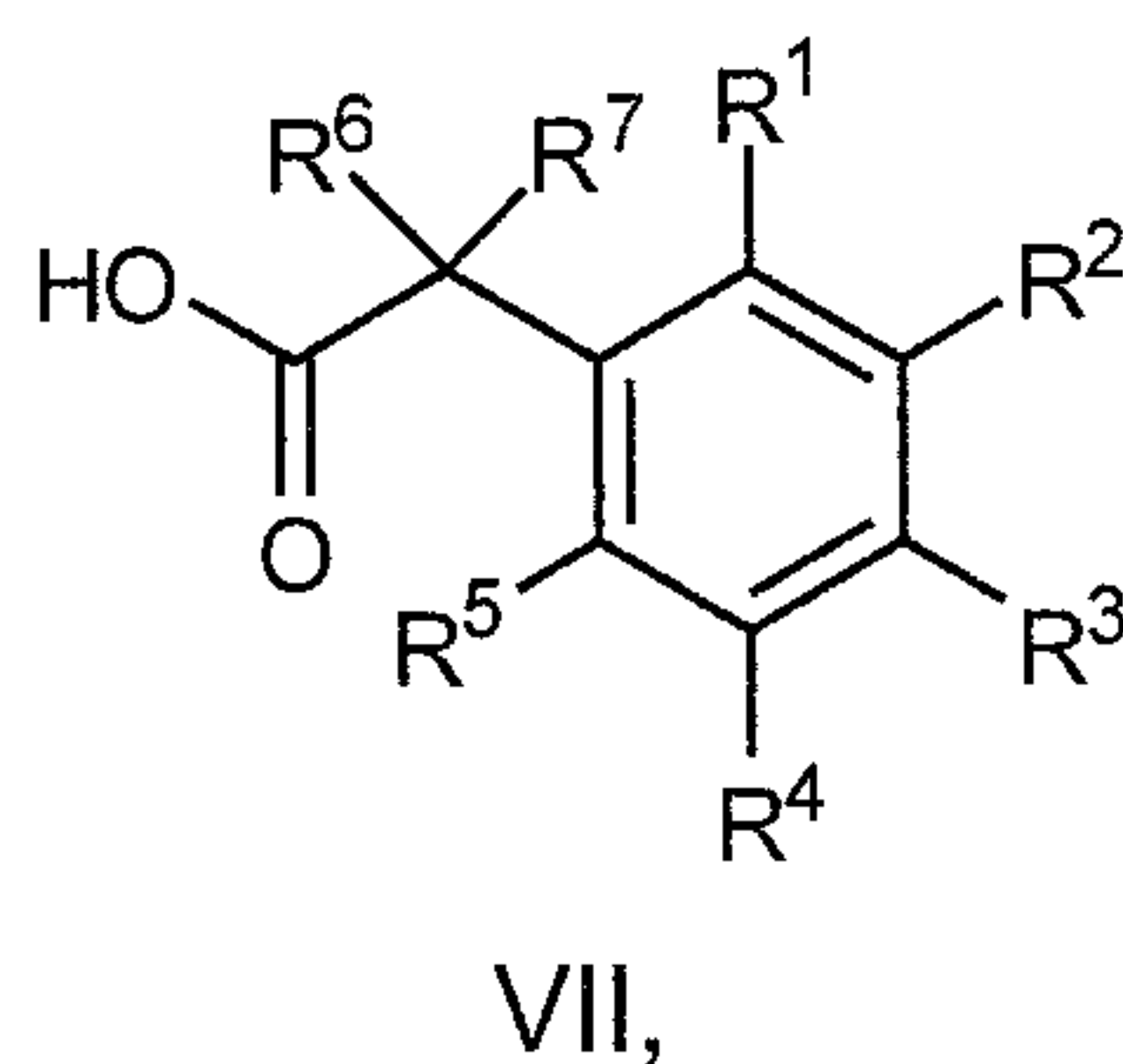
I,

in which T, U, V, W, R^1 , R^2 , R^3 , R^4 , R^5 , R^6 , R^7 and R^8 have the meanings according to one or more of claims 1 to 19 and n denotes 1, 2, 3 or 4 and said compound is optionally purified and/or isolated.

21. A method for producing at least one compound according to one or more the claims 1 to 19, characterised in that at least one compound of the general formula X,

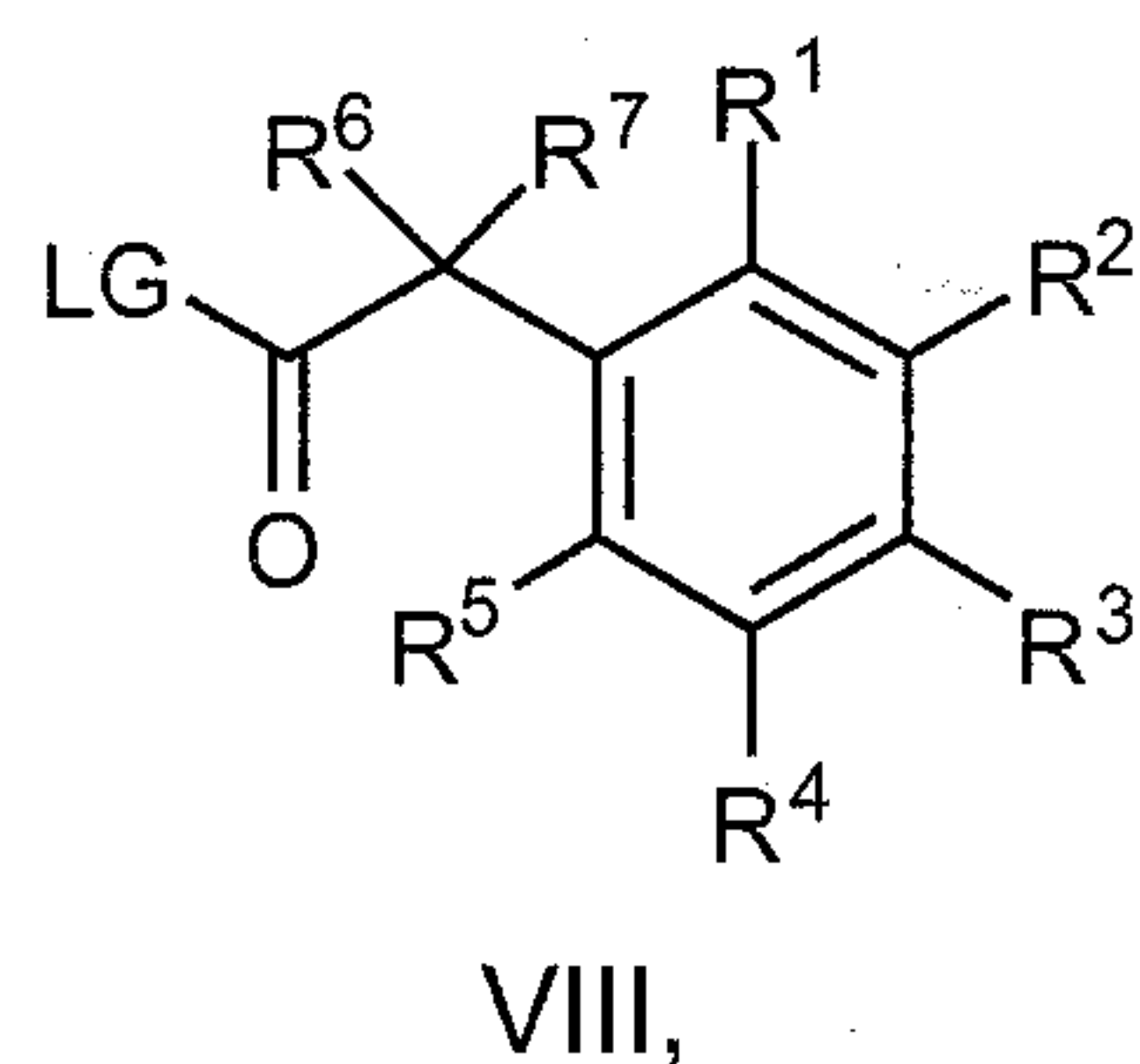


in which R^8 , U, T, V and W have the meanings according to one or more of claims 1 to 19, is reacted with at least one compound of the general formula VII,

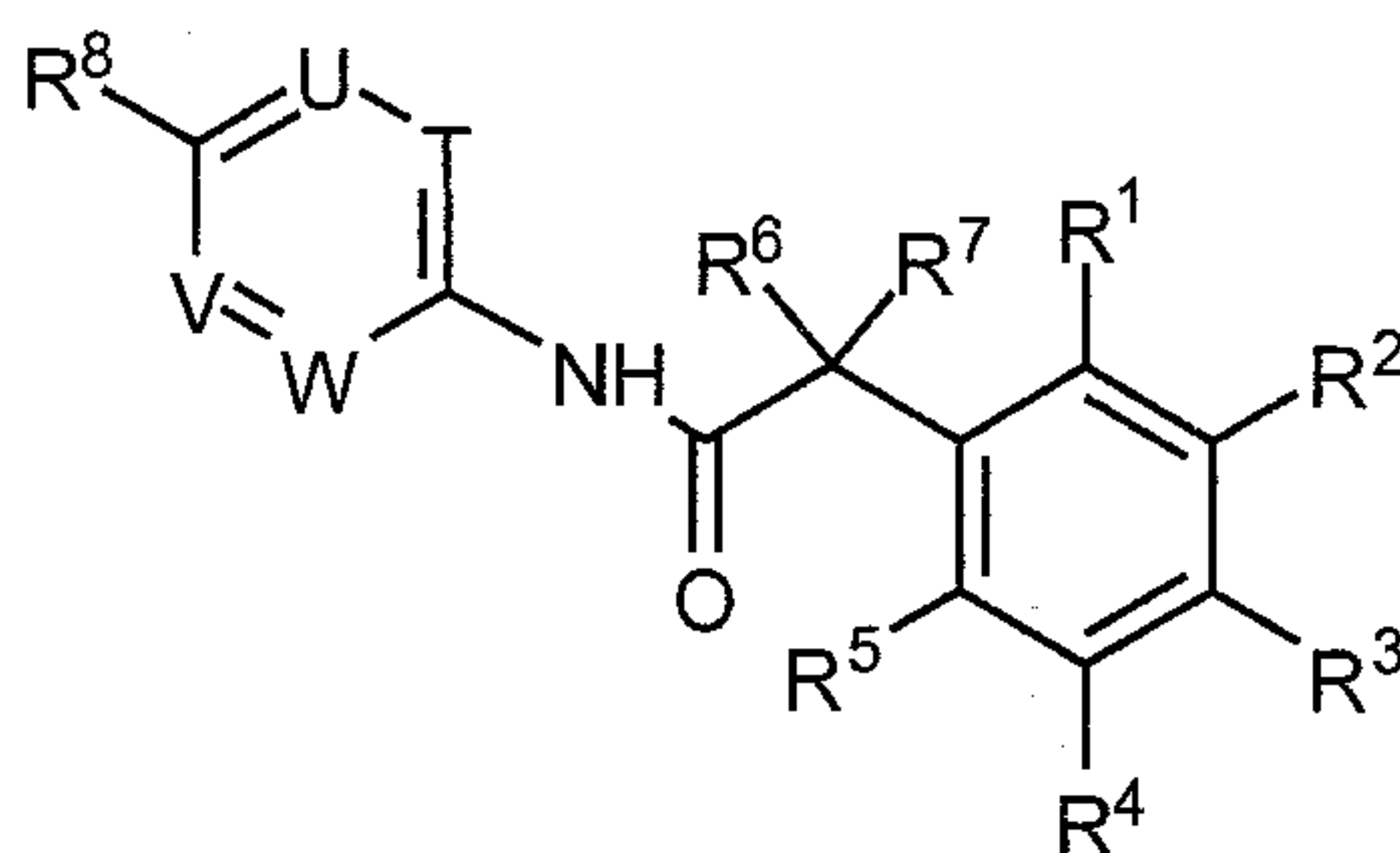


in which R^1 , R^2 , R^3 , R^4 , R^5 , R^6 and R^7 have the meanings according to one or more of claims 1 to 19, in a reaction medium, optionally in the presence of at least one suitable coupling agent, optionally in the presence of at least one base,

or with at least one compound of the general formula VIII,



in which R^1 , R^2 , R^3 , R^4 , R^5 , R^6 and R^7 have the meanings according to one or more of claims 1 to 19 and LG denotes a leaving group, preferably a chlorine or bromine atom, in a reaction medium, optionally in the presence of at least one base, to yield at least one compound of the general formula Im,



Im,

in which T, U, V, W, R^1 , R^2 , R^3 , R^4 , R^5 , R^6 , R^7 and R^8 have the meanings according to one or more of claims 1 to 19, and this compound is optionally purified and/or isolated.

22. A pharmaceutical containing at least one compound according to one or more of claims 1 to 19 and optionally one or more physiologically acceptable auxiliary substances.
23. A pharmaceutical according to claim 22 for the treatment and/or prevention of one or more diseases selected from the group consisting of pain, preferably of pain selected from the group consisting of acute pain, chronic pain, neuropathic pain and visceral pain; joint pain; hyperalgesia; allodynia; causalgia and migraine.
24. A pharmaceutical according to claim 22 for the treatment and/or prevention of one or more diseases selected from the group consisting of depression; neuropathy; nerve injury; neurodegenerative diseases, preferably selected from the group consisting of multiple sclerosis, Alzheimer's disease, Parkinson's disease and Huntington's chorea; cognitive dysfunction, preferably cognitive deficiency states, particularly preferably memory disorders; and epilepsy.

25. A pharmaceutical according to claim 22 for the treatment and/or prevention of one or more diseases selected from the group consisting of airways diseases, preferably selected from the group consisting of asthma, bronchitis and pulmonary inflammation; coughing; urinary incontinence; an overactive bladder (OAB); diseases and/or injuries of the gastrointestinal tract; duodenal ulcers; gastric ulcers; irritable bowel syndrome; strokes; eye irritation; skin irritation; neurotic skin conditions; allergic skin diseases; psoriasis; vitiligo; herpes simplex; inflammation, preferably inflammation of the intestines, the eyes, the bladder, the skin or the nasal mucosa; diarrhoea; pruritus; osteoporosis; arthritis; osteoarthritis; rheumatic diseases; disorders of food intake, preferably selected from the group consisting of bulimia, cachexia, anorexia and obesity; dependency on medicines; abuse of medicines; withdrawal symptoms associated with dependency on medicines; development of tolerance towards medicines, preferably towards natural or synthetic opioids; dependency on drugs; drug abuse; withdrawal symptoms associated with dependency on drugs; dependency on alcohol; alcohol abuse and withdrawal symptoms associated with dependency on alcohol; for diuresis; for antinatriuresis; for influencing the cardiovascular system; for increasing vigilance; for the treatment of wounds and/or burns; for the treatment of severed nerves; for increasing libido; for modulating locomotor activity; for anxiolysis; for local anaesthesia; and/or for inhibiting undesired side-effects, preferably selected from the group consisting of hyperthermia, high blood pressure and constriction of bronchial tubes, triggered by the administration of vanilloid receptor 1 (VR1/TRPV1 receptor) agonists, preferably selected from the group consisting of capsaicin, resiniferatoxin, olvanil, arvanil, SDZ-249665, SDZ-249482, nuvanil and capsavanil.
26. Use of at least one compound according to one or more of claims 1 to 19 for the production of a pharmaceutical for the treatment and/or prevention of one or more diseases selected from the group consisting of pain, preferably of pain selected from the group consisting of acute pain, chronic pain, neuropathic

pain and visceral pain; joint pain; hyperalgesia; allodynia; causalgia and migraine.

27. Use of at least one compound according to one or more of claims 1 to 19 for the production of a pharmaceutical for the treatment and/or prevention of one or more diseases selected from the group consisting of depression; neuropathy; nerve injury; neurodegenerative diseases, preferably selected from the group consisting of multiple sclerosis, Alzheimer's disease, Parkinson's disease and Huntington's chorea; cognitive dysfunction, preferably cognitive deficiency states, particularly preferably memory disorders; and epilepsy.
28. Use of at least one compound according to one or more of claims 1 to 19 for the production of a pharmaceutical for the treatment and/or prevention of one or more diseases selected from the group consisting of airways diseases, preferably selected from the group consisting of asthma, bronchitis and pulmonary inflammation; coughing; urinary incontinence; an overactive bladder (OAB); diseases and/or injuries of the gastrointestinal tract; duodenal ulcers; gastric ulcers; irritable bowel syndrome; strokes; eye irritation; skin irritation; neurotic skin conditions; allergic skin diseases; psoriasis; vitiligo; herpes simplex; inflammation, preferably inflammation of the intestine, the eyes, the bladder, the skin or the nasal mucosa; diarrhoea; pruritus; osteoporosis; arthritis; osteoarthritis; rheumatic diseases; disorders of food intake, preferably selected from the group consisting of bulimia, cachexia, anorexia and obesity; dependency on medicines; abuse of medicines; withdrawal symptoms associated with dependency on medicines; development of tolerance towards medicines, preferably towards natural or synthetic opioids; dependency on drugs; drug abuse; withdrawal symptoms associated with dependency on drugs; dependency on alcohol; alcohol abuse and withdrawal symptoms associated with dependency on alcohol; for diuresis; for antinatriuresis; for influencing the cardiovascular system; for increasing vigilance; for the treatment of wounds and/or burns; for the treatment of severed nerves; for increasing libido; for modulating locomotor activity; for anxiolysis; for local

anaesthesia; and/or for inhibiting undesired side-effects, preferably selected from the group consisting of hyperthermia, high blood pressure and constriction of bronchial tubes, triggered by the administration of vanilloid receptor 1 (VR1/TRPV1 receptor) agonists, preferably selected from the group consisting of capsaicin, resiniferatoxin, olvanil, arvanil, SDZ-249665, SDZ-249482, nuvanil and capsavanil.

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