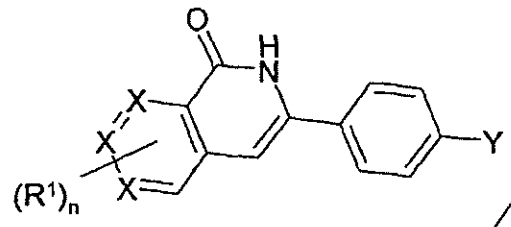
Patent Claims

1. Compounds of the formula I



I

in which

R^1 denotes F, Cl, CH_3, OCH_3, CF_3, CHF_2 or CH_2F,

R^2 denotes H or unbranched or branched alkyl with 1-6 C-atoms,

X denotes C or N, with the proviso that only one X denotes N,

Y denotes A, Cyc, $[C(R^2)_2]_qOA$, $[C(R^2)_2]_qN(R^2)_2$, $[C(R^2)_2]_pHet^1$, $[C(R^2)_2]_pCOOR^2$, $[C(R^2)_2]_pCON(R^2)_2$ or $[C(R^2)_2]_pSO_2N(R^2)_2$,

Ar denotes phenyl, which is unsubstituted, or mono- or disubstituted by Hal, A, $[C(R^2)_2]_pOR$, $[C(R^2)_2]_pN(R^2)_2$, $[C(R^2)_2]_pHet^2$, NO_2, CN, $[C(R^2)_2]_pCOOR$, $[C(R^2)_2]_pN(R^2)_2$, $N(R^2)_2COA$, NR^2SO_2A, $[C(R^2)_2]_pSO_2N(R^2)_2$, $S(O)_nA$, $COHet^2$, $O[C(R^2)_2]_mN(R^2)_2$, $O[C(R^2)_2]_pHet^2$, NHCOOA, $NHCON(R^2)_2$ or COA,

Het^1 denotes pyrrolidinyl, azetidinyl, tetrahydroimidazolyl, tetrahydrofuranyl, oxetanyl, tetrahydropyrazolyl, tetrahydropyranyl, piperidinyl, morpholinyl, hexahydropyridazinyl, hexahydropyrimidinyl, [1,3]dioxolanyl, piperazinyl, furyl, thienyl, pyrrolyl, imidazolyl, pyrazolyl, oxazolyl, isoxazolyl, oxadiazolyl, thiazolyl, triazolyl, tetrazolyl, pyridyl, pyrimidyl, pyridazinyl, indolyl, isoindolyl, benzimidazolyl, indazolyl, quinolyl, 1,3-benzodioxolyl, benzothiophenyl, benzofuranyl, imidazopyridyl or furo[3,2-b]-pyridyl, each of which is unsubstituted or mono- or disubstituted by Hal, A, $[C(R^2)_2]_pOR^2$, $[C(R^2)_2]_pN(R^2)_2$, $[C(R^2)_2]_pHet^2$,

$[C(R^2)_2]_pOHet^2$ $[C(R^2)_2]_pAr$, NO_2, CN, $[C(R^2)_2]_pCOOR^2$, $[C(R^2)_2]_pCON(R^2)_2$, NR^2COA, NR^2SO_2A, $[C(R^2)_2]_pSO_2N(R^2)_2$, $S(O)_nA$, $COHet^2$, $O[C(R^2)_2]_mN(R^2)_2$, $O[C(R^2)_2]_pAr$, $O[C(R^2)_2]_pHet^2$, NHCOOA, $NHCON(R^2)_2$, CHO, COA, =S, =NR and/or =O,

Het^2 denotes dihydropyrrolyl, pyrrolidinyl, azetidinyl, oxetanyl, tetrahydroimidazolyl, dihydropyrazolyl, tetrahydropyrazolyl, tetrahydrofuranyl, dihydropyridyl, tetrahydropyridyl, piperidinyl, morpholinyl, hexahydropyridazinyl, hexahydropyrimidinyl, [1,3]dioxolanyl, tetrahydropyranyl or piperazinyl, each of which is unsubstituted or mono- or disubstituted by Hal, CN, OR^2, $COOR^2$, $CON(R^2)_2$, $S(O)_nA$, $S(O)_nAr$, COA, A and/or =O,

A denotes unbranched or branched alkyl with 1-10 C-atoms, wherein two adjacent carbon atoms may form a double bond and/or one or two non-adjacent CH- and/or CH_2-groups may be replaced by N-, O- and/or S-atoms and wherein 1-7 H-atoms may be replaced by F or Cl,

Cyc denotes cycloalkyl with 3-7 C-atoms, which is unsubstituted or monosubstituted by OH, Hal or A,

Hal denotes F, Cl, Br or I,

n denotes 0, 1 or 2,

m denotes 1, 2 or 3,

p denotes 0, 1, 2, 3 or 4,

q denotes 1, 2, 3 or 4,

with the proviso that, if R^1 is absent or methyl or methoxy, then Y is not methyl, trifluoromethyl, piperidinomethyl, butyl, 3-methoxy-1-propyl or 4-morpholinyl,

and pharmaceutically acceptable solvates, salts, tautomers and stereoisomers thereof, including mixtures thereof in all ratios.

2. Compounds according to Claim 1 in which

R^1 denotes F, Cl, CH_3, OCH_3, CF_3, CHF_2 or CH_2F,

R^2 denotes H or unbranched or branched alkyl with 1-6 C-atoms,

X denotes C or N, with the proviso that only one X denotes N,

Y denotes A, Cyc, $[C(R^2)_2]_qOA$, $[C(R^2)_2]_qN(R^2)_2$, $[C(R^2)_2]_pHet^1$, $[C(R^2)_2]_pCOOR^2$, $[C(R^2)_2]_pCON(R^2)_2$ or $[C(R^2)_2]_pSO_2N(R^2)_2$,

Het^1 denotes pyrrolidinyl, azetidinyl, tetrahydroimidazolyl, tetrahydrofuranyl, oxetanyl, tetrahydropyrazolyl, tetrahydropyranyl, piperidinyl, morpholinyl, hexahydropyridazinyl, hexahydropyrimidinyl, [1,3]dioxolanyl, piperazinyl, furyl, thienyl, pyrrolyl, imidazolyl, pyrazolyl, oxazolyl, isoxazolyl, oxadiazolyl, thiazolyl, triazolyl, tetrazolyl, pyridyl, pyrimidyl, pyridazinyl, indolyl, isoindolyl, benzimidazolyl, indazolyl, quinolyl, 1,3-benzodioxolyl, benzothiophenyl, benzofuranyl, imidazopyridyl or furo[3,2-b]-pyridyl, each of which is unsubstituted or mono- or disubstituted by A and/or $[C(R^2)_2]_pOR^2$,

A denotes unbranched or branched alkyl with 1-10 C-atoms, wherein two adjacent carbon atoms may form a double bond and/or one or two non-adjacent CH- and/or CH_2-groups may be replaced by N-atoms and wherein 1-7 H-atoms may be replaced by F or Cl,

Cyc denotes cycloalkyl with 3-7 C-atoms, which is unsubstituted or monosubstituted by OH, Hal or A,

n denotes 0, 1 or 2,

p denotes 0, 1, 2, 3 or 4,

q denotes 1, 2, 3 or 4,

with the proviso that, if R^1 is absent or methyl or methoxy, then Y is not methyl, trifluoromethyl, piperidinomethyl, butyl, 3-methoxy-1-propyl or 4-morpholinyl,

and pharmaceutically acceptable solvates, salts, tautomers and stereoisomers thereof, including mixtures thereof in all ratios.

3. Compounds according to Claim 1, selected from the group

No.	Name
"A1"	3-(4-tert-butyl-phenyl)-2H-[2,6]naphthyridin-1-one
"A2"	4-(1-oxo-1,2-dihydro-isoquinolin-3-yl)-benzoic acid methyl ester
"A3"	3-[4-(1-hydroxy-1-methyl-ethyl)-phenyl]-2H-isoquinolin-1-one
"A4"	4-(7-Fluoro-1-oxo-1,2-dihydro-isoquinolin-3-yl)-benzoic acid methyl ester
"A5"	6-fluoro-3-[4-(1-hydroxy-1-methyl-ethyl)-phenyl]-2H-isoquinolin-1-one
"A6"	7-fluoro-3-[4-(1-hydroxy-1-methyl-ethyl)-phenyl]-2H-isoquinolin-1-one
"A7"	3-[4-(1-hydroxy-1-methyl-ethyl)-phenyl]-7-methyl-2H-isoquinolin-1-one
"A8"	3-(4-hydroxymethyl-phenyl)-2H-isoquinolin-1-one
"A9"	7-fluoro-3-p-tolyl-2H-isoquinolin-1-one
"A10"	6-fluoro-3-p-tolyl-2H-isoquinolin-1-one
"A11"	8-fluoro-3-p-tolyl-2H-isoquinolin-1-one
"A12"	5-fluoro-3-p-tolyl-2H-isoquinolin-1-one
"A13"	3-[4-(1-fluoro-1-methyl-ethyl)-phenyl]-2H-isoquinolin-1-one
"A14"	3-[4-(1-Methyl-1H-pyrazol-4-yl)-phenyl]-2H-[2,7]naphthyridin-1-one

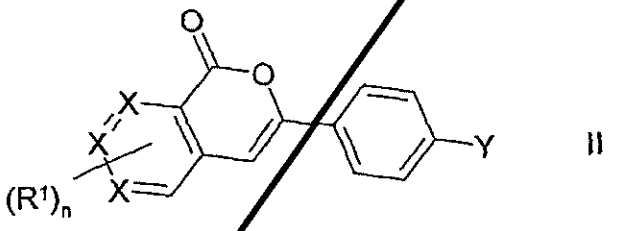
"A15"	3-[4-(1-methoxy-1-methyl-ethyl)-phenyl]-2H-isoquinolin-1-one
"A16"	7-fluoro-3-{4-[1-(2-hydroxy-ethoxy)-1-methyl-ethyl]-phenyl}-2H-isoquinolin-1-one
"A17"	7-fluoro-3-(4-isopropenyl-phenyl)-2H-isoquinolin-1-one
"A18"	7-fluoro-3-[4-(1-methyl-1H-pyrazol-4-yl)-phenyl]-2H-isoquinolin-1-one
"A19"	3-[4-(1-Methyl-1H-pyrazol-4-yl)-phenyl]-2H-[2,6]naphthyridin-1-one
"A20"	3-[4-(1-amino-1-methyl-ethyl)phenyl]-7-fluoro-2H-isoquinolin-1-one
"A21"	7-fluoro-3-[4-(2-methyltetrahydrofuran-2-yl)phenyl]-2H-isoquinolin-1-one
"A22"	7-fluoro-3-[4-(3-hydroxyoxetan-3-yl)phenyl]-2H-isoquinolin-1-one
"A23"	3-[4-(1-hydroxy-1-methyl-ethyl)phenyl]-2H-2,6-naphthyridin-1-one
"A24"	3-[4-(1-hydroxy-1-methyl-ethyl)phenyl]-2H-2,7-naphthyridin-1-one
"A25"	7-chloro-3-[4-(1-hydroxy-1-methyl-ethyl)phenyl]-2H-isoquinolin-1-one
"A26"	3-[4-(1-hydroxy-1-methyl-ethyl)phenyl]-5-methoxy-2H-isoquinolin-1-one
"A27"	8-fluoro-3-[4-(1-hydroxy-1-methyl-ethyl)phenyl]-2H-isoquinolin-1-one
"A28"	5-fluoro-3-[4-(1-hydroxy-1-methyl-ethyl)phenyl]-2H-isoquinolin-1-one
"A29"	5-methyl-3-(p-tolyl)-2H-isoquinolin-1-one
"A30"	3-(p-tolyl)-5-(trifluoromethyl)-2H-isoquinolin-1-one
"A31"	7-fluoro-3-[4-(1-hydroxycyclopropyl)phenyl]-2H-isoquinolin-1-one

"A32"	7-chloro-3-[4-(1-methyl-1H-pyrazol-4-yl)-phenyl]-2H-isoquinolin-1-one
"A33"	5,7-difluoro-3-[4-(1-hydroxy-1-methyl-ethyl)-phenyl]-2H-isoquinolin-1-one

and pharmaceutically acceptable solvates, salts, tautomers and stereoisomers thereof, including mixtures thereof in all ratios.

4. Process for the preparation of compounds of the formula I according to Claims 1-3 and pharmaceutically acceptable salts, solvates, tautomers and stereoisomers thereof, characterised in that

a) a compound of the formula II



II

in which R^1, X, Y and n have the meanings indicated in Claim 1,

is reacted with NH_3,

or

b) a radical Y is converted into another radical Y by

i) converting a halogen atom into an ester group,

ii) converting an ester group into an alcohol group,

iii) converting in a Suzuki coupling a halogenated phenyl ring into an arylated phenyl ring,

and/or

a base or acid of the formula I is converted into one of its salts.

5. Medicaments comprising at least one compound of the formula I and/or pharmaceutically acceptable salts, solvates, tautomers and stereoisomers thereof, including mixtures thereof in all ratios, and optionally an pharmaceutically acceptable carrier, excipient or vehicle.

6. Compounds of the formula I and pharmaceutically acceptable salts, solvates, tautomers and stereoisomers thereof, including mixtures thereof in all ratios, for the use for the treatment and/or prevention of cancer, multiple sclerosis, cardiovascular diseases, central nervous system injury and different forms of inflammation.

7. Compounds according to claim 6 for the use for the treatment and/or prevention of diseases selected from the group cancer of head, neck, eye, mouth, throat, esophagus, bronchus, larynx, pharynx, chest, bone, lung, colon, rectum, stomach, prostate, urinary bladder, uterine, cervix, breast, ovaries, testicles or other reproductive organs, skin, thyroid, blood, lymph nodes, kidney, liver, pancreas, brain, central nervous system, solid tumors and blood-borne tumors.

8. Medicaments comprising at least one compound of the formula I and/or pharmaceutically acceptable salts, solvates and stereoisomers thereof, including mixtures thereof in all ratios, and at least one further medicament active ingredient.

9. Set (kit) consisting of separate packs of

(a) an effective amount of a compound of the formula I and/or pharmaceutically acceptable salts, solvates, salts and stereoisomers thereof, including mixtures thereof in all ratios,

and

(b) an effective amount of a further medicament active ingredient.

Patent Claims

1. A compound which is

No.	Name
"A3"	3-[4-(1-hydroxy-1-methyl-ethyl)-phenyl]-2H-isoquinolin-1-one
"A5"	6-fluoro-3-[4-(1-hydroxy-1-methyl-ethyl)-phenyl]-2H-isoquinolin-1-one
"A6"	7-fluoro-3-[4-(1-hydroxy-1-methyl-ethyl)-phenyl]-2H-isoquinolin-1-one
"A7"	3-[4-(1-hydroxy-1-methyl-ethyl)-phenyl]-7-methyl-2H-isoquinolin-1-one
"A8"	3-(4-hydroxymethyl-phenyl)-2H-isoquinolin-1-one
"A16"	7-fluoro-3-{4-[1-(2-hydroxy-ethoxy)-1-methyl-ethyl]-phenyl}-2H-isoquinolin-1-one
"A20"	3-[4-(1-amino-1-methyl-ethyl)phenyl]-7-fluoro-2H-isoquinolin-1-one
"A23"	3-[4-(1-hydroxy-1-methyl-ethyl)phenyl]-2H-2,6-naphthyridin-1-one
"A24"	3-[4-(1-hydroxy-1-methyl-ethyl)phenyl]-2H-2,7-naphthyridin-1-one
"A25"	7-chloro-3-[4-(1-hydroxy-1-methyl-ethyl)phenyl]-2H-isoquinolin-1-one
"A26"	3-[4-(1-hydroxy-1-methyl-ethyl)phenyl]-5-methoxy-2H-isoquinolin-1-one
"A27"	8-fluoro-3-[4-(1-hydroxy-1-methyl-ethyl)phenyl]-2H-isoquinolin-1-one
"A28"	5-fluoro-3-[4-(1-hydroxy-1-methyl-ethyl)phenyl]-2H-isoquinolin-1-one
	or
"A33"	5,7-difluoro-3-[4-(1-hydroxy-1-methyl-ethyl)-phenyl]-2H-isoquinolin-1-one

or a pharmaceutically acceptable solvate, salt, tautomer or stereoisomer thereof, or a mixture thereof in all ratios.

2. A medicament comprising at least one compound of claim **1** or a pharmaceutically acceptable salt, solvate, tautomer or stereoisomer thereof, or a mixture thereof in all ratios, and optionally a pharmaceutically acceptable carrier, excipient or vehicle.

3. A medicament comprising at least one compound of claim **1** or a pharmaceutically acceptable salt, solvate, tautomer or stereoisomer thereof, or a mixture thereof in all ratios, and at least one further medicament active ingredient.

4. A kit consisting of separate packs of

(a) an effective amount of a compound of claim **1** or a pharmaceutically acceptable salt, solvate, tautomer or stereoisomer thereof, or a mixture thereof in all ratios, and

(b) an effective amount of a further medicament active ingredient.