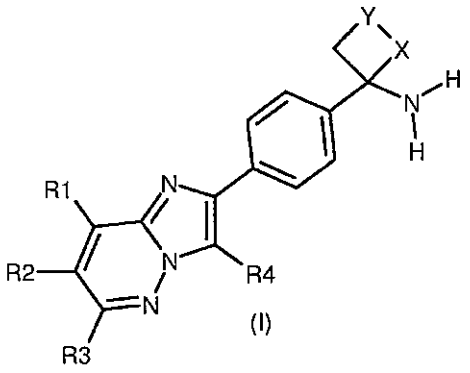
Claims

1. A compound of formula (I)



(I)

in which

R1 is hydrogen, hydroxy, NR5R6, halogen, cyano, CO(NR8R9), C(O)OR8, C(O)(1-6C-alkyl), NHC(O)(1-6C-alkyl), $NHS(O)_2R11$, NHC(O)NHR11 ,-$S(O)_n$-1-6C-alkyl, $-S(O)_2NR5R6$ or a group selected from 1-6C-alkyl, 1-6C-alkoxy, 3-7C-cycloalkyl, aryl, heteroaryl, -(1-6C-alkyl)-aryl, -(1-6C-alkyl)-heteroaryl, -O-(3-7C-cycloalkyl), -O-aryl, -O-(3-7C-heterocyclyl), -O-heteroaryl, -O-(1-6C-alkyl)-heteroaryl, -O-(1-6C-alkyl)-(3-7C-heterocyclyl), -O-(1-6C-alkyl)-aryl, 2-6C-alkenyl, 2-6C-alkynyl,
wherein said group being optionally substituted, one or more times, identically or differently, with a substituent selected from:
hydroxy, halogen, 1-6C-alkyl, 1-4C-haloalkyl, 1-6C-alkoxy, -NR8R9, cyano, -C(O)NR8R9, -C(O)OR10, -NHC(O)R11, -NHC(O)NHR11, -$NHS(O)_2R11$, 3-7-cycloalkyl, 3-7C-heterocyclyl, aryl,

R2 is hydrogen, hydroxy, NR5R6, halogen, cyano, CO(NR8R9), C(O)OR8, C(O)(1-6C-alkyl), NHC(O)(1-6C-alkyl), $NHS(O)_2R11$, NHC(O)NHR11 ,-$S(O)_n$-1-6C-alkyl, $-S(O)_2NR5R6$ or a group selected from 1-6C-alkyl, 1-6C-alkoxy, 3-7C-cycloalkyl, aryl, heteroaryl, -(1-6C-alkyl)-aryl, -(1-6C-alkyl)-heteroaryl, -O-(3-7C-cycloalkyl), -O-aryl, -O-(3-7C-heterocyclyl), -O-heteroaryl, -O-(1-6C-alkyl)-heteroaryl, -O-(1-6C-alkyl)-(3-7C-heterocyclyl), -O-(1-6C-alkyl)-aryl, 2-6C-alkenyl, 2-6C-alkynyl,
wherein said group being optionally substituted, one or more times, identically or differently, with a substituent selected from:

hydroxy, halogen, 1-6C-alkyl, 1-4C-haloalkyl, 1-6C-alkoxy, -NR8R9, cyano, -C(O)NR8R9, -C(O)OR10, -NHC(O)R11, -NHC(O)NHR11, -$NHS(O)_2$R11, 3-7C-heterocyclyl, aryl,

R3 is hydrogen, hydroxy, NR5R6, halogen, cyano, CO(NR8R9), C(O)OR8, C(O)(1-6C-alkyl), $NHS(O)_2$R11, NHC(O)NHR11 , - $S(O)_n$-1-6C-alkyl, - $S(O)_2$NR5R6 or a group selected from 1-6C-alkyl, 1-6C-alkoxy 3-7C-cycloalkyl, aryl, heteroaryl, -(1-6C-alkyl)-aryl, -(1-6C-alkyl)-heteroaryl, -O-(3-7C-cycloalkyl), -O-aryl, -O-(3-7C-heterocyclyl), -O-heteroaryl, -O-(1-6C-alkyl)-heteroaryl, -O-(1-6C-alkyl)-(3-7C-heterocyclyl), -O-(1-6C-alkyl)-aryl, NHC(O)(1-6C-alkyl), 2-6C-alkenyl, 2-6C-alkynyl,
wherein said group being optionally substituted, one or more times, identically or differently, with a substituent selected from:
hydroxy, halogen, 1-6C-alkyl, 1-4C-haloalkyl, 1-6C-alkoxy, -NR8R9, cyano, -C(O)NR8R9, -C(O)OR10, -NHC(O)R11, -NHC(O)NHR11, -$NHS(O)_2$R11, 3-7C-heterocyclyl, aryl,

R4 is phenyl which is optionally substituted one, two or three times, identically or differently, with a halogen atom;

R5 is hydrogen, 1-6C-alkyl,

R6 is hydrogen, 1-6C-alkyl,

R8 is hydrogen, 1-6C-alkyl which optionally is substituted with hydroxy,

R9 is hydrogen, 1-6C-alkyl,

R10 is hydrogen, 1-6C-alkyl,

R11 is hydrogen, 1-6C-alkyl,

X, Y is CH_2;

n is 0, 1, 2;

or an N-oxide, a salt, a tautomer or a stereoisomer of said compound, or a salt of said N-oxide, tautomer or stereoisomer.

2. The compound according to claim 1

wherein

R1 is hydrogen, hydroxy, NR5R6, halogen, cyano, CO(NR8R9), C(O)OR8, C(O)(1-3C-alkyl), NHC(O)(1-6C-alkyl), $NHS(O)_2$R11, NHC(O)NHR11 ,-

$S(O)_n$-1-3C-alkyl, $-S(O)_2NR5R6$ or a group selected from 1-3C-alkyl, 1-3C-alkoxy, 3-6C-cycloalkyl, aryl, heteroaryl, -(1-3C-alkyl)-aryl, -(1-3C-alkyl)-heteroaryl, -O-(3-6C-cycloalkyl), -O-aryl, -O-(3-6C-heterocyclyl), -O-heteroaryl, -O-(1-3C-alkyl)-heteroaryl, -O-(1-3C-alkyl)-(3-6C-heterocyclyl), -O-(1-3C-alkyl)-aryl, 2-3C-alkenyl, 2-3C-alkynyl,
wherein said group being optionally substituted, one or more times, identically or differently, with a substituent selected from:
hydroxy, halogen, 1-3C-alkyl, 1-3C-haloalkyl, 1-3C-alkoxy, -NR8R9, cyano, -C(O)NR8R9, -C(O)OR10, -NHC(O)R11, -NHC(O)NHR11, -$NHS(O)_2$R11, 3-6-cycloalkyl, 3-6C-heterocyclyl, aryl,

R2 is hydrogen, hydroxy, NR5R6, halogen, cyano, CO(NR8R9), C(O)OR8, C(O)(1-3C-alkyl), NHC(O)(1-3C-alkyl), $NHS(O)_2$R11, NHC(O)NHR11 ,-$S(O)_n$-1-3C-alkyl, $-S(O)_2NR5R6$ or a group selected from 1-3C-alkyl, 1-3C-alkoxy, 3-6C-cycloalkyl, aryl, heteroaryl, -(1-3C-alkyl)-aryl, -(1-3C-alkyl)-heteroaryl, -O-(3-6C-cycloalkyl), -O-aryl, -O-(3-6C-heterocyclyl), -O-heteroaryl, -O-(1-3C-alkyl)-heteroaryl, -O-(1-3C-alkyl)-(3-6C-heterocyclyl), -O-(1-3C-alkyl)-aryl, 2-3C-alkenyl, 2-3C-alkynyl,
wherein said group being optionally substituted, one or more times, identically or differently, with a substituent selected from:
hydroxy, halogen, 1-3C-alkyl, 1-3C-haloalkyl, 1-3C-alkoxy, -NR8R9, cyano, -C(O)NR8R9, -C(O)OR10, -NHC(O)R11, -NHC(O)NHR11, -$NHS(O)_2$R11, 3-6C-heterocyclyl, aryl,

R3 is hydrogen, hydroxy, NR5R6, halogen, cyano, CO(NR8R9), C(O)OR8, C(O)(1-3C-alkyl), $NHS(O)_2$R11, NHC(O)NHR11 , - $S(O)_n$-1-3C-alkyl, -$S(O)_2NR5R6$ or a group selected from 1-3C-alkyl, 1-3C-alkoxy 3-6C-cycloalkyl, aryl, heteroaryl, -(1-3C-alkyl)-aryl, -(1-3C-alkyl)-heteroaryl, -O-(3-6C-cycloalkyl), -O-aryl, -O-(3-6C-heterocyclyl), -O-heteroaryl, -O-(1-3C-alkyl)-heteroaryl, -O-(1-3C-alkyl)-(3-6C-heterocyclyl), -O-(1-3C-alkyl)-aryl, NHC(O)(1-3C-alkyl), 2-3C-alkenyl, 2-3C-alkynyl,
wherein said group being optionally substituted, one or more times, identically or differently, with a substituent selected from:

hydroxy, halogen, 1-3C-alkyl, 1-3C-haloalkyl, 1-3C-alkoxy, -NR8R9, cyano, -C(O)NR8R9, -C(O)OR10, -NHC(O)R11, -NHC(O)NHR11, -$NHS(O)_2$R11, 3-6C-heterocyclyl, aryl,

R4 is phenyl which is optionally substituted one, two or three times, identically or differently, with a halogen atom;

R5 is hydrogen, 1-3C-alkyl,

R6 is hydrogen, 1-3C-alkyl,

R8 is hydrogen, 1-3C-alkyl which optionally is substituted with hydroxy,

R9 is hydrogen, 1-3C-alkyl,

R10 is hydrogen, 1-3C-alkyl,

R11 is hydrogen, 1-3C-alkyl,

X, Y is CH_2;

n is 0, 1, 2;

or an N-oxide, a salt, a tautomer or a stereoisomer of said compound, or a salt of said N-oxide, tautomer or stereoisomer.

3. The compound according to claim 1

wherein

R1 is hydrogen, hydrogen, hydroxy, NR5R6, CO(NR8R9), C(O)OR8, NHC(O)(1-6C-alkyl), NR5R6 or a group selected from 1-6C-alkyl, 3-7C-cycloalkyl, aryl, heteroaryl, 1-4C-alkoxy, wherein said group being optionally substituted, one or more times, identically or differently, with a substituent selected from: halogen, 1-6C-alkyl, 1-6C-alkoxy, -C(O)OR10, 3-7-cycloalkyl, aryl,

R2 is hydrogen, 1-6C-alkyl,

R3 is hydrogen, hydroxy, NR5R6, halogen, ,CO(NR8R9), C(O)OR8, C(O)(1-6C-alkyl), NHS(O)2R11, S(O)n-1-6C-alkyl, or a group selected from 1-6C-alkyl, 1-6C-alkoxy aryl, NHC(O)(1-6C-alkyl), 2-6C-alkenyl, wherein said group being optionally substituted, one or more times, identically or differently, with a substituent selected from: halogen, -C(O)OR10,

R4 is phenyl ,

R5 is hydrogen,

R6 is hydrogen,

R8 is hydrogen, 1-4C-alkyl, which optionally is substituted with hydroxy,

R9 is hydrogen, 1-4C-alkyl,

R10 is, 1-4C-alkyl,

R11 is 1-4C-alkyl,

X, Y is CH_2

n is 0, 1, 2;

or an N-oxide, a salt, a tautomer or a stereoisomer of said compound, or a salt of said N-oxide, tautomer or stereoisomer.

4. A compound according to claim 1

wherein

R1 is hydrogen, hydroxyl, amino, methoxy, ethoxy, butoxy, pyridine-3-yl, pyridine-4-yl, pyrazol-3-yl, 1-methyl-pyrazol-3-yl, imidazole-2-yl, methyl, propyl, -O-(CH_2)-O-CH_3, -O-CH_2-phenyl, -O-CH_2-cyclopropyl, -C(O)OCH_3, -C(O)-$NHCH_3$, -C(O)-NH_2, 4-fluoro-phenyl, -$(CH_2)_2$-C(O)OCH_3, cyclopropyl, -NH-$C(O)CH_3$,

R2 is hydrogen, methyl,

R3 is hydrogen, hydroxy, amino, methyl, ethyl, methoxy, ethoxy, -O-CH_2-$C(O)OCH_3$, -S-CH_3, -SO_2-CH_3, bromine, chlorine, trifluoromethyl, $C(O)NH_2$, COOH,$C(O)OCH_3$, $C(O)OCH_2CH_3$, $C(O)NH_2$, $C(O)NHCH_3$, $C(O)N(CH_3)_2$, $C(O)NH(CH_2)_2$-OH, -$CH=CH_2$, 4-fluoro-phenyl, $NHC(O)CH_3$, $NHC(O)CF_3$, NH-SO_2-CH_3, $C(O)CH_3$,

R4 is phenyl

X, Y is CH2

or an N-oxide, a salt, a tautomer or a stereoisomer of said compound, or a salt of said N-oxide, tautomer or stereoisomer.

5. A compound according to claim 1 selected from the group consisting of

1-[4-(6-Methyl-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]-cyclobutanamine
1-[4-(6-Ethyl-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]-cyclobutanamine
1-{4-[3-Phenyl-6-(trifluoromethyl)imidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine
Ethyl 2-[4-(1-aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]pyridazine-6-carboxylate
2-[4-(1-Aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]-pyridazine-6-carboxamide
1-[4-(6-Methyloxy-3-phenylimidazo[1,2-b]pyridazin-2-yl)-phenyl]cyclobutanamine
1-[4-(6-bromo-8-methyloxy-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutanamine
2-[4-(1-aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]-pyridazine-6-carboxylic acid
1-[4-(6,8-dimethyloxy-3-phenylimidazo[1,2-b]pyridazin-2-yl)-phenyl]cyclobutanamine
2-[4-(1-aminocyclobutyl)phenyl]-8-methoxy-3-phenyl-imidazo[1,2-b]pyridazine-6-carboxamide
1-[4-(8-Methoxy-3-phenylimidazo[1,2-b]pyridazin-2-yl)-phenyl]cyclobutanamine
Methyl 2-[4-(1-aminocyclobutyl)phenyl]-8-methoxy-3-phenyl-imidazo[1,2-b]pyridazine-6-carboxylate
1-[4-(6-Ethyl-8-methoxy-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutanamine
1-{4-[6-Methoxy-3-phenyl-8-(pyridin-3-yl)imidazo[1,2-b]-pyridazin-2-yl]phenyl}cyclobutanami
1-{4-[6-Methoxy-3-phenyl-8-(1H-pyrazol-4-yl)imidazo[1,2-b]-pyridazin-2-yl]phenyl}cyclobutanamine HCl salt
1-[4-(6,8-Diethyl-3-phenylimidazo[1,2-b]pyridazin-2-yl)-phenyl]cyclobutanamine

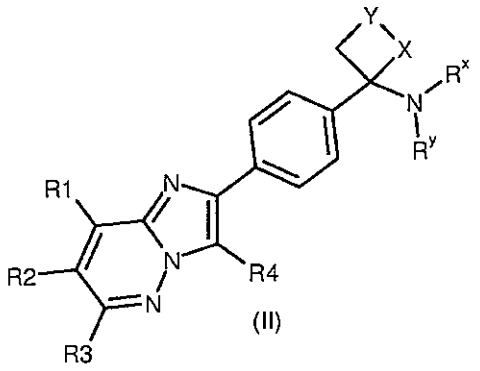
1-[4-(6-Chloro-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]-cyclobutanamine
1-[4-(8-Methoxy-3-phenyl-6-vinylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutanamine
1-{4-[6-Chloro-3-phenyl-8-(1H-pyrazol-3-yl)imidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine
1-{4-[3-Phenyl-8-(1H-pyrazol-3-yl)-6-vinylimidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine
1-{4-[6-Ethyl-3-phenyl-8-(1H-pyrazol-3-yl)imidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine
2-[4-(1-Aminocyclobutyl)phenyl]-8-ethoxy-N-methyl-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide
1-{4-[6-Chloro-8-(1-methyl-1H-pyrazol-5-yl)-3-phenylimidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine
1-{4-[6-Chloro-8-(1H-imidazol-2-yl)-3-phenylimidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine
1-[4-(3-Phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]-cyclobutanamine
2-[4-(1-Aminocyclobutyl)phenyl]-8-methoxy-N-methyl-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide
1-{4-[3-Phenyl-8-(1H-pyrazol-3-yl)imidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine
2-[4-(1-Aminocyclobutyl)phenyl]-8-(2-methoxyethoxy)-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide
1-{4-[8-(Benzyloxy)-6-chloro-3-phenylimidazo[1,2-b]-pyridazin-2-yl]phenyl}cyclobutanamine
1-[4-(6-Chloro-8-ethoxy-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutanamine
Methyl 2-[4-(1-aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]pyridazine-8-carboxylate
2-[4-(1-Aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]-pyridazin-8-ol

1-{4-[6-(4-Fluorophenyl)-3-phenylimidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine
2-[4-(1-Aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]-pyridazine-6,8-dicarboxamide
2-[4-(1-Aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]-pyridazin-6-amine
1-{4-[6-(Methylsulfanyl)-3-phenylimidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine
N-{2-[4-(1-Aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]-pyridazin-6-yl}acetamide
N-{2-[4-(1-1-{4-[6-(Methylsulfonyl)-3-phenylimidazo[1,2-b]-pyridazin-2-yl]phenyl}cyclobutanamine
Methyl 2-[4-(1-aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]pyridazine-6-carboxylate
N-{2-[4-(1-Aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]-pyridazin-6-yl}-2,2,2-trifluoroacetamide
1-[4-(6-Bromo-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]-cyclobutanamine
1-{4-[6,8-Bis(4-fluorophenyl)-3-phenylimidazo[1,2-b]-pyridazin-2-yl]phenyl}cyclobutanamine
1-{2-[4-(1-Aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]-pyridazin-6-yl}ethanone
1-{4-[8-(4-Fluorophenyl)-3-phenylimidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine
N-{2-[4-(1-Aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]-pyridazin-6-yl}methanesulfonamide
1-[4-(6-Chloro-8-cyclopropyl-3-phenylimidazo[1,2-b]-pyridazin-2-yl)phenyl]cyclobutanamine
1-[4-(3-Phenyl-8-propylimidazo[1,2-b]pyridazin-2-yl)phenyl]-cyclobutanamine
2-[4-(1-Aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]-pyridazin-8-amine

N-{2-[4-(1-Aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]-pyridazin-8-yl}acetamide
1-[4-(6-Chloro-7,8-dimethyl-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutanamine
Methyl 2-[4-(1-aminocyclobutyl)phenyl]-7,8-dimethyl-3-phenylimidazo[1,2-b]pyridazine-6-carboxylate
2-[4-(1-Aminocyclobutyl)phenyl]-7,8-dimethyl-3-phenyl-imidazo[1,2-b]pyridazine-6-carboxamide
1-[4-(6-Methoxy-7,8-dimethyl-3-phenylimidazo[1,2-b]-pyridazin-2-yl)phenyl]cyclobutanamine
1-{4-[7,8-Dimethyl-6-(methylsulfanyl)-3-phenylimidazo[1,2-b]-pyridazin-2-yl]phenyl}cyclobutanamine
1-[4-(6-Ethoxy-7,8-dimethyl-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutanamine
Methyl 2-[4-(1-aminocyclobutyl)phenyl]-3-phenyl-8-(1H-pyrazol-3-yl)imidazo[1,2-b]pyridazine-6-carboxylate
Methyl 2-[4-(1-aminocyclobutyl)phenyl]-8-ethoxy-3-phenyl-imidazo[1,2-b]pyridazine-6-carboxylate
Methyl 2-[4-(1-aminocyclobutyl)phenyl]-8-(1H-imidazol-2-yl)-3-phenylimidazo[1,2-b]pyridazine-6-carboxylate
tert-Butyl {1-[4-(8-acetamido-3-phenylimidazo[1,2-b]-pyridazin-2-yl)phenyl]cyclobutyl}carbamate
2-[4-(1-Aminocyclobutyl)phenyl]-3-phenyl-8-(1H-pyrazol-3-yl)imidazo[1,2-b]pyridazine-6-carboxamide
2-[4-(1-Aminocyclobutyl)phenyl]-8-ethoxy-3-phenyl-imidazo[1,2-b]pyridazine-6-carboxamide
2-[4-(1-Aminocyclobutyl)phenyl]-8-(1H-imidazol-2-yl)-N-methyl-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide
2-[4-(1-Aminocyclobutyl)phenyl]-N-methyl-3-phenylimidazo[1,2-b]pyridazine-8-carboxamide
2-[4-(1-Aminocyclobutyl)phenyl]-8-(cyclopropylmethoxy)-N-methyl-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide

2-[4-(1-Aminocyclobutyl)phenyl]-N-methyl-3-phenyl-8-(1H-pyrazol-3-yl)imidazo[1,2-b]pyridazine-6-carboxamide
2-[4-(1-Aminocyclobutyl)phenyl]-N-ethyl-3-phenyl-imidazo[1,2-b]pyridazine-6-carboxamide
2-[4-(1-Aminocyclobutyl)phenyl]-3-phenyl-8-(1H-pyrazol-3-yl)imidazo[1,2-b]pyridazine-6-carboxylic acid
2-[4-(1-Aminocyclobutyl)phenyl]-N-methyl-3-phenyl-imidazo[1,2-b]pyridazine-6-carboxamide
2-[4-(1-Aminocyclobutyl)phenyl]-N,N-dimethyl-3-phenyl-imidazo[1,2-b]pyridazine-6-carboxamide
2-[4-(1-Aminocyclobutyl)phenyl]-N-(2-hydroxyethyl)-3-phenyl-imidazo[1,2-b]pyridazine-6-carboxamide
2-[4-(1-Aminocyclobutyl)phenyl]-N-(2-hydroxyethyl)-3-phenyl-8-(1H-pyrazol-3-yl)imidazo[1,2-b]pyridazine-6-carboxamide
Methyl 3-{2-[4-(1-aminocyclobutyl)phenyl]-3-phenyl-imidazo[1,2-b]pyridazin-8-yl}propanoate
1-{4-[6-Methoxy-3-phenyl-8-(1H-pyrazol-3-yl)imidazo[1,2-b]-pyridazin-2-yl]phenyl}cyclobutanamine
1-{4-[6-Methoxy-8-(1-methyl-1H-pyrazol-5-yl)-3-phenyl-imidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine
1-{4-[6-Methoxy-3-phenyl-8-(pyridin-4-yl)imidazo[1,2-b]-pyridazin-2-yl]phenyl}cyclobutanamine
1-[4-(6,8-Diethoxy-3-phenylimidazo[1,2-b]pyridazin-2-yl)-phenyl]cyclobutanamine
1-[4-(8-Butoxy-6-ethoxy-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutanamine
1-[4-(6-Ethoxy-3-phenylimidazo[1,2-b]pyridazin-2-yl)-phenyl]cyclobutanamine
2-[4-(1-Aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]-pyridazin-6-ol
Methyl ({2-[4-(1-aminocyclobutyl)phenyl]-3-phenylimidazo-[1,2-b]pyridazin-6-yl}oxy)acetate

6. Process for the manufacture of compounds of general formula (I) according to claim 1 by reacting a compound of general formula (II)



(II)

wherein

R1-R4 have the meaning as stated in claim 1 and

Rx,Ry are R6, or a protecting group,

wherein transformation to a compound of general formula (I) is accomplished by use of an appropriate deprotection reaction

7. Use of a compound according to claim 1 for the treatment of diseases.

8. Use according to claim 7 whereby the disease is benign neoplasia or malignant neoplasia.

9. A compound of claim 1-6 for use for the treatment of breast cancer.

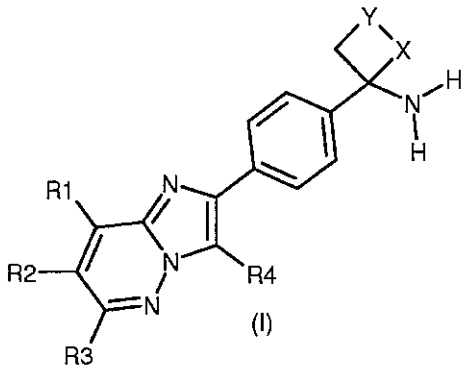
10. A pharmaceutical composition comprising at least one compound of general formula (I) according to any of claims 1 to 6, together with at least one pharmaceutically acceptable additive.

11. A pharmaceutical composition comprising a first active ingredient, which is at least one compound of general formula (I) according to any of claims 1 to 6, and a second active ingredient, which is at least one further anti-cancer agent.

12. A composition according to claim 10 or 11 for the treatment of breast cancer.

Claims

1. A compound of formula (I)



(I)

in which

R1 is hydrogen, hydroxy, NR5R6, halogen, cyano, CO(NR8R9), C(O)OR8, C(O)(1-6C-alkyl), NHC(O)(1-6C-alkyl), $NHS(O)_2R11$, NHC(O)NHR11 , $-S(O)_n$-1-6C-alkyl, $-S(O)_2NR5R6$ or a group selected from 1-6C-alkyl, 1-6C-alkoxy, 3-7C-cycloalkyl, aryl, heteroaryl, -(1-6C-alkyl)-aryl, -(1-6C-alkyl)-heteroaryl, -O-(3-7C-cycloalkyl), -O-aryl, -O-(3-7C-heterocyclyl), -O-heteroaryl, -O-(1-6C-alkyl)-heteroaryl, -O-(1-6C-alkyl)-(3-7C-heterocyclyl), -O-(1-6C-alkyl)-aryl, 2-6C-alkenyl, 2-6C-alkynyl,
wherein said group being optionally substituted, one or more times, identically or differently, with a substituent selected from:
hydroxy, halogen, 1-6C-alkyl, 1-4C-haloalkyl, 1-6C-alkoxy, -NR8R9, cyano, -C(O)NR8R9, -C(O)OR10, -NHC(O)R11, -NHC(O)NHR11, $-NHS(O)_2R11$, 3-7C-cycloalkyl, 3-7C-heterocyclyl, aryl,

R2 is hydrogen, hydroxy, NR5R6, halogen, cyano, CO(NR8R9), C(O)OR8, C(O)(1-6C-alkyl), NHC(O)(1-6C-alkyl), $NHS(O)_2R11$, NHC(O)NHR11 , $-S(O)_n$-1-6C-alkyl, $-S(O)_2NR5R6$ or a group selected from 1-6C-alkyl, 1-6C-alkoxy, 3-7C-cycloalkyl, aryl, heteroaryl, -(1-6C-alkyl)-aryl, -(1-6C-alkyl)-heteroaryl, -O-(3-7C-cycloalkyl), -O-aryl, -O-(3-7C-heterocyclyl), -O-heteroaryl, -O-(1-6C-alkyl)-heteroaryl, -O-(1-6C-alkyl)-(3-7C-heterocyclyl), -O-(1-6C-alkyl)-aryl, 2-6C-alkenyl, 2-6C-alkynyl,
wherein said group being optionally substituted, one or more times, identically or differently, with a substituent selected from:

hydroxy, halogen, 1-6C-alkyl, 1-4C-haloalkyl, 1-6C-alkoxy, -NR8R9, cyano, -C(O)NR8R9, -C(O)OR10, -NHC(O)R11, -NHC(O)NHR11, -NHS(O)$_2$R11, 3-7C-heterocyclyl, aryl,

R3 is hydrogen, hydroxy, NR5R6, halogen, cyano, CO(NR8R9), C(O)OR8, C(O)(1-6C-alkyl), NHS(O)$_2$R11, NHC(O)NHR11 , - S(O)$_n$-1-6C-alkyl, -S(O)$_2$NR5R6 or a group selected from 1-6C-alkyl, 1-6C-alkoxy, 3-7C-cycloalkyl, aryl, heteroaryl, -(1-6C-alkyl)-aryl, -(1-6C-alkyl)-heteroaryl, -O-(3-7C-cycloalkyl), -O-aryl, -O-(3-7C-heterocyclyl), -O-heteroaryl, -O-(1-6C-alkyl)-heteroaryl, -O-(1-6C-alkyl)-(3-7C-heterocyclyl), -O-(1-6C-alkyl)-aryl, NHC(O)(1-6C-alkyl), 2-6C-alkenyl, 2-6C-alkynyl, wherein said group being optionally substituted, one or more times, identically or differently, with a substituent selected from:
hydroxy, halogen, 1-6C-alkyl, 1-4C-haloalkyl, 1-6C-alkoxy, -NR8R9, cyano, -C(O)NR8R9, -C(O)OR10, -NHC(O)R11, -NHC(O)NHR11, -NHS(O)$_2$R11, 3-7C-heterocyclyl, aryl,

R4 is phenyl which is optionally substituted one, two or three times, identically or differently, with a halogen atom;

R5 is hydrogen, 1-6C-alkyl,

R6 is hydrogen, 1-6C-alkyl,

R8 is hydrogen, 1-6C-alkyl which optionally is substituted with hydroxy,

R9 is hydrogen, 1-6C-alkyl,

R10 is hydrogen, 1-6C-alkyl,

R11 is hydrogen, 1-6C-alkyl,

X, Y is CH_2;

n is 0, 1, 2;

or an N-oxide, a salt, a tautomer or a stereoisomer of said compound, or a salt of said N-oxide, tautomer or stereoisomer.

2. The compound according to claim 1

wherein

R1 is hydrogen, hydroxy, NR5R6, halogen, cyano, CO(NR8R9), C(O)OR8, C(O)(1-3C-alkyl), NHC(O)(1-6C-alkyl), NHS(O)$_2$R11, NHC(O)NHR11 ,

-S(O)$_n$-1-3C-alkyl, -S(O)$_2$NR5R6 or a group selected from 1-3C-alkyl, 1-3C-alkoxy, 3-6C-cycloalkyl, aryl, heteroaryl, -(1-3C-alkyl)-aryl, -(1-3C-alkyl)-heteroaryl, -O-(3-6C-cycloalkyl), -O-aryl, -O-(3-6C-heterocyclyl), -O-heteroaryl, -O-(1-3C-alkyl)-heteroaryl, -O-(1-3C-alkyl)-(3-6C-heterocyclyl), -O-(1-3C-alkyl)-aryl, 2-3C-alkenyl, 2-3C-alkynyl,
wherein said group being optionally substituted, one or more times, identically or differently, with a substituent selected from:
hydroxy, halogen, 1-3C-alkyl, 1-3C-haloalkyl, 1-3C-alkoxy, -NR8R9, cyano, -C(O)NR8R9, -C(O)OR10, -NHC(O)R11, -NHC(O)NHR11, -NHS(O)$_2$R11, 3-6C-cycloalkyl, 3-6C-heterocyclyl, aryl,

R2 is hydrogen, hydroxy, NR5R6, halogen, cyano, CO(NR8R9), C(O)OR8, C(O)(1-3C-alkyl), NHC(O)(1-3C-alkyl), NHS(O)$_2$R11, NHC(O)NHR11 , -S(O)$_n$-1-3C-alkyl, -S(O)$_2$NR5R6 or a group selected from 1-3C-alkyl, 1-3C-alkoxy, 3-6C-cycloalkyl, aryl, heteroaryl, -(1-3C-alkyl)-aryl, -(1-3C-alkyl)-heteroaryl, -O-(3-6C-cycloalkyl), -O-aryl, -O-(3-6C-heterocyclyl), -O-heteroaryl, -O-(1-3C-alkyl)-heteroaryl, -O-(1-3C-alkyl)-(3-6C-heterocyclyl), -O-(1-3C-alkyl)-aryl, 2-3C-alkenyl, 2-3C-alkynyl,
wherein said group being optionally substituted, one or more times, identically or differently, with a substituent selected from:
hydroxy, halogen, 1-3C-alkyl, 1-3C-haloalkyl, 1-3C-alkoxy, -NR8R9, cyano, -C(O)NR8R9, -C(O)OR10, -NHC(O)R11, -NHC(O)NHR11, -NHS(O)$_2$R11, 3-6C-heterocyclyl, aryl,

R3 is hydrogen, hydroxy, NR5R6, halogen, cyano, CO(NR8R9), C(O)OR8, C(O)(1-3C-alkyl), NHS(O)$_2$R11, NHC(O)NHR11 , - S(O)$_n$-1-3C-alkyl, -S(O)$_2$NR5R6 or a group selected from 1-3C-alkyl, 1-3C-alkoxy, 3-6C-cycloalkyl, aryl, heteroaryl, -(1-3C-alkyl)-aryl, -(1-3C-alkyl)-heteroaryl, -O-(3-6C-cycloalkyl), -O-aryl, -O-(3-6C-heterocyclyl), -O-heteroaryl, -O-(1-3C-alkyl)-heteroaryl, -O-(1-3C-alkyl)-(3-6C-heterocyclyl), -O-(1-3C-alkyl)-aryl, NHC(O)(1-3C-alkyl), 2-3C-alkenyl, 2-3C-alkynyl,
wherein said group being optionally substituted, one or more times, identically or differently, with a substituent selected from:

hydroxy, halogen, 1-3C-alkyl, 1-3C-haloalkyl, 1-3C-alkoxy, -NR8R9, cyano, -C(O)NR8R9, -C(O)OR10, -NHC(O)R11, -NHC(O)NHR11, -NHS(O)$_2$R11, 3-6C-heterocyclyl, aryl,

R4 is phenyl which is optionally substituted one, two or three times, identically or differently, with a halogen atom;

R5 is hydrogen, 1-3C-alkyl,

R6 is hydrogen, 1-3C-alkyl,

R8 is hydrogen, 1-3C-alkyl which optionally is substituted with hydroxy,

R9 is hydrogen, 1-3C-alkyl,

R10 is hydrogen, 1-3C-alkyl,

R11 is hydrogen, 1-3C-alkyl,

X, Y is CH_2;

n is 0, 1, 2;

or an N-oxide, a salt, a tautomer or a stereoisomer of said compound, or a salt of said N-oxide, tautomer or stereoisomer.

3. The compound according to claim 1

wherein

R1 is hydrogen, hydroxy, NR5R6, CO(NR8R9), C(O)OR8, NHC(O)(1-6C-alkyl), or a group selected from 1-6C-alkyl, 3-7C-cycloalkyl, aryl, heteroaryl, 1-4C-alkoxy, wherein said group being optionally substituted, one or more times, identically or differently, with a substituent selected from: halogen, 1-6C-alkyl, 1-6C-alkoxy, -C(O)OR10, 3-7-cycloalkyl, aryl,

R2 is hydrogen, 1-6C-alkyl,

R3 is hydrogen, hydroxy, NR5R6, halogen, ,CO(NR8R9), C(O)OR8, C(O)(1-6C-alkyl), NHS(O)2R11, S(O)n-1-6C-alkyl, or a group selected from 1-6C-alkyl, 1-6C-alkoxy aryl, NHC(O)(1-6C-alkyl), 2-6C-alkenyl, wherein said group being optionally substituted, one or more times, identically or differently, with a substituent selected from: halogen, -C(O)OR10,

R4 is phenyl ,

R5 is hydrogen,

R6 is hydrogen,

R8 is hydrogen, 1-4C-alkyl, which optionally is substituted with hydroxy,
R9 is hydrogen, 1-4C-alkyl,
R10 is, 1-4C-alkyl,
R11 is 1-4C-alkyl,
X, Y is CH_2
n is 0, 1, 2;
or an N-oxide, a salt, a tautomer or a stereoisomer of said compound, or a salt of said N-oxide, tautomer or stereoisomer.

4. A compound according to claim 1
wherein
R1 is hydrogen, hydroxyl, amino, methoxy, ethoxy, butoxy, pyridine-3-yl, pyridine-4-yl, pyrazol-3-yl, 1-methyl-pyrazol-3-yl, imidazole-2-yl, methyl, propyl, -O-(CH_2)-O-CH_3, -O-CH_2-phenyl, -O-CH_2-cyclopropyl, -C(O)OCH_3, -C(O)-$NHCH_3$, -C(O)-NH_2, 4-fluoro-phenyl, -$(CH_2)_2$-C(O)OCH_3, cyclopropyl, -NH-C(O)CH_3,
R2 is hydrogen, methyl,
R3 is hydrogen, hydroxy, amino, methyl, ethyl, methoxy, ethoxy, -O-CH_2-C(O)OCH_3, -S-CH_3, -SO_2-CH_3, bromine, chlorine, trifluoromethyl, C(O)NH_2, COOH,C(O)OCH_3, C(O)OCH_2CH_3, C(O)NH_2, C(O)$NHCH_3$, C(O)$N(CH_3)_2$, C(O)$NH(CH_2)_2$-OH, -CH=CH_2, 4-fluoro-phenyl, NHC(O)CH_3, NHC(O)CF_3, NH-SO_2-CH_3, C(O)CH_3,
R4 is phenyl
X, Y is CH2
or an N-oxide, a salt, a tautomer or a stereoisomer of said compound, or a salt of said N-oxide, tautomer or stereoisomer.

5. A compound according to claim 1 selected from the group consisting of

1-[4-(6-Methyl-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutanamine
1-[4-(6-Ethyl-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutanamine ,
1-{4-[3-Phenyl-6-(trifluoromethyl)imidazo[1,2-b]pyridazin-2-yl]-phenyl}cyclobutanamine ,
Ethyl 2-[4-(1-aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]pyridazine-6-carboxylate
2-[4-(1-Aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide ,
1-[4-(6-Methyloxy-3-phenylimidazo[1,2-b]pyridazin-2-yl)-phenyl]cyclobutanamine ,
1-[4-(6-bromo-8-methyloxy-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutanamine ,
2-[4-(1-aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]pyridazine-6-carboxylic acid ,
1-[4-(6,8-dimethyloxy-3-phenylimidazo[1,2-b]pyridazin-2-yl)-phenyl]cyclobutanamine ,
2-[4-(1-aminocyclobutyl)phenyl]-8-methoxy-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide ,
1-[4-(8-Methoxy-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutanamine,
Methyl 2-[4-(1-aminocyclobutyl)phenyl]-8-methoxy-3-phenylimidazo[1,2-b]pyridazine-6-carboxylate,
1-[4-(6-Ethyl-8-methoxy-3-phenylimidazo[1,2-b]pyridazin-2-yl)-phenyl]cyclobutanamine,
1-{4-[6-Methoxy-3-phenyl-8-(pyridin-3-yl)imidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine,
1-{4-[6-Methoxy-3-phenyl-8-(1H-pyrazol-4-yl)imidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine HCl salt,
1-[4-(6,8-Diethyl-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutanamine
1-[4-(6-Chloro-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutanamine,
1-[4-(8-Methoxy-3-phenyl-6-vinylimidazo[1,2-b]pyridazin-2-yl)-phenyl]cyclobutanamine,

1-{4-[6-Chloro-3-phenyl-8-(1H-pyrazol-3-yl)imidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine,
1-{4-[3-Phenyl-8-(1H-pyrazol-3-yl)-6-vinylimidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine,
1-{4-[6-Ethyl-3-phenyl-8-(1H-pyrazol-3-yl)imidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine,
2-[4-(1-Aminocyclobutyl)phenyl]-8-ethoxy-N-methyl-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide,
1-{4-[6-Chloro-8-(1-methyl-1H-pyrazol-5-yl)-3-phenylimidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine,
1-{4-[6-Chloro-8-(1H-imidazol-2-yl)-3-phenylimidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine,
1-[4-(3-Phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutanamine,
2-[4-(1-Aminocyclobutyl)phenyl]-8-methoxy-N-methyl-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide,
1-{4-[3-Phenyl-8-(1H-pyrazol-3-yl)imidazo[1,2-b]pyridazin-2-yl]-phenyl}cyclobutanamine,
2-[4-(1-Aminocyclobutyl)phenyl]-8-(2-methoxyethoxy)-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide,
1-{4-[8-(Benzyloxy)-6-chloro-3-phenylimidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine,
1-[4-(6-Chloro-8-ethoxy-3-phenylimidazo[1,2-b]pyridazin-2-yl)-phenyl]cyclobutanamine,
Methyl 2-[4-(1-aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]pyridazine-8-carboxylate,
2-[4-(1-Aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]pyridazin-8-ol,
1-{4-[6-(4-Fluorophenyl)-3-phenylimidazo[1,2-b]pyridazin-2-yl]-phenyl}cyclobutanamine,
2-[4-(1-Aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]pyridazine-6,8-dicarboxamide,
2-[4-(1-Aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]pyridazin-6-amine,
1-{4-[6-(Methylsulfanyl)-3-phenylimidazo[1,2-b]pyridazin-2-yl]-

phenyl}cyclobutanamine,
N-{2-[4-(1-Aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]pyridazin-6-yl}acetamide,
N-{2-[4-(1-1-{4-[6-(Methylsulfonyl)-3-phenylimidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine,
Methyl 2-[4-(1-aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]pyridazine-6-carboxylate,
N-{2-[4-(1-Aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]pyridazin-6-yl}-2,2,2-trifluoroacetamide,
1-[4-(6-Bromo-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutanamine,
1-{4-[6,8-Bis(4-fluorophenyl)-3-phenylimidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine,
1-{2-[4-(1-Aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]pyridazin-6-yl}ethanone,
1-{4-[8-(4-Fluorophenyl)-3-phenylimidazo[1,2-b]pyridazin-2-yl]-phenyl}cyclobutanamine,
N-{2-[4-(1-Aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]pyridazin-6-yl}methanesulfonamide,
1-[4-(6-Chloro-8-cyclopropyl-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutanamine,
1-[4-(3-Phenyl-8-propylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutanamine,
2-[4-(1-Aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]pyridazin-8-amine,
N-{2-[4-(1-Aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]pyridazin-8-yl}acetamide,
1-[4-(6-Chloro-7,8-dimethyl-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutanamine,
Methyl 2-[4-(1-aminocyclobutyl)phenyl]-7,8-dimethyl-3-phenylimidazo[1,2-b]pyridazine-6-carboxylate ,
2-[4-(1-Aminocyclobutyl)phenyl]-7,8-dimethyl-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide,
1-[4-(6-Methoxy-7,8-dimethyl-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutanamine,

1-{4-[7,8-Dimethyl-6-(methylsulfanyl)-3-phenylimidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine,
1-[4-(6-Ethoxy-7,8-dimethyl-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutanamine,
Methyl 2-[4-(1-aminocyclobutyl)phenyl]-3-phenyl-8-(1H-pyrazol-3-yl)imidazo[1,2-b]pyridazine-6-carboxylate,
Methyl 2-[4-(1-aminocyclobutyl)phenyl]-8-ethoxy-3-phenylimidazo[1,2-b]pyridazine-6-carboxylate,
Methyl 2-[4-(1-aminocyclobutyl)phenyl]-8-(1H-imidazol-2-yl)-3-phenylimidazo[1,2-b]pyridazine-6-carboxylate,
tert-Butyl {1-[4-(8-acetamido-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutyl}carbamate,
2-[4-(1-Aminocyclobutyl)phenyl]-3-phenyl-8-(1H-pyrazol-3-yl)imidazo[1,2-b]pyridazine-6-carboxamide,
2-[4-(1-Aminocyclobutyl)phenyl]-8-ethoxy-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide,
2-[4-(1-Aminocyclobutyl)phenyl]-8-(1H-imidazol-2-yl)-N-methyl-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide,
2-[4-(1-Aminocyclobutyl)phenyl]-N-methyl-3-phenylimidazo[1,2-b]pyridazine-8-carboxamide,
2-[4-(1-Aminocyclobutyl)phenyl]-8-(cyclopropylmethoxy)-N-methyl-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide,
2-[4-(1-Aminocyclobutyl)phenyl]-N-methyl-3-phenyl-8-(1H-pyrazol-3-yl)imidazo[1,2-b]pyridazine-6-carboxamide,
2-[4-(1-Aminocyclobutyl)phenyl]-N-ethyl-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide,
2-[4-(1-Aminocyclobutyl)phenyl]-3-phenyl-8-(1H-pyrazol-3-yl)imidazo[1,2-b]pyridazine-6-carboxylic acid,
2-[4-(1-Aminocyclobutyl)phenyl]-N-methyl-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide,
2-[4-(1-Aminocyclobutyl)phenyl]-N,N-dimethyl-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide,

2-[4-(1-Aminocyclobutyl)phenyl]-N-(2-hydroxyethyl)-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide,
2-[4-(1-Aminocyclobutyl)phenyl]-N-(2-hydroxyethyl)-3-phenyl-8-(1H-pyrazol-3-yl)imidazo[1,2-b]pyridazine-6-carboxamide,
Methyl 3-{2-[4-(1-aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]pyridazin-8-yl}propanoate,
1-{4-[6-Methoxy-3-phenyl-8-(1H-pyrazol-3-yl)imidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine,
1-{4-[6-Methoxy-8-(1-methyl-1H-pyrazol-5-yl)-3-phenylimidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine,
1-{4-[6-Methoxy-3-phenyl-8-(pyridin-4-yl)imidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine,
1-[4-(6,8-Diethoxy-3-phenylimidazo[1,2-b]pyridazin-2-yl)-phenyl]cyclobutanamine,
1-[4-(8-Butoxy-6-ethoxy-3-phenylimidazo[1,2-b]pyridazin-2-yl)-phenyl]cyclobutanamine,
1-[4-(6-Ethoxy-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutanamine,
2-[4-(1-Aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]pyridazin-6-ol,
Methyl ({2-[4-(1-aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]pyridazin-6-yl}oxy)acetate.

6. A compound according to claim 5 selected from the group consisting of

1-[4-(6-Ethyl-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutanamine,
1-{4-[3-Phenyl-6-(trifluoromethyl)imidazo[1,2-b]pyridazin-2-yl]-phenyl}cyclobutanamine
Ethyl 2-[4-(1-aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]pyridazine-6-carboxylate
2-[4-(1-Aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide
1-[4-(6-Methyloxy-3-phenylimidazo[1,2-b]pyridazin-2-yl)-phenyl]cyclobutanamine
1-[4-(6-bromo-8-methyloxy-3-phenylimidazo[1,2-b]pyridazin-2-

yl)phenyl]cyclobutanamine
1-[4-(6,8-dimethyloxy-3-phenylimidazo[1,2-b]pyridazin-2-yl)-phenyl]cyclobutanamine
2-[4-(1-aminocyclobutyl)phenyl]-8-methoxy-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide
Methyl 2-[4-(1-aminocyclobutyl)phenyl]-8-methoxy-3-phenylimidazo[1,2-b]pyridazine-6-carboxylate
1-[4-(6-Ethyl-8-methoxy-3-phenylimidazo[1,2-b]pyridazin-2-yl)-phenyl]cyclobutanamine
1-{4-[6-Methoxy-3-phenyl-8-(pyridin-3-yl)imidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanami
1-{4-[6-Methoxy-3-phenyl-8-(1H-pyrazol-4-yl)imidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine HCl salt
1-[4-(6-Chloro-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutanamine
1-[4-(8-Methoxy-3-phenyl-6-vinylimidazo[1,2-b]pyridazin-2-yl)-phenyl]cyclobutanamine
1-{4-[6-Chloro-3-phenyl-8-(1H-pyrazol-3-yl)imidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine
1-{4-[6-Ethyl-3-phenyl-8-(1H-pyrazol-3-yl)imidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine
2-[4-(1-Aminocyclobutyl)phenyl]-8-ethoxy-N-methyl-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide
1-{4-[6-Chloro-8-(1H-imidazol-2-yl)-3-phenylimidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine
2-[4-(1-Aminocyclobutyl)phenyl]-8-methoxy-N-methyl-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide
1-{4-[3-Phenyl-8-(1H-pyrazol-3-yl)imidazo[1,2-b]pyridazin-2-yl]-phenyl}cyclobutanamine
2-[4-(1-Aminocyclobutyl)phenyl]-8-(2-methoxyethoxy)-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide
1-{4-[8-(Benzyloxy)-6-chloro-3-phenylimidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine

1-[4-(6-Chloro-8-ethoxy-3-phenylimidazo[1,2-b]pyridazin-2-yl)-phenyl]cyclobutanamine
Methyl 2-[4-(1-aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]pyridazine-8-carboxylate
2-[4-(1-Aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]pyridazine-6,8-dicarboxamide
1-{4-[6-(Methylsulfanyl)-3-phenylimidazo[1,2-b]pyridazin-2-yl]-phenyl}cyclobutanamine
Methyl 2-[4-(1-aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]pyridazine-6-carboxylate
1-[4-(6-Bromo-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutanamine
1-{2-[4-(1-Aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]pyridazin-6-yl}ethanone
1-[4-(6-Chloro-8-cyclopropyl-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutanamine
N-{2-[4-(1-Aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]pyridazin-8-yl}acetamide
1-[4-(6-Chloro-7,8-dimethyl-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutanamine
Methyl 2-[4-(1-aminocyclobutyl)phenyl]-7,8-dimethyl-3-phenylimidazo[1,2-b]pyridazine-6-carboxylate
2-[4-(1-Aminocyclobutyl)phenyl]-7,8-dimethyl-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide
1-[4-(6-Methoxy-7,8-dimethyl-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutanamine
1-{4-[7,8-Dimethyl-6-(methylsulfanyl)-3-phenylimidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine
1-[4-(6-Ethoxy-7,8-dimethyl-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutanamine
Methyl 2-[4-(1-aminocyclobutyl)phenyl]-3-phenyl-8-(1H-pyrazol-3-yl)imidazo[1,2-b]pyridazine-6-carboxylate
Methyl 2-[4-(1-aminocyclobutyl)phenyl]-8-ethoxy-3-phenylimidazo[1,2-

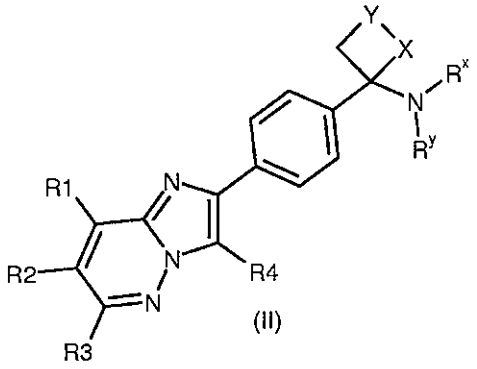
b]pyridazine-6-carboxylate
tert-Butyl {1-[4-(8-acetamido-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutyl}carbamate
2-[4-(1-Aminocyclobutyl)phenyl]-3-phenyl-8-(1H-pyrazol-3-yl)imidazo[1,2-b]pyridazine-6-carboxamide
2-[4-(1-Aminocyclobutyl)phenyl]-8-ethoxy-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide
2-[4-(1-Aminocyclobutyl)phenyl]-8-(1H-imidazol-2-yl)-N-methyl-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide
2-[4-(1-Aminocyclobutyl)phenyl]-N-methyl-3-phenylimidazo[1,2-b]pyridazine-8-carboxamide
2-[4-(1-Aminocyclobutyl)phenyl]-8-(cyclopropylmethoxy)-N-methyl-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide
2-[4-(1-Aminocyclobutyl)phenyl]-N-methyl-3-phenyl-8-(1H-pyrazol-3-yl)imidazo[1,2-b]pyridazine-6-carboxamide
2-[4-(1-Aminocyclobutyl)phenyl]-N-ethyl-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide
2-[4-(1-Aminocyclobutyl)phenyl]-3-phenyl-8-(1H-pyrazol-3-yl)imidazo[1,2-b]pyridazine-6-carboxylic acid
2-[4-(1-Aminocyclobutyl)phenyl]-N-methyl-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide
2-[4-(1-Aminocyclobutyl)phenyl]-N-(2-hydroxyethyl)-3-phenyl-8-(1H-pyrazol-3-yl)imidazo[1,2-b]pyridazine-6-carboxamide
1-{4-[6-Methoxy-3-phenyl-8-(1H-pyrazol-3-yl)imidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine
1-{4-[6-Methoxy-8-(1-methyl-1H-pyrazol-5-yl)-3-phenylimidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine
1-{4-[6-Methoxy-3-phenyl-8-(pyridin-4-yl)imidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine
1-[4-(6,8-Diethoxy-3-phenylimidazo[1,2-b]pyridazin-2-yl)-phenyl]cyclobutanamine
1-[4-(8-Butoxy-6-ethoxy-3-phenylimidazo[1,2-b]pyridazin-2-yl)-

phenyl]cyclobutanamine
1-[4-(6-Ethoxy-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutanamine
Methyl ({2-[4-(1-aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]pyridazin-6-yl}oxy)acetate.

7. A compound according to claim 5 selected from the group consisting of

2-[4-(1-Aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide,
1-[4-(6-bromo-8-methyloxy-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutanamine,
1-[4-(6,8-dimethyloxy-3-phenylimidazo[1,2-b]pyridazin-2-yl)-phenyl]cyclobutanamine,
2-[4-(1-aminocyclobutyl)phenyl]-8-methoxy-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide,
1-[4-(8-Methoxy-3-phenylimidazo[1,2-b]pyridazin-2-yl)phenyl]cyclobutanamine,
2-[4-(1-Aminocyclobutyl)phenyl]-8-ethoxy-N-methyl-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide,
N-{2-[4-(1-1-{4-[6-(Methylsulfonyl)-3-phenylimidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine,
N-{2-[4-(1-Aminocyclobutyl)phenyl]-3-phenylimidazo[1,2-b]pyridazin-8-yl}acetamide,
1-{4-[7,8-Dimethyl-6-(methylsulfanyl)-3-phenylimidazo[1,2-b]pyridazin-2-yl]phenyl}cyclobutanamine,
2-[4-(1-Aminocyclobutyl)phenyl]-8-ethoxy-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide,
2-[4-(1-Aminocyclobutyl)phenyl]-8-(cyclopropylmethoxy)-N-methyl-3-phenylimidazo[1,2-b]pyridazine-6-carboxamide,
2-[4-(1-Aminocyclobutyl)phenyl]-N-methyl-3-phenyl-8-(1H-pyrazol-3-yl)imidazo[1,2-b]pyridazine-6-carboxamide.

8. Process for the manufacture of compounds of general formula (I) according to claim 1 by reacting a compound of general formula (II)



(II)

wherein

R1-R4 have the meaning as stated in claim 1 and

Rx,Ry are R6, or a protecting group,

wherein transformation to a compound of general formula (I) is accomplished by use of an appropriate deprotection reaction

9. A compound according to claim 1 for use in the treatment of diseases.

10. A Compound for use according to claim 9 whereby the disease is benign neoplasia or malignant neoplasia.

11. A compound of claim 1-7 for use in the treatment of breast cancer.

12. A pharmaceutical composition comprising at least one compound of general formula (I) according to any of claims 1 to 7, together with at least one pharmaceutically acceptable additive.

13. A pharmaceutical composition comprising a first active ingredient, which is at least one compound of general formula (I) according to any of claims 1 to 7, and a second active ingredient, which is at least one further anti-cancer agent.

14. A composition according to claim 12 or 13 for use in the treatment of breast cancer.