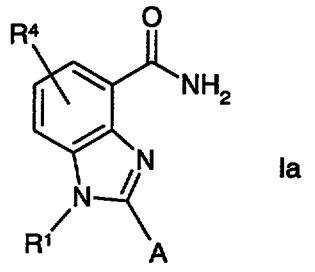
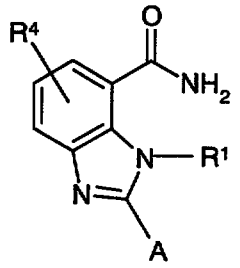
Substituted benzimidazoles and their preparation and use

Abstract

Compounds of the formula Ia or Ib



Ia



Ib

where

R^1 is hydrogen or branched or straight-chain C_1-C_6-alkyl, where one carbon atom of the alkyl radical may furthermore carry OR^5 (where R^5 is hydrogen or C_1-C_4-alkyl), or one carbon atom in the chain may also carry an =O group or a group NR^8R^9, where R^8 and R^9, independently of one another, are each hydrogen or C_1-C_4-alkyl, and NR^8R^9 together may be a cyclic amine having 4 to 8 ring atoms, where the carbon chains in R^8 or R^9 or the ring formed by NR^8R^9 may furthermore carry a radical R^6 which, independently of R^2, may have the same meaning as R^2,

R^4 is hydrogen, branched or straight-chain C_1-C_6-alkyl, chlorine, bromine, fluorine, nitro, cyano, NR^8R^9, NH-CO-R^{10} or OR^8, where R^8 and R^9, independently of one another, are each hydrogen or C_1-C_4-alkyl, and NR^8R^9 together may be a cyclic amine having 4 to 8 ring atoms, where the ring may furthermore carry a radical (branched or straight-chain C_1-C_6-alkyl, C_3-C_7-cycloalk-C_1-C_4-alkyl, CO-R^{41}, $COOR^{41}$ or phenyl), and R^{10} may be hydrogen, C_1-C_4-alkyl or phenyl and R^{41} may have the same meanings as R^{21},

A is a saturated or monounsaturated heterocyclic, 4- to 8-membered ring which contains one or two nitrogen atoms, it being possible for an oxygen or sulfur atom additionally to be incorporated, which ring is substituted by R^2 and R^3, where

R^2 is hydrogen, branched or straight-chain C_1-C_8-alkyl which may furthermore be substituted by R^{23}, and a carbon atom of the chain may carry an =O group, C_3-C_7-cycloalk-C_1-C_4-alkyl, -CO-$(NH)_{0,1}$-R^{21}, $COOR^{21}$ or phenyl, where R^{21} is hydrogen,

branched or straight-chain C_1-C_6-alkyl, C_3-C_7-cycloalk-C_1-C_4-alkyl, phen-C_1-C_4-alkyl, C_3-C_7-cycloalkyl or phenyl, and each radical may furthermore carry $(CH_2)_{0-2}$-R^{23}, and the respective phenyl ring in turn may furthermore be substituted by 1, 2 or 3 of the following radicals: chlorine, fluorine, bromine, iodine, branched and straight-chain C_1-C_4-alkyl, nitro, CF_3, cyano, $-(CH_2)_{0-2}$, $NR^{24}R^{25}$, NH-CO-R^{10}, OR^{10}, $COOR^{10}$, SO_2-C_1-C_4-alkyl, SO_2Ph, SO_2NH, $NHSO_2$-C1-C_4-alkyl, $NHSO_2Ph$ and CF_3, where R^{24} and R^{25}, independently of one another, are each hydrogen or C_1-C_4-alkyl, and $NR^{24}R^{25}$ together may be a cyclic amine having 4 to 8 ring atoms, where the ring may furthermore carry a radical of branched or straight-chain C_1-C_6-alkyl, C_3-C_7-cycloalk-C_1-C_4-alkyl, CO-R^{22}, $COOR^{22}$ (where R^{22} is hydrogen, branched or straight-chain C_1-C_6-alkyl, C_3-C_7-cycloalk-C_1-C_4-alkyl, phen-C_1-C_4-alkyl, C_3-C_7-cycloalk or phenyl) or phenyl, and R^{10} is hydrogen, C_1-C_4-alkyl or phenyl, and

R^{23} is $NR^{26}R^{27}$ where R^{26} and R^{27} are each hydrogen, C_1-C_6-alkyl, C_0-C_4-alkyl-phenyl, where the phenyl ring may furthermore be substituted by up to 3 radicals Cl, F, Br, I, C_1-C_4-alkyl, CF_3, CN, SO_2-C_1-C_4-alkyl, SO_2-phenyl, NO_2, NH_2, NHCO-C_1-C_4-alkyl, NHCO-phenyl, OH, O-C_1-C_4-alkyl, O-C_1-C_4-alkyl-phenyl, and $NR^{26}R^{27}$ may also be a cyclic amine having 3 to 8 members, where a further hetero atom such as O, N and S may also additionally be present, and the ring may furthermore be substituted by a radical R^{28} where R^{28} may be C_1-C_4-alkyl and C_1-C_4-alkyl-phenyl,

R^3 is hydrogen, branched or straight-chain C_1-C_8-alkyl, C_3-C_7-cycloalk-C_1-C_4-alkyl which is unsubstituted or substituted by C_1-C_6-alkyl, or C_3-C_7-cycloalkyl which is unsubstituted or substituted by C_1-C_6-alkyl, where one carbon atom of the radical may furthermore carry a phenyl ring which in turn may also be substituted by 1, 2 or 3 of the following radicals: chlorine, fluorine, bromine, iodine, branched and straight-chain C_1-C_4-alkyl, nitro, CF_3, cyano, $(CH_2)_{0-2}$, $NR^{32}R^{33}$, NH-CO-R^{10}, OR^{10}, $COOR^{10}$, SO_2-C_1-C_4-alkyl, SO_2Ph, CH_3, SO_2NH, $NHSO_2$-C_1-C_4-alkyl, $NHSO_2Ph$ and CF_3, where R^{32} and R^{33}, independently of one another, are each hydrogen or C_1-C_4-alkyl, and $NR^{32}R^{33}$ together may be a cyclic amine having 4 to 8 ring atoms, where the ring may furthermore carry a radical of branched or straight-chain C_1-C_6-alkyl, C_3-C_7-cycloalk-C_1-C_4-alkyl, CO-R^{31}, $COOR^{31}$ or phenyl, and R^{10}

is hydrogen, C_1-C_4-alkyl or phenyl, and R^{31} may have the same meaning as R^{21},

and their tautomeric forms, possible enantiomeric and diastereomeric forms, their prodrugs and possible physiologically tolerated salts.